

Schedules

Schedule-A

(See Clauses 2.1 and 8.1)

Site of the Project

1 The Site

- (i) Site of the [Two-Lane] Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- (ii) The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- (iii) An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2 (i) of this Agreement.
- (i) The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.
- (v) The status of the environment clearances obtained or awaited is given in Annex-IV.

Annex -I

(Schedule-A)

Site

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

1. Site

The Site starts at Beltoli (junction with SH-5) near Bilasipara and ends at Jalukbari interchange in Guwahati. The total length of the existing road stretch is 215.578 km. The project road is divided into 16 (sixteen) packages. The PKG-5 of the project road starts from Tulungia (Junction with NH-117) and ends after Jogighopa Bridge (Ex.Ch.52.470km to Ex.Ch.71.500km). The entire package falls under Bongaigaon district of Assam.

The land, carriageway and structures comprising the Site are described below.

2. Land

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

SL No.	Chainage (KM)		Right of Way (m)
	From	To	
1	52.470	52.500	58.3
2	52.500	52.750	56.1
3	52.750	53.000	49.3
4	53.000	53.250	39
5	53.250	53.500	28.6
6	53.500	53.750	13.5
7	53.750	54.000	19
8	54.000	54.250	10.9
9	54.250	54.500	11.7
10	54.500	54.750	16.6
11	54.750	55.000	15.5
12	55.000	55.250	16.7
13	55.250	55.500	16.9
14	55.500	55.750	18.3
15	55.750	56.000	22.5
16	56.000	56.250	31.8
17	56.250	56.500	32.6
18	56.500	56.750	30.4
19	56.750	57.000	68.8
20	57.000	57.250	26.5
21	57.250	57.500	22

SL No.	Chainage (KM)		Right of Way (m)
	From	To	
22	57.500	57.750	46
23	57.750	58.000	68.9
24	58.000	58.250	48.9
25	58.250	58.500	29.1
26	58.500	58.750	26.1
27	58.750	59.000	33.7
28	59.000	59.250	16.5
29	59.250	59.500	20.6
30	59.500	59.750	22.8
31	59.750	60.000	49
32	60.000	60.250	35
33	60.250	60.500	68.3
34	60.500	60.750	36.4
35	60.750	61.000	13.8
36	61.000	61.250	20.8
37	61.250	61.500	13
38	61.500	61.750	15.8
39	61.750	62.000	8.8
40	62.000	62.250	29.1
41	62.250	62.500	30.4
42	62.500	62.750	37.3
43	62.750	63.000	43.5
44	63.000	63.250	41.9
45	63.250	63.500	45.5
46	63.500	63.750	40
47	63.750	64.000	40.8
48	64.000	64.250	38
49	64.250	64.500	42
50	64.500	64.750	45
51	64.750	65.000	28
52	65.000	65.250	48
53	65.250	65.500	61
54	65.500	65.750	58
55	65.750	66.000	16
56	66.000	66.250	18
57	66.250	66.500	12
58	66.500	66.750	13
59	66.750	67.000	12
60	67.000	67.250	13
61	67.250	67.500	19
62	67.500	67.750	14
63	67.750	68.000	19
64	68.000	68.250	42
65	68.250	68.500	41
66	68.500	68.750	57
67	68.750	69.000	33

SL No.	Chainage (KM)		Right of Way (m)
	From	To	
68	69.000	69.250	21
69	69.250	69.500	14
70	69.500	69.750	12
71	69.750	70.000	18
72	70.000	70.250	19
73	70.250	70.500	20
74	70.500	70.750	14
75	70.750	71.000	22
76	71.000	71.250	17
77	71.250	71.500	23

3. Carriageway

The present carriageway of the Project Highway consists two Lane with earthen shoulder configuration from Ex.Ch.52.470km to Ex.Ch.71.500km.The type of the existing pavement of the section is flexible.

4. Major Bridges

The Site includes the following Major Bridge: -

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super-structure		
1	65.970	-	RCC Wall	RCC T Girder	3x35	10.14

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

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

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

7. Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Super-structure		
1	53.048	-	RCC Wall	RCC Slab	3 x 8.4	8.54
2	55.767	RCC Pile	RCC Wall	RCC T Girder	3 x 8.6	8.46
3	58.264	RCC Pile	RCC Wall	RCC T Girder	3 x 12.1	7.9
4	60.392	-	RCC Wall	RCC T Girder	2 x 10	9.5
5	60.916	-	RCC Wall	RCC T Girder	2 x 11	9.7

8. Railway level crossings

The Site includes the following railway level crossings:

Sl. No.	Chainage (km)	Location	Remarks
1	54.114	Deohati	Section Name-Abhayapuri, Division Name- Rangiya
2	65.133	Khoragaon	Section Name-Jogighopa, Division Name- Rangiya

9. Under passes (vehicular, non-vehicular)

The Site includes the following underpasses:

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

10. Culverts

The Site has the following culverts:

Sl. No.	Chainage (km)	Type of Culvert	Span/Opening with Span Length	Width of Culvert (m)
Nil				

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 trucklay 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:

Sl. No.	Location		Type	
	From km	To km	Masonry/cc (Pucca)	Earthen (Kutch)
NIL				

14. Major junctions

The details of major junctions are as follows:

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

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

15. Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Location		Type	
	From km	To km	T-Junction	Cross Road
1	53.200		Y	Leads to Bolgola(LHS) , Salmara(RHS)
2	53.663		Y	Leads to AbhayPuri
3	54.132		Y	Leads to AbhayPuri
4	54.600		Y	Leads to Tahabildarpara
5	55.100		Y	Leads to Sarkarpara
6	55.148		Y	Leads to Deohati

Sl. No.	Location		Type	
	From km	To km	T-Junction	Cross Road
7	55.460		Y	Leads to Jamadarpara
8	56.000		Y	Leads to kalitapara
9	57.355		Y	Leads to Soutaki
10	58.657		Y	Leads to singimari
11	58.830		Y	Leads to singimari
12	59.410		Y	Leads to singimari
13	61.630		Y	Leads to Kerakha bari (LHS),Nohagaon (RHS)
14	63.675		Y	Leads to Simlaguri

16. Bypasses

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

S.No.	Name of bypass	Chainage(km)		Length (in
	(town)	From (km)	to (km)	Km)
1	Chalantapara	60.000	67.556	7.556

17. Other structures

[Provide details of other structures, if any.]

Nil

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:

Sr. No.	From km To km	Length (Km)	Proposed ROW (m)	Date of providing ROW*
1	2	3	4	5
Full Right of Way (full width)	Excluding Bypass & Realignment, Bus bays, Truck Lay Bye	10.885	Rural Area :30m - 40m VUP Location :45m	At appointed date
Balance Right of Way (Width)	Realignment	-	-	Within 90 days of declaration of appointed date
	Bypass	7.556	45	
	Bus bays	0.460	50	
	Truck Lay Bye	-		

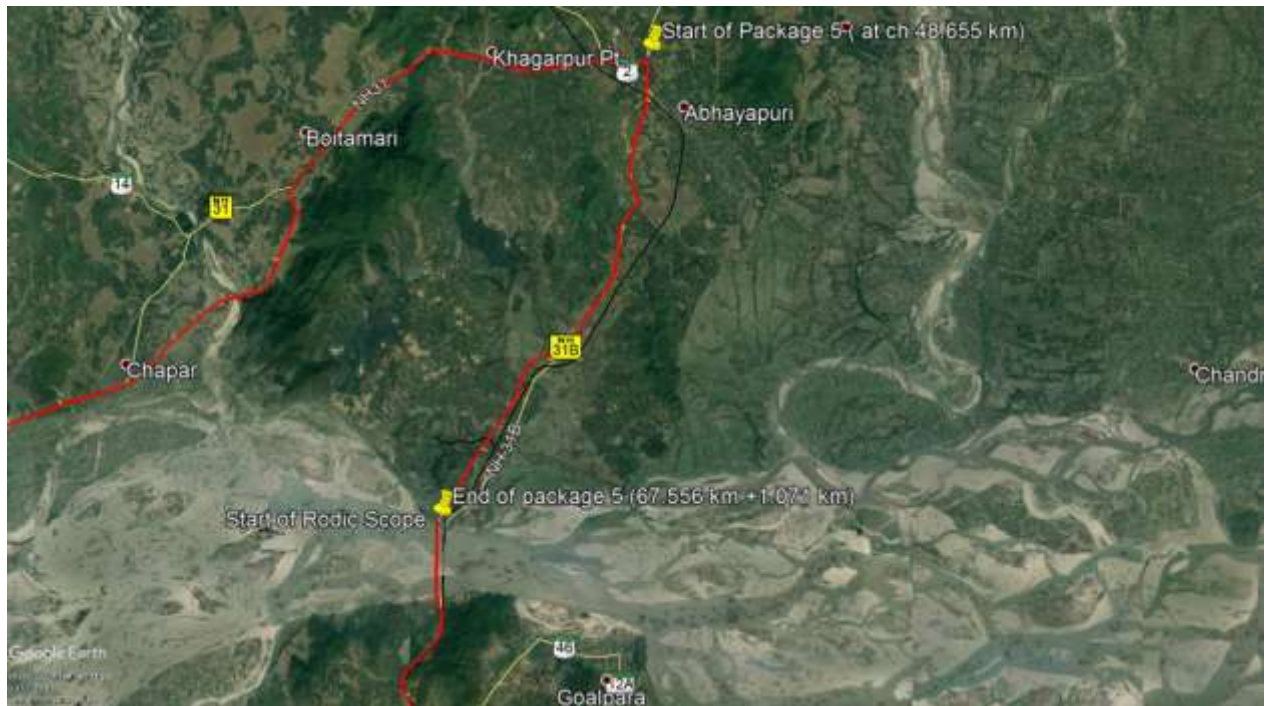
*The dates specified herein shall in no case be beyond 150 (one hundred and fifty) days after the Appointed Date.

Annex-III

(Schedule-A)

Alignment Plans

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



- (i) The alignment of the Project Highway is enclosed in alignment plan. Finished road level indicated in the alignment plan shall be followed by the contractor as minimum FRL. In any case, he finished road level of the project highway shall not be less than those indicated in the alignment plan. The contractor shall, however, improve/upgrade the Road profile as indicated in Annex-III based on site/design requirement.
- (ii) Traffic Signage plan of the Project Highway showing numbers & location of traffic signs is enclosed. The contractor shall, however,
- (iii) improve/upgrade upon the traffic signage plan as indicated in Annex-III based on site/design requirement as per the relevant specifications/IRC Codes/Manual.

Annex - IV

(Schedule-A)

Environment Clearances

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

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

Sr. No.	Clearances	Present Status
1	Environment clearance	Not Required
2	Forest Clearance	Not Required
3	Wildlife Approval	Not Required

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

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

2. [Rehabilitation and augmentation]

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

3. Specifications and Standards

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

(Schedule-B)

Description of [Four-Laning]

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for [Four Laning of Highways (IRC:SP:84-2014& 2019)], referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]

1. Widening of the Existing Highway

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

(ii) Width of Carriageway

(a) Four-Laning [with] paved shoulders shall be undertaken. The paved carriageway shall be [7(seven)x2m] wide in accordance with the typical cross sections drawings in the Manual.

Provided that in the built-up areas [refer to paragraphs 2.1 (ii) (a) of the Manual and provide necessary details]: the width of the carriageway shall be as specified in the following table:

Sl. No.	Built-up stretch (Township)	Location	Width (m)	Typical Cross Section (Refer to Manual)
		Nil		

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

2. Geometric Design and General Features

(i) General

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

(ii) Design speed

The design speed shall be the minimum design speed of [80 km per hr for plain/rolling terrain] and Rulling design speed of [100 km per hr for plain/ rolling terrain]

(iii) Improvement of the existing road geometrics

[Refer to paragraph 2.1 (v) of the Manual and provide details]

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
1	49.850km to 50.200km	Existing Curve Radius=20m	Proposed Curve Radius (Straight Alignment)
2	53.100km to 53.250km	Existing Curve Radius=150m	Proposed Curve Radius=250m
3	53.900km to 54.050km	Existing Curve Radius=200m	Proposed Curve Radius=250m
4	54.100km to 54.250km	Existing Curve Radius=200m	Proposed Curve Radius=250m

(iv) Right of Way

[Refer to provision of relevant Manual].Details of the Right of Way are given in Annex-II of Schedule-A.

v) Type of shoulders

[Refer to paragraph 2.5.2 of the Manual and specify]

(a) In VUP locations. Drain cum footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from Km to Km)	Fully Paved shoulders/ footpaths	Reference to cross section
1	Km 49.470 to km 50.445	2 X 1.5 m Paved Shoulder/ 2 X 1.5m width Drain Cum Footpath	TCS-6A
2	Km 67.220 to km 67.556	2 X 1.5 m Paved Shoulder/ 2 X 1.5m width Drain Cum Footpath	

(b) In open country, [paved shoulders of 2.5 m width shall be provided and balance 1.5m width shall be covered with 150 mm thick compacted layer of granular material].

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

Design and specifications of paved shoulders and granular material shall

conform to the requirements specified in the relevant Manual.

(vi) Lateral and vertical clearances at underpasses

(a) Lateral and vertical clearance at underpasses and provision of guard rails/crash barriers shall be as per requirements specified in the relevant Manual.

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

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

(vii) Lateral and vertical clearances at overpasses

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

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

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

(viii) Service roads

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

Sl. No.	Location of service road (from km to km)	Right hand side(RHS)/Left hand side(LHS)/or Both sides	Length (km) of service road
1	Km 49.470 to km 50.445	Both sides	975
2	Km 67.220 to km 67.556	Both sides	336
3	For Clover leaf sections	Single side	1025

(ix) Grade separated structures

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

[Refer to requirements specified in the relevant Manual]

Sl. No.	Location of Structure (VUP)	Length(m)	Number and length of spans (m)	Approach gradient	Remarks
1	67.556	60	2 x 30m	2.50%	PSC T Girder

(b) In the case of grade separated structures the type of structure and the level of the

Project Highway and the cross roads shall be as follows:[Refer to provision of the Manual and specify the type of vehicular underpass/ overpass structure and whether the cross road is to be carried at the existing Level. Raised or lowered]

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

(x) Cattle and pedestrian underpass /overpass

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

Sl.No.	Location	Type of crossing
Nil		

(xi) Typical cross-sections of the Project Highway

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

Sl. No.	Description	Length (m)
TCS-1A	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA ECCENTRIC WIDENING AND OVERLAY OVER EXISTING PAVEMENT	2240
TCS-1B/1G/1H	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN RURAL AREA (RECONSTRUCTION OVER EXISTING PAVEMENT WITH PARTIAL GRANULAR LAYER SCARIFICATION))	7685
TCS-2	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN BYPASS STRETCH	6090
TCS-6A	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN VUP/ROB APPROACHES WITH BOTH SIDE SERVICE ROAD IN BUILT UP/ RURAL AREA FOLLOWS EXISTING 2-LANE ROAD (CONCENTRIC WIDENING))	1751
TCS-6B	TYPICAL CROSS SECTION OF 4 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN VUP/ROB APPROACHES WITHOUT BOTH SIDE SERVICE ROAD IN BUILT UP/ RURAL AREA FOLLOWS EXISTING 2-LANE ROAD (CONCENTRIC WIDENING))	1135
	Total Length (4-Lane Portion)=	18901
From Clover Leaf to Approaches of New Jogighopa Bridge, 2 lane Portion		
TCS-7	TYPICAL CROSS SECTION OF 2 LANE DIVIDED CARRIAGEWAY WITH PAVED SHOULDER IN VUP/ROB APPROACHES WITHOUT BOTH SIDE SERVICE ROAD IN BUILT UP/ RURAL AREA FOLLOWS EXISTING 2-LANE ROAD (CONCENTRIC WIDENING))	438
TCS-8	TYPICAL CROSS SECTION OF 2 -LANE CARRIAGEWAY WITH PAVED SHOULDER IN HIGH EMBANKMENT BRIDGE APPROACH	633
	Total Length=	1071

Chainage (m)		Length (m)	TCS no.
From	To.		
48655	49093	438	TCS 6A
49093	49468	375	TCS 1G
49468	50443	975	TCS 6A
50443	54043	3600	TCS 1B
54043	55063	1020	TCS 1G
55063	56268	1205	TCS 1A
56268	56443	175	TCS 1B
56443	56993	550	TCS 1H
56993	57308	315	TCS 1B
57308	58343	1035	TCS 1A
58343	59993	1650	TCS 1B
59993	64243	4250	TCS 2
64243	65378	1135	TCS 6B
65378	67218	1840	TCS 2
67218	67556	338	TCS 6A
Total Length (4-Lane Portion)=		18901	
From Clover Leaf to Approaches of New Jogighopa Bridge, 2 lane Portion			
0	438	438	TCS 7
438	1071	633	TCS 8
Total Length=		1071	

4. Intersections and Grade Separators

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

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

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

- (i) At-grade intersections

Major Intersections

Sl. No.	Location of intersection (Km)	Type of intersection	Other features
1	Chalantapara (Ch.60.000km)	3-legged	Junction with NH-17

Minor Intersections

Sl. No.	Location		Type	
	From km	To km	T-Junction	Cross Road
1	49.390		Y	Leads to Bolgola(LHS) , Salmara(RHS)
2	49.850		Y	Leads to AbhayPuri
3	50.200		Y	Leads to AbhayPuri
4	50.650		Y	Leads to Tahabildarpara
5	51.145		Y	Leads to Sarkarpara
6	51.200		Y	Leads to Deohati
7	51.500		Y	Leads to Jamadarpara
8	52.050		Y	Leads to kalitapara
9	53.410		Y	Leads to Soutaki
10	54.730		Y	Leads to singimari
11	54.900		Y	Leads to singimari
12	55.470		Y	Leads to singimari
13	57.680		Y	Leads to Kerakha bari (LHS),Nohagaon (RHS)
14	59.740		Y	Leads to Simlaguri
15	62.880		Y	Leads to Balapara (LHS) ,Chalantapara (RHS)

(ii) Grade separated intersection with/without ramps

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

4. Road Embankment and Cut Section

- (i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.
- (ii) Raising of the existing road [Refer to provision of the relevant Manual and specify sections to be raised]

The existing road shall be raised in the following sections:

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

5. Pavement Design

- (i) Pavement design shall be carried out for a design life of 20 years considering 33 MSA.

(ii) Type of pavement

[Refer to the provision of relevant Manual and state specific requirement, if any, of providing cement concrete pavement.]

Flexible pavement shall be designed as per IRC : 37-2018(Fourth Revision)and the details given below

<u>For Overlay</u> BC-40mm DBM-50mm DBM(Profile Corrective Course)- 50mm Total -140 mm	<u>For New Construction/Widening/RE Wall portion</u> BC -40 mm DBM -60 mm WMM - 100 mm CT Base-100 mm CT Sub-Base- 200 mm Total -500 mm
<u>For Existing Reconstruction</u> BC -40 mm DBM -60 mm RAP-110 mm GSB-300mm Total -510 mm	<u>For Existing Reconstruction</u> BC -40 mm DBM -100 mm WMM I - 125 mm WMM II - 125 mm GSB- 200 mm Total - 590 mm

(iii) Design requirements

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

(a) Design Period and strategy

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

(b) Design Traffic

Notwithstanding any thing to the contrary contained in this Agreement or the Manual. The Contractor shall design the pavement for design traffic of 33 million standard axles.

(iv) Reconstruction of stretches

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

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

SL NO.	Stretch from Km to Km	TCS Type
1	49.205km to 49.470km	TCS 1G
2	50.445km to 54.045km	TCS 1B
3	54.045km to 55.065km	TCS 1G
4	56.270km to 56.445km	TCS 1B
5	56.445km to 56.995km	TCS 1H
6	56.995km to 57.310km	TCS 1B
7	58.345km to 59.995km	TCS 1B

6. Roadside Drainage

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

RCC Cover drain has been proposed in built up area for the Project Highway has been provided in the table given below:

RCC Covered Drain

Chainage (m)		Side	Length (m)
From	To		
49470	50445	Both	1950
67220	67556	Both	672
For Clover leaf sections		one	1025
Total length=			3647 m

7. Design of Structures

(i) General

- (a) All bridges culverts and structures shall be designed and constructed in accordance with provision of the relevant Manual and shall conform to the cross-sectional features and other details specified therein.
- (b) Width of the carriageway of new bridges and structures shall be as follows:

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

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
1	49.236	Carriageway Width = 9.5 m
2	51.819	
3	54.332	
4	56.461	
5	56.985	
6	60.315	

Sl. No.	Bridge/Structure at km	Width of carriageway and cross-sectional features
7	60.930	Carriageway Width = 9.5 m
8	62.041	
9	64.159	
10	67.046	

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

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

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

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

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

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

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

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

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

(iii) Culverts

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

(b) Reconstruction of existing culverts:

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

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

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

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

(c) Widening of existing culverts:

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

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

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

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
1	49.399	1 X 2.0 X 2.0	Single Cell
2	50.465	1 X 2.0 X 3.0	Single Cell
3	50.793	1 X 2.0 X 2.0	Single Cell
4	51.094	1 X 2.0 X 3.0	Single Cell
5	51.394	1 X 2.0 X 2.0	Single Cell
6	51.633	1 X 2.0 X 3.0	Single Cell
7	52.063	1 X 2.0 X 2.0	Single Cell
8	52.293	1 X 2.0 X 2.0	Single Cell
9	52.493	1 X 2.0 X 2.0	Single Cell
10	57.9349	1 X 2.0 X 2.0	Single Cell
11	52.993	1 X 2.0 X 2.0	Single Cell
12	53.294	1 X 2.0 X 2.0	Single Cell
13	53.460	1 X 2.0 X 2.0	Single Cell
14	53.643	1 X 2.0 X 3.0	Single Cell
15	54.022	1 X 2.0 X 2.0	Single Cell
16	54.633	1 X 2.0 X 2.0	Single Cell
17	54.843	1 X 2.0 X 2.0	Single Cell
18	55.191	1 X 2.0 X 2.0	Single Cell
19	55.429	1 X 2.0 X 2.0	Single Cell
20	55.693	1 X 2.0 X 2.0	Single Cell
21	55.893	1 X 2.0 X 2.0_EC	Single Cell
22	56.317	1 X 2.0 X 3.0	Single Cell
23	56.715	1 X 2.0 X 2.0	Single Cell
24	57.193	1 X 2.0 X 3.0	Single Cell
25	57.257	1 X 2.0 X 2.0	Single Cell
26	57.571	1 X 2.0 X 2.0	Single Cell
27	57.861	1 X 2.0 X 3.0	Single Cell
28	58.061	1 X 2.0 X 3.0	Single Cell
29	58.143	1 X 2.0 X 3.0	Single Cell
30	58.193	1 X 2.0 X 3.0	Single Cell
31	58.318	1 X 2.0 X 3.0	Single Cell

Sl. No.	Culvert Location	Span /Opening (m)	Remarks*
32	58.443	1 X 2.0 X 2.0	Single Cell
33	58.693	1 X 2.0 X 3.0	Single Cell
34	58.943	1 X 2.0 X 2.0_EC	Single Cell
35	59.193	1 X 2.0 X 2.0_EC	Single Cell
36	59.343	1 X 2.0 X 2.0_EC	Single Cell
37	59.593	1 X 2.0 X 2.0_EC	Single Cell
38	59.763	1 X 2.0 X 2.0_EC	Single Cell
39	59.943	1 X 2.0 X 2.0_EC	Single Cell
40	60.118	1 X 2.0 X 2.0_EC	Single Cell
41	60.493	1 X 2.0 X 2.0_EC	Single Cell
42	60.629	1 X 2.0 X 3.0	Single Cell
43	60.744	1 X 2.0 X 2.0_EC	Single Cell
44	61.143	1 X 2.0 X 2.0_EC	Single Cell
45	61.267	1 X 2.0 X 3.0	Single Cell
46	61.463	1 X 2.0 X 2.0_EC	Single Cell
47	61.679	1 X 2.0 X 3.0	Single Cell
48	61.823	1 X 2.0 X 2.0_EC	Single Cell
49	62.283	1 X 2.0 X 2.0_EC	Single Cell
50	62.458	1 X 2.0 X 2.0_EC	Single Cell
51	62.658	1 X 2.0 X 3.0_EC	Single Cell
52	63.143	1 X 2.0 X 2.0_EC	Single Cell
53	63.288	1 X 2.0 X 3.0_EC	Single Cell
54	63.443	1 X 2.0 X 2.0_EC	Single Cell
55	63.593	1 X 2.0 X 3.0_EC	Single Cell
56	63.743	1 X 2.0 X 3.0_EC	Single Cell
57	63.943	1 X 2.0 X 2.0_EC	Single Cell
58	64.236	1 X 2.0 X 2.0_EC	Single Cell
59	65.383	1 X 2.0 X 2.0_EC	Single Cell
60	65.643	1 X 2.0 X 2.0_EC	Single Cell
61	65.863	1 X 2.0 X 2.0_EC	Single Cell
62	66.033	1 X 2.0 X 2.0_EC	Single Cell
63	66.418	1 X 2.0 X 2.0_EC	Single Cell
64	66.618	1 X 2.0 X 2.0_EC	Single Cell
65	67.193	1 X 2.0 X 2.0_EC	Single Cell
66	67.993	1 X 2.0 X 2.0_EC	Single Cell

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

[Refer provision of the relevant Manual and provide details]

Sl.No.	Location atkm	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]

[Refer provision of the relevant Manual and provide details]

Sl. No.	Bridge location	Salient details of existing bridge		Adequacy or otherwise of the existing waterway, vertical clearance etc.*	Remarks
	(km)	Type of Structures	Span Arrangement and Total Vent way (No. x Length) (m)		
1	49.236	RCC Box	3 x 8 x 4	-	Follow Existing

*Attach GAD

(ii) The following narrow bridges shall be widened:

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

@ Attach cross-section

(b) Additional new bridges

[Specify additional new bridge sif required. And attach GAD]

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

Sl. No.	Location (km)	Total Length (m)	Remarks. If any
1	51.819	3 x 8.8 x 4	Additional 2 Lane
2	54.332	(13+13.5+13)m	Additional 2 Lane
3	56.461	1 x 21m	Additional 2 Lane
4	56.985	1 x 24m	Additional 2 Lane
5	60+315	3 x 18m	New Construction
6	60+930	3 x 18m	New Construction
7	64+159	1 x 40m	New Construction
8	67+046	3 x 18m	New Construction

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

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

Sl.No.	Location at km	Remarks
Nil		

- (d) Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

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

Sl.No.	Location at km	Remarks
Nil		

- (e) Drainage system for bridge decks

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

- (f) Structures in marine environment

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

- (iv) Rail-road bridges

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

- (b) Road over-bridges

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

Sl. No.	Location of Level crossing (Chainage km)	Length of bridge (m)
1	49.989	(1 x 24+24+3X36+24+3 x 24)
2	64.763	(7x 24+3 x 36+12 x 24+1 x 18)

(c) Road under-bridges

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

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

(v) Grade separated structures

[Refer provision of the relevant Manual]

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2(ix) and 3 of this Annex-I.

(vi) Repairs and strengthening of bridges and structures

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

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

(a) Bridges

Sl. No.	Location of bridge (km)	Nature and extent of repairs /strengthening to be carried out
1	51.819	Painting on Concrete surface.
2	54.332	
3	56.461	
4	56.985	

(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
Nil		

(vii) List of Major Bridges and Structures

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

Sl.	Location (Km)	Total Length (m)	Remarks
1	62.041	2 x 30m	New construction

8. Traffic Control Devices and Road Safety Works

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

SI No	Traffic Signages, Road Marking and other appurtenances	unit	Quantity
1	Right Hand Side Curve (900 mm Triangular)	Nos.	14
2	Left Hand Side Curve (900 mm Triangular)	Nos.	12
3	School (900 mm Triangular)	Nos.	4
4	Side road left (900 mm Triangular)	Nos.	18
5	Side road right (900 mm Triangular)	Nos.	4
6	Cross Road(900 mm Triangular)	Nos.	10
7	Bus Stop (800x600 rectangular)	Nos.	8
8	Place/ City identification (Direction Sign < 0.9 sqm)	Nos.	21
9	Stop Sign (900 mm Octagonal)	Nos.	24
10	Horn prohibited (600mm Circular)	Nos.	4
11	Hazard Marker (900x300 mm rectangular) (one way)	Nos.	316
12	Object Marker (900x300 mm rectangular) (one way)	Nos.	8
13	Pedestrian Crossing (900 mm Triangular)	Nos.	18
14	Pavement marking	Sqm	13800
15	Road Delineators	no	308
16	Road Studs	no	1188
17	W-Beam Crash Barrier	Rm	15158.24

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

9. Road side Furniture

- (i) Roadside furniture shall be provided in accordance with the provision of relevant Manual.

- (ii) Overhead traffic signs: location and size

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

Sl. No.	Location (Km)	Size
NIL		

10. Compulsory Afforestation

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

11. Hazard Location

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

a) Toe wall

Location		Side	Length (km)
From(km)	To(km)		
56.825	57.145	LHS	0.32
58.72	58.845	LHS	0.125
59.12	59.345	LHS	0.225
60.175	60.285	LHS	0.11
61.845	62.015	LHS	0.17
62.015	62.195	RHS	0.18
62.245	62.47	RHS	0.225
62.575	62.635	LHS	0.06
62.945	63.17	Both	0.45
63.845	63.945	LHS	0.1
Total Length			1.965

b) Reinforced Earth wall

Location		Length (km)
From(km)	To(km)	
49.470	50.445	0.975
67.220	67.556	0.336
64.245	65.380	1.135
0.000	0.438	0.438
Trumpet Location=		0.553
Total length=		3.437

c) Retaining wall

Location		Side	Length (km)
From(km)	To(km)		
55.840	55.985	RHS	0.145
61.845	62.015	RHS	0.170
62.015	62.195	LHS	0.180
62.635	62.845	LHS	0.210
63.170	63.845	Both	1.350
66.970	67.095	Both	0.250
Total Length			2.305

d) Length of Chute Drain=1365m

e) Ground Improvement by Sand Piling for high embankment portion(From Clover leaf to approaches of new Jogighopa Bridge)

Chainage(km)	Length(km)
--------------	------------

from	to	
0	0.3	0.3
0.625	1.171	0.546
Total Length=		0.846

12. Special Requirement for Hill Roads

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

13. Change of Scope

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

(Schedule B-1)

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

S.No	Description	Unit	Nos.
1	Electric Post	Nos.	138
2	Lamp post	Nos.	1
3	11KV Post	Nos.	71
4	33KV Post	Nos.	13
5	220V	Nos.	9
6	Transformer	Nos.	4
7	Tube Wall	Nos.	7
8	OFC	mtr	22098

Schedule - C

(See Clause 2.1)

Project Facilities

1. Project Facilities

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

- (a) Toll plaza[s]
- (b) Roadside furniture;
- (c) Pedestrian facilities;
- (d) Tree plantation;
- (e) Truck Lay byes;
- (f) Bus-bays and passenger shelters;
- (g) Rest areas; and
- (h) Others to be specified

2. Description of Project Facilities

Each of the Project Facilities is described below:

a) Toll Plaza :-

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

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.

b) Road side furniture:-

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

c) Pedestrian Facility:-

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

d) Truck Lay bye: -

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

e) Bus Bay with Passenger shelter: -

Sl. No.	Project Facility	Location (km)	Name of the Place
1	Bus bay with Passenger shelter	57.175(Both Side)	Kerakha Bari
2	Bus bay with Passenger shelter	65.525(Both Side)	Kayapatty

f) Rest Areas

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

g) Roadside Amenities

Nil

h) Others to be specified

Street Lighting:

Total 185 Nos. Street lighting shall be provided in junction, Bus Bay, Bridge approaches & VUP locations.

Utility Duct:

Utility duct has been proposed at Median center and both edge of the carriageway.

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

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

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

2. Design Standards

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

[Manual of Specifications and Standards for Four Lanning of Highways (IRC: SP: 84-2014), referred to herein as the Manual]

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

Annex – I

(Schedule-D)

Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for [Four-Lanning of Highways (IRC:SP:84-2014)], 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:]

Schedule-H

(See Clauses 10.1(iv) and 19.3)

Contract Price Weightages

- 1.1 The Contract Price for this Agreement is Rs. ****
- 1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road Works including Culverts, widening and repair of culverts	35.91 %	A- Widening and strengthening of existing road	
		(1) Earthwork up to top of the sub- grade	3.95%
		(2) Sub-base Course	11.12%
		(3) Non bituminous Base course	5.3%
		(4) Bituminous Basecourse	8.44%
		(5) Wearing Coat	5.55%
		(6) Widening and repair of culverts	[Nil]
		B.1-Reconstruction/New 2-Lane Realignment /Bypass(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	17.33%
		(2) Sub-base Course	9.89%
		(3) Non bituminous Base course	5.44%
		(4) Bituminous Basecourse	5.82%
		(5) Wearing Coat	4.1%
		B.2-Reconstruction/New 8-Lane Realignment/ Bypass(Rigid Pavement)	
		(1) Earthwork up to top of the sub- grade	[Nil]
		(2) Sub-base Course	[Nil]
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		C.1-Reconstruction/ New Service Road(Flexible Pavement)	
		(1) Earthwork up to top of the sub- grade	0.3%
		(2) Sub-base Course	1.4%
		(3) Non bituminous Base course	1.09%
		(4) Bituminous Basecourse	0.73%
(5) Wearing Coat	0.8%		
C.2- Reconstruction/New Service road(Rigid Pavement)			
(1) Earthwork up to top of the sub- grade	[Nil]		
(2) Sub-base Course	[Nil]		

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 52.470km to Ch.71.500 km (DesignCh.48.655km to Ch.67.556km) of Tulungia- Jogighopa Bridge Approach Section (Package-5) of Bilasipura- Guwahati road (NH 17) in the state of Assam on EPC mode

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(3) DryLean Concrete (DLC) Course	[Nil]
		(4) Pavement Quality Control (PQC) Course	[Nil]
		D- Reconstruction & New Culverts on existing road, realignments, bypasses Culverts (length <6m)	18.74%
Minorbridge/ Underpasses/ Overpasses	14.41 %	A.1-widening and repairing of Minor Bridges (length >6 m & <60m)	
		Minor Bridges	0.01%
		A.2- New Minor bridges (length >6 mand <60m)	
		(1) Foundation : On completion of the foundation work .	44.27%
		(2)Sub-Structure: On completion of the Sub structure work	18.59%
		(3) Super-structure: On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road, signs & markings, tests on completion etc. complete in all respect.	21.38%
		(4)Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	2.34%
		(5) Guide Bunds and River Training Works: On completion of Guide Bunds and river training works complete in all respects	[Nil]
		B.1- Widening and repairs of underpasses/overpasses	
		Underpasses/ Overpasses	[Nil]
B.2-New Underpasses/Overpasses			
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	8.48%		

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 52.470km to Ch.71.500 km (DesignCh.48.655km to Ch.67.556km) of Tulungia- Jogighopa Bridge Approach Section (Package-5) of Bilaspura- Guwahati road (NH 17) in the state of Assam on EPC mode

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	4.93%
		(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]
Major bridge(length>60 m)worksand ROB/RUB/elevatedsections/flyovers including viaducts,ifany	30.74 %	A.1- Wideningand repairs of Major Bridges	
		(1)Foundation	[Nil]
		(2)Sub-structure	[Nil]
		(3)Super-structure(including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/return walls	[Nil]
		(7)Guidebunds,RiverTraining works etc.	[Nil]
		(8)Approaches(including Retaining walls, stone pitchingandprotection works)	[Nil]
		A.2-New MajorBridges	
		(1)Foundation	4.9%
		(2)Sub-structure	1.76%
		(3)Super-structure(including bearings)	2.78%
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.01%
		(6) Wing walls/return walls	[Nil]
		(7)Guide bunds,River Training works etc.	[Nil]
(8)Approaches(including Retaining walls, stone pitching and protection works)	0.24%		
B.1-Wideningandrepairsof (a) ROB			

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 52.470km to Ch.71.500 km (DesignCh.48.655km to Ch.67.556km) of Tulungia- Jogighopa Bridge Approach Section (Package-5) of Bilaspura- Guwahati road (NH 17) in the state of Assam on EPC mode

Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(b) RUB	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3) Super-Structure (Including bearings)	[Nil]
		(4)Wearing Coat(a)in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainagefacility completein all respects as specified	[Nil]
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7) Approaches (Including Retaining walls,Stone Pitching and protection works)	[Nil]
		B.2-New ROB/RUB	
		(1)Foundations	34.35%
		(2) Sub-Structure	14.33%
		(3) Super-Structure (Including bearings)	39.5%
		(4)Wearing Coat (a) in case of ROB-wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	2.13%
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.1- Widening and repair of Elevated Section/Flyovers/Grade Separators	
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
		C.2- New Elevated Section/Flyovers/Grade Separators	

Widening/Improvement to 4 (Four) Lane with Paved Shoulder from Ch. 52.470km to Ch.71.500 km
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Item	Weightage in percentage to the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
		(1) Foundations	[Nil]
		(2) Sub-Structure	[Nil]
		(3)Super-Structure(Including bearings)	[Nil]
		(4)Wearing Coat including expansion joints	[Nil]
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	[Nil]
		(6) Wing walls/Return walls	[Nil]
		(7)Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]
Other Works	18.94 %	(i) Toll Plaza	[Nil]
		(ii) Road side drains	6.83%
		(iii) Road signs,markings,km stones,safety devices etc	9.84%
		(iv) Project facilities	
		a) Bus Bays	1.57%
		b) Truck Lay-byes	[Nil]
		c) Passenger Shelter	0.11%
		d) Rest Area	[Nil]
		e) Road Side Aminities	[Nil]
		f) Street Light	0.68%
		g) Utility Duct	5.57%
		(v) Road side Plantation	[Nil]
		(vi) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/ RUBs	[Nil]
		(vii) Safety &Traffic Management during const.	[Nil]
		(viii) Junction	
		(ix) Toe Wall	2.53%
		(x) Retaining Wall	4.91%
		(xi) Boundarywall	[Nil]
		(xii) Site Clearance & Dismanteling	1.38%
		(xiii) Reinforced Earth Wall	53.6%
		(xiv) Junction	1.7%
		(xv) Seeding & Mulching	1.92%
		(xvi) Chute Drain	0.49%
		(xvii) Ground Improvement Works (Sand Pile)	8.87%

1.3 Procedure of estimating the value of work done

1.3.1 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	3.95%	Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 5 (five) percent of the total length.
(2) Sub-base Course	11.12%	
(3) Non bituminous Base course	5.3%	
(4) Bituminous Base course	8.44%	
(5) Wearing Coat	5.55%	
(6) Widening and repair of culverts	[Nil]	Cost of ten completed culverts shall be determined on pro rata basis with respect to the total number of culverts.
B.1- Reconstruction/New 2-Lane Realignment/Bypass (Flexible Pavement)		
(1) Earthwork up to top of the sub-grade	17.33%	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 1 (one) km length, whichever is less.
(2) Sub-base Course	9.89%	
(3) Non bituminous Base course	5.44%	
(4) Bituminous Base course	5.82%	
(5) Wearing Coat	4.1%	
B.2- Reconstruction/New 8-Lane Realignment/Bypass (Rigid Pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	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.
(2) Sub-base Course	[Nil]	
(3) Dry Lean Concrete (DLC) Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
C.1- Reconstruction/New Service Road/ Slip Road (Flexible Pavement)		
(1) Earthwork up to top of the sub-grade	0.3%	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 1 (one) km length, whichever is less.
(2) Sub-base Course	1.4%	
(3) Non bituminous Base course	1.09%	
(4) Bituminous Base course	0.73%	
(5) Wearing Coat	0.8%	
C.2- Reconstruction/New Service road (Rigid Pavement)		
(1) Earthwork up to top of the sub-grade	[Nil]	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 1 (one) km length, whichever is less.
(2) Sub-base Course	[Nil]	

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Stage of Payment	Percentage weightage	Payment Procedure
(3) DryLean Concrete (DLC)Course	[Nil]	
(4) Pavement Quality Control (PQC) Course	[Nil]	
D- Reconstruction & New Culverts on existingroad,realignments,bypasses		Cost of each culverts shall be determined on pro rata basis with respect to the total number of culverts.
Culverts (length <6m)	18.74%	Payment shall be made on the completion of at least one culvert.

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

$$\text{Cost per km} = P \times \text{weightage for road work} \times \text{weightage for bituminous work} \times (1/L)$$

Where,

$$P = \text{Contract Price}$$

Price

$$L = \text{Total length in km}$$

Similarly, the rates perkm for otherstages shallbe worked out accordingly.

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

1.3.2 Minor Bridges and Underpasses/ Overpasses.

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

Table 1.3.2

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1-Widening and repairs of Minor Bridges(length>6m<60 m)	0.01%	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)		

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Stage of Payment	Weightage	Payment Procedure
1	2	3
(1)Foundation: On completion of the foundation work .	44.27%	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 the Sub structure work	18.59%	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.
(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road,signs & markings, tests on completion etc. complete in all respect.	21.38%	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3)Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all and fit for use	2.34%	Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.
(4) Guide Bunds and River Training Works:On completion of Guide Bunds andriver training works complete in all respects	[Nil]	Guide Bunds and River Training Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of Guide Bund and River training Works in all respects as specified
B.1- Widening and repairs of underpasses/overpasses	[Nil]	Cost of each underpass/overpass shall be determined on pro rata basis with respect to the total linear length of the underpasses/ overpasses. Payment shall be made on the completion of widening & repairworks of a underpass/overpass.
B.2- New Underpasses/Overpasses		

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Stage of Payment	Weightage	Payment Procedure
1	2	3
(1)Foundation + Sub-Structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	8.48%	Foundation: Cost of eachUnderpass/ 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. Incase where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(2)Super-structure:On completion of the super-structure in all respects including wearing coat, bearings, expansion joints, hand rails,crash barriers, road signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass-wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass-rigid pavement including drainage facility complete in all respects as specified.	4.93%	Super-structure:Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure of at least one span in all respects as specified in the column of "StageofPayment" in this sub-clause.In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(3) Approaches: On completion of approaches including Retaining walls/ Reinforced Earth walls, stone pitching, protection works complete in all respect and fit for use.	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

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

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Stage of Payment	Weightage	Payment Procedure
(8) Approaches (including Retaining walls, stone pitching and protection works)	[Nil]	Approaches: Payments shall be made on pro rata basis on completion of 10% of the scope of each stage.
A.2-New Major Bridges		
(1) Foundation	4.9%	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	1.76%	Sub-structure: Payment against sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of sub-structure of major bridge.
(3) Super-structure (including bearings)	2.78%	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4) Wearing Coat including expansion joints	[Nil]	Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.01%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road marking etc. complete in all respects as specified.
(6) Wing walls/return walls	[Nil]	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.	[Nil]	Guide Bunds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.
(8) Approaches (including Retaining walls, stone pitching and protection works)	0.24%	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		

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

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Stage of Payment	Weightage	Payment Procedure
B.2-New ROB/RUB		
(1) Foundation	34.35%	Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m)oftheROB/RUB.Payment against foundation shall be made on pro-rata basis on completion of a stage i.e.not less than 25% of the scope of foundation of the ROB/RUB.
(2) Sub-structure	14.33%	Sub-structure:Payment against sub- structure shall be made on pro-rata basis on completion of a stagei.e. Not less than 25% of the scope of sub- structure of ROB/RUB.
(3) Super-structure (including bearing)	39.5%	Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e.completion of super- structure including bearings of at least one span in all respects as specified.In case of structures where pre-cast girders have been proposed by the Contractor,50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above
(4)Wearing Coat (a) in case of ROB- wearing coat including expansion joints complete in all respectsas specified and (b) incase of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified	[Nil]	Wearing Coat: Payment shall be made on completion(a) incase of ROB-wearing coat including expansio joints complete in all respects as specifiedand(b) In caseofRUB-rigid pavement under RUB including drainage facility complete in all respects as specified.
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	2.13%	Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crashbarriers,road markingsetc. completein all respects as specified.
(6) Wing walls/Return walls	[Nil]	Wingwalls/return walls:Payments shall be made on completion of all wing walls/returnwalls complete in all respects asspecified.
(7)Approaches (including Retaining walls /Reinforced Earth wall, stone pitching and protection works)	[Nil]	Payment shall be made on pro-rata basis on completion of a stage in all respects as specified
C.1-Wideningandrepairs of ElevatedSection/ Flyovers/Grade Separators		

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Stage of Payment	Weightage	Payment Procedure
(1) Foundations	[Nil]	<p>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.</p> <p>In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.</p>
(2) Sub-Structure	[Nil]	<p>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.</p>
(3) Super-Structure (Including bearings)	[Nil]	<p>Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super-structure including bearings of at least one span in all respects as specified. In case of structures where pre-cast girders have been proposed by the Contractor, 50% of the stage payment shall be due and payable on casting of girders for each span and balance 50% of the stage payment shall be made on completion of stage specified as above</p>
(4) Wearing Coat including expansion joints	[Nil]	<p>Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.</p>
(5) Miscellaneous Items like handrails, crash barrier, road markings etc.	[Nil]	<p>Miscellaneous: Payments shall be made on completion of all miscellaneous works like handrails, crash barriers, road markings etc. Complete in all respects as specified.</p>
(6) Wing walls/Return walls	[Nil]	<p>Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.</p>
(7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	[Nil]	<p>Payment shall be made on pro-rata basis on completion of a stage in all respects as specified</p>
C.2- New Elevated Section/ Flyovers/Grade Separators		

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

Note: (1) In case of 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.

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

1.3.4 Other works.

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

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
1	2	3
(1) Toll Plaza	[Nil]	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plaza.
(2) Road side drains	6.83%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five percent) of the total length.
(3) Road signs, markings, km stones, safety devices etc	9.84%	
(4) Project Facilities		
a) Bus Bays	1.57%	Payment shall be made on pro rata basis for completed facilities.
b) Truck Lay-byes	[Nil]	
c) Passenger Shelter	0.11%	
d) Rest Area	[Nil]	
e) Road Side Amenities	[Nil]	
f) Street Light	0.68%	
g) Utility Duct	5.57%	
(5) Retaining Wall	4.91%	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(6) Road side Plantation including Horticulture in Wayside Amenities	[Nil]	
(7) Repair of Protection Works other than approaches to the bridges, elevated sections/flyover/grade separators and ROBs/RUBs	[Nil]	
(8) Boundary wall	[Nil]	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length
(9) Safety and traffic management during construction	[Nil]	Payment shall be made on prorata basis every six months.
(10) Breast Wall	[Nil]	Unit of measurement is linear length. Payment shall be made

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Stage of Payment	Weightage	Payment Procedure
1	2	3
(11) Toe Wall	2.53%	on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(12) Site Clearance & Dismanteling	1.38%	Unit of measurement is linear length.Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(13) Reinforced Earth Wall	53.6%	Unit of measurement is linear length.Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(14) Junction	1.7%	Cost of each Junction shall be determined on pro rata basis with respect to the total number of junctions. Payment shall be made on the completion of at least five junctions.
(15) Seeding & Mulching	1.92%	Unit of measurement is linear length.Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(16) Ground Improvement Works (Sand Pile)g	8.87%	Unit of measurement is linear length.Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5% (five percent) of the total length.
(17) Chute Drain	0.49%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 5 % (five percent) of the total length.

2. Procedure for payment for Maintenance

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

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

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 189th 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 324th day from the Appointed Date (the "**Project Milestone-II**").
- (ii) Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 35% (thirty five per cent) of the Contract Price and should have started construction of all bridges

4. Project Milestone-III

- (i) Project Milestone-III shall occur on the date falling on the 459th 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 per cent) of the Contract Price and should have started construction of all project facilities.
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5. Scheduled Completion Date

- (i) The Scheduled Completion Date shall occur on the 540th 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.