

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.

(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 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 bridge project is proposed towards the RHS of the existing minor bridge. After successful commissioning of the new bridge, the existing bridge shall be dismantled and a new structure shall be constructed in its place at existing chainage 20+290 of NH-727 in Padrauna town. The land, carriageway and structures comprising the Site are described below

The design length of proposed road including bridge is 0.270 km.

2. Land

Existing Right of way of proposed flyover stretch is tabulated below: -

S. No.	Existing Chainage (km)		Length (m)	Total ROW (m)
	From	To		
1	20+170	20+205	35	20
2	20+205	20+245	40	23
3	20+245	20+270	25	27
4	20+270	20+315	45	24
5	20+315	20+345	30	25
6	20+345	20+405	60	25
7	20+405	20+440	35	25

3. Carriageway

The existing carriageway on bridge is 7.5m (two lane with footpath) and carriageway in road section is 10m.

4. Major Bridge- The Site includes the following Major Bridges:

Sl. No .	Existing Chainage (km)	Type of Structure			Span length (m)	Width (m)	Remarks (River / Nala Name)
		Founda tion	Sub- structure	Super Structure			
Nil							

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

The Site includes the following ROB (road over bridge)

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

6 Grade separators

The Site includes the following grade separators:

Sl. No.	Existing 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 bridge:

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

Sl. No.	Existing Chainage (km)	Type of Structure			Span length (m)	C'way Width (m)	Remarks
		Foundation	Sub-structure	Super Structure			
1	20+290	Raft	Brick wall type	RCC Slab type	1x12.5 + 3x8.5 + 1x14	7.5	Minor bridge

8 Railway level crossings / Railway Track

Sl. No.	Existing Chainage (km)	Remarks
Nil		

9 Underpasses (Vehicular, Non-Vehicular)

Sl. No.	Existing Chainage (km)	Type of Structure	No. of Spans with	Width (m)
Nil				

10 Culverts: The Site has the following culverts:

Sl. No.	Existing Chainage (Km)	Type of Structure (Pipe/Slab /Box /Arch)	Span (m)	Carriageway Width (m)
Nil				

11 Bus bays

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

Sl. No.	Existing Chainage (Km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

12 Truck Lay byes

The details of truck lay byes are as follows:

Sl. No.	Existing Chainage (Km)	Length (m)	Left Hand Side	Right Hand Side
Nil				

13 Road side drains

The details of the roadside drains are as follows:

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Sl. No.	Existing Chainage (Km)		Side	Type	
	From	To		Masonry/cc (Pucca)	Earthen (Kutcha)
Nil					

14 Major junctions

The details of major junctions are as follows

S. No	Location		At Grade	Separated	Category of Cross Road			
	Existing Ch.	Design Ch.			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:

Sr. No.	Existing Chainage (Km)	Type	Side	Remarks
1	20+270	+	BHS	Road parallel to canal
2	20+315	+	BHS	Road parallel to canal

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

16 Bypass

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

Sl. No.	Name of Bypass to town	Chainage (KM)		Length (in Km)
		From Km	To Km	
Nil				

17. Other structures / Details

The locations of other structure / Land Slide are as follows:

SL. No.	Existing Chainage (Km)		Design Chainage (m)		Length	Remarks
	From	To	From	To		
Nil						

1. 18. Details of Existing Utilities

Details of Existing Utilities are given below

(i) Electrical Utilities

The site includes the following electrical utilities: -

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

Sl No.	Design Chainage (Km)	Length (in Km)				Crossings			
		400 KV	220 KV	110 KV	66 KV	400 KV	220 KV	132 KV	110 KV
Nil									

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

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

Sl. No	Design Chainage (km)		Length (in m)				Crossings (no's)				Transformer		Side
	From	To	33 KV	22 KV	11 KV	LT	33 KV	22 KV	11 KV	LT	No	Capacity	
1.	20+180	20+270	90			90			01		03		BHS
2.	20+315	20+420	105			105			01				RHS

(ii) Public Health Utilities (Water/Sewage Pipe Lines)

(a) The site includes the following Public Health Utilities: -

Sl. No	Design Chainage (km)		Length along NH (in Km)				Falling in ROW				Side
	From	To	Water Supply line	Sewage line		Hand Pump		Sewage line			
				With Pumping	With Gravity	LHS	RHS	With Pumping	With Gravity		
Nil											

(iii) Broadband Network Utilities:

The site includes the following broadband network utilities: -

Sl. No	Design Chainage (km)		Length along NH (in m)		ROW Crossings (in km)		Side
	From	To	Cable	Pipe	Cable	Pipe	
1	20+170	20+440	270		Nil		Both

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

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(iv) Irrigation

Sl. No.	Design Chainage (km)	Capacity	District	Circle
1.	20+290	9469 cusec	Kushinagar	Gorakhpur

Annex-II

(Schedule-A)

Dates for providing Right of Way-

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

Sl. No.	From km To km	Length (Km)	Proposed Width (m)	Date of providing ROW*
1	2	3	4	5
(i) Full Right of Way (Full Width) (a) Stretch (b) Stretch (c) Stretch	From 20+170 to 20+440			On appointed date
(ii) Part Right of Way (Part Width) (a) Stretch (b) Stretch (c) Stretch				
(iii) Balance Right of Way (Width) (a) Stretch (b) Stretch (c) Stretch				

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

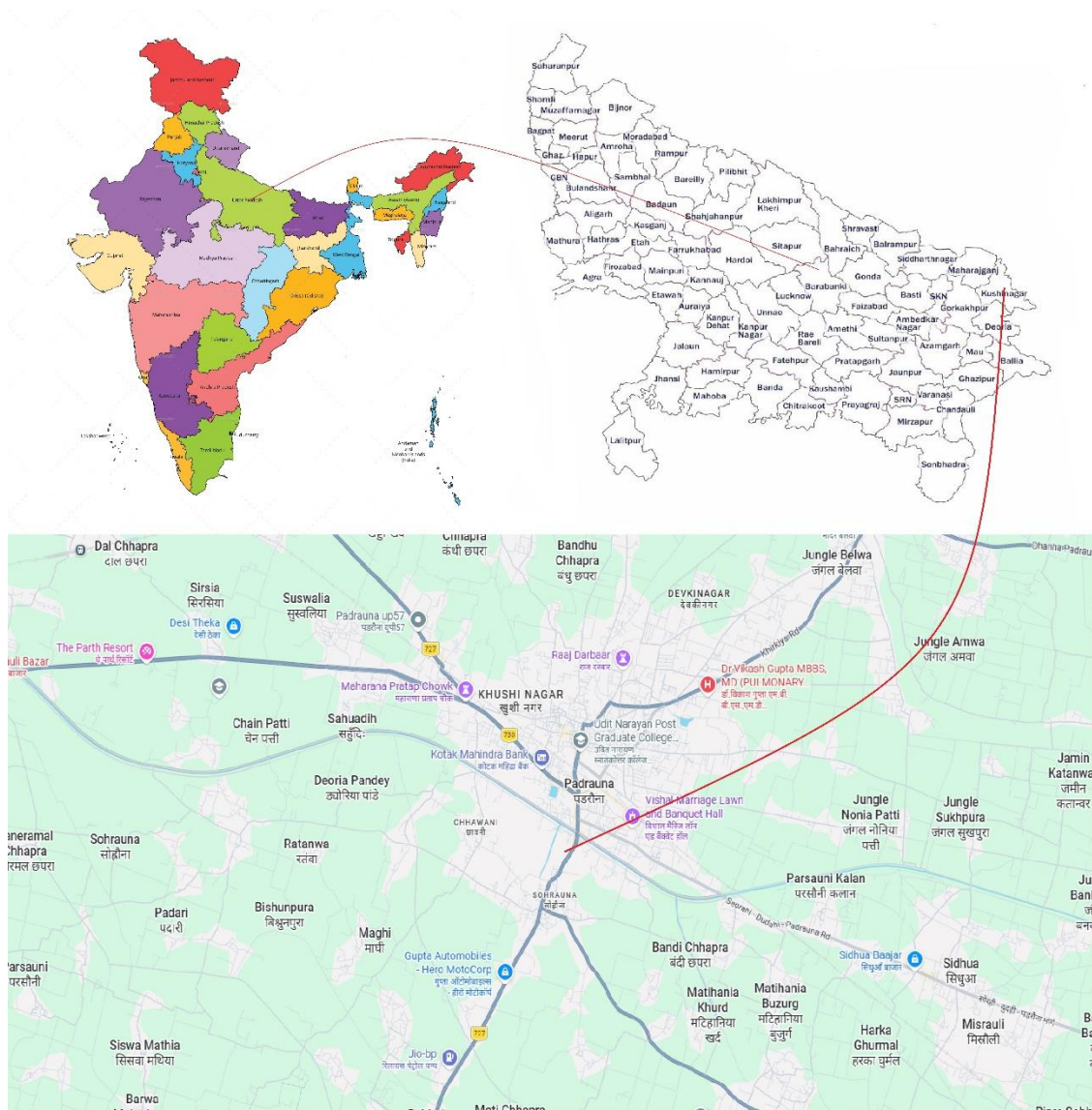
Annex - III

(Schedule-A)

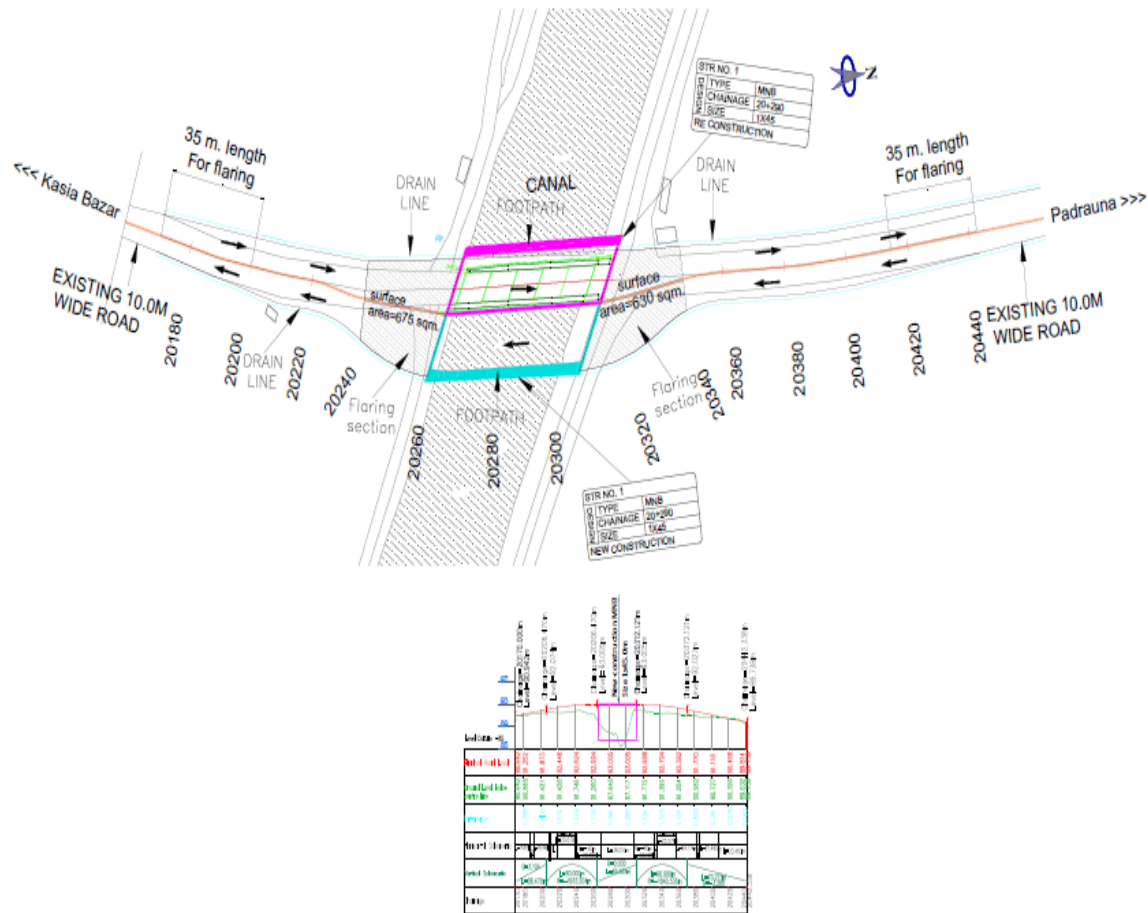
Alignment Plans

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

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



Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.



Annex - IV

(Schedule-A)

Environment Clearances

The project highway is less than 100 km length. Therefore, as per MOEF notification No.S.O.2559(E) dated 22.08.2013, environmental clearance is not required.

Annex - V

(Schedule-A)

Details of Existing Utility

Details of existing utilities have been provided in the clause 18 of Schedule-A.

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1. Development of the Project Highway

Development of the Project Highway shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C. The proposal is to construct a four lane bridge by construction of a new 2L bridge parallel to the existing bridge to ensure continuity of traffic through existing bridge (diversion) during the construction phase. Thereafter, the construction of the new bridge, the existing bridge will be dismantled and a new 2L bridge will be constructed in its place.

2. Rehabilitation and augmentation

The highway project shall include one new minor bridge at RHS of existing bridge and after successful commissioning of the new bridge, the existing bridge shall be dismantled and a new structure shall be constructed in its place at existing chainage 20+290 of NH-727 as described in Annex-I of this Schedule B and Annex-I of 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.

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**Annex-I
(Schedule-B)**

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

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 terrain to the extent ROW is available. The development of Project Highway *inter alia* involves construction of 4-lane divided carriageway along with approaches, as indicated in respective TCS. The structure shall be designed for loading as per latest IRC: 6 including Special Vehicle loading.

(i) Width of Carriageway

- a) Four Laning as per TCS shall be undertaken. The width of carriageway, paved shoulders, cross sectional elements shall be as per the Manual and the TCS drawings.

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

Sl. No.	Built-up Stretch (Township)	Location (Design Km)		Length	Carriageway width (m)	Typical Cross Section
		From	To	(m)		
1.	Padrauna Town	20+170	20+205	35	10 to 16.61 (Flaring Section)	1
2.		20+205	20+245	40	2x8	2
3.		20+245	20+270	25		2
4.		20+270	20+315	45		3
5.		20+315	20+345	30		2
6.		20+345	20+405	60		2
7.		20+405	20+440	35	10 to 16.61 (Flaring Section)	1

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

- b) Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall confirm to Manuals.

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 four-lane manual (IRC SP: 84- 2019).

(ii) Design speed

The design speed shall be in conformity with the specifications and standards specified in Schedule-D except in the stretch specified in 2 (iii) of schedule B.

(iii) Improvement of the existing road geometrics

- a) *In the following sections, where improvement of the existing road geometrics to the prescribed standard is not possible, the existing road geometrics shall be improved with Realignment to the extent possible within the given ROW and proper road signs and safety measures shall be provided.*

S. No.	From (km.)	To (km.)	Total length (km.)	Remarks
NIL				

b) Bypasses

S. No.	Design Chainage		Length (km)	Remarks
	Km	Km		
NIL				

(iv) Right of way

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

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(v) Type of shoulders

(a) In built-up sections, paved shoulder shall be provided in the following section as per TCS:

Sl. No.	Section		Length (m)	Paved shoulders Both Side (m)	References to Cross Section	Name of Village/ Town
	Design Km. From	Design Km. To				
Nil						Padrauna

(vi) Lateral and vertical clearances at underpasses

- a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.10 of the Manuals.
- b) Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl. No.	Location (Chainage) (km)	Span / Opening (m)	Vertical clearance (m) minimum	Remarks	Width (m)
NIL					

(vii) Lateral and vertical clearances at overpasses

2.6.1 Lateral and vertical clearances at over passes shall be as the provision of relevant Manuals.

2.6.2 Lateral clearance: The width of the opening at the overpasses shall be as follows:

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

(viii) Service roads / Slip roads

(a) The service/slip road shall be provided in continuous lengths on both sides along the Project Highway as per the cross-sectional elements shown in Typical Cross Sections in Appendix- BI. Service/Slip Roads of 7.0 m carriageway width with shyness of 0.5m width

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

Sl. No.	Location of Slip/Service Road (from km to km)		Right hand side (RHS)/Left hand side (LHS)/ or Both sides	Length of Service/Slip Road (m)	TCS Type	Remark
	From	To				
Nil						

(ix) Grade separated structures

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

Sl. No.	Location of structure (Design Chainage)	Number, length of spans & Vertical Clearance (m)	Remarks, If any
Nil			

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

Sl. No.	Location (Design Chainage)	Type of Structure Length (m)	Cross Road			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		

2.1 Typical cross-sections of the Project Highway

Project Highway shall be developed as per the Typical Cross Section indicated in **Appendix B-I**.

3. Intersection and grade Separators

All intersections and grade separated structures shall be as per provision of relevant Manuals. Existing Intersections which are deficient shall be improved to the prescribed standards. Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

(i) At-Grade Intersections (shall be designed as per relevant Manuals)

(a) Major junctions

Details of junctions are presented in Table below –

Sr. No.	Design Chainage (Km)	Type	Side	Type of Pavement	Destination	Development Proposal
Nil						

Note: Junction improvement shall be carried out as per IRC codes/ Manual under grade separators with proper entry/exit to cross roads and slip/service roads.

(b) Minor junctions

The details of the minor junctions are as follows:

Sr. No.	Design Chainage (Km)	Type	Side	Remarks
1.	20+270	+	BHS	Road parallel to canal
2.	20+315	+	BHS	Road parallel to canal

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Note:

(i) All junctions along the Project Highway shall be improved to NH standards. Junction improvement shall be carried out as per IRC codes

(ii) The cross road in junctions as mentioned above shall be provided with speed table at the approach of junctions with adequate traffic signage as per the Manual.

(ii) Grade separated intersections without ramps

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

The existing road shall be raised in the following sections:

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

5 Pavement Design

(i) Pavement design shall be carried out in accordance with **Section-5 of the Manuals** specified in Schedule-D.

(ii) Type of pavement

Flexible pavement shall be adopted for Project Highway.

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(iii) **Design requirements**

- a) **Design Period:** Flexible pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.
- b) **Design Traffic (minimum):**
Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for minimum design traffic of 20 MSA. In case the MSA is more than specified above at the time of traffic survey done by Contractor at the time of design of project highway, then the higher traffic will be adopted for design.
- c) The EPC contractor shall be allowed to use any of the available technology including conventional method for constructing the road. Further, the contractor may be allowed to use new/alternative material and technology in terms of Ministry circular no RW/NH-33044/18/2020- S&R (P&B) dated 14.12.2020, RW/NH-34049/01/2020- S&R (P&B) dated 30.08.2022, RW/NH-34049/01/2020- S&R(P&B) dated 22.02.2023 & adoption of value engineering practices in terms of Ministry circular no RW/NH-34049/01/2020- S&R (P&B) dated 20.09.2024.

(iv) **Widening & Re-construction of stretches**

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

Sl. No.	Design Chainage		Length (m)
	From	To	
1.	20+170	20+205	35
2.	20+205	20+245	40
3.	20+245	20+270	25
4.	20+315	20+345	30
5.	20+345	20+405	60

6.	20+405	20+440	35
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6 Road Side Drainage cum Footpath

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per provisions of the relevant Manual & TCS. Footpath cum Drain shall be provided along the length of the Project Highway on both sides as shown in Typical Cross Sections and as per detailed design of drainage system interconnecting all the drains with CD works for efficient function of drainage in the Project Highway. Details of location of Road side drains:

Sl. No.	Design Chainage		Length	Side	TCS	Remarks
	From (km)	To (km)				
1	20+170	20+205	35	BHS	TCS-1	RCC Drain Cum Footpath
2	20+205	20+270	65	BHS	TCS-2	
3	20+315	20+405	90	BHS	TCS-2	
4	20+405	20+440	35	BHS	TCS-1	

Note:

1. The drains indicated above shall be as per cross sections drawings enclosed and conforming to Manual. In all built up areas RCC drains cum Footpath shall be provided. Suitable crossing shall be provided at approaches to properties etc. invert levels of drains shall be decided on the basis of ground slopes of adjoining properties and open grounds. RCC cover over RCC drain shall be provided with locking arrangement in order to prevent cover from sliding into drain.

2. RCC covers on drains shall be designed for traffic load at the locations of access to properties.

3. The drains shall be taken up to nearest fall out as decided by the Authority.

7 Design of structures

(i) General

(a) All bridges, culverts and structures shall be designed and constructed in

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

accordance with section 7 of the Manuals 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.	Design Km	Width of carriage way (m) and Cross – Sectional feature
1.	20+290	As per TCS-3

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

Sl. No.	Location (km)	Remarks
1.	20+290	1.5m wide footpath shall be constructed on R.H.S of newly constructed bridge & 1.5m wide footpath shall be constructed on L.H.S of the reconstructed bridge along with installation of steel railing on the footpath.

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

[Refer to paragraph 7.1(iii) of the Manuals and state if there is any exception]

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

Sl. No.	Location (km)	Utility services to be carried	
1.	20+290	OFC Cables, Electric Cables, etc.	Minor bridge

(f) Cross-section of the new culverts and bridges at deck level for the project highway shall confirm to the typical cross- sections given in the provision of Manuals.

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(ii) Culverts:

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

2.

(b) Reconstruction of Existing Culverts:

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

Sl. No.	Culvert location Chainage (Km)	Span/Opening (m)	Remarks, if any
Nil			

(c) Widening of existing culverts

- (d) *All existing culverts which are not to be reconstructed shall be widened to the road way width of the Project Highway as per the typical cross section given in section 7 of the Manuals. 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
Nil			

- (e) *Additional new culverts (Box + HP) shall be constructed as per particulars given in the table below:*

S. NO.	Culvert location (Chainage/Km)	Span/Opening (m)
NIL		

- (f) Repairs/ Replacement of Railing/Parapets, flooring and protection works of

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

the existing culverts shall be undertaken as follows:

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

- (g) *Floor protection works shall be as specified in the relevant IRC Codes and specifications.*

(iii) Bridges

(a) Existing Bridges to be re-constructed/Widened

- (i) The existing bridges at the following locations shall be re-constructed as new structures: -

Sl. No.	Bridge location (Km)	Salient details of existing bridge span (m)	Adequacy or otherwise of the existing waterway, vertical clearance, etc.	Remarks
1	20+290	1x12.5 + 3x8.5 + 1x14.0	4.0 m	The proposal is to construct a four lane bridge by construction of a new 2L bridge parallel to the existing bridge to ensure continuity of traffic through existing bridge (diversion) during the construction phase. Thereafter, the construction of the new bridge, the existing bridge will be dismantled and a new 2L bridge will be constructed in its place.

- (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				

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

(b) Additional New Bridges

- (i) **Major Bridges:** - New major bridge 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)	Nos. x Span length (m)	Remarks
NIL			

- (ii) **Minor Bridges:** - New minor 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)	Span length (m)	Remark, if any
1	20+290	1x45	The proposal is to construct a four lane bridge by construction of a new 2L bridge parallel to the existing bridge to ensure continuity of traffic through existing bridge (diversion) during the construction phase. Thereafter, the construction of the new bridge, the existing bridge will be dismantled and a new 2L bridge will be constructed in its place.

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

Sl. No.	Location at km	Remarks
Nil		

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

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

Sl. No.	Location (km)	Remarks
Nil		

- (e) Drainage system for bridge decks

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

- (f) **Structures in marine environment-** Nil

(iii) Rail- Road Bridges

- (i) Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manuals. (Refer to the paragraph 7.18 of the Manuals and specify modification, if any)

(ii) 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 crossings (km)	Nos. x Span length (m)	Remarks
NIL			

(iii) Road under-Bridges

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

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

Sl. No.	Location of Level crossings (km)	Number and length of Span (m)
NIL		

(iv) Grade separated structures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9 and 3 of this Annex-I.

(v) 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
1	20+290	The EPC Contractor shall maintain the existing minor bridge to ensure smooth and safe movement of traffic, until the new 2 lane MNB is constructed beside the existing bridge and made functional.

B. ROB / RUB

Sl. No.	Location of ROB/RUB (km)	Nature and Extent of Repairs / Strengthening to be carried out
Nil		

C. Overpass / Underpass and Other structures

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

Sl. No.	Location of Structure (km)	Nature and Extent of Repairs / Strengthening to be carried out
Nil		

(vi) List of Structures

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

Sl. no.	Location (Design Km)	Type
1	20+290	MNB

8. TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

- (i) Traffic control devices and road safety works shall be provided along the project corridor in accordance with relevant section of the Manuals specified in Schedule-D.
- a). Traffic Signs:** Traffic Signs include roadside signage, overhead signs and curb mounted signs along the entire project highway.
- b) Pavement Marking:** Pavement marking shall cover road marking for the entire project highway as per Manuals and relevant IRC codes
- (ii) The minimum length of various types of crash barriers are given below and shall be provided as per TCS:

Sl. No.	Description	Length
1.	RCC Crash Barrier on both inner and outer sides of bridge	45m x 4 = 180m

2.	Steel railing on outer sides of bridge	45m x 2 = 90m
3.	New Jersey Crash Barrier	155 m

9. ROADSIDE FURNITURE

- Roadside furniture shall be provided in accordance with the provisions of relevant section.
- Overhead traffic signs shall be provided in accordance with the provisions of relevant sections of the Manuals and relevant IRC codes.

Note: Location shall be decided as per Manuals or Direction of Authority Engineer/Authority.

The EPC contractor has to conduct road safety audit during the construction as well as post construction and accordingly finalized the road furniture works however, the minimum road furniture works needs to be done is mentioned below and other needed may be finalized during execution after consultation with Authority after conducting road safety audit.

10. Compulsory Afforestation

Compulsory afforestation should be provided as per IRC: SP: 21-2009 and Section 11 of the manual.

11. Hazardous Locations

The safety barriers shall be provided at the hazardous locations as per section 9 of the Manual.

12. Special Requirement for Hill Roads: Nil

13. Change of Scope

The length of Structures and bridges specified here in above 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

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

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 Article13.

14. Others:

(i) Use of Bitumen shall be carried out in accordance with Ministry's Circular no. RW/NH-35072/05/2018-S&R(P&B) dated 19.04.2024.

(ii) Mandatory Use of Precast Concrete Components shall be done in accordance with Ministry's Circular no. RW/NH-34049/ 01/2020-S&R (B) (Computer No. - 1 82692) dated 24.06.2025.

(iii) Use of Reinforced Soil wall to be done as per ministry's circular RW/NH-35083/05/2021-S&R (P&B) Computer no (192770) dated 16th March 2026 and IS 18591-2024

15. Utility shifting

Shifting of obstructing utilities shall be done as per Ministry's circular RW/NH-33044/29/2015-S&R(R) pt dated 11.02.2021. The Contractor/Contractor shall be responsible for getting the utilities shifted as per approval of the concerned utility department. The assistance of the Authority is limited to giving a forwarding letter on the proposal of Contractor/Contractor to the utility owning department whenever asked by the Contractor/Contractor. The decision/approval of the utility owning department shall be binding on the Contractor/Contractor

16. One Time Improvement:

Sl. No.	Location	Length in km	Crust Composition	Remarks
Nil				

17. Road safety during construction

All precaution shall be taken for road user safety & Safety of works as per manual such as Bollard, tapes etc. has to be maintained by the contractor compulsory at side.

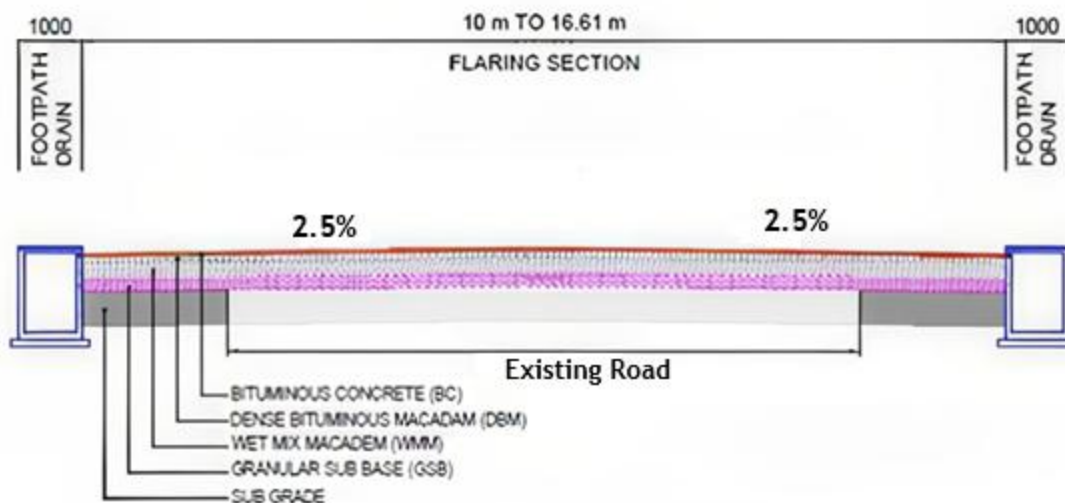
Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

Appendix B-I

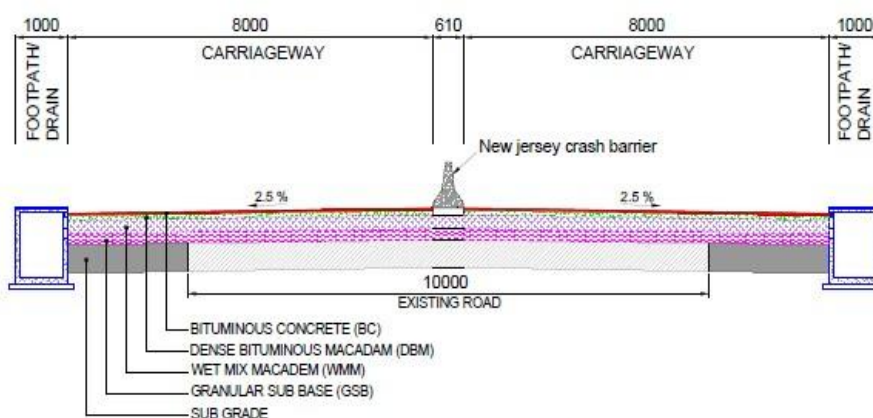
Applicable Stretches of Typical Cross-sectional Schedule. The construction shall be carried out as per typical cross section mentioned below (TCS Drawings at Appendix-B-II).

Sl. No	Design Chainage		Type of TCS	Length of TCS (m)	Type of TCS
	From (km)	To (km)			
1.	20+170	20+205	TCS-1	35	Flaring section (10m to 16.61m)
2.	20+205	20+245	TCS-2	40	Approach to Bridge
3.	20+245	20+270	TCS-2	25	Approach to Bridge (Separate Lane)
4.	20+270	20+315	TCS-3	45	Bridge
5.	20+315	20+345	TCS-2	30	Approach to Bridge (Separate Lane)
6.	20+345	20+405	TCS-2	60	Approach to Bridge
7.	20+405	20+440	TCS-1	35	Flaring section (10m to 16.61m)
			Total	270	

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

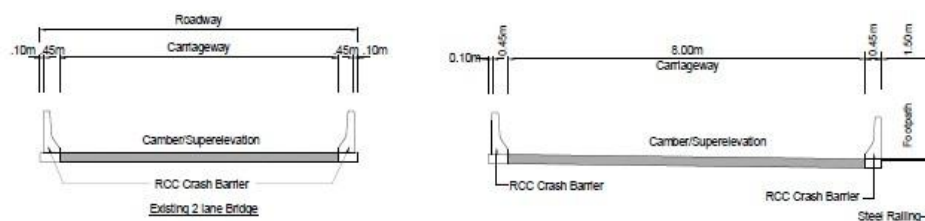


TCS-1 (FLARING SECTION)
CH.-20+170 TO 20+205
CH.-20+405 TO 20+440

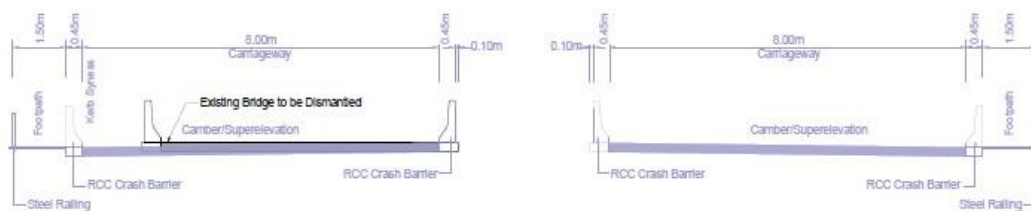


TCS-2 (FOR LANE WITH PAVED SHOULDER (APPROACH TO BRIDGE))
CH.-20+205 TO 20+270
CH.-20+315 TO 20+405

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.



TCS -3 (CH. 20+270 TO 20+315)
Step I : New Construction of Bridge on RHS



Step II :- Traffic diversion on newly constructed bridge on RHS, then reconstruction of existing bridge

Annexure-1

Utility Shifting (Circular MoRT&H 11.02.2021)

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

Notes: -

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

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

(c) The **dismantled material/scrap** of existing Utility to be shifted/ dismantled shall belong to the Contractor/ Contractor* who would be free to dispose-off the dismantled material as deemed fit by them unless the Contractor/Contractor* is required to deposit the dismantled material to utility owning department as per the norm and practice and

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

in that case the amount of credit for dismantled material may be availed by the Contractor/Contractor* as per estimate agreed between them.

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

(e) All other small works involved in shifting/crossing of lines is included in the Contractor scope and doesn't qualify for change in scope.

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

(Schedule B-1)

Utility Shifting

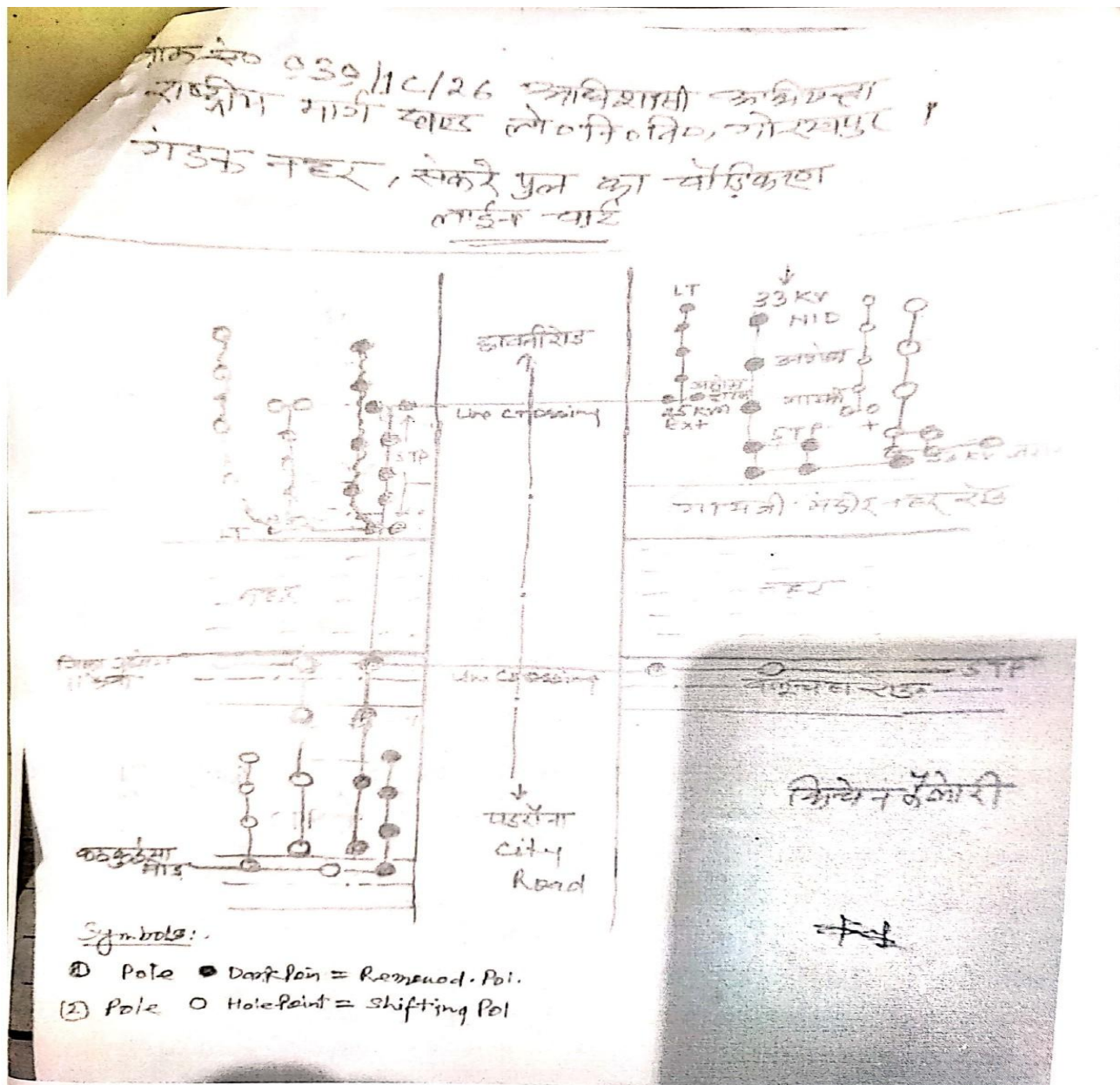
The shifting of utilities shall be carried out by the Contractor. The details of shifting of electrical utilities are as follows: -

Sl.No.	Particulars	Units	Qty.
Centralise Material			
1	STP Pole 11 Meter Long	Nos	36
2	ACSR Dog Conductor	K.m	0.620
3	ACSR Weasel Conductor	K.m	1.545
4	Cable LT A B C 3×50 +1×35 +1×16 sq mm	Km.	0.210
5	Cable LT A B C 3×95 +1×70 +1×16 sq mm	Km.	0.225
6	Cable LT A B C 3×120 +1×95 +1×16 sq mm	Km.	0.500
7	Distribution Box 3 Phase 4 wir	Nos.	15
8	Top Chnnel 125x65 mm3200mm (10.70kg/m)	Nos	4
9	M.S. Angle 65x65xx6 mm 4300 mm long bracing with 4 cl	Set	4
10	M.S T-off Channel	Nos.	8
11	MS Top Channel (125 x65x2240mm)	Nos.	3
12	MS Channel(Dropper) 100 x50x2028mm(for fuse set)	Nos.	3
13	MS angle 75 x75x6x2028 mm with clamp &bolt and nut(	Nos.	6
14	11/0.4 KV T/F 25 KVA	Nos.	
15	11/0.4 KV T/F 100 KVA	Nos.	
16	11/0.4 KV T/F 250 KVA	Nos.	
17	11 KV Fuse Set	Nos.	3
18	LT XLPE Cable Al. 3.5x400 sq mm	mtr	15
19	LT PVC Cable Al. 3.5x70/35 sq mm	mtr	20
20	LT XLPE Cable Al. 1x400 sq mm	mtr	50
21	11 kv V-Type Steel Cros Arm	Nos	10
22	33 kv V-Type Steel Cros Arm	Nos	4
23	33 KV Disc Insulator B&S Type 70 kg	Nos	48
24	33 KV Disc fitting 7000 kg	Nos	12
25	33 KV Pin Insulator	Nos	18
26	33 KV Pin Insulator with nuts	Nos	18
27	11 KV Polymrt Disc Insulator T&C Type 4500 kg	Nos	36
28	11 KV Disc fitting	Nos	36
29	11 KV Pin Insulator	Nos	45
30	11 KV Pin Insulator with nuts	Nos	45
31	Stay complete (stay rod 16x1800 mm, stay wire 5 kg, stay clamp, bolt&nut with	Nos	18
32	Earthing of pole by MS Earthing Rod of 20x2500 mm and 6 SWG Earthing wire ETC.	Nos	36
33	Total		
De- Centralised Material			
35	Al. Lug for 25 KVA DT	No.	4
36	Al. Lug for 100 KVA DT	No.	4
37	Al. Lug for 250 KVA DT	No.	4
38	LT Fuse Set Protection Unnit for 25 KVA DT with SMC	Nos.	1
39	LT Fuse Set Protection Unnit for 100 KVA DT with SMC	Nos.	1

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

41	Henley Type Tailless Unit Protection Cubical Panel 500A	No.	1
42	Earth wire clamp with bolts & nuts	Nos.	4
43	X-Arm Holding Clamps with Bolts & nuts	Nos.	10
44	Clamps with nuts & bolts for top channel	Nos.	4
45	Clamps for LT T-off with bolts & nuts	Nos.	8
46	Holding clamps for top channel, T-off & Fuse set etc. with bolts & nuts	Nos.	30
47	Barbed wire GI	Kg	16
48	PG Clamps for	Nos.	24
49	F-bracket for 33 kv	Nos.	6
50	F-bracket for fitting top insulator with bolts & nuts	Nos.	10
51	Danger Board & clamp with Bolts & nuts	Nos.	6
52	Danger Board & clamp with for 33 kv	Nos.	8
53	Bolts & Nuts all sizes (LS)	KG	10
54	Aluminium paint	Ltr	36
55	Red Oxide paint	Ltr	36
56	Three Phase Distribution Box Clamp (LS)	Nos.	30
57	Supension Clamp	Nos.	20
58	Eve Hook	Nos.	19
59	J Hook	Nos.	20
60	Dead end Clamp with Hook	Nos.	8
61	concreting of stay	Nos.	18
62	concreting of poles (0.880 Cu.m. each)	Nos.	36
63	B Total :-		
64	A+ B Total :-		
65	Labour & Overhead Chares		
66	Work		
67	Tree Cutting Compesation	Job	1
68	Plinth for size 2x2x1.5 Meter	No.	1
69	Fencing of Plinth	No.	1
70	T/F 25 KVA Shifting Charge & Dismantling Charge	Nos.	1
71	T/F 100 KVA Shifting Charge & Dismantling Charge	Nos.	1
72	T/F 250 KVA Shifting Charge & Dismantling Charge	Nos.	1
73	Dismantling Charge of STP/ Pole & Line	Nos.	36
74	Total :-		
75	4.5 % cartigency and other charge T & P		
76	Total :-		
77	5% supervision charges		
78	Total		
79	18% G.S.T. of Total Amount		
80	Total		
81	1 % Labour S.		
82	Total		
83	Grand Total		
84	Scrap Material Receive Back (Return) to Stor		
85	ACSR Weasel/Dog Conductor Scrap 240 kg./115Rs. Per	Kg	240
86	Cable LT A B C cable Scrap 416 kg./45Rs. Per kg	Kg	416
87	X-arm M.S. Angle 65x65xx6 mm V Type 11 kv Scrap 25	Kg	25
	Total		

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.



Annex – I

(Schedule-C)

Project Facilities

1. Project Facilities

The Contractor shall construct the Project Facilities described in this Annex-I to form part of the four - Lane Project Highway. The Project Facilities shall include:

- a) Toll plazas.
- b) Traffic control devices/ road safety devices / roadside furniture.
- c) Street lighting.
- d) Pedestrian facilities.
- e) Landscaping and tree plantation.
- ~~f) Truck lay bys / truck terminal / wayside amenities.~~
- ~~g) Bus bays and bus shelters.~~
- ~~h) Cattle crossings.~~
- ~~i) Development of sites for wayside amenities.~~
- ~~j) Traffic aid posts.~~
- ~~k) Medical aid posts.~~
- ~~l) Vehicle rescue posts.~~
- ~~m) Telecom system; and~~

2. Description of Project Facilities

Each of the Project Facilities is briefly described below:

a) Toll Plazas

Sl. No.	Chainage/Locations
NIL	

b) Traffic control devices/ road safety devices / roadside furniture

The provision of traffic control devices/ road safety devices shall be made as per specifications and standards as specified in Schedule D and in consultation with the Authority Engineer/Authority.

The hazardous locations that require safety barriers are given in **Appendix C-I**.

c) Roadside Furniture

The roadside furniture shall include the following provisions.

i. Traffic Signs

Traffic signs include roadside signs, overhead signs along the entire Project Highway as per manual recommended in Schedule D.

ii. Pavement Markings

Pavement markings shall cover road marking for the entire Project Highway as per Manuals specified in Schedule D.

iii. LED Traffic Blinkers

For all Pedestrian cross walks along the alignment, at all Major/Minor Junction locations and at Curve locations where curve radius not confirming to minimum radius as per design standards and any other locations specified in relevant manual, Solar Traffic Blinkers shall be provided by the contractor.

iv. Crash barrier

The length crash barrier is given below as minimum criteria in line with the standard recommended in Schedule D.

Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.

Sl. No.	Description	Length
1.	RCC Crash Barrier on both inner and outer sides of bridge	45m x 4 = 180m
2.	Steel railing on outer sides of bridge	45m x 2 = 90m
3.	New Jersey Crash Barrier	155m

v. **Hectometer / Kilometer stones/5th km stone**

For the entire Project Highway length as suggested in relevant IRC Manuals recommended in Schedule D.

d) **Street Lighting**

Street Lighting shall be provided as per specifications and standards specified in Schedule D.

e) **Pedestrian Facilities**

i. Pedestrian facilities shall be provided as per specifications and standards specified in Schedule-D

f) **Landscaping and Tree Plantation**

Landscaping: at major intersections, interchange etc. within ROW of the project highway shall be done as per specifications and standards specified in Schedule.

g) **Solar Blinkers/Cats Eye**

The solar blinkers & Cats eye shall be provided as per specifications and standards specified in Schedule D & the location shall be finalized with Authority/Authority Engineer.

3. **Utilities**

Provision of accommodating utilities has been made over as well as underground within the utility corridor on either side of the Project Highway with 300mm across the road width at 500m spacing.

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

Manual of Standards and Specifications for Two Lanning & Four Lanning of Highways (IRC: SP: 73:2018 & IRC: SP: 84:2019), referred to herein as the Manual, Ministry's Specifications for Road and Bridge Works (5th Revision, 2013) and other relevant IRC/IS Codes.

3 *Utility Shifting*

“As regards, the work of utility shifting, the relevant specifications, relevant rules, regulations and acts of Utility Owning Department/agencies shall be applicable.

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 Standards and Specification for Two Lanning & Four Lanning of Highways (IRC: SP: 73:2018 & IRC: SP: 84:2019), 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*

2.1 The terms “**Contractor**”, “**Authority Engineer**” and “**Concession Agreement**” used in the Manual shall be deemed to be substituted by the terms “**Contractor**”, “**Authority**” and “**Agreement**” respectively.

2.2 Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent as set forth as per **Typical Cross Section Schedule provided in Schedule B**.

1.3 Notwithstanding anything to the contrary contained in the aforesaid Manual, the following Specification and Standards shall apply to the [Two/Four-Lane] Project Highway, and for purposes of this agreement, the aforesaid Manual shall be deemed to be amended to the extent set forth below.

Schedule-E (Maintenance Requirement)

(See Clauses 2.1 & 14.2)

1. Maintenance Requirements

- (i) The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- (ii) The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-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.

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 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: Repair/rectification of Defects and deficiencies
(Schedule-E)

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

Table-1: Maintenance Criteria for Pavement

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 of Grade structure, approaches of connecting roads, slip roads, lay byes etc. as applicable)	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 (https://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpa/reports/03031/03031.pdf)	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					
---do---	Cracking	Nil	< 5 % subject to limit of 0.5 Sq. m for any 50 m length	Daily	---do---	---do---	7-15 days	MORT&H Specification 3004.3
---do---	Rutting	Nil	< 5 mm	Daily	Straight Edge	---do---	15 -30 days	MORT&H Specification 3004.2
---do---	Corrugations and Shoving	Nil	< 0.1 % of area	Daily	Length Measurement Unit like	---do---	2-7 days	IRC:82-2015
---do---	Bleeding	Nil	< 1 % of area	Daily	Scale, Tape, odometer etc.	---do---	3-7 days	MORT&H Specification 3004.4
---do---	Ravelling/	Nil	< 1 % of	Daily	---do---	---do---	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					
	Stripping		area					read with IRC SP 81
---do---	Edge Deformation / Breaking	Nil	< 1 m for any 100 m section and width <0.1 m at any location, Restricted to 30 cm from the edge	Daily	---do---	---do---	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					
---do---	Roughness BI	2000 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer SCRIM (Sideway - force Coefficient Routine Investigation Machine or equivalent)	Class I Profilometer: ASTM E950 (98): 2004 -Standard Test Method for measuring Longitudinal Profile of Travelled Surfaces with Accelerometer Established Inertial Profiling Reference ASTM E1656 -94: 2000- Standard Guide for Classification of Automatic Pavement Condition Survey Equipment	180 days	IRC:82-2015
---do---	Skid Number	60 SN	50SN	Bi-Annually	---do---	---do---	180 days	BS: 7941-1: 2006
---do---	Pavement Condition Index	3	2.1	Bi-Annually	---do---	---do---	180 days	IRC:82-2015
---do---	Other Pavement	-	-	Bi-Annually	-	-	2-7 da	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					
	nt Distresses			lly			ys	
---do---	Deflection/Remaining Life	-	-	Annually	Falling Weight Deflectometer	IRC:115-2014	180 days	IRC:115-2014
Rigid Pavement (Pavement of MCW, Service Road, approaches of Grade structure, approaches of connecting roads,	Roughness BI	2200 mm/km	2400 mm/km	Bi-Annually	Class I Profilometer	ASTM E950 (98):2004 and ASTM E1656 -94: 2000	180 days	IRC:83-2000

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					
slip roads, lay byes etc. as applicable)								

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					
---do---	Skid Number	Skid Resistance no. at different speed of vehicles		Bi-Annually	SCRIM (Sideway- force Coefficient Routine Investigation Machine or equivalent)	IRC:83-2000	180 days	IRC:83-2000

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					
		Min. SN	Traffic Speed (Kmph)					
		36	50					
		33	65					
		32	80					
		31	95					
		30	110					
Embankment/ Slope	Edge drop at shoulders	Nil	40mm	Daily	Length Measurement Unit like Scale, Tape, odometer etc.	-	7-15 days	MORT&H Specification 408.4
---do---	Slope of camber / cross fall	Nil	<2% variation in prescribed slope	Daily	---do---	-	7-15 days	MORT&H Specification 408.4

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					
			of camber /cross fall					
---do---	Embankment Slopes	Nil	<15 % variation in prescribe side slope	Daily	---do---	-	7-15 days	MORT&H Specification 408.4
---do---	Embankment Protection	Nil	Nil	Daily	NA	-	7-15 days	MORT&H Specification
---do---	Rain Cuts/ Gullies in slope	Nil	Nil	Daily (Specially During Rainy season)	NA	-	7-15 days	MORT&H Specification

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

Table-2: Maintenance Criteria for Rigid Pavement

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
CRACKING						
1	Single Discrete Cracks Not intersecting with any joint	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	Not applicable
			1	w < 0.2 mm. hair cracks		
			2	w = 0.2 - 0.5 mm, discernible from slow-moving car	Seal without delay	Seal, and stitch if L > 1m. Within 7days
			3	w = 0.5 - 1.5 mm, discernible from fast-moving car		
			4	w = 1.5 - 3.0 mm	Seal, and stitch if L > 1 m. Within 7 days	Staple or Dowel Bar Retrofit, FDR for affected portion. Within 15days
			5	w > 3 mm.		
2	Single Transverse (or Diagonal) Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	w < 0.2 mm. hair cracks	Route and seal with epoxy. Within 7 days	Staple or Dowel Bar Retrofit. Within 15days
			2	w = 0.2 - 0.5 mm, discernible from slow vehicle		
			3	w = 0.5 - 1.5 mm, discernible from fast vehicle	Route, seal and stitch, if L > 1 m.	

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					Within 7 days	
			4	$w = 3.0 - 6.0 \text{ mm}$	Dowel Bar Retrofit. Within 15 days	Full Depth Repair Dismantle and reconstruct affected. Portion with norms and specifications - See Para 5.5 & 9.2 Within 15days
			5	$w > 6 \text{ mm}$, usually associated with spalling, and/or slab rocking under traffic	Not Applicable, as it may be full depth	
3	Single Longitudinal Crack intersecting with one or more joints	w = width of crack L = length of crack d = depth of crack D = depth of slab	0	Nil, not discernible	No Action	
			1	$w < 0.5 \text{ mm}$, discernible from slow moving vehicle	Seal with epoxy, if $L > 1 \text{ m}$. Within 7 days	Staple or dowel bar retrofit. Within 15days
			2	$w = 0.5 - 3.0 \text{ mm}$, discernible from fast vehicle	Route seal and stitch, if $L > 1 \text{ m}$. Within 15 days	
			3	$w = 3.0 - 6.0 \text{ mm}$	Staple, if $L > 1 \text{ m}$. Within 15 days	Partial Depth Repair with stapling. Within 15 days
			4	$w = 6.0 - 12.0 \text{ mm}$, usually associated with spalling	Not Applicable, as it may be full depth	

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					5	w > 12 mm, usually associated with spalling, and/or slab rocking under traffic
4	Multiple Cracks intersecting with one or more joints	w = width of crack	0	Nil, not discernible	No Action	-
			1	w < 0.2 mm, hair cracks	Seal, and stitch if L > l m. Within 15 days	
			2	w = 0.2 - 0.5 mm. discernible from slow vehicle		
			3	w = 0.5 - 3.0 mm, discernible from fast vehicle	Full depth repair within 15 days	Dismantle, Reinststate sub base, Reconstruct whole slab as per specifications within 30 days
			4	w = 3.0 - 6.0 mm panel broken into 2 or 3 pieces		
			5	w > 6 mm and/or panel broken into more than 4 pieces		

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
5	Corner Break	w = width of crack L = length of crack	0	Nil, not discernible	No Action	-
			1	w < 0.5 mm; only 1 corner broken	Seal with low viscosity epoxy to secure broken parts. Within 7 days	Seal with epoxy seal with epoxy. Within 7days
			2	w < 1.5 mm; L < 0.6 m, only one corner broken		
			3	w < 1.5 mm; L < 0.6 m, two corners broken	Partial Depth (Refer Figure 8.3 of IRC:SP: 83-2008) Within 15 days	Full depth repair
			4	w > 1.5 mm; L > 0.6 m or three corners broken		
			5	Three or four corners broken		Reinstate sub-base, and reconstruct the slab as per norms and specifications. within 30days
6	Punch out (Applicable to Continuous Reinforced Concrete Pavement (CRCP) only)	w = width of crack L = length (m/m ²)	0	Nil, not discernible	-	No Action
			1	w < 0.5 mm; L < 3 m/m ²	Not Applicable, as it may be full depth	Seal with low viscosity epoxy to secure broken parts. Within 15days
			2	either w > 0.5 mm or L < 3 m/m ²		
			3	w > 1.5 mm and L < 3 m/m ²		Full depth repair - Cut out and
			4	w > 3 mm, L < 3 m/m ² and deformation		

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			5	w > 3 mm, L > 3 m/m ² and deformation		replace damaged area taking care not to damage reinforcement. Within 30days
SURFACE DEFECTS						
7	Raveling or Honeycomb type surface	r = area damaged surface/total surface of slab (%) h = maximum depth of damage			Short Term	Long Term
			0	Nil, not discernible	No Action	Not applicable
			1	r < 2 %	Local repair of areas damaged and liable to be damaged. Within 15 days	
			2	r = 2 - 10 %		
			3	r = 10-25%	Bonded Inlay, 2 or 3 slabs if affecting. Within 30 days	
			4	r = 25 - 50 %		
			5	r > 50% and h > 25 mm	Reconstruct slabs, 4 or more slabs if affecting. Within 30 days	
8	Scaling	r = damaged surface/total surface			Short Term	Long Term
			0	Nil, not discernible	No Action	Not applicable

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
		of slab (%) h = maximum depth of damage	1	$r < 2 \%$	Local repair of areas damaged and liable to be damaged. Within 7days	
			2	$r = 2 - 10 \%$		
			3	$r = 10 - 20\%$	Bonded Inlay within 15 days	
			4	$r = 20 - 30 \%$		
			5	$r > 30 \%$ and $h > 25 \text{ mm}$	Reconstruct slab within 30 days	
			9	Polished Surface/Glazing	t = texture depth, sand patch test	0
1	$t > 1 \text{ mm}$					
2	$t = 1 - 0.6 \text{ mm}$	Monitor rate of deterioration				
3	$t = 0.6 - 0.3 \text{ mm}$					
4	$t = 0.3 - 0.1 \text{ mm}$					
5	$t < 0.1 \text{ mm}$	Diamond Grinding if affecting 50% or more slabs in a continuous stretch of minimum 5 km. Within 30 days				-
10	Pop out (Small Hole), Pothole Refer Para 8.4	n = number/m2 d = diameter h = maximum depth	0	$d < 50 \text{ mm}$; $h < 25 \text{ mm}$; $n < 1$ per 5 m2	No action.	Not applicable
			1	$d = 50 - 100 \text{ mm}$; $h < 50 \text{ mm}$; $n < 1$ per 5 m2	Partial depth repair 65 mm deep. Within 15 days	
			2	$d = 50 - 100 \text{ mm}$; $h > 50 \text{ mm}$;		

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
				n < 1 per 5 m2		Partial depth repair 110mm i.e.10 mm more than the depth of the hole. Within 30 days
			3	d = 100 - 300 mm; h < 100 mm n < 1 per 5 m2		
			4	d = 100 - 300 mm; h > 100 mm; n < 1 per 5 m2		
5	d > 300 mm; h > 100 mm: n > 1 per 5 m2	Full depth repair. Within 30 days				
JOINT DEFECTS						
11	Joint Seal Defects	loss or damage L = Length as % total joint length			Short Term	Long Term
			0	Difficult to discern.	No action.	Not applicable
			1	Discernible, L< 25% but of little immediate consequence with regard to ingress of water or trapping incompressible material.	Clean joint, inspect later.	
			3	Notable. L > 25% insufficient protection against ingress of water and trapping incompressible material.	Clean and reapply sealant in selected locations. Within 7 days	
			5	Severe; w > 3 mm negligible protection against ingress of water and trapping	Clean, widen and reseal the joint. Within 7 days	

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
				incompressible material		
12	Spalling of Joints	w = width on either side of the joint L = length of spalled portion (as % joint length)	0	Nil, not discernible	No action.	Not applicable
			1	w < 10 mm	Apply low viscosity epoxy resin/ mortar in cracked portion. Within 7 days	
			2	w = 10 - 20 mm, L < 25%	Partial Depth Repair. Within 15 days	
			3	w = 20 - 40 mm, L > 25%	30 - 50 mm deep, h = w + 20% of w, within 30 days	
			4	w = 40 - 80 mm, L > 25%	50 - 100 mm deep repair. H = w + 20% of w. Within 30 days	
			5	w > 80 mm, and L > 25%		
13	Faulting (or Stepping) in Cracks or Joints	f = difference of level	0	No discernible, < 1 mm	No action.	No action.
			1	f < 3 mm		
			2	f = 3 - 6 mm	Determine cause and observe, take action for diamond grinding	Replace the slab as appropriate. Within 30days
			3	f = 6 - 12 mm	Diamond Grinding	

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					4	f= 12 - 18 mm
		5	f> 18 mm	Strengthen subgrade and sub-base by grouting and raising sunken slab		
14	Blowup or Buckling	h = vertical displacement from normal profile	0	Nil, not discernible	No action.	
			1	h < 6 mm		
			2	h = 6 - 12 mm	Install Signs to Warn Traffic. within 7 days	
			3	h = 12 - 25 mm		
			4	h > 25 mm	Full Depth Repair. Within 30 days	
			5	Shattered slabs, i.e. 4 or more pieces	Replace broken slabs. Within 30 days	
15	Depression	h = negative vertical displacement from normal profile L = Length	0	No discernible, h < 5 mm	No action.	Not applicable
			1	h = 5 - 15 mm		
			2	h = 15-30 mm, Nos. <20% joint	Install Signs to Warn Traffic. within 7 days	
			3	h = 30 - 50 mm		
			4	h > 50 mm or > 20% joints	Strengthen subgrade. Reinstate pavement at normal level if L < 20 m.	
			5	h > 100 mm		

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case $d < D/2$	For the case $d > D/2$
					Within 30 days	
16	Heave	h = positive vertical displacement from normal profile. L = length	0	No discernible. $h < 5$ mm	No action.	Scrabble
			1	$h = 5 - 15$ mm	Follow up.	
			2	$h = 15 - 30$ mm, Nos. $< 20\%$ joints	Install Signs to Warn Traffic.	
			3	$h = 30 - 50$ mm	within 7 days	
			4	$h > 50$ mm or $> 20\%$ joints	Stabilize subgrade. Reinstate pavement at normal level if length < 20 m.	
			5	$h > 100$ mm	Within 30 days	
17	Bump	h = vertical displacement from profile.	0	$h < 4$ mm	No action.	
			1	$h = 4 - 7$ mm	Grind, in case of new construction within 7 days	Construction Limit for New Construction.
			3	$h = 7 - 15$ mm	Grind, in case of ongoing Maintenance within 15 days	Replace in case of new construction. Within 30days
			5	$h > 15$ mm	Full Depth Repair. Within 30 days	Full Depth Repair. Within 30days
18	Lane to Shoulder Drop-off	f = difference of level	0	Nil, not discernible < 3 mm	No action.	
			1	$f = 3 - 10$ mm	Spot repair of shoulder within 7 days	
			2	$f = 10 - 25$ mm		

S. No.	Type of Distress	Measured Parameter	Degree of Severity	Assessment Rating	Repair Action	
					For the case d < D/2	For the case d > D/2
			3	f = 25 - 50 mm	Fill up shoulder within 7 days	
			4	f = 50 - 75 mm		
5	f > 75 mm					
DRAINAGE						
19	Pumping	quantity of fines and water expelled through open joints and cracks Nos.			Short Term	Long Term
			0	No discernible	No Action	Inspect and repair sub-drainage at distressed sections and upstream.
			1 to 2	slight/ occasional Nos < 10%	Repair cracks and joints Without delay.	
		3 to 4	appreciable/ Frequent 10 - 25%	Lift or jack slab within 30 days.		
		Nos. /100 m stretch	5	abundant, crack development > 25%	Repair distressed pavement sections. Strengthen subgrade and sub base. Replace slab. Within 30 days	
20	Ponding	Ponding on slabs due to blockage of drains	0-2	No discernible problem	No action.	Action required to stop water damaging foundation within 30 days.
			3 to 4	Blockages observed in drains, but water flowing	Clean drains etc. within 7 days, Follow up	
			5	Ponding, accumulation of water observed	-do-	

Table -3: Maintenance Criteria for Safety Related Items and Other Furniture Items:

Asset Type	Performance Parameter			Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Highway	Availability of Safe Sight Distance			As per IRC SP: 87-2019, a minimum of safe stopping sight distance shall be available throughout.	Monthly	Manual Measurements with Odometer along with video/ image backup	Removal of obstruction within 24 hours, in case of sight line affected by temporary objects such as trees, temporary encroachments.		IRC:SP 87-2019
	Design Speed	Desirable min. sight distance (m)	Safe SSD (m)				In case of permanent structure or design deficiency:		
							Removal of obstruction/improvement of deficiency at the earliest		
							Speed Restriction boards and suitable traffic calming measures such as transverse bar marking, blinkers, etc. shall be applied during the period of rectification.		
	100	360	180						
80	260	130							
Pavement Marking	Wear			<70% of marking remaining	Bi- Annually	Visual Assessment as per Annexure-F of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015
	Day time Visibility			During expected life Service Time Cement Road - 130mcd/m2/lux Bituminous Road - 100mcd/m2/lux	Monthly	As per Annexure-D of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015

Asset Type	Performance Parameter	Level of Service (LOS)		Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards	
	Night Time Visibility	Initial and Minimum Performance for Dry Retro reflectivity during night time:		Bi- Annually	As per Annexure-E of IRC:35-2015	Re - painting	Cat-1 Defect - within 24 hours Cat-2 Defect - within 2 months	IRC:35-2015	
		Design Speed	(RL) Retro Reflectivity (mcd/m2/lux)						
			Initial (7Day)						Min. Threshold level (TL) & warranty period reqd. up to 2 years
Up to 65	200	80							
65-100	250	120							
Above 100	350	150							

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		Initial and Minimum Performance for Night Visibility under wet condition (Retro reflectivity): Initial 7 days Retro reflectivity: 100 mcd/m ² /lux Minimum Threshold Level: 50 mcd/m ² /lux					
	Skid Resistance	Initial and Minimum performance for Skid Resistance: Initial (7days): 55BPN Min. Threshold: 44BPN	Bi-Annually	As per Annexure-G of IRC:35-2015		Within 24 hours	IRC:35-2015
		*Note: shall be considered under urban/city traffic condition encompassing the locations like pedestrian crossings, bus bay, bus stop, cycle track intersection delineation, transverse bar markings etc.					

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Road Signs	Shape and Position	Shape and Position as per IRC: 67- 2012. Signboard should be clearly visible for the design speed of the section.	Daily	Visual with video/image backup	Improvement of shape, in case if shape is damaged. Relocation as per requirement	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 15 Days in case of Gantry/Cantilever Sign boards	IRC:67-2012
	Retro reflectivity	As per specifications in IRC:67-2012	Bi-Annually	Testing of each signboard using Retro Reflectivity Measuring Device. In accordance with ASTM D 4956-09.	Change of signboard	48 hours in case of Mandatory Signs, Cautionary and Informatory Signs (Single and Dual post signs) 1 Month in case of Gantry/ Cantilever Sign boards	IRC:67-2012

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Kerb	Kerb Height	As per IRC 86:1983 depending upon type of Kerb	Bi-Annually	Use of distance measuring tape	Raising Kerb Height	Within 1 Month	IRC:86-1983
	Kerb Painting	Functionality: Functioning of Kerb painting as intended	Daily	Visual with video/image backup	Kerb Repainting	Within 7-days	IRC:35-2015
Other Road Furniture	Reflective Pavement Markers (Road Studs)	Numbers and Functionality as per specifications in IRC: SP: 87-2019 and IRC:35-2015, unless specified in Schedule-B.	Daily	Counting	New Installation	Within 2 months	IRC:SP:87-2019, IRC:35-2015
	Pedestrian Guardrail	Functionality: Functioning of guardrail as intended	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:SP:87-2019
	Traffic Safety Barriers	Functionality: Functioning of Safety Barriers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019, IRC:119-2015
	End Treatment of Traffic Safety Barriers	Functionality: Functioning of End Treatment as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019
	Attenuators	Functionality: Functioning of Attenuators as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP-2014, IRC:119-2015
	Guard Posts and Delineators	Functionality: Functioning of Guard Posts and Delineators	Daily	Visual with video/image	Rectification	Within 15 days	IRC: 79-1981

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		as intended		backup			
	Overhead Sign Structure	Overhead sign structure shall be structurally adequate	Daily	Visual with video/image backup	Rectification	Within 15 days	IRC:67-2012
	Traffic Blinkers	Functionality: Functioning of Traffic Blinkers as intended	Daily	Visual with video/image backup	Rectification	Within 7 days	IRC:SP:87-2019
Highway Lighting System	Highway Lights	Illumination: Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with lux meter	Improvement in Lighting System	24 hours	IRC:SP:87-2019
		No major failure in the lighting system	Daily	-	Rectification of failure	24 hours	IRC:SP:87-2019
		No minor failure in the lighting system	Monthly	-	Rectification of failure	8 hours	IRC:SP:87-2019
	Toll Plaza Canopy Lights	Minimum 40 Lux illumination on the road surface	Daily	The illumination level shall be measured with lux meter	Improvement in Lighting System	24 hours	IRC:SP:87-2019
		No major/minor failure in the lighting system	Daily	-	Rectification of failure	8 hours	IRC:SP:87-2019

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Trees and Plantation including median plantation	Obstruction in a minimum head-room of 5.5 m above carriageway or obstruction in visibility of road signs	No obstruction due to trees	Monthly	Visual with video/image backup	Removal of trees	Immediate	IRC:SP:87-2019
	Deterioration in health of trees and bushes	Health of plantation shall be as per requirement of specifications & instructions issued by Authority from time to time	Daily	Visual with video/image backup	Timely watering and treatment. Or Replacement of Trees and Bushes.	Within 90 days	IRC:SP:87-2019
	Vegetation affecting sight line and road structures	Sight line shall be free from obstruction by vegetation	Daily	Visual with video/image backup	Removal of Trees	Immediate	IRC:SP 87-2019
Rest Areas	Cleaning of toilets	-	Daily	-	-	Every 4 hours	-
	Defects in electrical, water and sanitary installations	-	Daily	-	Rectification	24 hours	-
Other Project Facilities and Approach	Damage or deterioration in Approach Roads, pedestrian facilities, truck lay-bys, bus-bays, bus-shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works		Daily	-	Rectification	15 days	IRC:SP 87-2019

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
roads							

Table 4: Maintenance Criteria for Structures and Culverts:

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Pipe/box/slab culverts	Free waterway/unobstructed flow section	85% of culvert normal flow area to available.	2 times in a year (before and after rainy season)	Inspection by Bridge Engineer as per IRC SP: 35-1990 and recording of depth of silting and area of vegetation.	Cleaning silt up soils and debris in culvert barrel after rainy season, removal of bushes and vegetation, U/s of barrel, under barrel and D/s of barrel before rainy season.	15 days before onset of monsoon and within 30 days after end of rainy season.	IRC 5-2015, IRC SP:40-1993 and IRC SP:13-2004
	Leak-proof expansion joints if any	No leakage through expansion joints	Bi-Annually	Physical inspection of expansion joints as per IRC SP: 35-1990 if any, for leakage strains on walls at joints.	Fixing with sealant suitably	30 days or before onset of rains whichever comes earlier	IRC SP:40-1993 and IRC SP:69-2011

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Structurally sound	Spalling of concrete not more than 0.25 Sqm	Bi-Annually	Detailed inspection of all components of culvert as per IRC SP:35-1990 and recording the defects	Repairs to spalling, cracking, delamination, rusting shall be followed as per IRC: SP: 40-1993.	15 days	IRC SP 40-1993 and MORTH Specifications clause 2800
		Delamination of concrete not more than 0.25 Sqm.					
		Cracks wider than 0.3 mm not more than 1m aggregate length					

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3 Sqm, damage to solid apron (concrete apron) not more than 1 Sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC:SP:13-2004.
Bridges including ROBs Flyover etc. as applicable	Riding quality or user comfort	No pothole in wearing coat on bridge deck	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC or wearing coat	15 days	MORT&H Specification 2811
Bridge - Super Structure	Bumps	No bump at expansion joint	Daily	Visual inspection as per IRC SP:35-1990	Repairs to BC on either side of expansion joints, profile correction course on approach slab in case of settlement to approach embankment	15 days	MORT&H Specification 3004.2 & 2811

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	User safety (condition of crash barrier and guard rail)	No damaged or missing stretch of crash barrier or pedestrian hand railing	Daily	Visual inspection and detailed condition survey as per IRC SP: 35-1990.	Repairs and replacement of safety barriers as the case may be	3days	IRC: 5-1998, IRC SP: 87-2019 and IRC SP: 40-1993
	Rusted reinforcement	Not more than 0.25 sq.m	Bi- Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out the repairs to affected concrete portion with epoxy mortar / concrete.	15 days	IRC SP: 40-1993 and MORTH Specification 1600.
	Spalling of concrete	Not more than 0.50 sq.m					
	Delamination	Not more than 0.50 sq.m					

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Cracks wider than 0.30 mm	Not more than 1m total length	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting with epoxy mortar, investigating causes for cracks development and carry out necessary rehabilitation.	48 Hours	IRC SP: 40-1993 and MORTH Specification 2800.
	Rainwater seepage through deck slab	Leakage - nil	Quarterly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Grouting of deck slab at leakage areas, waterproofing, repairs to drainage spouts	1 months	MORTH specifications 2600 & 2700.
	Deflection due to permanent loads and live loads	Within design limits.	Once in every 10 years for spans more than 40 m	Load test method	Carry out major rehabilitation works on bridge to retain original design loads capacity	6 months	IRC SP: 51-1999

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

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Debris and dust in strip seal expansion joint	No dust or debris in expansion joint gap.	Monthly	Detailed condition survey as per IRC SP:35-1990 using Mobile Bridge Inspection Unit	Cleaning of expansion joint gaps thoroughly	3 days	MORTH specifications 2600 and IRC SP: 40-1993
	Drainage spouts	No down take pipe missing/broken below soffit of the deck slab. No silt, debris, clogging of drainage spout collection chamber.	Monthly	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	Cleaning of drainage spouts thoroughly. Replacement of missing/broken down take pipes with a minimum pipe extension of 500mm below soffit of slab. Providing sealant around the drainage spout if any leakages observed.	3 days	MORTH specification 2700.

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
Bridge-substructure	Cracks/spalling of concrete/ rusted steel	No cracks, spalling of concrete and rusted steel	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	All the corroded reinforcement shall need to be thoroughly cleaned from rusting and applied with anti-corrosive coating before carrying out repairs to substructure by grouting/guniting and micro concreting depending on type of defect noticed	30 days	IRC SP: 40-1993 and MORTH Specification 2800.
	Bearings	Delamination of bearing reinforcement not more than 5%, cracking or tearing of rubber not more than 2 locations	Bi-Annually	Detailed condition survey as per IRC SP: 35-1990 using Mobile Bridge Inspection Unit	In case of failure of even one bearing on any pier/abutment, all the bearings on that pier/abutment shall be replaced,	3 months	IRC SP: 40-1993 and MORTH Specification 2810.

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
		per side, no rupture of reinforcement or rubber			in order to get uniform load transfer on to bearings.		
Bridge Foundations	Scouring around foundations	Scouring shall not be lower than maximum scour level for the bridge	Bi-Annually	Condition survey and visual inspection as per IRC SP:35-1990 using Mobile Bridge Inspection Unit. In case of doubt, use Underwater camera for inspection of deep wells in major	Suitable protection works around pier/abutment	1 month	IRC SP: 40-1993 IRC:83-2014, and MORTH Specification 2500

Asset Type	Performance Parameter	Level of Service (LOS)	Frequency of Measurement	Testing Method	Recommended Remedial measures	Time limit for Rectification	Specifications and Standards
	Protection works in good condition	Damaged of rough stone apron or bank revetment not more than 3sq.m, damage to solid apron (concrete apron) not more than 1 Sqm	2 times in a year (before and after rainy season)	Condition survey as per IRC SP:35-1990	Repairs to damaged aprons and pitching.	30 days after defect observation or 2 weeks before onset of rainy season whichever is earlier.	IRC: SP 40-1993 and IRC: SP: 13- 2004.

Note: Any Structure during the entire contract period which is found that does not complies with all requirements of this Table will be prepared, rehabilitated or even reconstructed under the scope of the contractor.

Table 5: Maintenance Criteria for Hill Roads

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

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

Note: For all tables 1 to 5 above, latest BIS & IRC standards (even those not indicated herewith) along with MoRT&H specifications shall be binding for all maintenance activities.

Table-6: Time limit for Repair/rectification of Defects and deficiencies

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 exceeding 2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)	120 (one hundred and twenty) days
(iii)	Pot holes	24 hours
(iv)	Any cracks in road surface	15 (fifteen) days
(v)	Any depressions, rutting exceeding 10 mm in road surface	15 (fifteen) 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
(xi)	Removal of debris, dead animals	6 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)	Variation by more than 15% in the prescribed side (embankment) slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi- urban areas	24 (twenty four) hours
(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c) Road side furniture including road sign and pavement marking		
(i)	Damage to shape or position, poor visibility or loss of retro- reflectivity	48 (forty eight) hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/ Once every year
(iii)	Damaged/missing signs road requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days

Nature of Defect or deficiency		Time limit for repair/rectification
(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
(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	within 48 (forty eight) hours
	Permanent measures	within 15 (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 (Applicable Permits)

(See Clauses 4.1 (vii) (a))

- 1. Applicable permits**
- 1.1** The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:
 - (a) Permission of the State Government for extraction of boulders from quarry;
 - (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
 - (c) 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 Panchayats and Pollution Control Board for setting up asphalt plant;
 - (h) Permission of Village Panchayats and State Government for borrow earth; and
 - (i) Any other permits or clearances required under Applicable Laws.
- 1.2** Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

Schedule-G

(See Clauses 7.1 and 19.2)

Annex - I: Form of Bank Guarantee

(Schedule-G)

(See Clauses 7.1)

[Performance Security/Additional Performance Security]

Chief Engineer,
National Highway,
UPPWD, Lucknow ,

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 Reconstruction 02 nos. Major
Bridge and 01 no. Minor Bridge at km77.60 (Major Bridge), km 92.85 (Major
Bridge) and km 97.02 (Minor Bridge) of NH 35 on Engineering, Procurement and
Construction (EPC) mode. 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 [DG, RD & SS in the Ministry of Road Transport & Highways], 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 _____¹. 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

¹ Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).

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.

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:

- (a) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (b) 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: Form for Guarantee for Advance Payment

(Schedule-G)

(See Clauses 19.2)

Chief Engineer,
National Highway,
UPPWD, Lucknow ,

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 **Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh..** subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest bearing @*Bank Rate* + 3% advance payment (herein after called “**Advance Payment**”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two instalments 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 instalment to remain effective till the complete and full repayment of the instalment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} instalment of the Advance Payment is Rs. _____cr. (Rupees _____crore) and the amount of this Guarantee is Rs. ____cr. (Rupees _____crore) (the “**Guarantee Amount**”)§.
- (C) We, _____ through our branch at _____ (the “**Bank**”) have agreed to furnish this bank guarantee (*hereinafter called the “Guarantee”*) for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful

§ The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.

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

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

2. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
3. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
4. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or

of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

5. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
6. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
7. The Guarantee shall cease to be in force and effect on _____[§]
Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly 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.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

[§] Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

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:

- (a) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (b) 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 (Contract Price Weightages)

(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 vis a vis overall Project
Road works including culverts widening and repair of culverts.	14.32%	A-Widening and Strengthening of existing road	
		(1) Earthwork up to top of the embankment	0.01%
		(2) Subgrade	0.11%
		(3) Sub Base courses	1.14%
		(4) Non Bituminous Base Course	2.49%
		(5) Bituminous Base Course	1.90%
		(6) Wearing coat	1.15%
		(7) Widening and repair of culverts	0.00%
		B 1- Reconstruction / New re-alignment / bypass (Flexible pavement)	
		(1) Earthwork up to top of the embankment	0.02%
		(2) Subgrade	0.25%
		(3) Sub Base courses	1.71%
		(4) Non Bituminous Base Course	2.49%
		(5) Bituminous Base Course	1.90%
		(6) Wearing coat	1.15%
		B 2- Reconstruction / New re-alignment / bypass (Rigid pavement)	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Dry Lean Concrete (DLC) Course	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		(5) Pavement Quality Control (PQC) course	0.00%
		C 1- Reconstruction / New Service Road (Flexible pavement)	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Non Bituminous Base Course	0.00%
		(5) Bituminous Base Course	0.00%
		(6) Wearing coat	0.00%
		C 2- Reconstruction / New Service road (Rigid pavement)	
		(1) Earthwork up to top of the embankment	0.00%
		(2) Subgrade	0.00%
		(3) Sub Base courses	0.00%
		(4) Dry Lean Concrete (DLC) Course	0.00%
		(5) Pavement Quality Control (PQC) course	0.00%
		D - Reconstruction and New culverts on existing road, Realignments, bypasses:	
		Culverts (Length <6m)	0.00%
Minor Bridges / underpasses / over passes	76.19%	A 1- Widening and repairs of Minor Bridges (length >6m and <60m)	
		Minor Bridge	0.00%
		(1) Foundation: on completion of foundation work of abutment & piers.	0.00%
		(2) Sub-structure: on completion of abutment & piers with abutment/pier cap.	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		(3) Superstructure: on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road sign & markings, tests on completion etc. complete in all respect.	0.00%
		(4) Approaches: on completion of approaches including wing wall/Return walls, retaining walls, stone pitching, protection works for floor, embankment slope etc complete in all respect and fit for use.	0.00%
		A 2- New Minor Bridges (length >6m and <60m)	
		(1) Foundation : on completion of foundation work of abutment & piers.	26.67%
		(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	19.81%
		(3) Super-structure : on completion of super structure upto deck slab including bearings.	20.57%
		(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	4.57%
		(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	4.57%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		(6) Guide bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	0.00 %
		B 1 - Widening and repair of underpasses / overpasses	
		Underpasses / Overpasses	0.00%
		B 2 - New Underpasses / Overpasses	
		(1) Foundation : on completion of foundation work of abutment & piers.	0.00%
		(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%
		(3) Super-structure : on completion of super structure upto deck slab including bearings.	0.00%
		(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	0.00%
Major bridge (length > 60m) works and RoB / RUB / Elevated sections / Flyovers including	0.00%	(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.00%
		A 1 - Widening and repair of major bridges	
		(1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	
		(2) Sub-structure	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
viaducts, if any		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%
		A 2 - New Major bridges	
		(1) Foundation	0.00%
		(i) Well foundation	0.00%
		(ii) Pile foundation	0.00%
		(iii) Open foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearings)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%
		(6) Wing walls/return walls	0.00%
		(7) Guide bunds, River Training works etc.	0.00%
		(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%
		B 1 - Widening and repair of	
		a) RoB	
		b) RuB	
		1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		B 2 - New RoB / RuB	
		a) RoB	
		b) RuB	
		1) Foundation	
		(i) Well foundation	
		(ii) Pile foundation	0.00%
		(iii) Open foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
		C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators	
		1) Foundation	0.00%
		(i) Pile Foundation	
		(ii) Open Foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat including expansion joints	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%
		C 2 - New Elevated sections / Fly overs / Grade Separators	
		1) Foundation	
		(i) Well foundation	
		(ii) Pile foundation	0.00%
		(iii) Open foundation	
		2) Sub Structure	0.00%
		3) Super Structure (Including bearings)	0.00%
		4) Wearing coat including expansion joints	0.00%
		5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%
		6) wing walls / return walls	0.00%
		7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%
Other Works	9.49%	(i) Toll Plaza	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		(ii) Road side drains	
		RCC Lined drain	3.63%
		Unlined drain	0.00%
		(iii) Road Signs, markings, km stones, safety devices,Road furnitures etc	0.08%
		(iv) overhead gantry/mounted signs	0.00%
		(v) Project facilities	
		(a) Bus Bays	0.00%
		(b) Truck lay byes	0.00%
		(c) Paver Block over Sand bed	0.00%
		(d) Construction of buildings (traffic Aid post, medical Aid post, Vehicle resue post & O&M centre)	0.00%
		(e) Providing Vehicle (Ambulance, Patrolling unit, Crane etc)	0.00%
		(f) Highway Lighting	0.00%
		(g) Others (Rainwater harvesting, utility duct, noise barrier, boundary Pillars etc)	0.00%
		(vi) Junction improvements	3.10%
		(vii) Median & Road side Plantation	0.00%
		vii) Protection works# other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBS/RUBs.	
		(a) Thrie beam Crash Barrier	0.00%
		(b) Reinforced earth structure	0.00%

ITEM	WEIGHTAGE IN PERCENTAGE TO THE CONTRACT PRICE	STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE vis a vis overall Project
		(c) New Jersey Crash Barrier	0.87%
		viii) Maintenance of Existing road during construction period	0.00%
		ix) One time improvement (Overlay with BC+ DBM Layers)	0.00%
		x) Safety and traffic management during construction	0.00%
		xi) Utility Shifting	
		a) BSNL	0.00%
		b) Jal Nigam	0.00%
		c) Electricity	1.55%
		d) HT Line	0.00%
		xii) Dismantling of Existing Minor Bridge	0.26 %
			100.00%

1.3 Procedure of estimating the value of work done

1.3.1 Road Works

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

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
A-Widening and Strengthening of existing road		
(1) Earthwork up to top of the embankment	0.07%	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 10
(2) Subgrade	0.75%	
(3) Sub Base courses	7.99%	

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(4) Non Bituminous Base Course	17.36%	(ten) percent of the total length or 500m whichever is less
(5) Bituminous Base Course	13.28%	
(6) Wearing coat	8.00 %	
(7) Widening and repair of culverts	0.00%	Cost of completed culverts shall be determined pro rata basis with respect to the total no. of culverts. The payment shall be made on the completion of atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.
B 1- Reconstruction / New re-alignment / 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 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	0.16%	
(2) Subgrade	1.76%	
(3) Sub Base courses	11.99%	
(4) Non Bituminous Base Course	17.36%	
(5) Bituminous Base Course	13.28%	
(6) Wearing coat	8.00%	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 500 m length, whichever is less.
B 2- Reconstruction / New re-alignment / bypass (Rigid pavement)		
(1) Earthwork up to top of the embankment	0.00%	
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Dry Lean Concrete (DLC) Course	0.00%	
(5) Pavement Quality Control (PQC) course	0.00%	
C 1- Reconstruction / New Service 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 500 m length,

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(1) Earthwork up to top of the embankment	0.00%	whichever is less.
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Non Bituminous Base Course	0.00%	
(5) Bituminous Base Course	0.00%	
(6) Wearing coat	0.00%	
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 500 m length, whichever is less.
(1) Earthwork up to top of the embankment	0.00%	
(2) Subgrade	0.00%	
(3) Sub Base courses	0.00%	
(4) Dry Lean Concrete (DLC) Course	0.00%	
(5) Pavement Quality Control (PQC) course	0.00%	
D - Reconstruction and New culverts on existing road, Realignments, bypasses:		
Culverts (Length <6m)	0.00%	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 atleast one culvert. 75% of the cost will be payable on completion of box/ abutments and slab/ pipe and head wall. Remaining 25% will become payable on completion of protection works including return/ wing walls and any other work associated with culverts.

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

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

L = Total length in km

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

Note: The length affected due to law-and-order problems or litigation during execution

due to which the Contractor is unable to execute the work, may be deducted from the total project length for payment purposes. The total length calculated here is only for payment purposes and will not affect and referred in other clauses of the Contract Agreement.

1.3.2 Minor Bridges and Underpasses/Overpasses.

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

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
A 1- Widening and repairs of Minor Bridges (length >6m and <60m)		
Repair of Existing Minor Bridge	0.00%	
(1) Foundation : on completion of foundation work of abutment & piers.	0.00%	
(2) Sub-structure : on completion of abutment & piers with abutment/pier cap.	0.00%	
(3) Superstructure : on completion of super-structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road sign & markings, tests on completion etc. complete in all respect.	0.00%	
(4) Approaches: on completion of approaches including wing wall/Return walls, retaining walls, stone pitching, protection works for floor, embankment slope etc complete in all respect and fit for use.	0.00%	

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
A 2- New Minor Bridges (length >6m and <60m)	0.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges.
(1) Foundation: on completion of foundation work of abutment & piers.	35.00%	(i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage completion of atleast two foundations of each bridge. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.
(2) Sub-structure: on completion of abutment & piers with abutment/pier cap.	26.00%	ii) Sub - structure – Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.
(3) Super-structure: on completion of super structure upto deck slab including bearings.	27.00%	(iii) 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 upto deck slab including bearing as specified in the column of "Stage of Payment" in this sub-clause. If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Miscellaneous works: On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	6.00%	(iv) Miscellaneous Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of wearing coat, expansion joint, crash barrier, railing, protection works, drainage and any other remaining work associated to bridge including tests on bridge for each bridge

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(5) Approaches: On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	6.00%	(v) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing walls/ return walls, retaining walls, stone pitching in all respect as specified in the column of "Stage of Payment" in this sub-clause for each bridge.
(6) Guide bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects	0.00%	
B 1 - Widening and repair of underpasses / overpasses	0.00%	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.
Underpasses / Overpasses	0.00%	
B 2 - New Underpasses / Overpasses	0.00%	Cost of each Underpass/Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpasses/Overpasses.
(1) Foundation: on completion of foundation work of abutment & piers.	0.00%	(i) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of foundation(s) of each underpass/overpass. In case where load testing is specified for foundation, the trigger of first payment shall include load testing also.
(2) Sub-structure: on completion of abutment & piers with abutment/pier cap.	0.00%	(ii) Sub-structure: Payment shall be made on pro-rata basis on completion of stage i.e. completion of atleast one sub-structure upto abutment/ pier cap level of each bridge.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(3) Super-structure : on completion of super structure upto deck slab including bearings.	0.00%	(iii) 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 upto deck slab including bearing as specified in the column of "Stage of Payment" in this sub-clause: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Miscellaneous works : On completion of wearing coat, expansion joint, crash barrier, railings, protection works and any remaining work associated to bridge including tests on bridge.	0.00%	(iv) Miscellaneous Works: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of wearing coat, expansion joint, crash barrier, railing, protection works and any other remaining work associated to bridge including tests on bridge for each bridge.
(5) Approaches : On completion of approaches including wing walls/ return walls, Retaining walls, stone pitching, protection works for floor, embankment slope etc. complete in all respect and fit for use.	0.00%	v) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches including wing wall/ return wall, retaining walls, Reinforced Earth walls, stone pitching, protection works complete in all respect for each bridge

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:

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
A 1 - Widening and repair of major bridges		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(1) Foundation	0.00%	1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified hereinunder.
(i) Pile Foundation	0.00%	(i) Pile Foundation (a) Piling: Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap : Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	0.00%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e., completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast RCC/PSC/Steel girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
(4) Wearing Coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	5) 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 for each major bridge.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(6) Wing walls/return walls	0.00%	6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.
(7) Guide bunds, River Training works etc.	0.00%	(7) 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 for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
A 2 - New Major bridges		Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge.
(1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the major Bridge as specified here in under:
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Well steining: On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(ii) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(ii) Pile Foundation (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
(2) Sub-structure	0.00%	ii) Sub-Structure:. Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the major bridge.
(3) Super-structure (including bearings)	0.00%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon. (For cable stayed bridge and suspension cable bridge, detailed payment stage may be included on case to case basis)
(4) Wearing Coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each major bridge.
(5) Miscellaneous Items like hand rails, crash barrier, road markings etc.	0.00%	(5) 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 for each major bridge.
(6) Wing walls/return walls	0.00%	6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each major bridge.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(7) Guide bunds, River Training works etc.	0.00%	(7) 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 for each major bridge.
(8) Approaches (including Retaining walls, stone pitching and protection works for floor, embankment slope etc.)	0.00%	(8) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each major bridge.
B 1 - Widening and repair of		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUBs.
a) RoB	0.00%	
b) RuB	0.00%	
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under.
(i) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap: On completion of pile cap	0.00%	(i) Pile Foundation (a) Piling: Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap: Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) 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 for each of the ROB/ RUB.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/ RUB.
7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified for each of the ROB/ RUB.
B 2 - New RoB / RuB		Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUBs.
a) RoB	0.00%	
b) RuB	0.00%	
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the ROB/RUB as specified here in under:

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile Foundation (a) Piling – On completion of pile Upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(ii) Pile Foundation (a) Piling: Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorota basis. (b) Pile Cap: Payment of 30% shall be made on completion of pile cap. In case where load testing is required fo
(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e., completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the ROB/RUB.
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on prorata basis on completion of a stage i.e., completion of superstructure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
4) Wearing coat (a) in case of RoB - wearing coat including expansion joints complete in all respect as specified and (b) in case of RuB - rigid pavement under RuB including drainage facility complete in all respect as specified	0.00%	(4) Wearing Coat: Payment shall be made on completion of (a) in case of ROB-wearing coat including expansion joints complete in all respects as specified for each of the ROB and (b) in case of RUB-rigid pavement under RUB including drainage facility complete in all respects as specified for each of the RUB.
5) miscellaneous items like hand rails, crash barrier, road markings etc.	0.00%	(5) 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 for each of the ROB/RUB.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the ROB/RUB.
7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches of each ROB including stone pitching, protection works, etc. complete in all respects as specified here in under: If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
C 1 - Widening and repair of Elevated sections / Fly overs / Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e., completion of atleast one foundation of each of the structure as specified here in under:

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
(i) Pile Foundation (a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile cap	0.00%	(i) Pile Foundation (a) Piling: Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on prorata basis. (b) Pile Cap: Payment of 30% on pro-rata basis shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Open Foundation	0.00%	(ii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under :If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) 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 for each of the structure.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
7) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects of each structure.
C 2 - New Elevated sections / Fly overs / Grade Separators		Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures.
1) Foundation	0.00%	(1) Foundation: Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one foundation of each of the structure as specified here in under :
(i) Well Foundation (a) On completion of Cutting Edge + Well Curb (b) Wellsteining : On completion of well steining upto bottom of well cap. (c) On completion of bottom plug + top plug (if provisioned as per design) + well cap	0.00%	(i) Well Foundation (a) Cutting Edge + Well Curb: Payment of 10% shall be made on completion of a stage i.e. completion of cutting edge + well curb. (b) Well steining : Payment of 65% shall be made on completion of well steining upto bottom of well cap. The payment stage shall be further sub-divided on pro-rata basis i.e. (i) on completion upto 10 m and (ii) on completion of each subsequent 5 m or part thereof. (c) Bottom plug + top plug (if provisioned as per design) + well cap: Payment of 25% shall be made on completion of a stage i.e. completion of bottom plug, back fill, top plug and well cap.
(ii) Pile foundation : a) Piling – On completion of pile upto bottom of pile cap (b) Pile Cap : On completion of pile ca	0.00%	ii) Pile Foundation : (a) Piling : Payment of 70% shall be made on completion of piling upto bottom of pile cap for each pile on pro-rata basis. (b) Pile Cap : Payment of 30% shall be made on completion of pile cap. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(iii) Open foundation	0.00%	(iii) Open Foundation: Payment shall be made on completion of a stage i.e. on completion of atleast one foundation.

STAGE of PAYMENT	PERCENTAGE WEIGHTAGE	Payment Procedure
2) Sub Structure	0.00%	(2) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of a stage i.e. completion of atleast one sub-structure of abutments/piers upto abutment/pier cap level of each of the structure.
3) Super Structure (Including bearings)	0.00%	(3) Super-structure: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of super- structure upto deck slab including bearings of at least one span as specified here in under: If pre-cast girders/ segments are used, interim payments shall be made at 75% of the cost of that element, as derived from MoRTH Data Book, applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.
4) Wearing coat including expansion joints	0.00%	(4) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified for each of the structure.
5) miscellaneous items like hand rails, crash barrier, road markings etc	0.00%	(5) 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 for each of the structure.
6) wing walls / return walls	0.00%	(6) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified for each of the structure.
7) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(7) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified here in under :If reinforced soil wall is used with facia panel/blocks, interim payment shall be made @75% of the Cost of that element as derived from MoRTH data Book. Applicable SOR of State PWD on Base Date with tender discount/premium applied thereon.

Note:

(1) In case of innovate Major Bridge projects like cable suspension/cable stayed/ Extra

Dozed and exceptionally long span bridges, the schedule may be modified as per site requirements before bidding with due approval of Competent Authority.

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

1.3.3 Other works.

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

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
Other Works		
(i) Toll Plaza	0.00%	Unit of measurement is each completed toll plaza. Payment for each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas as specified here in under:
(a) DLC (LHS)		a) DLC (LHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS
(b) DLC (RHS)		(b) DLC (RHS) : Payment of 12.5% on pro-rata basis shall be made on completion of a stage i.e. completion of DLC on LHS.
(c) PQC (LHS)		(c) PQC(LHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on LHS.
(d) PQC (RHS)		(d) PQC(RHS): Payment of 25% on pro-rata basis shall be made on completion of a stage i.e. completion of PQC on RHS.
(e) Admin Building		(e) Admin Building: Payment of 10% on pro-rata basis shall be made on completion of a stage i.e. completion of Admin Building and miscellaneous works.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
(f) Toll Booth, canopy, safety items and all other associated works		(f) Toll Booth, canopy, safety items and all other associated works: Payment of 15% on pro-rata basis shall be made on completion of a stage i.e. completion of Toll Booth, canopy, safety items and all other associated works.
(ii) Road side drains		
(a) RCC Lined Drain	38.20%	Drains: Unit of measurement is linear length in meter . Payment shall be made on pro rata basis on completion of a stage in a length of not less than 50 m on one side.
(b) Unlined Drain	0.00%	
(iii) Road Signs, markings, km stones, safety devices, Road furnitures etc	0.89%	Payment shall be made upon completion of all the items.
(iv) overhead gantry/mounted signs	0.00%	Unit of measurement is each number. Payment shall be made on pro-rata basis on completion of each overhead gantry mounted sign
(v) Project facilities		
(a) Bus Bays	0.00%	
(b) Truck lay byes	0.00%	
(c) Paver Block over Sand bed	0.00%	
(d) Construction of buildings (traffic Aid post, medical Aid post, Vehicle resue post & O&M centre)	0.00%	Unit of measurement is each number. Payment shall be made on pro rata basis for completed facilities.
(e) Providing Vehicle (Ambulance, Patrolling unit, Crane etc)	0.00%	
(f) Highway Lighting	0.00%	
(g) Others (Rainwater harvesting, utility duct, noise barrier etc)	0.00%	
(vi) Junction improvements	32.67%	Payment shall be made on pro-rata basis based on number of junctions

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
		successfully improved, upon completion of a stage i.e a minimum of 2 Junctions.
(vii) Median & Road side Plantation	0.00%	Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of one Km.
vii) Protection works# other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROB/RUBs.		
(a) Thrie beam Crash Barrier	0.00%	Payment against items (a), (b) & (c) shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length and 100 m whichever is less. Unit of measurement is linear length.
(b) Reinforced earth structure	0.00%	
(c) New Jersey Crash Barrier	9.13%	
viii) Maintenance of Existing Road during construction period	0.00%	
ix) One time improvement (Overlay with BC+ DBM Layers)	0.00%	
x) Safety and traffic management during construction	0.00%	
xi) Utility Shifting		
a) BSNL	0.00%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro -rata basis as per its weightage with reference to total cost of pipe line. Payment shall be made for completed activity.
b) Jal Nigam	0.00%	Unit of measurement is as per completed activities. Cost per activity shall be determined on pro -rata basis as per its weightage with reference to total cost of pipe line. Payment shall be made for completed activity.

STAGE FOR PAYMENT	PERCENTAGE WEIGHTAGE	PAYMENT PROCEDURE
c) Electricity	16.37%	Payment Shall be made upon completion of shifting of all electrical utilities as per Schedule-B
d) HT Line	0.00%	
xii) Dismantling of Existing Minor Bridge	2.74 %	Payment shall be made upon Completion of Dismantling of Existing Minor Bridge.

2. Procedure for payment for Maintenance

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

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

Schedule-I (Drawings)

(See Clauses 10.2 (ii))

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: List of Drawings

(Schedule-I)

A minimum list of the drawings of the various components / elements of the Project Highway and project facilities required to be submitted by the Contractor is given below:

- (a) Drawings of horizontal alignment, vertical profile and detailed cross sections.
- (b) All Drawings of minor bridges.
- (c) Drawings of cross-drainage works
- (d) Drawing of road furniture including traffic signage, marking, safety barriers etc.
- (e) Drawing of traffic diversion plan.
- (f) Drawing as per instruction of Authority's Engineer.

Schedule-J (Project Completion Schedule)

(See Clauses 10.2 (iii))

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 128th **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 219th **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 311th **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.**

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 (Tests on Completion)

(See Clauses 12.1 (ii))

1. Schedule for Tests

- 1.1 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.
- 1.2 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

- 2.1 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 (to be decided with Authority's Engineer at the time of physical tests as per relevant IRC/ Code Manual).
- 2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometer.
- 2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) meters or more shall also be subjected to load testing.
- 2.4 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
- 2.5 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.

- 2.6 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.

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

S. 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 (Completion Certificate)

(See Clauses 12.2)

I,..... (Name of the Authority’s Engineer), acting as the Authority’s Engineer, under and in accordance with the Agreement dated(the “**Agreement**”), for “**Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh**” 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.

1. 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 theday of 20....., Scheduled Completed Date for which was theday of20.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Authority’s Engineer by:

(Signature)

(Name)

(Designation)

(Address)

Schedule-M (Payment Reduction for Non-Compliance)

(See Clauses 14.6, 15.2 & 19.7)

1. Payment reduction for non-compliance with the Maintenance Requirements

- 1.1 Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- 1.2 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.
- 1.3 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 Paragraph 2

2. Percentage reductions in lump sum payments

- 2.1 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, raincuts, disturbed pitching, vegetation growth, pruning of trees	5%
(c)	Bridges and Culverts	
(i)	Desilting, cleaning, vegetation growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations	20%
(ii)	Any Defects in superstructures, bearings and sub-structures	10%
(iii)	Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers	5%
(d)	Roadside Drains	
(i)	Cleaning and repair of drains	5%
(e)	Road Furniture	
(i)	Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones	5%

S. No.	Item/Defect/Deficiency	Percentage
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accidentated 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%

- 2.2 The amount to be deducted from monthly lump-sum payment for non-compliance of particular item shall be calculated as under:

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

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 (Selection of Authority's Engineer)

(See Clauses 18.1 (i))

Note: The State PWD shall perform duties of the Authority's Engineer and No other firm shall be appointed as Authority's Engineer.

1. Selection of Authority's Engineer

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

2. Terms of Reference

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

3. Appointment of Government entity as Authority's Engineer

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

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

1. Scope

- 1.1 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 [DG, RD & SS, Ministry of Road transport & Highways] (the “**Authority**”) and..... (the “**Contractor**”)[#] for **Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh.** The TOR shall apply to construction and maintenance of the Project Highway.

2. Definitions and interpretation

- 2.1 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.
- 2.2 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.
- 2.3 The rules of interpretation stated in Article 1 of the Agreement shall apply, mutatis mutandis, to this TOR.

3. General

- 3.1 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.
- 3.2 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

[#] 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

- (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.
- 3.3 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.
- 3.4 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.
- 3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
- 3.6 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**
- 4.1 During the Construction Period, the Authority's Engineer shall review and approve the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1 (vi). The Authority's Engineer shall complete such review and approval and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- 4.2 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.
- 4.3 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.

- 4.4 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.
- 4.5 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 Clause 10.4.
- 4.6 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.
- 4.7 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.
- 4.8 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.
- 4.9 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 management. For purpose of this paragraph 4 (ix), the tests specified in the MORTH Specifications for Road and Bridge Works and respective Indian Roads Congress Standards/Guidelines/Manuals, together with any other Indian/International Standards mentioned therein including any modifications/substitutions thereof shall be deemed to be tests confirming to Good Industry Practice for quality management.
- 4.10 The Authority's Engineer shall witness all the quality control tests carried out Contractor at its laboratory/main by the site laboratory/field/plants. These include tests for all materials, mixes, products, etc. Authority's Engineer shall also witness all tests of finished products like bearing in the manufacturers' laboratory as mandated in respective standards. Authority's Engineer will also

conduct review of quality control documents in respect manufactured of factory materials/finished products, etc. as per IRC:SP:112.

- 4.11 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 MoRTH specifications for Road & Bridge works and respective Indian Roads Congress Standards/Guidelines/Manuals together with any other Indian/International Standards referred thereto. 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.
- 4.12 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.
- 4.13 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.
- 4.14 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.
- 4.15 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 Clause 12.2.
- 4.16 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.
- 4.17 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.

- 4.18 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

- 5.1 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.
- 5.2 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.
- 5.3 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.
- 5.4 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- 5.5 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 Clause 14.5.

6. Determination of costs and time

- 6.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 6.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

- 6.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

7. Payments

- 7.1 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).

- 7.2 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.

- 7.3 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.

- 7.4 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

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

- 9.2 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.

- 9.3 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 setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 9.4 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.

The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

Schedule-O (Forms of Payment Statements)

(See Clauses 19.4(i), 19.6(i), 19.8(i))

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 up to the last claim:
 - (i) For the Works executed (excluding Change of Scope orders);
 - (ii) For Change of Scope Orders, and
 - (iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and

(e) amount to ` `wards 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 (Insurance)

(See Clauses 20.1)

1. Insurance during Construction Period

1.1 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.

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

2. Insurance for Contractor's Defects Liability

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

3. Insurance against injury to persons and damage to property

3.1 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. _____

3.2 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 (Tests on Completion of Maintenance Period)

(See Clauses 14.10)

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 (Taking Over Certificate)

(See Clauses 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 **"Reconstruction of narrow bridge at Km. 20.290 on NH-727 to four lane bridge on Engineering, Procurement and Construction (EPC) mode in the state of Uttar Pradesh."** (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through _____ (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day _____.

SIGNED, SEALED AND DELIVERED

(Signature)

(Name & Designation of Authority's Representatives)

(Address)

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