

SCHEDULE - B  
(See Clause 2.1)

**Development of the Project Highway**

**1      Development of the Project Highway**

Development of the Project Stretch from Km. 10+500 to Km. 21+000 of Kohima Bypass includes design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

**2      Rehabilitation and Augmentation**

NA

**3      Specifications and Standards**

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

Annex - I  
(Schedule-B)

**Description of Two Lane with Paved Shoulder**

*[Note: Description of the Project Highway shall be given by the Authority in detail together with explanatory drawings (where necessary) to explain the Authority's requirements precisely in order to avoid subsequent changes in the Scope of the Project. The particulars that must be specified in this Schedule-B are listed below as per the requirements of the Manual of Specifications and Standards for Two Laning with paved shoulder 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 shall be specified in this Schedule. In addition to these particulars, all other essential project specific details, as required, should be provided in order to define the Scope of the Project clearly and precisely.]*

**1 CONSTRUCTION OF THE HIGHWAY**

**i) WIDTH OF CARRIAGEWAY**

- a) Two Lanning with paved shoulder shall be undertaken. The paved carriageway including paved shoulders shall be in accordance with the typical cross sections drawings provided in para 14 of Annexure-I Schedule-B

Note: The length of road in built-up section is tentative, and it may vary as per site condition. In case of increase of length, no positive change of scope will be payable.

- b) Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1(i) above.

**2. GEOMETRIC DESIGN AND GENERAL FEATURES**

**i) General**

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the IRC: SP: 73-2018

**ii) Design speed**

The design speed shall be as per IRC 73: 2018.

**iii) Improvement of the existing road geometrics**

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:

Sr. No.	Stretch (from Km to Km)	Type of deficiency	Remarks
NIL			

**iv) Right of Way**

Details of the Right of Way have been given in Annex II of Schedule A.

**v) Type of shoulders**

- a) Type of shoulders have been given in TCS mentioned in para 14, Annexure I of Schedule B.
- b) Design and specifications of the paved shoulders and granular material shall be conform to the requirements specified in paragraph 5.10 of the IRC: SP: 73-2018.

**vi) Lateral and vertical clearances at underpasses**

- a) Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per para. 2.10 of the IRC: SP: 73-2018
- b) Lateral clearance: The width of the opening at the Vehicular Under Passes (VUP) shall be as follows:

Sr. No.	Location (Design Chainage) Km	Span / Opening (m)	Vertical Clearances (m)
Nil			

**vii) Lateral and vertical clearances at overpasses**

- a) Lateral and vertical clearances at overpasses shall be as per para 2.11 of the Manual, however no overpass has been proposed.
- b) Lateral clearances: The width of the opening at the overpasses shall be as follows:

Sr. No.	Location (Chainage) (From Km to Km)	Span / Opening (m)	Remarks
Nil			

**viii) Service roads/Slip road**

Minimum 520 m road of width two lane configurations shall be constructed to connect tunnel with NH-29 near High court junction. (Kindly refer plan attached after TCS)

**(a) Details of service road**

Sr. No.	Location of service road (From Km to Km)	Right hand side(RHS) /Left hand side (LHS)/or both sides	Length (m) of service road
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1	Connect tunnel with NH-29	-	520
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**ix) Grade separated structures**

- a) Grade separated structures shall be provided as per paragraph 2.13 of the IRC: SP: 73-2018. The requisite particulars are given below:

Sr. No.	Location of structure (Existing)	Location of structure (Design)	Length (m)	Number and length of Spans(m)	Approach Gradient	Remarks, if any
NIL						

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

Sr. No.	Location (Design Chainage)	Location (Design Chainage)	Type of Structure Length	Cross road at		
				Existing level	Raised Level	Lowered Level
NIL						

**x) Cattle and pedestrian underpass /overpass**

Cattle and pedestrian underpass/overpass shall be constructed as follows: (as per IRC SP: 73:2018)

Sr. No.	Location (Chainage) (From Km to Km)	Type of Crossing
NIL		

**xi) Typical cross-sections of the Project Highway**

Indicative typical cross section of the Project highway has been provided as per para 14 of Annexure-I (Schedule B).

Sr. No.	Details	TCS	Length (m)
1.	Open country-Mountainous Terrain, Without Retaining wall on New Alignment	TCS-I	650
2.	Open country-Mountainous Terrain, With Retaining wall on New Alignment	TCS-II	9350

Sr. No.	Details	TCS	Length (m)
3.	Built-up section-Mountainous Terrain	TCS-III	0
4.	Open country-Mountainous Terrain, Without Retaining wall on Existing Road	TCS-IV	0
5.	Open country-Mountainous Terrain, With Retaining wall on Existing Road	TCS-V	0
6.	Open country-Mountainous Terrain, With Retaining wall on Existing Road	TCS-VI	0
	Tunnel		500
	Total Length		10500

### 3 INTERSECTIONS AND GRADE SEPARATORS

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

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

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

#### i. At-Grade intersections:

Sr. No.	Location of Intersection	Type of intersection	Other feature
1	10+700	Y	Junction with slip road connecting NH-61

#### ii. Grade Separated intersection with/without ramps

S. NO	Location	Salient features	Minimum length of viaduct to be provided	Road to be carried over/under the structures

### 4 ROAD EMBANKMENT AND CUT SECTION

- i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of IRC: SP: 73-2018 and the specified cross-sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

- ii) Raising of the existing road

The existing road shall be raised in the following sections:

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

5

## PAVEMENT DESIGN

5.1 Pavement design shall be carried out in accordance with section 5 of the Manual.

### 5.2 Type of pavement

Flexible pavement shall be adopted for Project Highway. Notwithstanding anything contrary contained in this Agreement or the Manual, the pavement shall be designed as given below.

### 5.3 Design requirements

Notwithstanding anything to the contrary contained in this agreement or the manual, the contractor shall design the pavement of main carriageway for design traffic of 50 MSA with a minimum design period of 20 years. CBR value as obtained at site shall be taken for design if less than 10%. Maximum value of CBR to be taken for design shall not exceed 10%.

Bituminous Grade VG 30 or VG 40 shall be used for BC.

### 5.4 Reconstruction of stretches/ Realignment/ Bypass of Sections

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

Sl. No.	Existing Section (km)		Remarks
	From	To	
NIL			

### 5.4.2 Rigid Pavement

No rigid pavement has been considered for the Project Highway

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## ROAD SIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Manual (IRC: SP: 73-2018).

Lined drain of following length shall be provided:

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Sr. No.	Length (except CD structures)	Side of construction
	(m)	Hill side/Both

1	10240	Hill side
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**The length of side drains given above are minimum and it may vary as per site condition. In case of increase of length, no positive change of scope will be payable**

## **7. DESIGN OF STRUCTURES**

### **i. General**

- a) All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of IRC: SP: 73-2018 and referred other codes therein and shall conform to the cross- sectional features and other details specified therein
- b) Width of the carriageway of new bridges and structures shall be as follows:

<b>Sr. No.</b>	<b>Bridge (km)</b>	<b>Length of Bridge (m)</b>	<b>Width of carriageway and Cross - Sectional feature</b>
1	12+600	80	As per section 7.3 (ii) of the manual.

- c) Following structures shall be provided with footpaths:

<b>Sr. No.</b>	<b>Bridge (km)</b>	<b>Length of Bridge (m)</b>	<b>Remark</b>
1	12+600	80	Footpath on both sides as per section 7 of the manual.

- d) All bridges shall be high-level bridges.
- e) The following structures shall be designed to carry utility services specified in table below:

<b>Sr. No.</b>	<b>Bridge (km)</b>	<b>utility service to be carried out on both side</b>
1	12+600	OFC telephone and electrical cables

- f) Cross-section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross-sections of IRC: SP: 73-2018.

### **ii. Culverts**

- a) Overall width of all culverts shall be equal to the roadway width of the approaches..
- b) Reconstruction of Existing Culverts:

The existing culverts at the following locations shall be reconstructed as new culverts:

S. No.	Existing chainage (km)	Design Chainage (km)	Proposal Details		Remarks, if any
			Span/Opening (m)	Type of Culvert	
NIL					

c) Widening and Repairing of existing culverts

S. No.	Existing chainage (km)	Design Chainage (km)	Proposal Details			TCS type
			Width (m)	Type of Culvert	Repairs to be carried out	
Nil						

d) New culverts shall be constructed as per tentative chainage given in the table below. Final chainage to be decided as per the site condition by the AE:

Sr. No.	Design Chainage (Km)	Span/Opening (m)	Type of Culvert
1	10+600	1X2	BOX/SLAB
2	10+800	1X2	BOX/SLAB
3	10+950	1X2	BOX/SLAB
4	11+700	1X2	BOX/SLAB
5	11+800	1X2	BOX/SLAB
6	11+900	1X2	BOX/SLAB
7	12+050	1X2	BOX/SLAB
8	12+150	1X2	BOX/SLAB
9	12+300	1X2	BOX/SLAB
10	12+450	1X2	BOX/SLAB
11	12+850	1X2	BOX/SLAB
12	13+000	1X2	BOX/SLAB
13	13+150	1X2	BOX/SLAB
14	13+300	1X2	BOX/SLAB
15	13+450	1X2	BOX/SLAB
16	13+600	1X2	BOX/SLAB
17	13+800	1X2	BOX/SLAB
18	13+950	1X2	BOX/SLAB
19	14+100	1X2	BOX/SLAB
20	14+250	1X2	BOX/SLAB
21	14+400	1X2	BOX/SLAB
22	14+600	1X2	BOX/SLAB
23	14+800	1X2	BOX/SLAB
24	14+950	1X2	BOX/SLAB



<b>Sr. No.</b>	<b>Design Chainage (Km)</b>	<b>Span/Opening (m)</b>	<b>Type of Culvert</b>
25	15+100	1X2	BOX/SLAB
26	15+250	1X2	BOX/SLAB
27	15+400	1X2	BOX/SLAB
28	15+600	1X2	BOX/SLAB
29	15+800	1X2	BOX/SLAB
30	15+950	1X2	BOX/SLAB
31	16+100	1X2	BOX/SLAB
32	16+250	1X2	BOX/SLAB
33	16+400	1X2	BOX/SLAB
34	16+600	1X2	BOX/SLAB
35	16+800	1X2	BOX/SLAB
36	16+950	1X2	BOX/SLAB
37	17+100	1X2	BOX/SLAB
38	17+250	1X2	BOX/SLAB
39	17+400	1X2	BOX/SLAB
40	17+600	1X2	BOX/SLAB
41	17+800	1X2	BOX/SLAB
42	17+950	1X2	BOX/SLAB
43	18+100	1X2	BOX/SLAB
44	18+250	1X2	BOX/SLAB
45	18+400	1X2	BOX/SLAB
46	18+600	1X2	BOX/SLAB
47	18+800	1X2	BOX/SLAB
48	18+950	1X2	BOX/SLAB
49	19+100	1X2	BOX/SLAB
50	19+250	1X2	BOX/SLAB
51	19+400	1X2	BOX/SLAB
52	19+600	1X2	BOX/SLAB
53	19+800	1X2	BOX/SLAB
54	19+950	1X2	BOX/SLAB
55	20+100	1X2	BOX/SLAB
56	20+250	1X2	BOX/SLAB
57	20+400	1X2	BOX/SLAB
58	20+600	1X2	BOX/SLAB
59	20+800	1X2	BOX/SLAB
60	20+950	1X2	BOX/SLAB

**The numbers of culvert above are minimum, to be provided and it may increase as per site condition. In case of increase in numbers of culvert, no positive change of scope will be payable**

- e) Repairs/ Replacement of Railing/Parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

<b>Sr. No.</b>	<b>Location (km)</b>	<b>Type of Repair required</b>
NIL		

- f) Floor Protection works of culverts shall be as specified in the relevant IRC codes and Technical Specifications.

### iii. Bridges

#### a) Existing Bridges to be re-constructed / widened

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

##### Major Bridges:

Sl. No.	Existing Chainage (Km)	Design Chainage (Km)	Design No. of Spans with span length (m)	Remarks
NIL				

##### Minor Bridges:

Sl. No.	Chainage		Silent Details of Existing Bridges	Adequacy or otherwise of the existing waterway, vertical clearance	Remarks
	Existing	Design			
Nil					

- (ii) The following narrow bridges shall be widened:

Sr. No.	Location (Km)	Existing Width (m)	Extent of Widening (m)	Cross-section at deck level for widening
Nil				

#### b) Additional New Bridges

New bridges at the following locations on the project highway shall be constructed. GADs for the new bridges are attached in the drawings folder:

##### Major Bridge:

Sr. No.	Location (Km)		Total length (m)	Remarks
	Existing	Design		
1	-	12.600	80	2 Lane New Bridge as per section 7 of IRC SP 73:2018

##### Minor Bridge:

Sr. No.	Location (Km)		Total length (m)	Remarks
	Existing	Design		
Nil				

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

Sr. No.	Location (km)	Remarks
Nil		

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

Sl. No.	Existing Chainage (Km)	Design Chainage (Km)	Existing no. of Spans with span length (m)	Remarks
Nil				

- e) **Drainage system for bridge decks**

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.20 of IRC: SP: 73-2018.

- f) **Structures in marine environment**

Refer to paragraph 7.21 of The Manual and specify the necessary measures / treatments for protecting structures in marine environment, where applicable.

#### iv. **Rail - Road Bridges**

- a) Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual.

- b) **Road Over-Bridges**

Road over-bridges (road over railway line) shall be provided at the following level crossings, as per manual:

Sl. No.	Location of Level crossing (Design Chainage km)	Length of bridge (m)
Nil		

- c) **Road under-Bridges**

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

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

**v. Grade separated structures**

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

Sr. No.	Location		Span Arrangement	Total length (m)	Remarks
	Existing Chainage (Km)	Design Chainage (Km)			
Nil					

**vi. Repairs and strengthening of bridges and structures**

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

**A. Bridges**

Sl. No.	Location / Design Chainage (In km)/Span	Side (LHS/RHS)	Nature and Extent of Repairs / Strengthening to be carried out
Nil			

**B. ROB / RUB**

Sl. No.	Location / Design Chainage (In km)	Side (LHS/RHS)	Nature and Extent of Repairs / Strengthening to be carried out
Nil			

**C. Overpass / Underpass and Other structures**

Sr. No.	Location / Design Chainage (In km)	Side (LHS/RHS)	Nature and Extent of Repairs/ Strengthening to be carried out
Nil			

**vii. List of Major bridges and structures**

The following is the list the list of major bridges and structures

Sr. No.	Location (In km)
1	12+600 (Major Bridge)

## 8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

**5.1** Traffic control devices and road safety works shall be provided in accordance with Section 9 of IRC: SP:73-2018.

- (a) Traffic Signs: Traffic signs include roadside signs, overhead signs and curb mounted signs along the entire Project Highway shall be provided conforming to IRC 67 and section 800 of MoRTH specification.
- (b) Pavement Marking: Pavement markings shall cover road marking for the entire Project Highway and shall be provided conforming to IRC 35-2015.
- (c) Safety Barrier: W-beam crash barrier along the project highway at all locations shall be provided as specified in section 9 of IRC: SP: 73-2018.

Specifications of the reflecting sheeting.

Retro reflective sheeting should be of high intensity grade with encapsulated lens or with micro prismatic retro reflective element in accordance with ASTM Standard D 4956-04 shall be provided conforming to section 800 of MoRTH specification.

## 9 ROADSIDE FURNITURE (SECTION 9 of IRC: SP: 73-2018)

- i. Roadside furniture shall be provided in accordance with the provisions of section 11 of IRC: SP:73-2018.
  - (a) Road Boundary Stone: For the entire Project Highway.
  - (b) Pedestrian: The pedestrian facilities shall include the provision of the;
    - (i) Pedestrian guardrail: Provide pedestrian guardrail at each bus stop location.
    - (ii) Pedestrian Crossings: Provide pedestrian crossing facilities on Junctions.
- ii. Overhead traffic signs: Location and Size
  - (a) Full width Overhead signs: Full width Overhead signs shall be provided as below:

Sl. No.	Design Chainage	Remarks
1	10.500	
2	21.000	

- (b) Cantilever Overhead signs: Overhead signs shall be provided as below:

Sl. No.	Design Chainage	Remarks
1	13.500	
2	16.500	

- (c) Delineators: Delineators for the entire Project Highway at the locations as per section 9.4 of IRC SP 73:2018.

## COMPENSATORY AFFORESTATION

Minimum 1050 nos. trees are required to be planted as compensatory afforestation.

## 11 HAZARDOUS LOCATIONS

Metal Beam crash barrier of minimum length of 2700 m (single runner, heavy duty and W-shape) shall be provided at the locations of bridge approaches and high embankments (3.0m and more), at sharp curves on both sides on the project by the Contractor at the locations finalized in consultation with AE. Typical details of metal crash barrier are given in as per manual. Increase in length if any as per site requirement will not constitute change of scope

## 12 Tunnel

### 12.1 Description of the Tunnel System

Tunnel length 500m

### 12.2 Portal of Tunnel

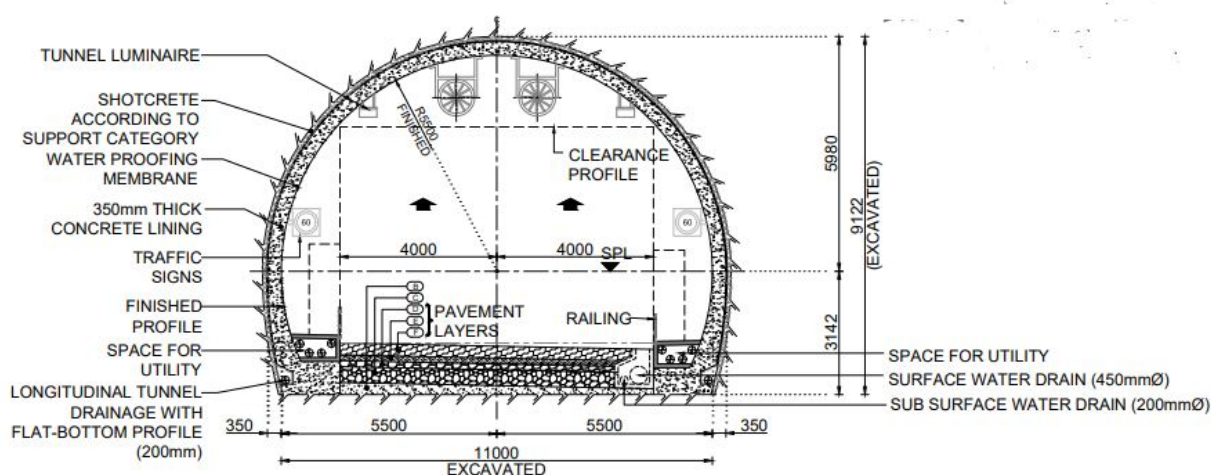
Elevation 1335 m

Location Front portal E608808.2535 N2844995.4706

Back portal E609323.5533 N 2845201.604

Slip road to portal Slip road of 520 m length to the portal

### 12.3 Cross Section Width and Height Cross section of the tunnel is given below



The following minimum length of tunnel has to be constructed in accordance with IRC SP:91 and details given is tabulated below:

Sl. No.	Design Chainage			Remarks
	From	To	Length (m)	
1	11+000	11+500	500	Tunnel

Other details of tunnel are given in GAD attached in Schedule B.

**12.4 The details of other aspects will be taken as per IRC SP 91 which is detailed below:**

### **Ventilation**

Ventilation system shall be provided as per the Guidelines for Road Tunnels IRC: SP:91-2010, NFPA 502 (2017) and PIARC Technical Committee C4 - Road Tunnels: Vehicle Emissions and Air Demand for Ventilation (2011).

### **Final Interior Finish**

The main traffic tunnel shall have a final interior finish of light coloured fire-resistant paint of suitable surface characteristics as per Contractor's detailed design subject to approval by Authority Engineer.

### **Lighting and E&M Facilities**

As per Contractor's detailed design subject to approval by the Authority Engineer. Normal Lighting & Emergency Lighting in the Road tunnel shall be designed according to CIE 88:2004 standard "Guide for the Lighting of Road Tunnels and Underpasses" for two- way traffic including Cable & cable laying, Main Electrical panel & Sub Panels, earthing of complete offered system, galvanized supporting structure and all other necessary accessories, etc. as per the design requirement. Also, the Guidelines for Road Tunnels IRC: SP:91-2010 will be considered. The light intensity of the entry and exit zones shall be adapted to the actual outside lighting level according to external conditions (day/night, regulation through measurement of luminous density)

### **Drainage and Waterproofing Concept**

The tunnel shall be designed as a dry and drained tunnel as per contractor's detailed design. A waterproofing membrane shall be provided as per the drawing of cross section of tunnel. The water is drained along the bottom of the side walls with perforated drainage pipes.

### **Construction Concept**

The construction method of the tunnel shall be internationally accepted method as proposed in the Technical proposal maintaining the clear profile with prior approval of NHIDCL in consultation with the Authority Engineer. However, the

method of construction is Contractor's choice. However, Tunnel will be constructed from both the tunnel portals.

### **Muck Dump Disposal**

Up to three muck dumping sites have been proposed for the construction of tunnel. Prior to any disposal of muck dump material, necessary permission shall be obtained from the local authorities (Civil administration/Forest/Wildlife) as per law for which the local NHIDCL office will provide necessary assistance. For estimation of capacity of the individual pockets the Contractors are required to carry out reconnaissance in coordination with local NHIDCL authorities. Muck disposal and management shall be carried out in accordance with the Environmental Laws of State/Central Govt

**Note- (i)** *The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepare designs for Tunnel as per the specifications & standards stipulated in schedule 'D' and IRC SP 91 and submit the same to the AE for review through the proof consultant and implement it accordingly thereafter. The proof and safety of the tunnel work will only be done through IIT/CBRI/CSIR*

*(ii) Any increase in quantity over and above the minimum qty. and length as mentioned in above table or through change in specifications will not be considered as change of scope. Therefore contractor shall make thorough investigation at site and assess the requirement tunnel and other safety features at his own before submission of bid.*

## **13 SPECIAL REQUIREMENTS FOR HILL ROADS**

Refer to section 13 of IRC: SP: 73-2018.

The following minimum length of protection works have been made for tabulated below:

<b>Sr. No.</b>	<b>Items</b>	<b>Length (m)</b>
1	Breast wall	4300
2	Retaining wall (5 m high)	1080
3	Seeding & mulching	42040

**Note- (i)** *The Contractor shall be responsible for accurate assessment of the actual requirement as per site situation & prepare designs for slope protection & stabilization as per the specifications & standards stipulated in schedule 'D' and submit the same to the AE for review through the proof consultant and implement it accordingly thereafter.*



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

(iii) The length of Retaining Wall shown above is minimum, to be constructed at site for proper geometrics and will not be converted to Breast Wall. Any reduction in the total length of Retaining Wall constructed at site shall constitute of negative change of scope.

### 13 CHANGE OF SCOPE

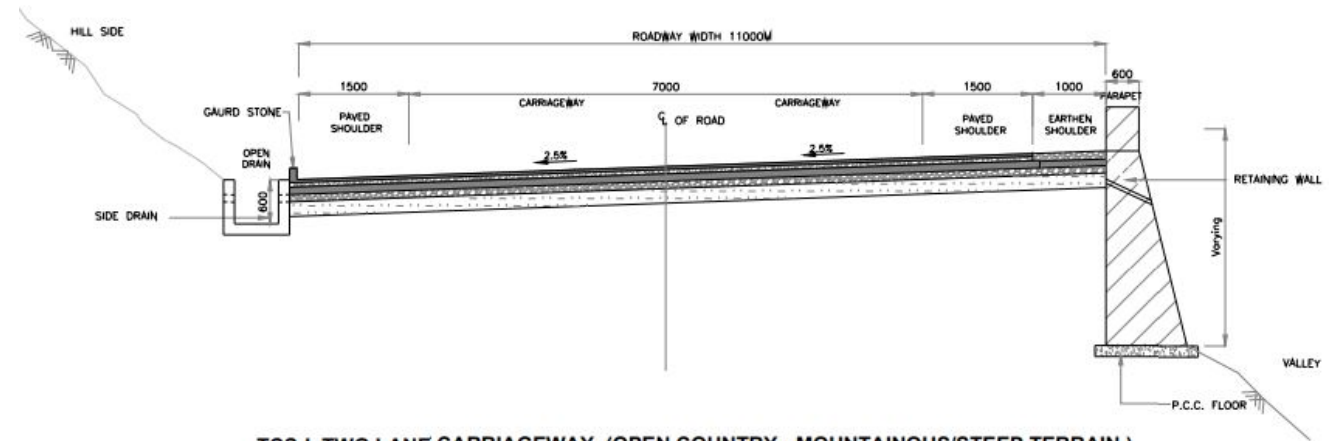
The length of Structures and bridges specified here in above shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any increase in the lengths specified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

### 10. INDICATIVE CHAINAGES WITH APPLICABLE TYPICAL CROSS SECTION:

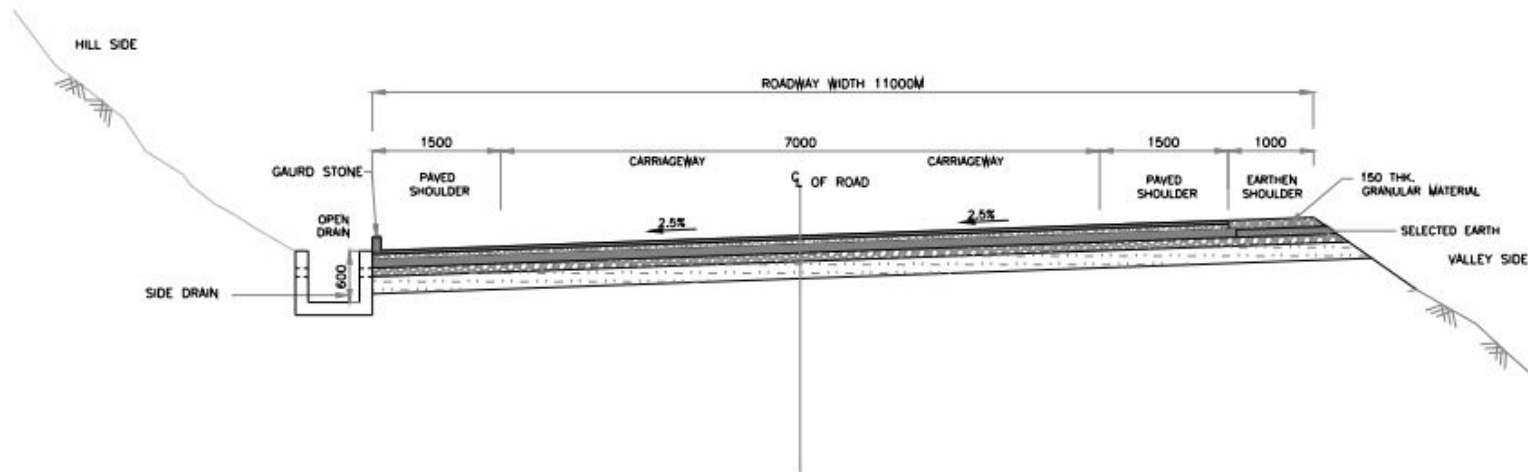
S.No	Design Chainage		Length	Type of TCS
	From	To		
1	10+500	11+000	500	TCS-II
2	11+000	11+500	500	Tunnel
3	11+500	15+050	3550	TCS-II
4	15+050	15+150	100	TCS-I
5	15+150	15+650	500	TCS-II
6	15+650	16+000	350	TCS-I
7	16+000	16+550	550	TCS-II
8	16+550	16+600	50	TCS-I
9	16+600	17+900	1300	TCS-II
10	17+900	17+950	50	TCS-I
11	17+950	20+100	2150	TCS-II
12	20+100	20+200	100	TCS-I
13	20+200	21+000	800	TCS-II
Total length (m)			10500	



**Typical Cross Section (TCS):**



**TCS-I TWO LANE CARRIAGEWAY, (OPEN COUNTRY - MOUNTAINOUS/STEEP TERRAIN )  
WITH RETAINING WALL AND PARAPET ON NEW ALIGNMENT**  
(Fig. 2.8 As per Two Lane Manual 2018)



**TCS-II TWO LANE CARRIAGEWAY, (OPEN COUNTRY - MOUNTAINOUS/STEEP TERRAIN )  
WITHOUT RETAINING WALL ON NEW ALIGNMENT**  
(Fig. 2.9 As per Two Lane Manual 2018)