Corrigendum No.7

NHIDCL/Civil work/Hawai Bypass (51.825-63.131)/Ar.Pr./2016 Date: 13.10.2016

To,

All the prospective bidders

Subject:-" Two-Laning of Hayuliang– Hawai bypass Road on EPC basis from design Km. 51.825 to Km. 63.131 Existing Km 45.050 of Hayuliang – Hawai road to Hawai Town in the state of Arunachal Pradesh under SARDP-NE – **Corrigendum regarding Chainages and Schedules**

Sir,

The design chainages are linked up with the Existing chainages as follows.

Sl. No.	Topo / Existing Chainage	Design Chainage (km)		Sl. No.	Topo / Existing Chainage	Design Chainage (km)
1	0	51.825		13	6000	58.055
2	500	52.335		14	6500	58.580
3	1000	52.845		15	7000	59.065
4	1500	53.365		16	7500	59.545
5	2000	53.855		17	8000	60.040
6	2500	54.355		18	8500	60.525
7	3000	54.855		19	9000	61.025
8	3500	55.410		20	9500	61.515
9	4000	55.905		21	10000	62.025
10	4500	56.425		22	10500	62.525
11	5000	56.895		23	11000	63.025
12	5500	57.385		24	11112	63.131

2. Accordingly, the Schedule A , Schedule B and Schedule F are modified and is enclosed with the letter.

Y.C Srivastava
General Manager (T)

SCHEDULES

[Existing :Km 45.050 (Hayuliang - Hawai Road) to Hawai Town]

[Design: Km 51.825 to Km 63.131]

SCHEDULE - A

(See Clauses 2.1 and 8.1)

SITE OF THE PROJECT

1 The Site

1.1 Site of the Two-Laning of Hayuliang– HawaiRoad on EPC basis from design Km. 51.825 to Km. 63.131[Existing Km 45.050 (Hayuliang – Hawai road)to Hawai Town] in the state of Arunachal Pradesh under SARDP-NE, Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
The Project alignment is approachable only from Hawai town (End of Project Road) for execution works.

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 modified.

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

(Schedule-A)

1. Site

The site of the two lane Project Highway comprises the section of Hawaibypass road commencing from existing Km 45.050 (Hayuliang – Hawai road) to Hawai Town[from Km 51.825 to Km 63.131, Design]in the State of Arunachal Pradesh. The land, carriageway and structures comprising the Site are described below.

2. ChainageReferences (Topographicalvs Design)

"Topographical Chainage" means survey done at site on final approved alignment because no any alignment exists there presently". After finalization of alignment by improving the existing geometry the Chainage has been referred to "Design Chainage". The relationship between the "Topographical Chainage" and the "Design Chainage" as per field surveys for the "Project Highway" is given below.

Sl. No.	Topo / Existing Chainage	Design Chainage (km)
1	0	51.825
2	500	52.335
3	1000	52.845
4	1500	53.365
5	2000	53.855
6	2500	54.355
7	3000	54.855
8	3500	55.410
9	4000	55.905
10	4500	56.425
11	5000	56.895
12	5500	57.385
13	6000	58.055
14	6500	58.580
15	7000	59.065
16	7500	59.545
17	8000	60.040
18	8500	60.525
19	9000	61.025
20	9500	61.515
21	10000	62.025
22	10500	62.525
23	11000	63.025
24	11112	63.131

3. Land

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

Sl. No.	Existing Chainage (Km)		Design Chainage (m)		Length in Km (Design)	ROW m)	Remarks
	From	To	From	To			
1	0.000	11.112	51.825	63.131	11.306	NiL	

4. Carriageway

The present carriageway detail is shown in the table below:

Sl. No.	Existing Chainage (Km)		Design Chainage (m)		Length in m (Design)	Lane Width (m)	Remarks
	From	To	From	To			
1	0.000	6.400	51825	58455	6630	NiL	
2	6.400	10.900	58455	62925	4470	3-8	Non motorized Earthen track
3	10.900	11.112	62925	63131	206	NiL	

5. MajorBridges

The Site includes the following Major Bridges:

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

6 Road over-bridges (ROB)

The Site includes the following ROB (road over railway line)

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

7 Grade separators

The Site includes the following grade separators:

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

8 Minor bridges

The Site includes the following minor bridges:

Sl. No.	Existing (m)	Type of Structure			Span length (m)	Width (m)
		Foundation	Sub-structure	Super Structure		
1		NIL				

9 Railway level crossings / Railway Track

The Site includes the following railway level crossings / Track:

Sl. No.	Location (km)	Remarks
NIL		

10 Underpasses (Vehicular, Non Vehicular)

The Site includes the following underpasses:

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

11 Culverts

The Site has the following culverts falling in Non motorized earthen track (As shown in clause 4 of Schedule A:

Sl.NO	Existing Chainage	Design Chainage	Span
1	6+670	58+725	1x1.5
2	6+930	59+000	1x2.1
3	7+010	59+075	1x2.0
4	7+180	59+225	1x3.0
5	7+275	59+335	1x2.0
6	7+350	59+410	1x2.0
7	7+480	59+525	1x1.5
8	7+600	59+640	1x2.0
9	7+810	59+850	1x3.0
10	8+305	60+335	1x2.1
11	8+840	60+870	1x2.8
12	8+955	60+985	1x2.4
13	10+755	62+775	1x1.5
14	10+850	62+865	1x1.6
15	10+905	62+925	1x1.5

12 Bus bays

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

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

13 Truck Lay byes

The details of truck lay byes are as follows:

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

14 Road side drains

The details of the roadside drains are as follows:

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

15 Major junctions

The details of major junctions are as follows:

S. No	Location		At Grade	Separated	Category of Cross Road			
	Existing Ch.	Design Ch.			NH	SH	MDR	Others
NIL								

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

16 Minor junctions

The details of the minor junctions are as follows:

Sl. No.	Existing Chainage (Km)	Design Chainage (m)	Type of Junction	Side	Remarks
NIL					

17 Bypass

The details of Bypasses on the Site are as follows:

Sl. No.	Chainage (m)	Length (m)	Left Hand Side	Right Hand Side
This complete alignment is proposed as bypass.				

18. Other structures / Details

The details are :

Sl.No.	Existing Chainage (m)		Design Chainage (m)		Length in m (Design)	Remarks
	From	To	From	To		
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:

Sl. No	Design Chainage		Length	Width (m)	Date of Providing ROW
	From	To			
(i) Full Right of way (full width)	51.825	63.131	11.306	18-24 (as shown in Schedule B, clause 2.4)	90 % at appointed date
(ii) Balance Right of way (width)	-	-	-	-	Within 90 days after the appointed Date as per clause 8.2 of DCA

Annex - III
(Schedule-A)

Alignment Plans

The proposedalignment of the Project Highway is indicated below:

Annex - IV
(Schedule-A)

Environment Clearances

The Project Highway does not required Environment Clearance as per MoEF corrigendum dated 22 Aug 2013.

In addition, the AIP for the project is being issued by competent Forest Authority.. The Final approval is yet to be received. Temporary working provision will be ensured before appointed date. All conditions imposed by MoEF while issuing the Approval in Principle(AIP) and final forest clearance(FC) to be adhered during construction stage and after construction stage are to be complied with.

The muck dumping sites in forest area stand identified and freezed by Forest department to be abided by agency during dumping of muck as stated in Schedule 'F'

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-Laningof 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

1 WIDENING OF THE EXISTING HIGHWAY

1.1 The Project Highway shall follow the proposed alignment as 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 terrain to the extent land is available.

1.2 WIDTH OF CARRIAGEWAY

1.2.1 Construction of Two-Lane pavement without paved shoulders shall be undertaken. The paved carriageway shall be 7 m wide with hard shouldersin accordance with the typical cross sections drawings.

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

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 Two Lane Manual (IRC : SP 73 -2007).

2.2 Design speed

The design speed shall be the minimum design speed of 30 km per hourand ruling design speed of 50 km / perhourfor hilly terrain.

2.3 Improvement of the existing road geometrics

Improvement of the existing alignmentgeometrics shall be carried out as per section 2 of the Two Lane Manual (IRC : SP 73 -2007).

5.4 Right of Way

Sl. No.	Design Chainage (m)		Length	Proposed Width (m)	Remarks
	From	To			
1	51825	63131	11306	24	

2.5 Type of shoulder

The shoulder shall be hard granular shoulder (with locally available material) on both sides of the carriageway as per typical Cross Sections provided in para 2.11 of this Schedule B.

2.6 Lateral and vertical clearances at underpasses

2.6.1 Lateral and vertical clearances at underpasses and provisionof guardrails / crash barriers shall be as per paragraph 2.11 of the Two Lane Manual (IRC : SP 73 -2007).

2.6.2 Lateral clearance: The width of the opening at the Vehicle Underpasses shall be as follows.

Sl. No.	Location (Chainage)	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 2.12 of the Two Lane Manual (IRC : SP 73 -2007).

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

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

2.8 Service Roads

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

Sl. No.	Existing Location of Service road (from km to km)	Proposed 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 2.14 of the Two Lane Manual (IRC: SP 73 -2007). The requisite particulars are given below and GADs are annexed at Annexure "D":

Sl. No.	Existing Chainage of the structure	Design Chainage of structure	Length (m)	Number and length of spans (m)	Approach gradient	Remarks, if any
NiL						

2.10 Cattle and Pedestrian Underpass /Overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows: [Refer to paragraphs 2.14.3 of the Two Lane Manual (IRC: SP 73 -2007) and specify the requirements of cattle and pedestrian underpass/ overpass]

Sl. No.	Location	Span/opening (m)	Type of crossing
NiL			

2.11 Typical cross-sections of the Project Highway

Typical Cross-Sections of the Project Highway are tabulated below –

Sl. No.	Design Chainage (Km)		Length (in m, after structure length deduction)	TCS Type	Widening Details	Shoulder
	From	To				
1	51.825	63.131	10.846	TCS I	New Two lane in Open areas	1.5 m Hard Shoulder on hill side and 1.9 m on Valley side

3 INTERSECTIONS AND GRADE SEPARATORS

All intersections and grade separators shall be as per Section 3 of the Two Lane Manual (IRC: SP 73 -2007). 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

Sl. No.	Existing Chainage (Km)	Design Chainage (m)	Type of Junction	Side	Remarks
1	0.00	51825	T	RHS	Start of Bypass
2	6.400	58455	Y	LHS	
3	10.900	62925	Y	LHS	
4	11.112	63131	T	LHS	End of Bypass

(b) Grade separated intersection with/*without* ramps

Sl. No.	Location	Salient	Minimum length of Viaduct to be Provided	Road to be carried over /
NIL				

4 ROAD EMBANKMENT AND CUT SECTION

4.1 Widening of the existing alignment and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Two Lane Manual (IRC: SP 73 -2007) and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

4.2 The proposed road including raisingshall be constructed as per FRL mentioned in Plan & Profile as attached in annex 3 of schedule A.

5 PAVEMENT DESIGN

5.1 Pavement design shall be carried outin accordance with Section 5 of the Two Lane Manual (IRC: SP 73 -2007).

5.2 Type of pavement

Flexible pavement shall be adopted for Project Highway in accordance withClause 2.2 of IRC:37-2012 identifies four type of flexible pavements. The estimated cost of civil works is based on flexible pavements consisting of Granular base, Sub base, DBM and BC. Since, the successful bidders under EPC mode can use any type of four flexible pavements mentioned Clause 2.2 of IRC:37-2012, they may carry out their own diligence to arrive at project cost before submitting bids.

5.3 Design requirements

5.3.1 Design Period and Strategy

The pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

5.3.2 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Two Lane Manual (IRC : SP 73 -2007), the Contractor shall design the pavement for entire Project Highway for design traffic of not less than 20 million standards axles (msa).

5.4 Reconstruction / Realignment / Bypass of stretches

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

Sl. No.	Existing Chainage (m)		Design Chainage (m)		Design Length (m)	Remarks
	From	To	From	To		
1	0	11112	51825	63131	11306	Complete alignment is proposed as Bypass

5.4.2 The existing alignmentshall be constructed as per FRL mentioned in Plan & Profile (Annex III of Schedule A).

6 ROADSIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Two Lane Manual (IRC : SP 73 -2007).How above, Line drains shall be provided in the following stretches –

Sl. No.	Design Chainage (Km)		Length (in m, after structure length deduction)	TCS Type	Drain Type
	From	To			
1	51.825	63.131	10846	TCS I	KC Open drain on Hill Side

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 Two Lane Manual (IRC : SP 73 -2007) 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 per figure 7.2 and figure 7.3 of the Two Lane Manual (IRC : SP 73 -2007).

7.1.3 The following structures shall be provided with footpaths:

NIL

7.1.4 All bridges shall be high-level bridges.

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

Sl. No.	Bridge at Design km	Utility service to be carried	Remarks
1	51.825 (start of Hawai Bypass)	Water Pipe	New

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 Two Lane Manual (IRC : SP 73 -2007).

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:

Existing Culverts at the following locations shall be re-constructed as new culverts:

Sl. No.	Existing Chainage	Design Chainage	Type of Culvert	Width (m)
1	6+670	58+725	Slab/Box	3
2	6+930	59+000	Slab/Box	3
3	7+010	59+075	Slab/Box	3
4	7+180	59+225	Slab/Box	3
5	7+275	59+335	Slab/Box	3
6	7+350	59+410	Slab/Box	3
7	7+480	59+525	Slab/Box	3
8	7+600	59+640	Slab/Box	3
9	7+810	59+850	Slab/Box	3
10	8+305	60+335	Slab/Box	3
11	8+840	60+870	Slab/Box	3

Sl. No.	Existing Chainage	Design Chainage	Type of Culvert	Width (m)
12	8+955	60+985	Slab/Box	3
13	10+755	62+775	Slab/Box	3
14	10+850	62+865	Slab/Box	3
15	10+905	62+925	Slab/Box	3

7.2.3 Widening of existing culverts - **NIL**

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

Sl. No.	Design Chainage	Type of Culvert	Width (m)
1	52135	Slab/Box	3
2	52435	Slab/Box	3
3	52570	Slab/Box	3
4	52760	Slab/Box	3
5	53015	Slab/Box	3
6	53170	Slab/Box	3
7	53320	Slab/Box	3
8	53515	Slab/Box	3
9	53775	Slab/Box	3
10	53995	Slab/Box	3
11	54095	Slab/Box	3
12	54255	Slab/Box	3
13	54575	Slab/Box	3
14	54705	Slab/Box	3
15	54800	Slab/Box	3
16	55090	Slab/Box	3
17	55220	Slab/Box	3
18	55445	Slab/Box	3
19	55575	Slab/Box	3

Sl. No.	Design Chainage	Type of Culvert	Width (m)
20	55705	Slab/Box	3
21	55800	Slab/Box	3
22	56035	Slab/Box	3
23	56145	Slab/Box	3
24	56365	Slab/Box	3
25	56530	Slab/Box	3
26	56640	Slab/Box	3
27	56750	Slab/Box	3
28	56865	Slab/Box	3
29	56980	Slab/Box	3
30	57145	Slab/Box	3
31	57285	Slab/Box	3
32	57440	Slab/Box	3
33	57610	Slab/Box	3
34	57750	Slab/Box	3
35	57910	Slab/Box	3
36	58335	Slab/Box	3
37	58620	Slab/Box	3
38	59335	Slab/Box	3
39	59530	Slab/Box	3
40	59850	Slab/Box	3
41	59990	Slab/Box	3
42	60335	Slab/Box	3
43	60440	Slab/Box	3
44	60870	Slab/Box	3
45	60990	Slab/Box	3
46	61170	Slab/Box	3
47	61365	Slab/Box	3

Sl. No.	Design Chainage	Type of Culvert	Width (m)
48	61485	Slab/Box	3
49	61640	Slab/Box	3
50	61750	Slab/Box	3
51	61850	Slab/Box	3
52	61970	Slab/Box	3
53	62160	Slab/Box	3
54	62440	Slab/Box	3
55	62865	Slab/Box	3

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

NIL

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

7.3 Minor Bridges

7.3.1 Existing bridges to be re- constructed/widened

(i) The existing bridges at the following locations shall be reconstructed as new structures**(Minor Bridges)–**

Sl. No.	Existing Chainage (Km)	Design Chainage (m)	Proposed Span in m	Proposed Width in m	Remark
NiL					

GAD is attached at Annex B of annex 1 of this Schedule.

(ii) The following bridges shall be widened:

NIL

7.3.2 Additional New **Minor Bridges**

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

Sl. No.	Existing Chainage (Km)	Design Chainage (m)	Proposed Span in mt	Proposed Width in mt	Proposed / Remark
NiL					

GAD is attached at Annex B of annex 1 of this Schedule.

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/replacement 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 7.21 of the Two Lane Manual (IRC : SP 73 -2007)

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 Two Lane Manual (IRC : SP 73 -2007).

NIL

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 at Annexure – "C" to this schedule :

Sl. No.	Existing Location of Level crossing / Railway Track (Chainage km)	Proposed Location of Level crossing / Railway Track (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 LevelCrossing (Chainage km)	Number and length of span (m)
NIL		

7.5 Grade separated structures

NiL

7.6 Repairs and strengthening of bridges and structures

A. Bridges

The existing bridges and structures to be repaired/strengthened are given below:

NiL

B. ROB / RUB

Nil

C. Overpasses/Underpasses and other structures

Nil

7.7 List of Major Bridges and Structures

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

(i) The existing bridges at the following locations shall be constructed as new structures **(Major Bridges) -**

Sl. No.	Existing Chainage (Km)	Design Chainage (m)	Proposed Span in m	Proposed Width in m	Proposed/Remark
NiL					

7.7.2 Additional **New Major Bridges**

New major bridges at the following locations on the Project Highway shall be constructed as per the Manual

Sl. No.	Design Chainage (m)	Proposed Span in m	Proposed Width in m	Proposed/Remark
1	51939	230	12	Steel Girder with well foundation

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 Two Lane Manual (IRC : SP 73 - 2007).(Polymer rumble strips (min. 1700 RM) on hazardous locations specially on shoulders of valley side curves).

8.2 Specifications of the reflecting sheeting: As per the Clause 9.3 of the Two Lane Manual (IRC : SP 73 -2007) of Specification and Standards.

The Tentative quantity of Traffic signages and pavement marking are as tabulated below –

Traffic Signages, Road Marking and other appurtenances			
1	Road Marking: - Lane, Centre Line, Pedestrian crossing		
	Centre line on straight portion	Sqm	448
	Centre line on curve portion	Sqm	170
	Edge Line at Paved Shoulder	Sqm	2261

	Add 15% for Misc. including Pedestrian X-ings etc	Sqm	432
	Total	Sqm	3311
2	Directional Arrows, letter marking etc.	Nos.	60
3	Advance Direction signs size 1800X1200 mm	Nos.	25
4	Village name boards size 600X900 mm	Sqm	8.1
5	Place Identification signs size 1200X900 mm	Sqm	2.88
6	90 cm Triangle	Nos.	30
7	90 cm Octagon	Nos.	30
8	Hazard plate 300X900 mm	Sqm	103.95
9	800 x 600 mm Size	Nos.	35
10	60 Cm circular	Nos.	35
11	Supply and fixing of Micro Prismatic type Retro-Reflective sign plate which is to be fixed on Overhead/ Cantilever structures with the help of G.I. nut bolts	Sqm	51.36
12	Over Head Sign Truss	MT	5.5
13	Boundary Stone (taken 10% of Qty)	Nos.	6
14	5th Km Stone -New	Nos.	1
15	Ordinary Km Stone	Nos.	10
16	Hectometer Stone	Nos.	46
17	Delineator	Nos.	250
18	Bollards	Nos.	100
19	RCC Guard Post	Nos.	100
20	Enamel Paint	Sqm	60

9 ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Two Lane Manual (IRC : SP 73 -2007).

9.2 The Overhead traffic signs: location and size

Full width overhead sign :1no.

Cantilever overhead signs :2nos. (Locations to be finalized in consultation with Authority's Engineer.)

10 COMPULSORY AFFORESTATION

The number of trees which are required to be planted by the contractor as compulsory afforestation shall be as per Forest Conservation Act and as per the Two Lane Manual (IRC : SP 73 -2007). In addition Hydro seeding/plantation or similar on hill slopes as slope protection works for minimum 64500 Sqm)

11 HAZARDOUS LOCATIONS

The safety barriers, Protective works shall also be provided at the following hazardous locations / lengths:

Sl. No.	Type of Protection works	Minimum Length (m)	Height (range in m)	Remarks
1	Parapet Wall on Valley side	3252		As per manual and codes
2	W-Beam Crash Barrier	2814		
3	Breast Wall	3525	2 – 6 m	
4	Retaining Wall	3797	2 - 4 m	
5	Gabion Wall	1085	2 - 4 m	

12 SPECIAL REQUIREMENTS FOR HILL ROADS

All special features shall be provided as per Two Lane Manual (IRC : SP 73 -2007). The side slope shall be protected by using suitable slope protection measures all along the highway on Hill side and Valley side. The details of the protection work are listed in "Annex B" and the typical sections for the protection works are given in "Annex A".

No any major land slide location is identified along the Project alignment, however Contractor shall identify other areas if found after excavation and provide the suitable protection measures to stabilize all the landslide zones. A report on the land slide zones shall be furnished along with the design for the review of the Authority Engineer. No change of scope shall be considered for the additional protection measures, if any.

13 Utilities

Provision of accommodating utilities shall be made both over as well as underground wherever required.

14 Change of Scope

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

SCHEDULE - 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 Followingapplicable 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) License from inspector of factories or other competent Authority for setting up batching plant;

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

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

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

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

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.

2. The agency need to ensure compliances of all conditions imposed by MoEF while issuing Approval in Principle(AIP) and Forest clearance(FC) stated in Schedule 'A' Annexure-IV. The necessary certifications need to be obtained from competent local forest department.

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