

Schedules

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

- 1.1 Site of the [Two-Lane] with Paved Shoulders Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- 1.2 The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- 1.3 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.
- 1.4 The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be upgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The contractor, however, improve/upgrade the Road Profile as indicated in Annexure-III based on site/design requirement.
- 1.5 The status of the environment clearances obtained or awaited is given in Annex IV.

Annex - I
(Schedule-A)

Site

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

1. Site

The Site of the [Two-Lane] Project Highway comprises the section of [National Highway-07 commencing from km 458+900 to km 459+475 i.e. Patalganga Landslide in the State of Uttarakhand. This location fall under perpetual slide zone with 48 years of history recurring landslide. The land, carriageway and structures comprising the Site are described below.

2. Land

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

SI. No	Existing Chainage (km)		Existing ROW (m)
	From	To	
1	458+900	459+475	14.4

3. Carriageway

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

4. Major Bridges

The Site includes the following Major Bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Superstructure		
NIL						

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

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

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

6 Grade separators

The Site includes the following grade separators:

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

NIL

7 Minor bridges

The Site includes the following minor bridges:

S. No.	Chainage (km)	Type of Structure			No. of Spans with span length (m)	Width (m)
		Foundation	Sub-structure	Superstructure		
NIL						

8 Railway level crossings

The Site includes the following railway level crossings:

S. No.	Location (km)	Remarks
NIL		

9 Underpasses (vehicular, non-vehicular)

The Site includes the following underpasses:

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

10 Culverts

The Site has the following culverts:

S. No.	Existing Chainage (km)	Type of Culvert	Span/Opening with span length(m)
Nil			

11 Bus bays

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

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

12 Truck Lay byes

The details of truck lay byes are as follows:

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

13 Road side drains

The details of the roadside drains are as follows:

S. No.	Location	Type
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	From km	To km	Masonry/cc (Pucca)	Earthen (Kutchra)
NIL				

14 Major junctions

The details of major junctions are as follows:

S. No.	Location		At grade	Separated	Category of Cross Road			
	From km	To km			NH	SH	MDR	Other
NIL								

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

15 Minor junctions

The details of the minor junctions are as follows:

SI. No.	Location		Type	
	From km	to km	T-Junction	Cross Road
Nil				

16 Bypasses

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

S. No.	Name of bypass (town)	Chainage (km) From km to km	Length (in km)
NIL			

[17 Other structures]

Nil.

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:

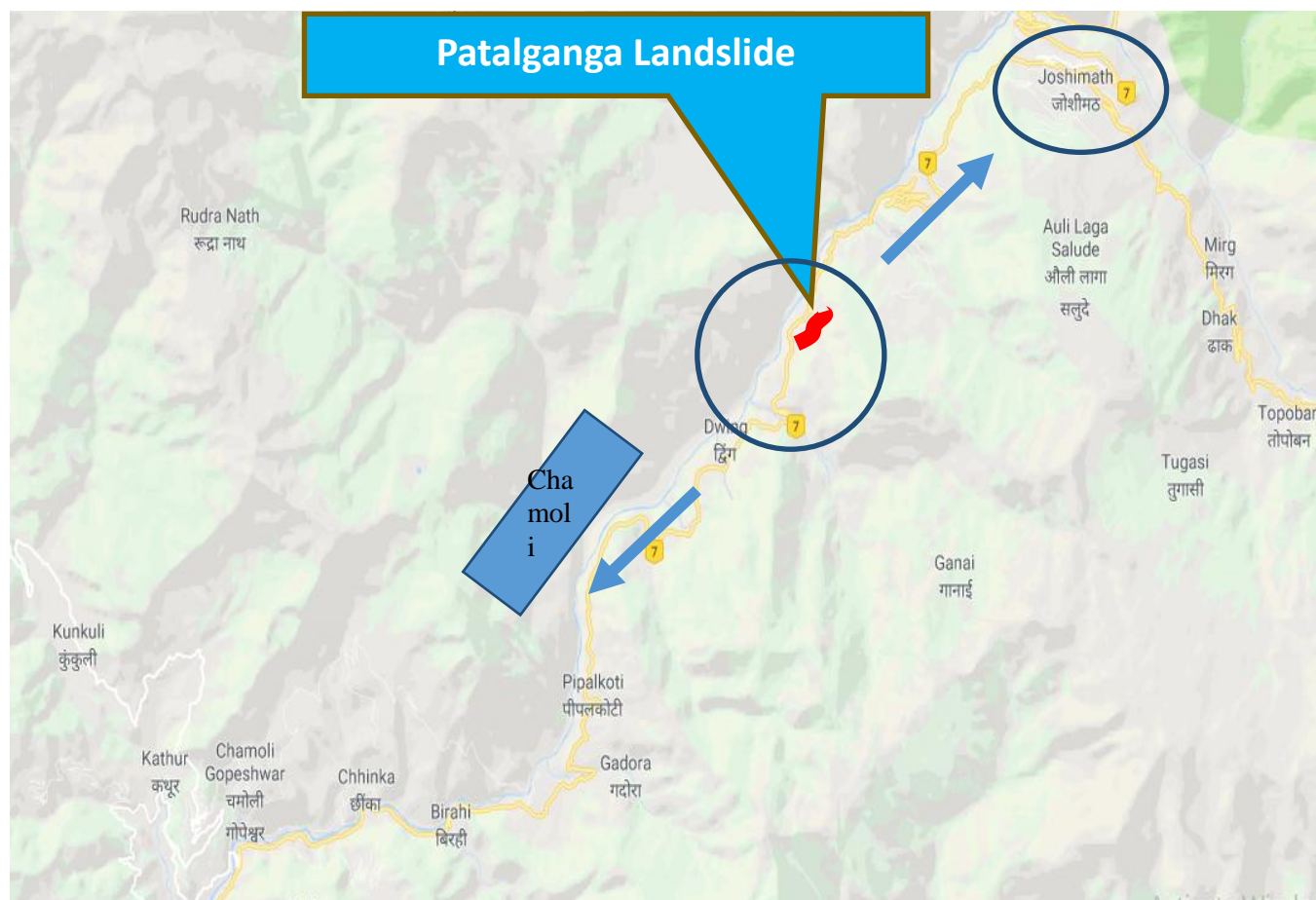
Full Right of Way (Full Width)

S.No	Existing Chainage	Design Chainage	EROW	PROW	Date of providing ROW*
(i)	Full Right of Way (Full Width)				
	458+900	456+200	14.4	18	Appointed date
	459+475	456+800	14.4	18	

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

Annex - III
(Schedule-A)
Alignment Plans

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



Annex - IV

(Schedule-A)

Environment Clearances

The following environment clearances have been obtained:

[Nil]

Note: Ministry of Environment & Forest, Government of India in letter vide no. 22nd August 2013, has recommended that expansion of National Highway projects up to 100 km involving additional right of way or land acquisition up to 40 m on existing alignments and 60 m on re-alignments or by-passes may be exempted from the preview of the notification.

Therefore, as per the criteria given in EIA Notification of 14th September, 2006 and its amendment dated 1st December, 2009 & 22nd August 2013, the environmental clearance is not required for this project.

The following environment clearances are awaited:

[Nil]

Note: Not Applicable

SCHEDULE - B

(See Clause 2.1)

Development of the Project Highway

1 Development of the Project Highway

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

2 [Rehabilitation and augmentation]

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

3 Specifications and Standards

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

Annex - I

(Schedule-B)

Description of [Two-Laning]_s

[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for Two Laning of Highways (IRC: SP:73-2015), referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]

Description of project as per Consultant:

Slide mitigation measure:

This location fall under perpetual slide zone with 48 years of recurring landslide history. The holistic and comprehensive solution involves slope stabilization, construction of precast tunnel in addition to road work. Due to hilly terrain provision of slope protection work viz Gabion Retaining wall, hilly side protection with Rhomboidal Wire Rope Panel along with High Resistance geocomposite Wire Mesh with top and bottom anchor and surface anchor, and Dynamic Rockfall barrier of 3000KJ of 5m height etc are necessary for road users in accordance with the IRC SP: 116-2018 , IRC SP: 23-2014 and IRC. SP:48:1998 Hill Road manual over the hilly slopes.

- i. **Slope Protection work :** Provision of Gabion retaining wall in a minimum length of 439 m, Rhomboidal Wire Rope Panel along with High Resistance geocomposite Wire Mesh with top and bottom anchor and surface anchor in a minimum length 446 m.
- ii. **Precast Tunnel:** Construction of precast segmental arch tunnel has been proposed for providing all weather road connectivity and its faster in construction due to precast segments and not provide hindrance in traffic movement during construction is also provisioned. **The proposal after construction shall be first such tunnel in India.**
- iii. **Dynamic Rockfall Barrier:** Due to site topography, the present stretch is critical for Rockfall events (Shooting Stone). To prevent the loss of life and property during proposed road widening and rehabilitation, suitable rockfall mitigation measures are required at critical locations in the

present stretch. The system shall have energy dissipators/braking system which should be able to help dissipate the impact energy by deformation and not by friction. Dynamic Rockfall Barrier of 3000KJ of 5m minimum height of 200m minimum length shall be provided. As per IRC SP: 23-2014

1 WIDENING OF THE EXISTING HIGHWAY

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

1.2 WIDTH OF CARRIAGEWAY

1.2.1 Two-Laning [with] paved shoulders shall be undertaken. The paved carriageway shall be [10 (Ten) m] wide in accordance with the typical cross sections drawings in the Manual.

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

S. No	Built-up stretch (Township)	Existing Chainage(km)		Design Chainage(km)		Length (m)	Width of Carriage way (m)	Ref. Typical cross section
		From	To	From	To			
NIL								

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

2 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

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

2.2 Design speed

The design speed as per IRC: SP: 73-2015 for hilly/steep terrain shall be adopted.

2.3 Improvement of the existing road geometrics

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

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided:

S.no	Existing Chainage		Design Chainage		Length (km)
	From	To	From	To	
1	458+900	459+475	456+200	456+800	0.600

2.4 Right of Way

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

2.5 Type of shoulders

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

S. No	Existing Chainage (km)		Design Chainage (km)		Length	Fully Paved shoulder / Footpath	Reference to Cross Section
	From	To	From	To			
Nil							

(b) In open country, [paved shoulders of 1.5 m width shall be provided and balance 1.0m width shall be covered with 150 mm thick compacted layer of granular material].

(c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in paragraphs 5.9.8 and 5.9.9 of the Manual.

2.6 Lateral and vertical clearances at underpasses

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

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

S. No.	Location (chainage) (from km to km)	Span/opening (m)	Remarks
NIL			

2.7 Lateral and vertical clearances at overpasses.

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

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

S. No.	Location (chainage) (from km to km)	Span/opening (m)	Remarks
NIL			

2.8 Service roads

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

below:

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

2.9 Grade separated structures

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

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

2.9.2 In the case of grade separated structures, the type of structure and the level of the Project Highway and the cross roads shall be as follows: [Refer to paragraphs 2.13.1 of the Manual and specify the type of vehicular under pass/ overpass structure and whether the cross road is to be carried at the existing level, raised or lowered]

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

2.10 Cattle and pedestrian underpass /overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows: [Refer to paragraphs 2.13.2 of the Manual and specify the requirements of cattle and pedestrian underpass/ overpass]

S. No.	Existing Chainage (km)	Design Chainage (km)	Width (m)	Type of crossing
Nil				

2.11 Typical cross-sections of the Project Highway

The typical cross section has been developed as Type-I to Type-III as included in Annexure-A of this Schedule confirming to the Manual

3 INTERSECTIONS AND GRADE SEPARATORS

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

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

(a) At-grade intersections

S.No.	Location of Intersection	Type of Intersection	Leading to
NIL			

(b) Grade separated intersection with/without ramps

S. 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

4.1 Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

4.2 Raising of the existing road

The existing road shall be raised in the following sections:

S. No.	Existing Chainage		Design Chainage		Length in Km	Extent of raising (Top of finished road level)
	From	To	From	To		
1	458+900	459+475	456+200	456+800	0.600	Raising of the existing surface will be as per the difference between existing and finished road level.

5 PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with Section 5 of the Manual with minimum 8% CBR and 20 MSA.

5.2 Type of pavement

The project highway is proposed to provide flexible pavement and (rigid pavement in built-up section). The composition of proposed pavement and their corresponding

minimum thickness is given in the table below confirming with section-5 of the manual:

S No	Pavement composition	Min. Thickness (mm)
1	Bituminous Concrete	40
2	DBM	85
3	WMM	250
4	GSB	200
	Total thickness of Pavement excluding subgrade	575

5.3 Design requirements

As per typical cross section attached in Annexure-A of this Schedule.

5.3.1 Design Period and strategy

Cement Concrete pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 30 years and Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

5.3.2 Design Traffic

The pavement has been designed for design traffic of 20 million standard axles as per section 5 of the Manual.

5.4 Reconstruction of stretches

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

Sl. No.	Existing Chainage (Km)		Design Chainage (Km)		Remarks
	From	To	From	To	
1	458+900	459+475	456+200	456+800	Reconstruction

6 ROADSIDE DRAINAGE

The existing drainage is mostly unlined and too inadequate. Appropriate drainage measures have been adopted for the project along the design length 600 drainage system including surface and subsurface drains for the Project Highway has been provided as per Section 6 of the Manual.

7 DESIGN OF STRUCTURES

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and structures shall be as follows:

Sl. No.	Bridge at km	Width of carriageway and cross section features@
NIL		

7.1.3 The following structures shall be provided with footpaths:

Sl. No.	Location at km	Remarks
NIL		

7.1.4 All bridges shall be high-level bridges.

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

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

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

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

7.2 Culverts

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

7.2.2 *Reconstruction of existing culverts:*

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

Sl. No.	Design Chainage	Span/Opening (m)	Type of Culvert
Nil			

7.2.3 *Widening of existing culverts*

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

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

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

S.No.	Design Chainage	Type of Culvert	Span (m)
1	456+650	Box	1x4x4

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

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

Specifications.

7.3 Bridges

7.3.1 Existing bridges to be re-constructed/widened

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

[Refer to paragraph 7.3 (iv) of the Manual and provide details]

Sl. No.	Bridge location (km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc.*	Remarks
NIL				

*Attach GAD

(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				

@ Attach cross-section

7.3.2 Additional new bridges

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

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

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

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

Sl. No.	Location at km	Remarks
NIL		

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

Sl. No.	Location at km	Remarks
NIL		

7.3.5 Drainage system for bridge decks

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

7.3.6 Structures in marine environment

Nil.

7.4. Rail-road bridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual

7.4.2 *Road over-bridges*

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

Sl. No.	Location of Level crossing (chainage km)	Length of bridge (m)
NIL		

7.4.3 *Road under-bridges*

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

Sl. No.	Location of Level crossing (chainage km)	Number and length of span (m)
NIL		

7.5 Grade separated structures

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

7.6 Repairs and strengthening of bridges and structures

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

A. Bridges

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

B. ROB / RUB

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

C. Overpasses/Underpasses and other structures

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

7.7 List of Major Bridges and Structures

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

Sl. No.	Location
NIL	

8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

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

8.2 Specifications of the reflective sheeting as per Section 9.2.3 of the manual.

ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 9 and 12 of the Manual and as well given in Schedule-C.

9.2 *Overhead traffic signs: location and size*

Overhead traffic signs are provided as per site requirement according to paragraph 9.2.5 of the Manual and as given in Schedule-C.

10 COMPULSORY AFFORESTATION

Nil

11 HAZARDOUS LOCATIONS

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

Sl. No.	Location stretch from (km) to (km)	LHS/RHS
Nil		

12 SPECIAL REQUIREMENT FOR HILL ROADS

In accordance with the section 13 of the manual (IRC: SP 73:2015 & IRC: SP 48:1998) and recommended practices for the treatment of embankment and road side slopes erosion control (First Revision), IRC: 56-2011 and relevant IRC.

12.1 Slope Protection

As the project involves cutting of existing hill slope, it is imperative that slope are stabilized for ensuring longevity of the slope and the road. Slope stability, erosion control and landslide correction shall be accomplished in accordance with IRC: SP: 48-1998, IRC SP: 116-2018 and IRC SP: 23-2014. Reference may be drawn from IRC: 56-2011.

(i) The minimum quantity of protection work may be taken as below:

Type of Protection Work		
Protection Work	Unit	Quantity
W- Beam Crash Barrier	Rm	439
Gabion wall/Structure on hill/ valley side of varying height between 1 to 6 metre depending upon the slope.	Rm	439
Hilly side protection with Rhomboidal Wire	Rm	446

Rope Panel along with High Resistance geocomposite Wire Mesh with top and bottom anchor and surface anchor (Secured Drapery System).		
Precast Concrete Tunnel	Rm	150
Dynamic Rockfall Barrier	Rm	200

i) The contractor shall be responsible for accurate assessment of the actual requirement as per site situation and prepare design for slope protection and stabilization as per specification and standards stipulated in Schedule-D and submit the same to the Authority's Engineer/Authority for review through the Proof Consultant and implement it accordingly thereafter

ii) **Any increase in quantity over and above the tentative quantity as mentioned in above table or through change in specifications will not be considered as change of scope.** Therefore, Contractor shall make through investigation at site and assess the requirement of slope protection and slide prone zone and other safety feature at his own before submission of bid.

iii) For executing any of the above type of slope protection works, the contractor should have the experience of having executed, in last 5 (five) financial years from the date of signing of Agreement, atleast 40% quantity of that type of slope protection works and provide requisite certificates/documents to verify the same to the Authority/ Authority engineer.

iv) If the Contractor does not have requisite experience for any/some of the above type of slope protection works, then he has to engage specialized firm(s) as sub-contractor(s) who has/have successfully completed in last 5(five) financial years at least 40% quantity of such works. The contractor shall submit the credentials and the qualifying experience of the specialized sub-contractor(s) for approval of Authority before the commencement of such slope protection works.

Note – The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepared design for slope protection & stabilization as per the specification & standard stipulated in schedule 'D' and submit the same to the AE

for review through the proof consultant and implement it accordance thereafter.

Note – The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepared design for slope protection & stabilization as per the specification & standard stipulated in schedule 'D' and submit the same to the AE for review through the proof consultant and implement it accordance thereafter.

Any Increase in quantity over and above the tentative quantity as mentioned in the above table or through change in specification will not be considered as change of scope. Therefore contractor shall make thorough investigation at site and assess the requirement of slope protection and slide prone zone and other safety features at his own before submission of bid.

12.2 ROAD LAND BOUNDARY (Clause 12.2 IRC SP: 73: 2015)

Road land (ROW) boundary shall be demarcated by putting RCC boundary pillars of size 60cm x 15cm x 15cm embedded in concrete (as per IRC:25) along the Project highways at 200 m interval on both side. All the components used in delineating road land boundary shall be aesthetically pleasing, sturdy and vandal proof. The road land boundary shall be demarcated in consultation with NHIDCL.

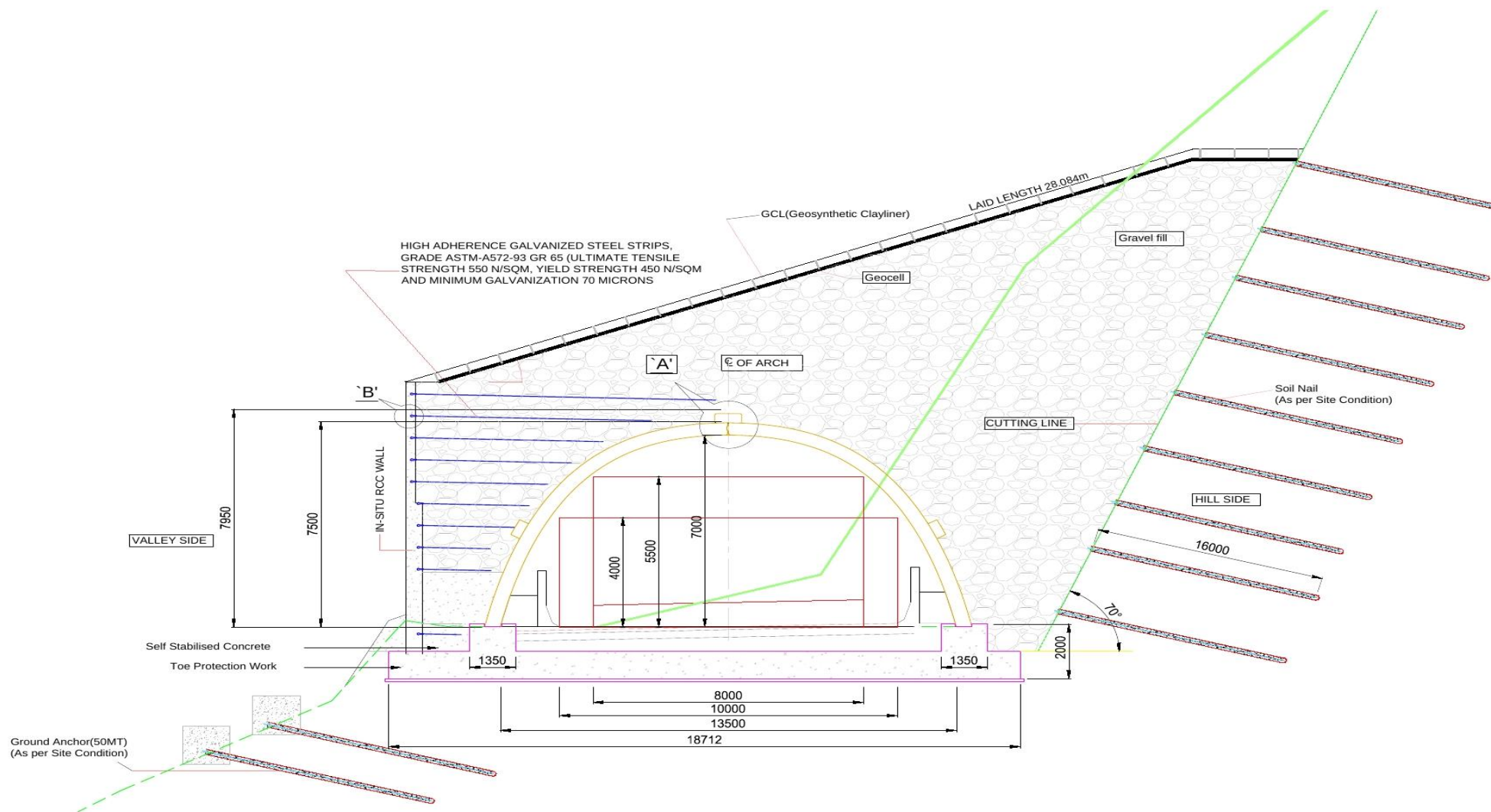
13 CHANGE OF SCOPE

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

Annexure-A
(Schedule B)

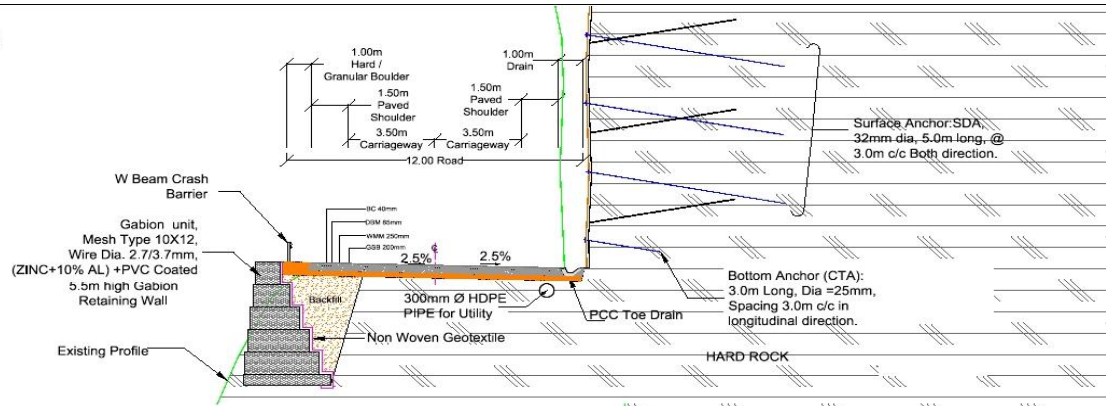
Summary of Typical Cross Sections

Sl. No	Type	Description	Length (m)
1	I	TYPICAL CROSS SECTION OF ARCH TUNNEL FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+200 TO 456+350	150
2	II	TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+350 TO 456+450	100
3	III	TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+450 TO 456+800	350
Total Road Length			600

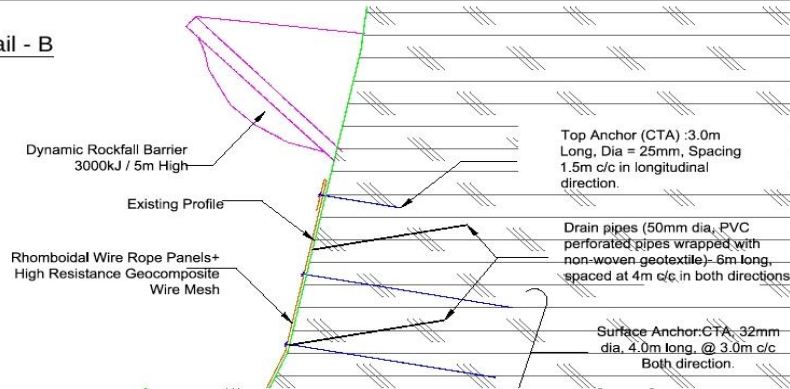


TYPICAL CROSS SECTION OF ARCH TUNNEL FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+200 TO 456+350

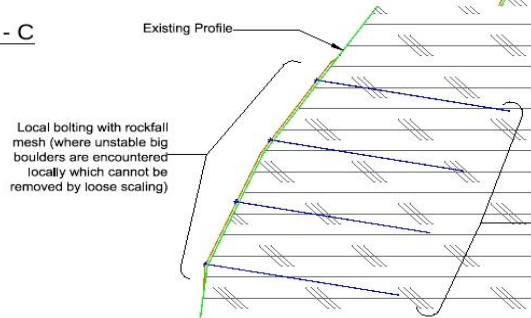
Detail - A



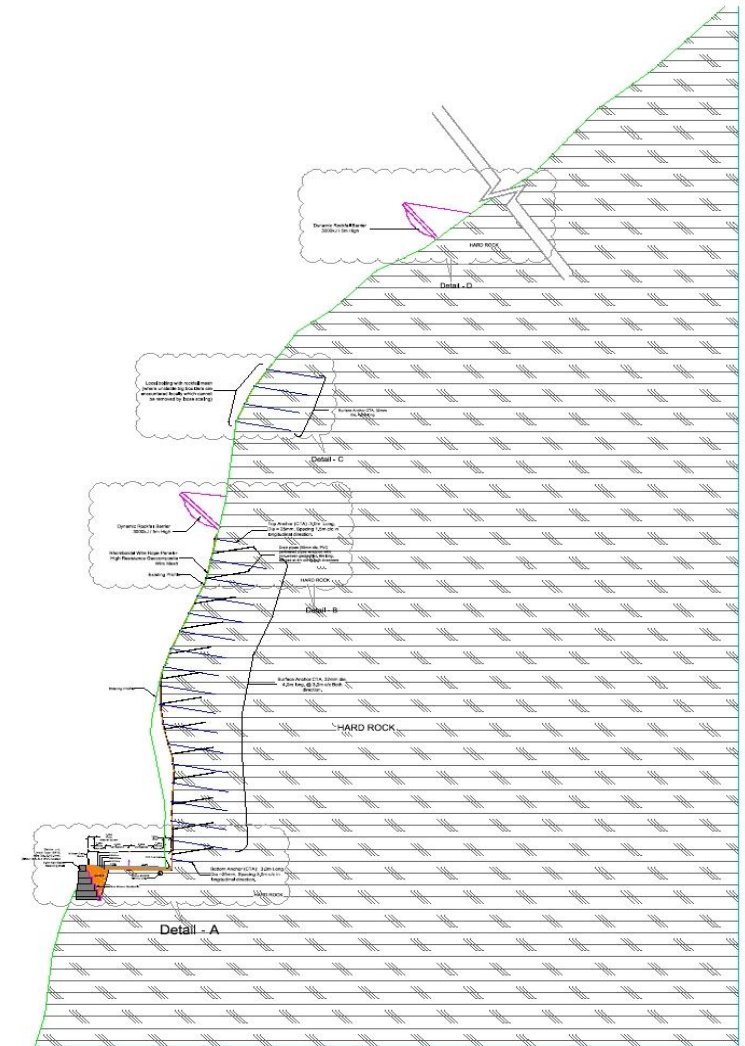
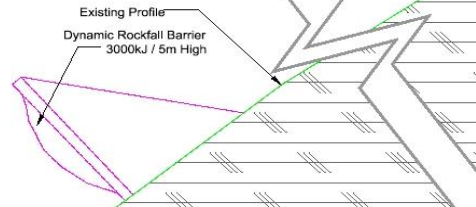
Detail - B



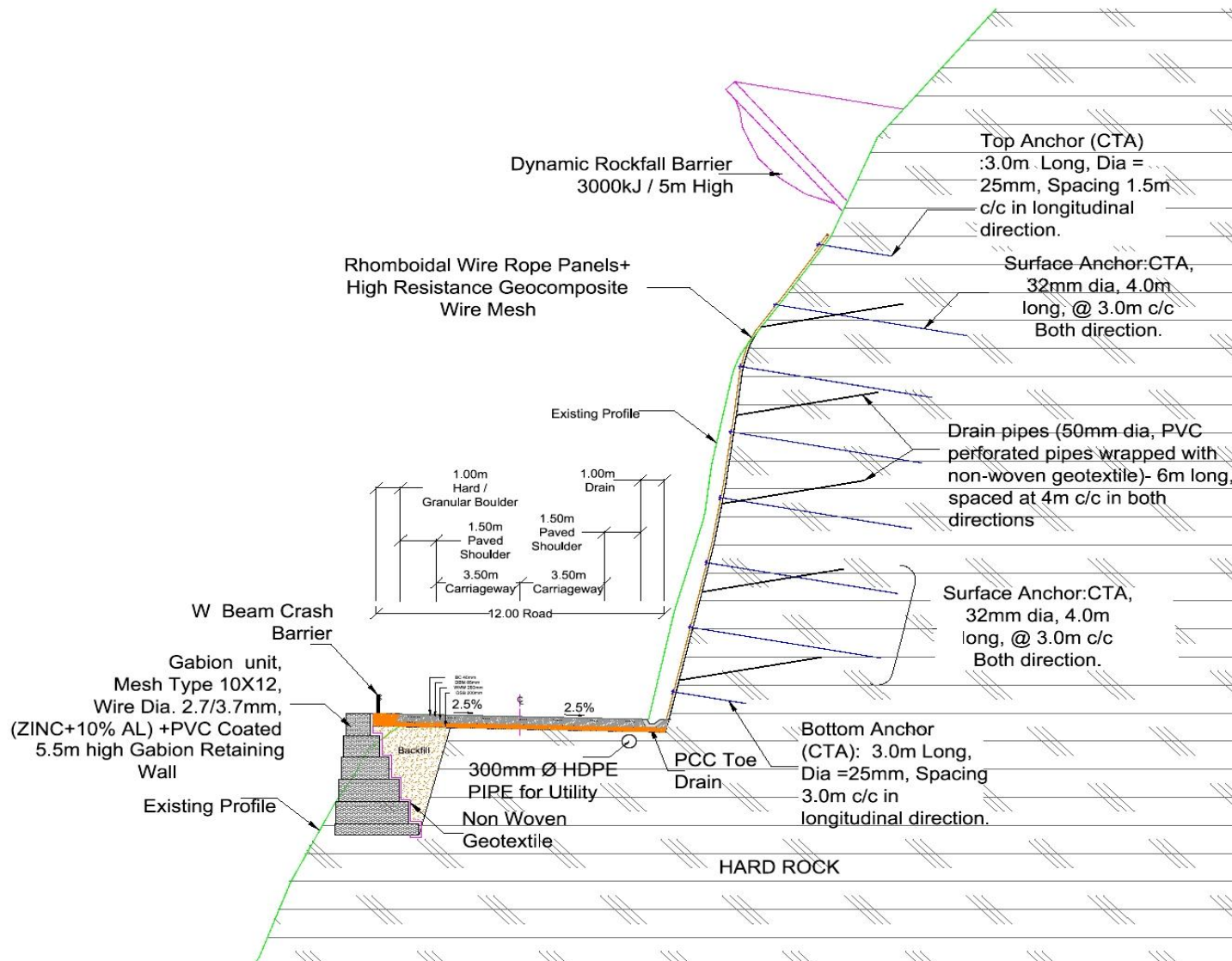
Detail - C



Detail - D



TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+350 TO 456+450



TYPICAL CROSS SECTION OF LANDSLIDE MITIGATION MEASURES FOR PATALGANGA LANDSLIDE FROM DESIGN CHAINAGE 456+450 TO 456+800

SCHEDULE - C

(See Clause 2.1)

PROJECT FACILITIES

1 Project Facilities

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

- (a) toll plaza[s];
- (b) roadside furniture;
- (c) pedestrian facilities;
- (d) tree plantation;
- (e) truck lay-byes;
- (f) bus-bays and bus shelters;
- (h) rest areas; and
- (i) others to be specified

2 Description of Project Facilities

a) Road side Furniture

Adequate road signs, markings and other road side furniture have been proposed for the proposed project road in order to provide advance information to regulate/control traffic flow and ensure safety of operations. The details are given below:

i. Marking

Type of Marking	Marking Abbreviation	Type	Length of the segment (mm)	Length of Gap (mm)	Width (mm)	Colour	Locations
Edge marking	LM24	Continuous	NA	NA	150	White	Throughout
Centre marking	LM02	Broken	3000	6000	150	White	Throughout
Stop marking	TM03	Two Solid Line (300mm apart)			200	White	Junctions
Giveaway marking	TM07	Broken lines (300mm apart)			200	White	Junctions
Pedestrian crossing	BM02	Rect. Block	3000x500	500	500	White	school and junction

(c) Pedestrian Facilities

Pedestrian facilities shall be provided as per paragraph 9.8 of the Manual. Pedestrian Crossing is proposed to provide at all the major intersections and in built up-areas, footpaths of 1.5m width Guard railings, Zebra crossings, Pedestrian cross signs and flashing signals should be provided considering pedestrian safety.

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Type	Remark
Nil				

(d) Tree Plantation

NIL

(e) Truck Laybys

Truck lay-byes are proposed as per requirement. Details of truck lay byes are given in table below in accordance with the Manual:

Detail of truck lay byes

S. No	Existing Chainage (Km)	Design Chainage (km)	Location
Nil			

(f) Bus-Bays and Bus Shelters

Bus-bays and Bus Shelter shall be provided at following locations in accordance with the Manual.

List of Bus Bays

Sl. No.	Design Chainage (Km)	Existing Chainage(km)	Location	Sides
NIL				

(h) Rest Areas

Rest areas are proposed to be provided at locations of truck laybys as tabulated below:

Sl. No	Existing Chainage (Km)	Design Chainage (km)	Location
NIL			

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 and Slide treatment

2 Design Standards

The Road, Bridge and slide treatment including project Facilities shall conform to design requirements set out in the following documents:

Manual of Specifications and Standards for Two Laning of Highways (IRC: SP: 73-2015), referred to herein as the Manual

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

Annex - I
(Schedule-D)

Specifications and Standards for Construction

1 Specifications and Standards

All Materials, works and construction operations shall conform to the two lane Manual (IRC: SP: 73-2015) of Specifications and Standards for Two-Laning (IRC: SP: 73-2015), MORTH Specifications for Road and Bridge Works (Fifth Revision), IRC 56-2011, IRC: SP: 23-2014, IRC: SP: 116-2018 and IRC : SP: 48-1998 . Where the specification for a work is not given in any IRC/IS code, 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 "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.

SCHEDULE - E

(See Clauses 2.1 and 14.2)

MAINTENANCE REQUIREMENTS

1 Maintenance Requirements

1.1 The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.

1.2 The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

1.3 All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

[Specify all the relevant documents]

2 Repair/rectification of Defects and deficiencies

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

3 Other Defects and deficiencies

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

4 Extension of time limit

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

5 Emergency repairs/restoration

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

6 Daily inspection by the Contractor

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

7. Pre-monsoon inspection / Post-monsoon inspection

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

8. Repairs on account of natural calamities

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

Annex - I
(Schedule-E)

Repair/rectification of Defects and deficiencies

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

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 depression, rutting exceeding 10 mm in road surface	30 (thirty) days
(vi)	Bleeding/skidding	7 (seven) days
(vii)	Any other defect/distress on the road	15 (fifteen) days
(viii)	Damage to pavement edges	15 (fifteen) days
(ix)	Removal of debris, dead animals	6 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 40mm	7 (seven) days
(iii)	Variation by more than 15% in the	30 (thirty) days

	prescribed side (embankment) slopes	
(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 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 hours
(ii)	Painting of km stone, railing, parapets, crash barriers	As and when required/Once every year
(iii)	Damaged/missing road signs requiring replacement	7 (seven) days
(iv)	Damage to road mark ups	7 (seven) days
(d)	Road lighting	
(i)	Any major failure of the system	24 hours
(ii)	Faults and minor failures	8 hours
(e)	Trees and plantation	
(i)	Obstruction in a minimum head room of 5m above carriageway or obstruction in visibility of road signs	24 hours
(ii)	Removal of fallen trees from carriageway	4 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 hours
(ii)	Defects in electrical, water and sanitary installations	24 hours
(g)	[Toll Plaza]	
(h)	Other Project Facilities and Approach roads	
(i)	Damage in approach roads, pedestrian facilities, truck lay-byes, bus-buys, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15 (fifteen) days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a)	Superstructure	
(i)	Any damage, cracks, spalling/scaling Temporary measures Permanent measures	Within 48 hours 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)	Bearing (metallic) of bridges	
(i)	Deformation, damages, tilting or shifting of bearings	15 (fifteen) days Greasing of metallic bearings once in a year
(e)	Joints	
(i)	Malfunctioning of joints	15 (fifteen) days
(f)	Other items	

(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearing and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediately within 24 hours if posing danger to safety)
(iv)	Rain-cuts or erosion of banks of the side slopes of approaches	7 (seven) days
(v)	Damage to wearing coat	15 (fifteen) days
(vi)	Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds	30 (thirty) days
(vii)	Growth of vegetation affecting the structure or obstructing the waterway	15 (fifteen) days
(g)	Hill Roads	
(i)	Damage to retaining wall/breast wall	7 (seven) days
(ii)	Landslides requiring clearance	12 (twelve) hours
(iii)	Snow requiring clearance	24 (twenty four) hours

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

SCHEDULE - F

(See Clause 3.1.7(a))

APPLICABLE PERMITS

- 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 7.1.1, 7.5.3 and 19.2)
FORM OF BANK GUARANTEE

Annex-I
(See Clause 7.1.1)

[Performance Security/Additional Performance Security]

**The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi**

WHEREAS:

- (A) _____ [name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the **[NHIDCL, Government of India]**, (hereinafter called the “Authority”) for the **Construction and Upgradation including specialized slope treatment of existing road to 2-lane with paved shoulder from Exisiting Km. 458.900 to Km. 459.475 (Design Ch 456.200 to Ch 456.800) of Patalganga Landslide of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand. (Design Length = 0.600 km).** subject to and in accordance with the provisions of the Agreement.
- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupees crore) (the “Guarantee Amount”).
- (C) We, through our branch at (the “Bank”) have agreed to furnish this bank guarantee (*hereinafter called the “Guarantee”*) by way of Performance Security.

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

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

Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways & Infrastructure Development Corporation Limited], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and

the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****s. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This Guarantee shall also be operable at our Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment there under claimed, the said branch shall accept such invocation letter and make payment of amount so demanded under the said invocation.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annex – II
(Schedule - G)
(See Clause 7.5.3)

Form for Guarantee for Withdrawal of Retention Money

**The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi**

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the [NHIDCL, Government of India], (hereinafter called the “Authority”) for **the Construction and Upgradation including specialized slope treatment of existing road to 2-lane with paved shoulder from Existing Km. 458.900 to Km. 459.475 (Design Ch 456.200 to Ch 456.800) of Patalganga Landslide of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand. (Design Length = 0.600 km).** subject to and in accordance with the provisions of the Agreement.
- (B) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the “**Retention Money**”) after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.
- (C) We, through our branch at (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) for the amount of Rs. ----- cr. (Rs.-----crore) (the “**Guarantee Amount**”).

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

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager in the National Highways Authority of India], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for 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 Retention Money and 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 Retention Money.
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 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such

notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. This Guarantee shall also be operable at our Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment there under claimed, the said branch shall accept such invocation letter and make payment of amount so demanded under the said invocation.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annex – III
(Schedule - G)
(See Clause 19.2)

Form for Guarantee for Advance Payment

**The Managing Director,
NHIDCL,
3rd Floor, PTI Building, Sansad Marg,
New Delhi**

WHEREAS:

- (A) [name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the [NHIDCL, Government of India], (hereinafter called the “Authority”) for the Construction and Upgradation including specialized slope treatment of existing road to 2-lane with paved shoulder from Existing Km. 458.900 to Km. 459.475 (Design Ch 456.200 to Ch 456.800) of Patalganga Landslide of NH-07 under Chardham Pariyojna on EPC basis in the state of Uttarakhand. (Design Length = 0.600 km). 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) advance payment (herein after called “Advance Payment”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in two installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second} installment of the Advance Payment is Rs. ----- cr. (Rupees ----- crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the “Guarantee Amount”)^{\$}.
- (C) We, through our branch at (the “Bank”) have agreed to furnish this bank guarantee (*hereinafter called the* “Guarantee”) for the Guarantee Amount.

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

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid 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.

2. A letter from the Authority, under the hand of an officer not below the rank of [General Manager, NHIDCL], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on *****. \$ Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. Notwithstanding anything contained herein before, our liability under this bank Guarantee is restriced to Rs.....(Rs..... in words) and the Bank guarantee shall remain valid till Unless a claim or a demand in writing is served upon us on or before All our liability under this Bank Guarantee shall cease.
13. This Guarantee shall also be operable at our Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment there under claimed, the said branch shall accept such invocation letter and make payment of amount so demanded under the said invocation.

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

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.
- (iii) Bank Guarantee has been sent to authority's bank through SFMSgateway as per the detail below:-

S.No	Particulars	Details
1	Name of Beneficiary	National Highways & Infrastructure Development Corporation Limited
2	Beneficiary Bank Account No.	90621010002659
3	Beneficiary Bank Branch	IFSC SYNB0009062
4	Beneficiary Bank Branch Name	Transport Bhawan, New Delhi
5	Beneficiary Bank Address	Syndicate Bank Transport Bhawan, 1, Parliament Street, New Delhi 110001

Schedule-H
(See Clause 10.1.4 and 19.3)

CONTRACT PRICE WEIGHTAGES

The Contract Price for this Agreement is **Rs. Crore.**

1.1.1 The payment for value of road work done shall be with following condition in accordance with MoRTH circular No – RW/NH-33044/10/2002-S&R(P&B) dated 21.08.2018:

- (i) Payment during construction period – 90% of the total civil cost.
- (ii) Payment after three years of construction in case of Flexible pavements and after 5 years in case of rigid pavements- 5 % of total civil works cost linking with performance parameter.
- (iii) Payment on completion of Defect liability period – 5% of total civil works cost linking with performance parameters qua the attendance to the defects.

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

Item	Weightage in % of the Contract Price	Stage for Payment	Percentage weightage
1	2	3	4
Road works including Culverts, Widening and repair of culverts	6.58%	A) Widening and strengthening of existing road	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub Base Course	0.00%
		(3) Non Bituminous base course	0.00%
		(4) Bituminous base course	0.00%
		(5) Wearing coat	0.00%
		(6) Widening and repair of Culvert	0.00%
		B.1- Reconstruction /New 2-lane realignment/ bypass (flexible pavements)	
		(1) Earthwork up to top of the sub-grade	20.06%
		(2) Sub Base Course	0.00%
		(3) Non Bituminous base course	38.59%
		(4) Bituminous base course	19.78%
		(5) Bituminous Concrete	11.94%
		B.2- Reconstruction/ new/ 2-lane realignment/ bypass (Rigid Pavement)	
		(1) Earth work upto top of the subgrade	0.00%
		(2) Sub base course	0.00%
		(3) Dry lean concrete(DLC) course	0.00%
		(4) Pavement quality control(PQC) course	0.00%
		C.1 Reconstruction/New service road (Flexible pavement)	
		(1) Earthwork up to top of the sub-grade	0.00%
		(2) Sub Base Course	0.00%
		(3) Non Bituminous base course	0.00%
		(4) Bituminous base course	0.00%
		(5) Wearing coat	0.00%

		C.2- Reconstruction/New service road(Rigid Pavement)	
		(1) Earth work upto top of the subgrade	0.00%
		(2) Sub base course	0.00%
		(3) Dry lean concrete(DLC) course	0.00%
		(4) Pavement quality control(PQC) course	0.00%
		D-Reconstruction& New Culverts on existing road, realignments, bypasses	
		(1) Culverts (length < 6m)	9.63%
Minor Bridge /Underpasses/Overpasses	0.00%	A.1 Widening and repairs of minor bridges	0.00%
		A.2- New Minor bridges (length >6 and <60 m.)	
		(1) Foundation +Sub-structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	0.00%
		(2) Super-structure: On completion of the super structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	0.00%
		3) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%
		(4) 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	-
		B.2- New underpasses/ overpasses	0.00%
		(1) · Foundation +Sub structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	0.00%
		(2) Super-structure: On completion of the super-structure in all respects signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass- wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified.	0.00%
		3) Approaches: On completion of approaches including retaining walls/reinforced earth walls, stone pitching, protection works complete in all respects and fit for use.	0.00%
Major Bridge (length> 60 m.) works and ROB/RUB/elevated	0.00%	A.1- Widening and repairs of Major Bridges	-
		(1)Foundation	0.00%
		(2)Sub-structure	0.00%
		(3)Super-structure (including bearing)	0.00%

sections/ flyovers including viaducts, if any)	(4) Wearing Coat including expansion joints	0.00%
	(5) Miscellaneous Items like hand rails, crash barriers, 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 & protection work.	0.00%
	A.2 New Major Bridges	
	(1) Foundation	0.00%
	(2) Sub-structure	0.00%
	(3) Super-structure (including bearing)	0.00%
	(4) Wearing Coat including expansion joints	0.00%
	(5) Miscellaneous Items like hand rails, crash barriers, 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)	0.00%
	B.1 Widening and repair of	
	(a) ROB	
	(b) RUB	
	(1) Foundation	0.00%
	(2) Sub-structure	0.00%
	(3) Super-structure (including bearing)	0.00%
	(4) Wearing Coat: (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified · as specified	0.00%
	(5) Miscellaneous Items like hand rails, crash barriers, 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	0.00%
	(2) Sub-structure	0.00%
	(3) Super-structure (including bearing)	0.00%
	(4) Wearing Coat: (a) in case of ROB- wearing coat including expansion joints complete in all respects as specified and (b) in case of RUB- rigid pavement under RUB including drainage facility complete in all respects as specified · as specified	0.00%
	(5) Miscellaneous Items like hand rails, crash barriers, 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.1 Widening and repair of Elevated Section/Flyovers/ Grade Separators	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearing)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barriers, 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%
		C.2 New Elevated Section/Flyovers/ Grade Separators	
		(1) Foundation	0.00%
		(2) Sub-structure	0.00%
		(3) Super-structure (including bearing)	0.00%
		(4) Wearing Coat including expansion joints	0.00%
		(5) Miscellaneous Items like hand rails, crash barriers, 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)	
Other works	93.42%	(i) Toll Plaza	0.00%
		(ii) Road side drains	0.57%
		(iii) Road signs, markings, km stone, safety Devices etc.	0.05%
		(iv) Utility Duct	0.90%
		(v) W Beam Crash Barrier	0.37%
		(vi) Project facilities	
		a) Bus Shelter	0.00%
		b) Truck Lay byes	0.00%
		c) Rest areas & View Point	0.00%
		(vii) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROBs/RUBs.	0.00%
		(viii) Protection work	
		(i) Slope Protection including Secured Dapery system on hill with Retaining wall	39.69%
		(ii) Rockfall Barrier	15.60%
		(iii) Precast ConcreteTunnel	42.82%

* The above list is illustrative and may require modifications as per the scope of the work.

1.3 Procedure of estimating the value of work done as follows:

Table 1.3.1

Stage of Payment	Percentage weightage	Payment Procedure
A - Widening and strengthening of existing road		Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length.
(1) Earthwork up to top of the sub-grade	0.00%	

(2) Sub-Base Course)	0.00%	
(3) Non Bituminous Base Course	0.00%	
(4) Bituminous Base Course	0.00%	
(5) Wearing coat	0.00%	
(6) 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 five culverts.
B1 Reconstruction /new 2 lane ,realignment/ bypass (flexible pavement)		
(1) Earthwork up to top of the sub-grade	20.06%	Unit of measurement is linear length. Payment of each stage shall be made in pro rata basis on completion of stage in full length or 5(five) km length, whichever is less.
(2) Sub Base Course	0.00%	
(3) Non Bituminous base course	38.59%	
(4) Bituminous base course	19.78%	
(5) Wearing coat	11.94%	
B.2- Reconstruction/ new/ 2-lane realignment/ bypass (Rigid Pavement)		Unit of measurement is linear length. . Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5(five) km. length, whichever is less.
(1) Earth work upto top of the subgrade	0.00%	
(2) Sub base course	0.00%	
(3) Dry lean concrete(DLC) course	0.00%	
(4) 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 5(five) km. length, whichever is less.
(1) Earthwork up to top of the sub-grade	0.00%	
(2) Sub Base Course	0.00%	
(3) Non Bituminous base course	0.00%	
(4) Bituminous base course	0.00%	
(5) 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 5 (five) km. length, whichever is less.
(1) Earth work upto top of the subgrade	0.00%	
(2) Sub base course	0.00%	
(3) Dry lean concrete(DLC) course	0.00%	
(4) Pavement quality control (PQC) course.	0.00%	
D- Reconstruction & New Culverts on existing road, realignments, bypasses.		Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of one culverts.
Culverts (length < 6m)	9.63%	

@ 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:

Table 1.3.2

Stage of Payment	Percentage weightage	Payment Procedure
A.1 Widening and repairs of minor bridges (length >6 and <60 m.)	0.00%	Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of widening & repair works of a minor bridge.
A.2- New Minor bridges		
(i) Foundation +Sub-structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	0.00%	(i) Foundation +Sub structure: Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length (m) of the minor bridges. Payment against foundation + sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation +sub-structure of each bridge subject to completion of atleast two foundations along with sub structure upto abutment/pier cap level of each bridge. In case where load testing is required for foundation the trigger of first payment shall include load testing also where specified.
(ii) Super-structure: On completion of the super structure in all respects including wearing coat, bearings, expansion joints, hand rails, crash barriers, road signs & markings, tests on completion etc. complete in all respect.	0.00%	(ii) Super-structure: Payment shall be made on prorata basis on completion-of a stage i.e. completion of superstructure of atleast one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.
(iii) Approaches: On completion of approaches including Retaining walls, stone pitching, protection works complete in all respect and fit for use.	0.00%	(iii) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified in the column of "Stage of Payment" in this sub-clause.

(iv) Guide Bunds and River Training Works: On completion of Guide Bunds and river Training Works complete in all respects.	0.00%	(iv) Guide Bunds and River Training Works: Payment shall be made on prorata basis on completion of a stage i.e. completion of Guide Bunds and River training Works in all respects as specified.
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 underpasses/overpasses.
B.2- New underpasses/ overpasses		
(i) Foundation +Sub structure: On completion of the foundation work including foundations for wing and return walls, abutments, piers upto the abutment/pier cap.	0.00%	(i) Foundation +Sub Structure: Cost of each underpass/ Overpass shall be determined on pro rata basis with respect to the total linear length (m) of the Underpass/ Overpass payment against foundation sub-structure shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation +sub structure of each Underpasses/ Overpasses subject to completion of at least two foundations along with sub structure up to abutment/ pier cap level each underpass/ overpass. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) Super-structure: On completion of the super- structure in all respects signs & markings, tests on completion etc. complete in all respect. Wearing Coat (a) in case of Overpass- wearing coat including expansion joints complete in all respects as specified and (b) in case of underpass- rigid pavement including drainage facility complete in all respects as specified as specified.	0.00%	(ii) Super-structure: Payment shall be made on pro rata basis on completion of a stage i.e. completion of super structure of at least one span in all respects as specified in the column of "Stage of Payment" in this sub-clause.
(iii) Approaches: On completion of approaches including retaining walls/reinforced earth walls, stone pitching, protection works complete in all respects and fit for use.	0.00%	(iii) Approaches: Payment shall be made on pro-rata basis on completion of a stage i.e. completion of approaches in all respect as specified.

1.3.3 Major Bridge works, ROB/RUB and Structures.

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

Table 1.3.3

Stage of Payment	Weightage	Payment Procedure
1	2	3
A.1- Widening and repairs Major Bridges		
(i) Foundation	0.00%	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of atleast two foundations of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25% of the scope of sub-structure of the major bridge subject to completion of atleast two sub-structures of abutments/piers up to abutment/pier cap level of the major bridge.
(iii) Super-structure (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 including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(iv) Guide Bunds, River Training works etc.	0.00%	(vii) Guide Bonds, River Training works: Payments shall be made on completion of all guide bunds/river training works etc. complete in all respects as specified.

(viii) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(viii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
A.2- New Major Bridges		
(i) Foundation	0.00%	(i) Foundation: Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the major Bridge subject to completion of at least two foundations of the major Bridge. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25% of the scope of sub-structure of the major bridge subject to completion of at least two sub-structures of abutments/piers up to abutment/pier cap level of the major bridge.
(iii) Super-structure (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 including bearings of at least one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: Payments shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Guide Bunds, River Training works .etc.	0.00%	(vii) 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.
(viii) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(viii) Approaches: Payments shall be made on completion of both approaches including stone pitching protection works, etc. complete in all respects as specified.
B.1-Widening and repairs of (a) ROB. (b) RUB		

(i) Foundation	0.00%	(i) Foundation: Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUBs. Payment against foundation shall be made on prorata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundations of the ROB/RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25 Year of the scope of sub-structure of the ROB/ RUB subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure 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 including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	0.00%	(iv) 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 and (b) in case of RUB- rigid pavement under RUB including drainage facility , complete in all respects as specified as specified.
(v) Miscellaneous Items like handrails, crash barriers, road markings etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls, stone pitching and protection works)	0.00%	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
B.2- New ROB, RUB		
(a) ROB		
(b) RUB		

(i) Foundation	0.00%	(i) Foundation: Cost of each ROB/RUB shall be determined on pro data basis with respect to the total linear length of ROB/RUBs. Payment against foundation shall be made on pro rata basis on completion of a stage i.e not less than 25% of the scope of foundation of the ROB/RUB subject to completion of atleast two foundation of the ROB/ RUB. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25% of the scope of sub-structure of the ROB/RUB subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the ROB/RUB.
(iii) Super-structure (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 including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints in case of ROB. In case of RUB, rigid pavement under RUB including drainage facility as specified.	0.00%	(iv) 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 and (b) in case of RUB- rigid pavement wider RUB including drainage facility complete in all respects as specified as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road marking etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
C.1- Widening and repairs of Elevated Section/ Flyovers / Grade Separators.		

(i) Foundation	0.00%	(i) Foundation: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25% of the scope of sub-structure of the structure subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the structure.
(iii) Super-structure (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 including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.
C.2 -New Elevated Section /Flyovers / Grade Separators		

(i) Foundation	0.00%	(i) Foundation: Cost of each structure shall be determined on pro rata basis with respect to the total linear length (m) of the structures. Payment against foundation shall be made on pro-rata basis on completion of a stage i.e. not less than 25% of the scope of foundation of the structure subject to completion of atleast two foundations of the structure. In case where load testing is required for foundation the trigger of first payment shall include load testing also where specified.
(ii) 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. not less than 25% of the scope of sub-structure of the structure subject to completion of atleast two sub-structures of abutments/piers upto abutment/pier cap level of the structure.
(iii) Super-structure (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 including bearings of atleast one span in all respects as specified.
(iv) Wearing Coat including expansion joints	0.00%	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
(v) Miscellaneous Items like hand rails, crash barriers, road markings etc.	0.00%	(v) 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.
(vi) Wing walls/return walls	0.00%	(vi) Wing walls/return walls: Payments shall be made on completion of all wing walls/return walls complete in all respects as specified.
(vii) Approaches (including Retaining walls/Reinforced Earth wall, stone pitching and protection works)	0.00%	(vii) Approaches: Payments shall be made on completion of both approaches including stone pitching, protection works, etc. complete in all respects as specified.

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 DG(RD)&SS, MoRT&H.

(2) The Schedule for exclusive tunnel projects may be prepared as per site requirements before bidding with due approval of DG(RD)&SS, MoRT&H.

1.3.4 Other works

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

Table 1.3.4

Stage of Payment	Weightage	Payment Procedure
(i) Toll plaza	0.00%	Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro

		rata basis with respect to the total of all toll plazas.
(ii) Road side drains	0.57%	Unit of measurement is linear length in km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the total length.
(iii) Road signs, markings, km stones, safety devices etc.	0.05%	
(iv) Utility Duct	0.90%	
(v) W Beam crash barrier & Parapet Along Valley Side	0.37%	
(iv) Project Facilities.		
a) Bus Shelter	0.00%	Payment shall be made on pro rata basis for completed facilities.
b) Truck Lay byes	0.00%	
c) Rest Areas & View Point	0.00%	
(vi) Repair of protection works other than approaches to the bridges, elevated sections/ flyovers/grade separators and ROB/RUBs.	0.00%	Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length.
(vii) Protection work		
(i) Slope Protection including Secured Dapery system on hill with Retaining wall	39.69%	Unit of measurement is linear length in Km. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten percent) of the total length in Complete Height.
(ii) Rockfall Barrier	15.60%	
(iii) Precast Concrete Tunnel	42.82%	

SCHEDULE - I

(See Clause 10.2.4)

DRAWINGS

1 Drawings

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

2 Additional Drawings

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

Annex - I
(Schedule - I)
List of Drawings

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

- Horizontal and Vertical Alignment (with plan & profile) with details of reference pillars. Horizontal Intersection Point, Vertical Intersection Points, elements of curves, and sight distances.
- Drawing showing plan and sectional details of valley slope restoration scheme.
- Drawings showing details of soil nail/anchor/soil reinforcement along with its connection details.
- Drawings of drainage work showing drains, details of proposed new culverts and downstream protection works for all the culverts to be adopted for culverts.
- Drawings showing details of erosion protection scheme to be adopted for protection of rebuilt valley slope and below the toe of proposed restoration scheme.

SCHEDULE - J

(See Clause 10.3.2)

PROJECT COMPLETION SCHEDULE

1 Project Completion Schedule

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

2 Project Milestone-I

2.1 Project Milestone-I shall occur on the date falling on the 120th (one hundred twentieth) day from the Appointed Date (the “Project Milestone-I”).

2.2 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

3.1 Project Milestone-II shall occur on the date falling on the 210th (two hundred ten) day from the Appointed Date (the “Project Milestone-II”).

3.2 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 30% (thirty per cent) of the Contract Price.

4 Project Milestone-III

4.1 Project Milestone-III shall occur on the date falling on the [300th (three hundred)] day from the Appointed Date (the “Project Milestone-III”).

4.2 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 60% (sixty per cent) of the Contract Price.

5 Scheduled Completion Date

5.1 The Scheduled Completion Date shall occur on the [365 (three hundred and sixty five)] day from the Appointed Date.

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

6 Extension of time

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

SCHEDULE - K

(See Clause 12.1.2)

Tests on Completion

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 [***].
- 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 kilometre.
- 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 Nondestructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- 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.

SCHEDULE - L

(See Clause 12.2 and 12.4)

PROVISIONAL CERTIFICATE

- 1 I, (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated (the "Agreement"), **Construction and Upgradation of existing road to 2-lane with paved shoulder from km 458.900 to km 459.475 of Patalganga landslide (Design km 456.200 to 456.800) of NH-07 under Chardham Paryojna on EPC basis in the state of Uttarakhand (Design length-0.600km)**
..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.
- 2 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid Punch List.
- 3 In view of the foregoing, I am satisfied that the Project Highway "**Construction and Upgradation of existing road to 2-lane with paved shoulder from km 458.900 to km 459.475 of Patalganga landslide (Design km 456.200 to 456.800) of NH-07 under Chardham Paryojna on EPC basis in the state of Uttarakhand (Design length-0.600km**" can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the day of 20.....

ACCEPTED, SIGNED, SEALED

SIGNED, SEALED AND

AND DELIVERED

DELIVERED

For and on behalf of

For and on behalf of

CONTRACTOR by:

AUTHORITY's ENGINEER by:

(Signature)

(Signature)

COMPLETION CERTIFICATE

1 I, (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated

..... (the "Agreement"), **Construction and Upgradation of existing road to 2-lane with paved shoulder from km 458.900 to km 459.475 of Patalganga landslide (Design km 456.200 to 456.800) of NH-07 under Chardham Paryojna on EPC basis in the state of Uttarakhand (Design length-0.600km**

..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.

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

SIGNED, SEALED AND DELIVERED

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

(Signature)

(Name)

(Designation)

(Address)

SCHEDULE - M

(See Clauses 14.6, 15.2 and 19.7)

PAYMENT REDUCTION FOR NON-COMPLIANCE

1. Payment reduction for non-compliance with the Maintenance Requirements
 - 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 crossfall, 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/5 th km stones	5%
(f)	Miscellaneous Items	
(i)	Removal of dead animals, broken down/accidental 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 noncompliance of particular item shall be calculated as under:

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

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

M = Monthly lump-sum payment in accordance with the Bid

L1 = Non-complying length

L = Total length of the road,

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

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

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

SCHEDULE - N

(See Clause 18.1.1)

SELECTION OF 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
(Schedule - N)

TERMS OF REFERENCE FOR AUTHORITY’S ENGINEER

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 [name and address of the Authority] (the “Authority”) and (the “Contractor”) for **Construction and Upgradation of existing road to 2-lane with paved shoulder from km 458.900 to km 459.475 of Patalganga landslide (Design km 456.200 to 456.800) of NH-07 under Chardham Paryojna on EPC basis in the state of Uttarakhand (Design length-0.600km**, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.
- 1.2 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 Clauses 1.2, 1.3 and 1.4 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
 - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).
- 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 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 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- 4.2 The Authority's Engineer shall review 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 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 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 assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- 4.10 The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- 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 12.4.
- 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 or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 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 10.2.4 (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.
- 9.5 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

(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

- (a) the estimated amount for the Works executed in accordance with Clause 19.3.1 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 13.2.3 (a);
- (e) total of (a), (b), (c) and (d) above;
- (f) Deductions:
 - (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
 - (ii) Any amount towards deduction of taxes; and
 - (iii) Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor upto the last claim:
 - (i) For the Works executed (excluding Change of Scope orders);
 - (ii) For Change of Scope Orders, and
 - (iii) Taxes deducted

2. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

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

3. Contractor's claim for Damages

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

SCHEDULE - P

(See Clause 20.1)

INSURANCE

1. Insurance during Construction Period

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 paragraph 1.1 (a) and (b) 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 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.