Schedules

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

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

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

(iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.

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

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

Annex – I

(Schedule-A)

Site

[The Site of Intermediate Lane Project Highway comprises of existing road land between Km 133.00 & Km 177.00 (Total Length 44.00 km) located on Mon - Tizit Road (NH 702).

1. Site

The Site of Intermediate Lane Project Highway comprises of existing road land between Km 133.00 & Km 177.00 (Total Length 44.00 km) located on Mon - Tizit Road (NH 702) in the State of Nagaland. The land, carriageway and structures comprising the Site are described below.

2. Land

The Site of the Project Highway comprises the land (sum total of land is already in possession) as described below:

Sr. No.	Chainage (km)		Right of Way (m)	Remarks
	From	To		
01	133+000	177+000	6.00 to 10.00	Existing

Since the Special Repair works is proposed within existing ROW. Hence, no additional land is proposed to be acquired. Formation width is 7 to 10 m and is restricted at many places due to rain cut and erosion.

3. Carriageway

The present carriageway of the Project Highway is Intermediate Lane. The type of the existing pavement is flexible.

4. Major Bridges

The Site includes **NIL** Major Bridges.

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

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

S. No.	Chainage (km)	Type of Structure		Width (m)	ROB/ RUB
		Foundation	Superstructure		
NIL					

6. Grade separators

The Site includes the following grade separators:

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

7. Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Bridge	No. of Spans with span length (m)	Width (m)
1	162+000	RCC	1 (7.5)	6
2	163+200	RCC	1 (41)	11
3	166+900	RCC	1 (40.500)	11
4	165+600	Hamilton	1 (6.00)	4.8
5	168+900	RCC	1 (5.00)	6.7
6	173+000	RCC	1 (37.65)	11
7	177+000	Hamilton	1 (17.00)	4.8

*** The aforesaid Minor Bridges needs repair and maintenance.**

8. Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location (km)	Remarks
Nil		

9. Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

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

10. Culverts

The Site has the following culverts:

Sl. No	Chainage	Type of Structure	Length of SPAN (M)	Remarks
1	134.90	SLAB CULVERT	1	

Sl. No	Chainage	Type of Structure	Length of SPAN (M)	Remarks
2	135.10	SLAB CULVERT	1	
3	135.30	SLAB CULVERT	1	
4	135.50	SLAB CULVERT	1	
5	135.80	SLAB CULVERT	1	
6	136.60	SLAB CULVERT	1	
7	137.00	SLAB CULVERT	1	
8	137.10	SLAB CULVERT	1	
9	137.60	SLAB CULVERT	1	
10	137.70	SLAB CULVERT	1	
11	137.80	SLAB CULVERT	1.2	
12	138.05	SLAB CULVERT	1	
13	138.10	SLAB CULVERT	1	
14	138.30	SLAB CULVERT	1	
15	138.80	Hume Pipe Culvert	1	
16	139.10	SLAB CULVERT	2	
17	139.20	SLAB CULVERT	1	
18	139.30	Hume Pipe Culvert	1	
19	139.50	SLAB CULVERT	1	
20	139.70	SLAB CULVERT	1	
21	139.75	SLAB CULVERT	1	
22	139.80	SLAB CULVERT	1	
23	140.00	SLAB CULVERT	1	
24	140.20	SLAB CULVERT	1	
25	140.30	SLAB CULVERT	1	
26	140.50	SLAB CULVERT	1	
27	140.60	SLAB CULVERT	1.2	
28	140.90	SLAB CULVERT	1	
29	141.10	SLAB CULVERT	1	
30	141.70	SLAB CULVERT	1	
31	141.80	SLAB CULVERT	1	
32	141.90	SLAB CULVERT	1	
33	142.20	SLAB CULVERT	1	
34	142.30	SLAB CULVERT	1	
35	142.40	SLAB CULVERT	1	
36	142.50	SLAB CULVERT	1	
37	142.70	SLAB CULVERT	1	
38	142.80	SLAB CULVERT	1	
39	143.00	SLAB CULVERT	1	
40	143.20	SLAB CULVERT	1	
41	143.40	SLAB CULVERT	1	
42	143.50	SLAB CULVERT	1	

Sl. No	Chainage	Type of Structure	Length of SPAN (M)	Remarks
43	143.70	SLAB CULVERT	1	
44	143.80	SLAB CULVERT	1	
45	144.20	SLAB CULVERT	1	
46	144.30	SLAB CULVERT	1	
47	144.50	SLAB CULVERT	1	
48	144.70	SLAB CULVERT	1	
49	144.90	SLAB CULVERT	1	
50	145.00	SLAB CULVERT	1	
51	145.10	SLAB CULVERT	1	
52	145.20	SLAB CULVERT	1	
53	145.50	SLAB CULVERT	1	
54	145.80	SLAB CULVERT	1	
55	146.40	SLAB CULVERT	1	
56	146.60	SLAB CULVERT	1	
57	146.70	SLAB CULVERT	1	
58	147.20	SLAB CULVERT	1	
59	147.40	SLAB CULVERT	1	
60	148.10	SLAB CULVERT	1	
61	148.20	SLAB CULVERT	1	
62	148.40	SLAB CULVERT	1	
63	148.50	Hume Pipe Culvert	1	
64	148.60	SLAB CULVERT	1.2	
65	148.90	SLAB CULVERT	1	
66	149.00	SLAB CULVERT	1	
67	149.30	SLAB CULVERT	1	
68	149.10	SLAB CULVERT	1	
69	149.70	SLAB CULVERT	1.2	
70	149.90	SLAB CULVERT	1.2	
71	150.30	Hume Pipe Culvert	1	
72	150.50	SLAB CULVERT	1	
73	150.60	SLAB CULVERT	1	
74	150.90	SLAB CULVERT	1	
75	151.30	SLAB CULVERT	1	
76	151.50	Hume Pipe Culvert	1	
77	151.70	SLAB CULVERT	1	
78	151.90	SLAB CULVERT	1	
79	152.20	SLAB CULVERT	1.2	
80	152.30	SLAB CULVERT	1	
81	152.40	SLAB CULVERT	1	
82	152.70	Hume Pipe Culvert	1	
83	153.20	SLAB CULVERT	1	

Sl. No	Chainage	Type of Structure	Length of SPAN (M)	Remarks
84	153.40	SLAB CULVERT	1	
85	153.50	SLAB CULVERT	1	
86	153.80	SLAB CULVERT	1	
87	153.90	SLAB CULVERT	1	
88	154.20	SLAB CULVERT	1	
89	154.40	H/P CULVERT	1	
90	154.70	SLAB CULVERT	1	
91	154.80	SLAB CULVERT	1	
92	155.20	SLAB CULVERT	1	
93	155.40	SLAB CULVERT	1	
94	155.60	SLAB CULVERT	1	
95	155.70	SLAB CULVERT	1	
96	155.90	SLAB CULVERT	1	
97	156.10	SLAB CULVERT	1	
98	156.30	SLAB CULVERT	1	
99	156.80	SLAB CULVERT	1	
100	156.90	SLAB CULVERT	1	
101	158.20	SLAB CULVERT	1	
102	158.30	SLAB CULVERT	1	
103	159.10	SLAB CULVERT	1	
104	159.40	SLAB CULVERT	1	
105	159.80	SLAB CULVERT	1	
106	161.70	SLAB CULVERT	1	
107	161.80	SLAB CULVERT	1	
108	161.90	SLAB CULVERT	1	
109	162.00	SLAB CULVERT	1	
110	162.50	SLAB CULVERT	1	
111	163.10	SLAB CULVERT	1	
112	163.60	SLAB CULVERT	1	
113	165.70	SLAB CULVERT	1	
114	166.10	SLAB CULVERT	1	
115	166.20	Hume Pipe Culvert	2	
116	166.30	SLAB CULVERT	1	
117	166.60	SLAB CULVERT	1	
118	167.40	SLAB CULVERT	1	
119	167.70	SLAB CULVERT	1	
120	167.80	SLAB CULVERT	1	
121	168.00	SLAB CULVERT	1	
122	168.80	SLAB CULVERT	1	
123	168.90	SLAB CULVERT	1	
124	171.100	Hume Pipe Culvert	1	

Sl. No	Chainage	Type of Structure	Length of SPAN (M)	Remarks
125	172.20	Hume Pipe Culvert	1	
126	173.60	SLAB CULVERT	2	
127	174.00	SLAB CULVERT	1	
128	175.30	SLAB CULVERT	1	
129	175.70	SLAB CULVERT	2	
130	176.20	SLAB CULVERT	1	
131	176.60	SLAB CULVERT	1	

*** Inventory of Culvert shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement

11. Bus bays

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

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

12. Truck Lay byes

The details of truck lay byes are as follows:

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

13. Road side drains

The details of the roadside drains are as follows: **

** Inventory of Existing Drainage shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement

14. Major junctions

The details of major junctions are as follows:

S. No.	Location	At grade	Separated	Category of Cross Road			
	km			NH	SH	MDR	Others
1	133+000	√	-	√	-	-	-

S. No.	Location	At grade	Separated	Category of Cross Road			
	km			NH	SH	MDR	Others
2	134+600	√	-	-	-	√	-
3	144+300	√	-	√	-	-	-
4	167+900	√	-	-	-	√	-
5	172+600	√	-	-	-	√	-

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

15. Minor junctions

The details of the minor junctions are as follows:

S. No.	Location
1	133+400 (Mon Town)
2	134+400 (Mon Town)
3	137+650 (Mon Town)
4	145+400 (Phuktong village)
5	154+400 (Tuimei Village)
6	164+400 (Old Sangsa)
7	164+800 (Tekang)
8	165+600
9	166+800
10	167+500
11	167+900
12	168+400 (Nangtan Village)
13	169+800 (Nangtan Village)
14	175+700 (Tizit Town)

16. 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)
Nil			

17. Other structures]

[Provide details of other structures, if any.]

Annex – II

(As per Clause 8.3 (i))

(Schedule-A)

Dates for providing Right of Way of Construction Zone

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

S. No.	From (Km)	To (Km)	Length (m)	Total RoW Width (m)	Date of Providing RoW
1	133.00	177.00	44.00	The Special Repair work is proposed within existing ROW.	

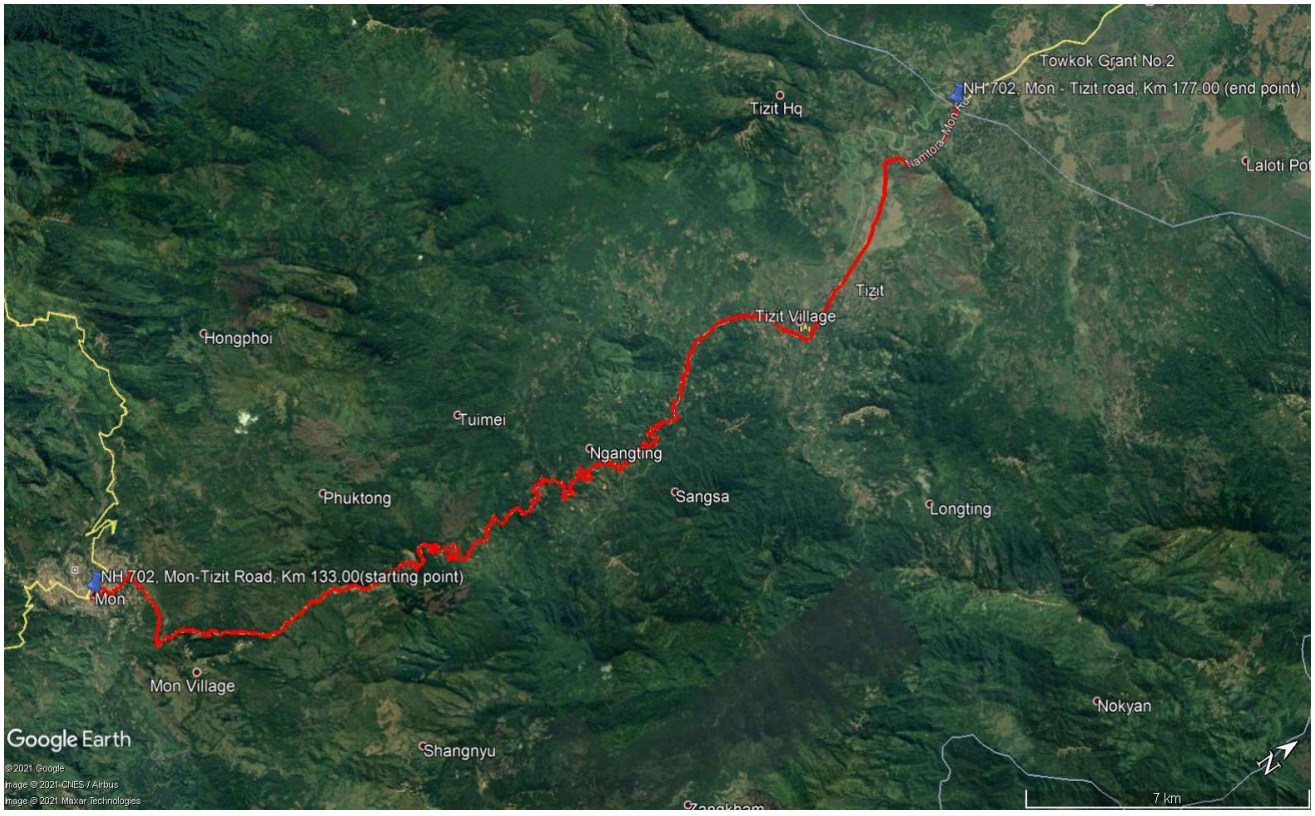
*The length may vary on basis of ground conditions.

Annex - III

(Schedule-A)

Alignment Plans

The existing road is proposed only for Special Repair work. Hence, the existing alignment of this road is not required for any modification. The alignment plan of this Project Highway is as under.



Annex – IV

(Schedule-A)

Environment Clearances

No environmental clearance is required as the existing road is proposed for Special Repair works within the existing RoW only.

Schedule - B

(See Clause2.1)

Development of the Project Highway

1. Development of the Project Highway

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

2. Special Repair

Special Repair shall include Intermediate Laning and Strengthening of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

a) Scarifying of existing Bituminous surface in **not less than 71275 sqm**.
b) Maintenance of Shoulder min. 0.75 m on both sides **not less than 32.30 Km**.
c) Subgrade of 500 mm thickness as per site location **not less than 7.99 Km**
d) GSB-IRC Gr-III of 150 mm thickness as per site condition in **not less than 14.12 Km.**
e) WMM of 150 mm thickness as per site location in **not less than 25.39 Km**
f) Profile correction of potholes by WMM of quantity **not less than 1784 cum**
g) Prime coat of quantity **not less than 155783.00 sqm** & tack coat of quantity **not less than 538020.00 sqm.**
h) Dense Bituminous Macadam (DBM) of thickness 50 mm using Gr-II-19 mm (nominal size) **along the length of 44.00 Km** of width 5.5 m except Bridge/ curve improvement location & town portion.
i) Bituminous Concrete (BC) of thickness 30 mm using Gr-II-13.2 mm (nominal size) **along the length of 44.00 Km** of width 5.5 m except Bridge/ curve improvement, & town portion
j) Construction of RRM/Plum concrete Retaining Wall of Ht. 3.5 m - **300.00 m length**
k) Breast wall (Gabian/RRM/Plum concrete) of 3.5 m height – **300 m length**
l) Hume Pipe Culvert (1.2 m NP4) – **10 Nos**
m) Box Culvert of span 5 m (5X5) – **01 Nos**.
n) Construction of unlined drain **not less than 37.82 Km**
o) Construction of Longitudinal Lined drain (Trapezoidal cross section) in **not less than 1.00 Km**
p) Construction of RCC Rectangular Cover drain (1.0 X 0.9 m) - **500 metre**
q) Type-A, "W" Single Beam Metal Crash Barrier –**2000 Rm**
r) RCC Crash Barrier **150 Rm** for repair/ replacement of existing Minor bridge (BHS)
s) Landslide clearance to make formation width of 6**.0 m not less than 31500 cum**.
t) Road signs, safety Devices, Road marking, Furnitures etc.

i. 90 cm equilateral triangle – **50 nos**.
ii. 80 mm x 60 mm rectangular – **50 nos**.
iii. Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads over Bituminous Surface – **13,200.00 sqm**
iv. Ordinary Kilometre stone (Precast) – **34 nos.**
v. 5th Kilometre stone – **10 Nos**
vi. Road Delineators Supplying and installation of delineators (road way indicators, hazard markers, object markers) – **200 nos**.
vii. Road Markers/Road Stud with Lens Reflector (Providing and fixing of road stud 100x 100 mm, die cast in aluminium – **1500 nos**.
viii. Safety Convex Unbreakable mirror of 1.0 m Dia– **20 Nos**
ix. Gantry and Overhead sign – **02 Nos**
x. Repairing works at bridges **(shall be finalized in consultation with the Authority Engineer/Authority)**
  a) PCC M15 Grade levelling course below approach slab **not less than 37 cum**
  b) Reinforced cement concrete approach slab including reinforcement and formwork not less than **not less than 104 cum**
  c) Painting on concrete surface (Providing and applying 2 coats of water-based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 Sqm.) **not less than 264 m**
  d) Painting on steel surfaces (Providing and applying two coats of ready-mix paint of approved brand on steel surface after thorough cleaning of surface to give an even shade **not less than 133 sqm**
  e) Replacement of damaged concrete railing **not less than 20 m**
  f) Replacement of Expansion Joint **not less than 11 m**
  g) Providing and laying Cement concrete wearing coat M-30 grade including reinforcement **not less than 55 cum**

u) Replacement of timber decking over existing minor bridge at Km 177+000

Over and above requirements of road works to sustain DLP of four years will be assessed by Contractor before submitting his proposal.

3. Specifications and Standards

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

Annex – I

(Schedule-B)

Description of Special Repair

1. Widening of the Existing Highway

(i) There is no widening of Carriage way. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for [plain/rolling] terrain to the extent land is available in consultation with Authority Engineer.

(ii) Width of Carriageway

(a) Intermediate lane existing carriage way having width of 5.5 m shall be undertaken with 5% extra widening at curve & town portion.

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

2. Geometric Design and General Features

(i) General

Geometric design and general features of the Project Highway shall be in accordance with Sections-05 of IRC SP 73-2018.

(ii) Design speed

Nil

(iii) 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)	Type of deficiency	Remarks
Nil			

(iv) Right of Way

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

(v) Type of shoulders

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

Sl. No.	Stretch (from km to km)	Fully paved shoulders/ footpaths	Reference to cross section
NIL			

(b) Earthen Shoulder of 0.75 m on each of strengthened road stretch except bridge locations.

(vi) Lateral and vertical clearances at underpasses

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

Sl. No.	Location (Chainage) (from km to km)	Span/ opening (m)	Remarks
NIL			

(vii) Lateral and vertical clearances at overpasses

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

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

(viii) Service roads

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

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

(ix) Grade separated structures

(a) 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					

(b) In the case of grade separated structures, the type of structure and the level of the Project Highway and the cross roads shall be as follows:

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

(x) Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

Sl. No.	Location	Type of crossing
Nil		

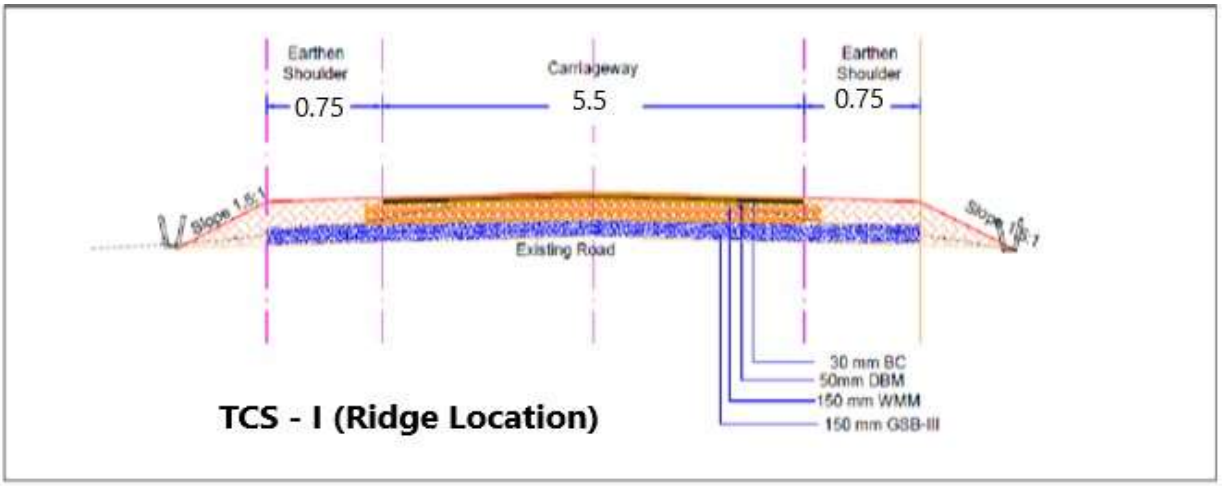
(xi) Typical cross-sections of the Project Highway

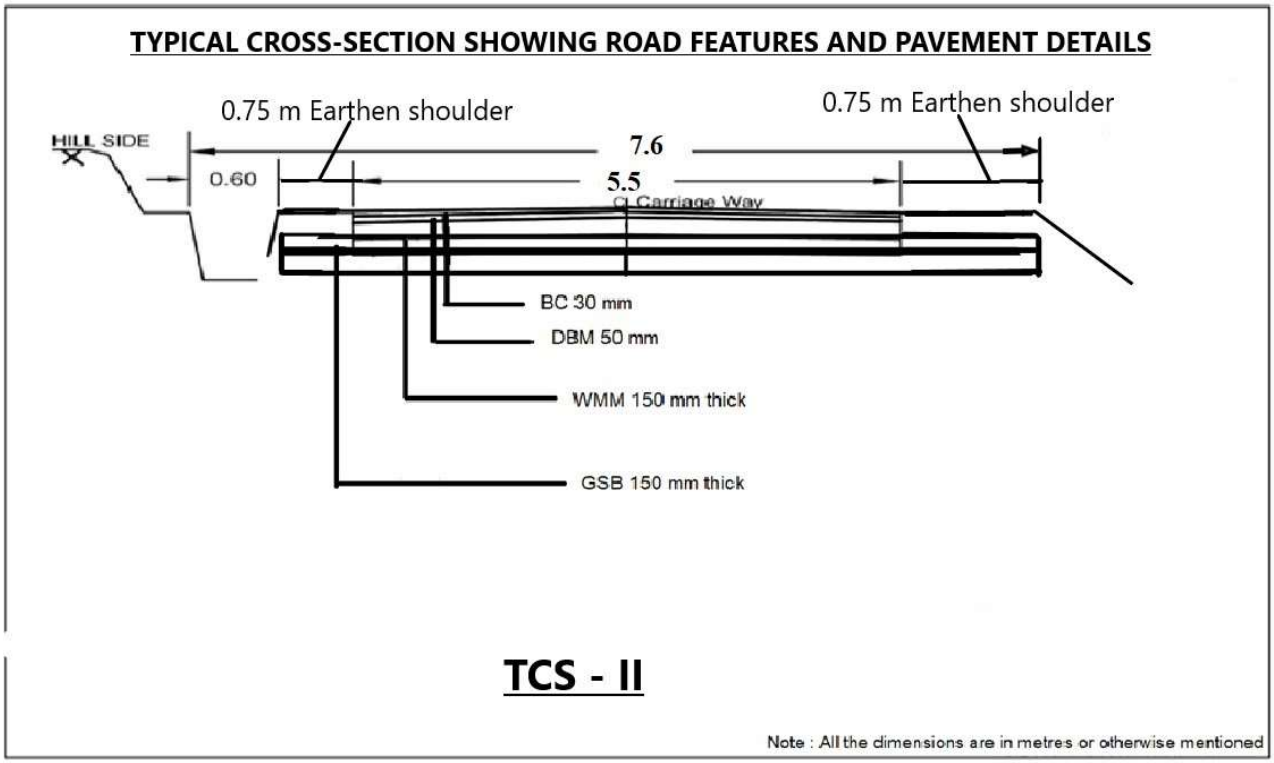
Following typical cross sections shall be provided for the Project Highway:

Sl. No.	TCS Type	Description	Remarks
1	TCS-I	Ridge Locations (30 mm BC, 50 mm DBM , 150 mm WMM & 150 mm GSB-III)	Strengthening
2	TCS-II	Hilly locations (30 mm BC, 50 mm DBM , 150 mm WMM & 150 mm GSB-III)	Strengthening

Note: Note: 5% extra widening at curves.

Following figures of typical cross sections shall be provided for the Project Highway:





Indicative Chainage with applicable Typical Cross section :

Sl. No.	Chainage (In km)		Length (in m)	TCS
	From	To		
1	**2**	**3**	**4**	**5**
1	133+000	133+100	100	TCS-I
2	133+100	133+300	200	TCS-II
3	133+300	133+400	100	TCS-I
4	133+400	134+200	800	TCS-II
5	134+200	134+600	200	TCS-I
6	134+600	145+200	10600	TCS-II
7	145+200	145+500	300	TCS-I
8	145+500	154+300	8800	TCS-II
9	154+300	154+600	300	TCS-I
10	154+600	166+600	12000	TCS-II
11	166+600	167+200	600	TCS-I
12	167+200	168+000	800	TCS-II
13	168+000	168+100	100	TCS-I
14	168+100	169+000	900	TCS-II
15	169+000	169+400	400	TCS-I
16	169+400	171+000	1600	TCS-II
17	171+000	176+000	5000	TCS-I
18	176+000	177+000	1000	TCS-II

The above mentioned Chainages/TCS are tentative and shall be finalized later in consultation with the Authority Engineer/Authority.

3. Intersections and Grade Separators

Properly designed intersections shall be provided at the locations and of the types and features as to be finalised during construction in consultation with Authority Engineer for the improvement of intersection given in the tables below:

(i) At-grade intersections

Sl. No.	Location of intersection	Type of intersection	Other features
NIL			

(ii) Grade separated intersection with/without ramps

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

4. Road Embankment and Cut Section

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

(ii) The existing road shall be raised in the following sections:

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

5. Pavement Design

(i) Pavement design shall be carried out in accordance with Section-5 of IRC-73 2018 Manual.

(ii) Type of pavement

Flexible pavement is proposed for the entire section.

(iii) Design requirements

[Refer Section-5 of the Manual (IRC SP-73 2018) and specify design requirements and strategy]

(a) Design Period and strategy.

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

(b) Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 5 million standard axles.

Homogeneous Section	Chainage (km)		Length (Km)	15 Year CVPD
	From	To		
HS-1	133.00	177.00	44.00	But Adopted MSA = 5 MSA

Note: Refer figure 12.3: Catalogue for pavement with bituminous surface course with granular base and sub-base -Effective CBR 7% (Plate-3)" of IRC 37-2018. Effective CBR 7% was considered based on soil condition and available effective CBR record of vicinity projects. Since the said IRC provides for minimum 5 MSA, the thickness of WMM is reduce from 250 mm to 150 mm keeping in view the low traffic volume.

(iv) Reconstruction of stretches

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

Sl. No.	Stretch From km to km	Remarks
Nil		

6. Road side Drainage

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 8 of the Manual.

The Proposed drainage works are as under:

Unlined Drain = 37820 m

Construction of RCC Cover Drain (1.0 X 0.9 m)= 500 m

Longitudinal Lined drain (Trapezoidal cross section) = 1000 m

The location of cover RCC drain and Trapezoidal shape Lined Drain at required location shall be finalised in consultation with the Authority Engineer/Authority at the time of construction, except otherwise RCC Cover drain and Trapezoidal shape Lined Drain remaining location earthen drain shall be provided.

7. Design of Structures

(i) General

(a) All bridges, culverts and structures shall be designed and constructed in accordance with Section 7 of the Manual (IRC SP 73-2018) and shall conform to the cross- sectional features and other details specified therein.

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

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

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

Sl. No.	Location at km	Remarks
Nil		

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

(e) The following structures shall be designed to carry utility services specified in table below:

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

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

(ii) Culverts

(a) Overall width of all culverts shall be equal to the roadway width of the approaches excluding parapet wall.

(b) Reconstruction of existing/New Construction of culverts:

Sl. No.	Culvert location	Span/Dia (m)	Remarks, if any*
1.	**138+800**	1200 mm Dia, HPC	
2.	**139+300**	1200 mm Dia, HPC	
3.	**148+500**	1200 mm Dia, HPC	
4.	**150+300**	1200 mm Dia, HPC	
5.	**151+500**	1200 mm Dia, HPC	
6.	**152+700**	1200 mm Dia, HPC	
7	**165+600**	Box Culvert (5 m x 5 m)	

* Attach typical cross-section, if necessary.

8	**166+200**	1200 mm Dia, HPC (2 Nos)	
9	**171+100**	1200 mm Dia, HPC	
10	**172+200**	1200 mm Dia, HPC	

(c) Widening of existing culverts:

All existing culverts which are not to be reconstructed shall be widened to the roadway width of the Project Highway as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

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

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

Sl. No.	**Culvert location**	**Span/Opening (m)**	**Remarks, if any***
NIL			

Note: All new culverts which are to constructed as per typical cross-section given in section 7 of Manual.

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

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

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

(iii) Bridges

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

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

Sl.	**Bridge location**	**Salient details of**	**Adequacy or otherwise of the existing waterway,**	**Remarks**

No.	**(km)**	**existing bridge**	**vertical clearance, etc***	
Nil				

(ii) The following narrow bridges shall be widened:

Sl. No.	**Location (km)**	**Existing width (m)**	**Extent of widening (m)**	**Cross-section at deck level for widening @**
Nil				

(b) Additional new bridges

[Specify additional new bridges if required, and attach GAD]

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

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

(c) The railings of existing bridges shall be replaced by RCC crash barriers at the following locations:

Sl. No.	**Location at km**	**Remarks**
1.	162+000	RCC Crash Barrier
2.	163+200	RCC Crash Barrier
3	166+900	RCC Crash Barrier
4	168+900	RCC Crash Barrier
5	173+000	RCC Crash Barrier

(d) Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in Manual

(e) Structures in marine environment

[The necessary measures / treatments for protecting structures in marine environment, where applicable should be provided as specify in the Manual]

(iv) Rail-road bridges

(a) Road over-bridges

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

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

(b) Road under-bridges

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

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

(v) Grade separated structures

The grade separated structures shall be provided at the locations and of the type and length specified as given below.

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

(vi) 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

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

(b) ROB / RUB

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

(c) Overpasses/Underpasses and other structures

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

(vii) List of Major Bridges and Structures

The following is the list of the Major Bridges and Structures:

Sl. No.	Location
Nil	

8. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with Section's the Manual.

(ii) Following Road safety measures be provided as per provision below

DESCRIPTION	QUANTITY	UNIT
90 cm equilateral triangle	50	Nos
80 mm x 60 mm rectangular	50	Nos
Type - A, "W": Metal Beam Crash Barrier	2000	Metre
RCC Crash Barrier	150 BHS	Metre
Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads over Bituminous Surface	13200	sqm
Ordinary Kilometre stone (Precast)	34	Nos
5th Kilometre stone	10	Nos
Road Delineators Supplying and installation of delineators (road way indicators, hazard markers, object markers)	200	Nos
Road Markers/Road Stud with Lens Reflector (Providing and fixing of road stud 100 x 100 mm, die cast in aluminium	1500	Nos
Safety Convex mirror, 1.00 m Diameter	20	Nos

Note: Location/ Position of signage's are to be finalized in consultations with Authority engineer during execution.

9. Roadside Furniture

(i) Roadside furniture shall be provided in accordance with the provisions of Sections of the Manual.

(ii) Overhead traffic signs: NIL

10. Compulsory Afforestation

NIL

11. Hazardous Locations

The safety barriers (Metal beam crash barriers) shall also be provided at required hazardous locations in consultation with the Authority Engineer at the time of construction

12. Special Requirement for the project Roads

i. Retaining walls shall be provided as follows:

S. No	Chainage	Length (m)	Height (m)	Side
1	135+450	50	3.5	Valley
2	136+850	50	3.5	Valley
3	137+350	50	3.5	Valley
4	138+650	50	3.5	Valley
5	146+560	50	3.5	Valley
6	154+750	50	3.5	Valley

ii. Breast walls (3.5 m height) shall be provided as follows:

S. No	Chainage		Indicative Length	Height (m)
	From	To		
1	135+450	135+500	50	3.5
2	136+850	136+900	50	3.5
3	137+350	137+400	50	3.5
4	138+650	138+700	50	3.5
5	146+560	146+610	50	3.5
6	154+750	154+800	50	3.5

iii. Improvements of Hazardous location/Blind curve/Black spot with following minimum provisions.

i. Erection of Retro- reflectorized Traffic signs (Speed control & cautionary)
ii. Metal Beam Crash Barrier on Valley side.
iii. Continuous Road Marking on edge of the carriage way (Both side)
iv. Installation of Road Delineators & Cat eyes.
v. Installation of Convex Mirror (min 2 nos.)

Note: Design and improvement proposal has to be finalized in consultation with Authority Engineer/ Authority.

13. Change of Scope

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. 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 variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

(Schedule B-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 Authority. The details of utilities are as follows: **NIL**

Note: Shifting of utilities is not applicable since repairing and strengthening of existing road is proposed.

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) Road side 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:

Sl. No.	Project Facility	Location	Design Requirements	Other essential details
NIL				

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

Schedule - D

(See Clause2.1)

Specifications and Standards

1. Construction

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

2. Design Standards

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

[Manual of Specifications and Standards for Two Laning of Highways and Paved Shoulder (IRC SP 73:2018, referred to herein as the Manual]

IRC-37-2018: Guidelines for the design of flexible pavements

Code for Practice of Road Signs IRC 67:2001.

The Hill Road Manual IRC SP 48 -1998 should be referred.

The NGT Order dated 01.11.2018 should be followed for disposal of muck.

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

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the "Manual of Specifications and Standards for Two Laning of Highways and Paved Shoulder" (IRC SP 73: 2018), referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

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

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

(iii) [Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.]

Sl.	Item	Provision as per Manual	Description of Deviation	Clause Referred in Manual
Nil				

Schedule - E

(See Clauses 2.1 and 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 Paragraph2ofthisSchedule-Ewithinthetimelimitspecifiedthereinandany failure in this behalf shall constitute non-fulfilment 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.

[Specify all the relevant documents]

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 wilful 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.

Annex – I

(Schedule-E)

Repair/rectification of Defects and deficiencies

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.

1.1 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, approaches	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

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**					
s of Grade structure, approaches s 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 n 3004.3
	Rutting	Nil	< 5 mm	Daily	Straight Edge		15 -30 days	MORT&H Specification 3004.2
	Corrugations and Shoving	Nil	< 0.1% of area	Daily	Length Measurement Unit like		2-7 days	IRC:82-2015

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**					
	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape,		3-7 days	MORT&H Specification 3004.4

	Ravelling / Stripping	Nil	< 1 % of area	Daily	odometer etc.		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	Daily			7- 15 days	IRC:82- 2015
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**					
			d to 30 cm from the edge					
	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilomet	Class I Profilometer: ASTM E950 (98) :2004 –Standard Test Method for measuring	180 days	IRC:82- 2015

	Skid Number	60SN	50SN	Bi-Annually	er SCRIM (Sideway-force Coefficient Routine Investigation Machine or equivalent)	Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	BS: 7941-1: 2006
	Pavement Condition Index	3	2.1	Bi-Annually			180 days	IRC:82- 2015
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**					
	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

A. Flexible Pavement

Nature of Defect or deficiency		Time limit for repair/ rectification
ROADS		
(a)	**Carriageway and paved shoulders**	
(i)	Breach or blockade	Temporary restoration of traffic within 24 hours; permanent restoration within 15 (fifteen) days
(ii)	Roughness value exceeding2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 (twenty four) hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 (six) hours
(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)	Variationbymorethan15%inthe 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

Nature of Defect or deficiency		Time limit for repair/ rectification
(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**	
(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

Nature of Defect or deficiency		Time limit for repair/ rectification
(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 within15(fifteen)days or as specified by the Authority's Engineer
(b)	**Foundations**	
(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**	

Nature of Defect or deficiency		Time limit for repair/ rectification
(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 Council/ Panchayats and Pollution Control Board for installation of crushers;

(c) Licence for use of explosives;

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

(e) Licence 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 Council/ Panchayats and Pollution Control Board for setting up asphalt plant;

(h) Permission of Village Council/ 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.

(iii) Muck dumping locations in forest area to be freezed in consultation with the forest department, the necessary certifications from local competent forest department is to be submitted.

Schedule – G

(See Clauses 7.1 and 19.2)

Annex-I

(See Clause 7.1)

Form of Bank Guarantee
[Performance Security/Additional Performance Security]

Executive Director (P),
Regional Office, Kohima
National Highway & Infrastructure Development Corporation Ltd.
NPWD Rest House, PWD Colony,
Kohima, Nagaland-797001

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 "**The Project Highway**" 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 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**") 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 NHIDCL 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, fulfilment 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 fulfilment, 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 Agreement.

12. This guarantee shall also be operatable at our…….. Branch at Kohima (Complete Address of bank branch is mandatory), 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. 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 NHIDCL, details of which is as under:

Sl. No	Particulars	Details
1	Name of the Beneficiary	RO Kohima NHIDCL Project Account
2	Beneficiary Bank Account No.	3306201000223
3	Beneficiary Bank Branch	IFSC CNRB0004077
4	Beneficiary Bank Branch Name	Canara Bank, 1st Floor, Near IOC Petrol Pump, Kohima Nagaland797001

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

Executive Director (P),
Regional Office, Kohima
National Highway & Infrastructure Development Corporation Ltd.
NPWD Rest House, PWD Colony,
Kohima, Nagaland-797001

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 "**The Project Highway**" 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 to10% (ten percent) 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 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.Theamountof{first/second}installmentoftheAdvancePayment 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 faithfulrepaymentontimeoftheaforesaidinstalmentoftheAdvancePayment 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

[$] The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

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 Limited], 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..

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 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.

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 Advance Payment.

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 on or before the aforesaid date, 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 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.

12. This guarantee shall also be operatable at our…….. Branch at Kohima (Complete Address of bank branch is mandatory), 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 there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.

13. 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 NHIDCL, details of which is as under:

Sl. No.	Particulars	Details
1	Name of the Beneficiary	RO Kohima NHIDCL Project Account
2	Beneficiary Bank Account No.	3306201000223
3	Beneficiary Bank Branch	IFSC CNRB0004077
4	Beneficiary Bank Branch Name	Canara Bank, 1st Floor, Near IOC Petrol Pump, Kohima Nagaland797001

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.

———

Schedule - H

(See Clauses10.1 (iv) and 19.3)

Contract Price Weightages

1. The Contract Price for this Agreement is Rs. ____ Cr.

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

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
Road Works including Culverts, widening and repair of culverts	77.20%	**A- Widening and strengthening of existing road**	
		(1) Earthwork up to top of the sub-grade including shoulders	4.00 %
		(2) Earthwork in Shoulders	0.25 %
		(3) Sub-base Course	9.39 %
		(4) Non bituminous Base course	18.39 %
		(5) Bituminous Base course	39.52 %
		(6) Wearing Coat	26.49 %
		(7) Filling of Pot-Holes and Patch Repairs	1.96 %
		(8) Widening and repair of culverts	-
Road Works including Culverts, widening and repair of culverts	**0.00%**	**B.1- Reconstruction/New 8-Lane Realignment / Bypass (Flexible Pavement)**	
		(1) Earthwork up to top of the sub-grade	-
		(2) Earthwork in Shoulders	-
		(3) Sub-base Course	-
		(4) Non bituminous Base course	-
		(5) Bituminous Base course	-
		(6) Wearing Coat	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
	0.00%	**B.2- Reconstruction/New 8-Lane Realignment / Bypass (Rigid Pavement)**	
		(1) Earthwork up to top of the sub-grade	-
		(2) Earthwork in Shoulders	-
		(3) Sub-base Course	-
		(4) Dry Lean Concrete (DLC) Course	-
		(5) Pavement Quality Control (PQC) Course	-
	0.00%	**C.1- Reconstruction/ New Service Road/ Slip Road (Flexible Pavement)**	
		(1) Earthwork up to top of the sub-grade	-
		(2) Sub-base Course	-
		(3) Non bituminous Base course	-
		(4) Bituminous Base course	-
		(5) Wearing Coat	-
	0.00%	**C.2- Reconstruction/New Service road (Rigid Pavement)**	
		(1) Earthwork up to top of the sub-grade	-
		(2) Sub-base Course	-
		(3) Dry Lean Concrete (DLC) Course	-
		(4) Pavement Quality Control (PQC) Course	-
	3.13 %	**D- Reconstruction & New Culverts on on existing road, realignments, bypasses** Culverts (length <6m)`	
		Hume Pipe Culvert	54.63%
		Box Culvert	45.37%

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
Minor bridge/ Underpasses/ Overpasses	0.00%	**A.1- Widening and repairs of Minor Bridges (length>6m &<60m)**	
		Minor Bridges	-
		A.2- New Minor bridges (length >6 m and < 60 m)	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	-
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	-
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-
		(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect, tests on completion in all respect and fit for use	-
		(5) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	-
		(6) Other Ancilliary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect.	-
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	-
		B.2- New Underpasses/Overpasses	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	-
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings.	-
		(4) On completion of Retaining / Reinforced earth walls, complete in allrespect and fit for use	-
		(5) Approaches and Other Ancilliary Works: On completion of wearing coat,expansion joints, hand rails, crash barriers, stone pitching, protection works, road signs & markings, tests on completion in all respect.	-
		Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including drainage facility complete in all respects as specified	
Major bridge(length>60m) works and ROB/RUB/elevated sections/flyovers including viaducts, if any	**[**]**	**A.1- Widening and repairs of Major Bridges**	
		(1) Foundation: On completion of the foundation work including foundations for return walls, abutments, piers.	-
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap	-
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings.	-
		(4) Wearing Coat including expansion joints	-
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		(6) Wing walls/return walls upto top	-
		(7) Guide bunds, River Training works etc.	-
		(8) Approaches (including Retaining walls, stone pitching and protection works)	-
		A.2- New Major Bridges	
		(1) Foundation: On completion of the foundation work including foundations for return walls, abutments, piers.	-
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap	-
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings.	-
		(4) Wearing Coat including expansion joints	-
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-
		(6) Wing walls/return walls upto top	-
		(7) Guide bunds, River Training works etc.	-
		(8) Approaches (including Retaining walls, stone pitching and protection works)	-
		B.1- Widening and repairs of **(a) ROB** **(b) RUB**	
		(1) Foundations	-
		(2) Sub-Structure	-
		(3) Super-Structure (Including bearings)	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		(4) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	-
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-
		(6) Wing walls/Return walls	-
		(7) Retaining / Reinforced earth walls	-
		(8) Approaches and Other Ancillary Works (wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works etc.)	-
		B.2- New ROB/RUB	
		(1) Foundations	-
		(2) Sub-Structure	-
		(3) Super-Structure (Including bearings)	-
		(4) Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	-
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-
		(6) Wing walls/Return walls	-
		(7) Retaining / Reinforced earth walls	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		(8) Approaches and Other Ancillary Works (wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works etc.)	-
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	-
		(2) Sub-Structure	-
		(3) Super-Structure (Including bearings)	-
		(4) Wearing Coat including expansion joints	-
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-
		(6) Wing walls/Return walls	-
		(7) Retaining / Reinforced earth walls	-
		(8) Approaches and Other Ancillary Works (wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works etc.)	-
		C.2- New Elevated Section/Flyovers/Grade Separators	
		(1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	-
		(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	-
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings.	-
		(4) Wearing Coat including expansion joints	-

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-
		(6) Wing walls/Return walls	-
		(7) Retaining / Reinforced earth walls	-
		(8) Approaches and Other Ancillary Works (wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works etc.)	-
Other Works	**19.67 %**	(i) Toll Plaza	-
		(ii) Road side drains and toe wall	
		Unlined Drain	5.19 %
		Longitudinal Lined drain (Trapezoidal cross section)	4.68 %
		RCC Cover Drain	7.73 %
		(iii) Road signs, safety Devices, Road Marking, Furnitures, etc.	
		Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads	40.06%
		Retro- reflectorised Traffic signs - 90 cm equilateral triangle	0.25%
		Retro- reflectorised Traffic signs - 80 mm X 60 mm rectangular	0.31%
		Gantry / Overhead Signs	1.02%
		Kilo Metre Stone - 5th Kilometre Stone (Precast)	0.05%
		Kilo Metre Stone - Ordinary Kilometre Stone (Precast)	0.15%
		Road Delineators	0.20%

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		Road Markers/Road Stud with Lense Reflector/ Cat eye	3.10%
		Safety Convex Unbreakable mirrors	0.20%
		(vi) Project facilities	
		a) Bus Bays	-
		b) Wayside Amenities excluding Slip Roads & but including all internal roads (Service areas including Truck Lay-Byes)	-
		c) Others (Rest areas)	-
		Retaining Wall	14.29 %
		Breast Wall (Gabion Type)	7.93 %
		Street Lighting	-
		Utility Ducts	-
		W Beam Crash Barrier	7.42 %
		Boundary wall/RCC Crash Barrier	0.92 %
		(5) Repairing works of existing Bridge	
		PCC M15 Grade levelling course below approach slab	0.36%
		Reinforced cement concrete approach slab including reinforcement and formwork	1.73%
		Painting on concrete surface	0.05%
		Painting on steel surfaces	0.05%
		Replacement of damaged concrete railing	0.05%
		Replacement of Expansion Joint and damaged concrete railing	0.05%

Item	Weightage in % of CP	Stage for Payment	Percentage weightage
(1)	(2)	(3)	(4)
		Providing and laying Cement concrete wearing coat M-30 grade including reinforcement	1.07%
		Replacement of wooden plank deck	0.46%
		Rain Water Harvesting	-
		Road side Plantation including Horticultrure in Wayside Aminities	-
		(xiii) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBs/ RUBs	-
		(xiv) Safety & Traffic Management during const.	-
		(xv) Site Clearance & Scarifying existing bituminous surface etc.	0.50 %
		Landslide clearance	2.18 %

Procedure of estimating the value of work done.

(i) Roadworks

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

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A- Widening & Strengthening of road (1) Earthwork up to top of the sub-grade	3.09 %	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 05 (five) percent of the total length.
(2) Earthwork in shoulders	0.19 %	
(3) Sub-base Course	7.25 %	
(4) Non bituminous Base course	14.20 %	
(5) Bituminous Base course	30.51 %	
(6) Wearing Coat	20.45 %	
(7) Filling of Pot-Holes and Patch Repairs	1.51%	
(7) Widening and repair of culverts	-	Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least one culverts
B.1- Reconstruction/New 8-Lane Realignment / Bypass (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1) Earthwork up to top of the sub-grade	-	
(2) Earthwork in shoulders	-	
(3) Sub-base Course	-	

Stage of Payment	Percentage weightage	Payment Procedure
(4) Non bituminous Base course	-	
(5) Bituminous Base course	-	
(6) Wearing Coat	-	
(7) Widening and repair of culverts	-	
B.2- Reconstruction/New 8-Lane Realignment / Bypass (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1) Earthwork up to top of the sub-grade	-	
(2) Sub-base Course	-	
(3) Dry Lean Concrete (DLC) Course	-	
(4) Pavement Quality Control (PQC) Course	-	
(5) Earthwork in shoulders	-	
C.1- Reconstruction/ New Service Road/ Slip Road (Flexible Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km length, whichever is less.
(1) Earthwork up to top of the sub-grade	-	
(2) Sub-base Course	-	
(3) Non bituminous Base course	-	
(4) Bituminous Base course	-	
(5) Wearing Coat	-	
C.2- Reconstruction/New Service road (Rigid Pavement)		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km
(1) Earthwork up to top of the sub-grade	-	

Stage of Payment	Percentage weightage	Payment Procedure
(2) Sub-base Course	-	length, whichever is less.
(3) Dry Lean Concrete (DLC) Course	-	
(4) Pavement Quality Control (PQC) Course	-	
D- Reconstruction & New Culverts on existing road, realignments, bypasses		Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of at least one culverts
Culverts (length <6m)		
Hume Pipe Culvert	1.71%	
Box Culvert	1.42%	

@ For calculation of payment stage for main-carriageway the project length shall be converted into equivalent Single length. For example, if the total length of 4 lane main carriageway is 100 km, then the equivalent length for calculation of payment stage will be 2 x 100 km. Now, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

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

Where

P = Contract Price

L = Total equivalent Single length in km as defined above

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

Note: The length affected due to law and order problems or litigation during execution includingthelengthnothandedovertotheContractorunderclause8.3ofthisContract Agreement due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement

(ii) Minor Bridges and Underpasses/Overpasses

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

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
(1)	**(2)**	**(3)**
A.1- Widening and repairs of Minor Bridges (length>6m &<60m)	-	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge
A.2- New Minor Bridges (length>6m &<60m) (1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	-	**Foundation**: Cost of each minor bridge shall be determined on pro- rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	-	**Sub-structure:** Cost of each minor bridge shall be determined on pro- rata basis with respect to the total linear length (m) of the minor bridges. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each bridge.

Stage of Payment	Weightage	Payment Procedure
(1)	(2)	(3)
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of astage i.e. completion of super structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub- clause. In case of structures wherepre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use	-	**Approaches**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.
(5) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	-	**Guide Bunds and River Training Works**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified
(6) Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion in all respect.	-	**Other Ancillary Works**: Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
B.1- Widening and repairs of underpasses/overpasses	-	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening & repair works of a underpass/overpass.

Stage of Payment	Weightage	Payment Procedure
(1)	**(2)**	**(3)**
B.2- New Underpasses/Overpasses (1) Foundation: On completion of the foundation work including foundations for wing and return walls, abutments, piers.	-	**Foundation**: Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/Overpasses. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of each Underpasses/ Overpasses. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap including wing/ return/ retaining wall upto top	-	**Sub-structure:** Cost of each Underpass/ Overpass shall be determined on pro- rata basis with respect to the total linear length (m) of the Underpasses/ Overpasses. Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of each Underpasses/Overpasses.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) On completion of Retaining / Reinforced earth walls complete in all respect and fit for use	-	Payments shall be made on pro rata basis on completion of 20% of the total area.

Stage of Payment	Weightage	Payment Procedure
(1)	**(2)**	**(3)**
(5) Approaches and Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works, tests on completion in all respect.	-	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

(iii) Major Bridge works, ROB/RUB and Structures

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

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
A.1- Widening and repairs of Major Bridges (1) Foundation: On completion of the foundation work including foundations for return walls, abutments, piers.	-	**Foundation**: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of major bridge.

Stage of Payment	Weightage	Payment Procedure
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	-	**Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls upto top	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Guide bunds, River Training works etc.	-	**Guide Bunds, River Training works:** Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	-	**Approaches**: Payments shall be made on pro rata basis on completion of 10% of the scope of each stage.

Stage of Payment	Weightage	Payment Procedure
A.2- New Major Bridges (1) Foundation: On completion of the foundation work including foundations for return walls, abutments, piers.	-	**Foundation**: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure: On completion of abutments, piers upto the abutment/ pier cap	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of major bridge.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	-	**Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
(6) Wing walls/return walls upto top	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) Guide bunds, River Training works etc.	-	**Guide Bunds, River Training works:** Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	-	**Approaches**: Payments shall be made on pro rata basis on completion of 10% of the scope of each stage.
B.1- Widening and repairs of **(a) ROB** **(b) RUB** (1) Foundation	-	**Foundation**: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of ROB/RUB.

Stage of Payment	Weightage	Payment Procedure
(3) Super-structure (including bearing)	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	-	**Wearing Coat:** Payment shall be made on completion (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) On completion of Retaining / Reinforced earth walls complete in all respect and fit for use	-	Payments shall be made on pro rata basis on completion of 20% of the total area.

Stage of Payment	Weightage	Payment Procedure
(8) Approaches and Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works, tests on completion in all respect.	-	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
B.2- New ROB/ RUB (1) Foundation	-	**Foundation**: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of ROB/RUB.
(3) Super-structure (including bearing)	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above

Stage of Payment	Weightage	Payment Procedure
(4) Wearing Coat including expansion joints in case of ROB. In case of RUB-rigid pavement under RUB including drainage facility as specified	-	**Wearing Coat:** Payment shall be made on completion (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wing walls/return walls	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) On completion of Retaining / Reinforced earth walls complete in all respect and fit for use	-	Payments shall be made on pro rata basis on completion of 20% of the total area.
(8) Approaches and Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works, tests on completion in all respect.	-	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

Stage of Payment	Weightage	Payment Procedure
C.1- Widening and repairs of Elevated Section/ Flyovers/ Grade Separators (1) Foundation	-	**Foundation**: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of structure.
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	-	**Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

Stage of Payment	Weightage	Payment Procedure
(6) Wing walls/return walls	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) On completion of Retaining / Reinforced earth walls complete in all respect and fit for use	-	Payments shall be made on pro rata basis on completion of 20% of the total area.
(8) Approaches and Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works, tests on completion in all respect.	-	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.2- New Elevated Section/ Flyovers/ Grade Separators (1) Foundation	-	**Foundation**: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structure. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2) Sub-structure	-	**Sub-structure:** Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of structure.

Stage of Payment	Weightage	Payment Procedure
(3) Super-structure: On completion of the super-structure in all respects including Girder, Deck slab, bearings	-	**Super-structure**: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of atleast one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	-	**Wearing Coat:** Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	-	**Miscellaneous:** Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.
(6) Wingwalls/return walls	-	**Wing walls/return walls:** Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(7) On completion of Retaining / Reinforced earth walls complete in all respect and fit for use	-	Payments shall be made on pro rata basis on completion of 20% of the total area.
(8) Approaches and Other Ancillary Works: On completion of wearing coat, expansion joints, hand rails, crash barriers, road signs & markings, stone pitching, protection works, tests on completion in all respect.	-	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

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

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

(iv) Other Works.

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

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
(1)	**(2)**	**(3)**
(1) Toll Plaza	-	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plaza.
(2) Road side drains and toe wall	-	Unit of measurement is m/km/No/sqm. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total quantity.
Toe wall Protection	0.00%	
Unlined Drain	1.02 %	
RCC Cover Drain	1.52 %	
Longitudinal Lined drain (Trapezoidal cross section)	0.92 %	
(3) Road signs, safety Devices, Road Marking, Furnitures, etc.		
Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads	7.88%	
Retro- reflectorised Traffic signs - 90 cm equilateral triangle	0.05%	

Stage of Payment	Weightage	Payment Procedure
(1)	(2)	(3)
Retro- reflectorised Traffic signs - 80 mm X 60 mm rectangular	0.06%	
Gantry / Overhead Signs	0.20%	
Kilo Metre Stone - 5th Kilometre Stone (Precast)	0.01%	
Kilo Metre Stone - Ordinary Kilometre Stone (Precast)	0.03%	
Road Delineators	0.04%	
Road Markers/Road Stud with Lense Reflector/ Cat eye	0.61%	
Safety Convex Unbreakable mirrors	0.04%	
(4) Project Facilities	-	Payment shall be made on pro rata basis for completed facilities.
a) Bus Bays	-	
b) Wayside Amenities excluding Slip Roads &but including all internal roads (Service areas including Truck Lay-Byes)	-	
c) Others (rest Areas)	-	
Rain Water Harvesting	-	
Retaining Wall	2.81 %	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total length.
Breast Wall (Gabion type)	1.56%	
Street Lighting	-	
W Beam Crash Barrier	1.46 %	
Boundary wall/RCC Crash Barrier	0.18 %	

Stage of Payment	Weightage	Payment Procedure
(1)	(2)	(3)
(5) Repairing works of existing Bridge		Unit of measurement is m/sqm/cum/No. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total quantity
PCC M15 Grade levelling course below approach slab	0.07%	
Reinforced cement concrete approach slab including reinforcement and formwork	0.34%	
Painting on concrete surface	0.01%	
Painting on steel surfaces	0.01%	
Replacement of damaged concrete railing	0.01%	
Replacement of Expansion Joint and damaged concrete railing	0.01%	
Providing and laying Cement concrete wearing coat M-30 grade including reinforcement	0.21%	
Replacement of wooden plank deck	0.09%	
Rain Water Harvesting	-	
Road side Plantation including Horticultrure in Wayside Aminities	-	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (Five per cent) of the total length.
(xiii) Protection Works other than approaches to the bridges, elevated sections/ flyover/ grade separators and ROBs/ RUBs	-	
(xiv) Safety & Traffic Management during const.	-	Payment shall be made on prorate basis every six months.

Stage of Payment	Weightage	Payment Procedure
(1)	**(2)**	**(3)**
(xv) Site clearance & Scarifying existing bituminous surface	0.10 %	Payment should be made on pro rata basis on completion of each stage
Landslide clearance	0.43 %	Cost of each location shall be determined on pro rata basis with respect to the total number of location. Payment shall be made on the completion of at least one location.

2. Procedure for payment for Maintenance

(a) The cost for maintenance shall be as stated in Clause 14.1 (v).

(b) Payment for Maintenance shall be made in accordance with the provisions of Article 14 and Article 19.

Schedule - I

(See Clause 10.2 (iv))

Drawings

1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this 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

[**Note**: The Authority shall describe in this Annex-I, all the Drawings that the Contractor is required to furnish under Clause 10.2.]

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 such compliance along with necessary particulars thereof.

2. Project Milestone-I

(i) Project Milestone-I shall occur on the date falling on the **[35% of the Scheduled Construction Period]** 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 **[60% of the Scheduled Construction Period]** 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 notlessthan35% (thirty five percent) of the Contract Price **and should have started construction of all bridges**

4. Project Milestone-III

(i) Project Milestone-III shall occur on the date falling on the **[85% of the Scheduled Construction Period]** 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 Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy percent) of the Contract Price and **should have** started construction of all project facilities.

5. Scheduled Completion Date

(i) The Scheduled Completion Date shall occur on the 365th 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 the 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 [***].

(ii) Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a Network Survey Vehicle (NSV) fitted with latest equipments and the maximum permissible roughness for purposes of this Test shall be [2,000 (two thousand)] mm for each kilometre.

(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) metres or more shall also be subjected to load testing.

(iv) Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards, except tests as specified in clause 5, but shall include measuring the reflectivity of road markings and road signs; and measuring the illumination level (lux) of lighting using requisite testing equipment.

(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 Engineer or 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 the Completion Certificate in accordance with the provisions of Article 12.

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

Sr. No.	Key metrics of Asset	Equipment to be used	Frequency of condition survey
1	Surface defects of pavement	Network Survey Vehicle (NSV)	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 once a year
4	Bridges	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 the Authority's Engineer, under and in accordance with the Agreement dated …… (the "**Agreement**"), for **"**(the "**Project Highway**") on Engineering, Procurement and 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 safely 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….. , Scheduled Completed Date for which was 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 Clauses 14.6, 15.2 and 19.7)

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 the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.

(iii) The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph2.

2. Percentage reductions in lump sum payments on monthly basis

(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, inadequate cross fall, undulations, settlement, potholes, ponding, obstructions	10%
(ii)	Deficient slopes, rain cuts, 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%

S. No.	Item/Defect/Deficiency	Percentage
(d)	**Roadside Drains**	
(i)	Cleaning and repair of drains	5%
(e)	**Road Furniture**	
(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 of particular item shall be calculated as under:

$$R = {}^{P}/_{100} \times (M1 \; or \; M2) \times {}^{L1}/_{L}$$

Where,

P= Percentage of particular item/Defect/deficiency for deduction

M1= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

M2= Monthly lump-sum payment in accordance para 1.2 above of this Schedule

L1= Non-complying length L = Total length of the road,

R= Reduction (the amount to be deducted for non-compliance 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 non-compliance.

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

Schedule - N

(See Clause 18.1 (i))

Selection of Authority's Engineer/Supervision Consultant

1. Selection of Authority's Engineer

(i) The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's 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/ Supervision Consultant

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/Supervision Consultant

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 entered into between the [name and address of the Authority] (the "**Authority**") and ..... (the "**Contractor**")# for (the "**Project Highway**") on Engineering, Procurement and Construction (EPC) basis, 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 Clause 18.2.

(v) The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

(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 upto 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 thereof 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 forthwith.

(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 Programme 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, specifythepermissiblelimitofdeviationordeteriorationwithreferencetothe 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) TheAuthority'sEngineershalldeterminetheperiodofTimeExtensionthatis 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 to the 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 Clause 19.16.

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 DocumentssentbytheAuthority'sEngineertotheContractorpursuanttothis 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 backlines, 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 Clause 19.3 (i) subsequent to the last claim;

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

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

(d) amounts reflecting adjustment in price, if any, for (c) above in accordance with 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 upto 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 CertificateuntiltheendoftheDefectsLiabilityPeriodforanylossordamage 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. [Contract Price]

(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 (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 ANDDELIVERED

(Signature)

(Name and designation of Authority's Representative)

(Address)

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