SCHEDULE–A

(SeeClauses2.1and8.1)

SITEOFTHEPROJECT

1 The Site

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

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

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

(iv) The alignment plans of the Project Highway are specified in Annex-III.InthecaseofsectionswherenomodificationintheexistingalignmentoftheProjectHighwayis contemplated, the alignment plan has not been provided. Alignment plans haveonlybeengivenforsectionswheretheexistingalignmentisproposedtobeupgraded. The proposed profile of the Project Highways shall be followed by the contractor with minimum FRL as indicated in the alignment plan. The Contractor, however, improve/upgrade the Road Profile as indicated in Annex-III based onsite/design requirement.

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

Annexure-I

(Schedule-A)

1. Site

The Site of the Two-Lane Project highway comprises the section of National Balance work of Construction of two -Lane with hard shoulders of Kohima –Jessami road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km (Package-V) Border in the State of Nagaland. The Index Map is appended at the end of this Schedule**–A**.

The land, carriageway and structures comprising the site are described below

Chainage References (Existing Vs Design)

"Existing Chainage" meansdistance measured along existing roadway/vehicle pathway on the Project Highway. During topography survey, observations are made to these locations and after finalization of alignment by improving the existing geometry the chainage has been referred to "Design Chainage". The relationship between the "Existing Chainage" and the "Design Chainage" as per field surveys of the location for the"Project Highway" is found same.

Sl.No.	Starting Chainage	End Chainage	Length	Remarks
1	95+700	117+200	21.50	

2. Land

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

Sl. No.	ExistingChainage(km)		DesignChainage(km)		Lengthinm(Design)	Existing/AvailableROW(m)
	From	To	From	To		
1	95+700	117+200	95+700	117+200	21500	20 - 24

3. Carriageway

The present carriageway of the Project Highway is substandard single lane configuration.The type of the existing pavement is flexible.

Sl.No.	Existing Chainage (km)		Design Chainage (km)		Length	Existing Lane Width(m)	Remarks
	From	To	From	To	(km)		
1	95+700	117+200	95+700	117+200	21500	3.0 - 3.50	Lane width other than realignment portion

4. Major Bridges

The Site includes the following Medium Size Bridges:

Sl. No.	Road Segment	Existing Chainage (km)	Typeof Structures			No.of Span with Span Length (m)	Total Width(m)
			Foundation	Super Structure	Sub-Structure		
1	-	117.100	Open	PSC Box Girder	RCC	1X70.5	8.5

5. Railway over-bridges (ROB)

The Site includes the following Railway Over Bridges:

Sl. No.	Chainage (Km)	Existing Chainage (Km)	Type of Structure			No. of Span with span length	Total Width (m)
			Foundation	Super Structure	Sub - Structure		

6. Grade Separators

The Site includes the following Grade separators:

Sl. No.	Chainage (km)	Type of Structures			No. of Span With span Length (m)	Width (m)
		Foundation	Sub-Structure	Super Structure		
NIL						

7. Minor Bridges

The Site includes the following minor Bridges:

Sl. No.	Road Segment	Existing Chainage (km)	Type of Structures			No. of Span with span Length (m)	Total Width(m)
			Foundation	Super Structure	Sub-Structure		
1	-	100.920	Open	RCC Girder	RCC	1X17	8.5
2	-	111.569	Open	RCC Girder	RCC	1X15	8.5

8. Railway level crossings/Railway Track

The Site includes the following railway level crossings:

Sl.No.	Road Segment	Existing Chainage (km)	Remarks
Nil			

9. Underpasses (vehicular,NonVehicular)

The Site includes the following Underpasses:

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

10. Culverts

The Site includes 40 Nos. of culverts at the following locations and types:

Sl. No.	Design Chainage (km)	Chainage as Per P&P	Type of Structure	Span / Dia. (m)	Width of Structure (m)	Remarks (Balance Work for Completed Culvert)
1	95+817	95+999	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
2	95+978	96+361	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
3	96+342	96+793	RCC Box	1x2x1.5	10.00	
4	97+041	98+191	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
5	97+200	98+239	RCC Box	1x2x1.5	10.00	
6	98+212	99+756	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
7	98+582	100+710	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
8	98+710	101+626	RCC Box	1x2x1.5	10.00	
9	99+163	102+736	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
10	99+543	103+089	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
11	99+740	103+982	RCC Box	1x2x1.5	10.00	
12	100+178	104+475	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
13	100+335	104+962	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
14	101+500	101+500	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
15	102+420	106+944	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
16	102+530	102+530	RCC Box	1x2x1.5	10.00	
17	102+715	107+003	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
18	102+992	102+992	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
19	103+195	103+195	RCC Box	1x2x1.5	10.00	
20	103+282	107+273	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
21	103+951	103+951	RCC Box	1x2x1.5	10.00	Return Wall, Catchpit & Apron Balance
22	104+452	108+527	RCC Box	1x2x1.5	10.00	Parapet u/s,Return Wall & Apron Balance
23	104+842	104+842	RCC Box	1x2x1.5	10.00	Return Wall & Apron Balance
24	104+944	110+457	RCC Box	1x2x1.5	10.00	Parapet, Return Wall & Apron Balance

25	105+290	105+290	RCC Box	1x2x1.5	10.00	
26	105+389	111+091	RCC Box	1x2x1.5	10.00	
27	106+350	106+350	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
28	106+781	106+781	RCC Box	1x2x1.5	10.00	
Sl. No.	**Design Chainage (km)**	**Chainage as Per P&P**	**Type of Structure**	**Span / Dia. (m)**	**Width of Structure (m)**	**Remarks**
29	106+917	111+954	RCC Box	1x2x1.5	10.00	Parapet, Return Wall & Apron Balance
30	107+246	112+126	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
31	107+357	107+357	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
32	108+438	108+438	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
33	109+915	109+915	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
34	110+078	110+078	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
35	110+170	110+170	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
36	110+717	110+717	RCC Box	1x2x1.5	10.00	Parapet & Catchpit Balance
37	110+853	110+853	RCC Box	1x2x1.5	10.00	
38	111+052	111+052	RCC Box	1x2x1.5	10.00	
39	111+310	111+310	RCC Box	1x2x1.5	10.00	
40	111+884	111+884	RCC Box	1x2x1.5	10.00	

11. BusShelters

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

Sl.No.	RoadSegment	ExistingChainage(km)	Length(m)	Left Hand Side	RightHandSide
NIL					

12. Truck Lay Bye

The details of truck lay byes on the Site are as follows:

Sl.No.	RoadSegment	Existing Chainage(km)	Length(m)	LeftHandSide	RightHandSid
NIL					

13. Roadsidedrains.

The details of the roadside drains on the Site areas follows:

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

14. Major Junctions

The details of major junctions are as follows:

Sl. No.	Location		At Grade	Separated	Category of Cross Roads			
	Existingkm	Design km			NH	SH	MDR	Others
NIL								

(NH: National Highway,SH:State Highway, MDR: MajorDistrictRoad)

15. Minor Junctions

The details of minor junctions are as follows:

Sl. No.	Existing Chainage(Km)	Design Chainage(Km)	Type	
			'T' Junction	Cross Road both sides
1	99.998	99.998	T	Phek Village
2	105.500	105.500	T	Phek Town Losami
3	119.400	119.400	Y	Phek Town

16. Bypasses

The details of bypass areas follows:

Sl. No.	NameofProposed Bypass (Town)	RoadSegment	Existing Chainage		Length(km)	Carriageway	
			From (km)	To (km)		Width (m)	Type
NIL							

17. Other Structures/Details

The details o fother structures areas follows:

Sl.No.	Type	Existing Chainage	Length	Width
		(km)	(km)	
	Nil			

.Annex-II

(Schedule-A)

Details 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	DesignChainage		Length(Km)	Proposed ROW Width (m)	Date of Providing proposed ROW
	From	To			
1	95+700	117+200	21+500	20m - 24 m	100% working front of Project highway shall be provided on appointed date.

Annex-III

(Schedule-A)

Alignment Plans

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

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

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

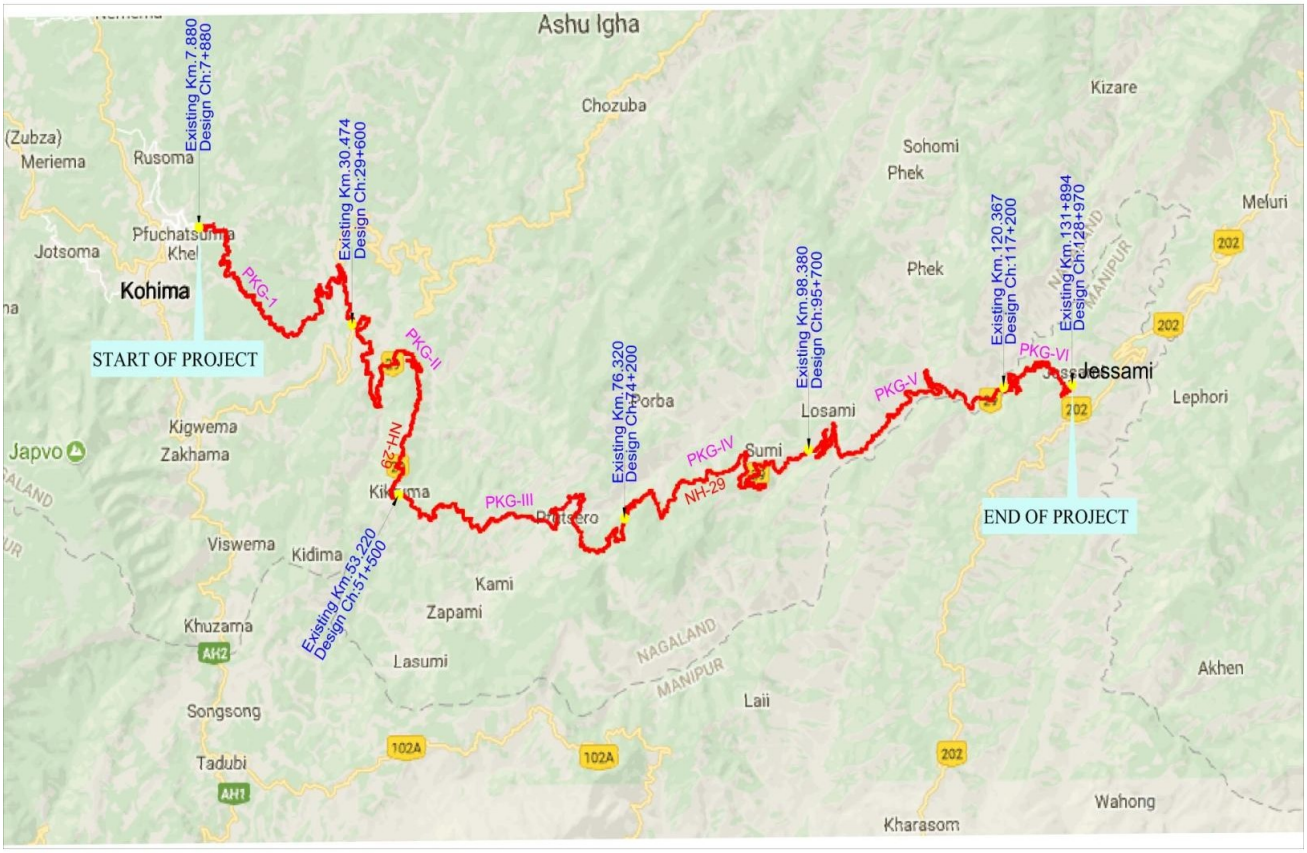
Annex-IV

(Schedule-A)

Environmental Clearances

Not applicable

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**



INDEXMAPOFPROJECTHIGHWAYSECTION

SCHEDULE-B

(SeeClause2.1)

DEVELOPMENTOFTHEPROJECTHIGHWAY

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

The particulars 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:73-2018);referred to as the Manual. If any standards, specifications or details are not given in the Manual, the minimum design/construction requirements are specified in this Schedule or Schedule D.

SCOPE OF THE PROJECT

GENERAL

The following sections of this schedule briefly highlight the scope of the work of the 'Project'. The descriptions of the requirements for the various elements of the Project Highway given herein under are the bare minimum requirements for the 'Project'.

In the planning ,design and execution of the works and other works in connection with the repair, maintenance or improvement of the Project Highway and functions associated with the construction of the Project Highway and road side facilities, the Construction Contractor shall take all such actions and do all such things (including ,but not limiting to, organizing itself, adopting measures and standards, executing procedures, including inspection procedures and highway patrol, and engaging and managing agents and employees)as will;

a. enable the NHIDCL to provide an acceptably safe highway in respect of its condition(structural safety)and use(road safety);

b. enable the NHIDCL to fulfill its statutory and common law obligations;

c. enable the NHIDCL to provide a congestion free uninterrupted flow of traffic on the Project Highway;

d. enable the NHIDCL to provide a level of highway service to the public not inferior to that provided on the trunk road during construction or improvement works;

e. enable the police, local authorities, and others with statutory duties or functions in relation to the Project Highway or adjoining roads to fulfill those duties and functions;

f. minimize the occurrence and adverse effects of accidents and ensure that

all accidents and emergencies are responded to as quickly as possible;

g. minimize the risk of damage, destruction or disturbance to third party property;

h. ensure that members of the public are treated with all due courtesy and consideration;

i. provide as safe, clear and informative system of road signs;

j. comply with any specified programme requirements, including for the completion of the new road;

k. enable standards of reliability, durability, accessibility, maintainability, quality control and assurance, and fitness for purpose appropriate to a highway of thecharacteroftheProjectHighwaytobeachievedthroughouttheContractPeriod;

l. ensureadequateoff-streetparkingfacilitiesforbothpassengerandgoodsvehicles;

m. provideadequatebusbaysforstoppingofbusesandbusshelterforcommutersto wait under protection;

n. achieve a high standard in the appearance and aesthetic quality of the Project Highway and achieve integration of the Project Highway with the character ofthesurroundinglandescapethroughbothsensitivedesignandsensitivemanagemento fallvisibleelements including those on the existing road;

o. Undertake proper safety audit through an appropriate consultant (i.e., apart from the Authority Engineer)

p. Carry out accident recording and reporting (to NHIDCL) by type on regular basis; and

q. Ensure adequate safety of the Project Workers on the work site.

2.0 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1.1 General

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

2.1.2 WIDENINGOFTHEEXISTINGHIGHWAY

Notwithstanding the basic alignment plans enclosed with this document the Construction Contractor shall himself carryout and be responsible for engineering surveys, investigation and detailed engineering designs and prepare the working drawings for all the components relevant for the improvement and up-gradation of the Project Highway to fulfill the scope of the project as envisaged herein under. These shall comply with design specifications and standards given in Schedule–D. The designs for different project facilities shall follow the locations and indicative designs given in Schedule–C and shall comply with design specifications and standard soutlined in Schedule–D. All the designs and drawings shall be reviewed by the Authority Engineer prior to execution.

The Project Highway shall follow the existing alignment unless other wise specified by the Authority and shown in the alignment plans specified in Annex-III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and

vertical profiles shall be corrected as per the prescribed standards for [plain/rolling]terrain to the extent land is available.

2.1.3 Improvement of the existing road geometries

The hilly gradients shall be corrected in such a way so as to attain a limiting gradient of 6% in order to achieve longitudinal drainage .Also,vertical curve sshall be improved/introduced so that the vertical curves meet IRC: SP-73-2018 standards.

The horizontal alignment of the Project Highway shall be improved as per the standards set out in **Schedule-D.**

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:

Locations where design speed is between30to 40KMPH

Chainage(m)	Radius(m)	Design Speed in Km/h	Hand of curve	ExtraWidening(m)
95722.7	60	30	Left	1.2
95820.71	40	30	Right	1.5
95878.82	40	30	Right	1.5
96032.34	70	30	Left	0.9
96089.35	35	30	Left	1.5
96123.81	300	50	Left	0.6

96211.06	35	30	Right	1.5
96263.09	35	30	Right	1.5
96391.31	100	40	Right	0.9
96471.32	100	35	Left	0.9

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
96589.84	78	30	Left	0.9
96834.44	50	30	Left	1.2
96945.24	80	40	Right	0.9
96997.54	40	30	Right	1.5
97179.39	40	30	Right	1.5
97388.22	30	30	Right	1.5
97683.45	35	30	Right	1.5
97873.38	50	30	Left	1.2
98225.4	30	30	Left	1.5
98363.98	100	35	Left	0.9
98476.83	80	30	Right	0.9
98640.71	35	30	Right	1.5
98711.85	35	30	Left	1.5

99037.11	80	30	Right	0.9
99099.67	45	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
99167.33	60	30	Right	1.2
99280.27	50	30	Right	1.2
99359.7	40	30	Left	1.5
99430.8	60	30	Right	1.2
99550.11	50	30	Right	1.2
99658.35	100	35	Right	0.9
99905.33	70	30	Left	0.9
100029.2	70	40	Left	0.9
100177.2	35	30	Right	1.5
100227.5	50	30	Left	1.2
100439.2	30	30	Right	1.5
100568	100	35	Right	0.9
100725.9	30	30	Right	1.5

101087	60	30	Right	1.2
101254.9	60	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
101333.8	70	30	Left	0.9
101543.6	50	30	Left	1.2
101607.3	80	30	Right	0.9
101705.6	40	30	Left	1.5
101776.7	100	40	Right	0.9
101963	40	30	Left	1.5
102102.4	40	30	Right	1.5
102232.8	45	30	Right	1.2
102420.9	40	30	Right	1.5
102519.4	60	30	Left	1.2
102657.3	80	30	Left	0.9
102853.5	40	30	Left	1.5
102893.7	70	30	Right	0.9

102948.9	30	30	Right	1.5
103061.6	30	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
103173.5	80	30	Left	0.9
103287.1	50	30	Right	1.2
103352.2	70	30	Right	0.9
103454.5	80	30	Right	0.9
103494.2	90	35	Left	0.9
103606.3	40	30	Left	1.5
103824.4	30	30	Left	1.5
103956.1	40	30	Left	1.5
104083.9	60	30	Right	1.2
104132.8	50	30	Left	1.2
104433.8	50	30	Left	1.2
104841.2	50	30	Left	1.2
104938.1	30	30	Right	1.5

105010.3	45	30	Left	1.2
105110.2	120	35	Left	0.6

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
105291.6	45	35	Left	1.2
105384.8	40	30	Right	1.5
105490.7	130	40	Left	0.6
105582.2	90	35	Left	0.9
105669.3	50	30	Right	1.2
105753.4	80	30	Left	0.9
105852.9	50	30	Left	1.2
106019.9	50	30	Left	1.2
106158.5	40	30	Right	1.5
106220.4	30	30	Left	1.5
106310.4	46	30	Right	1.2
106433.9	45	30	Left	1.2
106612	120	35	Right	0.6

106682.9	50	30	Left	1.2
106731.4	50	30	Right	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
106904.8	45	30	Right	1.2
107071.8	60	30	Left	1.2
107239.2	40	30	Right	1.5
107361.8	50	30	Right	1.2
107508.2	85	30	Right	0.9
107641.5	80	30	Left	0.9
107800.3	50	30	Left	1.2
108477.9	40	30	Right	1.5
108792.8	90	35	Left	0.9
109021.3	40	30	Right	1.5
109130.8	80	30	Right	0.9
109204.9	50	30	Right	1.2
109270.8	50	30	Left	1.2

109355.9	50	30	Left	1.2
109419.5	140	40	Right	0.6

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
109520.6	100	35	Left	0.9
109580.1	50	30	Right	1.2
109697.8	50	30	Right	1.2
109911	45	30	Left	1.2
109986.9	40	30	Left	1.5
110119.6	50	30	Right	1.2
110188.7	32	30	Left	1.5
110356.3	35	30	Left	1.5
110404.3	80	30	Right	0.9
110517.5	70	30	Left	0.9
110588.6	70	30	Right	0.9
110686.5	100	35	Right	0.9
110743.2	40	30	Left	1.5

110811.1	60	30	Right	1.2
110874.1	45	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
110933.3	40	30	Right	1.5
110995	40	30	Right	1.5
111173.9	40	30	Right	1.5
111297.5	150	40	Right	0.6
111346.5	45	30	Left	1.2
111451.8	50	30	Right	1.2
111664.6	35	30	Right	1.5
111806.6	40	30	Left	1.5
111876.2	40	30	Right	1.5
111952	40	30	Left	1.5
112076.2	60	30	Right	1.2
112124.1	150	40	Right	0.6
112292	60	30	Left	1.2

112408.4	40	30	Left	1.5
112475.9	40	30	Left	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
112667.3	50	30	Right	1.2
112721.6	30	30	Left	1.5
112888.5	60	30	Left	1.2
112954.8	40	30	Right	1.5
113041.8	70	30	Right	0.9
113107.5	40	30	Left	1.5
113172.4	30	30	Left	1.5
113226.6	60	30	Right	1.2
113300.1	30	30	Right	1.5
113351.1	30	30	Left	1.5
113407.1	30	30	Left	1.5
113889.5	30	30	Right	1.5
114110.2	70	30	Right	0.9

114182.3	90	35	Left	0.9
114250.4	50	30	Right	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
114298.8	100	35	Left	0.9
114359.8	100	35	Right	0.9
114464.2	70	30	Right	0.9
114834.5	70	30	Left	0.9
114952.9	55	30	Left	1.2
115092	30	30	Left	1.5
115165.4	50	30	Left	1.2
115212.4	50	30	Left	1.2
115327.9	80	30	Right	0.9
115390.1	70	30	Right	0.9
115527.4	40	30	Left	1.5
115578.6	35	30	Right	1.5
115642.6	50	30	Left	1.2

115742.4	80	40	Right	0.9
115833.3	90	35	Left	0.9

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
115951.1	100	35	Left	0.9
116238.6	60	30	Left	1.2
116313.4	40	30	Left	1.5
116386.4	40	30	Right	1.5
116480.2	30	30	Left	1.5
116616.4	60	30	Left	1.2
116697.4	100	35	Left	0.9
116756.8	60	30	Right	1.2
116794.3	90	35	Left	0.9
116838.5	40	30	Right	1.5
116927.7	90	40	Right	0.9
117024.9	70	30	Right	0.9
117106.9	70	30	Right	0.9

117167.2	40	30	Left	1.5

Locations where design speed is less than 30KMPH

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
97316.8115	15	20	Right	1.5
97562.094	15	20	Left	1.5
98897.2365	28	20	Left	1.5
100347.196	15	20	Right	1.5
100483.8005	20	20	Left	1.5
100776.9635	25	20	Left	1.5
100903.2825	15	20	Right	1.5
103010.3235	20	20	Left	1.5
103741.0535	15	20	Right	1.5
104221.9155	20	20	Right	1.5

104690.97	28	25	Right	1.5
106087.994	15	20	Right	1.5
107422.0325	20	20	Left	1.5
113522.5955	20	20	Left	1.5

Chainage (m)	Radius(m)	Design Speed in Km/h	Hand of curve	Extra Widening (m)
113804.238	20	20	Right	1.5
113930.8105	20	20	Left	1.5
116533.671	20	20	Left	1.5

2.2Designspeed

The design speed shall be as per IRC 73: 2018 however in exceptional cases the minimum design speed of [30 km per hour for hilly and mountainous terrain and 20 km per hour for hair pin bend locations]. The Location of Hair Pin Bends have been shown in Plan &ProfileDrawings.

2.3ProposedRightofWay

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

Contractor has to design and construct the road, if required by provision of retaining walls and/or breast walls/slope stabilization/protection measures within the Right of Way given above and provision of the same shall not constitute a change of scope.

2.4 TypeofShoulders

a) Inbuilt-upsections,footpaths/fullypavedshouldersshallbeprovidedinaccordancewith para2.10ofAnnexureIofScheduleBabove.

b) In open country, Hard Shoulder shall be provided with cementitious base asshownintypicalcross-sectiongiveninpara2.10ofAnnex-IofScheduleB.

(c)Earthen shoulder shall be covered with 150 mm thick compacted layer of granular material as shown in typical cross-section given in para 2.10 of Annex-I of Schedule B.

2.5 WidthofCarriageway/Roadwaywidth

2.5.1 Two-laning with hard shoulders shall be undertaken. The carriageway shall be [7(seven)m] wide and hard shoulder in accordance with the typical cross section's drawings in the Manual.

2.5.2 Except as otherwise provided in this Agreement, the width of the hard shoulder carriageway and cross-sectional features shall conform to Section

2ofthemanual.

2.6 Lateral and vertical clearances at underpasses

Lateral and vertical clearances at underpasses and provision of guardrails/crashbarriersshallbeasperparagraph2.10oftheManual.

2.6.2 LateralClearance:

The width of the opening at the under passes shall be as follows:

Sl.No.	Location[Chainage(km)]		Span/Opening(m)	Remarks
	From	To		
Nil				

2.7 Lateral and vertical clearances at overpasses

2.7.2 Lateralandverticalclearancesatoverpassesshallbeasperparagraph 2.11oftheManual.

2.7.3*Lateralclearance*:Thewidthoftheopeningattheoverpassesshallbeasfollows:

Sl.No.	Location [Chainage(km)]		Span/Opening(m)	Remarks
	From	To		
Nil				

2.8Serviceroads

Serviceroadsshallbeconstructedatthelocationsandforthelengthsindicatedbelow:

Sl. No.	Location of Service Road (km)		Right Hand Side (RHS) / Left Hand Side (LHS) / Both Sides	Length (km) OfService Road
	From	To		
Nil				

2.9GradeSeparatedStructures

2.9.1 Grade separated structures shall be providedasperparagraph2.13ofthe Manual. The requisite particulars are given below:

Sl. No.	Location of Structure	Length (m)	Number and Length of Spans (m)	Approach Gradient	Remarks, if any
Nil					

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

Sl. No.	Location	Type of Structure/ Length (m)	Cross Road at			Remarks, if any
			Existing Level	Raised Level	Lowered Level	

Nil

2.9.3 Cattle and pedestrian underpass/Overpass

Cattle and pedestrian underpass /overpass shall be constructed as follows: [Refertoparagraph2.14.3oftheManualandspecifytherequirementsofcattleandPedestrianunderpass/overpass.

Sl. No.	Location	Type of Crossing
Nil		

2.10 TypicalcrossSectionsoftheProjectHighway

2lanesSection: Cross-section has been developed on the basis of IRC: SP: -73:2018. 7 / 7.5 m carriageway having lane width of 3.5m has been provided. The hard shoulder width of 0.9 m on both sides is provided. The earthen shoulder of 1m on valley side has been provided at locations where normal embankments slope are provided. Drain has been provided on hill side and parapet wall/ W- beam crash barrier is provided on valley side along with retaining wall

Thecross-sectionscheduleshallbeasfollows:

Chainage		Length	Description	TCS
From	To			
95700	97180	1480	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
97180	97230	50	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
97230	99400	2170	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralareas	3

99400	99610	210	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
99610	100000	390	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
100000	100070	70	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareaswith breast wall on hill side and retainingwallon valleyside.	2
100070	100110	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareas	3
100110	100190	80	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
100190	100650	460	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulder inruralareas	3

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage		Length	Description	TCS
From	To			
100650	100690	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
100690	100912	222	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
100912	100929	17	TypicalcrosssectionofMinorBridge Retained	6
100929	101050	122	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare as	3
101050	101210	160	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareaswith breast wall on hill side and retainingwallon valleyside.	2
101210	102430	1220	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
102430	102980	550	Typical Cross Section of 2-laneWidening inBuilt-uparea	4
102980	103770	790	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare as	3
103770	103820	50	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
103820	107810	3990	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
107810	107850	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareaswith breast wall on hill side and retainingwallon valleyside.	2
107850	109100	1250	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare	3

			as	
109100	109140	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
109140	109580	440	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare as	3

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage		Length	Description	TCS
From	To			
109580	109620	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
109620	109860	240	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
109860	109950	90	Typical Cross Section inReconstruction of 2 lane withhardshoulderinruralareaswith breast wall on hill side and retainingwallon valleyside.	2
109950	110580	630	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulder inruralareas	3
110580	110670	90	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
110670	111562	892	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
111562	111577	15	TypicalcrosssectionofMinorBridge Retained	6
111577	112320	744	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare as	3
112320	112360	40	Typical Cross Section inReconstruction of 2 lane withhardshoulderinruralareaswith breast wall on hill side and retainingwallon valleyside.	2
112360	112640	280	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
112640	112730	90	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareaswith breast wall on hill side and retainingwallon valleyside.	2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

112730	112970	240	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
112970	113060	90	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
113060	113110	50	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralareas	3

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage		Length	Description	TCS
From	To			
113110	113160	50	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
113160	113610	450	Typical Cross Section inReconstructionof 2lanewith Hardshoulder inruralareas	3
113610	113650	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder inruralareaswith breast wall on hill side and retainingwallon valleyside.	2
113650	113930	280	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulder inruralareas	3
113930	113990	60	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
113990	114210	220	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
114210	114280	70	Typical Cross Section inReconstruction of 2 lane withhardshoulderinruralareaswith breast wall on hill side and retainingwallon valleyside.	2
114280	114320	40	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
114320	114360	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
114360	114410	50	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralare as	3

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

114410	114460	50	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
114460	114630	170	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
114630	114690	60	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage		Length	Description	TCS
From	To			
114690	114950	260	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulder inruralareas	3
114950	115010	60	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
115010	115770	760	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralareas	3
115770	115810	40	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
115810	115990	180	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
115990	116060	70	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
116060	116110	50	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralareas	3
116110	116270	160	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
116270	116330	60	Typical Cross Section inReconstructionof 2lanewith Hardshoulderinruralareas	3
116330	116730	400	Typical Cross Section of 2-laneWidening inBuilt-uparea	4
116730	116970	240	Typical Cross Section inReconstructionof 2lanewith	3

			Hardshoulderinruralareas	
116970	117033	63	Typical Cross Section inReconstruction of 2 lane withhardshoulder in rural areas withbreastwallonhillsideandretaining Wallonvalleyside.	2
117033	117103	71	TypicalcrosssectionofMinorBridge Retained	6
117103	117200	97	TypicalCrossSectionin Reconstruction of 2 lane withhardshoulderinruralareas	3

Note:Theextentofcrosssectiontypeisindicativeandshallbereviewedinconsultation with the Authority Engineer at the time of construction as per the sitecondition. Type I Cross section consist of two variants as I (a) without retaining wallon valley side and 1(b) with retaining wall on valley side as detailed in figure B1 & B2respectively. The locations please refer designed cross section @ 50 m intervaldetailedin AnnexureIIIofSchedule A.

The alternative cross section of the Project Highway at the cross-drainage structuresshall follow the typical cross section in consultation with the Authority Engineer at thetimeofconstruction.

2.11LongitudinalSection

As a minimum, the Construction Contractor shall achieve the proposed finished roadlevel as indicated in the plan and profile drawings for this purpose inFFSR. However,thefinalfinishedroadlevels(FRL)willbefinalizedaspersiteconditionsinconsultationwith NHIDCL.

2.12Built-UpAreas

ThealignmentpassesthroughBuiltupareas astabulatedbelow.

Sl. No.	ExistingChainage(km)		DesignChainage(km)		Name ofVillage/town
	From	To	From	To	
1	102.430	102.980	102.430	102.980	Losatephe
2	116.330	116.730	116.330	116.730	Lanezho

3.0INTERSECTIONSANDGRADESEPARATORS

All intersections shall be as per Section3 of the Manual. Existing intersectionswhicharedeficientshallbeimprovedto theprescribedstandards.

There are no intersections with cross roads having bituminous surfacing. The crossroads fall into the category VRs. The Construction Contractor has to construct thefollowing:

i) TypicaljunctiontreatmentsasspecifiedinFinalProjectReportshallbeapplied.Design typesofintersections areasgivenbelow:

Properlydesignedintersectionsshallbeprovidedatthelocationsandofthetypesandfeaturesgiveninthetablesbelow:

(a) At-gradeIntersections

(i) MajorIntersections

Sl. No.	Location of Intersection	Intersection Towards	Existing Configurations				Type of Intersection	Figure No.	Other Features
			Location	Type	Width (m)	Surface			
NIL									

Detailsof junctionimprovementshallbeasperIRC: SP:73-2018

(ii) MinorIntersections

S. No.	Existing(km)	Design Chainage	Type	LeadsTowards
1	98+925	98+925	T	VillageRoad
2	102+864	102+864	Y	RoadtowardsPhekTown (Losatephe)
3	104+130	104+130	Y	VillageRoad
4	116+386	116+386	Y	Roadtowards PhekTown
5	116+468	116+468	Y	VillageRoad
6	116+855	116+855	Y	VillageRoad

DetailsofjunctionimprovementsshallbeasperIRCSP:73-2018.

(b) GradeSeparatedIntersectionswith/withoutRamps

Sl. No.	Location(km)	SalientFeatures	MinimumLengthof Viaducttobe Provided(m)	RoadtobeCarried Over/Underthe Structures

Nil

4.0 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

Theexistingroadshallberaisedinthefollowingsections:

Sl. No.	Section(km)		Length (km)	Extentof Raising*	Remarks
	From	To			
Nil					

5.0 PAVEMENTDESIGN

5.1 Pavementdesignshallbecarriedoutinaccordancewithsection 5oftheManual.

5.2 Typeofpavement

Flexible pavement shall be adopted for Project Highway. Notwithstanding anythingcontrary contained in this Agreement or the Manual, the pavement shall be designedasgiven below.

5.3Designrequirements

Design requirement for the flexible pavement shall be in accordance with IRC: 37-2018. Flexible pavement for new pavement or for widening and strengthening of theexisting pavement shall be designed for a minimum design period of 20 years. Stageconstructionshall notbepermitted.

Notwithstanding anything to the contrary contained in this Agreement or the Manual, theContractor shall design the pavement for minimum design traffic of 5 million standard axlesBC&DBMand20millionstandardaxlesforgranularbaseandsub-basecourses.VG40grade of bitumen shall be used for BC and DBM layers. However, in no case the pavementthicknessshallbelessthanas given below;

PavementComposition	PavementType	Thickness (mm)
BC	Flexible pavement withgranular base and sub-baselayers(non-Cementitious)	30
DBM		50
WMM		250
GSB		200

5.4 Reconstructionofstretches/Realignment/BypassofSections

5.4.1 Total ProjectRoadshall be considered asfull reconstruction asperIRC-37-2018and Manual & Specifications.

5.4.3 RigidPavement

Norigidpavementhasbeenconsideredfortheproject Highway.

6.0ROADSIDEDRAINAGE

Drainagesystemincludingsurfaceandsubsurfacedrainsfortheproject Highwayshallbeprovidedaspersection6oftheManual.

Thelongitudinaldrainshallbeprovidedasgivenbelow;

(i) OpenDrain–18.250km
(ii) CoveredDrain–0.733 km

Note:AbovelengthoftheCatchWaterDrain/OpenDrain/CoveredDrainisindicativeandminimumspecified.TheactuallengthoftheCatchWaterDrain/OpenDrain/Covered Drainshallbedeterminedbythe Contractorinaccordance with the IRC: SP:73 requirements with approval from the Authority'sEngineer. Any increase in the length specified in this Clause of Schedule-B shallnot constitute a Change of Scope, save and except any variations in the lengtharising out of a Change of Scope expressly undertaken in accordance with theprovisionsofArticle13.

7.0DESIGNOFSTRUCTURES

7.1 General

7.1.1 The Project Road from Chezami to Nagaland/Manipur Border from Km.95+700 to Km.117+200 (design chainages), includes provision of 64 box culverts. All culverts and other 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. New culverts shall be constructed wide enough to accommodate the adjacent road cross section as given in this Schedule-B. The details of existing culverts are given in Schedule-A.

7.1.2 Widthofthecarriagewayofnewbridgesand Structuresshallbeasper Clause7.3oftheManual.

7.1.3 Allbridgesshallbehigh-levelbridges.

7.1.4 Thefollowingstructuresshallbedesignedtocarryutility service specifiedinthe tablebelow:

Sl.No.	BridgeatKm	Utilityservicetobecarried	Remarks
NIL			

7.1.5 Cross-section of the new culverts and bridges at deck level for the ProjectHighway shall conform to the typical cross sections given in the section 7 of theManual.

7.2 Culverts

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

7.2.2 Reconstructionofexistingculverts

Theexistingculvertsatthefollowinglocationsshallbere-constructedasnewculverts:

Theseareguidelinesforminimumprovisions.However,contractorhastodesignasperrequirementofroadinaccordancewithmanual.

Sl. No.	Existing Chainage (km)	Design Chainage (km)	Proposed Size (m)	Proposal
1	98+473	95+817	1x2x1.5	Box Culvert
2	98+778	96+115	1x2x1.5	Box Culvert
3	98+879	96+202	1x2x1.5	Box Culvert
4	99+236	96+559	1x2x1.5	Box Culvert
5	100+127	97+433	1x2x1.5	Box Culvert
6	100+232	97+554	1x2x1.5	Box Culvert
7	100+400	97+730	1x2x1.5	Box Culvert
8	100+542	97+870	1x2x1.5	Box Culvert
9	100+838	98+165	1x2x1.5	Box Culvert
10	101+639	99+026	1x2x1.5	Box Culvert
11	101+948	99+271	1x2x1.5	Box Culvert
12	102+361	99+662	1x2x1.5	Box Culvert
13	103+760	101+043	1x4x1.5	Box Culvert
14	104+094	101+377	1x2x1.5	Box Culvert
15	104+319	101+602	1x2x1.5	Box Culvert
16	104+796	102+090	1x2x1.5	Box Culvert
17	106+888	104+218	1x2x1.5	Box Culvert
18	108+057	105+389	1x2x1.5	Box Culvert
19	108+349	105+687	1x2x1.5	Box Culvert
20	108+759	106+090	1x2x1.5	Box Culvert
21	108+830	106+161	1x2x1.5	Box Culvert
22	110+971	108+250	1x2x1.5	Box Culvert
23	111+215	108+476	1x2x1.5	Box Culvert
24	111+626	108+892	1x2x1.5	Box Culvert
25	112+029	109+300	1x2x1.5	Box Culvert
26	113+199	110+422	1x2x1.5	Box Culvert
27	113+468	110+717	1x2x1.5	Box Culvert

28	114+221	111+445	1x2x1.5	Box Culvert
29	115+398	112+510	1x2x1.5	Box Culvert
Sl. No.	**Existing Chainage (km)**	**Design Chainage (km)**	**Proposed Size (m)**	**Proposal**
30	115+636	112+753	1x2x1.5	Box Culvert
31	116+117	113+237	1x2x1.5	Box Culvert
32	116+649	113+748	1x2x1.5	Box Culvert
33	116+712	113+810	1x2x1.5	Box Culvert
34	118+028	115+114	1x2x1.5	Box Culvert
35	118+298	115+380	1x2x1.5	Box Culvert
36	119+715	116+557	1x2x1.5	Box Culvert
37	119+723	116+565	1x2x1.5	Box Culvert

* All box culverts (excluding the box culverts in cushion) shall be provided with approachslabs on both sides. Moreover, upstream and downstream protection works, includingchute drains connecting stream with the culvert, catch pits; baffle piers/blocks etc. shallbe provided which must be ascertained as per the site conditions and details given indrawingsofculvert.

7.2.3

Additionalnewculvertsshallbeconstructedasperparticularsgiveninthetablebelow:

CULVERTDETAILS

Sl.No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Proposed Size(m)
1	-	100680	Box Culvert	1x2x1.5
2	-	101704	Box Culvert	1x2x1.5
3	-	102530	Box Culvert	1x2x1.5
4	-	103580	Box Culvert	1x2x1.5
5	-	103951	Box Culvert	1x2x1.5
6	-	104549	Box Culvert	1x2x1.5
7	-	104842	Box Culvert	1x2x1.5
8	-	107810	Box Culvert	1x2x1.5
9	-	108673	Box Culvert	1x2x1.5
10	-	109071	Box Culvert	1x2x1.5
11	-	109464	Box Culvert	1x2x1.5
12	-	109764	Box Culvert	1x2x1.5
13	-	111715	Box Culvert	1x2x1.5
14	-	112280	Box Culvert	1x2x1.5
15	-	112921	Box Culvert	1x2x1.5
16	-	113421	Box Culvert	1x2x1.5
17	-	113521	Box Culvert	1x2x1.5
18	-	114021	Box Culvert	1x2x1.5
19	-	114321	Box Culvert	1x2x1.5
20	-	114580	Box Culvert	1x2x1.5
21	-	114763	Box Culvert	1x2x1.5
22	-	114969	Box Culvert	1x2x1.5
23	-	115590	Box Culvert	1x2x1.5
24	-	115860	Box Culvert	1x2x1.5

25	-	116108	Box Culvert	1x2x1.5
26	-	116900	Box Culvert	1x2x1.5

*Existingchainagesofproposedculvertsalongtherealignmentsectionhavebeenleftblank.

7.2.3A The balance part of completed Box culvert is proposed for construction by newly appointed Contractor.

Sl. No.	Design Chainage (km)	Chainage as Per P&P	Type of Structure	Span / Dia. (m)	Width of Structure (m)	Remarks (Balance Work for Completed Culvert)
1	95+817	95+999	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
2	95+978	96+361	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
3	97+041	98+191	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
4	98+212	99+756	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
5	98+582	100+710	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
6	99+163	102+736	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
7	99+543	103+089	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
8	100+178	104+475	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
9	100+335	104+962	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
10	101+500	101+500	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
11	102+420	106+944	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
12	102+715	107+003	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
13	102+992	102+992	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
14	103+282	107+273	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
15	103+951	103+951	RCC Box	1x2x1.5	10.00	Return Wall, Catchpit & Apron Balance
16	104+452	108+527	RCC Box	1x2x1.5	10.00	Parapet u/s,Return Wall & Apron Balance
17	104+842	104+842	RCC Box	1x2x1.5	10.00	Return Wall & Apron Balance

18	104+944	110+457	RCC Box	1x2x1.5	10.00	Parapet, Return Wall & Apron Balance
19	106+350	106+350	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
20	106+917	111+954	RCC Box	1x2x1.5	10.00	Parapet, Return Wall & Apron Balance
21	107+246	112+126	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
22	107+357	107+357	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
23	108+438	108+438	RCC Box	1x2x1.5	10.00	Parapet,Return Wall & Apron Balance
24	109+915	109+915	RCC Box	1x2x1.5	10.00	Parapet,Return Wall, Catchpit & Apron Balance
25	110+078	110+078	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
26	110+170	110+170	RCC Box	1x2x1.5	10.00	Parapet u/s Balance
27	110+717	110+717	RCC Box	1x2x1.5	10.00	Parapet & Catchpit Balance

WideningofCulverts:

Sl.No.	Existing Chainage(km)	Design Chainage(km)	Proposed Span (m)	Proposal
1	100+438	100+438		

CulvertsUnder-Construction:

Sl.No.	Existing Chainage(km)	Design Chainage(km)	Proposed Span (m)	Proposal
NIL				

7.2.4 Repairs/replacementsofrailing/parapets,flooringandprotection.Worksofth eexistingculvertsshallbeundertakenasfollows:

Sl.No.	Existing Chainage (km)	Design Chainage (km)	Proposal	Proposed Span
NIL				

7.2.5 Floorprotectionworksshallbeasspecifiedintherelevant IRCCodesandSpecific ations.

7.3 Bridges

7.3.1 Theexistingbridgestobereconstructed/widened

(i) Theexistingbridgesatthefollowinglocationsshallbereconstructedasnewstructures(MinorBridge)

Sl. No.	Existing Chainage(KM)	Design Chainage(KM)	ProposedSpan(m)	Proposed Width(m)	Remarks
NIL					

7.3.2 Thefollowingstructuresshallbeprovidedwithfootpaths:

Sl. No.	Location (km)	Remarks
	NIL	

7.3.2 AdditionalNewMinorBridges

Newminorbridgesatthefollowinglocationsontheprojecthighwaysshallbeconstructedin Packageaspermanual

Sr. No.	DesignedChainage (km)	River/NallahName	Proposed Span Arrangement (m)
NIL			

7.3.3 AdditionalnewMajorbridges

Sl. No.	Location Designed (km)	Total Length(m)	Remarks
NIL			

7.3.5 Therailingsofexistingbridgesshallbereplacedbycrashbarriersatthefollowing locations:

Sl.No.	Location(km)	Remarks
Nil		

7.3.6 Repairs/replacementsofrailings/parapetsoftheexistingbridgesshallbeundertakenas follows:

Sl.No.	Location(km)	Remarks
Nil		

7.3.7 Drainagesystemforbridgedecks

Aneffectivedrainagesystemforbridgedecksshallbeprovidedasspecifiedinparagraph7.20of theManual

7.3.8 Structures in marine environment.

NotApplicable

7.4 Rail-roadBridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7of the Manual. [Refer to paragraph 8.19 of the Manual and specify modification, ifany]

7.4.2 Roadover-bridges

Roadover-bridges(roadoverrail)shallbeprovidedatthefollowinglevelcrossings,asperGADdrawingsattached:

Sl. No.	LocationofLevelCrossing(km)	LengthofBridge(m)
Nil		

7.4.3 Roadunder-bridges

Roadunder-bridges(roadunderrailwayline)shallbeprovidedatthefollowinglevelcrossings,as per GAD drawingsattached:

Sl.No.	LocationofLevelCrossing (km)	NumberandLengthofSpan (m)
Nil		

7.5 GradeSeparatedStructures

Thegradeseparatedstructuresshallbeprovidedat thelocationsandof thetypeandlengthspecifiedinparagraphs2.9and3ofthis Annex-I.

7.6 Underpasses/Overpasses

ThereisnoUnderpass/OverpassproposedontheProjectHighway.

7.7 Repairsandstrengtheningofbridgesandstructures

Theexistingbridgesandstructurestoberepaired/strengthened,andthenatureandextentofrepairs/strengtheningrequiredare givenbelow:

A. Minor Bridges

		SalientDetailsofExistingBridges		

Sl.No	Bridge Location(km)	SpanArrangement	CarriagewayWidth	TotalWidth	Type ofSuperstructure	Type ofFoundation	AdequacyorOtherwiseoftheExistingWaterway,VerticalClearanceetc.	Remarks
		(m)	(m)	(m)				
1	100+920	1X17	8.5	8.5	RCCGirder	Open		ExistingRetainedwithRepairing&Maintenance
2	111+569	1X15	8.5	8.5	RCCGirder	Open		ExistingRetainedwithRepairing&Maintenance
3	117+068	1X70.5	8.5	8.5	PSCBoxGirder	Open		ExistingRetainedwithRepairing&Maintenance

B. ROB/RUB

Sl.No.	Location ofBridge(km)	NatureandExtentofRepairs/StrengtheningtobeCarried out
Nil		

C. Overpasses/UnderpassesandOtherStructures

Sl. No.	Location ofBridge(km)	NatureandExtentofRepairs/StrengtheningtobeCarried out
Nil		

7.8 ListofMajorBridgesandStructures

ThefollowingisthelistofMajorBridgesonPackage

Sl. No.	Location Design(km)	TotalLength (m)	Width (m)	Remarks
1	117+100	70.50	8.40	MajorBridge

8 TRAFFICCONTROLDEVICESANDROADSAFETYWORKS

8.1 Trafficcontroldevicesandroadsafetyworksshallbeprovidedinaccordance WithSection9oftheManual.

8.2 Specificationsofthereflectivesheeting:shallbeprovidedinaccordancewith IRC: SP:73-2018

8.3 TheminimumquantityofTrafficsignagesandpavementmarkingaretabulatedhereforPackage

Sr.No.	CAUTIONARYWARNINGSIGNS	Numbers
1	OnewayObjectHazardMarker(OHM)	154
2	StopSign(R1-1)	
3	GivewaySign(R1-2)	
4	Series ofBands(W-42)	59
5	LeftCurve(W-19L)	16
6	RightCurve(W-19R)	16
7	overHeadCables(W-27)	42
8	LeftHairpinBand(W-33L)	3
9	RightHairpinBand(W-33R)	3
10	SchoolAhead(W-41)	
11	SideRoadRight(W-43)	
12	SideRoadLeft(W-44)	
13	T-Intersection(W-52)	
14	Y-Intersection(W-60L)	
15	PedestrianCrossing(W-28)	
Sr.No.	**SPEEDLIMIT&VEHICLECONTROLSIGN**	**Numbers**
12	SpeedLimit Signs(R4-5B)	4
Sr.No.	**ROUTEMARKERSIGN**	**Numbers**
1	NationalHighwayRouteSign(I8-1)	2
Sr.No.	**DIRECTION&PLACEIDENTIFICATION SIGNS**	**Numbers**
1	SP- 19(A)	
2	IA-1A	
3	I1-3	10
4	SP-19(C)	
	TOTAL	**309**

9 ROADSIDEFURNITURE

Roadside furnitureshallbe providedinaccordance withtheprovisionsofSection11of the ManualIRC: SP: 73-2018.

Overheadtrafficsigns:locationandsize

Theoverheadsignsshallbethereflectorizedtypewithhighintensityretro-reflective sheeting conforming to ASTMD 4956-01, type VIII and /ortype IX ofmicro prismatic type. The retro reflected sheets of Engineering Grade and highintensity grade (ordinary) shall not be used. The height, lateral clearance, locationand instillation shall be as per relevant clauses of MoRT&H specifications. Overheadsign shall be installed ahead of major intersections and urban areas as per detailed design requirements.The minimum numberofoverheadsigns shall be03(01 No.ofgantryand02No.ofCantilever)asperthismanual.

10 COMPULSORYAFFORESTATION

Minimum 3644 no. of trees are required to be planted by the contractor

ascompensatory a forestation in accordance with IRC:SP:73 keeping in viewIRC:SP:21-2009.Anyincreaseinno.oftreesshallnotbetreatedaschangeofscope, save and except any variations arising out of a Change of ScopeexpresslyundertakeninaccordancewiththeprovisionsofArticle13.

11 HAZARDOUSLOCATIONS

i) Metal Beam crash barrier length of minimum 18610 (single runner, heavy dutyand W-shape) shall be provided at the locations of bridge approaches and highembankments (3.0m and more), at sharp curves on both sides. Heavy dutymetalbeamcrashbarriersshallbeprovidedonthisprojectbytheConstructionContractoratthelocationsfinalizedinconsultationwithNHIDCL.Typicaldetailsofmetalcrashbarrieraregiveninaspermanual.

Thesafetybarriersshallalsobeprovidedatthefollowinghazardouslocations:

W-BeamcrashBarrier-

Sr. No.	StartCh.	EndCh.	Length(m)
1	95700	97180	1480
2	97230	99400	2170
3	99610	100000	390
4	100070	100110	40
5	100190	100650	460
6	100690	100912	222
7	100912	100929	17
8	100929	101050	122
9	101210	102430	1220
10	102980	103770	790
11	103820	107810	3990
12	107850	109100	1250
13	109140	109580	440
14	109620	109860	240
15	109950	110580	630
16	110670	111562	892
17	111562	111577	15
18	111577	112320	744
19	112360	112640	280
20	112730	112970	240
21	113060	113110	50
22	113160	113610	450
23	113650	113930	280
24	113990	114210	220
25	114280	114320	40
26	114360	114410	50

27	114460	114630	170
28	114690	114950	260
29	115010	115770	760
30	115810	115990	180
31	116060	116110	50
32	116270	116330	60
33	116730	116970	240
34	117033	117103	71
35	117103	117200	97

Parapetlocation-

Sr. No.	StartCh.	EndCh.	Length(m)
1	97180	97230	50
2	99400	99610	210
3	100000	100070	70
4	100110	100190	80
5	100650	100690	40
6	101050	101210	160
7	102430	102980	550
8	103770	103820	50
9	107810	107850	40
10	109100	109140	40
11	109580	109620	40
12	109860	109950	90
13	110580	110670	90
14	112320	112360	40
15	112640	112730	90
16	112970	113060	90
17	113110	113160	50
18	113610	113650	40
19	113930	113990	60
20	114210	114280	70
21	114320	114360	40
22	114410	114460	50
23	114630	114690	60
24	114950	115010	60
25	115770	115810	40
26	115990	116060	70
27	116110	116270	160
28	116330	116730	400

29	116970	117033	63

Thesafetybarriers,protectiveworksshallalsobeprovidedatthehazardouslocation/lengths.

12 SPECIALREQUIREMENTFORHILLROADS

Inaccordancewithsection13ofthemanual(fromIRC:SP:73-2018),IRC:SP-1998 and Recommended practices for Treatment of Embankment andRoadside slopes for erosion control (First Revision), IRC: 56-2011 andrelevantIRCcodes.

12.1 SlopeProtection

As the project involves cutting of existing hill slopes, it is imperative that slopesare stabilized for ensuring longevity of the slope and the road. Slope stability,erosion control and landslide correction shall be accomplished in accordance withIRC:SP:48-1998.Reference maybedrawnfromIRC:56-2011.

- The**minimumquantity**ofprotectionworkmaybetakenasbelow:

Typeof ProtectionWork		
ProtectionWork	**Unit**	**Quantity**
ParapetWall	Rm	2476
Breastwall RMM/PCC/RCC/Gabion	Rm	5888
RCC Retaining Wall (with application of Geo – synthetic)	Rm	1590
REWall withGeo –synthetic	Sqm	nil
Geo Synthetic Mat for Erosion Control, SoilNailing& Fencinglengths	Sqm	nil
SeedingandMulching withPolymerNet	Sqm	73202
Hydroseeding	Sqm	nil
CoveredDrain	Rm	733
Chutefor Culvert		AtEveryCulvertLocation
SoilNailing Slopeprotection	Sqm	19050

Note-

TheContractorshallberesponsibleforaccurateassessmentoftheactualrequirement aspersitesituation&preparedesignsforslopeprotection&stabilization as per the specifications & standards stipulated in schedule 'D' andsubmit the same to the AE for review through the proof consultant and implementitaccordinglythereafter.

Any increase in quantity over and above the tentative qty. ***as mentioned inabove table or through change in specifications will not be considered aschange of scope****. Therefore, contractor shall make thorough investigation at siteand assess the requirement of slope protection and slide prone zone and othersafetyfeatures at thisown beforesubmission ofbid.*

ROADLANDBOUNDARY(Clause12.2IRCSP:73:2018)

Road land (ROW) boundary shall be demarcated by putting RCC boundary pillars ofsize 60cm x 15cm x 15 cm embedded in concrete (as per IRC:25) along the ProjectHighway at 200 m interval on both sides. All the components used in delineating roadland boundary shall be aesthetically pleasing, sturdy and vandal proof. The road landboundaryshall be demarcatedinconsultation withNHIDCL.

12.3DisposalofDebris:-AsperManual

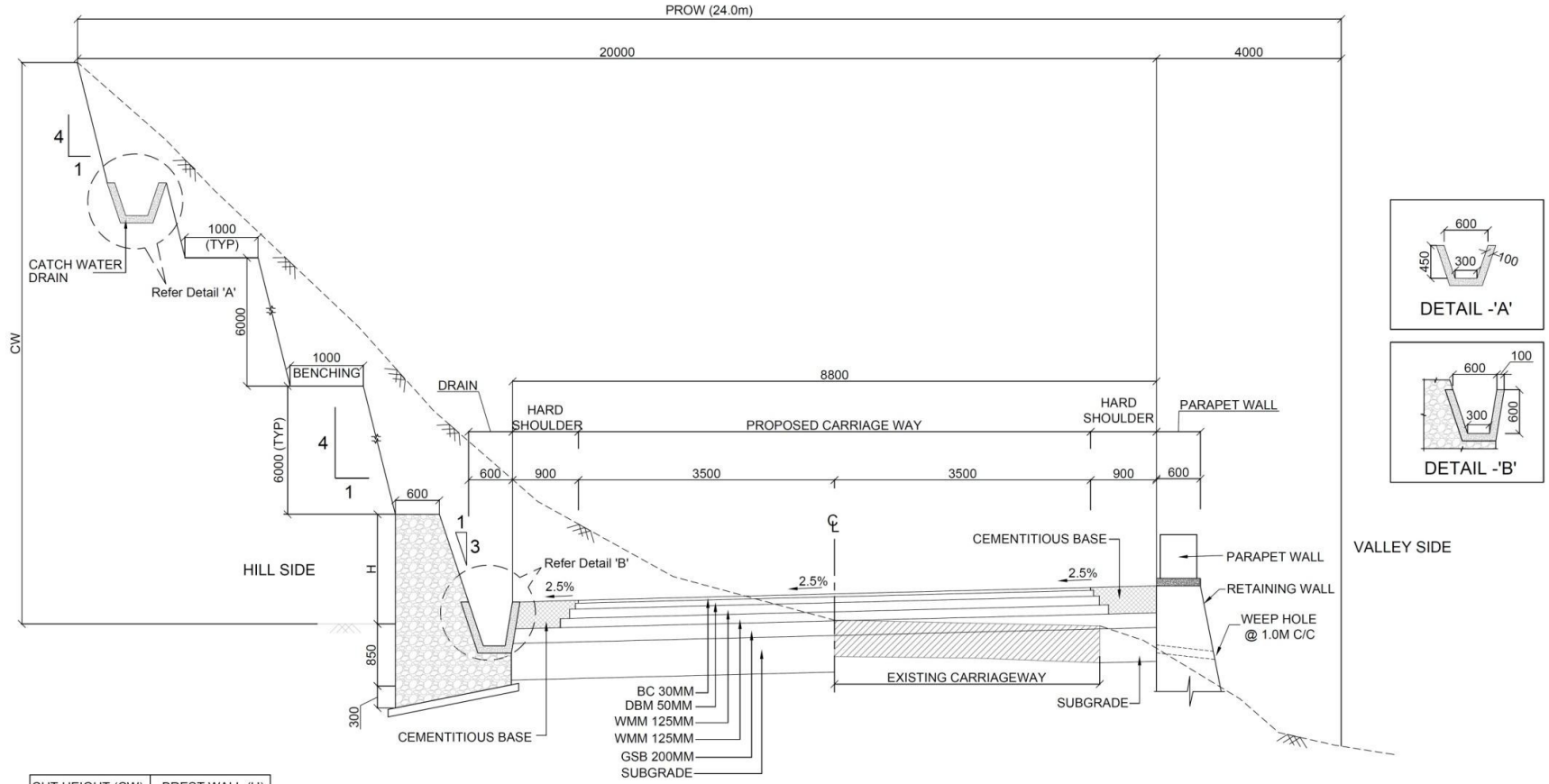
13 CHANGEOFSCOPE

ThesizeofStructures,bridges,culvertsandslopeprotectionworkswhatsoever in terms of retaining wall, breast wall, gabion wall, RE wall, chutedrain, catch pit, baffle piers/blocks etc. under special requirement of hill slopespecified hereinabove shall be treated as an approximate assessment. Theactuallengths,heightsandwidthsasrequiredonthebasisofdetailedinvestigations shall be determined by the Contractor in accordance with theSpecificationsandStandards.Anyvariationsinthelengths,heightsandwidthsand specifications in this Schedule-B shall not constitute a Change of Scope,save and except any variations in the length, height and width arising out of aChange of Scope expressly undertaken in accordance with the provisions ofArticle13.

General Note: -*Profile corrective course, camber correction, desirable thickness and width of present layer shall be done by the newly appointed contractor for all completed works.*

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

TypicalCrossSectiondrawing

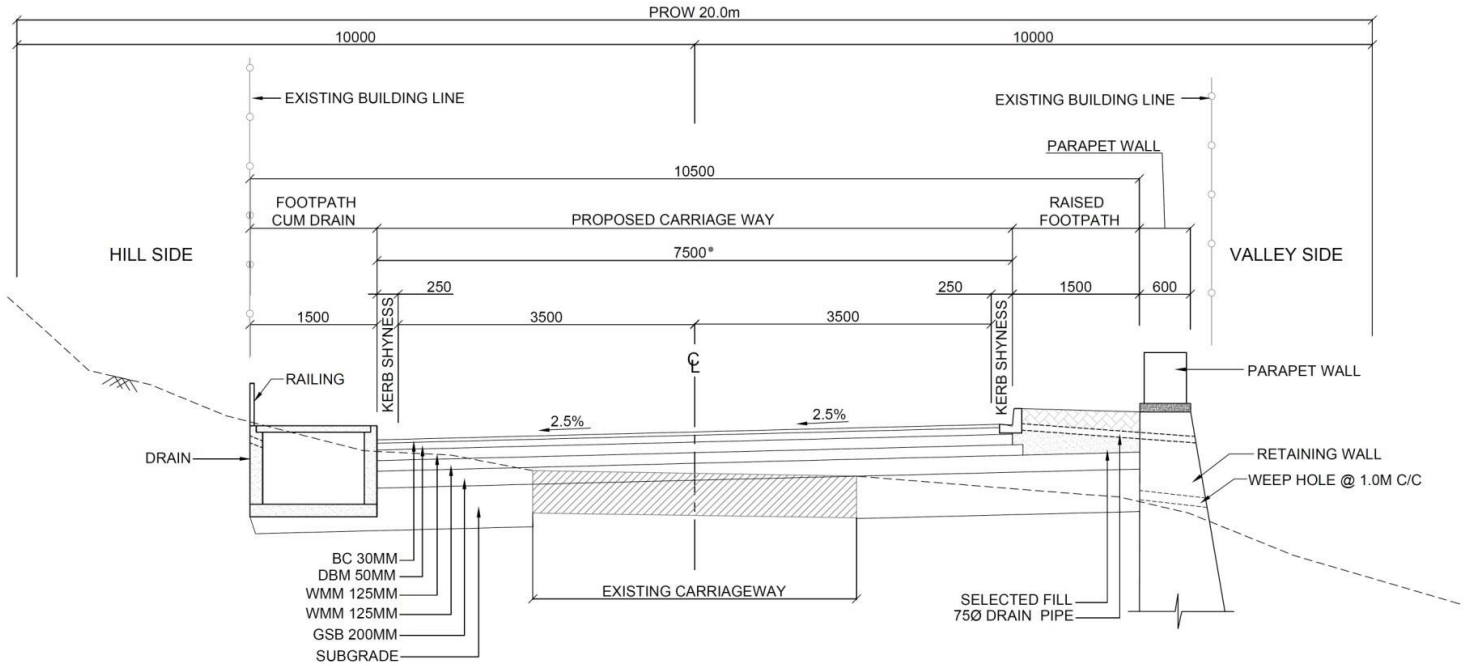


CUT HEIGHT (CW)	BREST WALL (H)
UPTO 3m	Nil
3m<CW<13.5m	1.5m
CW>13.5m	3.0m

TCS - 2
TYPICAL CROSS SECTION RECONSTRUCTION / WIDENING OF 2 LANE WITH HARD SHOULDER IN RURAL AREA
(WITH BREST WALL ON HILL SIDE AND RETAINING WALL ON VALLEY SIDE)

Schedule-B

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**



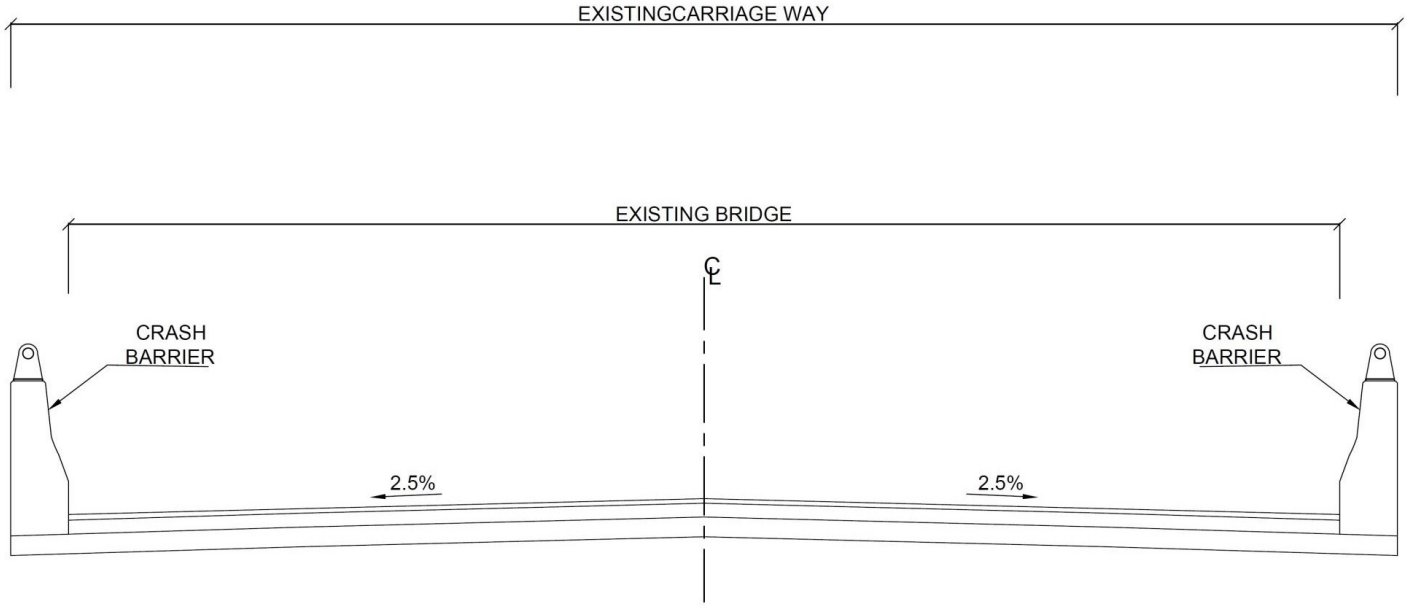
TCS - 4

TYPICAL CROSS SECTION OF 2-LANE WIDENING IN BUILT-UP AREA (RECONSTRUCTION)

* IF WIDTH OF 7.5m IS NOT AVAILABLE INTERMEDIATE CARRIAGEWAY TO BE PROVIDED.

Schedule-B

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**



TCS - 6

TYPICAL CROSS SECTION OF MINOR BRIDGE (RETAINED)

SCHEDULE–C

(SeeClause2.1)

PROJECTFACILITIES

1. ProjectFacilities

This schedule indicates the minimum spatial and functional requirements of thefacilities to be provided on the **Project Highway (Total length of 21.50 km)**with an aim to cater to the envisaged demand till the end of the concessionperiod.

TheContractorshallconstructtheProjectFacilitiesinaccordancewiththeprovisionsofthisAgreement.SuchProjectFacilitiesforPackage–IIshallinclude:

(a) Roadsidefurniture

(b) Pedestrianfacilities

(c) Treeplantation

(d) Busshelters

(e) PassingPlaces

(f) Trucklaybyesand

(g) Otherstobespecified

2. DescriptionofProjectFacilitiesTollPl

aza

NIL

BusShelters

To ensure orderly movement of the through traffic, bus shelters have been proposedoutside the residential area, away from bridges, and high embankments and not too closetotheroad intersections.Thebusstopshave beenproposedon onesideoftheroad.

Bus shelters shall be provided on the Project Highway at 6 locations as mentioned hereinunder. Bus shelters shall be constructed as per Manual on both sides of the ProjectHighway.These busshelterswill alsohave passenger shelter.

Details of Bus shelters

Sl.No.	Chainage	SIDE
1	97+254	LHS
2	97+395	RHS
3	102+786	LHS
4	102+930	RHS
5	116+310	LHS
6	116+450	RHS

PedestrianFacilities

Pedestrian facilities shall be provided at the locations of urban sections in order to ensuresafety of pedestrians while crossing in consultation with NHIDCL. This should include (a)minimumZebra CrossingwithflashingBeacon or(b)Zebra Crossing with separatepedestrianphase or(c)anyother provision asapproved byNHIDCL.

LandscapingandTreePlantation

Landscapetreatmentof the ProjectHighway shall be undertaken throughplantingoftrees and ground cover of appropriate varieties and landscaping on surplus land in theROW.TheConstructionContractorshouldplantatleast14319nos.oftreesofminimum6ft.heightwith treeguard madeup ofMS sections.

Plantation scheme shall be prepared in consultation with the Forest Department of theGovernmentofArunachalPradesh,andtheIndependentConsultant/NHIDCL.

Environment

The Project Highway during design, construction and maintenance during implementationperiodshallconformtotheenvironmentalrulesandregulationsinforce.TheConstructionContractorshall be responsibleforthe same.

Annex– I
(Schedule–D)

Specifications and Standards for Construction

1 SpecificationsandStandards

All materials, works and construction operations shall confirm to the Two Lane Manual (IRC: SP 73 – 2018) of Specifications and Standards for Two Laning (IRC: SP: 73 –2018), referred as the Two Lane Manual (IRC: SP: 73–2018), and MORTH Specifications for Road and Bridge Works, IRC: SP: 48-1998 and IRC 56-2011. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2 DeviationsfromtheSpecificationsandStandards

The terms 'Concessionaire', 'Independent Engineer' and 'Concession Agreement' used in the Two Lane Manual (IRC: SP 73- 2018) shall be deemed to be substituted by the terms **'Contractor', 'Authority's Engineer' and 'Agreement'** respectively.

Not with standing anything to the contrary contained in the Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway and for purposes of this Agreement, aforesaid Specifications and Standards of following clauses shall be deemed to be amended to the extent set forth below:

S. No.	Clause	Provision as per Manual (IRC:SP:73-2018)	Modified Provision
1	2.16	Typical Cross-Sections	Typical Cross-Sections of the Project Highway shall be as specified in Annexure-I of Schedule-B
2	2.2	**Design Speed:** Ruling or minimum Design speed shall be followed.	Design speed shall be 30 km/h for project highway excepting hair pin bend locations where in design speed shall be 20 km/h. **Refer AppendixD-1.**
3	2.7.2	**RoadwayWidth:** On horizontal curves with radius up to 300 m width of pavement and roadway shall be increased as per Table2.4	On horizontal Curves with radius upto300m width of pavement and roadway shall be increased as per Plan & Profile drawings given in Annexure –III of Schedule-A

4	2.9.4	**Radius of HorizontalCurves:**	RadiusofHorizontalcurves shallbeasperthealignmentplans howninPlan&Profile

S. No.	Clause	Provision as per Manual (IRC:SP:73-2018)	ModifiedProvision
			drawingsgivenin**Annexure-III** of **ScheduleA.**
5	7.3	**Widthofstructure**	Width of the structures shall beas specified in Annexure I ofScheduleB

AppendixD-1

Locationswheredesign speedis between30to 40KMPH

Chainage(m)	Radius(m)	Design Speed in KmPh	Hand of curve	Extra Widening(m)
95722.7	60	30	Left	1.2
95820.71	40	30	Right	1.5
95878.82	40	30	Right	1.5
96032.34	70	30	Left	0.9
96089.35	35	30	Left	1.5
96123.81	300	50	Left	0.6
96211.06	35	30	Right	1.5
96263.09	35	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

96391.31	100	40	Right	0.9

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
96471.32	100	35	Left	0.9
96589.84	78	30	Left	0.9
96834.44	50	30	Left	1.2
96945.24	80	40	Right	0.9
96997.54	40	30	Right	1.5
97179.39	40	30	Right	1.5
97388.22	30	30	Right	1.5
97683.45	35	30	Right	1.5
97873.38	50	30	Left	1.2
98225.4	30	30	Left	1.5
98363.98	100	35	Left	0.9
98476.83	80	30	Right	0.9
98640.71	35	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

98711.85	35	30	Left	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
99037.11	80	30	Right	0.9
99099.67	45	30	Left	1.2
99167.33	60	30	Right	1.2
99280.27	50	30	Right	1.2
99359.7	40	30	Left	1.5
99430.8	60	30	Right	1.2
99550.11	50	30	Right	1.2
99658.35	100	35	Right	0.9
99905.33	70	30	Left	0.9
100029.2	70	40	Left	0.9
100177.2	35	30	Right	1.5
100227.5	50	30	Left	1.2
100439.2	30	30	Right	1.5

100568	100	35	Right	0.9
Chainage(m)	**Radius(m)**	**Design Speed in KmPh**	**Handofcurve**	**Extra Widening(m)**
100725.9	30	30	Right	1.5
101087	60	30	Right	1.2
101254.9	60	30	Left	1.2
101333.8	70	30	Left	0.9
101543.6	50	30	Left	1.2
101607.3	80	30	Right	0.9
101705.6	40	30	Left	1.5
101776.7	100	40	Right	0.9
101963	40	30	Left	1.5
102102.4	40	30	Right	1.5
102232.8	45	30	Right	1.2
102420.9	40	30	Right	1.5

102519.4	60	30	Left	1.2
102657.3	80	30	Left	0.9

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
102853.5	40	30	Left	1.5
102893.7	70	30	Right	0.9
102948.9	30	30	Right	1.5
103061.6	30	30	Right	1.5
103173.5	80	30	Left	0.9
103287.1	50	30	Right	1.2
103352.2	70	30	Right	0.9
103454.5	80	30	Right	0.9
103494.2	90	35	Left	0.9
103606.3	40	30	Left	1.5
103824.4	30	30	Left	1.5
103956.1	40	30	Left	1.5
104083.9	60	30	Right	1.2
104132.8	50	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
104433.8	50	30	Left	1.2
104841.2	50	30	Left	1.2
104938.1	30	30	Right	1.5
105010.3	45	30	Left	1.2
105110.2	120	35	Left	0.6
105291.6	45	35	Left	1.2
105384.8	40	30	Right	1.5
105490.7	130	40	Left	0.6
105582.2	90	35	Left	0.9
105669.3	50	30	Right	1.2
105753.4	80	30	Left	0.9
105852.9	50	30	Left	1.2
106019.9	50	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

106158.5	40	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
106220.4	30	30	Left	1.5
106310.4	46	30	Right	1.2
106433.9	45	30	Left	1.2
106612	120	35	Right	0.6
106682.9	50	30	Left	1.2
106731.4	50	30	Right	1.2
106904.8	45	30	Right	1.2
107071.8	60	30	Left	1.2
107239.2	40	30	Right	1.5
107361.8	50	30	Right	1.2
107508.2	85	30	Right	0.9
107641.5	80	30	Left	0.9
107800.3	50	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

108477.9	40	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
108792.8	90	35	Left	0.9
109021.3	40	30	Right	1.5
109130.8	80	30	Right	0.9
109204.9	50	30	Right	1.2
109270.8	50	30	Left	1.2
109355.9	50	30	Left	1.2
109419.5	140	40	Right	0.6
109520.6	100	35	Left	0.9
109580.1	50	30	Right	1.2
109697.8	50	30	Right	1.2
109911	45	30	Left	1.2
109986.9	40	30	Left	1.5
110119.6	50	30	Right	1.2

110188.7	32	30	Left	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
110356.3	35	30	Left	1.5
110404.3	80	30	Right	0.9
110517.5	70	30	Left	0.9
110588.6	70	30	Right	0.9
110686.5	100	35	Right	0.9
110743.2	40	30	Left	1.5
110811.1	60	30	Right	1.2
110874.1	45	30	Left	1.2
110933.3	40	30	Right	1.5
110995	40	30	Right	1.5
111173.9	40	30	Right	1.5
111297.5	150	40	Right	0.6
111346.5	45	30	Left	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

111451.8	50	30	Right	1.2

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
111664.6	35	30	Right	1.5
111806.6	40	30	Left	1.5
111876.2	40	30	Right	1.5
111952	40	30	Left	1.5
112076.2	60	30	Right	1.2
112124.1	150	40	Right	0.6
112292	60	30	Left	1.2
112408.4	40	30	Left	1.5
112475.9	40	30	Left	1.5
112667.3	50	30	Right	1.2
112721.6	30	30	Left	1.5
112888.5	60	30	Left	1.2
112954.8	40	30	Right	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

113041.8	70	30	Right	0.9

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
113107.5	40	30	Left	1.5
113172.4	30	30	Left	1.5
113226.6	60	30	Right	1.2
113300.1	30	30	Right	1.5
113351.1	30	30	Left	1.5
113407.1	30	30	Left	1.5
113889.5	30	30	Right	1.5
114110.2	70	30	Right	0.9
114182.3	90	35	Left	0.9
114250.4	50	30	Right	1.2
114298.8	100	35	Left	0.9
114359.8	100	35	Right	0.9
114464.2	70	30	Right	0.9

114834.5	70	30	Left	0.9

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
114952.9	55	30	Left	1.2
115092	30	30	Left	1.5
115165.4	50	30	Left	1.2
115212.4	50	30	Left	1.2
115327.9	80	30	Right	0.9
115390.1	70	30	Right	0.9
115527.4	40	30	Left	1.5
115578.6	35	30	Right	1.5
115642.6	50	30	Left	1.2
115742.4	80	40	Right	0.9
115833.3	90	35	Left	0.9
115951.1	100	35	Left	0.9
116238.6	60	30	Left	1.2

116313.4	40	30	Left	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
116386.4	40	30	Right	1.5
116480.2	30	30	Left	1.5
116616.4	60	30	Left	1.2
116697.4	100	35	Left	0.9
116756.8	60	30	Right	1.2
116794.3	90	35	Left	0.9
116838.5	40	30	Right	1.5
116927.7	90	40	Right	0.9
117024.9	70	30	Right	0.9
117106.9	70	30	Right	0.9
117167.2	40	30	Left	1.5

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Locations where design speed is less than 30KMPH

Chainage(m)	Radius(m)	Design Speed in KmPh	Handofcurve	Extra Widening(m)
97316.8115	15	20	Right	1.5
97562.094	15	20	Left	1.5
98897.2365	28	20	Left	1.5
100347.196	15	20	Right	1.5
100483.8005	20	20	Left	1.5
100776.9635	25	20	Left	1.5
100903.2825	15	20	Right	1.5
103010.3235	20	20	Left	1.5
103741.0535	15	20	Right	1.5
104221.9155	20	20	Right	1.5
104690.97	28	25	Right	1.5
106087.994	15	20	Right	1.5

107422.0325	20	20	Left	1.5
113522.5955	20	20	Left	1.5
Chainage(m)	**Radius(m)**	**Design Speed in KmPh**	**Handofcurve**	**Extra Widening(m)**
113804.238	20	20	Right	1.5
113930.8105	20	20	Left	1.5
116533.671	20	20	Left	1.5

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 ApplicablePermits.

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-fulfilment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.

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 beadopted.

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'sEngineer

4. Extension of TimeLimit

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 reasonsthereof.

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 theContractor

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-monsoonInspection

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'sEngineer.

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	Temporaryrestorationoftrafficwithin24hours;permanentrestoration within15(fifteen)days
(ii)	Roughnessvalueexceeding2,200mminastretchof 1km(as measured by a calibrated bump integrator)	120(one hundred and twenty)days
(iii)	Pot holes	24hours
(iv)	Any cracks in road surface	15(fifteen)days
(v)	Anydepressions,ruttingexceeding10mminroad 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)	Variationbymorethan1%intheprescribedslope of camber/crossfall(shallnotbelessthanthecamber onthemaincarriageway)	7 (seven) days
(ii)	Edge drop at shoulders exceeding 40 mm	7 (seven) days
(iii)	Variationbymorethan15%intheprescribedside (embankment)slopes	30 (thirty) days
(iv)	Rain cuts/gullies in slope	7 (seven) days
(v)	Damage to or silting of culverts and side drains	7 (seven) days
(vi)	Desilting of drains in urban/semi-urban areas	24hours

(vii)	Railing, parapets, crash barriers	7 (seven) days (Restore immediately if causing safety hazard)
(c)	**Road side furniture including road sign and**	

Nature of Defect or deficiency		Time limit for repair/rectification
	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	24hours
(ii)	Faults and minor failures	8 hours
(e)	**Trees and Plantation**	
(i)	Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs	24hours
(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	24hours
(g)	**Toll Plazas**	
(h)	**Other Project Facilities and Approach Roads**	

(i)	Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus-shelters, cattle crossings, [Traffic Aid Posts, Medical Aid Posts] and service roads	15(fifteen)days
(ii)	Damaged vehicles or debris on the road	4 (four) hours
(iii)	Malfunctioning of the mobile crane	4 (four) hours
Bridges		
(a)	**Superstructure**	
(i)	Any damage, cracks, spalling/ scaling Temporarymeasures Permanentmeasures	within 48 hours within15(fifteen)daysorasspecified bytheAuthority'sEngineer
(b)	**Foundations**	
(i)	Scouring and/or cavitation	15(fifteen)days
(c)	**Piers, abutments, return walls and wing walls**	

Nature of Defect or deficiency		**Time limit for repair/rectification**
(i)	Cracks and damages including settlement and tilting, spalling, scaling	30 (thirty) days
(d)	**Bearings (metallic) of bridges**	
(i)	Deformation, damages, tilting or shifting of bearings	15(fifteen)days Greasing of metallic bearings once in a year
(e)	**Joints**	
(i)	Malfunctioning of joints	15(fifteen)days
(f)	**Other items**	
(i)	Deforming of pads in elastomeric bearings	7 (seven) days
(ii)	Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes	3 (three) days
(iii)	Damage or deterioration in kerbs, parapets, handrails and crash barriers	3 (three) days (immediatelywithin24hoursifposing dangertosafety)
(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(twentyfour)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 ApplicablePermits:

a) Permission of the State Government for extraction of boulders fromquarry;

b) Permission of Village Panchayats and Pollution Control Board for installation ofcrushers;

c) License for use ofexplosives;

d) Permission of the State Government for drawing water fromriver/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 batchingplant;

g) Clearance of Village Panchayats and Pollution Control Board for setting up asphaltplant;

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

i) Any other permits or clearances required under ApplicableLaws.

1.2 Applicable Permits, as required, relating to environmental protection and conservationshallhavebeenprocuredbytheAuthorityinaccordancewiththeprovisionsofthisAgreement.

1.3 The agency need to ensure compliance of AIP and FC stated in schedules 'A', Annexure – IV. The necessary certifications need to be obtained from competentlocal forest department.

1.4 Muck dumping locations in forest area to be freezed in consultation with the forest department,the necessary certifications from loca lcompetent fo rest department is to be submitted.

SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

FORM OF BANK GUARANTEE

Annex-I

(See Clause7.1.1)

Performance Security

The Managing Director,
National Highways & Infrastructural Development Corporation
Ltd. PTI Building, 3rd Floor,
4, Parliament Street
New Delhi -110001

WHEREAS:

_____[name and address of contractor] (hereinafter called the "**Contractor**") and Managing Director, NHIDCL, PTI Building, 3rd Floor, 4, Parliament Street, New Delhi- 110001(hereinafter called the **"Authority"**) have entered into an agreement (hereinafter called the "Agreement") for the **RFP for "Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A"** subject to and in accordance with the provisions of the Agreement

A. 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**").

B. 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 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 theAgreement, 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 & Infrastructural Development Corporation Ltd, 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 notinanywayormanneraffecttheliabilityorobligationoftheBankunderthisGuarantee.

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 suchlaw.

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 RetentionMoney.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless ademandor claiminwritingismade

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 theAgreement.

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

10. Bank.

11. 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 authorized 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 signedbyanofficeroftheAuthoritythattheenvelopewassopostedshallbeconclusive.

12. 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 theAgreement.

13. This guarantee shall also be operabletour.....Branch at New Delhi, fromwhom,
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 thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the saidinvocation.

14. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below:-

Sr. No.	Particulars	Details
1	Name of Beneficiary	MD-NHIDCL
2	Beneficiary Bank Account No	90621010002610
3	Beneficiary Bank Branch Name and Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, New Delhi-110001
4	**Beneficiary Bank Branch IFSC**	**CNRB0019062**
5.	**Email ID:**	cb19062@canarabank.com

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

SIGNED, SEALED AND DELIVERED
For and on behalf of the Bank by: (Signature)
(

(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 ManagingDirector,
National Highways & Infrastructural Development Corporation Ltd.
PTI Building, 3rd Floor,
4, Parliament Street
New Delhi - 110001

WHEREAS:

(A) [name and address of contractor] (hereinafter called the "Contractor") has executed an agreement (hereinafter called the "Agreement") with the Managing Director, Head Office New Delhi (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A"subject to and in accordance with the provisions of theAgreement.

(B) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest free 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 three 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.Theamountof{first/second/third}installmentoftheAdvancePaymentisRs.------cr. (Rupees ------ crore) andthe amount of this Guarantee is Rs. ------ cr. (Rupees crore) (the "**Guarantee Amount**")$.

(C) We, …….. through ourbranchat..... (the "Bank") haveagreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the GuaranteeAmount.

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 specifiedtherein.

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

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 thisGuarantee.

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 thisGuarantee.

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 AdvancePayment.

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 liabilitieshereunder.
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 liabilitieshereunder.
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 theBank.

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 beconclusive.

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 theAgreement.

12. This guarantee shall also be operatable a tour 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 thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said in vocation.

13. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below: -

Sr. No.	Particulars	Details
1	Name of Beneficiary	MD-NHIDCL
2	Beneficiary Bank Account No	90621010002610
3	Beneficiary Bank Branch Name and Address	Canara Bank (erstwhile Syndicate Bank), Transport Bhawan, 1st Parliament Street, New Delhi-

		110001
4	**Beneficiary Bank Branch IFSC**	**CNRB0019062**
5.	**Email ID:**	cb19062@canarabank.com

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:
The bank guarantee should contain the name, designation and code number of the officer(s) signing theguarantee

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Schedule-H

(SeeClauses10.1(iv)and19.3)

2. ContractPriceWeightage

1. TheContractPrice forthisAgreementisRs.142,39,07,761.00

Proportions of the Contract Price for different stages of Construction of theProjectHighwayshallbe asspecifiedbelow:

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
Roadworks including culverts, Widening and repair ofculver ts.	52.49%	**A-Wideningandstrengtheningofexisting road**	
		(1)Earthworkup totopofthesub-grade	0.00% 0.00%
		(3)Sub-BaseCourse	0.00%
		(4)Non-BituminousBasecourse	0.00%
		(5)BituminousBasecourse	0.67%
		(5)WearingCoat	0.42%
		(7)Wideningand repair ofculverts	0.00%
		(7)Earthworkinshoulders	0.0045%
		B.1-Reconstruction/New2-lane realignment/bypass(FlexiblePavement)	
		(1)(a) Earthworkup toformation level	4.14%
		(b) Sub-grade	1.40%
		(2)Sub-BaseCourse	11.83%

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

		(3)Non-BituminousBasecourse	26.43%
		(4)BituminousBasecourse	14.48%
		(5)WearingCoat	8.98%
		(6)Earthworkinshoulders	11.37%

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		B.2- Reconstruction/New 2-lanerealignment/bypass(RigidPavement)	
		(1) Earthworkuptotopofthe sub-grade	0.00%
		(2)Earthworkinshoulders	0.00%
		(3)DryLeanConcrete(DLC)Course	0.00%
		(4)Pavement QualityConcrete(PQC)Course	0.00%
		C.1- Reconstruction/New Service Road(FlexiblePavement)	
		(1)Earthworkup totopofthe sub-grade	0.00%
		(2)Earthworkinshoulders	0.00%
		(3)Sub-BaseCourse	0.00%
		(4)Non-BituminousBasecourse	0.00%
		(5)BituminousBasecourse	0.00%
		(6)WearingCoat	
		C.2- Reconstruction/New Service Road(RigidPavement)	
		(1)Earthworkup totopofthesub-grade	0.00%
		(2)Sub-BaseCourse	0.00%
		(3)DryLeanConcrete(DLC)Course	0.00%
		(4)Pavement QualityConcrete(PQC)Course	0.00%
		D- Reconstruction and New Culverts onexisting road, realignments, bypasses Culverts(Length< 6m)	20.28%
MinorBridges,Underpasses,Overpasses,	0.18%	**A.1-Widening and repair of Minor Bridges(Length>6m and<60m)**	
		MinorBridges	100%

		A.2-New MinorBridges (Length>6mand <60 m)	

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(1) Foundation: On completion of thefoundation work including foundations for wingandreturn walls,abutments,piers.	0.00%
		(2) Sub-structure: On completion of abutments,piers up to the abutment/ pier cap includingwing/ return/retainingwallup totop	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deckslab,bearings	0.00%
		(4) Approaches: On completion of approachesincluding Retaining walls, stone pitching,protection works complete in all respect, testsoncompletioninallrespectandfitfor use	0.00%
		(5) Guide Bunds and River Training Works: Oncompletion of Guide Bunds and river trainingworkscompletein allrespects	0.00%
		(6) Other Ancillary Works: On completion ofwearing coat, expansion joints, handrails, crashbarriers, road signs & markings, tests oncompletioninallrespect.	0.00%
		B.1-Widening and Repair of Underpasses /Overpasses	
		Underpasses/Overpasses	0.00%
		B.2-NewUnderpasses/Overpasses	
		(1) Foundation: On completion of thefoundation work including foundations for wingandreturn walls,abutments,piers.	0.00%
		(2) Sub-structure: On completion of abutments,piers up to the abutment/ pier cap includingwing/ return/retainingwallup totop	0.00%
		(3) Super-structure: On completion of the super-structureinall respectsincludingGirder,Deck slab,bearings	0.00%

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(4) On completion of Retaining / Reinforcedearthwalls,completeinallrespectandfit foruse	0.00%
		(5) Approaches and Other Ancillary Works: Oncompletion of wearing coat, expansion joints,handrails, crash barriers, stone pitching,protection works, road signs & markings, testsoncompletionin allrespect.	0.00%
		Wearing Coat (a) in case of Overpass-wearingcoat including expansion joints complete in allrespectsasspecified and (b) in case of underpass-rigid pavementincluding drainage facility complete in allrespectsasspecified	0.00%
Major Bridge(Length>60m)worksandROB/RUB, ElevatedSections,Flyoversincluding Viaducts, ifany	0.00%	**A.1- Wideningandrepairsof MajorBridges**	
		(1) Foundation: On completion of thefoundation work including foundations for wingandreturn walls,abutments,piers.	0.00%
		(2) Sub-structure: On completion of abutments,piers up to the abutment/ pier cap includingwing/ return/retainingwallup totop	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deckslab,bearings	0.00%
		(4)WearingCoatincludingexpansionjoints.	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroad markingetc.)	0.00%
		(6)Wingwalls/returnwallsuptotop	0.00%
		(7) GuideBund,RiverTrainingworksetc.	0.00%
		(8) approaches (including retaining walls, stonepitchingandprotectionworks)	0.00%
		A.2–NewMajorBridges:	

		(1)Foundation:Oncompletionofthe foundationworkincludingfoundationsforwing	0.00%

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		andreturnwalls,abutments,piers.	
		(2) Sub-structure: On completion of abutments,piers up to the abutment/ pier cap includingwing/ return/retainingwallup totop	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deckslab,bearings	0.00%
		(4)WearingCoatincludingexpansionjoints.	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroad markingetc.)	0.00%
		(6)Wingwalls/returnwallsuptotop	0.00%
		(7) GuideBund,RiverTrainingworksetc.	0.00%
		(8) Approaches (including retaining walls, stonepitchingandprotection works)	0.00%
		B.1-Wideningandrepairof	
		(a)ROB	
		(b)RUB	
		(1)Foundations	0.00%
		(2)Sub-structure	0.00%
		(3)Super-structure(includingbearings)	0.00%
		(4) **Wearing coat (a) in case of ROB –** wearingcoat including expansion joints complete in allrespects as specified and **(b) in case of RUB –**rigid pavement under RUB including drainagefacilitycompleteinallrespectsasspecified	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroad markingetc.)	0.00%
		(6)Wingwalls/returnwallsuptotop	0.00%
		(7)Retaining/Reinforcedearthwalls	0.00%

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(8) Approaches and Other Ancillary Works(wearing coat, expansion joints, handrails, crashbarriers, road signs & markings, stone pitching,protectionworks etc.)	0.00%
		B.2-NewROB/RUB	
		1)Foundations	0.00%
		(2)Sub-structure	0.00%
		(3)Super-structure(includingbearings)	0.00%
		(4) **Wearing coat (a) in case of ROB –** wearingcoat including expansion joints complete in allrespects as specified and **(b) in case of RUB –**rigid pavement under RUB including drainagefacilitycompleteinallrespectsasspecified.	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroad markingetc.)	0.00%
		(6)Wingwalls/returnwallsuptotop	0.00%
		(7)Retaining/Reinforcedearthwalls	0.00%
		(8) Approaches and Other Ancillary Works(wearing coat, expansion joints, handrails, crashbarriers, road signs & markings, stone pitching,protectionworks etc.)	0.00%
		C.1-Widening and repair of Elevatedsections/Flyover/Gradesepa rators	
		1)Foundations	0.00%
		(2)Sub-structure	0.00%
		(3)Super-structure(includingbearings)	0.00%
		(4)Wearingcoat **including**expansionjoints	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroadmarkingetc.)	0.00%

		(6)Wingwalls/returnwallsuptotop	0.00%

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(7)Retaining/Reinforcedearthwalls	0.00%
		(8) Approaches and Other Ancillary Works(wearing coat, expansion joints, handrails, crashbarriers, road signs & markings, stone pitching,protectionworks etc.)	0.00%
		C.2-New Elevated section/ Flyovers/ GradeSeparators.	
		(1) Foundation: On completion of thefoundation work including foundations for wingandreturn walls,abutments,piers.	0.00%
		(2) Sub-structure: On completion of abutments,piers up to the abutment/ pier cap includingwing/ return/retainingwallup totop	0.00%
		(3) Super-structure: On completion of the super-structure in all respects including Girder, Deckslab,bearings.	0.00%
		(4)Wearingcoat(includingexpansionjoints	0.00%
		(5) Miscellaneous Items (like handrails, crashbarriersroad markingetc.)	0.00%
		(6)Wingwalls/returnwallsuptotop	0.00%
		(7)Retaining/Reinforcedearthwalls	0.00%
		(8) Approaches and Other Ancillary Works(wearing coat, expansion joints, handrails, crashbarriers, road signs & markings, stone pitching,protectionworks etc.)	0.00%
Otherworks	46.84%	(1)Toll Plaza	0.00%
		(2)Roadsidedrains	
		OpenLined Drain	12.24%
		UnlinedDrain	0.00%
		CoveredDrain	1.52%
		CatchpitDrain	0.00%

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(3) Road signs, safety Devices, Road Furnitureetc.	1.68%
		(4)Roadmarkings&Studs	4.55%
		(5)CrashBarrier	13.54%
		(6)Projectfacilities	0.00%
		(a)BusBays	0.78%
		(b) Wayside Amenities excluding Slip Roads &but including all internal roads (Service areasincludingTruckLay-Byes)	0.00%
		(c)Toe wall	0.00%
		(7)RCCRetainingWall	17.27%
		(8) PCC/RCC/RRM/Gabion Breastwall	31.32%
		(9)ParapetWall	1.69%
		(10) REWall	0.00%
		(11)StreetLighting	0.00%
		(12)ChequeredTiles	0.35%
		(13)BoundaryWall	0.00%
		(14)ATMS	0.00%
		(15)RainwaterHarvesting	0.00%
		(16) Roadside Plantation including HorticultureinWayside Amenities	0.00%
		(17) Protection Works other than approaches tothe bridges, elevated sections/ flyover/ gradeseparatorsand ROBs/RUBs	0.00%
		a) Hydroseeding	0.00%
		b)Seeding &Mulching	1.06%
		c)Soil nailingforslopeprotectionandcopping	11.14%

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Item	Weightage in %ofCP	StageforPayment	Percentage Weightage
1	2	3	4
		(18) Safety & Traffic Management duringconst.	0.00%
		(19) Other miscellaneous works includingConnecting Road& Junction under Gradeseparator	0.00%
		(20)ConnectingRoad etc.	0.00%
		JunctionunderGrade separator	2.84%
		(21)SiteclearanceandDismantling	0.02%
		(22)MaintenanceofRoad	0.00%

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

Procedureofestimatingthe valueofworkdone

(i) Roadworks

Procedureforestimatingthevalueofroadwork done shallbeas follows:

Table1.3.1

StageofPayment	Percentage - Weightage	PaymentProcedure
1	2	3
A-Widening and strengtheningofExisting Road		
(1)Earthworkuptotopofthesub-grade		Unit of measurement is linear length.Payment of each stage shall be made onpro rata basis on completion of a stage in alength of not less than 5(Five) percent ofthetotallength.
(3)Sub-BaseCourse		
(4)Non-BituminousBasecourse		
(5)BituminousBasecourse	0.36%	
(5)WearingCoat	0.22%	
(7) Widening and repair ofculverts	0.00%	
(7)Earthworkinshoulders	0.002%	Cost of ten completed culverts shall bedetermined on pro rata basis with respectto the total number of culverts. Paymentshall be made on the completion of 5culverts.
B.1- Reconstruction/New 8-lanerealignment/bypass (FlexiblePavement)		
(1) (a) Earthworkup to formation level	2.23%	Unit of measurement is linear length.Payment of each stage shall be made onpro rata basis on completion of a stage in alength of not less than 5(Five) percent ofthetotallength.
(b) Sub-grade	0.75%	
(3)Sub-BaseCourse	6.36%	
(4)Non-BituminousBasecourse	14.22%	

StageofPayment	Percentage - Weightage	PaymentProcedure
1	2	3
(5)BituminousBasecourse	7.79%	
(5)WearingCoat	4.83%	
(6)Earthworkinshoulders	6.12%	
B.2- Reconstruction/New 8-lane realignment/bypass(RigidPavement)		
(1) Earthwork up to top of thesub-grade	0.00%	Unit of measurement is linear length.Payment of each stage shall be made onpro rata basis on completion of a stage in alength of not less than 5(Five) percent ofthetotallength.
(2)Sub-BaseCourse	0.00%	
(3) Dry Lean Concrete (DLC)Course	0.00%	
(4) Pavement Quality Concrete(PQC)Course	0.00%	
C.1- Reconstruction/NewService Road (FlexiblePavement)		
(1) Earthwork up to top of thesub-grade	0.00%	Unit of measurement is linear length.Payment of each stage shall be made onpro rata basis on completion of a stage in alength of not less than 5(Five) percent ofthetotallength.
(2)Earthworkinshoulders	0.00%	
(3)Sub-BaseCourse	0.00%	
(4) Non-BituminousBaseCourse	0.00%	
(5)BituminousBaseCourse	0.00%	
(6)WearingCoat	0.00%	
C.2- Reconstruction/NewServiceRoad(RigidPavement)		
(1) Earthwork up to top of thesub-grade	0.00%	Unit of measurement is linear length.Payment of each stage shall be made onpro rata basis on completion of a stage in alength of not less than 5(Five)
(2)Sub-BaseCourse	0.00%	

(3)DryLeanConcrete(DLC)	0.00%	percent ofthetotallength.

StageofPayment	Percentage - Weightage	PaymentProcedure
1	**2**	**3**
Course		
(4) Pavement Quality Concrete(PQC)Course	0.00%	
D- Reconstruction and NewCulverts on existing road,realignments,bypasses :		
(1)Culverts(Length<6m)	10.913%	Cost of each culvert shall be determined onpro rata basis with respect to the totalnumber of culverts. Payment shall be madeonthecompletionofat leastfiveculverts.

@ For calculation of payment stage for main-carriageway the project length shallbe converted into equivalent 2 lane length. For example, if the total length of 4lane main carriageway is 100 km, then the equivalent length for calculation ofpaymentstagewillbe2x100km.Now,ifthetotallengthofbituminousworktobe done is 100 km, the cost per km of bituminous work shall be determined asfollows:

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

P =ContractPrice

L=Totalequivalent2-Lanelengthinkm asdefinedabove

Similarly,theratesper kmforotherstagesshallbeworkedoutaccordingly.

2.1 Note: The length affected due to law-and-order problems orlitigation duringexecution including the length not handed over to theContractor under clause 8.3 of this Contract Agreement due to which theContractor is unable to execute the work, may be deducted from the totalproject length for payment purposes. The total length calculated here isonlyforpaymentpurposesandwillnotaffectandreferredinotherclausesofth e ContractAgreement

(ii) MinorBridgesandUnderpasses/Overpasses

Procedure for estimating the value of Minor bridge and Underpasses/Overpassesshallbe as statedin table1.3.2:

Table 1.3.2

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
A.1. Widening and Repair ofminor bridges (length >6m and <60m)	0.18%	Cost of each minor bridge shall bedeterminedonpro-ratabasiswithrespect to the total linear length of theminor bridges.Payment shall be madeon the completion of widening and repairworksofa minorbridge.
A.2.-New Minorbridges		
(1) Foundation: On completion ofthe foundation work includingfoundations for wing and returnwalls,abutments, piers.	0.00%	**Foundation:** Cost of each Minor bridgeshall be determined on pro- rata basiswith respect to the total linear length(m)of the minor bridges.Payment againstfoundation shall be made on pro-ratabasisoncompletionof astagei.e.notless than 25% of the scope of foundationof each bridge. In case where load testingis required for foundation, the trigger offirst payment shall include load testingalsowherespecified.
(2) Sub-structure: On completion ofabutments, piers up to the abutment/pier cap including wing/ return/retainingwallup to top	0.00%	**Sub-structure**: Cost of each minorbridge shall be determined on pro-ratabasis with respect to the total linearlength(m)oftheminorbridges.Payme ntagainst sub- structure shall be made onpro-ratabasisoncompletionof astage i.e. not less than 25% of the scope of sub-structureof each bridge.

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StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(3) Super-structure: On completionof the super-structure in all respectsincluding Girder, Deck slab,bearings	0.00%	**Super-structure:** Payment shall be madeonpro-ratabasisoncompletionofastage i.e. completion of super structure ofat least one span in all respects asspecified in the column of "Stage ofPayment" in this sub-clause. In case ofstructures where pre-cast girders havebeen proposed by the Contractor, 50% ofthe stage payment shall be due andpayable on casting of girders for eachspan and balance 50% of the stagepayment shall be made on completion ofstagespecified as above
(4) Approaches: On completion ofapproaches including Retainingwalls, stone pitching, protectionworks complete in all respect and fitforuse	0.00%	**Approaches**: Payment shall be made onpro-ratabasisoncompletionofastage i.e. completion of approaches in allrespect as specified in the column of"StageofPayment" inthissub-clause.
(5)Guide Bunds and River TrainingWorks: On completion of GuideBunds and river training workscompletein allrespects	0.00%	**Guide Bunds and River TrainingWorks:** Payment shall be made on pro-rata basison completion of a stage i.e. completionof Guide Bunds and River trainingWorksinallrespects asspecified
(6)Other Ancillary Works: Oncompletion of wearing coat,expansion joints, hand rails, crashbarriers, road signs & markings,testsoncompletionin allrespect.	0.00%	**Other Ancillary Works**: Payment shallbe made on pro-rata basis on completionofastage inallrespects asspecified
B.1.Wideningandrepairofu nderpasses/overpasses	0.00%	Cost of each underpass/overpass shall bedetermined on pro- rata basis withrespect to the total linear length of theunderpasses/overpasses.Payment shallbe made on the completion of wideningand repair works of aunderpass/overpass.
B.2.NewUnderpasses/Overpasses		

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StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(1) Foundation: On completion ofthe foundation work includingfoundations for wing and returnwalls,abutments, piers.	0.00%	**Foundation:** Cost of each Underpass/Overpass shall be determined on pro- ratabasiswithrespectto thetotallinearlength (m) of theUnderpasses/Overpasses.Paymentagainst foundation shall be made on pro-ratabasison completionofastage i.e. not less than 25% of the scope offoundation of each Underpasses/Overpasses. In case where load testing is required forfoundation, the trigger of first paymentshall include load testing also wherespecified.
(2) Sub-structure: On completion ofabutments, piers up to the abutment/pier cap including wing/ return/retainingwallup to top	0.00%	**Sub-structure:** Cost of each Underpass/Overpass shall be determined on pro- ratabasiswithrespectto thetotallinearlength (m) of the Underpasses/Overpasses. Payment against sub-structureshallbemadeonpro-ratabasisoncompletionofa stage i.e. not less than 25% of the scopeof sub-structure of eachUnderpasses/Overpasses.
(3) Super-structure: On completionof the super-structure in all respectsincluding Girder, Deck slab,bearings	0.00%	**Super-structure:** Payment shall be madeonpro-ratabasisoncompletionofastage i.e. completion of super- structureof at least one span in all respects asspecified in the column of "Stage ofPayment" in this sub-clause. In case ofstructures where pre-cast girders havebeen proposed by the Contractor, 50% ofthe stage payment shall be due andpayable on casting of girders for eachspan and balance 50% of the stagepayment shall be made on completion ofstagespecified as above
(4) On completion of Retaining /Reinforced earth walls complete inallrespectand fitforuse	0.00%	Payments shall be made on pro rata basisoncompletionof20%ofthetotalarea.

StageofPayment	**Percentage -Weightage**	**PaymentProcedure**
1	**2**	**3**
(5) Approaches and Other AncillaryWorks: On completion of wearingcoat, expansion joints, hand rails,crash barriers, road signs &markings, stone pitching, protectionworks, tests on completion in allrespect.	0.00%	Payment shall be made on pro-rata basison completion of a stage in all respects asspecified
Wearing Coat (a) in case ofOverpass- wearing coat includingexpansion joints complete in allrespectsasspecified and (b) in case of underpass- rigidpavement including drainagefacility complete in all respects asspecified	0.00%	Payment shall be made on pro-rata basison completion of a stage in all respects asspecified

(iii) MajorBridgeworks,ROB/RUBandStructures

Procedure for estimating the value of Major Bridge works, ROB/RUB and StructuresWorkshall beas statedintable 1.3.3:

Table 1.3.3

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
A.1.- Widening and Repairs ofMajorBridges		
(1) Foundation: On completionof the foundation work includingfoundations for return walls,abutments,piers.	0.00%	**Foundation:** Cost of each Major Bridge shallbe determined on pro rata basis with respect tothe total linear length(m) of the Major Bridge.Payment against foundation shall be made onpro-rata basis on completion of a stage i.e. notless than25%of thescopeoffoundationofthe major Bridge. In case where load testing isrequired for foundation, the trigger of firstpayment shall include load testing also wherespecified.
(2) Sub-structure: Oncompletion of abutments,piers up to the abutment/piercap	0.00%	**Sub-structure:** Payment against sub-structureshall be made on pro-rata basis on completionofastagei.e.notlessthan25%ofthescopeofsub-structure ofmajor bridge.
(3) Super-structure: Oncompletion of the super-structure in all respectsincluding Girder, Deck slab,Bearings	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all respects asspecified. In case of structures where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayable on casting of girders for each spanand balance 50%of the stagepaymentshallbe made on completion of stage specified asabove

(4).WearingCoatincludingexpansionjoints	0.00%	**Wearing Coat:** Payment shall be made oncompletion of wearing coat includingexpansion joints complete in all respects asspecified.

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(5) Miscellaneous Itemslike handrails, crashbarrier,roadmarkings etc.	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehandrails,crashbarriers,roadmarkingsetc. completein allrespects as specified.
(6) Wing walls/return walls up totop	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwallscompleteinall respectsasspecified.
(7) Guide bunds, River Trainingworksetc.	0.00%	**Guide Bunds, River Training works:**Payments shall be made on completion of allguide bunds/river training works etc. completeinallrespects as specified.
(8) Approaches (includingRetaining walls, stone pitchingandprotection works)	0.00%	**Approaches:** Payments shall be made on prorata basis on completion of 5 % of the scopeofeach stage.
A.2.NewMajorBridges	0.00%	
(1) Foundation: On completionof the foundation work includingfoundations for return walls,abutments,piers.	0.00%	**Foundation:** Cost of each Major Bridge shallbe determined on pro rata basis with respect tothetotallinear length (m) of the MajorBridge. Payment against foundation shall bemade on pro-rata basis on completion of astage i.e. not less than 25% of the scope offoundation of the major Bridge. In case whereload testing is required for foundation, thetrigger of first payment shall include loadtestingalso wherespecified.
(2) Sub-structure: Oncompletion of abutments,piers up to the abutment/piercap	0.00%	**Sub-structure:** Payment against sub-structureshall be made on pro-rata basis on completionofastagei.e.notlessthan25%ofthescopeofsub-structure ofmajor bridge.
(3) Super-structure: Oncompletion of the super-structure in all respectsincludingGirder,Deckslab,Bearings	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all respects asspecified. In case of structures

		where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayable on casting of girders for each spanandbalance50%ofthestagepayment shall

StageofPayment	Percentage -Weightage	PaymentProcedure
1	**2**	**3**
		be made on completion of stage specified asabove
(4). Wearing Coat includingexpansionjoints	0.00%	**Wearing Coat:** Payment shall be made oncompletion of wearing coat includingexpansion joints complete in all respects asspecified.
(5) Miscellaneous Itemslike handrails, crashbarrier,roadmarkings etc.	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehandrails,crashbarriers,roadmarkingsetc. completein allrespects as specified.
(6) Wing walls/return walls up totop	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwallscompleteinall respectsasspecified.
(7) Guide bunds, River Trainingworksetc.	0.00%	**Guide Bunds, River Training works:**Payments shall be made on completion of allguide bunds/river training works etc. completeinallrespects as specified.
(8) Approaches (includingRetaining walls, stone pitchingandprotection works)	0.00%	**Approaches:** Payments shall be made on prorata basis on completion of 5 % of the scopeofeach stage.
B.1.-Wideningandrepairsof	0.00%	
(a) ROB	0.00%	
(b)RUB	0.00%	

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(1)Foundation	0.00%	**Foundation:** Cost of each ROB/RUB shall bedetermined on pro rata basis with respect tothe total linear length(m) of the ROB/RUB.Payment against foundation shall be made onpro-rata basis on completion of a stage i.e. notless than 25% of the scope of foundation ofthe ROB/RUB. In case where load testing isrequired for foundation, the trigger of firstpayment shall include load testing also wherespecified.
(2)Sub-structure	0.00%	**Sub-structure:** Paymentagainst sub-structure shall be made on pro-rata basis oncompletion of a stage i.e. not less than 25% ofthescopeof sub-structureof ROB/RUB.
(3)Super-structure(includingbearings)	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all respects asspecified. In case of structures where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayable on casting of girders for each spanand balance 50%of the stagepaymentshallbe made on completion of stage specified asabove
(4) **Wearing coat (a) in case ofROB–** wearingcoatincludingexpansion joints complete in allrespects as specified and **(b) incaseofRUB–** rigidpavementunderRUBincludingdrainagefacilitycompleteinallrespectsasspecified	0.00%	**Wearing Coat:** Payment shall be made oncompletion (a) in case of ROB- wearing coat includingexpansion joints complete in all respects asspecifiedand (b) in case of RUB-rigid pavement underRUB including drainage facility complete inallrespectsas specified.
(5)MiscellaneousItems(likehandrails,crashbarriersroadmarkingetc.)	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehandrails,crashbarriers,roadmarkingsetc. completein allrespects as specified.

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StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(6) Wingwalls/returnwallsuptotop	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwallscompleteinall respectsasspecified.
(7)On completion ofRetaining/Reinforced earth wallscompleteinallrespectandfit foruse	0.00%	Payments shall be made on pro ratabasis on completion of 5 % of the totalarea.
(8)ApproachesandOtherAncillary Works: On completionof wearing coat, expansion joints,handrails,crashbarriers,roadsigns & markings, stone pitching,protectionworks,testsoncompletioninallrespect.	0.00%	Payment shall be made on pro-rata basis oncompletion of a stage in all respects asspecified
B.2.-New	0.00%	
(a) ROB	0.00%	
(b)RUB	0.00%	
(1)Foundation	0.00%	**Foundation:** Cost of each ROB/RUB shall bedetermined on pro rata basis with respect tothe total linear length (m) of the ROB/RUB.Payment against foundation shall be made onpro-rata basis on completion of a stage i.e. notless than 25% of the scope of foundation ofthe ROB/RUB. In case where load testing isrequired for foundation, the trigger of firstpayment shall include load testing also wherespecified.
(2)Sub-structure	0.00%	**Sub-structure:** Paymentagainst sub-structure shall be made on pro-rata basis oncompletion of a stage i.e. not less than 25% ofthescopeof sub-structureof ROB/RUB.

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
(3)Super-structure(includingbearing)	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all respects asspecified. In case of structures where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayable on casting of girders for each spanand balance 50%of the stagepaymentshallbe made on completion of stage specified asabove
(4) Wearing Coat includingexpansionjoints incaseofROB.In case of RUB-rigid pavementunder RUB including drainagefacilityas specified	0.00%	**Wearing Coat:** Payment shall be made oncompletion (a) in case of ROB- wearing coat includingexpansion joints complete in all respects asspecifiedand (b) in case of RUB-rigid pavement underRUB including drainage facility complete inallrespectsas specified.
(5)Miscellaneous Items like hand rails, crashbarrier,roadmarkings etc.	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehandrails,crashbarriers,roadmarkingsetc. completein allrespects as specified.
(6) Wing walls/returnwalls	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwalls complete inallrespectsasspecified.
(7) On completion ofRetaining / Reinforcedearthwallscom pleteinallrespectandfit for use	0.00%	Payments shall be made on pro rata basis oncompletionof20%ofthetotalarea.
(8)Approachesand OtherAncillary Works: On completionof wearing coat, expansion joints,handrails, crash barriers, roadsigns & markings, stone pitching,protection works, tests oncompletioninallrespect.	0.00%	Payment shall be made on pro-rata basis oncompletion of a stage in all respects asspecified

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
C.1-WideningandrepairsofElevatedSection/Flyovers/GradeSeparators	0.00%	
(1)Foundation	0.00%	**Foundation:** Cost of each structure shall bedetermined on pro rata basis with respect tothe total linear length (m) of the structure.Payment against foundation shall be made onpro-ratabasisoncompletionofastage i.e.notless than 25% of the scope of foundation ofthe structure. In case where load testing isrequired for foundation, the trigger of firstpayment shall include load testing also wherespecified.
(2)Sub-structure:	0.00%	**Sub-structure:** Paymentagainst sub-structure shall be made on pro-rata basis oncompletion of a stage i.e. not less than 25% ofthescopeof sub-structureof structure.
(3) Super-structure: Oncompletion of the super-structure in all respectsincludingGirder,Deckslab,bearings	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all respects asspecified. In case of structures where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayable on casting of girders for each spanand balance 50%of the stagepaymentshallbe made on completion of stage specified asabove.
(4) Wearing Coat includingexpansionjoints.	0.00%	**Wearing Coat:** Payment shall be made oncompletion of wearing coat includingexpansion joints complete in all respects asspecified.
(5). Miscellaneous items likehandrails,crashbarriers,roadmarkingsetc	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehand rails, crash barriers, road markings etc.completein allrespects as specified.

StageofPayment	**Percentage -Weightage**	**PaymentProcedure**
1	**2**	**3**
(6) Wing walls/returnwalls	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwallscompleteinall respectsasspecified.
(7) On completion ofRetaining / Reinforcedearthwallscom pleteinallrespectandfit for use	0.00%	Payments shall be made on pro rata basis oncompletionof5 % ofthetotalarea.
(8) Approachesand OtherAncillary Works: On completionof wearing coat, expansion joints,hand rails, crash barriers, roadsigns & markings, stone pitching,protection works, tests oncompletioninallrespect.	0.00%	Payment shall be made on pro-rata basis oncompletion of a stage in all respects asspecified
C.2- NewElevatedSection/Fl yovers/GradeSeparator s	0.00%	
(1)Foundation	0.00%	**Foundation:** Cost of each structure shall bedetermined on pro rata basis with respect tothe total linear length (m) of the structure.Payment against foundation shall be made onpro-ratabasisoncompletionofastage i.e.notless than 25% of the scope of foundation ofthe structure. In case where load testing isrequired for foundation, the trigger of firstpayment shall include load testing also wherespecified.
(2)Sub-structure:	0.00%	**Sub-structure:** Paymentagainst sub-structure shall be made on pro-rata basis oncompletion of a stage i.e. not less than 25% ofthescopeof sub-structureof structure.
(3) Super-structure: Oncompletion of the super-structure in all	0.00%	**Super-structure:** Payment shall be made onpro-rata basis on completion of a stage i.e.completion of super- structure includingbearings of at least one span in all

respectsincluding Girder, Deck slab,bearings		respects asspecified. In case of structures where pre-castgirders have been proposed by the Contractor,50% of the stage payment shall be due andpayableoncastingofgirders foreach span

StageofPayment	Percentage -Weightage	PaymentProcedure
1	2	3
		and balance 50% of the stage payment shallbe made on completion of stage specified asabove
(4) Wearing Coat includingexpansionjoints.	0.00%	**Wearing Coat:** Payment shall be made oncompletion of wearing coat includingexpansion joints complete in all respects asspecified.
(5). Miscellaneous items likehandrails,crashbarriers,roadmarkingsetc	0.00%	**Miscellaneous:** Payments shall be made oncompletion of all miscellaneous works likehandrails,crashbarriers,roadmarkingsetc. completein allrespects as specified.
(6) Wing walls/returnwalls	0.00%	**Wing walls/return walls:** Payments shall bemade on completion of all wing walls/returnwallscompleteinall respectsasspecified.
(7) On completion ofRetaining / Reinforcedearthwallscompleteinallrespectandfit for use	0.00%	Payments shall be made on pro rata basis oncompletionof5 % ofthetotalarea.
(8) Approachesand OtherAncillary Works: On completionof wearing coat, expansion joints,handrails, crash barriers, roadsigns & markings, stone pitching,protection works, tests oncompletioninallrespect.	0.00%	Payment shall be made on pro-rata basis oncompletion of a stage in all respects asspecified

Note:

(1) In case of innovative Major Bridge projects like cable suspension/cable stayed/ ExtraDozed and exceptionally long span bridges, the schedule may be modified asper siterequirementsbeforebiddingwithdueapprovalofDG(RD) &SS,MoRT&H.

(2) The Schedule for exclusive tunnel projects may be prepared as per

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sitrequirementsbeforebiddingwithdueapprovalofDG (RD)&SS,MoRT&H.

OtherWorks.

Procedure for estimating the value of other works done shall be as stated in table1.3.4:

Table 1.3.4

StageofPayment	Percentage-Weightage	PaymentProcedure
1	2	3
(1)Toll Plaza	0.00%	Unit of measurement is each completed tollplaza.Payment ofeachtollplazashallbe made on pro rata basis with respect to thetotal of alltollplazas.
(2)Roadsidedrains	0.00%	Unit of measurement is linear length.Payment of each stage shall be made on prorata basis on completion of a stage in alength of not less than 5(Five) percent ofthetotallength.
OpenLined Drain	5.63%	
UnlinedDrain	0.00%	
CoveredDrain	0.70%	
CatchpitDrain	0.00%	
(3)Roadsigns,safety Devices, Road Furnitureetc.	0.77%	
(4)Roadmarkings& Studs	2.09%	
(5)CrashBarrier	6.23%	
(6)Projectfacilities	0.00%	Payment shall be made on pro rata basis forcompletedfacilities.
(a)BusBays	0.36%	
(b) Wayside Amenitiesexcluding Slip Roads &but including all internalroads(Service areas including Truck Lay-Byes)	0.00%	
(c)Toe wall	0.00%	Payments shall be made on pro rata basisoncompletion of 5%ofthe totalarea.
(7)RCCRetainingWall	7.95%	
(8) StoneMasonryBreast wall	14.41%	
(9)ParapetWall	0.78%	
(10) REWall	0.00%	
(11)StreetLighting	0.00%	Payment shall be made on pro rata basis forcompletedfacilities.
(12)ChequeredTiles	0.16%	
(13)BoundaryWall	0.00%	Payments shall be made on pro rata basisoncompletion of 5%ofthe totalarea.
(14)ATMS	0.00%	Payment shall be made on pro rata basis forcompletedfacilities.
(15)Rainwater Harvesting	0.00%	

StageofPayment	Percentage-Weightage	PaymentProcedure
1	2	3
(16) Roadside Plantationincluding Horticulture inWaysideAmenities	0.00%	Unit of measurement is linear length.Payment of each stage shall be made on prorata basis on completion of a stage in alengthofnotlessthan5 (Five)percentof thetotallength.
(17) Protection Worksother than approaches tothe bridges, elevatedsections/flyover /grade separators and ROBs/RUBs	0.00%	Payments shall be made on pro rata basisoncompletion of 5% ofthetotalarea.
a) Hydroseeding	0.00%	
b)Seeding &Mulching	0.49%	
c)Soil nailingforslope protectionand copping	5.13%	
(18) Safety & TrafficManagement duringconst.	0.00%	Payment shall be made on prorate basiseverysix months.
(19) Other miscellaneousworks includingConnecting road&Junctionunder Grade separator	0.00%	Payment shall be made on Prorate basis oncompletionofeachstage
(20)ConnectingRoad Etc	0.00%	
JunctionunderGrade separator	1.31%	
(21) Site clearance andDismantling	0.01%	Unit of measurement is linear length.Payment of each stage shall be made on proratabasison completionofa stage in a length of not less than 5(Five) percent ofthetotallength.
(22) Maintenance ofRoad	0.00%	

2. ProcedureforpaymentforMaintenance

(a) Thecostfor maintenanceshall be asstatedinClause14.1(v).

Payment for Maintenance shall be made in accordance with the provisions ofArticle14andArticle19

SCHEDULE-I

(See Clause 10.2.4)

DRAWINGS

DRAWINGS

1. 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 thisSchedule-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.]

1. A minimum list of the drawings of the various components/elements of the project highway and project facility required to be submitted by the Contractor is givenbelow:

(a) Drawing of plan, profile and crosssections

(b) Drawings of cross drainageworks

(c) Drawings ofjunctions

(d) Drawing of typical crosssections

(e) Drawings of bus-bay and bus shelters with furniture and drainagesystem

(f) Drawing of a truck parking lay bye with furniture and drainagesystem

(g) Drawings of road furniture items including traffic signage, marking, safety barriers,etc.

(h) Drawings of traffic diversions plans and traffic controlmeasures

(i) Drawings of road drainagemeasures

(j) Drawings of typical details slope protectionmeasures

Schedule-J

(SeeClause10.3(ii))

ProjectCompletionSchedule

1 ProjectCompletionSchedule

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. ProjectMilestone-I

(i) Project Milestone-I shall occur on the date falling on the **[255th]** day from the Appointed Date (the "**Project Milestone-I**").

(ii) Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

3. ProjectMilestone-II

(i) Project Milestone-II shall occur on the date falling on the [**438th**] day from the Appointed Date (the "**Project Milestone-II**").

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

4. ProjectMilestone-III

(i) Project Milestone-III shall occur on the date falling on the **[621st] day** from the Appointed Date (the "**Project Milestone-III**").

(ii) Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 70% (seventy per cent) of the Contract Price and should have started construction of all project facilities.

5. ScheduledCompletionDate

(i) The Scheduled Completion Date shall occur on the **[730th]** day from the Appointed Date.

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

6. Extensionoftime

UponextensionofanyoralloftheaforesaidProjectMilestonesortheScheduledCompletion Date, as the case may be, under and in accordance with the provisions of thisAgreement,theProjectCompletionScheduleshallbedeemedtohavebeenamendedaccordingly.

SCHEDULE - K

(See Clause 12.1.2)

TESTS ON COMPLETION

1 Schedule forTests

1.1 The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the

Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

1.2 The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

2 Tests

2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include (to be decided in consultation with Authority's Engineer as per relevant IRC codes/manual).

2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for eachkilometer.

2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non-destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) meters or more shall also be subjected to loadtesting.

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 ApplicablePermits.

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 IndustryPractice.

3 Agency for conductingTests

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 CompletionCertificate

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

I, ... (NameoftheAuthority'sEngineer),actingastheAuthority'sEngineer,underand in accordance with theAgreementdated .....(the "Agreement"), for RFP for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A

1 (the "Project Highway") on Engineering, Procurement and Construction (EPC) basisthrough …… (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 completeall suchworks 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 PunchList.

3. In view of the foregoing, I am satisfied that the Project Road ***of*** Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland on EPC mode 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 thisthedayof …….. 20…..

ACCEPTED,SIGNED,SEALED	SIGNED, SEALEDAND
ANDDELIVERED	DELIVERED
For and onbehalfof	for and on

behalf of CONTRACTOR by:AUTHORITY's ENGINEER by:

(Signature) (Signature)

COMPLETION CERTIFICATE

1 I, (NameoftheAuthority'sEngineer),actingastheAuthority'sEngineer,under

and in accordance with the Agreement dated ……. (the "Agreement"), for Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase A (the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests in accordance withArticle
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 inSchedule-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 isdone.

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 Paragraph2.

2. Percentage reductions in lump sum payments

2.1 The following percentages shall govern the paymentreduction:

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%
S. No.	**Item/Defect/Deficiency**	**Percentage**
(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/5thkm 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%

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

R=P/IOO x M x 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 non-compliance for a particular item/Defect/deficiency

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

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

SCHEDULE - N
(See Clause 18.1.1)

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 thisSchedule-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 National Highways and Infrastructure Development Corporation Ltd, 3rd Floor, PTI Building, 4, Parliament Street, New Delhi – 110001the "Authority") and (the "Contractor")Construction of two-Lane with hard shoulders of Merangkong – Tamlu – Mon Road on EPC basis from existing Km 20.456 to Km 41.065 [Design Km. 20+000 to Km. 40+000] (Design Length – 20.000 Km) in the state of Nagaland under SARDP-NE Phase Aand 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 theAgreement.

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 thisTOR.

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 beforedetermining:

(a) any TimeExtension;

(b) any additional cost to be paid by the Authority to theContractor;

(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. Fiftylakh).

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 everymonth.

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 Clause18.2.

3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article13.

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 authenticliterature.

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 up to 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications

and Standards.

4.2 The Authority'sEngineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving suchDrawings.

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, requiredthereto.

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 theContractor.

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 Clause10.4.

4.6 The Authority'sEngineer 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 suchreport

4.7 The Authority'sEngineer 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 SafetyConsultant.

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 mayrequire.

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 Contract or 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 Clause12.4.

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 berevoked.

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 theAuthority.

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. Maintenace 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 Clause14.5

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 Clause18.5.

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 Clause19.10.

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.

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

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 lastclaim;
b. amounts reflecting adjustments in price for the aforesaidclaim;
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 excepttaxes;
    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 lastclaim:
    i. For the Works executed (excluding Change of Scopeorders);
    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 - O
(See Clauses 19.4.1, 19.6.1, and 19.8.1)

Forms of Payment Statements

4. 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 lastclaim;
b. amounts reflecting adjustments in price for the aforesaidclaim;
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 excepttaxes;
    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

5. Monthly Maintenance Payment Statement

The monthly Statement for Maintenance Payment shall state:

(f) the monthly payment admissible in accordance with the provisions of the Agreement;

(g) the deductions for maintenance work not done;

(h) net payment for maintenance due, (a) minus(b);

(i) amounts reflecting adjustments in price under Clause 19.12;and
(j) amount towards deduction of taxes

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**

6. **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 (exceptthingsinsuredunderParagraphs1and 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 value of the contract price

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

damage which is an unavoidable result of the Contractor's obligations to execute the Works

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority

Schedule-Q

(See Clause 14.10)

Tests on Completion of Maintenance Period

1. Riding Quality test:

Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be [2,200 (two thousand and two hundred only)] mm for each kilometre.

2. Visual and physical test:

The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include measurement of cracking, rutting, stripping and potholes and shall be as per the requirement of maintenance mentioned in Schedule-E.

Schedule-R

(See Clause 14.10)

Taking Over Certificate

I, …….. (Name and designation of the Authority's Representative) under and in accordance with the Agreement dated ……. (the "Agreement"), for "Construction of two-Lane with hard shoulders of Balance work of Construction of two -Lane with hard shoulders of Kohima –Jessami road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km (**Package-V**) under Bharatmala Pariyojana on EPC mode) in the state of Nagaland under SARDP-NE Phase A"the "Project Highway") on Engineering, Procurement and Construction (EPC) basis through (Name of Contractor), hereby certify that the Tests on completion of Maintenance Period in accordance with Article 14 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement and I hereby certify that the Authority has taken over the Project highway from the Contractor on this day.....

SIGNED, SEALED
ANDDELIVERED

Signature

(Name and designation of Authority's Representative Address)

Balance work of Construction of two -Lane with hard shoulders of **Kohima –Jessami** road on NH-29 from existing Km 98.38 to existing Km 120.367 (Design Km 95.70 to Km 117.20) Design Length 21.50Km **(Package-V)** under Bharatmala Pariyojana on EPC mode- **Balance work estimate and schedules.**