SCHEDULE - A

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

(i) Site of the [Two-Lane/Intermediate 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 Clause 8.2 (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 on site/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/Intermediate Lane] Project Highway comprises the section of NH-53 commencing from km 134+821 to km 175+105 i.e., Puilon (Kambiron) Village to Nungkao 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 (total of land already in possession and land to be possessed) as described below:

SL No.	Chainage (Km)		Existing Right of Way (m)	Proposed Right of Way (m)	Remarks
	From	To			
1	134.821	175.105	7.450	24.00	

3. Carriageway

The present carriageway of the Project Highway is Two-Lane/Intermediate Lane from km 134+821to km 175+105. 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)	Type of Structure		No. of Spans with span length (m)	Width (m)
		Foundation	Superstructure		
Nil					

7. Minor bridges

The Site includes the following minor bridges:

Sl. No.	Survey Chainage (Km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super- structure		
1	138+128	Open	Wall	RCC Slab	1 x 10 m	9.98
2	141+269	Open	Wall	RCC Box Girder	1 x 24.7 m	11.97
3	142+315	Open	Wall	RCC Slab	1 x 6 m	7.45
4	142+578	Open	Wall	RCC Slab	1 x 10 m	11.8
5	143+221	Open	Wall	RCC Slab	1 x 6 m	8.89
6	145+527	Open	Wall	RCC Box Girder	1 x 24.7 m	5.36
7	147+28	Open	Wall	RCC Box Girder	1 x 29.7 m	12.02
8	147+796	Open	Wall	RCC Slab	1 x 6 m	9.53
9	149+978	Open	Wall	RCC Box Girder	1 x 29.7 m	12.07
10	150+204	Open	Wall	RCC Box Girder	1 x 29.7 m	11.93

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location(km)	Remarks
Nil		

9. Underpasses (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/Opening with Span Length
1	134.832	HP Culvert	2 X 0.90 Dia
2	135.029	HP Culvert	1 X 1.00 Dia
3	135.453	R.C.C SLAB	1 X 4.40m
4	135.701	HP Culvert	1 X 1.00 Dia
5	135.858	HP Culvert	2 X 0.60 Dia
6	135.938	HP Culvert	1 X 1.00 Dia
7	136.050	HP Culvert	1 X 1.00 Dia
8	136.233	R.C.C SLAB	1 X 2.80m
9	136.537	HP Culvert	1 X 1.50 Dia
10	136.846	R.C.C SLAB	1 X 1.00 Dia
11	136.997	HP Culvert	2 X 0.90 Dia
12	137.230	HP Culvert	1 X 0.90 Dia
13	137.971	R.C.C SLAB	1 X 2.70m
14	138.312	HP Culvert	1 X 1.20 Dia
15	138.560	HP Culvert	1 X 0.90 Dia
16	138.744	HP Culvert	1 X 0.60 Dia
17	138.834	HP Culvert	1 X 0.90 Dia

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
18	138.944	HP Culvert	1 X 0.90 Dia
19	139.026	HP Culvert	1 X 1.00 Dia
20	139.174	HP Culvert	1 X 1.00 Dia
21	139.728	R.C.C SLAB	1 X 2.00m
22	139.128	HP Culvert	1 X 0.90 Dia
23	140.256	R.C.C SLAB	1 X 1.40m
24	140.515	R.C.C SLAB	1 X 6.00m
25	141.083	R.C.C SLAB	1 X 3.00m
26	141.211	R.C.C SLAB	1 X 2.70m
27	141.299	R.C.C SLAB	1 X 1.50m
28	141.504	R.C.C SLAB	1 X 1.30m
29	141.664	R.C.C SLAB	1 X 2.70m
30	141.932	R.C.C SLAB	1 X 1.50m
31	142.004	R.C.C SLAB	1 X 1.50m
32	142.156	R.C.C SLAB	1 X 2.00m
33	143.353	R.C.C SLAB	1 X 1.00m
34	143.438	R.C.C SLAB	1 X 1.50m
35	143.734	R.C.C SLAB	1 X 1.60m
36	143.803	R.C.C SLAB	1 X 0.90m
37	143.964	R.C.C SLAB	1 X 1.10m
38	144.035	R.C.C SLAB	1 X 1.00m
39	144.429	R.C.C SLAB	1 X 1.50m
40	144.760	R.C.C SLAB	1 X 1.30m
41	144.854	R.C.C SLAB	1 X 1.80m
42	145.145	R.C.C SLAB	1 X 1.45m
43	145.379	R.C.C SLAB	1 X 3.00m
44	145.600	R.C.C SLAB	1 X 2.90m
45	145.749	R.C.C SLAB	1 X 1.50m
46	145.812	R.C.C SLAB	1 X 1.60m
47	145.867	R.C.C SLAB	1 X 1.60m
48	146.111	R.C.C SLAB	1 X 1.00m
49	146.544	R.C.C SLAB	1 X 1.00m
50	146.814	R.C.C SLAB	1 X 0.80m
51	147.157	R.C.C SLAB	1 X 1.00m
52	147.553	R.C.C SLAB	1 X 0.86m
53	147.702	R.C.C SLAB	1 X 2.50m
54	148.026	R.C.C SLAB	1 X 3.00m
55	148.168	R.C.C SLAB	1 X 1.50m
56	148.436	R.C.C SLAB	1 X 2.70m
57	148.475	R.C.C SLAB	1 X 1.00m
58	148.793	R.C.C SLAB	1 X 1.10m
59	148.963	R.C.C SLAB	1 X 1.50m
60	149.073	R.C.C SLAB	1 X 1.60m
61	149.372	R.C.C SLAB	1 X 1.50m
62	149.513	R.C.C SLAB	1 X 3.90m
63	149.567	R.C.C SLAB	1 X 1.50m
64	149.640	R.C.C SLAB	1 X 3.00m
65	149.911	R.C.C SLAB	1 X 1.00m
66	150.045	R.C.C SLAB	1 X 1.45m
67	150.191	R.C.C SLAB	1 X 5.90m
68	150.787	R.C.C SLAB	1 X 1.20m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
69	151.125	R.C.C SLAB	1 X 0.95m
70	151.347	R.C.C SLAB	1 X 1.45m
71	151.461	R.C.C SLAB	1 X 1.50m
72	151.614	R.C.C SLAB	1 X 1.50m
73	151.785	R.C.C SLAB	1 X 3.20m
74	151.863	R.C.C SLAB	1 X 1.50m
75	152.333	R.C.C SLAB	1 X 2.79m
76	152.542	R.C.C SLAB	1 X 1.09m
77	153.148	R.C.C SLAB	1 X 1.31m
78	153.856	R.C.C SLAB	1 X 0.97m
79	154.042	R.C.C SLAB	1 X 1.40m
80	154.399	R.C.C SLAB	1 X 2.88m
81	154.614	R.C.C SLAB	1 X 2.95m
82	154.957	R.C.C SLAB	1 X 0.96m
83	155.116	R.C.C SLAB	1 X 1.55m
84	155.165	R.C.C SLAB	1 X 1.06m
85	155.318	R.C.C SLAB	1 X 1.30m
86	155.410	R.C.C SLAB	1 X 1.67m
87	156.134	R.C.C SLAB	1 X 2.88m
88	156.320	R.C.C SLAB	1 X 1.19m
89	156.725	R.C.C SLAB	1 X 1.74m
90	157.118	R.C.C SLAB	1 X 0.90m
91	157.275	R.C.C SLAB	1 X 3.21m
92	157.328	R.C.C SLAB	1 X 4.58m
93	157.959	R.C.C SLAB	1 X 0.89m
94	158.173	R.C.C SLAB	1 X 0.92m
95	158.788	R.C.C SLAB	1 X 1.81m
96	158.951	R.C.C SLAB	1 X 1.75m
97	159.124	R.C.C SLAB	1 X 1.37m
98	159.181	R.C.C SLAB	1 X 1.26m
99	159.246	R.C.C SLAB	1 X 1.07m
100	159.382	R.C.C SLAB	1 X 2.14m
101	159.759	R.C.C SLAB	1 X 0.89m
102	160.684	R.C.C SLAB	1 X 2.23m
103	160.751	R.C.C SLAB	1 X 1.54m
104	160.812	R.C.C SLAB	1 X 1.54m
105	160.885	R.C.C SLAB	1 X 2.82m
106	161.099	R.C.C SLAB	1 X 1.53m
107	161.227	R.C.C SLAB	1 X 1.97m
108	161.248	R.C.C SLAB	1 X 1.82m
109	161.363	R.C.C SLAB	1 X 1.15m
110	161.440	R.C.C SLAB	1 X 1.53m
111	161.533	R.C.C SLAB	1 X 0.84m
112	161.592	R.C.C SLAB	1 X 0.83m
113	161.881	R.C.C SLAB	1 X 3.14m
114	162.130	R.C.C SLAB	1 X 1.39m
115	162.374	R.C.C SLAB	1 X 0.80m
116	162.715	R.C.C SLAB	1 X 0.74m
117	162.919	R.C.C SLAB	1 X 1.02m
118	163.110	R.C.C SLAB	1 X 0.78m
119	163.331	R.C.C SLAB	1 X 1.42m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
120	163.385	R.C.C SLAB	1 X 1.57m
121	163.416	R.C.C SLAB	1 X 1.60m
122	163.556	R.C.C SLAB	1 X 4.06m
123	163.977	R.C.C SLAB	1 X 1.26m
124	164.136	R.C.C SLAB	1 X 3.27m
125	164.212	R.C.C SLAB	1 X 3.37m
126	164.699	R.C.C SLAB	1 X 1.71m
127	164.999	R.C.C SLAB	1 X 1.54m
128	165.141	R.C.C SLAB	1 X 0.94m
129	165.344	R.C.C SLAB	1 X 0.88m
130	165.477	R.C.C SLAB	1 X 1.24m
131	165.576	R.C.C SLAB	1 X 1.61m
132	165.654	R.C.C SLAB	1 X 1.03m
133	166.099	R.C.C SLAB	1 X 0.94m
134	166.174	R.C.C SLAB	1 X 1.37m
135	166.289	R.C.C SLAB	1 X 1.47m
136	166.613	R.C.C SLAB	1 X 0.92m
137	166.920	R.C.C SLAB	1 X 3.02m
138	166.968	R.C.C SLAB	1 X 0.92m
139	167.212	R.C.C SLAB	1 X 1.06m
140	167.555	R.C.C SLAB	1 X 1.36m
141	167.734	R.C.C SLAB	1 X 0.75m
142	168.262	R.C.C SLAB	1 X 1.42m
143	168.711	R.C.C SLAB	1 X 2.51m
144	168.919	R.C.C SLAB	1 X 6.10m
145	169.332	R.C.C SLAB	1 X 2.74m
146	169.457	R.C.C SLAB	1 X 2.67m
147	169.609	R.C.C SLAB	1 X 1.47m
148	169.743	R.C.C SLAB	1 X 3.03m
149	169.938	R.C.C SLAB	1 X 1.43m
150	170.010	R.C.C SLAB	1 X 1.51m
151	170.633	R.C.C SLAB	1 X 1.43m
152	170.739	R.C.C SLAB	1 X 2.95m
153	170.974	R.C.C SLAB	1 X 1.08m
154	171.239	R.C.C SLAB	1 X 1.97m
155	171.373	R.C.C SLAB	1 X 0.73m
156	171.613	R.C.C SLAB	1 X 0.82m
157	172.015	R.C.C SLAB	1 X 1.73m
158	172.323	R.C.C SLAB	1 X 1.66m
159	172.465	R.C.C SLAB	1 X 0.81m
160	173.093	R.C.C SLAB	1 X 0.91m
161	173.467	R.C.C SLAB	1 X 0.83m
162	173.872	R.C.C SLAB	1 X 1.57m
163	173.962	R.C.C SLAB	1 X 0.96m
164	174.059	R.C.C SLAB	1 X 2.59m
165	174.205	R.C.C SLAB	1 X 1.75m
166	174.273	R.C.C SLAB	1 X 6.41m
167	174.366	R.C.C SLAB	1 X 1.11m
168	174.477	R.C.C SLAB	1 X 1.11m
169	174.705	R.C.C SLAB	1 X 2.41m
170	174.766	R.C.C SLAB	1 X 3.59m

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length
171	175.017	R.C.C SLAB	1 X 2.79m

11. Bus bays

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

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

12. Truck Lay byes

The details of truck lay byes are as follows:

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

13. Roadside drains

The details of the roadside drains are as follows:

Sl No	Chainage (km)		Length (m)	Side	Type
	From	To			
1	134.821	136.535	1.714	Left	Kacha
2	136.541	136.992	0.451	Left	Kacha
3	137.000	137.225	0.225	Left	Kacha
4	137.236	138.310	1.074	Left	Kacha
5	138.319	138.516	0.197	Left	Kacha
6	138.560	138.829	0.269	Left	Kacha
7	138.851	139.171	0.320	Left	Kacha
8	139.235	139.655	0.420	Left	Kacha
9	139.800	139.825	0.025	Left	Kacha
10	140.108	140.222	0.114	Right	Kacha
11	140.263	140.500	0.237	Right	Kacha
12	140.523	141.483	0.960	Right	Kacha
13	141.506	141.525	0.019	Right	Kacha
14	141.633	141.668	0.035	Right	Kacha
15	141.767	142.400	0.633	Right	Kacha
16	142.532	142.570	0.038	Right	Kacha
17	143.225	143.623	0.398	Right	Kacha
18	143.735	143.860	0.125	Right	Kacha
19	143.937	144.057	0.120	Right	Kacha
20	144.137	145.212	1.075	Right	Kacha
21	145.353	145.375	0.022	Right	Kacha
22	145.575	145.633	0.058	Right	Kacha
23	145.727	146.052	0.325	Right	Kacha
24	146.114	146.135	0.021	Right	Kacha
25	146.516	146.578	0.062	Right	Kacha
26	146.815	147.237	0.422	Right	Kacha
27	147.392	147.723	0.331	Right	Kacha
28	147.750	147.975	0.225	Right	Kacha
29	147.975	148.427	0.452	Right	Pucca

Sl No	Chainage (km)		Length (m)	Side	Type
	From	To			
30	148.443	148.955	0.512	Right	Pucca
31	148.955	149.033	0.078	Right	Kacha
32	149.033	149.743	0.710	Right	Pucca
33	149.775	149.905	0.130	Right	Pucca
34	149.931	149.985	0.054	Right	Pucca
35	150.050	150.170	0.120	Right	Pucca
36	150.277	150.350	0.073	Right	Pucca
37	150.475	150.773	0.298	Right	Pucca
38	150.786	152.702	1.916	Right	Pucca
39	152.702	154.012	1.310	Right	Kacha
40	154.023	154.395	0.372	Right	Kacha
41	154.423	154.770	0.347	Right	Kacha
42	154.845	155.058	0.213	Right	Kacha
43	155.118	155.279	0.161	Right	Kacha
44	155.333	155.391	0.058	Right	Kacha
45	155.416	155.593	0.177	Right	Kacha
46	155.658	155.720	0.062	Right	Kacha
47	155.756	155.833	0.077	Right	Kacha
48	156.000	156.062	0.062	Right	Kacha
49	156.078	156.174	0.096	Right	Kacha
50	156.321	156.800	0.479	Right	Kacha
51	157.330	157.743	0.413	Right	Kacha
52	158.209	158.287	0.078	Right	Kacha
53	158.370	158.400	0.030	Right	Kacha
54	159.106	159.428	0.322	Right	Kacha
55	159.550	159.670	0.120	Right	Kacha
56	159.750	159.780	0.030	Right	Kacha
57	160.132	160.482	0.350	Right	Kacha
58	160.730	160.750	0.020	Right	Kacha
59	161.160	161.262	0.102	Right	Kacha
60	161.440	161.693	0.253	Right	Kacha
61	162.675	162.735	0.060	Right	Kacha
62	162.972	163.090	0.118	Right	Kacha
63	163.122	163.132	0.010	Right	Kacha
64	163.334	163.353	0.019	Right	Kacha
65	163.387	163.883	0.496	Right	Kacha
66	163.930	164.010	0.080	Right	Kacha
67	164.118	164.208	0.090	Right	Kacha
68	164.375	164.700	0.325	Right	Kacha
69	165.142	165.250	0.108	Right	Kacha
70	166.065	166.135	0.070	Right	Kacha
71	166.165	166.171	0.006	Right	Kacha
72	166.806	166.839	0.033	Right	Kacha
73	168.889	168.915	0.026	Right	Kacha
74	169.335	169.447	0.112	Right	Kacha

Sl No	Chainage (km)		Length (m)	Side	Type
	From	To			
75	169.576	169.728	0.152	Right	Kacha
76	170.959	170.973	0.014	Right	Kacha
77	171.071	171.232	0.161	Right	Kacha
78	171.406	171.443	0.037	Right	Kacha
79	171.967	172.012	0.045	Right	Kacha
80	172.050	172.180	0.130	Right	Kacha
81	172.467	172.598	0.131	Right	Kacha
82	173.100	173.179	0.079	Right	Kacha
83	173.204	173.450	0.246	Right	Kacha
84	174.015	174.075	0.060	Right	Kacha
85	174.205	174.264	0.059	Right	Kacha
86	174.510	175.105	0.595	Right	Kacha

14. Major junctions

The details of major junctions are as follows:

S. No.	Location		At grade	Separated	Category of Cross Road			
	From km	to km			NH	SH	MDR	Others
Nil								

(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	
		T-Junction	Cross Road
1	131.275	Y	3-legged
2	135.400	**T**	3-legged
3	136.775	Y	3-legged
4	139.175	Y	3-legged
5	142.500	Y	3-legged
6	148.500	T	3-legged
7	153.475	T	3-legged
8	158.475	Y	3-legged
9	161.700	Y	3-legged
10	162.400	T	3-legged
11	162.700	T	3-legged
12	166.200	Y	3-legged
13	168.475	Y	3-legged
14	168.675	Y	3-legged
15	169.575	Y	3-legged
16	173.675	Y	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 (in Km)

Nil

17. Other structures

[Provide details of other structures, if any.]

18 . **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	134.821	175.105	5	18	0							

(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 Pumping	With Gravity Flow	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow	With Pumping	With Gravity Flow		
1	134.821	175.105	1								20000	2

(iii) Any Other line

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

The dates on which the Authority shall provide Right of Way of Construction Zone to the Contractor on different stretches of the Site is stated below:

The Construction of Project Highway will be implemented as per Manual, details of which are already given in Article-2 of Annexure – I of Schedule – A.

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 on site/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)

Environment Clearances

The following environment clearances have been obtained: [***]

The following environment clearances are awaited: [***]

Environmental Clearances are not required for the project.

SCHEDULE - B

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: 73-2018)] 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 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] paved 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 (km)		Width (m)	Typical Cross Section (Refer to Manual)	Remarks
		From	To			
1	Sibilong Village	138.650	138.900	7	As per attached TCS drawing	7 m Carriageway
2	Oinamlong Village	145.575	145.800	7	As per attached TCS drawing	7 m Carriageway
3		155.650	155.850	7	As per attached TCS drawing	7 m Carriageway
4		156.180	157.330	7	As per attached TCS drawing	7 m Carriageway
5		157.330	157.420	7	As per attached TCS drawing	7 m Carriageway
6		160.850	161.100	7	As per attached TCS drawing	7 m Carriageway
7	Nungkao Village	163.200	163.375	7	As per attached TCS drawing	7 m Carriageway
8		168.150	168.550	7	As per attached TCS drawing	7 m Carriageway
9		168.825	168.925	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 1.1 above.

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 40-50 km/hr and for sharp curve and hair pin bend locations speed reduces up to 30kmph & 20 kmph, respectively.

(iii) Improvement of the existing road geometrics

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

Sl. No.	Stretch	Type of Deficiency	Remarks
1	131.303 to 131.330	Sharp Bend	Design Speed 30 kmph
2	132.025 to 132.073	Sharp Bend	Design Speed 30 kmph
3	132.127 to 132.152	Sharp Bend	Design Speed 30 kmph
4	132.212 to 132.223	Sharp Bend	Design Speed 30 kmph
5	132.654 to 132.687	Sharp Bend	Design Speed 30 kmph
6	132.736 to 132.778	Sharp Bend	Design Speed 30 kmph
7	132.811 to 132.826	Sharp Bend	Design Speed 30 kmph
8	132.869 to 132.892	Sharp Bend	Design Speed 30 kmph
9	133.376 to 133.393	Sharp Bend	Design Speed 30 kmph
10	133.441 to 133.452	Sharp Bend	Design Speed 30 kmph
11	133.482 to 133.503	Sharp Bend	Design Speed 30 kmph
12	133.541 to 133.555	Sharp Bend	Design Speed 30 kmph
13	134.402 to 134.421	Sharp Bend	Design Speed 30 kmph
14	134.484 to 134.52	Sharp Bend	Design Speed 30 kmph
15	134.563 to 134.601	Sharp Bend	Design Speed 30 kmph
16	134.633 to 134.683	Sharp Bend	Design Speed 30 kmph
17	134.736 to 134.744	Sharp Bend	Design Speed 30 kmph
18	134.899 to 134.904	Sharp Bend	Design Speed 30 kmph
19	135.730 to 135.779	Sharp Bend	Design Speed 30 kmph
20	135.930 to 135.994	Sharp Bend	Design Speed 30 kmph
21	136.459 to 136.464	Sharp Bend	Design Speed 30 kmph
22	137.060 to 137.075	Sharp Bend	Design Speed 30 kmph
23	137.119 to 137.130	Sharp Bend	Design Speed 30 kmph
24	137.189 to 137.208	Sharp Bend	Design Speed 30 kmph
25	137.233 to 137.260	Sharp Bend	Design Speed 30 kmph
26	137.401 to 137.409	Sharp Bend	Design Speed 30 kmph
27	137.533 to 137.541	Sharp Bend	Design Speed 30 kmph
28	137.592 to 137.599	Sharp Bend	Design Speed 20 kmph
29	137.695 to 137.701	Sharp Bend	Design Speed 20 kmph
30	137.805 to 137.834	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
31	137.946 to 137.994	Sharp Bend	Design Speed 30 kmph
32	138.064 to 138.118	Sharp Bend	Design Speed 30 kmph
33	138.172 to 138.183	Sharp Bend	Design Speed 30 kmph
34	138.584 to 138.618	Sharp Bend	Design Speed 30 kmph
35	138.711 to 138.731	Sharp Bend	Design Speed 30 kmph
36	139.223 to 139.281	Sharp Bend	Design Speed 30 kmph
37	139.443 to 139.474	Sharp Bend	Design Speed 30 kmph
38	139.537 to 139.549	Sharp Bend	Design Speed 30 kmph
39	139.597 to 139.606	Sharp Bend	Design Speed 30 kmph
40	140.059 to 140.080	Sharp Bend	Design Speed 30 kmph
41	140.214 to 140.233	Sharp Bend	Design Speed 30 kmph
42	141.351 to 141.380	Sharp Bend	Design Speed 30 kmph
43	141.495 to 141.513	Sharp Bend	Design Speed 20 kmph
44	141.604 to 141.635	Sharp Bend	Design Speed 20 kmph
45	142.691 to 142.706	Sharp Bend	Design Speed 30 kmph
46	142.748 to 142.765	Sharp Bend	Design Speed 30 kmph
47	143.190 to 143.229	Sharp Bend	Design Speed 30 kmph
48	143.34 to 143.354	Sharp Bend	Design Speed 20 kmph
49	143.717 to 143.761	Sharp Bend	Design Speed 30 kmph
50	143.808 to 143.842	Sharp Bend	Design Speed 30 kmph
51	144.287 to 144.326	Sharp Bend	Design Speed 30 kmph
52	144.460 to 144.466	Sharp Bend	Design Speed 30 kmph
53	144.519 to 144.563	Sharp Bend	Design Speed 30 kmph
54	145.092 to 145.131	Sharp Bend	Design Speed 30 kmph
55	145.198 to 145.205	Sharp Bend	Design Speed 30 kmph
56	145.358 to 145.435	Sharp Bend	Design Speed 30 kmph
57	145.487 to 145.536	Sharp Bend	Design Speed 30 kmph
58	145.645 to 145.755	Sharp Bend	Design Speed 30 kmph
59	145.852 to 145.866	Sharp Bend	Design Speed 30 kmph
60	145.945 to 145.974	Sharp Bend	Design Speed 20 kmph
61	146.063 to 146.074	Sharp Bend	Design Speed 20 kmph
62	146.164 to 146.178	Sharp Bend	Design Speed 20 kmph
63	146.270 to 146.287	Sharp Bend	Design Speed 20 kmph
64	146.368 to 146.447	Sharp Bend	Design Speed 30 kmph
65	146.549 to 146.572	Sharp Bend	Design Speed 30 kmph
66	146.644 to 146.657	Sharp Bend	Design Speed 30 kmph
67	146.707 to 146.722	Sharp Bend	Design Speed 30 kmph
68	146.782 to 146.807	Sharp Bend	Design Speed 30 kmph
69	146.864 to 146.880	Sharp Bend	Design Speed 30 kmph
70	147.427 to 147.489	Sharp Bend	Design Speed 30 kmph
71	147.613 to 147.6437	Sharp Bend	Design Speed 30 kmph
72	147.778 to 147.796	Sharp Bend	Design Speed 30 kmph
73	147.954 to 147.993	Sharp Bend	Design Speed 30 kmph
74	148.109 to 148.147	Sharp Bend	Design Speed 30 kmph
75	148.214 to 148.249	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
76	148.928 to 148.989	Sharp Bend	Design Speed 30 kmph
77	149.064 to 149.146	Sharp Bend	Design Speed 30 kmph
78	149.196 to 149.218	Sharp Bend	Design Speed 30 kmph
79	149.301 to 149.310	Sharp Bend	Design Speed 30 kmph
80	149.378 to 149.396	Sharp Bend	Design Speed 30 kmph
81	149.522 to 149.541	Sharp Bend	Design Speed 30 kmph
82	149.774 to 149.845	Sharp Bend	Design Speed 30 kmph
83	149.914 to 149.937	Sharp Bend	Design Speed 30 kmph
84	150.015 to 150.0213	Sharp Bend	Design Speed 30 kmph
85	150.210 to 150.245	Sharp Bend	Design Speed 20 kmph
86	150.364 to 150.372	Sharp Bend	Design Speed 30 kmph
87	150.448 to 150.535	Sharp Bend	Design Speed 30 kmph
88	150.593 to 150.606	Sharp Bend	Design Speed 30 kmph
89	150.722 to 150.742	Sharp Bend	Design Speed 30 kmph
90	150.867 to 150.893	Sharp Bend	Design Speed 30 kmph
91	150.923 to 150.967	Sharp Bend	Design Speed 30 kmph
92	150.988 to 151.086	Sharp Bend	Design Speed 30 kmph
93	151.138 to 151.149	Sharp Bend	Design Speed 30 kmph
94	151.280 to 151.322	Sharp Bend	Design Speed 30 kmph
95	151.391 to 151.403	Sharp Bend	Design Speed 30 kmph
96	151.460 to 151.476	Sharp Bend	Design Speed 30 kmph
97	151.616 to 151.653	Sharp Bend	Design Speed 30 kmph
98	151.787 to 151.816	Sharp Bend	Design Speed 30 kmph
99	151.922 to 151.954	Sharp Bend	Design Speed 30 kmph
100	152.014 to 152.041	Sharp Bend	Design Speed 30 kmph
101	152.540 to 152.616	Sharp Bend	Design Speed 30 kmph
102	152.966 to 152.979	Sharp Bend	Design Speed 30 kmph
103	153.207 to 153.225	Sharp Bend	Design Speed 30 kmph
104	153.571 to 153.590	Sharp Bend	Design Speed 30 kmph
105	153.646 to 153.675	Sharp Bend	Design Speed 30 kmph
106	154.363 to 154.388	Sharp Bend	Design Speed 30 kmph
107	155.198 to 155.243	Sharp Bend	Design Speed 30 kmph
108	155.306 to 155.324	Sharp Bend	Design Speed 30 kmph
109	155.446 to 155.545	Sharp Bend	Design Speed 30 kmph
110	155.582 to 155.590	Sharp Bend	Design Speed 30 kmph
111	155.720 to 155.736	Sharp Bend	Design Speed 30 kmph
112	155.791 to 155.798	Sharp Bend	Design Speed 30 kmph
113	155.891 to 155.907	Sharp Bend	Design Speed 30 kmph
114	155.964 to 156.009	Sharp Bend	Design Speed 30 kmph
115	156.099 to 156.124	Sharp Bend	Design Speed 30 kmph
116	156.185 to 156.203	Sharp Bend	Design Speed 30 kmph
117	156.372 to 156.509	Sharp Bend	Design Speed 30 kmph
118	156.558 to 156.563	Sharp Bend	Design Speed 30 kmph
119	156.634 to 156.640	Sharp Bend	Design Speed 30 kmph
120	156.817 to 156.918	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
121	157.011 to 157.052	Sharp Bend	Design Speed 20 kmph
122	157.082 to 157.095	Sharp Bend	Design Speed 20 kmph
123	157.137 to 157.170	Sharp Bend	Design Speed 20 kmph
124	157.211 to 157.240	Sharp Bend	Design Speed 20 kmph
125	157.281 to 157.327	Sharp Bend	Design Speed 30 kmph
126	157.461 to 157.500	Sharp Bend	Design Speed 30 kmph
127	157.583 to 157.716	Sharp Bend	Design Speed 30 kmph
128	157.754 to 157.790	Sharp Bend	Design Speed 30 kmph
129	157.829 to 157.850	Sharp Bend	Design Speed 30 kmph
130	157.933 to 158.047	Sharp Bend	Design Speed 30 kmph
131	158.132 to 158.153	Sharp Bend	Design Speed 30 kmph
132	158.351 to 158.413	Sharp Bend	Design Speed 30 kmph
133	158.568 to 158.621	Sharp Bend	Design Speed 30 kmph
134	159.006 to 159.019	Sharp Bend	Design Speed 30 kmph
135	159.074 to 159.120	Sharp Bend	Design Speed 30 kmph
136	159.394 to 159.427	Sharp Bend	Design Speed 30 kmph
137	159.468 to 159.489	Sharp Bend	Design Speed 30 kmph
138	161.000 to 161.01	Sharp Bend	Design Speed 30 kmph
139	161.086 to 161.163	Sharp Bend	Design Speed 30 kmph
140	161.282 to 161.328	Sharp Bend	Design Speed 30 kmph
141	161.495 to 161.530	Sharp Bend	Design Speed 30 kmph
142	161.584 to 161.638	Sharp Bend	Design Speed 20 kmph
143	161.730 to 161.737	Sharp Bend	Design Speed 20 kmph
144	161.813 to 161.826	Sharp Bend	Design Speed 30 kmph
145	161.866 to 161.882	Sharp Bend	Design Speed 30 kmph
146	161.928 to 161.966	Sharp Bend	Design Speed 20 kmph
147	162.999 to 163.031	Sharp Bend	Design Speed 30 kmph
148	163.212 to 163.239	Sharp Bend	Design Speed 30 kmph
149	163.31 to 163.345	Sharp Bend	Design Speed 30 kmph
150	163.427 to 163.449	Sharp Bend	Design Speed 30 kmph
151	163.513 to 163.551	Sharp Bend	Design Speed 20 kmph
152	163.642 to 163.669	Sharp Bend	Design Speed 20 kmph
153	163.774 to 163.795	Sharp Bend	Design Speed 30 kmph
154	163.825 to 163.850	Sharp Bend	Design Speed 30 kmph
155	163.880 to 163.889	Sharp Bend	Design Speed 30 kmph
156	163.941 to 163.950	Sharp Bend	Design Speed 30 kmph
157	163.996 to 164.011	Sharp Bend	Design Speed 30 kmph
158	164.059 to 164.068	Sharp Bend	Design Speed 30 kmph
159	164.115 to 164.121	Sharp Bend	Design Speed 30 kmph
160	164.170 to 164.188	Sharp Bend	Design Speed 30 kmph
161	164.529 to 164.595	Sharp Bend	Design Speed 30 kmph
162	165.750 to 165.808	Sharp Bend	Design Speed 30 kmph
163	165.937 to 165.947	Sharp Bend	Design Speed 30 kmph
164	166.076 to 166.121	Sharp Bend	Design Speed 30 kmph
165	166.658 to 166.684	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
166	167.986 to 168.042	Sharp Bend	Design Speed 30 kmph
167	168.080 to 168.171	Sharp Bend	Design Speed 30 kmph
168	168.551 to 168.564	Sharp Bend	Design Speed 30 kmph
169	168.624 to 168.639	Sharp Bend	Design Speed 30 kmph
170	168.794 to 168.913	Sharp Bend	Design Speed 30 kmph
171	169.100 to 169.163	Sharp Bend	Design Speed 30 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
Details of the Right of Way are given in Annex-II of Schedule-A.

(v) Type of shoulders
[Refer to provision of relevant Manual and specify]

(a) In built up section's 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
1	138+650 to 138+900	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
2	145+575 to 145+800	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
3	155+650 to 155+850	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
4	156+180 to 157+330	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7
5	157+330 to 157+420	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B
6	160+850 to 161+100	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
7	163+200 to 163+375	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
8	168+150 to 168+550	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-6
9	168+825 to 168+925	2X1.5 m paved shoulder & 2X1.0 m footpath	TCS-7B

(b) Earthen shoulders of 1.0 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) (from km to km)	Span/ opening(m)	Remarks
Nil			

(vii) Lateral and vertical clearances at overpasses

(a) Lateral and vertical clearances at over passes shall be as per requirements specified in the relevant Manual.

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

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

(viii) Service roads

Service roads shall be constructed at the locations and for the lengths indicated below: [Refer requirements specified in the relevant Manual]

Sl. No.	Location of service road (from km to km)	Right hand side (RHS)/Left hand side (LHS)/or Both sides	Length(km)of service road
Nil			

(ix) Grade separated structures

(a) Grade separated structures shall be provided as per provision of the Manual. The requisite is given below:

[Refer to requirements specified in the relevant Manual]

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

(b) In the case of grade separated structures the type of structure and the level of the Project Highway and the cross-roads shall be as follows: [Refer to provision of the Manual and specify the type of vehicular underpass/ overpass structure and whether the cross road is to be carried at the existing Level. Raised or lowered]

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 provision of the relevant Manual and 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

TCS Number	TCS Description	Length (km)
TCS-3	Typical Cross Section of Two-Lane Carriageway with Paved Shoulder in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side	20.905

TCS Number	TCS Description	Length (km)
TCS-3B-1	Typical Cross Section of Two-Lane Carriageway with Paved Shoulder with stabilized by RBI-Grade 81 in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side	.600
TCS-3B-2	Typical Cross Section of Two-Lane Carriageway with Paved Shoulder with stabilized by RBI-Grade 81 in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side (New Construction)	.75
TCS-3B-3	Typical Cross Section of Two Lane Carriageway with stabilized by RBI-Grade 81 In Rural Area With Retaining Wall on Valley Side And Trapezoidal Open drain on Hill side (Reconstruction)	.325
TCS-3A	Typical Cross Section of Two-Lane Carriageway with Paved Shoulder in Rural area with trapezoidal open drain on hill side and earthen shoulder on valley side (New Construction)	3.970
TCS-4	Typical Cross Section of Two Lane Carriageway In Rural Area With Retaining Wall on Valley Side And Trapezoidal Open drain on Hill side (Reconstruction)	2.480
TCS-5	Typical Cross Section of Two Lane Carriageway In Rural Area With Breast Wall on Hill Side And Earthen Shoulder on Valley side (Reconstruction)	0.645
TCS-5A	Typical Cross Section of Two Lane Carriageway In Rural Area With Breast Wall on Hill Side And Earthen Shoulder on Valley side (New Construction)	1.100
TCS-6	Typical Cross Section of Two Lane Carriageway In Built Up Area With Both Side Footpath Cum RCC Rectangular Covered Drain in Hilly Terrain (Reconstruction)	0.825
TCS-7	Typical Cross Section of Two Lane Carriageway In Built-Up Area With Breast Wall on Hill Side And Footpath Cum RCC Rectangular Covered Drain on Valley side	1.825
TCS-7A	Typical Cross Section of Two Lane Carriageway In Rural Area With Breast Wall on Hill Side And Trapezoidal Open Drain on Valley side (New Construction)	0.745
TCS-7B	Typical Cross Section of Two Lane Carriageway In Built-Up Area With Breast Wall on Hill Side And Footpath Cum RCC Rectangular Covered Drain on Valley side (New	0.190
TCS-8	Typical Cross Section of Two Lane Carriageway In Rural Area With Retaining Wall on One Side And Earthen Shoulder on other side (Reconstruction)	0.425
TCS-11	Typical Cross Section of Two Lane Carriageway In Rural Area With Retaining Wall on Valley Side And Breast Wall on Hill side (Reconstruction)	0.225
TCS-12	Typical Cross Section of Two Lane Carriageway In Rural Area With Both Side Trapezoidal Open Drain (New Construction)	1.985
TCS-14	Typical Cross Section of Intermediate Lane Carriageway in rural area with retaining wall protection in loose soil hill type and retaining wall in valley side (Reconstruction)	0.400
TCS-15	Typical Cross Section of Two Lane Carriageway In Rural Area With Breast Wall on Hill Side and gabion Wall on Valley side (Reconstruction)	0.570
	Barak Bridge Portion	1.000
Total =		**38.290**

List of TCS			
Design Chainage (m)		**Net Length (m)**	**TCS No.**
From	**To**		
131280	131810	530	TCS-3
131810	131860	50	TCS-3A
131860	131950	90	TCS-3

131950	132000	50	TCS-3A
132000	132400	400	TCS-3
132400	132450	50	TCS-3A
132450	132550	100	TCS-3
132550	132850	300	TCS-5
132850	132900	50	TCS-3
132900	132950	50	TCS-3A
132950	133100	150	TCS-3
133100	133150	50	TCS-8
133150	133250	100	TCS-4
133250	133625	375	TCS-3
133625	133675	50	TCS-12
133675	133825	150	TCS-3
133825	133950	125	TCS-4
133950	134225	275	TCS-3A
134225	134475	250	TCS-5A
134475	134675	200	TCS-3
134675	134725	50	TCS-5A
134725	134850	125	TCS-5
134850	134950	100	TCS-5A
134950	135125	175	TCS-4
135125	135380	255	TCS-3
135380	135430	50	TCS-4
135430	135484	54	TCS-3
135484	136484	1000	Barak Bridge Portion
136484	136550	66	TCS-3
136550	136650	100	TCS-14
136650	136840	190	TCS-3
136840	136900	60	TCS-4
136900	137270	370	TCS-15
137270	137320	50	TCS-3A
137320	137520	200	TCS-3
137520	137600	80	TCS-7A
137600	137725	125	TCS-5A
137725	138650	925	TCS-3
138650	138900	250	TCS-7
138900	139125	225	TCS-11
139125	139300	175	TCS-3
139300	139350	50	TCS-3A
139350	139600	250	TCS-3
139600	139710	110	TCS-4
139710	139800	90	TCS-3A
139800	140225	425	TCS-3
140225	140325	100	TCS-4
140325	140400	75	TCS-3
140400	140525	125	TCS-4
140525	140600	75	TCS-5A

140600	140670	70	TCS-4
140670	140975	305	TCS-3
140975	141125	150	TCS-14
141125	141300	175	TCS-3
141300	141500	200	TCS-15
141500	141650	150	TCS-7A
141650	141700	50	TCS-3A
141700	141970	270	TCS-3
141970	142070	100	TCS-5A
142070	142770	700	TCS-3
142770	142820	50	TCS-3A
142820	142950	130	TCS-4
142950	143170	220	TCS-5
143170	143330	160	TCS-4
143330	143400	70	TCS-7A
143400	143625	225	TCS-3
143625	143700	75	TCS-3A
143700	143950	250	TCS-3
143950	144020	70	TCS-12
144020	144150	130	TCS-3A
144150	144200	50	TCS-3
144200	144320	120	TCS-12
144320	144650	330	TCS-3A
144650	144725	75	TCS-3
144725	144800	75	TCS-4
144800	144975	175	TCS-3
144975	145050	75	TCS-3A
145050	145100	50	TCS-3
145100	145150	50	TCS-12
145150	145200	50	TCS-4
145200	145250	50	TCS-12
145250	145525	275	TCS-3
145525	145575	50	TCS-4
145575	145800	225	TCS-7
145800	146025	225	TCS-4
146025	146075	50	TCS-3
146075	146400	325	TCS-12
146400	146550	150	TCS-3A
146550	146975	425	TCS-3
146975	147025	50	TCS-3A
147025	147100	75	TCS-3
147100	147225	125	TCS-3A
147225	147300	75	TCS-3
147300	147350	50	TCS-12
147350	147400	50	TCS-3
147400	147500	100	TCS-3A
147500	147875	375	TCS-3

147875	148075	200	TCS-5A
148075	148225	150	TCS-3
148225	148300	75	TCS-3A
148300	148450	150	TCS-14
148450	148600	150	TCS-3
148600	148700	100	TCS-5A
148700	148875	175	TCS-3
148875	148925	50	TCS-3A
148925	148975	50	TCS-4
148975	149025	50	TCS-3A
149025	149075	50	TCS-3
149075	149125	50	TCS-3A
149125	149175	50	TCS-4
149175	149220	45	TCS-3A
149220	149325	105	TCS-3
149325	149450	125	TCS-3A
149450	149725	275	TCS-8
149725	149800	75	TCS-3A
149800	149925	125	TCS-3
149925	149975	50	TCS-3A
149975	150050	75	TCS-3
150050	150100	50	TCS-3A
150100	150275	175	TCS-4
150275	150350	75	TCS-3A
150350	150400	50	TCS-4
150400	150500	100	TCS-3
150500	150575	75	TCS-4
150575	150675	100	TCS-3
150675	150725	50	TCS-3A
150725	150850	125	TCS-3
150850	150925	75	TCS-3A
150925	151125	200	TCS-3
151125	151275	150	TCS-4
151275	151325	50	TCS-3
151325	151400	75	TCS-4
151400	151450	50	TCS-3A
151450	151500	50	TCS-3
151500	151550	50	TCS-3A
151550	151680	130	TCS-3
151680	151825	145	TCS-12
151825	152025	200	TCS-3
152025	152075	50	TCS-3A
152075	152275	200	TCS-3
152275	152350	75	TCS-12
152350	152400	50	TCS-3
152400	152550	150	TCS-12
152550	152800	250	TCS-3

152800	152875	75	TCS-3A
152875	153075	200	TCS-3
153075	153175	100	TCS-7A
153175	153300	125	TCS-3
153300	153475	175	TCS-12
153475	153700	225	TCS-3
153700	153775	75	TCS-3A
153775	153850	75	TCS-3
153850	153900	50	TCS-12
153900	153975	75	TCS-3
153975	154170	195	TCS-7A
154170	154775	605	TCS-3
154775	154825	50	TCS-3A
154825	154875	50	TCS-3
154875	154950	75	TCS-3A
154950	155075	125	TCS-3
155075	155125	50	TCS-3A
155125	155500	375	TCS-3
155500	155550	50	TCS-12
155550	155650	100	TCS-3
155650	155850	200	TCS-7
155850	156180	330	TCS-3
156180	157330	1150	TCS-7
157330	157420	90	TCS-7B
157420	157575	155	TCS-3
157575	157625	50	TCS-3A
157625	158150	525	TCS-3
158150	158200	50	TCS-12
158200	158300	100	TCS-3
158300	158375	75	TCS-12
158375	158775	400	TCS-3
158775	158825	50	TCS-3A
158825	158975	150	TCS-3
158975	159075	100	TCS-12
159075	159275	200	TCS-3
159275	159375	100	TCS-12
159375	159775	400	TCS-3
159775	159875	100	TCS-12
159875	159925	50	TCS-3A
159925	160075	150	TCS-3
160075	160125	50	TCS-3A
160125	160200	75	TCS-3
160200	160250	50	TCS-3A
160250	160850	600	TCS-3
160850	161100	250	TCS-6
161100	161125	25	TCS-3A
161125	161350	225	TCS-3

161350	161400	50	TCS-3A
161400	161700	300	TCS-3
161700	161800	100	TCS-5A
161800	162000	200	TCS-3
162000	162400	400	TCS-3B-1
162400	162475	75	TCS-3B-2
162475	162575	100	TCS-3B-1
162575	162725	150	TCS-3B-3
162725	162825	100	TCS-3B-1
162825	163000	175	TCS-3B-3
163000	163200	200	TCS-4
163200	163375	175	TCS-6
163375	163475	100	TCS-3A
163475	163625	150	TCS-3
163625	163700	75	TCS-3A
163700	164460	760	TCS-3
164460	164510	50	TCS-4
164510	164560	50	TCS-3A
164560	164610	50	TCS-3
164610	164700	90	TCS-3A
164700	164770	70	TCS-3
164770	164830	60	TCS-3A
164830	165530	700	TCS-3
165530	165580	50	TCS-3A
165580	165650	70	TCS-3
165650	165725	75	TCS-3A
165725	167225	1500	TCS-3
167225	167300	75	TCS-12
167300	167900	600	TCS-3
167900	168000	100	TCS-3A
168000	168050	50	TCS-3
168050	168150	100	TCS-8
168150	168550	400	TCS-6
168550	168675	125	TCS-12
168675	168825	150	TCS-7A
168825	168925	100	TCS-7B
168925	169570	645	TCS-3
Total Length =		**38290**	

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
Nil				

Minor Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1.	131.750	Y- Type	3-legged
2.	131.900	T-Type	3-legged
3.	133.150	Y- Type	3-legged
4.	135.500	Y- Type	3-legged
5.	138.550	Y- Type	3-legged
6.	144.300	T-Type	3-legged
7.	148.990	T-Type	3-legged
8.	153.650	Y- Type	3-legged
9.	156.750	Y- Type	3-legged
10.	157.400	T-Type	3-legged
11.	157.650	T-Type	3-legged
12.	161.000	Y- Type	3-legged
13.	163.100	Y- Type	3-legged
14.	163.300	Y- Type	3-legged
15.	164.200	Y- Type	3-legged
16.	168.150	Y- 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 the plan 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

From Ch. Km 162.000 to km 163.000 Stabilized Base and Sub-Base layer with RBI Grade-81 should be used as per IRC SP 89-2018.

(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

Not with standing anything to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for design traffic of 20msa.

(iv) Reconstruction of stretches.

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.	131.280 to 131.810	Reconstruction	TCS-3
2.	131.860 to 131.950	Reconstruction	TCS-3
3.	132.000 to 132.400	Reconstruction	TCS-3
4.	132.450 to 132.550	Reconstruction	TCS-3
5.	132.550 to 132.850	Reconstruction	TCS-5
6.	132.850 to 132.900	Reconstruction	TCS-3
7.	132.950 to 133.100	Reconstruction	TCS-3
8.	133.100 to 133.150	Reconstruction	TCS-8
9.	133.150 to 133.250	Reconstruction	TCS-4
10.	133.250 to 133.625	Reconstruction	TCS-3
11.	133.675 to 133.825	Reconstruction	TCS-3
12.	133.825 to 133.950	Reconstruction	TCS-4
13.	134.475 to 134.675	Reconstruction	TCS-3
14.	134.725 to 134.850	Reconstruction	TCS-5
15.	134.950 to 135.125	Reconstruction	TCS-4
16.	135.125 to 135.380	Reconstruction	TCS-3
17.	135.380 to 135.430	Reconstruction	TCS-4
18.	135.430 to 135.484	Reconstruction	TCS-3
19.	136.484 to 136.550	Reconstruction	TCS-3
20.	136.550 to 136.650	Reconstruction	TCS-14
21.	136.650 to 136.840	Reconstruction	TCS-3
22.	136.840 to 136.900	Reconstruction	TCS-4
23.	136.900 to 137.270	Reconstruction	TCS-15
24.	137.320 to 137.520	Reconstruction	TCS-3
25.	137.725 to 138.650	Reconstruction	TCS-3

Sl. No.	Stretch from Km to Km	Remarks	TCS Type
26.	138.650 to 138.900	Reconstruction	TCS-7
27.	138.900 to 139.125	Reconstruction	TCS-11
28.	139.125 to 139.300	Reconstruction	TCS-3
29.	139.350 to 139.600	Reconstruction	TCS-3
30.	139.600 to 139.710	Reconstruction	TCS-4
31.	139.800 to 140.225	Reconstruction	TCS-3
32.	140.225 to 140.325	Reconstruction	TCS-4
33.	140.325 to 140.400	Reconstruction	TCS-3
34.	140.400 to 140.525	Reconstruction	TCS-4
35.	140.600 to 140.670	Reconstruction	TCS-4
36.	140.670 to 140.975	Reconstruction	TCS-3
37.	140.975 to 141.125	Reconstruction	TCS-14
38.	141.125 to 141.300	Reconstruction	TCS-3
39.	141.300 to 141.500	Reconstruction	TCS-15
40.	141.700 to 141.970	Reconstruction	TCS-3
41.	142.070 to 142.770	Reconstruction	TCS-3
42.	142.820 to 142.950	Reconstruction	TCS-4
43.	142.950 to 143.170	Reconstruction	TCS-5
44.	143.170 to 143.330	Reconstruction	TCS-4
45.	143.400 to 143.625	Reconstruction	TCS-3
46.	143.700 to 143.950	Reconstruction	TCS-3
47.	144.150 to 144.200	Reconstruction	TCS-3
48.	144.650 to 144.725	Reconstruction	TCS-3
49.	144.725 to 144.800	Reconstruction	TCS-4
50.	144.800 to 144.975	Reconstruction	TCS-3
51.	145.050 to 145.100	Reconstruction	TCS-3
52.	145.150 to 145.200	Reconstruction	TCS-4
53.	145.250 to 145.525	Reconstruction	TCS-3
54.	145.525 to 145.575	Reconstruction	TCS-4
55.	145.575 to 145.800	Reconstruction	TCS-7
56.	145.800 to 146.025	Reconstruction	TCS-4
57.	146.025 to 146.075	Reconstruction	TCS-3
58.	146.550 to 146.975	Reconstruction	TCS-3
59.	147.025 to 147.100	Reconstruction	TCS-3
60.	147.225 to 147.300	Reconstruction	TCS-3
61.	147.350 to 147.400	Reconstruction	TCS-3
62.	147.500 to 147.875	Reconstruction	TCS-3
63.	148.075 to 148.225	Reconstruction	TCS-3
64.	148.300 to 148.450	Reconstruction	TCS-14
65.	148.450 to 148.600	Reconstruction	TCS-3
66.	148.700 to 148.875	Reconstruction	TCS-3
67.	148.925 to 148.975	Reconstruction	TCS-4
68.	149.025 to 149.075	Reconstruction	TCS-3
69.	149.125 to 149.175	Reconstruction	TCS-4
70.	149.220 to 149.325	Reconstruction	TCS-3
71.	149.450 to 149.725	Reconstruction	TCS-8

Sl. No.	Stretch from Km to Km	Remarks	TCS Type
72.	149.800 to 149.925	Reconstruction	TCS-3
73.	149.975 to 150.050	Reconstruction	TCS-3
74.	150.100 to 150.275	Reconstruction	TCS-4
75.	150.350 to 150.400	Reconstruction	TCS-4
76.	150.400 to 150.500	Reconstruction	TCS-3
77.	150.500 to 150.575	Reconstruction	TCS-4
78.	150.575 to 150.675	Reconstruction	TCS-3
79.	150.725 to 150.850	Reconstruction	TCS-3
80.	150.925 to 151.125	Reconstruction	TCS-3
81.	151.125 to 151.275	Reconstruction	TCS-4
82.	151.275 to 151.325	Reconstruction	TCS-3
83.	151.325 to 151.400	Reconstruction	TCS-4
84.	151.450 to 151.500	Reconstruction	TCS-3
85.	151.550 to 151.680	Reconstruction	TCS-3
86.	151.825 to 152.025	Reconstruction	TCS-3
87.	152.075 to 152.275	Reconstruction	TCS-3
88.	152.350 to 152.400	Reconstruction	TCS-3
89.	152.550 to 152.800	Reconstruction	TCS-3
90.	152.875 to 153.075	Reconstruction	TCS-3
91.	153.175 to 153.300	Reconstruction	TCS-3
92.	153.475 to 153.700	Reconstruction	TCS-3
93.	153.775 to 153.850	Reconstruction	TCS-3
94.	153.900 to 153.975	Reconstruction	TCS-3
95.	154.170 to 154.775	Reconstruction	TCS-3
96.	154.825 to 154.875	Reconstruction	TCS-3
97.	154.950 to 155.075	Reconstruction	TCS-3
98.	155.125 to 155.500	Reconstruction	TCS-3
99.	155.550 to 155.650	Reconstruction	TCS-3
100.	155.650 to 155.850	Reconstruction	TCS-7
101.	155.850 to 156.180	Reconstruction	TCS-3
102.	156.180 to 157.330	Reconstruction	TCS-7
103.	157.420 to 157.575	Reconstruction	TCS-3
104.	157.625 to 158.150	Reconstruction	TCS-3
105.	158.200 to 158.300	Reconstruction	TCS-3
106.	158.375 to 158.775	Reconstruction	TCS-3
107.	158.825 to 158.975	Reconstruction	TCS-3
108.	159.075 to 159.275	Reconstruction	TCS-3
109.	159.375 to 159.775	Reconstruction	TCS-3
110.	159.925 to 160.075	Reconstruction	TCS-3
111.	160.125 to 160.200	Reconstruction	TCS-3
112.	160.250 to 160.850	Reconstruction	TCS-3
113.	160.850 to 161.100	Reconstruction	TCS-6
114.	161.125 to 161.350	Reconstruction	TCS-3
115.	161.400 to 161.700	Reconstruction	TCS-3
116.	161.800 to 162.400	Reconstruction	TCS-3
117.	162.475 to 162.575	Reconstruction	TCS-3

Sl. No.	Stretch from Km to Km	Remarks	TCS Type
118.	162.575 to 162.725	Reconstruction	TCS-4
119.	162.725 to 162.825	Reconstruction	TCS-3
120.	162.825 to 163.200	Reconstruction	TCS-4
121.	163.200 to 163.375	Reconstruction	TCS-6
122.	163.475 to 163.625	Reconstruction	TCS-3
123.	163.700 to 164.460	Reconstruction	TCS-3
124.	164.460 to 164.510	Reconstruction	TCS-4
125.	164.560 to 164.610	Reconstruction	TCS-3
126.	164.700 to 164.770	Reconstruction	TCS-3
127.	164.830 to 165.530	Reconstruction	TCS-3
128.	165.580 to 165.650	Reconstruction	TCS-3
129.	165.725 to 167.2250	Reconstruction	TCS-3
130.	167.300 to 167.90	Reconstruction	TCS-3
131.	168.000 to 168.050	Reconstruction	TCS-3
132.	168.050 to 168.150	Reconstruction	TCS-8
133.	168.150 to 168.550	Reconstruction	TCS-6
134.	168.925 to 169.570	Reconstruction	TCS-3

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway has been provided in the table given below:

RCC Covered Drain

Chainage (m)		Length of CD (m)	Net Length (m)	Side
From	To			
138650	138900	0	250.0	One
145575	145800	5.3	219.7	One
155650	155850	5.3	194.7	One
156180	157330	26.32	1123.7	One
157330	157420	0	90.0	One
160850	161100	5.2	489.6	Both
163200	163375	3.84	342.3	Both
168150	168550	5.2	789.6	Both
168825	168925	2.6	97.4	One
Total =			**3597**	

Triangular Drain

Chainage (m)		Length of CD	Net Length (m)	Side
From	To			
131280	131810	5.4	524.6	Hill
131810	131860	0	50.0	Hill
131860	131950	6.06	83.9	Hill
131950	132000	0	50.0	Hill

Chainage (m)		Length of CD	Net Length	Side
132000	132400	7.9	392.1	Hill
132400	132450	0	50.0	Hill
132450	132550	2.6	97.4	Hill
132850	132900	0	50.0	Hill
132900	132950	0	50.0	Hill
132950	133100	2.6	147.4	Hill
133150	133250	2.7	97.3	Hill
133250	133625	5.2	369.8	Hill
133625	133675	0	100.0	Both
133675	133825	0	150.0	Hill
133825	133950	2.6	122.4	Hill
133950	134225	2.6	272.4	Hill
134475	134675	12.6	187.4	Hill
134950	135125	2.6	172.4	Hill
135125	135380	7.8	247.2	Hill
135380	135430	0	50.0	Hill
135430	135484	0	54.0	Hill
136484	136550	0	66.0	Hill
136650	136840	2.6	187.4	Hill
136840	136900	0	60.0	Hill
137270	137320	0	50.0	Hill
137320	137520	2.7	197.3	Hill
137520	137600	5.26	74.7	Valley
137725	138650	35.22	889.8	Hill
139125	139300	12.6	162.4	Hill
139300	139350	0	50.0	Hill
139350	139600	5.3	244.7	Hill
139600	139710	2.6	107.4	Hill
139710	139800	2.7	87.3	Hill
139800	140225	10.5	414.5	Hill
140225	140325	0	100.0	Hill
140325	140400	0	75.0	Hill
140400	140525	2.7	122.3	Hill
140600	140670	0	70.0	Hill
140670	140975	5.2	299.8	Hill
141125	141300	2.6	172.4	Hill
141500	141650	40	110.0	Valley
141650	141700	0	50.0	Hill
141700	141970	8	262.0	Hill
142070	142770	5.3	694.7	Hill
142770	142820	0	50.0	Hill
142820	142950	0	130.0	Hill
143170	143330	32	128.0	Hill
143330	143400	0	70.0	Valley
143400	143625	2.6	222.4	Hill
143625	143700	3.84	71.2	Hill
143700	143950	13.84	236.2	Hill
143950	144020	0	140.0	Both

Chainage (m)		Length of CD	Net Length	Side
144020	144150	2.7	127.3	Hill
144150	144200	0	50.0	Hill
144200	144320	0	240.0	Both
144320	144650	6.54	323.5	Hill
144650	144725	2.6	72.4	Hill
144725	144800	0	75.0	Hill
144800	144975	5.2	169.8	Hill
144975	145050	0	75.0	Hill
145050	145100	2.6	47.4	Hill
145100	145150	0	100.0	Both
145150	145200	2.6	47.4	Hill
145200	145250	0	100.0	Both
145250	145525	11.68	263.3	Hill
145525	145575	2.6	47.4	Hill
145800	146025	39.58	185.4	Hill
146025	146075	0	50.0	Hill
146075	146400	30	590.0	Both
146400	146550	0	150.0	Hill
146550	146975	5.4	419.6	Hill
146975	147025	0	50.0	Hill
147025	147100	2.7	72.3	Hill
147100	147225	2.7	122.3	Hill
147225	147300	2.7	72.3	Hill
147300	147350	0	100.0	Both
147350	147400	0	50.0	Hill
147400	147500	3.96	96.0	Hill
147500	147875	5.3	369.7	Hill
148075	148225	2.6	147.4	Hill
148225	148300	0	75.0	Hill
148450	148600	2.6	147.4	Hill
148700	148875	2.6	172.4	Hill
148875	148925	0	50.0	Hill
148925	148975	0	50.0	Hill
148975	149025	0	50.0	Hill
149025	149075	0	50.0	Hill
149075	149125	0	50.0	Hill
149125	149175	2.6	47.4	Hill
149175	149220	0	45.0	Hill
149220	149325	2.7	102.3	Hill
149325	149450	0	125.0	Hill
149725	149800	0	75.0	Hill
149800	149925	3.84	121.2	Hill
149925	149975	0	50.0	Hill
149975	150050	3.84	71.2	Hill
150050	150100	0	50.0	Hill
150100	150275	2.6	172.4	Hill
150275	150350	0	75.0	Hill
150350	150400	2.6	47.4	Hill

Chainage (m)		Length of CD	Net Length	Side
150400	150500	0	100.0	Hill
150500	150575	6.56	68.4	Hill
150575	150675	0	100.0	Hill
150675	150725	2.6	47.4	Hill
150725	150850	2.6	122.4	Hill
150850	150925	0	75.0	Hill
150925	151125	2.6	197.4	Hill
151125	151275	2.6	147.4	Hill
151275	151325	0	50.0	Hill
151325	151400	2.6	72.4	Hill
151400	151450	0	50.0	Hill
151450	151500	3.84	46.2	Hill
151500	151550	0	50.0	Hill
151550	151680	2.6	127.4	Hill
151680	151825	0	290.0	Both
151825	152025	2.6	197.4	Hill
152025	152075	2.6	47.4	Hill
152075	152275	2.6	197.4	Hill
152275	152350	0	150.0	Both
152350	152400	0	50.0	Hill
152400	152550	6.44	287.1	Both
152550	152800	6.06	243.9	Hill
152800	152875	0	75.0	Hill
152875	153075	0	200.0	Hill
153075	153175	0	100.0	Valley
153175	153300	2.6	122.4	Hill
153300	153475	0	350.0	Both
153475	153700	0	225.0	Hill
153700	153775	0	75.0	Hill
153775	153850	0	75.0	Hill
153850	153900	0	100.0	Both
153900	153975	2.6	72.4	Hill
153975	154170	0	195.0	Valley
154170	154775	10.5	594.5	Hill
154775	154825	0	50.0	Hill
154825	154875	2.6	47.4	Hill
154875	154950	0	75.0	Hill
154950	155075	0	125.0	Hill
155075	155125	0	50.0	Hill
155125	155500	0	375.0	Hill
155500	155550	0	100.0	Both
155550	155650	0	100.0	Hill
155850	156180	6.66	323.3	Hill
157420	157575	0	155.0	Hill
157575	157625	0	50.0	Hill
157625	158150	7.8	517.2	Hill
158150	158200	0	100.0	Both
158200	158300	7.8	92.2	Hill

Chainage (m)		Length of CD	Net Length	Side
158300	158375	0	150.0	Both
158375	158775	5	395.0	Hill
158775	158825	2.6	47.4	Hill
158825	158975	3.84	146.2	Hill
158975	159075	3.84	192.3	Both
159075	159275	0	200.0	Hill
159275	159375	0	200.0	Both
159375	159775	2.7	397.3	Hill
159775	159875	3.96	192.1	Both
159875	159925	2.6	47.4	Hill
159925	160075	0	150.0	Hill
160075	160125	2.7	47.3	Hill
160125	160200	0	75.0	Hill
160200	160250	2.6	47.4	Hill
160250	160850	7.8	592.2	Hill
161100	161125	0	25.0	Hill
161125	161350	2.6	222.4	Hill
161350	161400	0	50.0	Hill
161400	161700	6.44	293.6	Hill
161800	162400	7.8	592.2	Hill
162400	162475	0	75.0	Hill
162475	162575	0	100.0	Hill
162575	162725	0	150.0	Hill
162725	162825	0	100.0	Hill
162825	163200	3.96	371.0	Hill
163375	163475	0	100.0	Hill
163475	163625	16.14	133.9	Hill
163625	163700	0	75.0	Hill
163700	164460	16.9	743.1	Hill
164460	164510	2.6	47.4	Hill
164510	164560	0	50.0	Hill
164560	164610	2.6	47.4	Hill
164610	164700	0	90.0	Hill
164700	164770	0	70.0	Hill
164770	164830	0	60.0	Hill
164830	165530	9.14	690.9	Hill
165530	165580	0	50.0	Hill
165580	165650	0	70.0	Hill
165650	165725	0	75.0	Hill
165725	167225	17.16	1482.8	Hill
167225	167300	0	150.0	Both
167300	167900	3.96	596.0	Hill
167900	168000	2.6	97.4	Hill
168000	168050	0	50.0	Hill
168550	168675	6.44	237.1	Both
168675	168825	16.06	133.9	Valley
168925	169570	15.4	629.6	Hill
Total =			**32354**	

Catch water Drain

Chainage (m)		Length of CD (m)	Net Length (m)
From	To		
131810	131860	0	50.0
131950	132000	0	50.0
132400	132450	0	50.0
132550	132850	5.26	294.7
132900	132950	0	50.0
133625	133675	0	50.0
133950	134225	2.6	272.4
134225	134475	2.6	247.4
134675	134725	0	50.0
134725	134850	0	125.0
134850	134950	0	100.0
137270	137320	0	50.0
137520	137600	5.26	74.7
137600	137725	28.82	96.2
138900	139125	2.6	222.4
139300	139350	0	50.0
139710	139800	2.7	87.3
140525	140600	0	75.0
141500	141650	40	110.0
141650	141700	0	50.0
141970	142070	2.7	97.3
142770	142820	0	50.0
142950	143170	2.6	217.4
143330	143400	0	70.0
143625	143700	3.84	71.2
143950	144020	0	70.0
144020	144150	2.7	127.3
144200	144320	0	120.0
144320	144650	6.54	323.5
144975	145050	0	75.0
145100	145150	0	50.0
145200	145250	0	50.0
146075	146400	30	295.0
146400	146550	0	150.0
146975	147025	0	50.0
147100	147225	2.7	122.3
147300	147350	0	50.0

Chainage (m)		Length of CD	Net Length
147400	147500	3.96	96.0
147875	148075	3.96	196.0
148225	148300	0	75.0
148600	148700	2.7	97.3
148875	148925	0	50.0
148975	149025	0	50.0
149075	149125	0	50.0
149175	149220	0	45.0
149325	149450	0	125.0
149725	149800	0	75.0
149925	149975	0	50.0
150050	150100	0	50.0
150275	150350	0	75.0
150675	150725	2.6	47.4
150850	150925	0	75.0
151400	151450	0	50.0
151500	151550	0	50.0
151680	151825	0	145.0
152025	152075	2.6	47.4
152275	152350	0	75.0
152400	152550	6.44	143.6
152800	152875	0	75.0
153075	153175	0	100.0
153300	153475	0	175.0
153700	153775	0	75.0
153850	153900	0	50.0
153975	154170	0	195.0
154775	154825	0	50.0
154875	154950	0	75.0
155075	155125	0	50.0
155500	155550	0	50.0
157575	157625	0	50.0
158150	158200	0	50.0
158300	158375	0	75.0
158775	158825	2.6	47.4
158975	159075	3.84	96.2
159275	159375	0	100.0
159775	159875	3.96	96.0
159875	159925	2.6	47.4
160075	160125	2.7	47.3
160200	160250	2.6	47.4
161100	161125	0	25.0
161350	161400	0	50.0
161700	161800	0	100.0
162400	162475	0	75.0
163375	163475	0	100.0
163625	163700	0	75.0
164510	164560	0	50.0

Chainage (m)		Length of CD	Net Length
164610	164700	0	90.0
164770	164830	0	60.0
165530	165580	0	50.0
165650	165725	0	75.0
167225	167300	0	75.0
167900	168000	2.6	97.4
168550	168675	6.44	118.6
Total =			**8538**

Minimum length of Chute Drain (average 8 m height @ 50m Interval) =1366 m

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 carriageway 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
1.	134+506	Carriageway Width = 11.0m Width of Railings = 1.0m (2x0.50m) Overall width = 12 m
2.	137+647	
3.	138+343	
4.	138+602	
5.	139+245	
6.	141+556	
7.	143+309	
8.	143+722	
9.	146+007	
10.	146+233	

(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 hall be high-level bridges.

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

(e) The following structures shall be designed to carry utility service specified in

Table below:

[Refer to provision of the relevant Manualand provide details]

Sl. No.	Bridge at km	Utility service to be carried	Remarks
Nil			

(f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections given in provision of the 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:

The existing culverts at the following locations shall be re-constructed as new culverts:

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
1.	131.289	2.0 X 3.0	Reconstruction
2.	131.489	2.0 X 3.0	Reconstruction
3.	131.906	5.0 X 4.0	Reconstruction
4.	132.140	2.0 X 3.0	Reconstruction
5.	132.293	2.0 X 2.0	Reconstruction
6.	132.373	2.0 X 2.0	Reconstruction
7.	132.485	2.0 X 2.0	Reconstruction
8.	132.661	4.0 X 5.0	Reconstruction
9.	132.959	2.0 X 2.0	Reconstruction
10.	133.240	2.0 X 3.0	Reconstruction
11.	133.391	2.0 X 2.0	Reconstruction
12.	133.613	2.0 X 2.0	Reconstruction
13.	134.330	2.0 X 2.0	Reconstruction
14.	134.651	2.0 X 2.0	Reconstruction
15.	135.079	2.0 X 2.0	Reconstruction
16.	135.165	2.0 X 2.0	Reconstruction
17.	135.284	2.0 X 2.0	Reconstruction
18.	135.359	2.0 X 2.0	Reconstruction
19.	136.566	5.0 X 3.0	Reconstruction
20.	137.121	4.0 X 5.0	Reconstruction
21.	137.244	2.0 X 3.0	Reconstruction
22.	137.325	2.0 X 3.0	Reconstruction
23.	137.526	4.0 X 5.0	Reconstruction
24.	137.707	3.0 X 4.0	Reconstruction
25.	137.964	4.0 X 5.0	Reconstruction
26.	138.043	2.0 X 3.0	Reconstruction
27.	138.185	4.0 X 5.0	Reconstruction
28.	139.383	2.0 X 3.0	Reconstruction
29.	139.465	2.0 X 2.0	Reconstruction
30.	139.754	2.0 X 3.0	Reconstruction
31.	139.824	2.0 X 2.0	Reconstruction
32.	139.983	2.0 X 3.0	Reconstruction
33.	140.055	2.0 X 2.0	Reconstruction
34.	140.442	2.0 X 3.0	Reconstruction
35.	140.774	2.0 X 2.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
36.	140.866	2.0 X 2.0	Reconstruction
37.	141.159	2.0 X 2.0	Reconstruction
38.	141.386	3.0 X 3.0	Reconstruction
39.	141.714	2.0 X 2.0	Reconstruction
40.	141.774	2.0 X 3.0	Reconstruction
41.	141.829	2.0 X 3.0	Reconstruction
42.	142.069	2.0 X 3.0	Reconstruction
43.	142.496	2.0 X 3.0	Reconstruction
44.	142.761	2.0 X 2.0	Reconstruction
45.	143.096	2.0 X 2.0	Reconstruction
46.	143.488	2.0 X 2.0	Reconstruction
47.	143.637	3.0 X 3.0	Reconstruction
48.	143.949	3.0 X 3.0	Reconstruction
49.	144.060	2.0 X 3.0	Reconstruction
50.	144.329	3.0 X 3.0	Reconstruction
51.	144.369	2.0 X 3.0	Reconstruction
52.	144.686	2.0 X 2.0	Reconstruction
53.	144.857	2.0 X 2.0	Reconstruction
54.	144.968	2.0 X 2.0	Reconstruction
55.	145.184	2.0 X 2.0	Reconstruction
56.	145.274	4.0 X 4.0	Reconstruction
57.	145.332	2.0 X 2.0	Reconstruction
58.	145.414	3.0 X 4.0	Reconstruction
59.	145.676	2.0 X 3.0	Reconstruction
60.	145.809	2.0 X 3.0	Reconstruction
61.	145.953	5.0 X 5.0	Reconstruction
62.	146.556	2.0 X 3.0	Reconstruction
63.	146.864	2.0 X 3.0	Reconstruction
64.	147.067	2.0 X 3.0	Reconstruction
65.	147.152	2.0 X 3.0	Reconstruction
66.	147.293	2.0 X 3.0	Reconstruction
67.	147.462	3.0 X 4.0	Reconstruction
68.	147.544	2.0 X 3.0	Reconstruction
69.	147.974	3.0 X 4.0	Reconstruction
70.	148.179	2.0 X 2.0	Reconstruction
71.	148.667	2.0 X 3.0	Reconstruction
72.	149.299	2.0 X 3.0	Reconstruction
73.	149.464	2.0 X 3.0	Reconstruction
74.	149.824	3.0 X 3.0	Reconstruction
75.	150.024	3.0 X 3.0	Reconstruction
76.	150.351	2.0 X 2.0	Reconstruction
77.	150.520	2.0 X 2.0	Reconstruction
78.	150.570	3.0 X 4.0	Reconstruction
79.	150.720	2.0 X 2.0	Reconstruction
80.	150.816	2.0 X 2.0	Reconstruction
81.	151.479	3.0 X 3.0	Reconstruction
82.	151.662	2.0 X 2.0	Reconstruction
83.	152.028	2.0 X 2.0	Reconstruction
84.	152.408	2.0 X 2.0	Reconstruction
85.	152.546	3.0 X 3.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
86.	152.606	5.0 X 4.0	Reconstruction
87.	153.212	2.0 X 2.0	Reconstruction
88.	153.954	2.0 X 2.0	Reconstruction
89.	154.254	2.0 X 3.0	Reconstruction
90.	154.333	2.0 X 2.0	Reconstruction
91.	154.370	2.0 X 2.0	Reconstruction
92.	154.497	2.0 X 2.0	Reconstruction
93.	154.869	2.0 X 2.0	Reconstruction
94.	155.722	2.0 X 3.0	Reconstruction
95.	155.832	2.0 X 2.0	Reconstruction
96.	155.901	3.0 X 4.0	Reconstruction
97.	156.108	2.0 X 3.0	Reconstruction
98.	156.224	2.0 X 2.0	Reconstruction
99.	156.244	2.0 X 3.0	Reconstruction
100.	156.355	2.0 X 2.0	Reconstruction
101.	156.430	2.0 X 2.0	Reconstruction
102.	156.515	2.0 X 2.0	Reconstruction
103.	156.576	2.0 X 3.0	Reconstruction
104.	156.864	3.0 X 4.0	Reconstruction
105.	157.092	3.0 X 4.0	Reconstruction
106.	157.330	2.0 X 2.0	Reconstruction
107.	157.636	2.0 X 2.0	Reconstruction
108.	157.840	2.0 X 2.0	Reconstruction
109.	158.022	2.0 X 2.0	Reconstruction
110.	158.217	2.0 X 2.0	Reconstruction
111.	158.271	2.0 X 2.0	Reconstruction
112.	158.300	2.0 X 2.0	Reconstruction
113.	158.420	4.0 X 3.0	Reconstruction
114.	158.786	2.0 X 2.0	Reconstruction
115.	158.940	3.0 X 3.0	Reconstruction
116.	159.014	3.0 X 3.0	Reconstruction
117.	159.474	2.0 X 3.0	Reconstruction
118.	159.779	3.0 X 4.0	Reconstruction
119.	159.881	2.0 X 2.0	Reconstruction
120.	160.080	2.0 X 3.0	Reconstruction
121.	160.206	2.0 X 2.0	Reconstruction
122.	160.303	2.0 X 2.0	Reconstruction
123.	160.380	2.0 X 2.0	Reconstruction
124.	160.817	2.0 X 2.0	Reconstruction
125.	160.893	2.0 X 2.0	Reconstruction
126.	161.006	2.0 X 2.0	Reconstruction
127.	161.311	2.0 X 2.0	Reconstruction
128.	161.601	3.0 X 3.0	Reconstruction
129.	161.659	2.0 X 2.0	Reconstruction
130.	161.885	2.0 X 2.0	Reconstruction
131.	162.206	2.0 X 2.0	Reconstruction
132.	162.382	2.0 X 2.0	Reconstruction
133.	162.904	3.0 X 4.0	Reconstruction
134.	163.340	3.0 X 3.0	Reconstruction
135.	163.527	5.0 X 3.0	Reconstruction

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
136.	163.952	3.0 X 3.0	Reconstruction
137.	164.070	3.0 X 3.0	Reconstruction
138.	164.177	3.0 X 4.0	Reconstruction
139.	164.302	4.0 X 5.0	Reconstruction
140.	164.495	2.0 X 2.0	Reconstruction
141.	164.575	2.0 X 2.0	Reconstruction
142.	165.171	2.0 X 3.0	Reconstruction
143.	165.276	3.0 X 3.0	Reconstruction
144.	165.512	2.0 X 2.0	Reconstruction
145.	165.767	2.0 X 2.0	Reconstruction
146.	165.910	2.0 X 3.0	Reconstruction
147.	166.146	2.0 X 2.0	Reconstruction
148.	166.545	2.0 X 2.0	Reconstruction
149.	166.847	2.0 X 3.0	Reconstruction
150.	166.938	3.0 X 4.0	Reconstruction
151.	167.595	3.0 X 4.0	Reconstruction
152.	167.960	2.0 X 2.0	Reconstruction
153.	168.367	2.0 X 2.0	Reconstruction
154.	168.457	2.0 X 2.0	Reconstruction
155.	168.554	3.0 X 3.0	Reconstruction
156.	168.674	2.0 X 2.0	Reconstruction
157.	168.740	5.0 X 4.0	Reconstruction
158.	168.834	2.0 X 2.0	Reconstruction
159.	168.962	2.0 X 2.0	Reconstruction
160.	169.177	3.0 X 3.0	Reconstruction
161.	169.236	4.0 X 3.0	Reconstruction
162.	169.480	3.0 X 4.0	Reconstruction

*[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 out.

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 (km)	Span /Opening (m)	Remarks*
1.	133.830	2.0 X 2.0	Box Culvert
2.	134.035	2.0 X 2.0	Box Culvert
3.	136.725	2.0 X 2.0	Box Culvert
4.	136.925	2.0 X 2.0	Box Culvert
5.	138.909	2.0 X 2.0	Box Culvert
6.	139.148	2.0 X 2.0	Box Culvert
7.	139.604	2.0 X 2.0	Box Culvert

Sl No	Culvert Location (km)	Span /Opening (m)	Remarks*
8.	140.153	2.0 X 2.0	Box Culvert
9.	141.040	2.0 X 2.0	Box Culvert
10.	145.063	2.0 X 2.0	Box Culvert
11.	145.550	2.0 X 2.0	Box Culvert
12.	145.744	2.0 X 2.0	Box Culvert
13.	147.647	2.0 X 2.0	Box Culvert
14.	148.404	2.0 X 2.0	Box Culvert
15.	148.558	2.0 X 2.0	Box Culvert
16.	148.811	2.0 X 2.0	Box Culvert
17.	149.131	2.0 X 2.0	Box Culvert
18.	149.575	2.0 X 3.0	Box Culvert
19.	150.175	2.0 X 2.0	Box Culvert
20.	150.938	2.0 X 2.0	Box Culvert
21.	151.138	2.0 X 2.0	Box Culvert
22.	151.338	2.0 X 2.0	Box Culvert
23.	151.889	2.0 X 2.0	Box Culvert
24.	152.248	2.0 X 2.0	Box Culvert

(e) Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

[Refer provision of the relevant Manualand provide details]

Sl. No.	Location at km	Type of repair required
Nil		

(e) Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

(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]

Sl. No.	Bridge location (km)	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
		Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
1.	134.506	RCC Slab	1 x 10	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 4m)
2.	138.343	RCC Slab	1 x 6	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 4m)
3.	138.602	RCC Slab	1 x 10	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 10m)
4.	139.245	RCC Slab	1 x 6	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 6m)
5.	141.556	RCC Box Girder	1 x 24.7	Insufficient width and not conform to IRC Loading	RCC T Girder (2 x 21m)

Sl. No.	Bridge location (km)	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
		Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
6.	143.722	RCC Slab	1 x 6	Insufficient width and not conform to IRC Loading	Proposed as RCC Box (1 x 6 x 3m)

(ii) The following narrow bridges shall be widened:

Sl. No.	Location (km)	Existing width(m)	Extent of widening(m)	Cross-section at deck level for widening@
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 railings of existing bridges shall be replaced by crash barriers at the following locations:

[Refer provision of the relevant Manualand provide details:]

Sl. No.	Location at km	Remarks
Nil		

(d) Repairs and maintenance of existing bridges shall be done as per site requirement as follows:

[Refer to provision of the relevant Manualand provide details]

Sl No	Survey Chainage (km)	Design Chainage (km)	Type of Existing Structure	Proposal Type
1.	141.269	137.647	RCC Box Girder (1 x 24.7m)	Retained
2.	147.280	143.309	RCC Box Girder (1 x 29.7m)	Retained
3.	149.978	146.007	RCC Box Girder (1 x 29.7m)	Retained
4.	150.204	146.233	RCC Box Girder (1 x 29.7m)	Retained

Note: Repairs and maintenance of existing bridges shall be done as per site requirement

e) Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in provision of the relevant Manual

(f) Structures in marine environment

[Refer to provision of the relevant Manual and specify the necessary measures/ treatments for protecting structures in marine environment. Where applicable]

(v) Rail-road bridges

(a) Design construction and detailing of ROB/RUB shall be as specified in provision of the relevant Manual [Refer to provision of the relevant Manual and specify modification, if any]

(b) Road over-bridges

Road over-bridges (road over rail) shall be provided at the following level crossings. As per GAD drawings attached:

Sl. No.	Location of Level crossing (Chainage km)	Length of bridge (m)
Nil		

(c) Road under-bridges

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

Sl. No.	Location of Level crossing (Chainage km)	Number and length of span(m)
Nil		

(v) Grade separated structures

[Refer provision of the relevant Manual]

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

(vi) Repairs and strengthening of bridges and structures

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

The existing bridges and structures to be repaired / strengthened and the nature and extent of repairs /strengthening required 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 ROB/RUB (km)	Nature and extent of repairs/strengthening to be carried out
Nil		

(c) Overpasses/Underpasses and other structures

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

Nil

(vii) List of Major Bridges and Structures

The following is the list of the 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.

Sl. No	Traffic Signages, Road Marking and other appurtenances	Quantity	unit
1	Total No of Street Light=	129	Nos
2	Kilometer stones=	30	Nos
3	5th Kilometer stones=	08	Nos
4	Boundary Stones=	385	Nos
5	Delineators (100 cm long and circular shaped)+Hazard marker =	3354	Nos
6	Road Stud=	18142	Nos
7	900 mm Octagonal	32	Nos
8	600 mm circular	90	Nos
9	900 mm Tringular	325	Nos
10	800 mm x 600 mm rectangular	08	Nos
11	Rumble Strip=	680	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
Nil		

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) Hydro seeding

Chainage (m)		Net Length (m)	Side
From	To		
131950	132000	50.0	Valley
132900	132950	50.0	Valley
133625	133675	100.0	Both
133950	134225	275.0	Valley
134225	134475	250.0	Valley
134675	134725	50.0	Valley

Chainage (m)		Net Length	Side
134850	134950	100.0	Valley
137270	137320	50.0	Valley
137520	137600	80.0	Valley
137600	137725	125.0	Valley
139300	139350	50.0	Valley
139710	139800	90.0	Valley
140525	140600	75.0	Valley
141500	141650	150.0	Valley
141650	141700	50.0	Valley
141970	142070	100.0	Valley
142770	142820	50.0	Valley
143330	143400	70.0	Valley
143625	143700	75.0	Valley
143950	144020	140.0	Both
144020	144150	130.0	Valley
144200	144320	240.0	Both
144320	144650	330.0	Valley
144975	145050	75.0	Valley
145100	145150	100.0	Both
145200	145250	100.0	Both
146075	146400	620.0	Both
146400	146550	150.0	Valley
146975	147025	50.0	Valley
147100	147225	125.0	Valley
147300	147350	100.0	Both
147400	147500	100.0	Valley
147875	148075	200.0	Valley
148225	148300	75.0	Valley
148600	148700	100.0	Valley
148875	148925	50.0	Valley
148975	149025	50.0	Valley
149075	149125	50.0	Valley
149175	149220	45.0	Valley
149325	149450	125.0	Valley
149725	149800	75.0	Valley
149925	149975	50.0	Valley
150050	150100	50.0	Valley
150275	150350	75.0	Valley
150675	150725	50.0	Valley
150850	150925	75.0	Valley
151400	151450	50.0	Valley
151500	151550	50.0	Valley
151680	151825	290.0	Both
152025	152075	50.0	Valley
152275	152350	150.0	Both

Chainage (m)		Net Length	Side
152400	152550	293.6	Both
152800	152875	75.0	Valley
153075	153175	100.0	Valley
153300	153475	350.0	Both
153700	153775	75.0	Valley
153850	153900	100.0	Both
153975	154170	195.0	Valley
154775	154825	50.0	Valley
154875	154950	75.0	Valley
155075	155125	50.0	Valley
155500	155550	100.0	Both
157575	157625	50.0	Valley
158150	158200	100.0	Both
158300	158375	150.0	Both
158775	158825	50.0	Valley
158975	159075	196.2	Both
159275	159375	200.0	Both
159775	159875	196.0	Both
159875	159925	50.0	Valley
160075	160125	50.0	Valley
160200	160250	50.0	Valley
161100	161125	25.0	Valley
161350	161400	50.0	Valley
161700	161800	100.0	Valley
162400	162475	75.0	Valley
163375	163475	100.0	Valley
163625	163700	75.0	Valley
164510	164560	50.0	Valley
164610	164700	90.0	Valley
164770	164830	60.0	Valley
165530	165580	50.0	Valley
165650	165725	75.0	Valley
167225	167300	150.0	Both
167900	168000	100.0	Valley
168550	168675	243.6	Both
168675	168825	150.0	Valley
136550	136650	100.0	hill
136900	137270	738.0	Both
140975	141125	148.0	hill
141300	141500	394.0	Both
148300	148450	146.0	hill
Total =	**11039m**		

Total Area of Hydroseeding =88314 sqm

12. Special Requirement for Hill Roads

a) Retaining Wall

Chainage (m)		Length of CD (m)	Net Length (m)	Avg. Height (m)
From	To			
133100	133150	0	50.0	2
133150	133250	2.7	97.3	2
133825	133950	2.6	122.4	3
134950	135125	2.6	172.4	2
135380	135430	0	50.0	2
136550	136650	6.14	93.9	3
136840	136900	0	60.0	2
138900	139125	2.6	222.4	2
139600	139710	2.6	107.4	2
140225	140325	0	100.0	2
140400	140525	2.7	122.3	2
140600	140670	0	70.0	2
140975	141125	2.6	147.4	3
142820	142950	0	130.0	2
143170	143330	32	128.0	3
144725	144800	0	75.0	2
145150	145200	2.6	47.4	2
145525	145575	2.6	47.4	2
145800	146025	39.58	185.4	2
148300	148450	2.6	147.4	3
148925	148975	0	50.0	2
149125	149175	2.6	47.4	2
149450	149725	5.4	269.6	3
150100	150275	2.6	172.4	2
150350	150400	2.6	47.4	2
150500	150575	6.56	68.4	2
151125	151275	2.6	147.4	2
151325	151400	2.6	72.4	2
162575	162725	0	150.0	2
162825	163200	3.96	371.0	2
164460	164510	2.6	47.4	2

Length of 2.0 m Retaining Wall = 2711

Length of 3.0 m Retaining Wall = 909

b) Breast Wall

Chainage (m)		Length of CD	Net Length (m)	TCS No.	Side	Avg. Height (m)
From	To					
132550	132850	5.26	294.7	TCS-5	Hill	2
134225	134475	2.6	247.4	TCS-5A	Hill	2
134675	134725	0	50.0	TCS-5A	Hill	2

134725	134850	0	125.0	TCS-5	Hill	2
134850	134950	0	100.0	TCS-5A	Hill	2
136550	136650	6.14	93.9	TCS-14	Hill	3
136900	137270	10.56	359.4	TCS-15	Hill	3
137520	137600	5.26	74.7	TCS-7A	Hill	2
137600	137725	28.82	96.2	TCS-5A	Hill	2
138650	138900	0	250.0	TCS-7	Hill	2
138900	139125	2.6	222.4	TCS-11	Hill	2
140525	140600	0	75.0	TCS-5A	Hill	2
140975	141125	2.6	147.4	TCS-14	Hill	3
141300	141500	3.84	196.2	TCS-15	Hill	3
141500	141650	40	110.0	TCS-7A	Hill	2
141970	142070	2.7	97.3	TCS-5A	Hill	2
142950	143170	2.6	217.4	TCS-5	Hill	2
143330	143400	0	70.0	TCS-7A	Hill	2
145575	145800	5.3	219.7	TCS-7	Hill	2
147875	148075	3.96	196.0	TCS-5A	Hill	2
148300	148450	2.6	147.4	TCS-14	Hill	3
148600	148700	2.7	97.3	TCS-5A	Hill	2
153075	153175	0	100.0	TCS-7A	Hill	2
153975	154170	0	195.0	TCS-7A	Hill	2
155650	155850	5.3	194.7	TCS-7	Hill	2
156180	157330	26.32	1123.7	TCS-7	Hill	2
157330	157420	0	90.0	TCS-7B	Hill	2
161700	161800	0	100.0	TCS-5A	Hill	2
168675	168825	16.06	133.9	TCS-7A	Hill	2
168825	168925	2.6	97.4	TCS-7B	Hill	2
Total =			**5522**			

Breast Wall (2m) **4578 m**
Breast Wall (3m) **944 m**

c) Metal Beam Crash Barrier

Chainage (m)		**Net Length (m)**	**Side**
From	**To**		
132050	132100	50.0	Valley
132950	133050	100.0	Valley
133370	133420	50.0	Valley
133630	133680	50.0	Valley
134250	134350	100.0	Valley
134450	134600	150.0	Valley
134700	134770	70.0	Valley
134850	134950	100.0	Valley
137050	137200	150.0	Valley
137800	137850	50.0	Valley
139930	139980	50.0	Valley
140175	140225	50.0	Valley
140670	140720	50.0	Valley

Chainage (m)		Net Length (m)	Side
From	To		
142450	142550	100.0	Valley
142680	142750	70.0	Valley
144500	144600	100.0	Valley
146600	146700	100.0	Valley
146750	146850	100.0	Valley
147250	147350	100.0	Valley
147750	147820	70.0	Valley
150950	151050	100.0	Valley
151400	151450	50.0	Valley
152150	152200	50.0	Valley
154300	154400	100.0	Valley
154850	154950	100.0	Valley
157450	157550	100.0	Valley
159050	159120	70.0	Valley
159550	159650	100.0	Valley
159800	159850	50.0	Valley
160580	160630	50.0	Valley
161900	161970	70.0	Valley
164750	164800	50.0	Valley
166050	166150	100.0	Valley
167670	167720	50.0	Valley
Total =		**2700.0 m**	

Hence, Crash barrier for Bridge Portion= 1200 m

Therefore, total length of crash barrier = 3900 m

a) Gabion Wall

Chainage (m)		side	Length (m)
From	To		
136900	137270	Valley	370
141300	141500	Valley	200

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

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 the Project Facilities is described below:

a) Toll Plaza: -

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

b) Roadside furniture: -

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
1.	Bus Bay & Passenger shelter	135+400 (Both Side)	Bus Bays & Passenger shelter have been placed on both side of proposed roadway	Dimension of Bus Bay (L X B = 59.0 m X 3.0 m) Dimension of Passenger Shelter (L X B = 6.0 m X 2.0 m) (Refer Passenger Shelter Drawing)
2.	Bus Bay & Passenger shelter	138+940 (Both Side)		
3.	Bus Bay & Passenger shelter	146+120 (Both Side)		
4.	Bus Bay & Passenger shelter	161+400 (Both Side)		

f) Rest Areas

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

g) Others to be specified

Street Lighting:
Total 129 Nos. Street lighting shall be provided in built-upareas, bus bays and passenger shelters locations.

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

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: 73-2018) & IRC SP 89-2018, 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 the Manual of Specifications and Standards for [Two-Lanning of Highways (IRC: SP:73-2018)], 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) [Not withstanding 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>Provision as per Manual</th><th>Modified Provision</th></tr>
<tr><td>Shoulder</td><td>2.6</td><td><u>Mountainous Terrain</u>
<table>
<tr><th>Type of Section</th><th>Side</th><th colspan="3">Width of Shoulder (m)</th></tr>
<tr><th></th><th></th><th>Paved</th><th>Earthen</th><th>Total</th></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></tr>
<tr><td></td><td>Valley Side</td><td>1.5</td><td>1</td><td>2.5</td></tr>
<tr><td>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></tr>
<tr><td></td><td>Valley Side</td><td>0.25 m + 1.5 m (Raised)</td><td>-</td><td>1.75</td></tr>
</table></td><td><u>Mountainous Terrain</u>
<table>
<tr><th>Type of Section</th><th>Side</th><th colspan="3">Width of Shoulder (m)</th></tr>
<tr><th></th><th></th><th>Paved</th><th>Earthen</th><th>Total</th></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></tr>
<tr><td></td><td>Valley Side</td><td>1.5</td><td>1.0 m</td><td>2.5</td></tr>
<tr><td>Built-up Area and Approaches to grade separated structures/ bridges</td><td>Hill Side</td><td>1.5</td><td>-</td><td>1.5</td></tr>
<tr><td></td><td>Valley Side</td><td>1.5</td><td>-</td><td>1.5</td></tr>
</table></td></tr>
<tr><td>Design Speed</td><td>2.2</td><td><u>Mountainous Terrain:</u>
Ruling : 60 Kmph
Minimum : 40 Kmph</td><td><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>Extra Widening has been proposed as per IRC: SP: 73-2018
<table>
<tr><th>Radius</th><th>Extra Widening</th></tr>
<tr><td>75-100 m</td><td>0.9 m</td></tr>
<tr><td>101-300 m</td><td>0.6 m</td></tr>
</table></td><td>Extra Widening has been proposed as per IRC: SP: 48-1998 (Table 6.9) of Hill Road Manual.
<table>
<tr><th>Radius</th><th>Extra Widening</th></tr>
<tr><td>21-40 m</td><td>1.5 m</td></tr>
<tr><td>41-60 m</td><td>1.2 m</td></tr>
<tr><td>61-100 m</td><td>0.9 m</td></tr>
<tr><td>75-100 m</td><td>0.9 m</td></tr>
</table></td></tr>
</table>

Item	Manual Clause Reference	Provision as per Manual	Modified Provision		
			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.	Stretch	Type of Deficiency	Remarks
1	131.303 to 131.330	Sharp Bend	Design Speed 30 kmph
2	132.025 to 132.073	Sharp Bend	Design Speed 30 kmph
3	132.127 to 132.152	Sharp Bend	Design Speed 30 kmph
4	132.212 to 132.223	Sharp Bend	Design Speed 30 kmph
5	132.654 to 132.687	Sharp Bend	Design Speed 30 kmph
6	132.736 to 132.778	Sharp Bend	Design Speed 30 kmph
7	132.811 to 132.826	Sharp Bend	Design Speed 30 kmph
8	132.869 to 132.892	Sharp Bend	Design Speed 30 kmph
9	133.376 to 133.393	Sharp Bend	Design Speed 30 kmph
10	133.441 to 133.452	Sharp Bend	Design Speed 30 kmph
11	133.482 to 133.503	Sharp Bend	Design Speed 30 kmph
12	133.541 to 133.555	Sharp Bend	Design Speed 30 kmph
13	134.402 to 134.421	Sharp Bend	Design Speed 30 kmph
14	134.484 to 134.52	Sharp Bend	Design Speed 30 kmph
15	134.563 to 134.601	Sharp Bend	Design Speed 30 kmph
16	134.633 to 134.683	Sharp Bend	Design Speed 30 kmph
17	134.736 to 134.744	Sharp Bend	Design Speed 30 kmph
18	134.899 to 134.904	Sharp Bend	Design Speed 30 kmph
19	135.730 to 135.779	Sharp Bend	Design Speed 30 kmph
20	135.930 to 135.994	Sharp Bend	Design Speed 30 kmph
21	136.459 to 136.464	Sharp Bend	Design Speed 30 kmph
22	137.060 to 137.075	Sharp Bend	Design Speed 30 kmph
23	137.119 to 137.130	Sharp Bend	Design Speed 30 kmph
24	137.189 to 137.208	Sharp Bend	Design Speed 30 kmph
25	137.233 to 137.260	Sharp Bend	Design Speed 30 kmph
26	137.401 to 137.409	Sharp Bend	Design Speed 30 kmph
27	137.533 to 137.541	Sharp Bend	Design Speed 30 kmph
28	137.592 to 137.599	Sharp Bend	Design Speed 20 kmph
29	137.695 to 137.701	Sharp Bend	Design Speed 20 kmph
30	137.805 to 137.834	Sharp Bend	Design Speed 30 kmph
31	137.946 to 137.994	Sharp Bend	Design Speed 30 kmph
32	138.064 to 138.118	Sharp Bend	Design Speed 30 kmph
33	138.172 to 138.183	Sharp Bend	Design Speed 30 kmph
34	138.584 to 138.618	Sharp Bend	Design Speed 30 kmph
35	138.711 to 138.731	Sharp Bend	Design Speed 30 kmph
36	139.223 to 139.281	Sharp Bend	Design Speed 30 kmph
37	139.443 to 139.474	Sharp Bend	Design Speed 30 kmph
38	139.537 to 139.549	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
39	139.597 to 139.606	Sharp Bend	Design Speed 30 kmph
40	140.059 to 140.080	Sharp Bend	Design Speed 30 kmph
41	140.214 to 140.233	Sharp Bend	Design Speed 30 kmph
42	141.351 to 141.380	Sharp Bend	Design Speed 30 kmph
43	141.495 to 141.513	Sharp Bend	Design Speed 20 kmph
44	141.604 to 141.635	Sharp Bend	Design Speed 20 kmph
45	142.691 to 142.706	Sharp Bend	Design Speed 30 kmph
46	142.748 to 142.765	Sharp Bend	Design Speed 30 kmph
47	143.190 to 143.229	Sharp Bend	Design Speed 30 kmph
48	143.34 to 143.354	Sharp Bend	Design Speed 20 kmph
49	143.717 to 143.761	Sharp Bend	Design Speed 30 kmph
50	143.808 to 143.842	Sharp Bend	Design Speed 30 kmph
51	144.287 to 144.326	Sharp Bend	Design Speed 30 kmph
52	144.460 to 144.466	Sharp Bend	Design Speed 30 kmph
53	144.519 to 144.563	Sharp Bend	Design Speed 30 kmph
54	145.092 to 145.131	Sharp Bend	Design Speed 30 kmph
55	145.198 to 145.205	Sharp Bend	Design Speed 30 kmph
56	145.358 to 145.435	Sharp Bend	Design Speed 30 kmph
57	145.487 to 145.536	Sharp Bend	Design Speed 30 kmph
58	145.645 to 145.755	Sharp Bend	Design Speed 30 kmph
59	145.852 to 145.866	Sharp Bend	Design Speed 30 kmph
60	145.945 to 145.974	Sharp Bend	Design Speed 20 kmph
61	146.063 to 146.074	Sharp Bend	Design Speed 20 kmph
62	146.164 to 146.178	Sharp Bend	Design Speed 20 kmph
63	146.270 to 146.287	Sharp Bend	Design Speed 20 kmph
64	146.368 to 146.447	Sharp Bend	Design Speed 30 kmph
65	146.549 to 146.572	Sharp Bend	Design Speed 30 kmph
66	146.644 to 146.657	Sharp Bend	Design Speed 30 kmph
67	146.707 to 146.722	Sharp Bend	Design Speed 30 kmph
68	146.782 to 146.807	Sharp Bend	Design Speed 30 kmph
69	146.864 to 146.880	Sharp Bend	Design Speed 30 kmph
70	147.427 to 147.489	Sharp Bend	Design Speed 30 kmph
71	147.613 to 147.6437	Sharp Bend	Design Speed 30 kmph
72	147.778 to 147.796	Sharp Bend	Design Speed 30 kmph
73	147.954 to 147.993	Sharp Bend	Design Speed 30 kmph
74	148.109 to 148.147	Sharp Bend	Design Speed 30 kmph
75	148.214 to 148.249	Sharp Bend	Design Speed 30 kmph
76	148.928 to 148.989	Sharp Bend	Design Speed 30 kmph
77	149.064 to 149.146	Sharp Bend	Design Speed 30 kmph
78	149.196 to 149.218	Sharp Bend	Design Speed 30 kmph
79	149.301 to 149.310	Sharp Bend	Design Speed 30 kmph
80	149.378 to 149.396	Sharp Bend	Design Speed 30 kmph
81	149.522 to 149.541	Sharp Bend	Design Speed 30 kmph
82	149.774 to 149.845	Sharp Bend	Design Speed 30 kmph
83	149.914 to 149.937	Sharp Bend	Design Speed 30 kmph
84	150.015 to 150.0213	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
85	150.210 to 150.245	Sharp Bend	Design Speed 20 kmph
86	150.364 to 150.372	Sharp Bend	Design Speed 30 kmph
87	150.448 to 150.535	Sharp Bend	Design Speed 30 kmph
88	150.593 to 150.606	Sharp Bend	Design Speed 30 kmph
89	150.722 to 150.742	Sharp Bend	Design Speed 30 kmph
90	150.867 to 150.893	Sharp Bend	Design Speed 30 kmph
91	150.923 to 150.967	Sharp Bend	Design Speed 30 kmph
92	150.988 to 151.086	Sharp Bend	Design Speed 30 kmph
93	151.138 to 151.149	Sharp Bend	Design Speed 30 kmph
94	151.280 to 151.322	Sharp Bend	Design Speed 30 kmph
95	151.391 to 151.403	Sharp Bend	Design Speed 30 kmph
96	151.460 to 151.476	Sharp Bend	Design Speed 30 kmph
97	151.616 to 151.653	Sharp Bend	Design Speed 30 kmph
98	151.787 to 151.816	Sharp Bend	Design Speed 30 kmph
99	151.922 to 151.954	Sharp Bend	Design Speed 30 kmph
100	152.014 to 152.041	Sharp Bend	Design Speed 30 kmph
101	152.540 to 152.616	Sharp Bend	Design Speed 30 kmph
102	152.966 to 152.979	Sharp Bend	Design Speed 30 kmph
103	153.207 to 153.225	Sharp Bend	Design Speed 30 kmph
104	153.571 to 153.590	Sharp Bend	Design Speed 30 kmph
105	153.646 to 153.675	Sharp Bend	Design Speed 30 kmph
106	154.363 to 154.388	Sharp Bend	Design Speed 30 kmph
107	155.198 to 155.243	Sharp Bend	Design Speed 30 kmph
108	155.306 to 155.324	Sharp Bend	Design Speed 30 kmph
109	155.446 to 155.545	Sharp Bend	Design Speed 30 kmph
110	155.582 to 155.590	Sharp Bend	Design Speed 30 kmph
111	155.720 to 155.736	Sharp Bend	Design Speed 30 kmph
112	155.791 to 155.798	Sharp Bend	Design Speed 30 kmph
113	155.891 to 155.907	Sharp Bend	Design Speed 30 kmph
114	155.964 to 156.009	Sharp Bend	Design Speed 30 kmph
115	156.099 to 156.124	Sharp Bend	Design Speed 30 kmph
116	156.185 to 156.203	Sharp Bend	Design Speed 30 kmph
117	156.372 to 156.509	Sharp Bend	Design Speed 30 kmph
118	156.558 to 156.563	Sharp Bend	Design Speed 30 kmph
119	156.634 to 156.640	Sharp Bend	Design Speed 30 kmph
120	156.817 to 156.918	Sharp Bend	Design Speed 30 kmph
121	157.011 to 157.052	Sharp Bend	Design Speed 20 kmph
122	157.082 to 157.095	Sharp Bend	Design Speed 20 kmph
123	157.137 to 157.170	Sharp Bend	Design Speed 20 kmph
124	157.211 to 157.240	Sharp Bend	Design Speed 20 kmph
125	157.281 to 157.327	Sharp Bend	Design Speed 30 kmph
126	157.461 to 157.500	Sharp Bend	Design Speed 30 kmph
127	157.583 to 157.716	Sharp Bend	Design Speed 30 kmph
128	157.754 to 157.790	Sharp Bend	Design Speed 30 kmph
129	157.829 to 157.850	Sharp Bend	Design Speed 30 kmph
130	157.933 to 158.047	Sharp Bend	Design Speed 30 kmph

Sl. No.	Stretch	Type of Deficiency	Remarks
131	158.132 to 158.153	Sharp Bend	Design Speed 30 kmph
132	158.351 to 158.413	Sharp Bend	Design Speed 30 kmph
133	158.568 to 158.621	Sharp Bend	Design Speed 30 kmph
134	159.006 to 159.019	Sharp Bend	Design Speed 30 kmph
135	159.074 to 159.120	Sharp Bend	Design Speed 30 kmph
136	159.394 to 159.427	Sharp Bend	Design Speed 30 kmph
137	159.468 to 159.489	Sharp Bend	Design Speed 30 kmph
138	161.000 to 161.01	Sharp Bend	Design Speed 30 kmph
139	161.086 to 161.163	Sharp Bend	Design Speed 30 kmph
140	161.282 to 161.328	Sharp Bend	Design Speed 30 kmph
141	161.495 to 161.530	Sharp Bend	Design Speed 30 kmph
142	161.584 to 161.638	Sharp Bend	Design Speed 20 kmph
143	161.730 to 161.737	Sharp Bend	Design Speed 20 kmph
144	161.813 to 161.826	Sharp Bend	Design Speed 30 kmph
145	161.866 to 161.882	Sharp Bend	Design Speed 30 kmph
146	161.928 to 161.966	Sharp Bend	Design Speed 20 kmph
147	162.999 to 163.031	Sharp Bend	Design Speed 30 kmph
148	163.212 to 163.239	Sharp Bend	Design Speed 30 kmph
149	163.31 to 163.345	Sharp Bend	Design Speed 30 kmph
150	163.427 to 163.449	Sharp Bend	Design Speed 30 kmph
151	163.513 to 163.551	Sharp Bend	Design Speed 20 kmph
152	163.642 to 163.669	Sharp Bend	Design Speed 20 kmph
153	163.774 to 163.795	Sharp Bend	Design Speed 30 kmph
154	163.825 to 163.850	Sharp Bend	Design Speed 30 kmph
155	163.880 to 163.889	Sharp Bend	Design Speed 30 kmph
156	163.941 to 163.950	Sharp Bend	Design Speed 30 kmph
157	163.996 to 164.011	Sharp Bend	Design Speed 30 kmph
158	164.059 to 164.068	Sharp Bend	Design Speed 30 kmph
159	164.115 to 164.121	Sharp Bend	Design Speed 30 kmph
160	164.170 to 164.188	Sharp Bend	Design Speed 30 kmph
161	164.529 to 164.595	Sharp Bend	Design Speed 30 kmph
162	165.750 to 165.808	Sharp Bend	Design Speed 30 kmph
163	165.937 to 165.947	Sharp Bend	Design Speed 30 kmph
164	166.076 to 166.121	Sharp Bend	Design Speed 30 kmph
165	166.658 to 166.684	Sharp Bend	Design Speed 30 kmph
166	167.986 to 168.042	Sharp Bend	Design Speed 30 kmph
167	168.080 to 168.171	Sharp Bend	Design Speed 30 kmph
168	168.551 to 168.564	Sharp Bend	Design Speed 30 kmph
169	168.624 to 168.639	Sharp Bend	Design Speed 30 kmph
170	168.794 to 168.913	Sharp Bend	Design Speed 30 kmph
171	169.100 to 169.163	Sharp Bend	Design Speed 30 kmph

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

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
1.	131.30382	131.331	40

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
2.	131.89191	131.934	70
3.	132.0254	132.073	50
4.	132.1274	132.152	30
5.	132.21224	132.224	35
6.	132.5219	132.542	70
7.	132.65404	132.688	30
8.	132.81121	132.827	60
9.	132.86922	132.893	40
10.	133.06215	133.083	50
11.	133.26854	133.291	70
12.	133.37679	133.393	30
13.	133.48298	133.504	60
14.	133.54111	133.555	45
15.	134.31512	134.335	70
16.	134.40259	134.422	40
17.	134.48478	134.526	30
18.	134.56394	134.602	30
19.	134.63358	134.684	30
20.	134.73697	134.745	30
21.	134.89926	134.905	32
22.	134.96487	134.976	70
23.	135.73032	135.78	35
24.	135.93002	135.995	55
25.	137.06013	137.076	60
26.	137.11977	137.13	40
27.	137.18944	137.208	50
28.	137.4012	137.409	40
29.	137.59222	137.6	20
30.	137.69552	137.702	20
31.	137.80522	137.835	30
32.	137.94685	137.995	30
33.	138.06404	138.118	40
34.	138.17213	138.183	40
35.	138.38132	138.4	70
36.	138.47273	138.486	70
37.	138.58486	138.619	50
38.	138.71199	138.731	30
39.	138.83995	138.871	70
40.	139.01335	139.031	70
41.	139.22383	139.282	30
42.	139.44377	139.474	30
43.	139.53721	139.549	60
44.	139.59797	139.607	30
45.	139.98317	140.01	70
46.	140.05976	140.081	50
47.	140.21415	140.233	30

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
48.	141.49537	141.514	20
49.	141.6046	141.635	30
50.	142.49276	142.526	70
51.	142.69115	142.707	50
52.	142.84695	142.855	60
53.	143.19045	143.23	65
54.	143.34058	143.355	30
55.	143.71759	143.761	50
56.	143.80856	143.842	40
57.	144.28777	144.327	30
58.	144.46064	144.467	50
59.	144.51991	144.563	30
60.	144.63953	144.656	60
61.	145.09246	145.131	30
62.	145.19887	145.206	30
63.	145.35811	145.436	50
64.	145.48795	145.537	35
65.	145.85205	145.867	30
66.	145.94526	145.975	30
67.	146.06377	146.074	40
68.	146.16415	146.179	30
69.	146.27016	146.288	20
70.	146.36831	146.447	60
71.	146.54952	146.573	30
72.	146.64461	146.657	30
73.	146.70742	146.723	60
74.	146.78226	146.808	35
75.	146.86463	146.881	40
76.	146.98196	147.009	50
77.	147.22398	147.276	70
78.	147.427	147.489	36
79.	147.61319	147.644	30
80.	147.77832	147.796	50
81.	147.95467	147.994	30
82.	148.21445	148.249	50
83.	148.92871	148.989	30
84.	149.19695	149.218	30
85.	149.3015	149.31	40
86.	149.37818	149.397	30
87.	149.52273	149.541	50
88.	149.77467	149.846	37
89.	149.91476	149.937	30
90.	150.01546	150.021	30
91.	150.21013	150.246	20
92.	150.36424	150.372	60
93.	150.44852	150.536	43

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
94.	150.59383	150.606	55
95.	150.72271	150.743	30
96.	150.86716	150.894	30
97.	150.98843	151.087	50
98.	151.13809	151.149	60
99.	151.28016	151.323	60
100.	151.39171	151.403	40
101.	151.46041	151.476	30
102.	151.78758	151.816	50
103.	151.92281	151.954	30
104.	152.01446	152.042	30
105.	152.17358	152.19	60
106.	152.54089	152.617	45
107.	152.96633	152.979	30
108.	153.20728	153.225	30
109.	153.30338	153.325	60
110.	153.40313	153.421	50
111.	153.49934	153.515	70
112.	153.57154	153.591	50
113.	153.64685	153.675	30
114.	153.76702	153.804	70
115.	153.86371	153.872	70
116.	153.93403	153.951	70
117.	154.23015	154.296	60
118.	154.36338	154.388	35
119.	154.47962	154.501	70
120.	155.19892	155.244	30
121.	155.30609	155.325	30
122.	155.44622	155.545	60
123.	155.58206	155.591	50
124.	155.7209	155.736	40
125.	155.79152	155.798	30
126.	155.89108	155.908	30
127.	155.96486	156.009	50
128.	156.09993	156.124	30
129.	156.18543	156.203	30
130.	156.55808	156.564	30
131.	156.63472	156.64	30
132.	156.8177	156.919	60
133.	157.01194	157.052	30
134.	157.08218	157.095	30
135.	157.13766	157.17	25
136.	157.2117	157.24	25
137.	157.28131	157.327	50
138.	157.46108	157.5	30
139.	157.5834	157.716	60

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
140.	157.7547	157.79	70
141.	157.82981	157.851	50
142.	158.13237	158.154	30
143.	158.35183	158.414	70
144.	158.56882	158.622	30
145.	158.72644	158.77	70
146.	159.00618	159.02	30
147.	159.07486	159.121	40
148.	159.46801	159.489	40
149.	159.57082	159.612	70
150.	160.18528	160.224	70
151.	160.87134	160.891	70
152.	161.00015	161.012	35
153.	161.08634	161.164	45
154.	161.28259	161.329	30
155.	161.49596	161.531	30
156.	161.58438	161.638	25
157.	161.73009	161.738	30
158.	161.81352	161.826	40
159.	161.92841	161.967	25
160.	162.11544	162.131	70
161.	162.30013	162.32	70
162.	162.99925	163.032	50
163.	163.21216	163.24	30
164.	163.31789	163.346	40
165.	163.42758	163.449	30
166.	163.51334	163.551	20
167.	163.6427	163.67	30
168.	163.77408	163.795	30
169.	163.88018	163.89	40
170.	163.94141	163.951	40
171.	163.99625	164.011	50
172.	164.05949	164.069	40
173.	164.11541	164.121	50
174.	164.1709	164.188	50
175.	164.23901	164.276	70
176.	164.52934	164.595	40
177.	164.67044	164.739	50
178.	164.99063	165.01	70
179.	165.27337	165.3	70
180.	165.7502	165.808	30
181.	165.93766	165.948	70
182.	166.07696	166.121	30
183.	166.65898	166.684	30
184.	166.7725	166.816	70
185.	167.15229	167.19	70

Sl No	Chainage		Radius (m)
	From (km)	To(km)	
186.	167.68553	167.711	70
187.	167.98604	168.043	70
188.	168.0801	168.172	70
189.	168.40475	168.444	70
190.	168.55109	168.565	30
191.	168.6249	168.64	50
192.	168.79465	168.914	60
193.	169.10041	169.164	40
194.	169.47887	169.515	70

(iii) [Note1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in viewof project-specific requirements.]

SCHEDULE - H

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	79.19 %	**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	33.08%
		(2) Sub-base Course	12.49%
		(3) Non bituminous Base course	14.76%
		(4) Bituminous Basecourse	13.13%
		(5) Wearing Coat	7.69%
		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]
		(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)	18.85%
Minor bridge/ Underpasses/ Overpasses	2.85%	**A.1-widening and repairing of Minor Bridges (length >6 m&<60m)**	
		Minor Bridges	[Nil]
		A.2- New Minor bridges (length >6 mand<60m)	

Item	Weightage in % of CP	Stage for Payment	Percentage
		(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.	48.33%
		(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.	45.43%
		(3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	6.24%
		(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 m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any	0.00 %	**A.1- Widening and repairs of Major Bridges**	
		(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]

Item	Weightage in % of CP	Stage for Payment	Percentage
		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 protection works)	[Nil]
		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]

Item	Weightage in % of CP	Stage for Payment	Percentage
		(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	17.96 %	(i) Toll Plaza	[Nil]
		(ii) Road side drains	18.77%
		(iii) Road signs, markings, km stones, safety devices etc	6.27%
		(iv) Project facilities	
		a) Bus Bays	1.86%
		b) Truck Lay-byes	[Nil]
		c) Passenger Shelter	0.27%
		d) Rest Area	[Nil]
		e) Diversion Works	1.41%
		(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	32.67%
		(ix) Toe Wall	[Nil]
		(x) Retaining Wall	17.72%
		(xi) Crash Barrier	2.17%
		(xi) Boundary wall	[Nil]
		(xii) Site Clearance & Dismantling	4.14%
		(xiii) Protection Works	12.27%
		(xiv) Utility Shifting	2.45%

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	33.01%	
(2) Sub-base Course	12.55%	
(3) Non bituminous Base course	14.74%	
(4) Bituminous Base course	13.12%	
(5) Wearing Coat	7.77%	
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)	18.81%	

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.	48.33%	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.	45.43%	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	6.24%	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.

Stage of Payment	Weightage	Payment Procedure
(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 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	[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

Stage of Payment	Weightage	Payment Procedure
including drainage facility 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, 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

Stage of Payment	Weightage	Payment Procedure
		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 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

Stage of Payment	Weightage	Payment Procedure
(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]	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	18.77%	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.
(3) Road signs, markings, km stones, safety devices etc.	6.27%	
(4) Project Facilities		Payment shall be made on pro-rata basis for completed facilities.
a) Bus Bays	1.86%	
b) Truck Lay-byes	[Nil]	
c) Passenger Shelter	0.27%	
d) Rest Area	[Nil]	
e) Diversion Works	1.41%	
(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	[Nil]	Unit of measurement is linear length. Payment shall be made

Stage of Payment	Weightage	Payment Procedure
bridges, elevated sections/flyover/grade separators and ROBs/ RUBs		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 on pro-rata basis on completion of a stage in a length of not less than 5% (five percent)of the total length.
(a) Breast Wall	32.67%	
(b) Toe Wall	[Nil]	
(c)Retaining Wall	17.72%	
(c) Crash Barrier	2.17%	
(9) Site Clearance & Dismantling	4.14%	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	12.27%	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	2.45%	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.