Schedule-A

(See Clauses 2.1and 8.1)

Site of the Project

1 The Site

(i) Site of the [Two-Lane] Project Highway shall include the land, buildings, structures, and road works as described in Annex-I of this Schedule-A.

(ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.

(iii) An inventory of the Site including the land, buildings, structures, road works, trees, and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause8.2 (i) of this Agreement.

(iv) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based onsite/design requirement.

(v) The status of the environment clearances obtained or awaited is given in Annex-IV.

Annex –I

(Schedule-A)

Site

[Note: Through suitable drawings and description in words, the land, buildings, structures, and road works comprising the Site shall be specified briefly but precisely in this Annex-I. All the chainages /location referred to in Annex-I to Schedule-A shall be existing chainages.]

1. Site

The Site of the [Two-Lane] Project Highway comprises the section of NH-129A commencing from km 54+986to km 88+520 i.e. Lower Phaibung NgariVillage to Tungjoy Village in the state of Manipur.
The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (sum total of land already in possession and land to be possessed) as described below:

Sl. No.	Existing Chainage (km)		Design Chainage (km)		Length in m (Design)	Existing/Available ROW (m)
	From	To	From	To		
1	54+986	88+520	50+850	81+870	31.020	4m-15 m

3. Carriageway

The present carriageway of the Project Highway is Two Lane from km 54+986 to km 88+520. The type of the existing pavement is [flexible].

4. Major Bridges

The Site includes the following Major Bridges: -

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub- structure	Super-structure		
Nil						

5. Road over-bridges (ROB)/Road under-bridges (RUB)

The Site includes the following ROB (road over railway line)/RUB (road under railway line):

S. No.	Chainage (km)	Type of Structure		No. of Spans with span length(m)	Width (m)	ROB/ RUB
		Foundation	Superstructure			
Nil						

6. Grade separators
The Site includes the following grade separators:

S. No.	Chainage (km)	TypeofStructure		No.ofSpanswith spanlength(m)	Width (m)
		Foundation	Superstructure		
Nil					

7. Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub- structure	Super- structure		
1	54+750	Open	RCC	Steel	1 x 22m	3.5

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location(km)	Remarks
Nil		

9. Under passes (vehicular, non-vehicular)

The Site includes the following underpasses:

S. No.	Chainage (km)	Type of Structure	No. of Spans with span length (m)	Width (m)
Nil				

10. Culverts

The Site has the following culverts:

Sl No.	Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
1	55+056	Hume Pipe	1x 0.6m Dia	5.4
2	55+441	Hume Pipe	1x 1.0m Dia	7
3	55+462	Hume Pipe	1x 1.0m Dia	6.7
4	55+670	Hume Pipe	1x 1.0m Dia	7.2
5	56+224	Hume Pipe	1x 1.0m Dia	7.4
6	56+256	Hume Pipe	1x 1.0m Dia	7
7	56+485	Hume Pipe	1x 0.9m Dia	7
8	56+603	Hume Pipe	1x 0.9m Dia	6
9	56+872	Hume Pipe	1x 0.9m Dia	7.4
10	57+029	Hume Pipe	1x 0.6m Dia	7.2
11	57+216	Hume Pipe	1x 0.9m Dia	7
12	57+684	Hume Pipe	Existing Culvert Covered by Soil	6.2
13	57+872	Hume Pipe	1x 0.9m Dia	6
14	58+090	Hume Pipe	1x 0.9m Dia	7.3
15	58+192	Hume Pipe	1x 0.9m Dia	7
16	58+392	Hume Pipe	1x 0.9m Dia	6.5
17	58+655	Hume Pipe	1x 0.9m Dia	7.5
18	59+264	Hume Pipe	1x 0.9m Dia	6.5
19	59+338	Hume Pipe	1x 0.9m Dia	8.3
20	59+522	Hume Pipe	1x 0.9m Dia	6.7
21	60+015	Hume Pipe	1x 0.9m Dia	7.8

Sl No.	Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
22	60+344	Hume Pipe	1x 0.9m Dia	7
23	60+476	Hume Pipe	1x 0.9m Dia	7
24	60+573	Hume Pipe	1x 0.9m Dia	6.5
25	60+690	Hume Pipe	1x 0.9m Dia	7.5
26	60+933	Hume Pipe	1x 0.9m Dia	5
27	61+067	Hume Pipe	1x 0.9m Dia	7.2
28	61+208	Hume Pipe	1x 0.9m Dia	6.5
29	61+234	Hume Pipe	1x 0.9m Dia	6.6
30	61+404	Hume Pipe	1x 0.9m Dia	7
31	61+524	Hume Pipe	1x 0.7m Dia	7
32	61+889	Hume Pipe	1x 1.0m Dia	7.7
33	62+080	Hume Pipe	1x 0.7m Dia	6.7
34	62+205	Hume Pipe	1x 1.0m Dia	6.7
35	57+482	Hume Pipe	1x 1.0m Dia	7.8
36	62+413	Hume Pipe	1x 0.7m Dia	7.7
37	62+503	Hume Pipe	1x 0.7m Dia	6.8
38	62+656	Hume Pipe	1x 1.0m Dia	7.2
39	62+715	Hume Pipe	1x 1.0m Dia	7.4
40	62+886	Hume Pipe	1x 0.7m Dia	7.1
41	63+182	Hume Pipe	1x 1.2m Dia	7.2
42	63+950	Hume Pipe	1x 0.9m Dia	7.5
43	64+258	Hume Pipe	1x 0.9m Dia	7.7
44	64+624	Hume Pipe	1x 0.9m Dia	7
45	65+165	Hume Pipe	1x 0.9m Dia	6.2
46	65+473	Hume Pipe	1x 0.9m Dia	5.5
47	66+062	Hume Pipe	1x 0.6m Dia	7
48	66+500	Hume Pipe	1x 0.6m Dia	7.4
49	66+818	Hume Pipe	1x 0.6m Dia	4
50	67+100	Hume Pipe	1x 0.9m Dia	5
51	68+969	Hume Pipe	1x 0.9m Dia	7
52	70+648	Hume Pipe	1x 0.9m Dia	5
53	72+197	Hume Pipe	1x 0.6m Dia	4.8
54	73+093	Hume Pipe	1x 0.9m Dia	6.4
55	74+529	Hume Pipe	1x 0.9m Dia	6.7
56	74+796	Hume Pipe	1x 0.9m Dia	6
57	74+861	Hume Pipe	1x 0.9m Dia	6.7
58	75+052	Hume Pipe	1x 0.6m Dia	7.5
59	75+217	Hume Pipe	1x 0.9m Dia	6.3
60	75+270	Hume Pipe	1x 0.6m Dia	6.8
61	75+444	Hume Pipe	1x 0.6m Dia	7.4
62	75+587	Hume Pipe	1x 0.6m Dia	7.6
63	75+785	Hume Pipe	1x 0.9m Dia	7.3
64	75+994	Hume Pipe	1x 0.9m Dia	7.1
65	76+049	Hume Pipe	1x 0.6m Dia	7
66	76+349	Hume Pipe	1x 0.9m Dia	7.2
67	76+518	Hume Pipe	1x 0.9m Dia	7
68	76+537	Hume Pipe	1x 0.9m Dia	7
69	76+783	Hume Pipe	1x 0.9m Dia	7.8
70	76+916	Hume Pipe	1x 0.6m Dia	7.5
71	77+057	Hume Pipe	1x 0.9m Dia	4
72	77+707	Hume Pipe	1x 0.6m Dia	7.5

Sl No.	Chainage (km)	Type of Culvert	Span/Dia(m)	Width(m)
73	78+030	Hume Pipe	1x 0.6m Dia	4.5
74	78+400	Hume Pipe	1x 0.9m Dia	7.7
75	78+506	Hume Pipe	1x 0.9m Dia	8.7
76	78+570	Hume Pipe	1x 0.9m Dia	6.8
77	78+634	Hume Pipe	1x 0.9m Dia	5.4
78	78+815	Hume Pipe	1x 0.9m Dia	7.2
79	78+989	Hume Pipe	1x 0.9m Dia	7.2
80	79+140	Hume Pipe	1x 1.0 m Dia	8
81	79+211	Hume Pipe	1x 1.2 m Dia	5.8
82	79+285	Hume Pipe	1x 1.2 m Dia	7.6
83	82+083	Hume Pipe	1x 0.9m Dia	6.3
84	82+240	Hume Pipe	1x 0.9m Dia	7.7
85	82+578	Hume Pipe	1x 0.9m Dia	8.8
86	83+395	Hume Pipe	1x 0.75m Dia	7.5
87	83+535	Hume Pipe	1x 0.9m Dia	8
88	83+924	Hume Pipe	1x 0.9m Dia	7.3
89	84+855	Hume Pipe	1x 1.0m Dia	7.7
90	85+935	Hume Pipe	1x 1.0m Dia	6.2
91	87+405	Hume Pipe	1x 1.0m Dia	6.4
92	87+489	Hume Pipe	1x 1.0 m Dia	9.3
93	87+725	Slab Culvert	Existing Culvert Covered by Soil	6
94	87+791	Hume Pipe	Existing Culvert Covered by Soil	6.2
95	88+023	Hume Pipe	1x 1.0 m Dia	4.5
96	88+175	Hume Pipe	1x 1.0 m Dia	6.9

11. Bus bays

The details of bus bays on the Site are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right HandSide
Nil				

12. Truck Lay byes

The details of truck lay byes are as follows:

S. No.	Chainage (km)	Length (m)	Left Hand Side	Right HandSide
Nil				

13. Road side drains

The details of the roadside drains are as follows:

Sl. No.	Location		Side	Length (m)	Type	
	From(m)	To(m)	Left/Right/Both		Masonry/CC(Pucca)	Earthen(Kutcha)
1	66000	66650	Left	650		√

14. Major junctions

The details of major junctions are as follows:

Sl. No.	Location		Type of intersection	
	From Km	To Km	T-Junction	Cross Road
1	68+450		Y	3-legged

(NH: National Highway, SH: State Highway,MDR: Major District Road)

15. Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Location		Type of intersection	
	From Km	To Km	Type-Junction	Cross Road
1	59+080		T-Type	3-legged
2	59+100		T-Type	3-legged
3	65+140		Y-Type	3-legged
4	65+170		Y-Type	3-legged
5	68+010		T-Type	3-legged
6	79+650		T-Type	3-legged
7	80+010		T-Type	3-legged
8	82+100		T-Type	3-legged

6. Bypasses

The details of the existing road sections proposed to be bypassed are as follows:

Sl.No.	Name of bypass (town)	Chainage(km)From km to km	Length (inKm)
Nil			

17. Other structures

Existing utilities

(i) Electrical utilities

The site includes the following electrical utilities:-

a) Extra High-Tension Lines (EHT Lines)*

SL. NO	Chainage		Length (in Km)				Crossings			
	From	To	400KV	220KV	110KV	66KV	400KV	220KV	110KV	66KV
Nil										

b) High Tension/Low Tension Lines (HT/LT Lines)*

SL. NO	Chainage		HT/LT Lines (Nos.)			Crossings			Transformer		Conductor	
	From	To	33KV	11KV	LT	33KV	11KV	LT	No	Capacity	Type	Length
1	50.850	81.870	0	131	11				1	16 KVA	ACSR (Rabbit)	34.65 Km
									1	25 KVA		

(ii) Public Health utilities (Water/Sewage Pipe Lines)*

The site includes the following Public Health utilities:-

SL. NO	Chainage		Length (in Km)				Crossings				Water Tank	
	From	To	Water Supply Line		Sewage Line		Water Supply Line		Sewage Line		Capacity (in lts)	Nos.
			With	With	With	With	With	With	With	With		

			Pumping	Gravity Flow	Pumping	Gravity Flow	Pumping	Gravity Flow	Pumping	Gravity Flow		
1	50.850	81.870	7.08								6300	8

(iii) Any Other line

(* This illustrative and may change as per features of existing utilities.)

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

Sl. No	Design Chainage (km)		Length in km	Existing ROW	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To				
(i) Full Right of Way (full width)	50+850	81+870	31.020	4m-15m	19m -51m wide for construction work.	90 % at Appointed Date
ii) Balance Right of Way (full width)	50+850	81+870	31.020	4m-15m	19 m -51 m wide for construction work.	Within 90 days after the appointed date as per clause 8.2 of DCA

Annex-III

(Schedule-A)

Alignment Plans

The existing alignment of the Project Highway shall be modified in the following sections as per the alignment plan indicated below:

(i) The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based onsite/design requirement.

(ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Annex – IV

(Schedule-A)

Environmental Clearances

MOEF Clearance: The project highway does not required Environmental clearance as per MoEF corrigendum dated 22.08.2013

Forest Clearance: Online proposal uploaded of Form A, Part –I on 13.07.2016. Hard copy of Form A, Part –I submitted to Chief Conservator of Forest on 2.08.2016. & Tree counting survey under Ukhrul Forest Division & Senapati Forest Division is completed on 09.09.2016. and 29.08.2016 respectively. FRA Certificate received from Deputy Commissioner of Ukhrul & Senapati district on dated 01.10.2016 & 27.09.2016 respectively & the FRA Certificate submitted to both NHIDCL & Concerned DFO. Joint Site Visit with DFO & Conservator of Forest in Ukhrul & Senapati district completed on 10.12.2016 & 18.10.2016 respectively & Form A, Part-II of Forest Clearance is Uploaded by Concerned DFO of Ukhrul & Senapati District on 30.12.2016 and it is pending at Chief Conservator of Forests/Nodal officer (FCA), Govt. of Manipur.

Wildlife Clearance: The project highway does not required Wildlife Clearance as per letter no F. No.8-64/2013-FC dt.20.08.2014 of the Ministry of Environment, Forest and Climate Change (FC Division), Govt. of India.

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

2. [Rehabilitation and augmentation]

[Rehabilitation and augmentation] shall include [Two-Lanning and Strengthening] of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications and Standards

The Project Highway shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex – I

(Schedule-B)

Description of [Two-Lanning]

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and standards for [Two Lanning of Highways (IRC: SP: 73-2015)] referred to as the Manual. If any standards specifications or details are not given in the Manual the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars all other essential project specific details as required should be provided in order to define the Scope of the Project clearly and precisely.]

1. Widening of the Existing Highway

(i) The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for hilly terrain to the extent land is available.

(ii) Width of Carriageway

(a) Two-Lanning [with] hard shoulders shall be undertaken. The paved carriageway shall be [7(seven)m] wide.

Provided that in the built-up areas: the width of the carriageway shall be as specified in the following table:

Sl. No.	Built-up stretch (Township)	Location		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
1	Lower Phaibung to Tungjoy	50+850	81+870	7	As per attached TCS drawing	7 m Carriageway

(b) Except as otherwise provided in this Agreement the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1above.

2. Geometric Design and General Features

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual.

(ii) Design speed

For Mountainous terrain design speed shall be the minimum design speed of 40-60 km/hr and for sharp curve and hair pin bend locations speed reduces upto 30kmph & 20 kmph respectively.

(iii) Improvement of the existing road geometrics

The stretches where design speed reduces below 40 kmph are summarized below:

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
1	362	50+903 to 50+960	Sharp Bend	Design Speed = 20 Kmph
2	400	56+810 to 56+828	Sharp Bend	Design Speed = 30 Kmph
3	401	56+901 to 56+926	Sharp Bend	Design Speed = 30 Kmph
4	402	56+993 to 57+027	Sharp Bend	Design Speed = 20 Kmph
5	403	57+086 to 57+141	Sharp Bend	Design Speed = 30 Kmph
6	407	57+702 to 57+715	Sharp Bend	Design Speed = 30 Kmph
7	408	57+825 to 57+843	Sharp Bend	Design Speed = 20 Kmph
8	409	58+015 to 58+024	Sharp Bend	Design Speed = 30 Kmph
9	410	58+079 to 58+109	Sharp Bend	Design Speed = 20 Kmph
10	479	68+749 to 68+780	Sharp Bend	Design Speed = 20 Kmph
11	509	73+450 to 73+500	Sharp Bend	Design Speed = 30 Kmph
12	510	73+545 to 73+561	Sharp Bend	Design Speed = 30 Kmph
13	511	73+624 to 73+673	Sharp Bend	Design Speed = 20 Kmph
14	512	73+734 to 73+767	Sharp Bend	Design Speed = 20 Kmph
15	513	73+792 to 73+915	Sharp Bend	Design Speed = 30 Kmph
16	529	75+955 to 75+983	Sharp Bend	Design Speed = 20 Kmph

In the following sections where improvement of the existing road geometrics to the prescribed standards is not possible the existing road geometrics shall be improved to the extent possible within the existing right of way and proper road signs and safety Measures shall be provided

.

(iv) Right of Way

Sl. No	Design Chainage (km)		Length(km)	Width (m)
	From	To		
1	50+850	81+870	31.020	19m - 51 m wide for construction work.

(v) Type of shoulders

[Refer to provision of relevant Manual and specify]

(a) Inbuilt-up sections. footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from Km to Km)	Fully Paved shoulders/footpaths	Reference to cross section
Nil			

(b) Hard shoulders of 1.5 m width shall be provided with selected earth wherever applicable as per TCS drawing.

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in the relevant Manual.

(vi) Lateral and vertical clearances at underpasses

(a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per requirements specified in the relevant

Manual.

(b) Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl.No.	Location (Chainage) (fromkmtokm)	Span/opening(m)	Remarks
Nil			

(vii) Lateral and vertical clearances at overpasses

(a) Lateralandverticalclearancesatoverpassesshallbeasperrequirementsspecifiedinthe relevant Manual.

(b) Lateralclearance:Thewidthoftheopeningattheoverpasses shallbeas follows:

Sl. No.	Location (Chainage) (from km to km)	Span/Opening (m)	Remarks
Nil			

(viii) Service roads

Serviceroadsshallbeconstructedatthelocationsandforthelengthsindicatedbelow: [Refer requirementsspecifiedinthe relevant Manual]

Sl. No.	Location ofservice road(fromkmtokm)	Righthandside(RHS)/Lefthand side(LHS)/orBothsides	Length(km)of service road
Nil			

(ix) Grade separatedstructures

(a) Gradeseparatedstructuresshallbeprovidedasperprovisionofthe Manual. The requisite aregivenbelow:

[Refer to requirementsspecifiedinthe relevant Manual]

Sl. No.	Location of Structure (VUP)	Length (m)	Number andlengthofspans	Approach gradient	Remarks. if any
Nil					

(b) In thecase ofgradeseparated structuresthe type ofstructure andthe level of theProjectHighwayandthecrossroads shallbeasfollows:[Referto provisionofthe Manual andspecifythetypeofvehicularunderpass/ overpassstructureandwhetherthecrossroadistobecarriedattheexisting Level. raisedorlowered]

Sl. No.	Location	Type of structure Length(m)	Cross road at			Remarks.if any
			Existing Level	Raised Level	Lowered Level	
Nil						

(x) Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/overpass shall be constructed as follows: [Refer to provisionofthe relevant Manualand specify the requirements of cattle and pedestrian underpass/overpass]

Sl.No.	Location	Type of crossing
Nil		

(xi) Typical cross-sections of the Project Highway

[Give typical cross-sections of the Project Highway by reference to the Manual]As per attached Drawings

Sl No	TCS Type	Description
1	TCS-1:	2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath at built up area
2	TCS-1A:	2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath & Left side breast wall at built up area
3	TCS-1B:	2 -Lane carriageway with paved shoulder in cutting with both side cover drain cum footpath & right side breast wall at built up area
4	TCS-2:	2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath at built up area with both side retaining wall
5	TCS-2A:	2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side retaining wall at built up area
6	TCS-2B:	2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & right side retaining wall at built up area
7	TCS-2C:	2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side retaining wall & right side breast wall at built up area
8	TCS-2D:	2 -Lane carriageway with paved shoulder in filling with both side cover drain cum footpath & left side breast wall & right side retaining wall at built up area
9	TCS-3:	2 -Lane carriageway with paved shoulder with both side cover drain in built up area
10	TCS-4A:	2 -Lane carriageway with paved shoulder with stone masonry trapezoidal drain on right side
11	TCS-4B:	2 -Lane carriageway with paved shoulder with stone masonry trapezoidal drain on left side
12	TCS-4C:	2 -Lane carriageway with paved shoulder with stone masonry trapezoidal both side drain
13	TCS-5:	2 -Lane carriageway with paved shoulder with both side retaining wall
14	TCS-6:	2 -Lane carriageway with paved shoulder with both side breast wall
15	TCS-7A:	2 -Lane carriageway with paved shoulder with left side breast wall
16	TCS-7B:	2 -Lane carriageway with paved shoulder with Right side breast wall
17	TCS-8A:	2 -Lane carriageway with paved shoulder with Left side breast wall with right side Trapezoidal drain
18	TCS-8B:	2 -Lane carriageway with paved shoulder with Left side Trapezoidal drain & right side breast wall
19	TCS-9A:	2 -Lane carriageway with paved shoulder with Left side Retaining wall & right side trapezoidal drain
20	TCS-9B:	2 -Lane carriageway with paved shoulder with Left side trapezoidal drain & right side Retaining wall
21	TCS-9C:	2 -Lane carriageway with paved shoulder & right side Retaining wall
22	TCS-9D:	2 -Lane carriageway with paved shoulder & Left side Retaining wall
23	TCS-10A:	2 -Lane carriageway with paved shoulder With Left side Retaining wall & right side breast wall
24	TCS-10B:	2 -Lane carriageway with paved shoulder With Left side breast wall & right side Retaining wall
25	TCS-11:	2 -Lane carriageway with paved shoulder

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
50850	50915		65	TCS-9B
50915	50935	2.6	17.4	TCS-4B
50935	50955		20	TCS-9B
50955	51055		100	TCS-11
51055	51265		210	TCS-4B

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
51265	51325	2.6	57.4	TCS-9B
51325	51485		160	TCS-4B
51485	51505		20	TCS-11
51505	51585		80	TCS-4B
51585	51655	2.6	67.4	TCS-9B
51655	51685		30	TCS-4B
51685	52265		580	TCS-4C
52265	52405		140	TCS-8A
52405	54455	2.6	2047.4	TCS-4C
54455	54575	2.6	117.4	TCS-4B
54575	54655		80	TCS-11
54655	54705		50	TCS-9A
54705	54845	2.6	137.4	TCS-4A
54845	54855	2.6	7.4	TCS-9A
54855	54945		90	TCS-4A
54945	55185		240	TCS-9A
55185	55415		230	TCS-4A
55415	55565	2.6	147.4	TCS-4C
55565	55725		160	TCS-4A
55725	55885	2.6	157.4	TCS-4C
55885	55945		60	TCS-4A
55945	56055	2.6	107.4	TCS-4C
56055	56075		20	TCS-4A
56075	56175	2.6	97.4	TCS-9A
56175	56195		20	TCS-4A
56195	56255		60	TCS-4C
56255	56375		120	TCS-4A
56375	56425	2.6	47.4	TCS-4C
56425	56505		80	TCS-8B
56505	56585	5.2	74.8	TCS-4A
56585	56625		40	TCS-4C
56625	56895	5.2	264.8	TCS-4A
56895	56925		30	TCS-9A
56925	57175	5.2	244.8	TCS-4A
57175	57925	2.6	747.4	TCS-4C
57925	58035	2.6	107.4	TCS-4A
58035	58075		40	TCS-9A
58075	58125		50	TCS-4C
58125	58145		20	TCS-9A
58145	58175		30	TCS-4A
58175	58185		10	TCS-9A
58185	58725	2.6	537.4	TCS-4A
58725	58775		50	TCS-9A
58775	58845	2.6	67.4	TCS-4A
58845	58905		60	TCS-11
58905	59135	2.6	227.4	TCS-4A
59135	59215		80	TCS-4C
59215	59235		20	TCS-4A
59235	59255		20	TCS-9A
59255	59285		30	TCS-4A
59285	59335	2.6	47.4	TCS-9B
59335	59475		140	TCS-4B

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
59475	59625	2.6	147.4	TCS-9B
59625	59655		30	TCS-4B
59655	59675		20	TCS-9B
59675	59745		70	TCS-4C
59745	59775		30	TCS-11
59775	59835		60	TCS-9C
59835	59915	2.6	77.4	TCS-9D
59915	61455	7.8	1532.2	TCS-4C
61455	62115		660	TCS-8B
62115	63145		1030	TCS-4C
63145	63175		30	TCS-4A
63175	63185		10	TCS-9A
63185	63385		200	TCS-4C
63385	63465		80	TCS-4B
63465	63645		180	TCS-4C
63645	63745		100	TCS-4B
63745	63825		80	TCS-4C
63825	64085		260	TCS-4B
64085	64125		40	TCS-4C
64125	64245		120	TCS-8A
64245	64375		130	TCS-4C
64375	64715	2.6	337.4	TCS-4B
64715	64855		140	TCS-4C
64855	64955		100	TCS-4B
64955	65125	2.6	167.4	TCS-9B
65125	65145		20	TCS-4B
65145	65165		20	TCS-8A
65165	65205		40	TCS-7A
65205	65245		40	TCS-4C
65245	65345	2.6	97.4	TCS-4B
65345	65395		50	TCS-8A
65395	65415		20	TCS-4B
65415	65485		70	TCS-7A
65485	65495		10	TCS-10B
65495	65545		50	TCS-7A
65545	65585		40	TCS-4B
65585	65665		80	TCS-4C
65665	65705	2.6	37.4	TCS-9B
65705	65765		60	TCS-4B
65765	65795		30	TCS-9B
65795	65885	2.6	87.4	TCS-11
65885	65905		20	TCS-9B
65905	65925		20	TCS-7A
65925	66025		100	TCS-8A
66025	66055		30	TCS-7A
66055	66085		30	TCS-10B
66085	66175		90	TCS-8A
66175	66215	2.6	37.4	TCS-10B
66215	66255		40	TCS-7A
66255	66435	2.6	177.4	TCS-10B
66435	66555		120	TCS-9B
66555	66685		130	TCS-7A

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
66685	66705	2.6	17.4	TCS-4B
66705	67015		310	TCS-7A
67015	67175		160	TCS-4C
67175	67335		160	TCS-4B
67335	67365		30	TCS-9B
67365	67495		130	TCS-4B
67495	67535		40	TCS-9B
67535	67555	2.6	17.4	TCS-4B
67555	67695		140	TCS-4C
67695	67705		10	TCS-4B
67705	67725	2.6	17.4	TCS-9B
67725	67845		120	TCS-4C
67845	68025		180	TCS-4B
68025	68185	2.6	157.4	TCS-9B
68185	68365		180	TCS-4B
68365	68395	2.6	27.4	TCS-9B
68395	68585		190	TCS-7A
68585	68715		130	TCS-4B
68715	68760	2.6	42.4	TCS-9B
68760	68815		55	TCS-9B
68815	68845		30	TCS-4B
68845	68975		130	TCS-9B
68975	69005		30	TCS-4B
69005	69065		60	TCS-4C
69065	69155	2.6	87.4	TCS-7A
69155	69285	2.6	127.4	TCS-4B
69285	69425		140	TCS-9B
69425	69665	2.6	237.4	TCS-4B
69665	70365	10.4	689.6	TCS-4C
70365	70475	2.6	107.4	TCS-8A
70475	70785	5.2	304.8	TCS-4C
70785	70855	2.6	67.4	TCS-4B
70855	71175	2.6	317.4	TCS-4C
71175	71325	2.6	147.4	TCS-4B
71325	71345	2.6	17.4	TCS-9B
71345	71375		30	TCS-4B
71375	71435	2.6	57.4	TCS-9B
71435	71545		110	TCS-4B
71545	71585	2.6	37.4	TCS-9B
71585	71765		180	TCS-4B
71765	72055	2.6	287.4	TCS-4C
72055	72155		100	TCS-4B
72155	72195		40	TCS-9B
72195	72405		210	TCS-4B
72405	72705	2.6	297.4	TCS-4C
72705	72795	2.6	87.4	TCS-4B
72795	73215	7.8	412.2	TCS-4C
73215	73705	5.2	484.8	TCS-4B
73705	73995		290	TCS-4C
73995	74265		270	TCS-4A
74265	74285		20	TCS-4C
74285	74315		30	TCS-4B

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
74315	74365		50	TCS-9B
74365	74420		55	TCS-4C
74420	74445		25	TCS-4B
74445	74475		30	TCS-9B
74475	74555	2.6	77.4	TCS-4B
74555	74575		20	TCS-4C
74575	74845		270	TCS-7A
74845	75035	2.6	187.4	TCS-4B
75035	75185	2.6	147.4	TCS-7A
75185	75315		130	TCS-4B
75315	75375		60	TCS-4C
75375	75415		40	TCS-7A
75415	75520		105	TCS-4B
75520	75645	2.6	122.4	TCS-8A
75645	75775		130	TCS-7A
75775	75935		160	TCS-4B
75935	75975		40	TCS-9B
75975	75985		10	TCS-4B
75985	76055		70	TCS-9B
76055	76165	2.6	107.4	TCS-4B
76165	76245		80	TCS-4C
76245	76495	2.6	247.4	TCS-4B
76495	76595		100	TCS-4C
76595	76895	2.6	297.4	TCS-4B
76895	76925		30	TCS-9B
76925	76945		20	TCS-4B
76945	77015		70	TCS-4C
77015	77045		30	TCS-4B
77045	77065		20	TCS-9B
77065	77095		30	TCS-4B
77095	77315	2.6	217.4	TCS-4C
77315	77375		60	TCS-4B
77375	77385		10	TCS-9B
77385	77445		60	TCS-7A
77445	77475		30	TCS-8A
77475	77525		50	TCS-4C
77525	77595		70	TCS-4B
77595	77715	2.6	117.4	TCS-9B
77715	77945		230	TCS-7A
77945	78065		120	TCS-9B
78065	78105		40	TCS-4B
78105	78215	5.2	104.8	TCS-9B
78215	78245		30	TCS-4B
78245	78255		10	TCS-5
78255	78365		110	TCS-9B
78365	78435		70	TCS-7A
78435	78465	2.5	27.5	TCS-4B
78465	78555		90	TCS-8A
78555	78675		120	TCS-7A
78675	78795		120	TCS-4B
78795	78845		50	TCS-9B
78845	79015	2.6	167.4	TCS-7A

Chainage (Km)		Length of CD	Net Length (m)	TCS No.
From	To			
79015	79105		90	TCS-4B
79105	79265		160	TCS-7A
79265	79305		40	TCS-8A
79305	79345		40	TCS-7A
79345	79395		50	TCS-8A
79395	79505	2.6	107.4	TCS-4B
79505	79565		60	TCS-7A
79565	79585		20	TCS-4B
79585	79815		230	TCS-9B
79815	79855		40	TCS-4B
79855	79875		20	TCS-4C
79875	79905		30	TCS-8A
79905	80135	2.6	227.4	TCS-4B
80135	80225		90	TCS-7A
80225	80245		20	TCS-10B
80245	80355		110	TCS-7A
80355	80455		100	TCS-4B
80455	80785		330	TCS-4C
80785	80815		30	TCS-4B
80815	80915	5.2	94.8	TCS-9B
80915	80965		50	TCS-4B
80965	81025		60	TCS-4C
81025	81175	2.6	147.4	TCS-4B
81175	81295	2.6	117.4	TCS-9B
81295	81315		20	TCS-4B
81315	81335		20	TCS-4C
81335	81405	2.6	67.4	TCS-4B
81405	81505		100	TCS-4C
81505	81535		30	TCS-4B
81535	81645		110	TCS-4C
81645	81805		160	TCS-4B
81805	81870		65	TCS-4C
Total Length		**223.5**	**30796.5**	

3. Intersections and Grade Separators

All intersections and grade separators shall be as per Section 3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

[Refer to provision of the relevant Manual and specify the requirements. Explain where necessary with drawings/sketches/general arrangement]

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

(i) At-grade intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features	Remarks
1	62+870	Y-Type	3-legged	Towards Lower Phaibung

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1	54+610	T-Type	Towards Lower Phaibung
2	54+630	T-Type	Towards Upper Phaibung
3	60+080	Y-Type	Towards Pfutro
4	60+110	Y-Type	Towards PhaibungKhullen
5	62+850	T-Type	Towards PhaibungKhullen
6	79+650	T-Type	3-legged
7	80+010	T-Type	3-legged
8	82+100	T-Type	3-legged

(ii) Grade separated intersection with/without ramps

Sl. No.	Location	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures
Nil				

4. Road Embankment and Cut Section

(i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross-sectional details. Deficiencies in theplan and profile of the existing road shall be corrected.

(ii) Raising of the existing road [Refer to provision of the relevant Manual and specify sections to be raised]

The existing road shall be raised in the following sections:

Sl. No.	Section (from km to km)	Length (km)	Extent of raising [Top of finished road level]
Nil			

5. Pavement Design

(i) Pavement design shall be carried out in accordance with provision of the relevant manual.

(ii) Type of pavement

Flexible Pavement

(iii) Design requirements

[Refer to provision of the relevant Manual and specify design requirements and strategy]

(a) Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

(b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement Surface Course for 10 MSA and

Base -Subbase for 20 MSA as per relevant IRC Manual.

(iv) Reconstruction of stretches

[Refer to provision of the relevant Manual and specify the stretches if any to be reconstructed.]

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

SL NO.	Stretch from Km to Km	Remarks	TCS Type
1	50+850 to 50+915	Reconstruction	TCS-9B
2	50+915 to 50+935	Reconstruction	TCS-4B
3	50+935 to 50+955	Reconstruction	TCS-9B
4	50+955 to 51+055	Reconstruction	TCS-11
5	51+055 to 51+265	Reconstruction	TCS-4B
6	51+265 to 51+325	Reconstruction	TCS-9B
7	51+325 to 51+350	Reconstruction	TCS-4B
8	52+020 to 52+265	Reconstruction	TCS-4C
9	52+265 to 52+350	Reconstruction	TCS-8A
10	52+850 to 53+150	Reconstruction	TCS-4C
11	53+500 to 54+455	Reconstruction	TCS-4C
12	54+455 to 54+575	Reconstruction	TCS-4B
13	54+575 to 54+655	Reconstruction	TCS-11
14	54+655 to 54+705	Reconstruction	TCS-9A
15	54+705 to 54+845	Reconstruction	TCS-4A
16	54+845 to 54+855	Reconstruction	TCS-9A
17	54+855 to 54+945	Reconstruction	TCS-4A
18	54+945 to 55+185	Reconstruction	TCS-9A
19	55+185 to 55+250	Reconstruction	TCS-4A
20	56+100 to 56+175	Reconstruction	TCS-9A
21	56+175 to 56+195	Reconstruction	TCS-4A
22	56+195 to 56+255	Reconstruction	TCS-4C
23	56+255 to 56+300	Reconstruction	TCS-4A
24	56+800 to 56+895	Reconstruction	TCS-4A
25	56+895 to 56+925	Reconstruction	TCS-9A
26	56+925 to 57+170	Reconstruction	TCS-4A
27	57+600 to 57+925	Reconstruction	TCS-4C
28	57+925 to 58+035	Reconstruction	TCS-4A
29	58+035 to 58+075	Reconstruction	TCS-9A
30	58+075 to 58+125	Reconstruction	TCS-4C
31	58+125 to 58+145	Reconstruction	TCS-9A
32	58+145 to 58+175	Reconstruction	TCS-4A
33	58+175 to 58+185	Reconstruction	TCS-9A
34	58+185 to 58+725	Reconstruction	TCS-4A
35	58+725 to 58+775	Reconstruction	TCS-9A
36	58+775 to 58+845	Reconstruction	TCS-4A
37	58+845 to 58+905	Reconstruction	TCS-11
38	58+905 to 59+135	Reconstruction	TCS-4A
39	59+135 to 59+215	Reconstruction	TCS-4C
40	59+215 to 59+235	Reconstruction	TCS-4A
41	59+235 to 59+255	Reconstruction	TCS-9A
42	59+255 to 59+285	Reconstruction	TCS-4A

SL NO.	Stretch from Km to Km	Remarks	TCS Type
43	59+285 to 59+335	Reconstruction	TCS-9B
44	59+335 to 59+475	Reconstruction	TCS-4B
45	59+475 to 59+625	Reconstruction	TCS-9B
46	59+625 to 59+655	Reconstruction	TCS-4B
47	59+655 to 59+675	Reconstruction	TCS-9B
48	59+675 to 59+745	Reconstruction	TCS-4C
49	59+745 to 59+775	Reconstruction	TCS-11
50	59+775 to 59+835	Reconstruction	TCS-9C
51	59+835 to 59+915	Reconstruction	TCS-9D
52	59+915 to 59+950	Reconstruction	TCS-4C
53	60+100 to 61+455	Reconstruction	TCS-4C
54	61+455 to 62+115	Reconstruction	TCS-8B
55	62+115 to 63+145	Reconstruction	TCS-4C
56	63+145 to 63+175	Reconstruction	TCS-4A
57	63+175 to 63+185	Reconstruction	TCS-9A
58	63+185 to 63+385	Reconstruction	TCS-4C
59	63+385 to 63+465	Reconstruction	TCS-4B
60	63+465 to 63+645	Reconstruction	TCS-4C
61	63+645 to 63+745	Reconstruction	TCS-4B
62	63+745 to 63+825	Reconstruction	TCS-4C
63	63+825 to 64+080	Reconstruction	TCS-4B
64	64+300 to 64+375	Reconstruction	TCS-4C
65	64+375 to 64+715	Reconstruction	TCS-4B
66	64+715 to 64+855	Reconstruction	TCS-4C
67	64+855 to 64+955	Reconstruction	TCS-4B
68	64+955 to 65+125	Reconstruction	TCS-9B
69	65+125 to 65+145	Reconstruction	TCS-4B
70	65+145 to 65+150	Reconstruction	TCS-8A
71	66+200 to 66+215	Reconstruction	TCS-10B
72	66+215 to 66+255	Reconstruction	TCS-7A
73	66+255 to 66+435	Reconstruction	TCS-10B
74	66+435 to 66+555	Reconstruction	TCS-9B
75	66+555 to 66+685	Reconstruction	TCS-7A
76	66+685 to 66+705	Reconstruction	TCS-4B
77	66+705 to 67+015	Reconstruction	TCS-7A
78	67+015 to 67+175	Reconstruction	TCS-4C
79	67+175 to 67+335	Reconstruction	TCS-4B
80	67+335 to 67+365	Reconstruction	TCS-9B
81	67+365 to 67+495	Reconstruction	TCS-4B
82	67+495 to 67+535	Reconstruction	TCS-9B
83	67+535 to 67+550	Reconstruction	TCS-4B
84	67+900 to 68+025	Reconstruction	TCS-4B
85	68+025 to 68+185	Reconstruction	TCS-9B
86	68+185 to 68+365	Reconstruction	TCS-4B
87	68+365 to 68+395	Reconstruction	TCS-9B
88	68+395 to 68+585	Reconstruction	TCS-7A
89	68+585 to 68+715	Reconstruction	TCS-4B
90	68+715 to 68+760	Reconstruction	TCS-9B
91	68+760 to 68+815	Reconstruction	TCS-9B
92	68+815 to 68+845	Reconstruction	TCS-4B
93	68+845 to 68+975	Reconstruction	TCS-9B

SL NO.	Stretch from Km to Km	Remarks	TCS Type
94	68+975 to 69+005	Reconstruction	TCS-4B
95	69+005 to 69+065	Reconstruction	TCS-4C
96	69+065 to 69+155	Reconstruction	TCS-7A
97	69+155 to 69+285	Reconstruction	TCS-4B
98	69+285 to 69+425	Reconstruction	TCS-9B
99	69+425 to 69+650	Reconstruction	TCS-4B
100	69+800 to 70+365	Reconstruction	TCS-4C
101	70+365 to 70+475	Reconstruction	TCS-8A
102	70+475 to 70+720	Reconstruction	TCS-4C
103	70+950 to 71+175	Reconstruction	TCS-4C
104	71+175 to 71+325	Reconstruction	TCS-4B
105	71+325 to 71+345	Reconstruction	TCS-9B
106	71+345 to 71+375	Reconstruction	TCS-4B
107	71+375 to 71+435	Reconstruction	TCS-9B
108	71+435 to 71+545	Reconstruction	TCS-4B
109	71+545 to 71+585	Reconstruction	TCS-9B
110	71+585 to 71+765	Reconstruction	TCS-4B
111	71+765 to 72+055	Reconstruction	TCS-4C
112	72+055 to 72+155	Reconstruction	TCS-4B
113	72+155 to 72+195	Reconstruction	TCS-9B
114	72+195 to 72+405	Reconstruction	TCS-4B
115	72+405 to 72+705	Reconstruction	TCS-4C
116	72+705 to 72+795	Reconstruction	TCS-4B
117	72+795 to 72+800	Reconstruction	TCS-4C
118	73+150 to 73+215	Reconstruction	TCS-4C
119	73+215 to 73+705	Reconstruction	TCS-4B
120	73+705 to 73+995	Reconstruction	TCS-4C
121	73+995 to 74+265	Reconstruction	TCS-4A
122	74+265 to 74+285	Reconstruction	TCS-4C
123	74+285 to 74+315	Reconstruction	TCS-4B
124	74+315 to 74+365	Reconstruction	TCS-9B
125	74+365 to 74+420	Reconstruction	TCS-4C
126	74+420 to 74+445	Reconstruction	TCS-4B
127	74+445 to 74+475	Reconstruction	TCS-9B
128	74+475 to 74+555	Reconstruction	TCS-4B
129	74+555 to 74+575	Reconstruction	TCS-4C
130	74+575 to 74+845	Reconstruction	TCS-7A
131	74+845 to 75+035	Reconstruction	TCS-4B
132	75+035 to 75+185	Reconstruction	TCS-7A
133	75+185 to 75+315	Reconstruction	TCS-4B
134	75+315 to 75+375	Reconstruction	TCS-4C
135	75+375 to 75+415	Reconstruction	TCS-7A
136	75+415 to 75+500	Reconstruction	TCS-4B
137	75+650 to 75+775	Reconstruction	TCS-7A
138	75+775 to 75+935	Reconstruction	TCS-4B
139	75+935 to 75+975	Reconstruction	TCS-9B
140	75+975 to 75+985	Reconstruction	TCS-4B
141	75+985 to 76+055	Reconstruction	TCS-9B
142	76+055 to 76+165	Reconstruction	TCS-4B
143	76+165 to 76+245	Reconstruction	TCS-4C
144	76+245 to 76+495	Reconstruction	TCS-4B

SL NO.	Stretch from Km to Km	Remarks	TCS Type
145	76+495 to 76+595	Reconstruction	TCS-4C
146	76+595 to 76+895	Reconstruction	TCS-4B
147	76+895 to 76+900	Reconstruction	TCS-9B
148	77+600 to 77+715	Reconstruction	TCS-9B
149	77+715 to 77+850	Reconstruction	TCS-7A
150	78+120 to 78+215	Reconstruction	TCS-9B
151	78+215 to 78+245	Reconstruction	TCS-4B
152	78+245 to 78+255	Reconstruction	TCS-5
153	78+255 to 78+365	Reconstruction	TCS-9B
154	78+365 to 78+435	Reconstruction	TCS-7A
155	78+435 to 78+450	Reconstruction	TCS-4B
156	78+570 to 78+675	Reconstruction	TCS-7A
157	78+675 to 78+795	Reconstruction	TCS-4B
158	78+795 to 78+845	Reconstruction	TCS-9B
159	78+845 to 79+015	Reconstruction	TCS-7A
160	79+015 to 79+105	Reconstruction	TCS-4B
161	79+105 to 79+265	Reconstruction	TCS-7A
162	79+265 to 79+305	Reconstruction	TCS-8A
163	79+305 to 79+345	Reconstruction	TCS-7A
164	79+345 to 79+395	Reconstruction	TCS-8A
165	79+395 to 79+505	Reconstruction	TCS-4B
166	79+505 to 79+565	Reconstruction	TCS-7A
167	79+565 to 79+585	Reconstruction	TCS-4B
168	79+585 to 79+815	Reconstruction	TCS-9B
169	79+815 to 79+855	Reconstruction	TCS-4B
170	79+855 to 79+875	Reconstruction	TCS-4C
171	79+875 to 79+905	Reconstruction	TCS-8A
172	79+905 to 80+135	Reconstruction	TCS-4B
173	80+135 to 80+225	Reconstruction	TCS-7A
174	80+225 to 80+245	Reconstruction	TCS-10B
175	80+245 to 80+355	Reconstruction	TCS-7A
176	80+355 to 80+455	Reconstruction	TCS-4B
177	80+455 to 80+500	Reconstruction	TCS-4C
178	80+800 to 80+815	Reconstruction	TCS-4B
179	80+815 to 80+915	Reconstruction	TCS-9B
180	80+915 to 80+965	Reconstruction	TCS-4B
181	80+965 to 81+025	Reconstruction	TCS-4C
182	81+025 to 81+175	Reconstruction	TCS-4B
183	81+175 to 81+295	Reconstruction	TCS-9B
184	81+295 to 81+315	Reconstruction	TCS-4B
185	81+315 to 81+335	Reconstruction	TCS-4C
186	81+335 to 81+405	Reconstruction	TCS-4B
187	81+405 to 81+505	Reconstruction	TCS-4C
188	81+505 to 81+535	Reconstruction	TCS-4B
189	81+535 to 81+645	Reconstruction	TCS-4C
190	81+645 to 81+805	Reconstruction	TCS-4B
191	81+805 to 81+870	Reconstruction	TCS-4C

6. Road side Drainage

DrainagesystemincludingsurfaceandsubsurfacedrainsfortheProjectHighway has been

provided in the table given below:

RR Masonry Open Triangular Drain

Left Side		
Chainage (m)		Length (m)
From	To	
50850	50915	65
50915	50935	20
50935	50955	20
50955	51055	100
51055	51265	210
51265	51325	60
51325	51485	160
51485	51505	20
51505	51585	80
51585	51655	70
51655	51685	30
51685	52265	580
52405	54455	2050
54455	54575	120
55415	55565	150
55725	55885	160
55945	56055	110
56195	56255	60
56375	56425	50
56425	56505	80
56585	56625	40
57175	57925	750
58075	58125	50
59135	59215	80
59285	59335	50
59335	59475	140
59475	59625	150
59625	59655	30
59655	59675	20
59675	59745	70
59915	61455	1540
61455	62115	660
62115	63145	1030
63185	63385	200
63385	63465	80
63465	63645	180
63645	63745	100
63745	63825	80
63825	64085	260
64085	64125	40
64245	64375	130
64375	64715	340
64715	64855	140
64855	64955	100
64955	65125	170
65125	65145	20
65205	65245	40
65245	65345	100

Left Side		
Chainage (m)		Length (m)
From	To	
65395	65415	20
65545	65585	40
65585	65665	80
65665	65705	40
65705	65765	60
65765	65795	30
65885	65905	20
66435	66555	120
66685	66705	20
67015	67175	160
67175	67335	160
67335	67365	30
67365	67495	130
67495	67535	40
67535	67555	20
67555	67695	140
67695	67705	10
67705	67725	20
67725	67845	120
67845	68025	180
68025	68185	160
68185	68365	180
68365	68395	30
68585	68715	130
68715	68815	100
68815	68845	30
68845	68975	130
68975	69005	30
69005	69065	60
69155	69285	130
69285	69425	140
69425	69665	240
69665	70365	700
70475	70785	310
70785	70855	70
70855	71175	320
71175	71325	150
71325	71345	20
71345	71375	30
71375	71435	60
71435	71545	110
71545	71585	40
71585	71765	180
71765	72055	290
72055	72155	100
72155	72195	40
72195	72405	210
72405	72705	300
72705	72795	90
72795	73215	420
73215	73705	490

Left Side		
Chainage (m)		Length (m)
From	To	
73705	73995	290
74265	74285	20
74285	74315	30
74315	74365	50
74365	74420	55
74420	74445	25
74445	74475	30
74475	74555	80
74555	74575	20
74845	75035	190
75185	75315	130
75315	75375	60
75415	75520	105
75775	75935	160
75935	75975	40
75975	75985	10
75985	76055	70
76055	76165	110
76165	76245	80
76245	76495	250
76495	76595	100
76595	76895	300
76895	76925	30
76925	76945	20
76945	77015	70
77015	77045	30
77045	77065	20
77065	77095	30
77095	77315	220
77315	77375	60
77375	77385	10
77475	77525	50
77525	77595	70
77595	77715	120
77945	78065	120
78065	78105	40
78105	78215	110
78215	78245	30
78255	78365	110
78435	78465	30
78675	78795	120
78795	78845	50
79015	79105	90
79395	79505	110
79565	79585	20
79585	79815	230
79815	79855	40
79855	79875	20
79905	80135	230
80355	80455	100
80455	80785	330

Left Side		
Chainage (m)		Length (m)
From	To	
80785	80815	30
80815	80915	100
80915	80965	50
80965	81025	60
81025	81175	150
81175	81295	120
81295	81315	20
81315	81335	20
81335	81405	70
81405	81505	100
81505	81535	30
81535	81645	110
81645	81805	160
81805	81870	65
Total length =		**23315**

Right Side		
Chainage (m)		Length (m)
From	To	
51685	52265	580
52265	52405	140
52405	54455	2050
54655	54705	50
54705	54845	140
54845	54855	10
54855	54945	90
54945	55185	240
55185	55415	230
55415	55565	150
55565	55725	160
55725	55885	160
55885	55945	60
55945	56055	110
56055	56075	20
56075	56175	100
56175	56195	20
56195	56255	60
56255	56375	120
56375	56425	50
56505	56585	80
56585	56625	40
56625	56895	270
56895	56925	30
56925	57175	250
57175	57925	750
57925	58035	110
58035	58075	40
58075	58125	50
58125	58145	20
58145	58175	30
58175	58185	10

Right Side		
Chainage (m)		Length (m)
From	To	
58185	58725	540
58725	58775	50
58775	58845	70
58905	59135	230
59135	59215	80
59215	59235	20
59235	59255	20
59255	59285	30
59675	59745	70
59915	61455	1540
62115	63145	1030
63145	63175	30
63175	63185	10
63185	63385	200
63465	63645	180
63745	63825	80
64085	64125	40
64125	64245	120
64245	64375	130
64715	64855	140
65145	65165	20
65205	65245	40
65345	65395	50
65585	65665	80
65925	66025	100
66085	66175	90
67015	67175	160
67555	67695	140
67725	67845	120
69005	69065	60
69665	70365	700
70365	70475	110
70475	70785	310
70855	71175	320
71765	72055	290
72405	72705	300
72795	73215	420
73705	73995	290
73995	74265	270
74265	74285	20
74365	74420	55
74555	74575	20
75315	75375	60
75520	75645	125
76165	76245	80
76495	76595	100
76945	77015	70
77095	77300	205
77445	77475	30
77475	77525	50
78465	78555	90

Right Side		
Chainage (m)		Length (m)
From	To	
79265	79305	40
79345	79395	50
79855	79875	20
79875	79905	30
80455	80785	330
80965	81025	60
81315	81335	20
81405	81505	100
81535	81645	110
81805	81870	65
Total length =		**16430**

Outlet Drain:

Sl No.	Left Side	Right Side
	Chainage (km)	Chainage (km)
1	55.415	51.685
2	55.725	54.655
3	55.945	58.750
4	56.195	59.285
5	56.375	59.745
6	56.585	63.385
7	57.782	63.645
8	58.075	63.825
9	59.215	64.375
10	59.745	64.855
11	63.145	65.165
12	64	65.245
13	74.265	65.395
14		66.025
15		66.085
16		67.015
17		67.695
18		67.845
19		69.005
20		69.665
21		70.855
22		71.765
23		72.405
24		72.795
25		73.705
26		74.365
27		74.555
28		75.315
29		75.520
30		76.165
31		76.495
32		76.945
33		77.095
34		77.525

Sl No.	Left Side	Right Side
	Chainage (km)	Chainage (km)
35		79.265
36		79.345
37		79.855
38		80.455
39		80.965
40		81.315
41		81.405
42		81.535
43		81.805

Number of Left side Outlet **13**
Number of Left side Outlet **43**
Total Number of Outlet **56**
Average Length of Outet **15 m**
Total Length of Drain for Outlet = **840 m**
Length of Side Drain **39745 m**
Length of Outlet= **840 m**
Total Length of Drain= **40585 m**

Catch water Drain:

Left Side				
Km		Length (m)	Nos of Catch pit required	Length of Catchwater Drain (m)
From	To			
54.000	53.000	1000	2	2000
54.490	54.000	490	2	980
63.110	62.000	1110	1	1110
63.110	63.145	35	1	35
65.255	65.669	414	1	414
66.385	66.193	192	1	192
67.540	67.719	179	1	179
67.719	67.910	191	1	191
67.910	68.080	170	1	170
68.133	68.377	244	1	244
68.377	68.765	388	1	388
Total length =				**5903**

Right Side				
Km		Length (m)	Nos of Catch pit required	Length of Catch water Drain (m)
From	To			
53.000	52.000	1000	1	1000
54.000	53.000	1000	1	1000
63.110	62.000	1110	2	2220
65.345	65.395	50	1	50
66.175	66.085	90	1	90
67.555	67.695	140	1	140
Total length =				**4500**

7. Design of Structures

(i)General

(a) All bridges culverts and structures shall be designed and constructed in accordance with provision of the relevant Manual and shall conform to the cross- sectional features and other details specified there in.

(b)Width of the carriage way of new bridges and structures shall be as follows:

[Refer to provision of the relevant Manual and specify the width of carriageway of new bridges and structures of more than 60(sixty) metre length. If the carriageway width is different from 7.5 (seven point five) metres in the table below.]

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
Nil		

(c) The following structures shall be provided with footpaths:

[Refer to provision of the relevant Manual and provide details of new Structures with footpath]

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
Nil		

(d) All bridges shall be high-level bridges.

[Refer to provision of the relevant Manual and state if there is any exception] (e)

Thefollowingstructuresshallbedesigned tocarryutility servicesspecifiedin Table below:

[Refer to provisionofthe relevant Manualand provide details]

Sl.No.	Bridgeat km	Utilityservice to be carried	Remarks
Nil			

(f) Cross-sectionofthenewculvertsandbridgesatdecklevelfortheproject Highwayshall conformtothetypicalcross-sectionsgiveninprovisionofthe relevant Manual.

(ii) Culverts

(a) Overall width of all culverts shall be equal to the roadway width of the approaches.
(b) Reconstruction of existing culverts:

Theexistingculvertsatthefollowinglocationsshallbere-constructedasnew culverts:

[Refer to provision of the relevant Manualand provide details]

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
1	50+920	2X2X1 Cell	Single Span
2	51+285	2X2X1 Cell	Single Span
3	51+312	2X2X1 Cell	Single Span
4	54+790	2X2X1 Cell	Single Span
5	54+850	2X2X1 Cell	Single Span
6	55+480	2X2X1 Cell	Single Span
7	55+770	2X2X1 Cell	Single Span

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
8	55+982	2X2X1 Cell	Single Span
9	56+085	2X2X1 Cell	Single Span
10	56+405	2X2X1 Cell	Single Span
11	56+530	2X2X1 Cell	Single Span
12	56+555	2X2X1 Cell	Single Span
13	56+715	2X2X1 Cell	Single Span
14	56+817	2X2X1 Cell	Single Span
15	57+165	2X2X1 Cell	Single Span
16	57+782	2X2X1 Cell	Single Span
17	58+012	2X2X1 Cell	Single Span
18	58+242	2X2X1 Cell	Single Span
19	59+010	2X2X1 Cell	Single Span
20	59+295	2X2X1 Cell	Single Span
21	59+625	2X2X1 Cell	Single Span
22	60+411	2X2X1 Cell	Single Span
23	60+995	2X2X1 Cell	Single Span
24	61+420	2X2X1 Cell	Single Span
25	65+255	2X2X1 Cell	Single Span
26	66+692	2X2X1 Cell	Single Span
27	67+540	2X2X1 Cell	Single Span
28	69+120	2X2X1 Cell	Single Span
29	69+183	2X2X1 Cell	Single Span
30	69+526	2X2X1 Cell	Single Span
31	69+785	2X2X1 Cell	Single Span
32	69+959	2X2X1 Cell	Single Span
33	70+180	2X2X1 Cell	Single Span
34	70+235	2X2X1 Cell	Single Span
35	70+530	2X2X1 Cell	Single Span
36	70+725	2X2X1 Cell	Single Span
37	71+075	2X2X1 Cell	Single Span
38	71+195	2X2X1 Cell	Single Span
39	71+830	2X2X1 Cell	Single Span
40	72+666	2X2X1 Cell	Single Span
41	72+735	2X2X1 Cell	Single Span
42	73+017	2X2X1 Cell	Single Span
43	73+172	2X2X1 Cell	Single Span
44	73+241	2X2X1 Cell	Single Span
45	73+315	2X2X1 Cell	Single Span
46	76+088	2X2X1 Cell	Single Span
47	76+405	2X2X1 Cell	Single Span
48	77+290	2X2X1 Cell	Single Span
49	77+607	2X2X1 Cell	Single Span
50	78+460	2X2X1 Cell with Earth Cushion	Single Span
51	79+462	2X2X1 Cell	Single Span
52	80+822	2X2X1 Cell	Single Span
53	80+910	2X2X1 Cell	Single Span
54	81+130	2X2X1 Cell	Single Span
55	81+195	2X2X1 Cell	Single Span
56	81+382	2X2X1 Cell	Single Span

*[Specify modifications, if any, required in the road level, etc.]

(c)Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the Roadway width of the Project Highway as per the typical cross section given in provision of the relevant Manual. Repairs and strengthening of existing structures where required shall be carried.

Sl. No.	Culvert location	Type, span, height and width of existing culvert(m)	Repairs to be carried out [specify]
Nil			

(d) Additional new culverts shall be constructed as per particulars given in the table below:

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
1	51+631	2X3X1 Cell	Single Span
2	54+220	2X2X1 Cell	Single Span
3	54+490	2X2X1 Cell	Single Span
4	56+986	2X2X1 Cell	Single Span
5	58+310	2X2X1 Cell	Single Span
6	58+440	2X2X1 Cell	Single Span
7	58+510	2X2X1 Cell	Single Span
8	58+820	2X2X1 Cell	Single Span
9	59+850	2X2X1 Cell	Single Span
10	59+915	2X2X1 Cell	Single Span
11	64+675	2X2X1 Cell	Single Span
12	65+059	2X2X1 Cell	Single Span
13	65+669	2X2X1 Cell	Single Span
14	65+795	2X2X1 Cell	Single Span
15	65+870	2X2X1 Cell	Single Span
16	66+193	2X2X1 Cell	Single Span
17	66+385	2X2X1 Cell	Single Span
18	67+719	2X2X1 Cell	Single Span
19	67+910	2X2X1 Cell	Single Span
20	68+080	2X2X1 Cell	Single Span
21	68+133	2X2X1 Cell	Single Span
22	68+377	2X2X1 Cell	Single Span
23	68+765	2X2X1 Cell	Single Span
24	70+441	2X2X1 Cell	Single Span
25	70+819	2X2X1 Cell	Single Span
26	71+336	2X2X1 Cell	Single Span
27	71+393	2X2X1 Cell	Single Span
28	71+568	2X2X1 Cell	Single Span
29	72+875	2X2X1 Cell	Single Span
30	74+020	2X2X1 Cell	Single Span
31	74+500	2X2X1 Cell	Single Span
32	74+890	2X2X1 Cell	Single Span
33	75+140	2X2X1 Cell	Single Span
34	75+504	2X2X1 Cell	Single Span
35	76+599	2X2X1 Cell	Single Span
36	77+770	2X2X1 Cell	Single Span
37	78+129	2X2X1 Cell	Single Span
38	78+208	2X2X1 Cell	Single Span
39	78+255	2X2X1 Cell	Single Span
40	78+930	2X2X1 Cell	Single Span

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
41	79+945	2X2X1 Cell	Single Span

(e) Repairs/replacementsofrailing/parapets,flooringandprotectionworksof the existingculvertsshall be undertaken as follows:

[Refer provisionofthe relevant Manualand provide details]

Sl.No.	Location atkm	Typeofrepair required
Nil		

(f) FloorprotectionworksshallbeasspecifiedintherelevantIRCCodesandSpecifications.

(iii) Bridges

(a) Existing bridges to be re-constructed/widened

[(i) The existing bridges at the following locations shall be re-constructed as new Structures]

[Refer provision of the relevant Manualand provide details]

Sl. No.	Bridge location	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
	(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
Nil					

(ii) The following narrow bridges shall be widened:

Sl. No.	Location (km)	Existing width(m)	Extent of widening(m)	Cross-sectionatdeck levelforwidening@
Nil				

(b) Additional new bridges

[Specify additional new bridges if required. And attach GAD]

New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder.

Sl. No.	Location (km)	Total Length (m)	Remarks.If any
Nil			

(c)The railingsof existingbridgesshall bereplacedby crash barriersat the followinglocations:

[Refer provisionofthe relevant Manualand provide details:]

Sl.No.	Location atkm	Remarks
Nil		

(d) Repairs/replacements ofrailing/parapets oftheexistingbridgesshallbe undertaken as follows:

[Refer to provisionofthe relevant Manualand providedetails]

Sl.No.	Location atkm	Remarks
Nil		

(e) Drainagesystem forbridge decks

Aneffectivedrainagesystemforbridgedecks shall beprovidedas specified in provisionofthe relevant Manual

(f) Structures in marine environment

[Refertoprovisionofthe relevant Manual andspecify thenecessarymeasures/ treatments for protecting structuresin marineenvironment.Where applicable]

(v) Rail-roadbridges

(a) DesignconstructionanddetailingofROB/RUBshallbeasspecifiedinprovisionofthe relevant Manual [Refer toprovisionofthe relevant Manual andspecify modification, if any]

(b) Road over-bridges

Roadover-bridges(roadoverrail)shall beprovidedatthefollowinglevel crossings.As per GAD drawings attached:

Sl. No.	Location ofLevelcrossing(Chainagekm)	Lengthofbridge (m)
Nil		

(c)Road under-bridges

Road under-bridges (road under railway line) shall be provided at the followinglevel crossings as per GAD drawings attached:

Sl. No.	Location ofLevelcrossing (Chainage km)	Number andlengthof span(m)
Nil		

(v) Grade separatedstructures

[Refer provisionofthe relevant Manual]

Thegradeseparatedstructuresshallbeprovidedatthelocationsandofthetypeand length specified in paragraphs 2(ix) and3 of this Annex-I.

(vi) Repairs andstrengthening of bridges andstructures

[Refer to provisionofthe relevant Manual and provide details]

Theexistingbridgesandstructurestoberepaired/strengthenedandthenatureand extent of repairs /strengtheningrequired are given below:

(a) Bridges

Sl. No.	Location of bridge (km)	Nature and extent of repairs /strengthening to be carried out
Nil		

(b)ROB / RUB

Sl. No.	Location of	Natureandextent ofrepairs/strengtheningtobe

	ROB/RUB (km)	carriedout
Nil		

(c) Overpasses/Underpasses and otherstructures

Sl. No.	Location of Structure(km)	Natureandextent ofrepairs/strengtheningtobe carriedout
Nil		

(vii) List of Major Bridges andStructures

The following is the list ofthe Major Bridges and Structures:

Sl. No.	Location (Km)
Nil	

8. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with provisions of relevant Manual.

Traffic Signages, Road Marking and other appurtenances	Quantity	unit
Kilometer stones=	26	Nos
5th Kilometer stones=	6	Nos
Boundary Stones=	313	Nos
Delineators (100 cm long and circular shaped)+Hazard marker =	2695	Nos
900 mm Octagonal	1	Nos
600 mm circular	1283	Nos
900 mm Triangular	414	Nos
800 mm x 600 mm rectangular	7	Nos
Direction Sign < 0.9 sqm	3	sqm
Convex Mirror for Blind Curve	10	Nos
Rumble Strip=	98.0	sqm

(ii) Specifications of the reflective sheeting. [Refer to provision of relevant Manual and specify]

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with article 8(i) of this schedule.

(ii) Overhead traffic signs: location and size

Sl. No.	Location (Km)	Size
1	50+850	12m x 2.1m

10. Compulsory Afforestation

[Refer to provision of relevant Manual and specify the number of trees which are required to be planted by the concerned department as compensatory afforestation.]

11. Hazardous Locations

The safety barriers shall also be provided at the following hazardous locations:

a) Breast Wall

Chainage (m)		side	Length (m)
From	To		

Chainage (m)		side	Length (m)
From	To		
52265	52405	Left	140
56425	56505	Right	80
61455	62115	Right	660
64125	64245	Left	120
65145	65165	Left	20
65165	65205	Left	40
65345	65395	Left	50
65415	65485	Left	70
65485	65495	Left	10
65495	65545	Left	50
65905	65925	Left	20
65925	66025	Left	100
66025	66055	Left	30
66055	66085	Left	30
66085	66175	Left	90
66175	66215	Left	40
66215	66255	Left	40
66255	66435	Left	180
66555	66685	Left	130
66705	67015	Left	310
68395	68585	Left	190
69065	69155	Left	90
70365	70475	Left	110
74575	74845	Left	270
75035	75185	Left	150
75375	75415	Left	40
75520	75645	Left	125
75645	75775	Left	130
77385	77445	Left	60
77445	77475	Left	30
77715	77945	Left	230
78365	78435	Left	70
78465	78555	Left	90
78555	78675	Left	120
78845	79015	Left	170
79105	79265	Left	160
79265	79305	Left	40
79305	79345	Left	40
79345	79395	Left	50
79505	79565	Left	60
79875	79905	Left	30
80135	80225	Left	90
Total=			**4685**

Retaining Wall:

Chainage (m)		side	Avg. Hight	Length (m)
From	To			
50850	50915	Right	4.0	65
50935	50955	Right	2.0	20
51265	51325	Right	4.0	60
51585	51655	Right	2.0	70
54655	54705	Left	2.0	50

Chainage (m)		side	Avg. Hight	Length (m)
From	To			
54845	54855	Left	4.0	10
54945	55185	Left	2.0	240
56075	56175	Left	4.0	100
56895	56925	Left	4.0	30
58035	58075	Left	3.0	40
58125	58145	Left	2.0	20
58175	58185	Left	2.0	10
58725	58775	Left	2.0	50
59235	59255	Left	4.0	20
59285	59335	Right	2.0	50
59475	59625	Right	2.0	150
59655	59675	Right	4.0	20
59775	59835	Right	4.0	60
63175	63185	Left	3.0	10
64955	65125	Right	4.0	170
65485	65495	Right	3.0	10
65665	65705	Right	2.0	40
65885	65905	Right	4.0	20
66055	66085	Right	3.0	30
66175	66215	Right	2.0	40
66255	66435	Right	4.0	180
66435	66555	Right	2.0	120
67335	67365	Right	2.0	30
67705	67725	Right	4.0	20
68025	68185	Right	2.0	160
68365	68395	Right	2.0	30
59835	59915	Left	6.0	80
65765	65795	Right	6.0	30
67495	67535	Right	6.0	40
69285	69425	Right	2.0	140
71325	71345	Right	2.0	20
71375	71435	Right	2.0	60
71545	71585	Right	4.0	40
72155	72195	Right	2.0	40
74315	74365	Right	2.0	50
74445	74475	Right	2.0	30
75935	75975	Right	2.0	40
75985	76055	Right	2.0	70
76895	76925	Right	4.0	30
77045	77065	Right	2.0	20
77375	77385	Right	2.0	10
77595	77715	Right	2.0	120
77945	78065	Right	2.0	120
78105	78215	Right	2.0	110
78245	78255	Both	4.0	20
78255	78365	Right	2.0	110
78795	78845	Right	2.0	50
79585	79815	Right	2.0	230
80225	80245	Right	2.0	20
80815	80915	Right	2.0	100
81175	81295	Right	2.0	120
68715	68815	Right	6.0	100

Chainage (m)		side	Avg. Hight	Length (m)
From	To			
68845	68975	Right	6.0	130
Total=				**3855**

Metal Beam Crash Barrier:

Chainage (m)		Side	Length(m)
From	To		
63900	64000	Right	100
64850	64994	Right	144
66400	66435	Right	35

Hydroseeding

Total Area of Hydro Seeding= 269535 sqm

67370	67490	Right	120
68200	68300	Right	100
74850	74950	Right	100
75118	75400	Right	282
Total=			**881**

Parapet Wall

CHAINAGE (M)		Side	Length (m)	Net Length (m)
From	To			
51210	51260	Right	50	42.5
54460	54490	Right	30	25
55380	55400	Left	20	17.5
55910	55920	Left	10	10
56690	56730	Left	40	35
56830	57000	Left	170	135
58210	58670	Left	460	362.5
58780	58830	Left	50	42.5
59350	59430	Right	80	65
59460	59470	Right	10	10
59630	59650	Right	20	17.5
65125	65145	Right	20	17.5
65165	65185	Right	20	17.5
65265	65345	Right	80	65
66215	66265	Right	50	42.5
66785	67055	Right	270	212.5
67195	67335	Right	140	112.5
67865	68025	Right	160	127.5
68475	68565	Right	90	72.5
68595	68655	Right	60	50
69075	69175	Right	100	80
70435	71325	Right	890	697.5
72250	72275	Right	25	22.5
73295	73525	Right	230	182.5
74965	75095	Right	130	105
75825	75900	Right	75	60
77035	77045	Right	10	10
77345	77375	Right	30	25
77385	77445	Right	60	50

77715	77865	Right	150	120
78875	79035	Right	160	127.5
79115	79245	Right	130	105
80115	80165	Right	50	42.5
80420	80450	Right	30	25
80850	80880	Right	30	25
81500	81525	Right	25	22.5
Total=				**3180**

12. Special Requirement for Hill Roads

[Refer to the provision of relevant Manual and provide details where relevant and required.]

13. Change of Scope

The length of Structures and bridges specified herein above shall be treated as an approximate assessment. The actual lengths as required based on detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule- B shall not constitute a Change of Scope save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

(Schedule-B1)

1. The shifting of utilities and felling of trees shall be carried out by the concerned department. The cost of the same shall be borne by the concerned department.

Sheet-II (Annexure-I to Schedule-B1)

Utility Shifting.

Shifting of obstructing existing utilities indicated in Schedule A to an appropriate location in accordance with the standards and specification of concerned Utility Owning Department is part of the scope of work of the Contractor/Concessionaire*. The bidders may visit the site and assess the quantum of shifting of utilities for the projects before submission of their bid. Copy of utility relocation plan is enclosed. The specification of concerned Utility Owning Department shall be applicable and followed.

Notes:

a) The type/spacing/size/specifications of poles/towers/lines/cables to be used in shifting work shall be as per the guidelines of utility owning department and it is to be agreed solely between the contractor/Concessionaire* and the utility owning department. No change of scope shall be admissible and no cost shall be paid for using different type/spacing/size/specifications in shifted work in comparison to those in the existing work or for making any overhead crossing to underground as per requirement of utility owning department and/or construction of project highway. The contractor/concessionaire* shall carry out joint inspection with utility owning department and get the estimates from the utility owning department. The assistance of the Authority is limited to giving forwarding letter on the proposal of contractor/concessionaire* to utility owning department whenever asked by the contractor/concessionaire*. The decision/ approval of utility owning department shall be on the contractor/concessionaire*.

b) The supervision charges at the rates/charges applicable of the utility owning department shall be paid directly by the Authority to the utility Owning department as and when contractor/concessionaire*furnishes demand of utility Owning Department along with a copy of estimated cost given by later.

c) The dismantled material/scrap of existing Utility to be shifted/Dismantled shall belong to the contractor/concessionaire* who would be free to dispose-off the dismantled material as deemed fit by them unless the contractor/concessionaire* is required to deposit the dismantled material may be availed by the contractor/concessionaire* as per estimate agreed between them.

d) The utilities shall be handed over after shifting work is completed to utility Owning Department to their entire satisfaction. The maintenance liability shall rest with the Utility Owning Department after Handing over Process is complete as far as utility shifting works are concerned.

Note –II Copy of utility shifting plans enclosed as Annexure-II to Schedule B1.

Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

(a) Toll plaza[s]

(b) Roadside furniture;

(c) Pedestrian facilities;

(d) Truck Lay byes;

(e) Bus-bays and passenger shelters;

(f) Rest areas; and

(g) Others to be specified

2. Description of Project Facilities

Each of theProject Facilities is described below:

a) TollPlaza: -

Sl. No.	Design Chainage(km)	Name of the Place
Nil		

b) Roadsidefurniture: -

Sl. No.	Description	Location	Design Standard
1	Traffic sign & pavement marking	Entire Length (As per Schedule B)	As per Manual
2	Km Stone, 5th kilometre stone	Entire Length	As per Manual
3	Boundary Stone	Entire Length	As per Manual
4	Roadside Delineator, marker & Road Stud	As per Schedule B	As per Manual
5	Metal beam crash barrier	As per Schedule B	As per Manual

C) Pedestrian Facility:-

Pedestrian facilities in the form of foot path shall be provided in the built up area (refer typical cross – section drawing). Pedestrian facilities shall be provided at the locations of urban sections in order to ensure safety of pedestrians while crossing in consultation with NHIDCL.

d) Truck Lay bye:-

Sl. No.	Truck lay bye Chainage(Both Side)	Name of the Place
Nil		

e) Bus Bay &Passenger shelter: -

Sl. No.	Project Facility	Location (km)	Design Requirements	Other Essential Details
Nil				

f) Rest Areas

Sl. No.	Rest Area Chainage	Name of the Place
Nil		

g) Others to be specified

Street Lighting:

Street lighting shall be provided in the built up area and bus bay locations.

Environment

The Project Highway during design, construction and maintenance during implementation period shall conform to the environmental rules and regulations in force. The Construction Contractor shall be responsible for the same.

Note: Provide adequate details of each Project Facility to ensure their design and completion in accordance with the project-specific requirements and the provisions of the Manual.

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex- I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

[Manual of Specifications and Standards for Two Lanning of Highways (IRC: SP: 73-2015), referred to herein as the Manual]

[Note: Specify the relevant Manual, Specifications and Standards]

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to theManual of Specifications and Standards for [Two-Lanning of Highways (IRC: SP:73-2015)], referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

(i) The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.

(ii) [Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:]

<table>
<tr><th>Item</th><th>Manual Clause Reference</th><th colspan="5">Provision as per Manual</th><th colspan="5">Modified Provision</th></tr>
<tr><td rowspan="4">Shoulder</td><td rowspan="4">2.6</td><td colspan="5"><u>Mountainous Terrain</u></td><td colspan="5"><u>Mountainous Terrain</u></td></tr>
<tr><td rowspan="2">Type of Section</td><td rowspan="2"></td><td colspan="3">Width of Shoulder (m)</td><td rowspan="2">Type of Section</td><td rowspan="2"></td><td colspan="3">Width of Shoulder (m)</td></tr>
<tr><td>Paved</td><td>Earthen</td><td>Total</td><td>Paved</td><td>Earthen</td><td>Total</td></tr>
<tr><td>Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>1.5</td><td>-</td><td>1.5</td><td>Open Country with Isolated Built-up Area</td><td>Hill Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Valley Side</td><td>1.5</td><td>1</td><td>2.5</td><td>Valley Side</td><td>-</td><td>Up to 1.0 m</td><td>1</td></tr>
<tr><td rowspan="2">Built-up Area and Approaches to grade separated structures/ bridges</td><td>Hill Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td rowspan="2">Built-up Area and Approaches to grade separated structures/ bridges</td><td>Hill Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Valley Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td><td>Valley Side</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Design Speed</td><td>2.2</td><td colspan="5"><u>Mountainous Terrain:</u>
Ruling : 60 Kmph
Minimum : 40 Kmph</td><td colspan="5"><u>Mountainous Terrain:</u>
Design Speed followed 40-60 kmph in general. However design speed has been reduced to 20 kmph due to site constraints and to accommodate the proposal within EROW.
(Refer Horizontal Alignment Drawing and Table 1.1 below)</td></tr>
<tr><td>Extra Widening</td><td>2.7</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 73-2015
Radius | Extra Widening
75-100 m | 0.9 m
101-300 m | 0.6 m</td><td colspan="5">Extra Widening has been proposed as per IRC: SP: 48-1998 (Table 6.9) of Hill Road Manual.
Radius | Extra Widening
21-40 m | 1.5 m
41-60 m | 1.2 m
61-100 m | 0.9 m</td></tr>
</table>

Item	Manual Clause Reference	Provision as per Manual	Modified Provision		
			75-100 m	0.9 m	
			101-300 m	0.6 m	
			Above 300 m	NIL	
Radii of Horizontal Curve	2.9.4	**Mountainous Terrain:** Desirable Minimum Radius: 150 m Absolute Minimum Radius: 75 m	Radius below 75 m has been provided in the location listed in table 1.		

Table 1.1: Locations where Design Speed is less than40 kmph

Sl. No.	HIP No.	Stretch (from km to km)	Type of Deficiency	Remarks
1	362	50+903 to 50+960	Sharp Bend	Design Speed = 20 Kmph
2	400	56+810 to 56+828	Sharp Bend	Design Speed = 30 Kmph
3	401	56+901 to 56+926	Sharp Bend	Design Speed = 30 Kmph
4	402	56+993 to 57+027	Sharp Bend	Design Speed = 20 Kmph
5	403	57+086 to 57+141	Sharp Bend	Design Speed = 30 Kmph
6	407	57+702 to 57+715	Sharp Bend	Design Speed = 30 Kmph
7	408	57+825 to 57+843	Sharp Bend	Design Speed = 20 Kmph
8	409	58+015 to 58+024	Sharp Bend	Design Speed = 30 Kmph
9	410	58+079 to 58+109	Sharp Bend	Design Speed = 20 Kmph
10	479	68+749 to 68+780	Sharp Bend	Design Speed = 20 Kmph
11	509	73+450 to 73+500	Sharp Bend	Design Speed = 30 Kmph
12	510	73+545 to 73+561	Sharp Bend	Design Speed = 30 Kmph
13	511	73+624 to 73+673	Sharp Bend	Design Speed = 20 Kmph
14	512	73+734 to 73+767	Sharp Bend	Design Speed = 20 Kmph
15	513	73+792 to 73+915	Sharp Bend	Design Speed = 30 Kmph
16	529	75+955 to 75+983	Sharp Bend	Design Speed = 20 Kmph

Table 1.2: Locations where Radii of Horizontal Curve is less than 75 m

Sl. No.	HIP No.	Stretch (from km to km)	Radius
1	362	50+903 to 50+960	26
2	363	51+046 to 51+055	50
3	367	51+701 to 51+716	50
4	368	51+870 to 51+908	70
5	371	52+327 to 52+347	70
6	377	53+200 to 53+243	50
7	378	53+483 to 53+503	50
8	383	54+062 to 54+094	50
9	388	55+086 to 55+114	50
10	390	55+472 to 55+525	50
11	392	55+740 to 55+756	50
12	395	56+067 to 56+105	50
13	396	56+189 to 56+218	50
14	397	56+306 to 56+329	50
15	400	56+810 to 56+828	40
16	402	56+993 to 57+027	20
17	403	57+086 to 57+141	50
18	407	57+702 to 57+715	50
19	408	57+825 to 57+843	20

Sl. No.	HIP No.	Stretch (from km to km)	Radius
20	409	58+015 to 58+024	50
21	410	58+079 to 58+109	20
22	415	58+736 to 58+756	70
23	420	59+420 to 59+463	50
24	421	59+579 to 59+612	60
25	422	59+680 to 59+713	70
26	425	60+113 to 60+116	70
27	429	60+789 to 60+879	55
28	434	61+738 to 61+771	70
29	435	61+885 to 61+923	50
30	437	62+349 to 62+377	50
31	438	62+471 to 62+522	50
32	441	62+880 to 62+899	60
33	443	63+189 to 63+247	60
34	444	63+345 to 63+354	50
35	445	63+441 to 63+462	70
36	449	63+932 to 63+957	50
37	450	64+060 to 64+105	50
38	452	64+343 to 64+375	50
39	453	64+455 to 64+478	70
40	458	65+205 to 65+224	70
41	462	65+817 to 65+891	50
42	466	66+489 to 66+544	60
43	467	66+666 to 66+745	50
44	468	66+828 to 66+846	60
45	472	67+435 to 67+443	60
46	474	67+797 to 67+829	60
47	479	68+749 to 68+780	20
48	480	68+985 to 69+004	70
49	484	69+555 to 69+587	50
50	485	69+671 to 69+744	50
51	486	69+835 to 69+847	50
52	488	70+034 to 70+117	60
53	490	70+413 to 70+439	60
54	491	70+573 to 70+579	50
55	492	70+665 to 70+734	50
56	494	71+011 to 71+025	60
57	495	71+119 to 71+153	50
58	497	71+515 to 71+608	50
59	498	71+759 to 71+811	50
60	499	71+973 to 72+040	50
61	500	72+161 to 72+174	70
62	501	72+274 to 72+295	50
63	504	72+709 to 72+724	50
64	505	72+812 to 72+831	60
65	506	73+014 to 73+028	60
66	507	73+162 to 73+171	50
67	509	73+450 to 73+500	50
68	510	73+545 to 73+561	50

Sl. No.	HIP No.	Stretch (from km to km)	Radius
69	511	73+624 to 73+673	26
70	522	75+070 to 75+073	60
71	523	75+166 to 75+191	50
72	524	75+294 to 75+327	50
73	527	75+730 to 75+742	70
74	529	75+955 to 75+983	20
75	534	76+594 to 76+653	50
76	535	76+780 to 76+798	60
77	536	76+894 to 76+918	50
78	537	77+107 to 77+173	50
79	538	77+390 to 77+410	55
80	539	77+501 to 77+516	50
81	540	77+671 to 77+714	60
82	543	78+316 to 78+337	50
83	544	78+429 to 78+464	50
84	545	78+561 to 78+586	50
85	547	78+795 to 78+879	60
86	548	79+005 to 79+057	60
87	551	79+474 to 79+555	55
88	554	79+937 to 79+950	50
89	555	80+071 to 80+081	50
90	556	80+185 to 80+205	60
91	557	80+468 to 80+483	60
92	558	80+592 to 80+677	60
93	559	80+802 to 80+845	50
94	560	80+966 to 80+997	70
95	561	81+108 to 81+147	50
96	562	81+278 to 81+311	50
97	563	81+507 to 81+530	70
98	565	81+799 to 81+821	70

(iii) [Note1: Deviations fromtheaforesaidSpecificationsand Standards shallbe listedout here. Suchdeviations shall bespecified only ifthey are considered essential in viewof project-specific requirements.]

Schedule - H

(See Clauses 10.1 (iv) and 19.3)

Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. ****

1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	Weightage in % of CP	Stage for Payment	Percentage
1	2	3	4
Road Works including Culverts, widening and repair of culverts	76.58 %	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		(6) Widening and repair of culverts	[Nil]
		B.1-Reconstruction/New 2-Lane Realignment /Bypass (Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	49.92%
		(2) Sub-base Course	21.84%
		(3) Non bituminous Base course	9.48%
		(4) Bituminous Basecourse	1.06%
		(5) Wearing Coat	7.29%
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass (Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Dry Lean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ New Service Road (Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) Non bituminous Base course	[Nil]
		(4) Bituminous Basecourse	[Nil]
		(5) Wearing Coat	[Nil]
		C.2- Reconstruction/New Service road (Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		(3) Dry Lean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)	10.41%
Minor bridge/ Underpasses/ Overpasses	0.00%	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	[Nil]
		A.2- New Minor bridges (length >6 mand<60m)	
		(1) Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	[Nil]
		(2) Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road, signs & markings, tests on completion etc. complete in all respect.	[Nil]
		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	[Nil]
		(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
		B.2-NewUnderpasses/Overpasses	
		(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	[Nil]
		(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length>60	0.00 %	**A.1- Widening and repairs of Major Bridges**	
		(1)Foundation	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guide Bunds,River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]
		A.2-NewMajorBridges	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guide Bunds, River Training works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]
		B.1-Wideningandrepairsof (a) ROB (b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls, Stone Pitching and protection works)	[Nil]
		B.2-NewROB/RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4) Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and	[Nil]

Item	Weightage in % of CP	Stage for Payment	Percentage
		protection works)	
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Other Works	23.42 %	(i) Toll Plaza	[Nil]
		(ii) Road side drains	12.93%
		(iii) Road signs, markings, km stones, safety devices etc	5.04%
		(iv) Project facilities	
		a) Bus Bays	[Nil]
		b) Truck Lay-byes	[Nil]
		c) Passenger Shelter	[Nil]
		d) Rest Area	[Nil]
		e) Diversion Works	[Nil]
		(v) Road side Plantation	[Nil]
		(vi) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety &Traffic Management during const.	[Nil]
		(viii) Breast Wall	29.31%
		(ix) Toe Wall	[Nil]
		(x) Retaining Wall	30.71%
		(xi) Crash Barrier	0.58%

Item	Weightage in % of CP	Stage for Payment	Percentage
		(xi) Boundary wall	[Nil]
		(xii) Site Clearance & Dismantling	0.77%
		(xiii) Protection Works	18.4%
		(xiv) Utility Shifting	2.25%

1.3 Procedure of estimating the value of work done

1.3.1 Road works

Procedure for estimating the value of road work done shall be as follows:

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening & Strengthening of road		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in a length of not less than 5(five)percent of the total length.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Base course	[Nil]	
(5) Wearing Coat	[Nil]	
(6) Widening and repair of culverts	[Nil]	Cost of ten completed culverts shall be determined on pro-rata basis with respect to the total number of culverts.
B.1- Reconstruction/New2-Lane Realignment/Bypass(Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 0.5(half) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	49.92%	
(2) Sub-base Course	21.84%	
(3) Non bituminous Base course	9.48%	
(4) Bituminous Base course	1.06%	
(5) Wearing Coat	7.29%	
B.2- Reconstruction/New 8-Lane Realignment/Bypass (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
C.1- Reconstruction/New Service Road/ Slip Road (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Non bituminous Base course	[Nil]	
(4) Bituminous Basecourse	[Nil]	
(5) Wearing Coat	[Nil]	
C.2- Reconstruction/New Service road (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1)Earthwork up to top of the sub-grade	[Nil]	
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC)Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
D-Reconstruction & New Culverts on existing road, realignments, bypasses		Cost of each culverts shall be determined on pro-rata basis with respect to the total number of culverts. Payment shall be made on the completion of at
Culverts (length <6m)	10.41%	

Stage of Payment	Percentage weightage	Payment Procedure
		least one culverts

@ For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

Cost per km = P x weightage for road work x weightage for bituminous work x (1/L)

Where,

P = Contract Price

L = Total length in km

Similarly, the rates per km for other stages shall be worked out accordingly.

Note: The length affected due to law and order problems or litigation during execution due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

Procedure for estimating the value of Minor bridge and Underpasses/Overpasses shall be as stated in table 1.3.2:

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1-Widening and repairs of Minor Bridges(length>6m&<60m)	Nil	Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge
A.2- New Minor Bridges (length > 6m & < 60m)		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	Nil	Foundation: Cost of each minor bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	Nil	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of

Stage of Payment	Weightage	Payment Procedure
		stage specified as above
(3)Approaches :On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	Nil	Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.
(4) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	Nil	Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund sand River training Works in all respects as specified
B.1- Widening and repairs of underpasses/overpasses	[Nil]	Cost of each underpass/overpass shall be determined on pro-rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.
B.2- New Underpasses/Overpasses		
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers up to the abutment/pier cap.	[Nil]	Foundation: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of foundation of each Underpasses/ Overpasses. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

1.3.3 Major Bridge works, ROB/RUB and Structures.

Procedure for estimating the value of Major Bridge works, ROB/RUB and Structures shall be as stated in table 1.3.3:

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
A.1- Widening and repairs of Major Bridges		
(1) Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of major bridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Guide Bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
A.2-NewMajorBridges		
(1)Foundation	[Nil]	Foundation: Cost of each Major Bridge shall be determined on pro-rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not

Stage of Payment	Weightage	Payment Procedure
		lessthan25% of the scope of sub- structure of major bridge.
(3)Super-structure(including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Guide bunds, River Training works etc.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8)Approaches(including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro-rata basis on completion of 10% of the scope of each stage.
B.1- Widening and repairs of (a)ROB (b)RUB	[Nil]	
(1) Foundations	[Nil]	Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of ROB/RUB.
(3) Super-Structure (Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50%ofthe stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (Including Retaining walls, Stone Pitching and protection works)	[Nil]	Payments shall be made on pro-rata basis on completion of 20% of the total area.
B.2-NewROB/RUB		
(1) Foundation	[Nil]	Foundation: Cost of each ROB/RUB shall be determined on pro-rata basis with respect to the total linear length (m)of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB.
(2) Sub-structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. Not less than 25% of the scope of sub- structure of ROB/RUB.
(3) Super-structure (including bearing)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) In case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.1-Wideningandrepairs of Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where

Stage of Payment	Weightage	Payment Procedure
		specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure.
(3) Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.2- New Elevated Section/ Flyovers/Grade Separators		
(1) Foundations	[Nil]	Foundation: Cost of each structure shall be determined on pro-rata basis with respect to the total linear length (m)of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-Structure	[Nil]	Sub-structure: Payment against sub- structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub- structure of structure.
(3)Super-Structure(Including bearings)	[Nil]	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders foreach span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all

Stage of Payment	Weightage	Payment Procedure
		respects as specified.
(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payments shall be made on pro-rata basis on completion of 20% of the total area.

Note: (1) In case of innovate Major Bridge projects like cable suspension/cable stayed/ Extra Dozed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements before bidding with due approval of Competent Authority.

1.3.4 Other works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.4.

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3
(1) Toll Plaza	[Nil]	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro-rata basis with respect to the total of all toll plaza.
(2) Roadside drains	12.93%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(3) Road signs, markings, km stones, safety devices etc.	5.04%	
(4) Project Facilities		Payment shall be made on pro-rata basis for completed facilities.
a) Bus Bays	[Nil]	
b) Truck Lay-byes	[Nil]	
c) Passenger Shelter	[Nil]	
d) Rest Area	[Nil]	
e) Diversion Works	[Nil]	
(5) Road side Plantation including Horticulture in Wayside Amenities	[Nil]	Unit of measurement is linear length
(6) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(7) Safety and traffic management during construction	[Nil]	Payment shall be made on prorate basis every six months.
(8) Protection Works		Unit of measurement is linear length. Payment shall be made
(a) Breast Wall	29.31%	

Stage of Payment	Weightage	Payment Procedure
(b) Toe Wall	[Nil]	on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(c)Retaining Wall	30.71%	
(c) Crash Barrier	0.58%	
(9) Site Clearance & Dismantling	0.77%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(10) Protection Works	18.4%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(11) Utility Shifting	2.25%	Unit of measurement is linear length. Payment shall be made on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.

2. Procedure for payment for Maintenance

2.1 The cost for maintenance shall be as stated in Clause 14.1.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 19.7.