Schedules

SCHEDULE-A

(See Clauses2.1and8.1)

SITE OF THE PROJECT

1. THE SITE

1.1. Site of the Four-Lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A. The instant work is a balance work of the Project which is currently ongoing. Accordingly, at several locations work has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. Thus, the prospective bidders **are strictly advised to visit the site thoroughly before participating in the bid.** It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

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

1.3. An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause8.2.1 of this Agreement.

1.4. 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 Annexure-III based on site/design requirement.

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

Annexure – I

(Schedule-A)

1. Site

The site of the Development and Up-gradation of 4 laning of Jamugurihat to end of Biswanath Chariali By-Pass from Km 182.000 to Km 208.000 of NH -52 in the state of Assam in Engineering, Procurement & Construction (EPC) basis. The land carriage way and structures comprising the site are described below. The instant work is a balance work of the project which is currently ongoing. Accordingly, at several locations work has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. Thus, the prospective bidders **are strictly advised to visit the site thoroughly before participating in the bid.** It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

2. Land

The Site of the Project Highway comprises the land as described below:

S. No	Chainage (km)		ROW (m)	Remarks
	From	To		
1	182.000	208.000	45-60	45-60 m ROW to be provided

3. Carriageway

The existing carriageway consists of the following which are complete/ incomplete/partially complete and are to be completed in all respect

(a) Main Carriage Way (New 2-Lane Construction/4-Lanein Realignment)

SL NO	Sub Grade (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	182+110	183+280	LHS	1.170	Sub grade Completed
2	183+280	185+122	LHS	1.842	Sub grade Completed
3	185+122	185+162	LHS	0.040	Sub grade Completed
4	185+162	185+680	LHS	0.518	Sub grade Completed
5	185+760	186+010	LHS	0.250	Sub grade Completed
6	185+680	185+980	RHS	0.300	Sub grade Completed
7	186+210	189+320	LHS	3.110	Sub grade Completed
8	189+370	192+120	LHS	2.750	Sub grade Completed
9	192+250	194+705	LHS	2.455	Sub grade Completed
10	194+970	195+245	LHS	0.275	Sub grade Completed
11	195+245	195+250	LHS	0.005	Sub grade Completed
12	195+250	201+537	LHS	6.287	Sub grade Completed
13	201+550	201+825	LHS	0.275	Sub grade Completed
14	201+840	202+220	LHS	0.380	Sub grade Completed
15	202+220	202+340	LHS	0.120	Sub grade Completed
16	202+640	202+880	LHS	0.240	Sub grade Completed

SL NO	Sub Grade (New Lane)				Remarks
	From	To	Side	Length(Km)	
17	203+510	203+740	LHS	0.230	Sub grade Completed
18	203+740	203+940	LHS	0.200	Sub grade Completed
19	203+940	204+380	LHS	0.440	Sub grade Completed
20	204+400	204+740	LHS	0.340	Sub grade Completed
21	204+840	205+015	LHS	0.175	Sub grade Completed
22	205+031	205+500	LHS	0.469	Sub grade Completed
23	205+530	206+080	LHS	0.550	Sub grade Completed
24	206+660	207+700	LHS	1.040	Sub grade Completed
25	201+100	202+220	RHS	1.120	Sub grade Completed
26	202+220	202+340	RHS	0.120	Sub grade Completed
27	202+620	202+875	RHS	0.255	Sub grade Completed
28	203+280	203+480	RHS	0.200	Sub grade Completed
29	203+500	203+740	RHS	0.240	Sub grade Completed
30	203+740	203+822	RHS	0.082	Sub grade Completed
31	203+822	203+900	RHS	0.078	Sub grade Completed
32	203+900	204+380	RHS	0.480	Sub grade Completed
33	204+400	204+730	RHS	0.330	Sub grade Completed
34	204+840	205+015	RHS	0.175	Sub grade Completed
35	205+031	205+510	RHS	0.479	Sub grade Completed
36	205+530	206+115	RHS	0.585	Sub grade Completed
37	206+655	207+755	RHS	1.100	Sub grade Completed
38	186+010	186+020	LHS	0.010	Sub grade Completed
39	192+120	192+130	LHS	0.010	Sub grade Completed
40	194+505	194+520	LHS	0.015	Sub grade Completed
41	201+537	201+541	LHS	0.004	Sub grade Completed
42	201+825	201+840	LHS	0.015	Sub grade Completed
43	202+620	202+640	LHS	0.020	Sub grade Completed
44	203+740	203+750	LHS	0.010	Sub grade Completed
45	203+822	203+940	LHS	0.118	Sub grade Completed
46	204+380	204+400	LHS	0.020	Sub grade Completed
47	204+740	204+750	LHS	0.010	Sub grade Completed
48	205+015	205+031	LHS	0.016	Sub grade Completed
49	205+500	205+530	LHS	0.030	Sub grade Completed
50	206+450	206+642	LHS	0.192	Sub grade Completed
51	206+450	206+655	RHS	0.205	Sub grade Completed
50	206+642	206+660	LHS	0.018	Sub grade Completed
53	202+875	202+880	RHS	0.005	Sub grade Completed
54	203+480	203+489	RHS	0.009	Sub grade Completed
55	206+642	206+655	RHS	0.013	Sub grade Completed
56	207+755	207+760	RHS	0.005	Sub grade Completed
57	194+520	194+710	LHS	0.190	Sub grade Completed
Total Length				**29.620**	

SL NO	Sub grade (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	192+130	192+140	LHS	0.010	Sub grade Partially Completed
2	192+190	192+250	LHS	0.060	Sub grade Partially Completed
3	201+541	201+550	LHS	0.009	Sub grade Partially Completed
4	201+965	201+980	LHS	0.015	Sub grade Partially Completed
5	202+440	202+630	RHS	0.190	Sub grade Partially Completed
6	203+060	203+189	LHS	0.129	Sub grade Partially Completed
7	203+200	203+280	RHS	0.080	Sub grade Partially Completed
8	203+280	203+480	RHS	0.200	Sub grade Partially Completed
9	206+115	206+195	RHS	0.080	Sub grade Partially Completed
10	206+350	206+450	BHS	0.200	Sub grade Partially Completed
Total Length				**0.973km**	
Grand Total Length				**30.593 Km**	

SL NO	GSB (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	182+110	183+280	LHS	1.170	GSB Completed
2	183+280	185+122	LHS	1.842	GSB Completed
3	185+122	185+162	LHS	0.040	GSB Completed
4	185+162	185+680	LHS	0.518	GSB Completed
5	185+760	186+010	LHS	0.250	GSB Completed
6	185+680	185+980	RHS	0.300	GSB Completed
7	186+210	189+320	LHS	3.110	GSB Completed
8	189+370	192+120	LHS	2.750	GSB Completed
9	192+250	194+710	LHS	2.460	GSB Completed
10	194+970	195+245	LHS	0.275	GSB Completed
11	195+245	195+250	LHS	0.005	GSB Completed
12	195+250	201+537	LHS	6.287	GSB Completed
13	201+550	201+825	LHS	0.275	GSB Completed
14	201+840	202+220	LHS	0.380	GSB Completed
15	202+220	202+340	LHS	0.120	GSB Completed
16	202+640	202+880	LHS	0.240	GSB Completed
17	203+510	203+740	LHS	0.230	GSB Completed
18	203+740	203+940	LHS	0.200	GSB Completed
19	203+940	204+380	LHS	0.440	GSB Completed
20	204+400	204+740	LHS	0.340	GSB Completed
21	204+840	205+015	LHS	0.175	GSB Completed
22	205+031	205+500	LHS	0.469	GSB Completed
23	205+530	206+080	LHS	0.550	GSB Completed
24	206+660	207+700	LHS	1.040	GSB Completed
25	201+100	202+220	RHS	1.120	GSB Completed
26	202+220	202+340	RHS	0.120	GSB Completed
27	202+620	202+875	RHS	0.255	GSB Completed
28	203+280	203+480	RHS	0.200	GSB Completed
29	203+500	203+740	RHS	0.240	GSB Completed
30	203+740	203+900	RHS	0.160	GSB Completed
31	203+900	204+380	RHS	0.480	GSB Completed
32	204+400	204+730	RHS	0.330	GSB Completed

SL NO	GSB (New Lane)				Remarks
	From	To	Side	Length(Km)	
29	204+840	205+015	RHS	0.175	GSB Completed
30	205+031	205+510	RHS	0.479	GSB Completed
31	205+530	206+115	RHS	0.585	GSB Completed
32	206+450	206+655	RHS	0.205	GSB Completed
32	206+655	207+755	RHS	1.100	GSB Completed
33	186+010	186+020	LHS	0.010	GSB Completed
34	192+120	192+130	LHS	0.010	GSB Completed
35	194+505	194+520	LHS	0.015	GSB Completed
36	201+537	201+541	LHS	0.004	GSB Completed
37	201+825	201+840	LHS	0.015	GSB Completed
38	202+620	202+640	LHS	0.020	GSB Completed
39	203+740	203+750	LHS	0.010	GSB Completed
40	203+930	203+940	LHS	0.010	GSB Completed
41	204+380	204+400	LHS	0.020	GSB Completed
42	204+740	204+750	LHS	0.010	GSB Completed
43	205+015	205+031	LHS	0.016	GSB Completed
44	205+500	205+530	LHS	0.030	GSB Completed
45	206+450	206+660	LHS	0.210	GSB Completed
46	202+875	202+880	RHS	0.005	GSB Completed
47	203+480	203+489	RHS	0.009	GSB Completed
48	206+642	206+655	RHS	0.013	GSB Completed
49	207+755	207+760	RHS	0.005	GSB Completed
Total Length				**29.327**	

SL NO	WMM (New Lane)				Remarks
	From	To	Side	Length (Km)	
1	182+110	183+280	LHS	1.170	WMM Completed
2	183+280	185+122	LHS	1.842	WMM Completed
3	185+122	185+162	LHS	0.040	WMM Completed
4	185+162	185+680	LHS	0.518	WMM Completed
5	185+760	186+010	LHS	0.250	WMM Completed
6	185+680	185+980	RHS	0.300	WMM Completed
7	186+210	189+320	LHS	3.110	WMM Completed
8	189+370	192+120	LHS	2.750	WMM Completed
9	192+250	194+710	LHS	2.460	WMM Completed
10	194+970	195+245	LHS	0.275	WMM Completed
11	195+245	195+250	LHS	0.005	WMM Completed
12	195+250	201+537	LHS	6.287	WMM Completed
13	201+550	201+825	LHS	0.275	WMM Completed
14	201+840	202+220	LHS	0.380	WMM Completed
15	202+640	202+880	LHS	0.240	WMM Completed
16	203+510	203+740	LHS	0.230	WMM Completed
17	203+940	204+380	LHS	0.440	WMM Completed
18	204+400	204+740	LHS	0.340	WMM Completed
19	204+840	205+015	LHS	0.175	WMM Completed

SL NO	WMM (New Lane)				Remarks
	From	To	Side	Length (Km)	
20	205+031	205+500	LHS	0.469	WMM Completed
21	205+530	206+080	LHS	0.550	WMM Completed
22	206+660	207+700	LHS	1.040	WMM Completed
23	201+100	202+220	RHS	1.120	WMM Completed
24	202+620	202+875	RHS	0.255	WMM Completed
25	203+280	203+480	RHS	0.200	WMM Completed
26	203+500	203+740	RHS	0.240	WMM Completed
27	203+900	204+380	RHS	0.480	WMM Completed
28	204+400	204+730	RHS	0.330	WMM Completed
29	204+840	205+015	RHS	0.175	WMM Completed
30	205+031	205+510	RHS	0.479	WMM Completed
31	205+530	206+115	RHS	0.585	WMM Completed
32	206+655	207+755	RHS	1.100	WMM Completed
33	202+220	202+340	BHS	0.240	WMM Completed
33	203+750	203+930	LHS	0.180	WMM Completed
34	206+450	206+642	LHS	0.192	WMM Completed
35	203+740	203+900	RHS	0.160	WMM Completed
36	206+450	206+642	RHS	0.192	WMM Completed
Total Length				**29.074**	

SL NO	WMM (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	186+010	186+020	LHS	0.010	WMM Partially Completed
2	192+120	192+130	LHS	0.010	WMM Partially Completed
3	201+537	201+541	LHS	0.004	WMM Partially Completed
4	201+825	201+840	LHS	0.015	WMM Partially Completed
5	202+620	202+640	LHS	0.020	WMM Partially Completed
6	203+740	203+750	LHS	0.010	WMM Partially Completed
7	203+930	203+940	LHS	0.010	WMM Partially Completed
8	204+380	204+400	LHS	0.020	WMM Partially Completed
9	204+740	204+750	LHS	0.010	WMM Partially Completed
10	205+015	205+031	LHS	0.016	WMM Partially Completed
11	205+500	205+530	LHS	0.030	WMM Partially Completed
12	206+642	206+660	LHS	0.018	WMM Partially Completed
13	202+875	202+880	RHS	0.005	WMM Partially Completed
14	203+480	203+489	RHS	0.009	WMM Partially Completed
15	206+642	206+655	RHS	0.013	WMM Partially Completed
16	207+755	207+760	RHS	0.005	WMM Partially Completed
Total Length				**0.205**	
Grand Total Length				**29.279**	

SL NO	DBM (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	182+110	183+280	LHS	1.170	DBM completed
2	183+280	185+122	LHS	1.842	DBM completed
3	185+122	185+162	LHS	0.040	Only DBM 1st Layer Laid
4	185+162	185+680	LHS	0.518	DBM completed
5	185+760	186+010	LHS	0.250	DBM completed
6	185+680	185+980	RHS	0.300	DBM completed
7	186+210	189+320	LHS	3.110	DBM completed
8	189+370	192+120	LHS	2.750	DBM completed
9	192+250	194+705	LHS	2.455	DBM completed
10	194+970	195+245	LHS	0.275	DBM completed
11	195+245	195+250	LHS	0.005	Only DBM 1st Layer Laid
12	195+250	201+555	LHS	6.305	DBM completed
13	201+560	201+847	LHS	0.287	DBM completed
14	201+850	202+220	LHS	0.370	DBM completed
15	202+640	202+880	LHS	0.240	DBM completed
16	203+510	203+740	LHS	0.230	DBM completed
17	203+940	204+380	LHS	0.440	DBM completed
18	204+400	204+740	LHS	0.340	DBM completed
19	204+840	205+015	LHS	0.175	DBM completed
20	205+031	205+500	LHS	0.469	DBM completed
21	205+530	206+080	LHS	0.550	DBM completed
22	206+660	207+700	LHS	1.040	DBM completed
23	201+100	202+220	RHS	1.120	DBM completed
24	202+620	202+875	RHS	0.255	DBM completed
25	203+280	203+480	RHS	0.200	DBM completed
26	203+500	203+740	RHS	0.240	DBM completed
27	203+900	204+380	RHS	0.480	DBM completed
28	204+400	204+730	RHS	0.330	DBM completed
29	204+840	205+015	RHS	0.175	DBM completed
30	205+031	205+510	RHS	0.479	DBM completed
31	205+530	206+115	RHS	0.585	DBM completed
32	206+655	207+755	RHS	1.100	DBM completed
Total Length				**28.125**	

SL NO	BC (New Lane)				Remarks
	From	To	Side	Length(Km)	
1	182+110	185+090	LHS	2.980	BC completed
2	185+160	185+580	LHS	0.420	BC completed
3	190+680	192+050	LHS	1.370	BC completed
4	192+280	194+500	LHS	2.220	BC completed
5	195+220	200+990	LHS	5.770	BC completed
Total Length				**12.760**	

(b) Main Carriage Way (Widening Portion of existing 2-lane)

SL NO	Sub grade Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+110	182+560	RHS	0.450	Sub grade Completed
2	182+560	183+310	RHS	0.750	Sub grade Completed
3	183+310	183+580	RHS	0.270	Sub grade Completed
4	183+580	185+680	RHS	2.100	Sub grade Completed
5	185+980	186+025	RHS	0.045	Sub grade Completed
6	185+680	185+760	LHS	0.080	Sub grade Completed
7	186+220	187+721	RHS	1.501	Sub grade Completed
8	187+750	189+318	RHS	1.568	Sub grade Completed
9	189+355	192+110	RHS	2.755	Sub grade Completed
10	192+210	194+700	RHS	2.490	Sub grade Completed
11	195+020	200+910	RHS	5.890	Sub grade Completed
12	200+910	200+980	RHS	0.070	Sub grade Completed
13	201+000	201+020	RHS	0.020	Sub grade Completed
14	201+070	201+100	RHS	0.030	Sub grade Completed
15	207+700	207+807	LHS	0.107	Sub grade Completed
16	182+531	182+535	RHS	0.004	Sub grade Completed
17	186+010	186+025	RHS	0.015	Sub grade Completed
18	187+721	187+750	RHS	0.029	Sub grade Completed
19	192+110	192+120	RHS	0.010	Sub grade Completed
20	194+505	194+710	RHS	0.205	Sub grade Completed
21	200+980	200+990	RHS	0.010	Sub grade Completed
22	201+060	201+070	RHS	0.010	Sub grade Completed
23	207+807	207+810	RHS	0.003	Sub grade Completed
Total Length				**18.412**	Sub grade Completed

SL NO	Sub grade Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	189+318	189+332	RHS	0.014	Sub grade partially Completed
2	201+050	201+060	RHS	0.010	Sub grade partially Completed
Total Length				**0.024**	Sub grade partially Completed
Grand Total Length				**18.436**	

SL NO	GSB Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+110	182+560	RHS	0.450	GSB Completed
2	182+560	183+310	RHS	0.750	GSB Completed
3	183+310	183+580	RHS	0.270	GSB Completed
4	183+580	185+680	RHS	2.100	GSB Completed
5	185+980	186+025	RHS	0.045	GSB Completed
6	185+680	185+760	LHS	0.080	GSB Completed
7	186+220	187+721	RHS	1.501	GSB Completed
8	187+750	189+318	RHS	1.568	GSB Completed

SL NO	GSB Widening Portion				Remarks
	From	To	Side	Length(Km)	
9	189+355	192+110	RHS	2.755	GSB Completed
10	192+210	194+700	RHS	2.490	GSB Completed
11	195+020	200+910	RHS	5.890	GSB Completed
12	200+910	200+980	RHS	0.070	GSB Completed
13	201+000	201+020	RHS	0.020	GSB Completed
14	201+070	201+100	RHS	0.030	GSB Completed
15	207+700	207+807	LHS	0.107	GSB Completed
16	182+531	182+535	RHS	0.004	GSB Completed
17	186+010	186+025	RHS	0.015	GSB Completed
18	187+721	187+750	RHS	0.029	GSB Completed
19	192+110	192+120	RHS	0.010	GSB Completed
20	194+505	194+710	RHS	0.205	GSB Completed
21	200+980	200+990	RHS	0.010	GSB Completed
22	201+060	201+070	RHS	0.010	GSB Completed
23	207+807	207+810	RHS	0.003	GSB Completed
Total Length				18.412	GSB Completed

SL NO	WMM Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+110	182+560	RHS	0.450	WMM Completed
2	182+560	183+310	RHS	0.750	WMM Completed
3	183+310	183+580	RHS	0.270	WMM Completed
4	183+580	185+680	RHS	2.100	WMM Completed
5	185+980	186+025	RHS	0.045	WMM Completed
6	185+680	185+760	LHS	0.080	WMM Completed
7	186+220	187+721	RHS	1.501	WMM Completed
8	187+750	189+318	RHS	1.568	WMM Completed
9	189+355	192+110	RHS	2.755	WMM Completed
10	192+210	194+660	RHS	2.450	WMM Completed
11	194+660	194+700	RHS	0.040	WMM Completed
12	195+020	200+910	RHS	5.890	WMM Completed
13	200+910	200+980	RHS	0.070	WMM Completed
14	201+000	201+020	RHS	0.020	WMM Completed
15	201+070	201+100	RHS	0.030	WMM Completed
16	207+700	207+807	LHS	0.107	WMM Completed
Total Length				**18.126**	WMM Completed

SL NO	WMM Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+531	182+535	RHS	0.004	WMM Partially completed
2	186+010	186+025	RHS	0.015	WMM Partially completed
3	187+721	187+750	RHS	0.029	WMM Partially completed
4	192+110	192+120	RHS	0.010	WMM Partially completed
5	200+980	200+990	RHS	0.010	WMM Partially completed
6	201+060	201+070	RHS	0.010	WMM Partially completed
7	207+807	207+810	RHS	0.003	WMM Partially completed
Total length				**0.081**	**WMM Partially completed**
Grand Total Length				**18.207**	**WMM Partially completed**

SL NO	DBM Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+110	182+560	RHS	0.450	DBM Completed
2	182+560	183+310	RHS	0.750	DBM Completed
3	183+310	183+580	RHS	0.270	DBM Completed
4	183+580	185+680	RHS	2.100	DBM Completed
5	185+980	186+025	RHS	0.045	DBM Completed
6	185+680	185+760	LHS	0.080	DBM Completed
7	186+220	187+721	RHS	1.501	DBM Completed
8	187+750	189+318	RHS	1.568	DBM Completed
9	189+355	192+110	RHS	2.755	DBM Completed
10	192+210	194+660	RHS	2.450	DBM Completed
11	194+660	194+700	RHS	0.040	DBM Completed
12	195+020	200+910	RHS	5.890	DBM Completed
13	200+910	200+980	RHS	0.070	DBM Completed
14	201+000	201+020	RHS	0.020	DBM Completed
15	201+070	201+100	RHS	0.030	DBM Completed
16	207+700	207+807	LHS	0.107	DBM Completed
Total Length				**18.126**	

BC

SL NO	BC works Widening Portion				Remarks
	From	To	Side	Length(Km)	
1	182+110	184+570	RHS	2.460	BC Completed
2	185+255	185+320	RHS	0.065	BC Completed
3	190+630	192+065	RHS	1.435	BC Completed
4	192+260	194+360	RHS	2.100	BC Completed
5	198+235	199+660	RHS	1.425	BC Completed
6	196+770	198+235	RHS	1.465	BC Completed
7	190+583	190+630	RHS	0.047	BC Completed
8	190+050	190+571	RHS	0.521	BC Completed
9	189+460	190+050	RHS	0.590	BC Completed
10	189+040	189+290	RHS	0.250	BC Completed
Total Length				**10.358**	

4. The instant work is a balance work. Accordingly, at several locations work as shown above in Table a & b has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

5. Major Bridges

(a)The site includes the following existing 2-lane Major Bridges:

Sl. No.	Chainage (Km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-Structure	Super Structure		
1	194.825	Well Foundation	Abutment & Pier	RCC T-Beam & Slab	3 x 35.80	8.40

(b) New 2 lane Major Bridge partially completed

Sr No	Chainage (km)	No of spans with span length (in m)	Width (in m)	Type of Structure		
				Foundation	Substructure	Superstructure
1	194.799	3x35.80	12.5	**Pile Foundation (All 4 Nos of foundation work up to Pile caps are completed)**	**RCC Solid Shaft (3 Nos of RCC Solid shaft are completed and only 1 No of Pier shaft is balance)**	Nil

Note: The Drawings have already been reviewed and the same has to be followed. The EPC Contractor may also propose changes as per the codes/specifications. However, the same shall not attract any Change of Scope as per Article 13.

5.1 The instant work is a balance work. Accordingly, at several locations work as per table in para 5, has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

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

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

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

7. 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					

8. Minor bridges

The Site includes the following minor bridges in existing 2- lane.

Sl. No.	Chainage (Km)	Type of Structure			Nos. of Spans with Lengths (m)	Width
		Foundation	Sub Structures	Super Structures		
1.	182+544	Open	RCC	RCC	1x9.000	8.40
2.	187+744	Open	RCC	RCC	2x8.900	8.40
3.	189+351	Open	RCC	RCC	2x7.400	8.40
4.	199+767	Open	RCC	RCC	1x9.000	8.40
5.	186+140	Well	RCC	RC T-BEAM	2x19.80	8.40
6.	192+170	Well	RCC	RC T-BEAM	2x13.35	8.40

Minor Bridge (Partially completed)

New Minor Bridge (Partially completed) :

Sr No	Chainage (km)	No of spans with span length (in m)	Width (in m)	Type of Structure			Protection Work
				Foundation	Substructure	Superstructure	
1.	182+540	1x9.00	12.5	Open	RCC wall type	RCC Slab	Completed
2.	186+140	2x19.80	12.5	Pile Foundation (All 3 Nos of foundation work up to Pile caps are completed)	RCC wall type	1. Casting of 8 nos Pre cast main girders are completed. 2. 4 nos of girders are erected in Position. 3. Casting of 1 no end cross girder is completed out of 4 nos.	Not Done

Sr No	Chainage (km)	No of spans with span length (in m)	Width (in m)	Type of Structure			Protection Work
				Foundation	Substructure	Superstructure	
3.	187+734	2x8.90	12.5	Open	RCC wall type	RCC Slab	Completed
4.	189+340	2x7.40	12.5	Open	RCC wall type	RCC Slab	Not Done
5.	192+166	2x13.35	12.5	Pile Foundation (All 3 Nos of foundation work up to Pile caps are completed)	RCC wall type	1. Casting of 8 nos Pre cast main girders are completed. 2. 8 nos of pre cast main girders are erected in Position. 3. Casting of 4 nos end cross girder are completed out of 4 nos.	Not Done
6.	199+752	1x9.00	12.5	Open	RCC wall type	RCC Slab	Completed

8.1 The instant work is a balance work. Accordingly, at several locations work as shown in Para 8 above has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

9. Railway level crossings

The Site includes the following railway level crossings:

Sl .No.	Location (km)	Remarks
NIL		

10. Underpasses (vehicular, non- vehicular)

The Site includes the following underpasses:

Sl. No.	Chainage (km)	Type of Structure	No. Of Spans with span length (m)	Width (m)
NIL				

11. Culverts

The Site includes the following culverts,

List of Existing Box Culverts, in 4-lane width

S. No	Chainage (Km)	Type of Culvert	Span/Opening with span length (m)	Width (m)	Present Status
1	182+455	Box Culvert	1/3.0/3.0	29.60	Painting works balance in R/S
2	183+288	Box Culvert	1/2.0/2.0	26	Protection works & Misc. works balance
3	183+570	Box Culvert	1/2.0/2.0	26	Protection works & Misc. works balance
4	183+985	Box Culvert	1/2.0/2.0	26	Protection works & Misc. works balance
5	184+178	Box Culvert	1/2.0/2.0	36.725	Protection works & Misc. works balance
6	184+401	Box Culvert	1/2.0/2.0	42.50	Protection works & Misc. works balance
7	185+133	Box Culvert	1/2.0/2.0	28.00	Protection works & Misc. works balance
8	187+078	Box Culvert	1/2.0/2.0	26	Protection works & Misc. works balance
9	187+559	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
10	188+700	Box Culvert	1/2.0/2.0	26	Misc. works balance
11	190+577	Box Culvert	1/4.0 /4.0	26	Misc. works balance
12	201+234	Box Culvert	1/2.0/2.0	29.60	Completed
13	201+542	Box Culvert	1/2.0/2.0	26	Completed
14	201+830	Box Culvert	1/2.0/2.0	26	Completed
15	201+975	Box Culvert	1/2.0/2.0	26	Completed
16	202+358	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
17	202+730	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
18	203+194	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
19	203+490	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
20	203+817	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
21	204+390	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
22	204+825	Box Culvert	1/2.0/2.0	26.00	Protection works & Misc. works balance
23	205+024	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
24	205+520	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
25	206+200	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
26	206+250	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
27	206+550	Box Culvert	1/3.0/3.0	26.00	Protection works & Misc. works balance
28	207+185	Box Culvert	1/2.0/2.0	39.50	Protection works & Misc. works balance
29	207+630	Box Culvert	1/3.0/3.0	29.00	Protection works & Misc. works balance

11.1 The instant work is a balance work. Accordingly, at several locations work as shown in Para 11 above has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

12. Bus bays

The details of existing bus bays on the site are as follows:

From	To	Side	Total Nos.
NIL			

13. Truck Lay byes

The details of existing Truck Lay byes on the site are as follows:

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

14. Roadside drains

The details of road side drains completed/partially completed and to be completed:

SL No.	From	To	Side	Length (in m)	Present status
1	184+230	184+275	LHS	45.00	Completed
2	184+27	184+307	LHS	32.00	Top slab not done
3	184+406	184+411	LHS	5.00	Completed
4	184+411	184+464	LHS	53.00	Top slab not done
5	184+464	184+492	LHS	28.00	Completed
6	184+492	184+494	LHS	2.00	Top slab not done
7	184+494	184+523	LHS	29.00	Completed
8	184+523	184+536	LHS	13.00	Top slab not done
9	184+536	184+580	LHS	44.00	Completed
10	184+580	184+599	LHS	19.00	Top slab not done
11	184+599	184+617	LHS	18.00	Completed
12	184+622	184+645	LHS	23.00	Completed
13	184+645	184+647	LHS	2.00	Top slab not done
14	184+647	184+726	LHS	79.00	Completed
15	184+726	184+727	LHS	1.00	Top slab not done
16	184+727	184+745	LHS	18.00	Completed
17	184+230	184+252	RHS	22.00	Top slab not done
18	184+252	184+257	RHS	5.00	Completed
19	184+257	184+301	RHS	44.00	Top slab not done
20	184+330	184+358	RHS	28.00	Completed
21	184+358	184+375	RHS	17.00	Top slab not done
22	184+375	184+380	RHS	5.00	Completed
23	184+380	184+398	RHS	18.00	Top slab not done
24	184+432	184+448	RHS	16.00	Top slab not done
25	184+448	184+517	RHS	69.00	Completed
26	184+519	184+539	RHS	20.00	Completed
27	184+539	184+541	RHS	2.00	Top slab not done
28	184+544	184+561	RHS	17.00	Top slab not done
29	184+567	184+576	RHS	9.00	Top slab not done
30	184+576	184+599	RHS	23.00	Completed
31	184+603	184+605	RHS	2.00	Top slab not done

SL No.	From	To	Side	Length (in m)	Present status
32	184+605	184+654	RHS	49.00	Completed
33	184+656	184+742	RHS	86.00	Completed
34	184+749	184+750	RHS	1.00	Top slab not done
35	184+750	184+760	RHS	10.00	Completed
36	191+702	192+065	LHS	363.00	Completed
37	192+245	192+526	LHS	281.00	Completed
38	191+708	191+757	RHS	49.00	Completed
39	191+757	191+758	RHS	1.00	Top slab not done
40	191+758	191+764	RHS	6.00	Completed
41	191+764	191+773	RHS	9.00	Top slab not done
42	191+773	191+885	RHS	112.00	Completed
43	191+885	191+910	RHS	25.00	Top slab not done
44	192+245	192+310	RHS	65.00	Completed
45	192+310	192+312	RHS	2.00	Top slab not done
46	192+323	192+325	RHS	2.00	Top slab not done
47	192+325	192+348	RHS	23.00	Completed
48	192+348	192+349	RHS	1.00	Top slab not done
49	192+349	192+368	RHS	19.00	Completed
50	192+368	192+370	RHS	2.00	Top slab not done
51	192+376	192+412	RHS	36.00	Completed
52	192+412	192+415	RHS	3.00	Top slab not done
53	192+428	192+454	RHS	26.00	Completed
54	192+461	192+490	RHS	29.00	Completed
55	192+509	192+527	RHS	17.00	Completed

14.1 The instant work is a balance work. Accordingly, at several locations work as shown in Para 14 above has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

15. Major Intersections along project:

The details of major intersection are as follows:

Sl No	Design Chainage	Category of Road	Type of Junction	Remarks
1	**201+110**	Existing NH	3-legged	Start of Biswanath Chariali Bypass
2	**204+762**	MDR	4-legged	Pavoi Road Junction
3	**207+680**	Existing NH	3-legged	End of Biswanath Chariali Bypass

16. Minor Intersections along project:

The details of the minor intersections with NH/SH/MDR/ODR/Village road are as follows:

Sl No	Designe Chainage	Side (Left/Right)	Carriageway Width in Meter	
			Left	Right
1	182+170	Right		3.50
2	182+180	Left	3.00	
3	182+420	Both	3.50	3.50
4	182+866	Left	3.00	
5	182+945	Right		3.00
6	183+700	Left	3.00	
7	184+175	Left	3.00	
8	184+320	Right		4.00
9	184+600	Both	5.50	5.50
10	184+910	Right		3.50
11	185+385	Right		4.00
12	185+550	Left	5.50	
13	186+000	Right		5.50
14	186+211	Right		5.50
15	186+330	Left	4.00	
16	186+725	Left	3.50	
17	186+880	Right		3.50
18	187+070	Right		3.50
19	187+264	Both	5.00	5.00
20	187+420	Right		3.50
21	188+040	Left	5.50	
22	188+145	Left	3.50	
23	189+465	Left	5.50	
24	189+790	Right		5.50
25	189+860	Left	5.50	
26	189+880	Right		3.50
27	190+060	Left	5.00	
28	190+970	Right		5.50
29	191+020	Left	4.00	
30	191+450	Right		3.50
31	191+740	Right		3.50
32	191+785	Left	4.00	
33	191+980	Both	3.50	3.50
34	192+040	Left	5.50	
35	192+225	Right		3.50
36	192+240	Left	5.50	
37	192+320	Right		3.00
38	192+440	Right		3.50
39	192+640	Left	3.00	
40	192+960	Right		3.00
41	193+150	Left	3.50	
42	193+750	Left	3.50	
43	194+250	Left	3.50	

Sl No	Designe Chainage	Side (Left/Right)	Carriageway Width in Meter	
			Left	Right
44	194+400	Left	3.50	
45	195+110	Left	4.00	
46	195+400	Right		3.50
47	195+860	Right		3.50
48	196+640	Left	3.50	
49	198+850	Left	3.50	
50	199+030	Left	3.50	
51	200+320	Right	4.00	
52	202+170	Both	3.00	3.00
53	202+235	Right	3.00	
54	202+880	Both	3.50	3.50
55	203+750	Both	4.00	4.00
56	204+251	Both	3.50	3.50
57	204+477	Both	4.00	4.00
58	205+190	Both	4.00	4.00
59	206+400	Both	4.00	4.00
60	206+470	Both	4.00	4.00

Note:-In addition to the above listed Minor Junctions, in case any additional Minor Junction is identified at site, the same shall be developed, as per the availability of land and shall not constitute a Change of Scope under Article 13.

17. Bypasses

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

S. No.	Name of bypass (town)	Chainage (km)From km to km	Length (in Km)
1	Biswanath Chariali Town	201+100 to 207+700	6.600

18. Other structures:

NIL

Annexure – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way

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

Sl.No.	From Km to Km	Length (Km)	Width (m)	Date of Providing ROW
Full Right of Way for full width a) Full Stretch	(Ch. 182.000 Km to Ch. 208.000 Km of NH-52)	26.000 Km	45-60m	On Appointed date

Annexure - 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 as indicated in the alignment plan shall be considered as minimum FRL and in any case, the finished road level of the project highway should not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based onsite/design requirement.

Annexure – IV

(Schedule-A)

Environment Clearances

The following environment clearance have been obtained : Not Applicable

The following environment clearance are awaited : NIL

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. The alignment plan of the Project Highway is specified in Annexure-III of Schedule A. The proposed profile of the Project Highway as indicated in the Annexure-III of Schedule-A shall be treated as an approximate assessment. Contractor shall design the alignment plans and profiles of the Project Highway based on site / design requirement mentioned in Schedule-D with approval from Authority's Engineer within the available Right of Way.

1.1 The instant work is a balance work. Accordingly, at several locations work has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement

2. Rehabilitation and augmentation

Rehabilitation and augmentation shall include Four-Laning 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 completed by the Contractor in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

"

Annexure – I

(Schedule-B)

Description of Four-Laning and strengthening

1. Widening of the Existing Highway

1.1. 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. Notwithstanding anything to the contrary contained in this Agreement or IRC:SP:84-2014, the proposed profile of the Project Highway as indicated in the Annexure-III of Schedule-A shall be treated as an approximate assessment. Contractor shall design the alignment plan and profile of the Project Highway based on site / design requirement mentioned in Schedule-D with approval from Authority's Engineer within the available Right of Way. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain terrain to the extent land is available. The same shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provision of Article 13

1.2. Width of Carriageway

1.2.1 The paved carriageway shall be as per IRC: SP: 84-2014.

1.2.2 Provided that in following Built-up/urban stretches, the service road shall be provided with the main carriageway as per IRC: SP: 84-2014.

Sr. No.	Design Chainages		Width (m)	LHS/RHS/Both	Length (m)
	From	To			
1	184+225	184+760	7.5	Both	1070
2	191+700	192+530	7.5	LHS	830
3	191+700	192+015	7.5	RHS	315
4	192+330	192+530	7.5	RHS	200
				Total (in m)	**2415**

1.2.3 Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.2.1 above.

2. Geometric Design and General Features

2.1. **General**

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual IRC SP 84-2014.

2.2. **Design speed**

The design speed shall be as per clause 2.2 of IRC: SP: 84-2014.

2.3. **Improvement of the existing road geometrics**

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 given right of way and proper road signs and safety measures shall be provided:

Sl. No.	Stretch (from km to km)	Length in Mtr.	Type of deficiency	Remarks
NIL				

Note: In case there are locations identified, which have to be geometrically improved, the same are to be carried out within the available ROW, without any Change of Scope as per Article 13

2.4. **Right of Way**

Details of the Right of Way are given in Annex-II of Schedule-A

2.5. **Type of shoulders**

(a) In built-up sections, footpaths/fully paved shoulders shall be provided in the following stretches:

Sr. No.	Design Chainages		LHS/RHS/ Both	Reference to cross section	Remarks
	From	To			
1	184+225	184+760	Both	Figure 2.5/2.6	Kusumtola
2	191+700	192+530	LHS	Figure 2.5/2.6	Chotia
3	191+700	192+015	RHS	Figure 2.5/2.6	Chotia
4	192+330	192+530	RHS	Figure 2.5/2.6	Chotia

Note: Figure 2.5 and Figure 2.6 refer Manual IRC: SP:84-2014 of Clause 2.16

(b) In open country, Paved Shoulders of 1.50 m width and Earthen Shoulders for a width of 2.00 m will be provided.

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in paragraphs 5.10, 5.11 and 5.12 of the manual.

2.6. **Lateral and vertical clearances at underpasses**

2.6.1. Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per the paragraph 2.10 of the Manual.

2.6.2. 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			

2.7. **Lateral and vertical clearances at overpasses**

2.7.1. Lateral and vertical clearances at over passes shall be as per paragraph 2.11 of the Manual.

2.7.2. 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			

2.8. **Service roads / Slip roads**

Service roads shall be constructed at the locations and for the lengths indicated below:

Sr. No.	Design Chainages		Width (m)	LHS/RHS/Both	Length (m)
	From	To			
1	184+225	184+760	7.5	Both	1070
2	191+700	192+530	7.5	LHS	830
3	191+700	192+015	7.5	RHS	315
4	192+330	192+530	7.5	RHS	200
				Total (in m)	**2415**

Note : The width of Service Road is subject to availability of the land, as indicated in Schedule-A. In case, the PROW is not made available for construction of the Service Road, the same shall be constructed in the available land without attracting any Change of Scope.

2.9. **Grade separated structures**

2.9.1. Grade separated structures shall be provided as per paragraph 2.13 of the manual. The requisite particulars are given below:

Sl. No.	Location of structure	Length (m)	Number and length of spans (m)	Approach gradient	Remarks, if any
NIL					

2.9.2. 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:

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

2.10. **Cattle and pedestrian underpass /overpass**

Cattle and pedestrian underpass/over pass shall be constructed as follows:

Sl.No.	Location	Type of crossing
NIL		

2.11. **Typical cross-sections of the Project Highway**

Typical cross sections of the project highways are enclosed in the alignment plan. Modification of Cross sections in any segments of four lane stretch shall only be developed in case of necessity following the "Manual of Specifications and Standard for four laning of Highways through Public Private Partnership (IRC: SP: 84-2019) referred in Schedule – D.

Design Chainage in Km		Length in meter	Widening Side/scheme
From	To		
182+000	184+200	2200	Eccentric (RHS) widening
184+200	184+750	550	Eccentric (RHS) widening with service road
184+750	185+650	900	Eccentric (RHS) widening
185+650	185+950	300	Eccentric (LHS) widening
186+950	186+050	100	Eccentric (RHS) widening

186+050	186+250	200	Concentric widening
186+250	191+650	5400	Eccentric (RHS) widening
191+650	192+000	350	Eccentric (RHS) widening with service road
192+000	193+950	1950	Eccentric (RHS) widening
193+950	194+050	100	Concentric widening
194+050	194+250	200	Eccentric (LHS) widening
194+250	195+800	1550	Eccentric (RHS) widening
195+800	199+700	3900	Concentric widening
199+700	201+050	1350	Eccentric (RHS) widening
201+050	207+600	6550	New Alignment
207+600	208+000	400	Eccentric (RHS) widening
Total Design Length		**26000**	

Note: TCS schedule as given above shall be treated as an approximate assessment. Actual length of section corresponding to a TCS shall be prepared by the EPC Contractor based on detailed investigation, site requirement and detailed design carried out as per the Standards & Specifications and Manual. Any variation in length of the section corresponding to the respective TCS specified in Schedule-B shall not constitute change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provisions of Article 13.

3. Intersections and Grade Separators

All inter sections and grade separators shall be as per the provision of Section–3 of the Manual. Existing inter sections which are deficient shall be improved to the prescribed standards to the extent of land availability.

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

(a) At-grade intersections

Major Intersections with NH/SH/MDR/ODR/Village road:

Sl No	Design Chainage	Category of Road	Type of Junction	Remarks
1	**201+110**	Existing NH	3-legged	Start of Biswanath Chariali By pass
2	**204+762**	MDR	4-legged	Pavoi Road Junction
3	**207+680**	Existing NH	3-legged	End of Biswanath Chariali By pass

Minor Intersection with NH/SH/MDR/ODR/Village road:

Sl No	Designe Chainage	Side (Left/Right)	Carriageway Width in Meter	
			Left	Right
1	182+170	Right		3.50
2	182+180	Left	3.00	
3	182+420	Both	3.50	3.50
4	182+866	Left	3.00	
5	182+945	Right		3.00
6	183+700	Left	3.00	
7	184+175	Left	3.00	
Sl No	**Designe Chainage**	**Side (Left/Right)**	**Carriageway Width in Meter**	
			Left	**Right**
8	184+320	Right		4.00

9	184+600	Both	5.50	5.50
10	184+910	Right		3.50
11	185+385	Right		4.00
12	185+550	Left	5.50	
13	186+000	Right		5.50
14	186+211	Right		5.50
15	186+330	Left	4.00	
16	186+725	Left	3.50	
17	186+880	Right		3.50
18	187+070	Right		3.50
19	187+264	Both	5.00	5.00
20	187+420	Right		3.50
21	188+040	Left	5.50	
22	188+145	Left	3.50	
23	189+465	Left	5.50	
24	189+790	Right		5.50
25	189+860	Left	5.50	
26	189+880	Right		3.50
27	190+060	Left	5.00	
28	190+970	Right		5.50
29	191+020	Left	4.00	
30	191+450	Right		3.50
31	191+740	Right		3.50
32	191+785	Left	4.00	
33	191+980	Both	3.50	3.50
34	192+040	Left	5.50	
35	192+225	Right		3.50
36	192+240	Left	5.50	
37	192+320	Right		3.00
38	192+440	Right		3.50
39	192+640	Left	3.00	
40	192+960	Right		3.00
41	193+150	Left	3.50	
42	193+750	Left	3.50	
43	194+250	Left	3.50	
44	194+400	Left	3.50	
45	195+110	Left	4.00	
46	195+400	Right		3.50
47	195+860	Right		3.50
48	196+640	Left	3.50	
49	198+850	Left	3.50	
50	199+030	Left	3.50	
51	200+320	Right	4.00	

Sl No	**Designe Chainage**	**Side (Left/Right)**	**Carriageway Width in Meter**	
			Left	**Right**
52	202+170	Both	3.00	3.00
53	202+235	Right	3.00	

54	202+880	Both	3.50	3.50
55	203+750	Both	4.00	4.00
56	204+251	Both	3.50	3.50
57	204+477	Both	4.00	4.00
58	205+190	Both	4.00	4.00
59	206+400	Both	4.00	4.00
60	206+470	Both	4.00	4.00

Note: In addition to the above listed Major and Minor Junctions, in case any additional Major and Minor Junction is identified at site, the same shall be developed, as per the availability of land and shall not constitute a Change of Scope under Article 13.

(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				

Note:

1. *Type of junction to be improved as per IRC: SP:84-2014 and MOST type design for intersection on National Highways.*
2. *Any other junction not mentioned above but observed during construction of the Project Highway shall be improved as per IRC: SP:84-2014 requirements to the best possible extent within the ROW provided. Any additional junction shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provisions of Article 13.*
3. *The Contractor shall take up 'Detailed Engineering Study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned out in Section 3 of IRC: SP:84-2014. The same shall not constitute a change of scope, save and except any variations arising out of a change of scope expressly undertaken in accordance with the provisions of Article 13.*

4. Road Embankment and Cut Section

4.1. Widening and improvement of the existing road embankment/cuttings and constructions 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. Notwithstanding anything to the contrary contained in this Agreement or IRC: SP:84-2014, the proposed profile of the Project Highway as indicated in the Annexure-III of Schedule-A shall be deemed to be part of this Schedule-B and shall be treated as an approximate assessment. The contractor may design the alignment plan & profile of the Project Highway based on site / design requirement specified in Schedule-D, with approval from Authority's Engineer within the available Right of Way. However, the EPC Contractor shall have to abide by the already reviewed Plan & Profile (Annexure-III of Schedule-A) as the basis/guiding document and the minimum FRL is to be maintained as per it. Deficiencies in the plan and profile of the existing road shall be corrected within the available ROW. In case there is any change/modification/improvement in the geometrics proposed by the EPC Contractor, with in the ROW, the same shall not qualify for Change of Scope as per Article 13. The instant work is a balance work and at several locations, embankment has been constructed partially/completely. The EPC Contractor shall have to assess the adequacy of the partially completed/completed embankment, carry out rectification (if required) and then proceed further for the Road Work duly incorporating the same in the

design. The same shall be considered incidental to the work.

4.2. The cross-sections given in the TCS have to be accommodated in the available ROW (Details as per Annexure-II of Schedule-A). In case any requirement of Toe Wall/Retaining Wall arises to accommodate the TCS, in the available ROW, the same shall not qualify for any Change of Scope, as per Article 13.

5. Pavement Design

5.1 Pavement design shall be carried out in accordance with the section 5 of the Manual however not inferior to the existing crust combination as enclosed in the typical cross section in the current approved Plan and Profile.

5.2 Type of pavement

The type of the pavement for the entire stretch shall be of flexible type pavement

5.3 Design requirements

5.3.1 Design Period and strategy

Flexible pavement for new pavement and for widening and strengthening of the existing pavement shall be designed for a minimum design period of 15 years. Stage constructions shall not be permitted

5.3.2 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement of the Manual, the contractor shall design the pavement for design traffic of not less than 62.73 million standard axles (msa) or as per the actual traffic whichever is higher from Design km 182.000 to km 208.000

5.4 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	Remark
NIL		

6. Road side Drainage:-

6.1 Drainage system including surface drains for the Project Highway shall be provided as per section 6 of the Manual. Covered RCC Drains shall be provided in the following stretches.

Sl No	Design Chainage in km		Length in m	Side	Remarks
	From	To			
1	184+225	184+230	5	LHS	
2	184+307	184+406	99	LHS	
Sl No	**Design Chainage in km**		**Length in m**	**Side**	**Remarks**
	From	**To**			
3	184+617	184+622	05	LHS	
4	184+745	184+760	15	LHS	
5	191+700	191+702	02	LHS	

6	192+065	192+152	87	LHS	
7	192+180	192+245	65	LHS	
8	192+526	192+530	04	LHS	
9	184+225	184+230	05	RHS	
10	184+301	184+330	29	RHS	
11	184+398	184+432	34	RHS	
12	184+517	184+519	02	RHS	
13	184+541	184+543	03	RHS	
14	184+561	184+567	06	RHS	
15	184+599	184+603	04	RHS	
16	184+654	184+656	02	RHS	
17	184+742	184+749	07	RHS	
18	191+700	191+708	08	RHS	
19	191+910	192+152	243	RHS	
20	192+180	192+245	65	RHS	
21	192+312	192+323	11	RHS	
22	192+370	192+376	6	RHS	
23	192+415	192+428	13	RHS	
24	192+454	192+461	07	RHS	
25	192+490	192+509	19	RHS	
26	192+527	192+530	3	RHS	

Status of RCC drain completed/Partially completed as per Schedule A and tabulated below:-

Sl No	From	To	Side	Length (in m)	Remarks
1	184+230	184+275	LHS	45.00	The work already constructed is shown in Sch-A. Balance activities include requisite rectification of the completed works and all the balance works required to complete the Drain in all aspects
2	184+275	184+307	LHS	32.00	
3	184+406	184+411	LHS	5.00	
4	184+411	184+464	LHS	53.00	
5	184+464	184+492	LHS	28.00	
6	184+492	184+494	LHS	2.00	
7	184+494	184+523	LHS	29.00	
8	184+523	184+536	LHS	13.00	
9	184+536	184+580	LHS	44.00	
10	184+580	184+599	LHS	19.00	
11	184+599	184+617	LHS	18.00	
12	184+622	184+645	LHS	23.00	
13	184+645	184+647	LHS	2.00	

Sl No	From	To	Side	Length (in m)	Present status
14	184+647	184+726	LHS	79.00	The work already constructed is shown in Sch-A. Balance activities
15	184+726	184+727	LHS	1.00	
16	184+727	184+745	LHS	18.00	
17	184+230	184+252	RHS	22.00	

18	184+252	184+257	RHS	5.00	include requisite rectification of the completed works and all the balance works required to complete the Drain in all aspects
19	184+257	184+301	RHS	44.00	
20	184+330	184+358	RHS	28.00	
21	184+358	184+375	RHS	17.00	
22	184+375	184+380	RHS	5.00	
23	184+380	184+398	RHS	18.00	
24	184+432	184+448	RHS	16.00	
25	184+448	184+517	RHS	69.00	
26	184+519	184+539	RHS	20.00	
27	184+539	184+541	RHS	2.00	
28	184+544	184+561	RHS	17.00	
29	184+567	184+576	RHS	9.00	
30	184+576	184+599	RHS	23.00	
31	184+603	184+605	RHS	2.00	
32	184+605	184+654	RHS	49.00	
33	184+656	184+742	RHS	86.00	
34	184+749	184+750	RHS	1.00	
35	184+750	184+760	RHS	10.00	
36	191+702	192+065	LHS	363.00	
37	192+245	192+526	LHS	281.00	
38	191+708	191+757	RHS	49.00	
39	191+757	191+758	RHS	1.00	
40	191+758	191+764	RHS	6.00	
41	191+764	191+773	RHS	9.00	
42	191+773	191+885	RHS	112.00	
43	191+885	191+910	RHS	25.00	
44	192+245	192+310	RHS	65.00	
45	192+310	192+312	RHS	2.00	
46	192+323	192+325	RHS	2.00	
47	192+325	192+348	RHS	23.00	
48	192+348	192+349	RHS	1.00	
49	192+349	192+368	RHS	19.00	
50	192+368	192+370	RHS	2.00	
51	192+376	192+412	RHS	36.00	
52	192+412	192+415	RHS	3.00	
53	192+428	192+454	RHS	26.00	
54	192+461	192+490	RHS	29.00	
55	192+509	192+527	RHS	17.00	

6.2 Unlined Drain is to be constructed at all other locations as per Manual.

6.3 Median Drain is also to be provided as per Manual and Site Requirement.

6.4 The instant work is a balance work. Accordingly, at several locations work as per table in Para 6.1, has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to

assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

6.5 The EPC Contractor shall have to design the drains adequately and ensure their functionality duly taking into account the Site Conditions and Outfall locations.

7. Design of Structures

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the manual and the existing design of partially completed structures. These together shall conform to the cross-sectional features and other details.

7.1.2 Width of the carriageway of new bridges and structures shall be as follows: -
All new structures shall be minimum carriageway as per Manual Fig. 7.2 and fig. 7.3

7.1.3 The following structures shall be provided with footpaths:

Sl. No	Bridge at Km	Utility service to be carried	Remarks
All new bridges/Bridges proposed to be widened shall have provisions for footpath			

7.1.4 All bridges shall be high-level bridges

7.1.5 Utility services to be carried over the structures

The following structures shall be designed to carry utility services specified in the table below: -

Sl. No	Bridge at Km	Utility service to be carried	Remarks
All new bridges/Bridges proposed to be widened shall have provisions for utility services to be carried over			

7.1.6 Cross - section of the new culverts and bridges at deck level for the Project Highway shall Conform to the typical cross-sections given in section 7 of the Manual.

7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 Reconstruction of existing culverts.

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

Sl. No.	**Existing Chainage**	**Design Chainage**	**Proposed Type of Structure**	**Recommendation**	**Proposed span Arrangement (m)**	**Over all Width in (m)**
NIL						

Status of Culvert (Reconstruction) completed/Partially completed as per Schedule A
Culvert (Reconstruction) Work partially completed and to be completed up to final stage

S. No	Chainage (Km)	Type of Culvert	Span/ Opening with span length (m)	Width (m)	Remarks
1	182+455	Box Culvert	1/3.0/3.0	29.60	The work already constructed is shown in Sch-A. Balance activities include requisite rectification of the completed works and all the balance works required to complete the Culverts in 4 lane in all aspects
2	183+288	Box Culvert	1/2.0/2.0	26	
3	183+570	Box Culvert	1/2.0/2.0	26	
4	183+985	Box Culvert	1/2.0/2.0	26	
5	184+178	Box Culvert	1/2.0/2.0	36.725	
6	184+401	Box Culvert	1/2.0/2.0	42.50	
7	185+133	Box Culvert	1/2.0/2.0	28.00	
8	187+078	Box Culvert	1/2.0/2.0	26	
9	187+559	Box Culvert	1/3.0/3.0	26.00	
10	188+700	Box Culvert	1/2.0/2.0	26	
11	190+577	Box Culvert	1/4.0 /4.0	26	
12	201+234	Box Culvert	1/2.0/2.0	29.60	
13	201+542	Box Culvert	1/2.0/2.0	26	
14	201+830	Box Culvert	1/2.0/2.0	26	
15	201+975	Box Culvert	1/2.0/2.0	26	
16	202+358	Box Culvert	1/2.0/2.0	26.00	
17	202+730	Box Culvert	1/2.0/2.0	26.00	
18	203+194	Box Culvert	1/2.0/2.0	26.00	
19	203+490	Box Culvert	1/2.0/2.0	26.00	
20	203+817	Box Culvert	1/3.0/3.0	26.00	
21	204+390	Box Culvert	1/2.0/2.0	26.00	
22	204+825	Box Culvert	1/2.0/2.0	26.00	
23	205+024	Box Culvert	1/3.0/3.0	26.00	
24	205+520	Box Culvert	1/3.0/3.0	26.00	
25	206+200	Box Culvert	1/3.0/3.0	26.00	
26	206+250	Box Culvert	1/3.0/3.0	26.00	
27	206+550	Box Culvert	1/3.0/3.0	26.00	
28	207+185	Box Culvert	1/2.0/2.0	39.50	
29	207+630	Box Culvert	1/3.0/3.0	29.00	

7.2.2.1 The instant work is a balance work. Accordingly, at several locations work as per Table in Para 7.2.2, has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement.

7.2.2.2 The span and opening of these culverts as specified are indicative. The design of waterway has to be done as per site requirement, considering the site requirements. Any change in this configuration shall not attract provisions of Article 13 of this Agreement.

7.2.3 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 the provision of relevant Manual. Repairs and strengthening of existingstructures 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			

7.2.4 Additional new culverts shall be constructed as per particulars given in the table below:

Sl.No.	New Location as per Drawing	Type of Culvert	Proposed Size (mm)	Remarks
NIL				

7.2.5 Repairs/replacement of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

As per site condition,

Repairs/replacement of railing/parapets and any other defects noticed at the time of construction shall be undertaken by the contractor for all the retained culverts along with repair/construction of flooring and protection works.

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes and Specification.

7.2.7 In case of culverts proposed for widening / repair as per details in Clause 7.2.3 above, the same shall be re-constructed if the design shows that these are unsafe for design loads. No change of scope shall be considered in such cases.

7.3 Bridges

7.3.1 The new bridges adjacent to the existing bridges at the following locations shall be constructed as new Structures.

(a) **Major Bridges**

Sr No	Chainage	Span	Remarks
1	194+799	2x35.80	The work already constructed is shown in Sch-A. Balance activities include requisite rectification of the completed works and all the balance works required to complete the New 2 lane Major Bridge in all aspects including River Training works if required as per site

(b) **Minor Bridges**

Sr No	Chainage	Span	Remarks
1	182+540	1x9.00	The work already constructed is shown in Sch-A. Balance activities include requisite rectification of the completed works and all the balance works required to complete the New 2 lane Minor Bridge in all aspects
2	186+140	2x19.80	
3	187+734	2x8.90	
4	189+340	2x7.40	
5	192+166	2x13.35	
6	199+752	1x9.00	

7.3.2 The existing Minor bridges at the following locations shall be dismantled and reconstructed:

Sr. No	Chainage	Span	Remarks
NIL			

7.3.3 The following existing bridges shall be repaired/rehabilitated and strengthened as per Manual:

a) Major Bridge

Sl. No.	Chainage (Km)	Width of existing bridge (in m)	Type of Strucutre			No. of span with span length (m)	Details of repair
			Foundation	Sub-structure	Super-strucutre		
1.	194+825	8.45	Well Foundation	Abutment & Pier	PSC Girder & Slab	3X35.80	Shall be repaired/ rehabilitated and strengthened including River Training work as per requirement

Note: Widening of major bridges is not applicable, however repair and strengthening work shall be carried out

Sl. No.	Chainage (Km)	Width of existing bridge	Type of Strucutre			No. of span with span length (m)	Details of repair
			Foundation	Sub-structure	Super-strucutre		
1.	186+140	12.50	Pile foundation	RCC wall type	RCC Slab	2 x 19.80	Shall be repaired/ rehabilitated and strengthened including River
2.	192+166	12.50	Pile foundation	RCC wall type	RCC Slab	2 x 13.50	

Sl.	Chainage	Width	Type of Strucutre			No. of	Details of
							Training work as per requirement

Note: Widening of minor bridges is not applicable, however repair and strengthening work shall be carried out

7.3.4 The following existing bridges shall be widened/Repairs as per Manual

b) Minor Bridge

Sl. No.	Chainage (Km)	Width of existing bridge	Type of Strucutre			No. of span with span length (m)	Remarks
			Foundation	Sub-structure	Super-strucutre		
1.	182+544	8.4	Open	RCC Abutment	Solid Slab	1 x 9.00	Widened to the required overall width of 12.5 m. Also Shall be repaired/ rehabilitated and strengthened
2.	187+744	8.4	Open	RCC Abutment & Pier	Solid Slab	2 x 8.90	
3.	189+351	8.4	Open	RCC Abutment & Pier	Solid Slab	2 x 7.40	
4.	199+767	8.4	Open	RCC Abutment	Solid Slab	1 x 9.00	

7.3.5 **Additional new bridges**

New bridges at the following locations on the Project Highway shall be constructed.

Sl. No.	Location (km)	Total length(m)	Remarks, if any
NIL			

7.3.6 The railings of existing bridges shall be replaced by crash barriers at the following locations:

Sl .No.	Location at Km	Type of Bridge
As per Site Condition wherever technically required		

7.3.7 Repairs / replacements of railing/parapets of the existing bridges shall be undertaken as follows:

Sl. No.	Location at Km	Type of Bridge
In all the retained bridges which are proposed for widened, railing/parapets shall be replaced		

7.3.8 **Drainage system for bridge decks**

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.20 of the Manual.

7.3.9 Structure in marine environment

Nil

7.3.10 The instant work is a balance work. Accordingly, at several locations work, as per Tables in Para 7, has been carried out which may be partially/fully complete. Further, some of the partially/fully completed works might have deteriorated. The EPC Contractor shall have to assess the level of deterioration of such works, carry out the required remedial measures/rectification work as per the satisfaction of the Engineer and then proceed for the next stage of work. It is being stipulated that in case any partially/completed work has failed or deteriorated & rectification work is to be carried out and the same is not discretely mentioned in the Schedules, the same shall not qualify for Change in Scope as per the Article 13 of the EPC Contract Agreement. Further, as far as the Major/Minor Bridges are concerned, there may be balance activities which include requisite rectification of the completed works also, carrying out river training works, parapet/railing works, etc, as per site requirement, so as to complete the bridges as per Standards & Specifications.

7.3.11 The span and opening of these bridges as specified are indicative. The design of waterway has to be done as per site requirement, considering the site requirements. Any change in this configuration shall not attract provisions of Article 13 of this Agreement

7.4 **Rail-road bridges**

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in Section7 of the Manual.

7.4.2 Road over-bridges

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

Sl. No.	Design Chainage (Km)	Span arrangment	Length of Span (in m)	Remarks
Nil				

7.4.3 **Road under-bridges**

Road under-bridges (road under rail way line) 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		

7.5 Grade separated structures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9(ix) and 3 of this annex-I of Schedule - B.

7.6 Repairs and strengthening of bridges and structures

The existing bridges and structures to be repaired/ strengthened, and the nature and extent of repairs /strengthening required are given below:

(a) Bridges

i) Major Bridges`

Sl.No.	Location at Km	Remarks
1.	194+825	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.

ii) Minor Bridges

Sl.No.	Location at Km	Remarks
1.	182+544	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.
2	187+744	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.
3	189+351	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.
4	199+767	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.
5	186+173	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.
6	192+177	Sealing of cracks in foundation , Sub structure, Super structure etc. Reparing/replacement are required for damaged bearings, railings, wheel guard, approach slab expansion joints, drainage spouts and wearing coat, painting of bridge, numbering of bridge.

(b) ROB / RUB

Sl. No.	Design Chainage (Km)	Span arrangment	Length of Span (in m)	Remarks
Nil				

(c) Overpasses/Underpasses and other structures

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

7.7 Protection work-

Protection work for the project Highway shall be provided as detailed below:-

7.7.1 Protection work at major Bridge at Km 194.825:- Construction of Guide Bund in a length of 360 m and ts protection work including flexible apron, boulder pitching and filter media.

Bridge No	Length of Guide Bund		
	Up-stream	Downstream	Total (m)
195/1	150X2	30X2	360
		Total	360 m

7.7.2 Details of retaining wall- Retaining wall wherever required shall be provided as per site requirement.

7.7.3 Details of Toe Wall- Toe wall wherever required shall be provided as per site requirement.

7.7.4 Any other Protection work for the embankment as per the Manual and relevant IRCs is to be executed at site.

8. Traffic Control Devices and Road Safety Works

8.1 Traffic control devices and road safety works shall be provided in accordance with section 9 of the manual.

8.2 Specifications of the reflecting sheeting: As per the clause 9.2 of the Manual of specifications and standards.

9. Roadside Furniture

9.1 Roadside Furniture shall be provided in accordance with the provision of section 09 of the Manual.

9.2 Overhead traffic signs: Shall be provided in accordance with the provisions of the Manual at the following locations

Sr. No	Design Chainage (km)	Remarks
1	183.100	4 lane with both side sheeting
2	201.200	
3	206.100	

10. COMPULSORY AFFORESTATION

Compulsory/Compensatory a forestation to be carried out at locations as per the manual.

11. HAZARDOUS LOCATIONS

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

Sl No.	Location stretches from (km) to (km)	LHS/RHS
This shall be provided at high embankment and at sharp curve locations.		

12. Special requirements for hill roads

Nil

13. **Change of Scope**

The length of structures and bridges specified herein above shall be treated as an approximate assessment. The proposed span arrangement of above structures may be changed (keeping overall length same) based on innovative design of structure, latest construction techniques and aesthetics of structures and the actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any increase 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 expressly undertaken in accordance with the provisions of Article 13

14. Not withstanding anything contrary it is clarified that all exposed/ uncovered layer of pavement, viz. subgrade, GSB, WMM, Bituminous layer shall be rectified by the contractor at his own cost to the extent required before laying of the next subsequent layer. There may be reinforcement at various components of the structures. This reinforcement might be rusted or might have been stolen. The Contractor make good, the exposed reinforcement before executing next layer of the component at his own cost."

(Schedule B-1)

1. The shifting of utilities and felling of trees shall be carried out by the Contractor. The cost of the same shall be borne by the Contractor. The details of utilities are as follows:

Sr. No	Type of Utility	Unit	Quantity	Location/stretch (LHS/RHS)
A	Electrical Utilities			
A1	Electrical Poles	Nos.		
A2	Electrical cables	meters		
A3	Transformers	Nos.		
B	Water/Sewage pipeline			
B1	Sewage	meters		
	Water supply	meters		
-	-------	--		
-	-------	--		
C	Felling of Tress	Nos.		

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) Tree Plantation;

e) Truck Lay-Byes;

f) Bus-Bays And Bus Shelters;

g) Rest Areas; and

h) Others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below showing:

a. Toll Plaza : NIL

b. Road side Furniture

(i) Traffic Signs and Pavement Markings:

Traffic signs and pavement markings shall include road side signs, overhead signs, curve mounted signs and road marking along the project highway. The locations for these provisions shall be finalised as per manual.

(ii) Concrete Crash Barrier, Metal beam crash barrier (minimum inalengthof10244m), Separators (MS railings) wherever required as per manual.

(iii) Traffic Safety Devices wherever required

(iv) Boundary Stones

(v) Hectometre/Kilometre Stones

(vi) Traffic Blinker Signal (L.E.D) shall be provided at all At-grade junctions, median opening, schools, hospitals, police station, places of worship and institutional buildings etc.

(vii) Overhead signs: 3 Nos.

(viii) Delineators and Studs: Studs (100 mm x 100 mm) with reflective panels of dual prismatic cube capable of providing total reflection of light entering the lens face for lane marking and delineators for night time visibility shall be provided for the entire project Highway.

c. Pedestrian Facilities

The additional pedestrian facilities in the form of guard rails, footpath, lighting etc .shall be provided wherever required as per Manual.

d. Landscaping and Tree Plantation

Landscaping of the highway shall be done on, but not limited to, the following in accordance with IRC SP 21 and section 11 of the manual:

Median

Grade Separated intersections

Entry and Exit ramp

At grade is a land of intersection locations

Toll Plaza Area

e. Truck lay byes : NIL

f. Bus-bays and Bus Shelter : Bus-bays shall be provided at following locations:

Locations of Bus bays

S. No	Design chainage	Side	Name/Location
1	183+600	Both	Santipur
2	185+695	Both	Battalian Camp
3	187+900	Both	Nagsankar
4	191+990	Both	Sootea
5	192+980	Both	Sootea
6	194+995	Both	Mukherghur
7	196+000	Both	Pratabzarh T.E
8	197+005	Both	Shakomato T.E
9	205+500	Both	Lehuzaon Bow Bazar
10	207+700	Both	Burigaon

Note: The locations are tentative and shall be decided by the Authority's Engineer. Further, any addition in the number of Bus-Bays will not be considered as a Change of Scope.

(g) Others

1 Highway Lighting shall be provided as per schedule D (Manual of Specifications and Standard for 4-Laning of Highway) IRC: SP: 84-2014).

2 The EPC Contractor will obtain all permissions/load sanctions/power supply, etc. from the Electricity Authorities. The Contractor shall be solely responsible for submission of application along with all necessary documents to the Power Authorities and take electric connection of required load and capacity. Further the Contractor shall be responsible for follow up of the application and getting the release of the supply to lighting. All statutory approvals/permissions have to be obtained by the Contractor for energizing/operating the lights. The fixed and monthly electric charges up to the DLP of the project have to be borne by the EPC Contractor.

Schedule-D

(SeeClause2.1)

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 for Specifications & Standards for Four Laning of Highways Through Public Private Partnership (IRC : SP-84-2014)

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 four laning of Highways (IRC: SP-84: -2014) referred to as the Manual for four laning of Highways published by IRC 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

2.1 The term "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".

2.2 Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and or purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below.

Sl. No.	Item	Clause referred in Manual	Provision as per Manual	Modified Provision
1	Typical Cross section	IRC: SP: 84-2014	Typical Cross Section	Typical Cross section shall be as per Manual

Schedule – E

(See Clauses2.1and 14.2)

Maintenance Requirements

1. Maintenance Requirements
   (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
   (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
   (iii) All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.
2. Repair/rectification of Defects and deficiencies
   The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.
3. Other Defects and deficiencies
   In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.
4. Extension of time limit
   Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.
5. Emergency repairs/restoration
   Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.
6. Daily inspection by the Contractor
   The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before [1st June] every year in accordance with the guidelines contained in IRC: SP35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority's Engineer before the [10th June] every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post monsoon inspection shall be done by the [30th September] and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

8. Repairs on account of natural calamities

All damages occurring to the Project Highway on account of a Force Majeure Event or willful default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

Table -1: Maintenance Criteria for Pavements:

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Inspection	Tools /Equipment	Standards and References for Inspection and Data Analysis	Time limit for Rectification/ Repair	Maintenance Specifications
		Desirable	Acceptable					
Flexible Pavement (Pavement of MCW, Service Road, approache	Potholes	Nil	< 0.1 % of area and subject to limit of 10 mm in depth	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC 82: 2015 and Distress Identification Manual for Long Term Pavement Performance Program, FHWA 2003 (http://www.tfhrc.com/pavement/lttp/reports/03031/)	24 - 48 hours	MORT&H Specification 3004.2
s of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable	Cracking	Nil	< 5 % subject to limit of 0.5 sqm for any 50 m length	Daily			7-15 days	MORT&H Specification 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1% Ofarea	Daily	Length Measurement Unit like		2-7 days	IRC:82- 2015

Asset Type	Parameter	Desirable	Acceptable	Frequency	Equipment	Data Analysis	Repair	Details
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.		3-7 days	MORT&H Specification 3004.4
	Raveling / Stripping	Nil	< 1 % of area	Daily			7-15 days	IRC:82-2015 read with IRC SP 81
	Edge Deformation /Breaking	Nil	< 1 m for any 100 m section and width < 0.1 m at any location, Restricted to 30 cm from the edge	Daily			7- 15 days	IRC:82-2015
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer : ASTM E950 (98) :2004 –Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement	180 days	IRC:82- 2015
	Skid Number	60SN	50SN	Bi-Annually			180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82- 2015

Asset Type	Performance Parameter	Service (LOS)		Inspection	Equipment	Inspection and Data Analysis	Rectification/ Repair	Specifications
		Desirable	Acceptable					
	Other Pavement Distresses			Bi - Annually			2-7 days	IRC:82-2015
	Deflection/ Remaining Life			Annually	Falling Weight Deflectometer	IRC 115: 2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, Grade structure,	Roughness BI	2200mm /km	2400mm /km	Bi - Annually	Class I Profilometer	ASTM E950 (98) :2004 and ASTM E1656 - 94: 2000	180 days	IRC:SP:83 - 2008
	Skid	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway - force	IRC:SP:83-2008	180 days	IRC:SP:83 - 2008
approaches of connecting roads, slip roads, lay byes etc. as applicable)		**Minimum SN**	**Traffic Speed (Km/h)**		Coefficient Routine Investigation Machine or equivalent)			
		36	50					
		33	65					
		32	80					
		31	95					
		31	110					

Asset Type	Performance Parameter	Level of Service (LOS)		Inspection	/Equipment	Inspection and Data Analysis	Rectification/ Repair	Specifications
		Desirable	Acceptable					
Embankment /Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	IRC	7-15 days	MORT&H pecification 408.4
	Slope of camber /cross fall	Nil	<2% variation in prescribed slope of camber /cross fall	Daily			7-15 days	MORT&H pecification 408.4
	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily			7-15 days	MORT&H pecification 408.4
	Embankment Protection	Nil	Nil	Daily	NA		7-15 days	MORT&H Specification
	Rain Cuts/Gullies in slope	Nil	Nil	Daily Specially During Rainy Season	NA		7-15 days	MORT&H Specification

In addition to the above performance criterion, the contractor shall strictly maintain the rigid pavements as per requirements in the following table

No.	Type of Distress	Parameter	Severity	Assessment Rating	For the case d < D/2	For the case d > D/2
CRACKING						
1	**Single Discrete Cracks Not intersecting with any joint**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > lm. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > l m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	**Single Transverse (or Diagonal) Crack intersecting with one or more joints**	w = width of crack, L = length of crack, d = depth of crack, D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1m. Within 7 days	
			4	w = 3.0 - 6.0 mm	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected. Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
			5	w > 6 mm, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	

3	**Single Longitudinal Crack intersecting with one or more joints**	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.5 mm, discernable from slow moving vehicle	Seal with epoxy, if L > 1 m. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	w = 0.5 - 3.0 mm, discernible from fast vehicle	Route seal and stitch, if L > l m. Within 15 days	
			3	w = 3.0 - 6.0 mm	Staple, if L > 1 m. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	w = 6.0 - 12.0 mm, usually associated with spalling	Not Applicable, as it may be full depth	
			5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic		Full Depth Repair Dismantle and reconstruct affected portion as per norms and specifications See Para 5.6.4 Within 15 days

4	**Multiple Cracks intersecting with one or more joints**	**w = width of crack**	0	Nil, not discernible	No Action	
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m. Within 15 days	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinstate subbase, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		

5	**Corner Break**	w = width of crack L = length of crack	0	Nil, not discernible	No Action	
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts Within 7 days	Seal with epoxy seal with epoxy Within 7days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	ree or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications within 30days

No.	Distress	Parameter	Severity		For the case d < D/2	For the case d > D/2
6	**Punch out (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)**	w = width of crack L = length(m/m2)	0	Nil, not discernible		No Action
			1	w < 0.5 mm; L < 3 m/m2	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			2	either w > 0.5 mm or L < 3 m/m2		
			3	w > 1.5 mm and L < 3 m/m2		
			4	w > 3 mm, L < 3 m/m2 and deformation		Full depth repair - Cut out and replace damaged area taking care not to damage reinforcement. Within30days
			5	w > 3 mm, L > 3 m/m2 and deformation		
Surface Defects						
7	Raveling or Honey comb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	**Short Term**	**Long Term**
					No action.	Not Applicable
			1	r < 2 %	Local repair of areas damaged and liable to be damaged. Within 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting. Within 30 days	
			4	r = 25 - 50 %		
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting.	

8	**Scaling**	r=damaged surface/total surface of slab (%) h = maximum depth of damage	0	Nil, not discernible	**Short Term**	**Long Term**
					No action.	Not Applicable
			1	r <2 %	Local repair of areas damaged and liable to be damaged. Within 7days	
			2	r = 2 - 10 %		
			3	r = 10 - 20%	Bonded Inlay within 15 days	
			4	r = 20 - 30 %		
			5	r > 30 % and h > 25 mm	Reconstruct slab within 30 days	
9	**Polished Surface/Glazing**	t = texture depth, sand patch test	0		No action.	Not Applicable
			1	t > 1 mm		
			2	t = 1 - 0.6 mm	Monitor rate of deterioration	
			3	t = 0.6 - 0.3 mm		
			4	t = 0.3 - 0.1 mm		
			5	t < 0.1 mm	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km.	

10	**Pop out (Small Hole), Pothole Refer Para 8.4**	N = number/m2 D = diameter H = maximum depth	0	d < 50 mm; h < 25 mm; n < 1 per 5 m^2	No action.	Not Applicable
			1	d=50-100mm;h<50mm; n<1 per 5 m^2	Partial depth repair 65 mm deep. Within 15 days	
			2	d=50-100mm;h>50mm; n<1 per 5 m^2		
			3	d = 100 - 300 mm; h < 100 mm n < 1 per 5m^2	Partial depth repair 110mm i.e.10 mm more than the depth of the hole. Within 30 days	
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5m^2		
			5	d > 300 mm; h > 100 mm: n > 1 per 5 m^2	Full depth repair. Within 30 days	
Joint Defects						
11	**Joint Seal Defects**	loss or damage L = Length as % total joint length	0	Difficult to discern.	**Short Term** No action.	**Long Term** Not Applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress of water and trapping incompressible material.	Clean, widen and reseal the joint. Within 7 days	

12	**Spelling of Joints**	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not Applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion. Within 7 days	
			2	w = 10 - 20 mm, L < 25%		
			3	w = 20 - 40 mm, L > 25%	Partial Depth Repair. Within 15 days	
			4	w = 40 - 80 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			5	w > 80 mm, and L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
13	**Faulting (or Stepping) in Cracks or Joints**	f = difference of level	0	not discernible, < 1 mm	No action.	No action.
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate. Within 30days
			3	f = 6 - 12 mm	Diamond Grinding	
			4	f= 12 - 18 mm	Raise sunken slab.	Replace the slab as appropriate. Within 30days
			5	f> 18 mm	Strengthen subgrade and sub-base by grouting and	

14	**Blowup or Bucklin g**	H = vertical displace ment from normal profile	0	Nil, not discernible	**Short Term**	**Long Term**
			1	h < 6 mm	No Action	
			2	h = 6 - 12 mm	Install Signs to Warn Traffic	
			3	h = 12 - 25 mm	within 7 days	
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	shattered slabs, i.e 4 or more pieces	Replace broken slabs. Within 30 days	
15	**Depress ion**	h = negative vertical displace ment from normal profile L =length	0	Not discernible, h < 5 mm	No action.	Not Applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos<20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level	
			5	h > 100 mm	if L < 20 m. Within 30 days	

16	**Heave**	h = positive vertical displacement from normal profile. L = length	0	Not discernible. h < 5 mm	**Short Term** No action.	**Long Term** scrabble
			1	h = 5 - 15 mm	Follow up.	
			2	h = 15 - 30 mm, Nos <20% joints	Install Signs to Warn Traffic within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Stabilise subgrade. Reinstate pavement at normal level if length < 20 m. Within 30 days	
			5	h > 100 mm		
17	**Bump**	H =vertical	0	h < 4 mm	No action	
		Displacement from normal profile	1	h = 4 - 7 mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	h = 7 - 15 mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	h > 15 mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days

						Short Term	**Long Term**
			0	Nil, not discernible < 3mm		No action.	
			1	f = 3 - 10 mm		Spot repair of shoulder within 7 days	
			2	f = 10 - 25 mm			
18	**Lane to Shoulder Drop off**	f = difference of level	3	f = 25 - 50 mm		Fill up shoulder	
			4	f = 50 - 75 mm		within 7 days	For any 100 m stretch Reconstruct shoulder, if affecting 25% or more of stretch. Within 30days
			5	f > 75 mm			
Drainage							
19	**Pumping**	quantity of fines and water expelled through open joints and cracks Nos	0	not discernible		No Action	
			1 to 2	slight/ occasional Nos < 10%		Repair cracks and joints Without delay.	Inspect and repair sub-drainage at distressed sections and upstream.
			3 to 4	appreciable / Frequent 10 -25%		Lift or jack slab within 30 days.	
		Nos/100 m stretch	5	abundant, crack development >25%		Repair distressed pavement sections. Strengthen subgrade and subbase. Replace slab. Within 30 days	

20	**Pondi ng**	Ponding on slabs due to blockag e of drains	0-2	No discernible problem	No action.	
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc within 7 days, Follow up	Action required to stop water damaging foundation within 30 days.
			5	Ponding, accumulation of water observed	-do-	

<table>
<tr><th>Asset Type</th><th>ance Parameter</th><th colspan="4">Level of Service (LOS)</th><th>cy of Measurement</th><th>Testing Method</th><th>nded Remedial measures</th><th>for Rectification</th><th>Specification s and Standards</th></tr>
<tr><td rowspan="5">Highway</td><td rowspan="5">Availability of Safe Sight Distance</td><td colspan="4">As per IRC SP :84-2014, a minimum of safe stopping sight distance shall be available throughout.</td><td rowspan="5">Monthly</td><td rowspan="5">Manual Measurements with Odometer along with video / image back up</td><td colspan="2" rowspan="5">Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments. In case of permanent structure or design deficiency: Removal of obstruction/improvement of deficiency at the earliest
Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.</td><td rowspan="5">IRC:SP 84-2014</td></tr>
<tr><td>Design Speed, kmph</td><td colspan="2">Desirable Minimum Sight Distance (m)</td><td>Safe Stopping Sight Distance (m)</td></tr>
<tr><td>100</td><td colspan="2">360</td><td>180</td></tr>
<tr><td>80</td><td colspan="2">260</td><td>130</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>Pavement Marking</td><td>Wear</td><td colspan="4"><70% of marking remaining</td><td>Bi-Annually</td><td>Visual Assessment as per Annexure-F of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours Cat-2 Defect within 2months</td><td>IRC:35-2015</td></tr>
</table>

<table>
<tr><td></td><td>Day time Visibility</td><td colspan="3">During expected life Service Time Cement Road - 130mcd/m2/lux Bituminous Road -100 mcd/m2/lux</td><td>Monthly</td><td>As per Annexure-D of IRC:35-2015</td><td>Re - painting</td><td>Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months</td><td>IRC:35-2015</td></tr>
<tr><td></td><td rowspan="6">Night Time Visibility</td><td colspan="3">Initial and Minimum Performance for Dry Retro reflectivity during night time:</td><td rowspan="6">Bi-Annually</td><td rowspan="6">As per Annexure-E of IRC:35-2015</td><td rowspan="6">Re - painting</td><td rowspan="6">Cat-1 Defect – within 24 hours Cat-2 Defect – within 2 months</td><td rowspan="6">IRC:35-2015</td></tr>
<tr><td>Design Speed</td><td colspan="2">(RL) Retro Reflectivity (mcd/m2/lux)</td></tr>
<tr><td></td><td>Initial (7 days)</td><td>Minimum Threshold level (TL) & warranty period required up to 2 years</td></tr>
<tr><td>Up to 65</td><td>200</td><td>80</td></tr>
<tr><td>65 - 100</td><td>250</td><td>120</td></tr>
<tr><td>Above 100</td><td>350</td><td>150</td></tr>
<tr><td></td><td colspan="3"><u>Initial and Minimum Performance for Night Visibility under wet condition(Retro reflectivity):</u> Initial 7 days Retro reflectivity: 100 mcd/m^2/lux Minimum Threshold Level: 50 mcd/m^2/lux</td></tr>
</table>

	eter		ement		easures		s
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN *Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
Road Signs	Shape and Position	Shape and Position as per IRC:67- 2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/ image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/ Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-	Hanged of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/ Cantilever	RC:67-2012

Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	RC 86:1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	RC 35:2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC:SP:84-2014 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:84-2014,IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail asintended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:84- 2014
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119-2015
	End Treatment	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:84-2014, IRC:119 - 2015

	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:79-1981
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	<u>Functionality:</u> Functioning of Traffic Blinkers as intended	Daily	Visual with video/ image backup	Rectification	Within 7 days	IRC:SP:84-2014
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major failure in the lighting system	Daily	-	Rectification	24 hours	IRC:SP:84-2014
		No minor failure in the lighting system	Monthly	-	Rectification	8 hours	IRC:SP:84-2014
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with luxmeter	Improvement in Lighting System	24 hours	IRC:SP:84-2014
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:84-2014

	in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:84-2014
Trees and Plantation including median plantation	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:84-2014
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 84-2014
Rest Areas	Cleaning of Toilets	-	Daily	-	-	Every 4 hours	
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	
Other Project Facilities and Approach roads	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 84-2014

Pipe / box/ slab culverts	Free waterway/ un obstructed flow section	85% of culvert normal flow area to available .	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40 1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011
	Structurally sound	Spalling of Concrete not more than 0.25 sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as perIRC:SP:40-1993.	15 days	IRC SP 40-1993, and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 sq.m. Cracks wider than 0.3 mm not more than 1m aggregate length					

Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge - Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35- 1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811.
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 84-2014 and IRC SP: 40-1993.

	reinforcement	than 0.25 sq.m	Bi-Annually	Detailed condition survey as per IRC SP:35 1990 using Mobile Bridge Inspection Unit	shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating Causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and live loads live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP:51 1999.
	Perfor	**Level of**	**Frequency**		**Recommended**	**Time**	**Specificati**

	Vibrations in bridge deck due to moving trucks	Frequency of vibrations shall not be more than 5 Hz	years for spans more than 30m and Every 10 years for spans between 15 to 30 m	Laser displacement sensors or laser vibro-meters	Strengthening of super structure	4 months	AASHTO LRFD specifications
	Leakage in Expansion joints	No damage to elastomeric sealant compound in strip seal expansion joint, no leakage of rain water through expansion joint in case of buried and asphalt plug and copper strip joint.	Bi-Annually	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Replace of expansion joint Seal in	15 days	MORTH specifications 2600 and IRC SP: 40-1993.
Asset Type	**Performance Parameter**	**Level of Service (LOS)**	**Frequency of Measurement**	**Testing Method**	**Recommended Remedial measures**	**Time limit for Rectification**	**Specifications and Standards**

	in strip seal expansion joint	in joint expansion gap.	Monthly	1990 using Mobile Bridge Inspection Unit	expansion joint gaps thoroughly	3 days	on s 2600 and IRC SP: 40-1993.
	Drainage spouts	No down take pipe missing/ broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly . Replacementof missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainages pout if any leakages observed.	3 days	MORTH specification 2700.
Bridge - substructure	Cracks/ spalling of concrete / rusted steel	No cracks, spalling of Concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to Substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH specification 2800.
Asset Type	**Performance Parameter**	**Level of Service (LOS)**	**Frequency of Measurement**	**Testing Method**	**Recommended Remedial measures**	**Time limit for Rectification**	**Specifications and Standards**

	Bearings	ement not more than 5%, cracking or tearing of rubber not more than 2 locations per side, no rupture of reinforcement or rubber	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced, in order to get uniform load transfer on to bearings.	3 months	MORTH specification 2810 and IRC SP: 40-199.
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major Rivers.	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993, IRC 83-2014, MORTH specification 2500
Asset Type	**Performance Parame**	**Level of Service (LOS)**	**Frequency of Measureme**	**Testing Method**	**Recommended Remedial measures**	**Time limit for Rectifica**	**Specifications and Standards**

	Protection works in good condition	bank revetment not more than 3 sq.m, damage to solid apron (concrete apron) not more than 1 sq.m	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.							

Table 5: Maintenance Criteria for Hill Roads

In addition to above, for hill roads the following provisions for maintenance is also to done.

Hill Roads		
(i)	Damage to Retaining wall/ Breast wall	7 (Seven) days
(ii)	Landslides requiring clearance	12 (Twelve) hours
(iii)	Snow requiring clearance	24 (Twenty Four) hours

<u>Note:</u> For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRTH specifications shall be binding for all maintenance activities

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/ rectification
(b)	**Granular earth shoulders, side slopes, drains and culverts**	
(i)	Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	**Road side furniture including road sign and pavement marking**	
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d)	**Road lighting**	
(i)	Any major failure of the system	24 (twenty four) hours
(ii)	Faults and minor failures	8 (eight) hours

(e) Trees and plantation		
Nature of Defect or deficiency		**Time limit for repair/ rectification**
(i)	Obstruction in a minimum head- room of 5 m above carriageway or obstruction in visibility of road signs	24 (twenty four)hours
(ii)	Removal of fallen trees from carriageway	4 (four) hours
(iii)	Deterioration in health of trees and bushes	Timely watering and treatment
(iv)	Trees and bushes requiring replacement	30 (thirty) days
(v)	Removal of vegetation affecting sight line and road structures	15 (fifteen) days
(f) Rest area		
(i)	Cleaning of toilets	Every 4 (four) hours
(ii)	Defects in electrical, water and sanitary installations	24 (twenty four) hours
(g) [Toll Plaza]		
(h) Other Project Facilities and Approach roads		
(i)	Damage in approach roads, pedestrian facilities, truck lay- byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a) Superstructure		
(i)	Any damage, cracks, spalling/ scaling Temporary measures Permanent measures	within 48 (forty eight) hours within 15 (fifteen) days or as specified by the Authority's Engineer

(b)	**Foundations**	
Nature of Defect or deficiency		**Time limit for repair/ rectification**
(i)	Scouring and/or cavitation	15 (fifteen) days
(c)	**Piers, abutments, return walls and wing walls**	
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	**Bearings (metallic) of bridges**	
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e)	**Joints**	
(i)	Malfunctioning of joints	15 (fifteen) days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	**Hill Roads**	
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty four) hours

[Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.]

Schedule - F

(See Clause 4.1 (vii)(a))

Applicable Permits

1. Applicable Permits

(i) The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

(a) Permission of the State Government for extraction of boulders from quarry;

(b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;

(c) License for use of explosives;

(d) Permission of the State Government for drawing water from river/reservoir;

(e) License from inspector of factories or other competent Authority for setting up batching plant;

(f) Clearance of Pollution Control Board for setting up batching plant;

(g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;

(h) Permission of Village Panchayats and State Government for borrow earth; and

(i) Any other permits or clearances required under Applicable Laws.

(ii) Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

Schedule – G

(See Clauses 7.1 and 19.2)

Annex-I

(See Clause 7.1)

Form of Bank Guarantee

[Performance Security/Additional Performance Security]

[Managing Director,
National Highway & Infrastructure Development Corporation Ltd,
New Delhi]

WHEREAS:

(A) _____ [name and address of contractor] (hereinafter called the "Contractor") and [name and address of the authority], (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for the construction of the ***** section of [National Highway No. **] on Engineering, Procurement and Construction (the "EPC") basis, subject to and in accordance with the provisions of the Agreement

(B) The Agreement requires the Contractor to furnish a Performance Security for due
and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rscr. (Rupees ..... crore) (the "**Guarantee Amount**").

(C) We,.....through our branch at ..... (the "Bank") have agreed to furnish this bank guarantee (*hereinafter called the "*Guarantee") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways & Infrastructure Development Corporation Ltd], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the

Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder

8. The Guarantee shall cease to be in force and effect on ****$. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and

warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract Agreement.

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This guarantee shall also be operatable at our…….Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

14. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of [MoRT&H/NHAI/NHIDCL/State PWD/BRO], details of which is as under:

S.No.	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC CNRB0019062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Canara Bank (erstwhile Syndicate Bank) transport Bhawan, 1st Parliament Street, New Delhi-110001

Signed and sealed this .....day of ....., 20 ..... at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)
(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annex – II

(Schedule - G)

(See Clause 19.2)

Form for Guarantee for Advance Payment

[Managing Director,
National Highway & Infrastructure Development Corporation Ltd,
New Delhi]

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "**Contractor**") has executed an agreement (hereinafter called the "**Agreement**") with the [name and address of the authority], (hereinafter called the "**Authority**") for the construction of the ***** section of [National Highway No. **] on Engineering, Procurement and Construction (the "**EPC**") basis, subject to and in accordance with the provisions of the Agreement

(B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @*Bank Rate + 3%* advance payment (herein after called "**Advance Payment**") equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. cr. (Rupees crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees -- crore) (the **"Guarantee Amount")$.**

(C) We,.....through our branch at..... (the "**Bank"**) have agreed to furnish this bank guarantee (*hereinafter called the "***Guarantee"**) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein

   A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other

authority or body, or by the discharge of the Contractor for any reason whatsoever.

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

7. The Guarantee shall cease to be in force and effect on ****.$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.

8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

10. This Guarantee shall come into force with immediate effect and shall remain in force

and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract Agreement.

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This guarantee shall also be operatable at our…….Branch at Guwahati, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

14. The guarantor/bank hereby confirms that it is on the SFMS (Structural Finance Messaging System) platform & shall invariably send an advice of this Bank Guarantee to the designated bank of [MoRT&H/NHAI/NHIDCL/State PWD/BRO], details of which is as under:

S.No.	Particulars	Details
1	Name of Beneficiary	Regional Office, NHIDCL, Guwahati
2	Beneficiary Bank Account No.	7365 3210000013
3	Beneficiary Bank Branch	IFSC CNRB00 17365
4	Beneficiary Bank Branch Name	Dispur, Guwahati
5	Beneficiary Bank Address	Upasana Complex, Dr. R. P. Road, Ganeshguri, Dispur, Guwahati

Signed and sealed this .....day of …. 202… at
SIGNED, SEALED AND DELIVERED
For and on behalf of the Bank by: (Signature)
(Name) (Designation)
(Code Number)
(Address)

NOTES:

(i)The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii)The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

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:

SL. No	Item	Weightage in % to the contract price	Stage for payment	% weightage to particular Item
	Road Works including culverts, Minor Bridges, Underpasses, approaches to ROB/RUB/Major Bridges, / Structures but excluding service Road	50.90%	**A. -Reconstruction/new 2 Lane realignment/ Bypass (Flexible Pavement)**	
			1) Earthwork up to top of subgrade	**6.48%**
			(2) Sub base course (GSB, Shoulders)	4.64%
			(3) Non-Bituminous Base Course (WMM)	**9.43%**
			(4) Bituminous Base Course (DBM)	12.17%
			(5) Wearing Coat (BC)	22.19%
			B. **Widening and Strengthening of Existing Road to 2-Lane with Paved Shoulder including Rectification**	
			(1) Earth Work up to Top of the Sub Grade	0.72%
			(2) Sub base course (GSB, Shoulders)	1.16%
			(3) Non-Bituminous Base Course (WMM)	**3.00%**
			(4) Bituminous Base Course (DBM)	5.00%
			(5) Wearing Coat (BC)	**13.82%**
			6) Widening & repair of minor bridges	4.37%
			C. New Culverts, Minor Bridges, underpasses, Overpasses on existing road, realignments, bypasses	
			1) Culverts	

SL. No	Item	Weightage in % to the contract price	Stage for payment	% weightage to particular Item
			(a) Culvert Balance work (Protection & MiscellaneousWork)	12.54%
			2) Minor Bridges	
			(a) Minor Bridge (Open Foundation) Protection Works	0.74%
			(b) Minor Bridge (Pile Foundation) Superstructure work etc	3.74%
2	Major Bridge (Length > 60 meter)Works and ROB/RUB/ elevated sections/flyovers including viaducts, if any	6.21%	A. Repair/Rehabilitation of Major Bridge	3.66%
			B. Construction of New Major Bridge	
			1) Sub Structure	5.62%
			2) Superstructure	81.65%
			3) Protection Works etc	9.07%
3	Other Works	42.89%	1) Construction of Service Road complete in all respects	35.11%
			2) Road Side Drain	6.35%
			3) Traffic Sign	2.29%
			4) Pavement Marking	2.43%
			5) Crash Barrier	9.97%
			6) Boundary Stone, Km Stone,5th Km Stone, and hectometer stone	0.16%
			7) Traffic blinker, LED, Delineators, stud, reflective pavment marker, tree reflector	1.15%
			8) Traffic Island	8.80%
			9) Kerbs	8.66%
			10) Bus Bays and Bus Shelter	1.14%
			11) Road Side plantation and median Plantation	2.13%
			12) Protection work of guide bund including construction of flexible aprons, boulder pitching and filter media on slope	15.23%
			13) Major Junction	0.68%

			14) Minor Junction	5.90%

1.3 Procedure of estimating the value of work done

1.3.1 Road works including culverts, Minor Bridges, Underpasses, approaches to ROB/RUB/Major Bridges, / approaches to ROB/RUB/Major Bridges, / Structures but excluding service Road

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

Table 1.3.1

Stage for payment	Percentage weightage to Particular Item	Payment Procedure
A. Reconstruction/new 2 Lane realignment/ Bypass (Flexible Pavement)		
1. Earthwork up to top of sub grade	6.48%	Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in complete length or minimum 1 (One) Km length
2. Sub base course (GSB, Shoulders)	4.64%	
3. Non-Bituminous Base Course (WMM)	9.43%	
4. Bituminous Base Course (DBM)	12.17%	
5. Wearing Coat (BC)	22.19%	
B. Widening and Strengthening of Existing Road to 2-Lane with Paved Shoulder including Rectification		
1. Earthwork up to top of subgrade	0.72%	Unit of measurement is linear length. Payment of each stage shall be made on pro-rata basis on completion of a stage in complete length or minimum 1 (One) Km length
2. Sub base course (GSB, Shoulders)	1.16%	
3. Non-Bituminous Base Course (WMM)	3.00%	
4. Bituminous Base Course (DBM)	5.00%	
5. Wearing Coat (BC)	13.82%	
6. Widening & repair of minor bridges	4.37%	Upon completion of repair work of individual minor bridges Payment shall be on pro-rata basis based on total linear length of bridge
C) Reconstruction and New Culverts on existing road, realignment		
1. Construction of Balance Protection works of the Culvert complete in all respects	12.54%	Cost of each culvert shall be determined on pro-rata basis. Payment shall be made on the completion of protection work of minimum 01 culvert in 4 lane width
D) New Minor bridges		
1. Construction of New Minor Bridge (Open Foundation) Protection Works	0.74%	Payment shall be made on the completion of the balance Protection works of Minor Bridge

(2) Minor Bridge (Pile Foundation) Superstructure work	3.74%	Cost of each minor bridge shall be determined on pro rata basis with respect to the balance linear length of the minor bridges having pile foundation. Payment Shall be made on the completion of a span of a minor bridge. 80% Payment shall be made on completion of structure part of one span and 20% shall be paid on the completion of protection work and other miscellaneous works.

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

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

Where P= Contract Price

L = Total length in km

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

1.3.2 Major Bridge

Procedure for estimating the value of Major Bridges shall be done as stated in Table 1.3.2

Stage for payment	**Percentage weightage to Particular Item**	**Payment Procedure**
A. Repair/Rehabilitation of Existing Major Bridge	3.66%	Up on completion of repair work of individual bridges. Payment shall be on pro-rata basis based on total linear length of bridge.
B. Construction of New Major Bridge		
1. Sub structure	5.62%	Payment Shall be released after completion of balance pier up to Cap.
2. Superstructure	81.65%	Cost of each structure shall be determined on pro rata basis in respect to the total Span . Payment Shall be released after completion of each Span

Stage for payment	Percentage weightage to Particular Item	Payment Procedure
3. Protection and other Miscellaneous Works of Major Bridge	9.07%	Payment Shall be released on completion of work. Protection and Miscellaneous work in all respect

1.3.3 **Other works.**

Procedure for estimating the value of other works done shall be as stated in table 1.3.3.

Table1.3.2

Stage for payment	Percentage weightage to Particular Item	Payment Procedure
1) Construction of Service Road complete in all respects	35.11%	Unit of measurement is linear length (2 lane equivalent) cost per km shall be determined on pro rata basis with respect to the total length of the service road. .Payment shall be made for completed service road in a length of not less than 20 % (twenty per cent) of the total length of service road.
2) Road side drains	6.35%	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 than10 % (ten per cent) of the total length..
3) Traffic Sign	2.29%	Unit of measurement is linear length/nos. Payment shall be made on pro rata basis on completion of a stage in a length of not less than10 % (ten per cent) of the total length.
4) Pavement Marking	2.43%	
5) Crash Barrier	9.97%	
6) Boundary Stone,Km Stone,5th Km Stone,and hectometer stone	0.16%	
7) Traffic linker, LED, Delineators, stud, reflective pavment marker,tree reflector	1.15%	
8) Traffic Island	8.80%	
9) Kerbs	8.66%	
10) Road Side plantation and median Plantation	1.14%	
11) Bus Bays and Bus Shelter	2.13%	Unit of measurement is number. Payment shall be made on pro rata basis on completion of a stage not less than10 % (ten per cent) of the

Stage for payment	Percentage weightage to Particular Item	Payment Procedure
		total nos.
12) Protection work of guide bond including construction of flexible aprons,boulder pitching and filter media on slope	15.23%	The Payment Shall be released on pro rata basis after completion of work on one side i,e either up stream or Down stream side of the Bridge.
13) Major Junction	0.68%	Payment shall be made on pro rata basis after completion of minimum 1 no of Major Junction
14) Minor Junction	5.90%	Unit of measurement is number. Payment shall be made on pro rata basis on completion of a stage not less than10 % (ten per cent) of the total nos.

Procedure for payment for Maintenance

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

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

Schedule - I

(See Clause 10.2 (iv))

1 Drawings

Drawings In compliance of the obligations set forth in Clause 10.2 of th s Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2 Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Annex – I

(Schedule - I)

List of Drawings

1 A minimum list of the drawings of the various components/elements of the projecthighway and project facility required to be submitted by the Contractor is given below:

a. Drawing of horizontal alignment, vertical profile and typical cross sections.

b. Drawings of cross drainage works, i.e., Bridges/Culverts/Flyovers and Other Structures;

c. Drawings of interchanges, major intersections and underpasses.

d. Drawing of control center.

e. Drawings of road furniture items including traffic signage, marking, safety barriers, etc.;

f. Drawings of traffic diversions plans and traffic control measures.

g. Drawings of road drainage measures.

h. Drawings of typical details slope protection measures.

i. Drawings of landscaping and horticulture.

j. Drawings of pedestrian crossing.

k. Drawings of street lighting.

l. General Arrangement showing Base Camp and Administrative Block.

m. Any other drawings as per instruction of Authority Engineer.

Schedule-J

(See Clause 10.3 (ii))

Project Completion Schedule

1 Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule J for each of the Project Milestones and the **Scheduled Completion Date.** Within 15 (fifteen) days of the date of each Project Milestone, the contractor shall notify the Authority of each compliance along with necessary particulars thereof.

2 Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **256th** (Two Hundred Fifty Six) day from the Appointed Date (the "**Project Milestone-I**").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3 Project Milestone-II

(i) Project Milestone-II shall occur on the date falling on the **438th** (Four Hundred Thirty Eight) day from the Appointed Date (the "**Project Milestone-II**").

(ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price.

4 Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the **620th** (Six Hundred Twenty) day from the Appointed Date (the "**Project Milestone-III**").

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the validly prepared Stage Prepared stage statement for an amount not less that 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities.

5 Schedule Completion Date

(i) The Scheduled Completion Date shall occur on the **730th** (Seven Hundred Thirty) day from the Appointed Date.

(ii) On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

6 Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

Schedule-K

(See Clause 12.1 (ii))

Tests on Completion

1 Schedule for Tests

(i) The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to t e actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

(ii) The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule K.

2 Tests

(i) Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include all the tests specified in IRC code, manual and MORTH specifications for the road and Bridge works, 5th revision, 2013.

(ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for eachkilometer.

(iii) Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen)meters or more shall also be subjected to load testing.

(iv) Other tests: The Authority's Engineer may require the Contractor to cause carry out or to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications andStandards

.

(v) Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.

(vi) Safety Audit: The Authority's Engineer shall carry out or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety requirements and Good Industry Practice.

3 Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Authority's Engineeror such other agency or person as it may specify in consultation with the Authority.

4 Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue theCompletion Certificate in accordance with the provisions of Article 12.

5 The Authority Engineer will carry out tests with following equipment at his own cost in the presence of contractor's representative.

Sr. No.	Ker metrics Asset	Equipment to be used	Frequency of Condition survey
1	Surface defect of pavement	Network survey vehicle	At least twice a year (As per survey months defined for the state basis rainy season)
2	Roughness of Pavement	Network Survey Vehicle (NSV)	At least twice a year (As per survey months defined for the state basis rainy season)
3	Strength of Pavement	Falling Weight Deflectometer (FWD)	At least twice a year (As per survey month defined for the state basis rainy season)
4	Bridge	Mobile Bridge Inspection Unit (MBU)	At least twice a year (As per survey months defined for the state basis rainy season
5	Road Signs	Retro-reflectometer	At least twice a year (As per survey months defined for the state basis rainy season

The first testing with the help of NSV shall be conducted at the time of issue of Completion Certificate.

Schedule-L

(See Clause 12.2)

Completion Certificate

1. I,……(Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated (the "Agreement"), for construction of the "Development and Up-gradation of 4 laning of Jamugurihat to end of Biswanath Chariali By-Pass from Km 182.000 to Km 208.000 of NH -52 in the state of Assam in Engineering, Procurement & Construction (EPC) basis" Through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safety and reliably placed in service of the Users thereof.

2. It is certified that in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the…….day of…… 20……..

SIGNED, SEALED and DELIVERED

For and on behalf of The authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

Schedule-M

(See Clause 14.6, 15.2 and 19.)

Payment Reduction for Non - Compliance

1 Payment reduction for non-compliance with the Maintenance Requirements

(i) Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E

(ii) Any deduction made on account of non compliance with maintenance Requirements shall not be paid even after compliance subsequently. The deduction shall continue to be made every month until compliance is done.

(iii) The Authority's Engineer shall calculate the amount of payment reduction on thebasis of weightage in percentage assigned to non-conforming items Paragraph 2.

2. Percentage reductions in lump sum payments

(i) The following percentages shall govern the payment reduction:

S. No.	Item/Defect/Deficiency	Percentage
(a)	**Carriageway/Pavement**	
(i)	Potholes, cracks, other surface defects	15%
(ii)	Repairs of Edges, Rutting	5%
(b)	**Road, Embankment, Cuttings, Shoulders**	
(i)	Edge drop, ina equate crossfall, undulations, settlement, pot oles, ponding, obstructions	10%
(ii)	Deficient slope , raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	**Bridges and Culverts**	
(i)	Desilting, cleaning. vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets,guideposts/crash barriers	5%
(d)	**Roadside Drains**	
(i)	Cleaning and r pair of drains	5%
(e)	**Road Furnitur**	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%
(f)	**Miscellaneous Items**	
(i)	Removal of dead animals, broken down/accidented vehicles, fallen trees, road blockades or malfunctioning of mobile crane	10%
(ii)	Any other Defects in accordance with paragraph 1.	5%
(g)	**Defects in Other Project Facilities**	5%

(ii) The amount to be deducted from monthly lump-sum payment for non-compliance ofparticular item shall be calculated as under:

$$R=P/100 \times M \times L1/L$$

Where: P = Percentage of particular item//Defect/deficiency for deductionM =

Monthly lump-sum payment in accordance with the Bid

L1 = Non-complying lengthL =

Total length of the road,

R = Reduction (the amount to be deducted for noncompliance for a particular item/Defect/deficiency)

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or noncompliance.

For any Defect in a part of one kilometer, the non-conforming length shall be taken asone kilometer

Schedule-N

(See Clause 18.1 (i))

Payment Reduction for Non – Compliance

1. **Selection of Authority's Engineer**

(i) The provisions of the Model Request of Proposal for selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof or Guidelines for the employment of Consultants under Japanese ODA Loans or a combination of certain provisions thereof shall apply for selection of a experienced firm to discharge the functions and Duties of as Authority Engineer.

(ii) In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2. Terms of Reference

The Terms of Reference for the Authority's Engineer (the "TOR") shall substantially conform with Annex 1 to this Schedule N.

3. Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

Annex – I
(Schedule - N)
Terms of Reference for Authority's Engineer

1. Scope

(i) These Terms of Reference (the "TOR")for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "Agreement), which has been enteredintobetweenthe[nameandaddressoftheAuthority](the"Authority")and

..... (the "Contractor")# for "Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 88.000km to Ch.99.930 km (Design Ch.84.100km to Ch.96.000km) of the Sagunbashi forest end (near Nichinta) Bypass to the starting of Krishnai Bypass Section (Package-7) of Bilasipura- Guwahati road (NH 17) in the state of Assam on EPC mode "and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

- In case the bid of Authority's Engineer is invited simultaneously with the bid of EPC project, then the status of bidding of EPC project only to be indicated
(ii) The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

(i) The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

(ii) References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

(iii) The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

(i) The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

(ii) The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

(c) the Termination Payment; or

(d) issuance of Completion Certificate or

(e) Any other matter which is not specified in (a), (b), (c) or (d) above and which creates a financial liability on either Party.

(iii) The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

(iv) The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause18.2.

(v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article13.

(vi) In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4. Construction Period

(i) During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (VI). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

(ii) The Authority's Engineer shall review and approve any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

(iii) The Authority's Engineer shall review and approve the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty one) days stating the modifications, if any, required thereto.

(iv) The Authority's Engineer shall complete the review and approve of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

(v) The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause10.4.

(vi) The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.

(vii) The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

(viii) The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.

(ix) For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4 (ix), the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution there of shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

(x) The Authority's Engineer shall test check at least 50 (fifty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

(xi) The timing of tests referred to in Paragraph 4 (ix), and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

(xii) In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.

(xiii) The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

(xiv) In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor or thwith.

(xv) The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause12.2.

(xvi) Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

(xvii) In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

(xviii) The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate, as the case may be. For carrying out its functions under this Paragraph 4 (xviii) and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5. Maintenance Period

(i) The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programmed and for this purpose carry out a joint monthly inspection with the Contractor.

(ii) The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.

(iii) The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.

(iv) In respect of any defect or deficiency referred to in Paragraph 3 of Schedule- E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

(v) The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause14.5.

6. Determination of costs and time

(i) The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

(ii) The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

(iii) The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause18.5.

7. Payments

(i) The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2 (IV) (d).

(ii) Authority's Engineer shall-

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable title Contractor , after adjustments in accordance with the provisions of Clause 19.10.

(iii) The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.

(iv) The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause19.16.

8. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

9. Miscellaneous

(i) A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

(ii) The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

(iii) Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and set back lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

(iv) The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

(v) The Authority's Engineer shall in form the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

Schedule - O
(See Clauses 19.4 (i), 19.6 (i), and 19.8 (i))
Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) The estimated amount for the Works executed in accordance with Clause19.3

(i) subsequent to the last claim;

(b) amounts reflecting adjustments in price for the a foresaid claim;

(c) the estimated amount of each Change of Scope Order executed subsequent to the last claim;

(d) amountsreflectingadjustmentinprice,ifany,for(c)aboveinaccordancewith the provisions of Clause 13.2 (iii)(a);

(e) total of (a), (b), (c) and (d)above;

(f) Deductions:

i. Any amount to be deducted in accordance with the provisions of the Agreement except taxes;

ii. Any amount towards deduction of taxes; and

iii. Total of (i) and (ii) above.

(g) Net claim: (e) – (f)(iii);

(h) The amounts received by the Contractor up to the last claim:

i. For the Works executed (excluding Change of Scope orders);

ii. For Change of Scope Orders, and

iii. Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

(a) the monthly payment admissible in accordance with the provisions of the Agreement;

(b) the deductions for maintenance work not done;

(c) net payment for maintenance due, (a) minus(b);

(d) amounts reflecting adjustments in price under Clause 19.12;and

(e) amount towards deduction of taxes

3. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

Schedule - P
(See Clause 20.1)
Insurance

1. Insurance during Construction Period

(i) The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) insurance of Works, Plant and Materials and an additional sum of [15 (fifteen)] per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

(ii) The insurance under sub para (a) and (b) of paragraph 1(i) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover of not less than 15% of the Contract Price for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

(i) The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. [*****]

(ii) The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

(a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
(b) Damage which is an unavoidable result of the Contractor's obligations to execute the Works.

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

Schedule-R
(See Clause 14.10)
Taking Over Certificate

I, ... (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated ..... (The "Agreement"), for [construction of the ****section (km ** to km **) of ****] (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through..... (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED AND DELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

***** End of the Document*****