Schedule-B

Schedule - B

(See Clause 2.1)

Development of the Project Highway

1 Development oftheProject Highway

DevelopmentoftheProjectHighwayshallincludedesignandconstruction of theProject Highwayasdescribed in this Schedule-Band in Schedule-C.

2 4-Laning with Paved Shoulder

Four Laning shall include construction of the Four Lane 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)

Descriptionof Project Road (4-Laning)

Site of the Four-lane divided Project Highway comprises the section of National Highway No. 306, from Dhanehari –Lailapur /Vairengte Section (Package 2) from Existing CH. 12.920 to Existing Ch. 43.0000 Km of NH 306 (Design Chainage km 20+000 to km 49+360) on Silchar – Vairengte - Sairang road in the State of Assam under BharatmalaPariyojna.

The coordinates of start and end point of project road are given below.

Co-ordinates of Start and End of Project Stretch

Location		UTM Co-Ordinate	
Description	Design Chainage	Easting (m)	Northing (m)
Start of Project Road	20+000	482768.5623	2733993.6242
End of Project Road	49+360	477220.5317	2710972.8519

1. Widening ofthe ExistingHighway

(i) TheProjectHighway shallfollowtheexistingalignmentunlessotherwise specifiedby theAuthority andshowninthealignmentplansspecifiedin AnnexIII ofSchedule-A.Geometricdeficiencies,ifany,intheexisting horizontalandverticalprofilesshallbecorrectedasper the prescribed standards for plain/rolling/hillyterrain to theextent land is available.

(ii) **Width of carriageway**

(a) Four-Laning with pavedshoulders shall be undertaken. The paved carriageway shall be in accordance with the typical cross-sections' drawings in the manual IRC SP 84 - 2019. The typical drawings attached in schedules.

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

Sl. No.	Built-up stretch (Township)	Location (Km to km)	Width (m)	Typical cross section (Ref. to Manual)
NIL				

(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

(c) The entire cross-sectional elements shall be accommodated in the proposed ROW. If required, suitable retaining structures shall be provided to accommodate the highway

cross section within the proposed ROW and the same 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 of the EPC Contract Agreement.

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 Manual (IRC: SP: 84-2019) for Plain& hilly terrain and as specified in Annex-I of Schedule D.

ii. Design Speed

The contractor shall adopt ruling design speed for designing the project highway in conformity with the provisions of the manual & as specified in Plan and Profile drawings of Annexure-III of Schedule-A and in Annex-I of Schedule D.

iii. Improvements of the existing road geometrics

Improvement of the existing road geometrics shall be carryout to the extent possible within the given right of way and proper road signs and safety measures shall be provided. It shall follow the alignment plans shown in the Annex-III of Schedule-A, unless otherwise specified by the Authority.

a) The bypass has been provided in following location

Sl. No	Location	Existing Chainage (Km)		Existing Length (m)	Design Chainage (Km)		Design Length (m)
		Start	End		Start	End	
1	Nutan Bazar Bypass	14+620	21+270	6650	21+700	28+650	6950
2	Katakhal Bypass	22+720	25+900	3180	30+100	33+350	3250
3	Dholai Bypass	28+150	30+120	1970	35+600	37+600	2000
4	Baga Bazar Bypass	30+860	32+350	1490	38+350	39+600	1250
		32+960	38+110	5150	40+200	45+150	4950
	Total			**18440**			**18400**

b) Realignments and Geometric Improvement locations

Sl. No	Exist. Chainage		Exist. Length (m)	Design Chainage		Design Length (m)
	Start	End		Start	End	
1	40+060	43+000	2940	47+100	49+360	2260
	Total		**2940**			**2260**

Apart from above, geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain/rolling/hilly terrain to the extent land is available.

iv. Right of Way

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

v. Type of shoulders

(a) In built-up section, footpaths are to be provided in the following stretches and as specified in Schedule-D.

(b) In open country plain terrain, paved shoulders of 2.5 m + 1.5m width earthen shoulder width and 1.5m wide paved + 2.0m earthen shoulders on valley side in hilly terrain shall be provided for main highway. The shoulders shall be in accordance with the Typical cross sections given in Appendix B-I and as specified in Schedule-D.

(c) Design and specifications of shoulders shall conform to the requirements of Section 5 as specified in paragraphs 5.10 and 5.11 of the Manual. The Earthen Shoulder shall be compacted with 150mm thick granular sub-base quality material at the top duly stabilized with cement/suitable admixtures to prevent erosion.

vi. Lateral and Vertical Clearances at Underpasses

(a) Lateral and vertical clearances at Underpasses and provision of guardrails/crash barriers shall be as per the paragraph 2.10 of IRC SP 84-2019.

(b) Lateral clearance: The size of the opening at the Underpasses shall be as follows

S. No.	Chainage (km)	Span/ opening (m)	Vertical Clearance (m)	Remarks
1	21+900	1 x 20m	5.5	VUP
2	22+950	1 x 12m	4.0	LVUP
3	24+325	1 x 12m	4.0	LVUP
4	26+610	1 x 20m	5.5	VUP
5	31+610	1 x 20m	5.5	VUP
6	33+860	1 x 20m	5.5	VUP
7	35+810	1 x 20m	5.5	VUP
8	36+513	1 x 12m	4.0	LVUP
9	38+450	1 x 20m	5.5	VUP
10	40+380	1 x 20m	5.5	VUP

vii.

Late ral	11	41+743	1 x 12m	4.0	LVUP
	12	43+375	1 x 12m	4.0	LVUP
	13	44+050	1 x 12m	4.0	LVUP
	14	44+960	1 x 20m	5.5	VUP
	15	47+355	1 x 7.0m	4.0	LVUP

and Vertical Clearances at overpasses

(a) Lateral and Vertical clearances at over passes shall be as per paragraph 2.11 of the manual and as specified at Schedule-D.

(b) Lateral clearance: The width of the opening at the overpasses shall be as follows:

Sl. No.	Chainage (km)	Span /opening (m)	Vertical Clearance	Remarks
01	48+820	2 x 12.0m	5.5	VOP

viii. Service roads

(a) Service roads / Slip Roads shall be constructed at the locations and for the lengths indicated below:

LHS					RHS			
Sl. No	Chainage (m)		Length (m)	Width (m)	Chainage (m)		Length (m)	Width (m)
	From	To			From	To		
1	21+420	22+375	955	7.5	21+420	22+375	955	7.5
2	26+160	26+610	450	11.0	26+160	27+140	980	7.5
	26+610	27+140	530	7.5				
3	30+970	32+060	1090	7.5	30+970	32+060	1090	7.5
4	33+300	33+860	560	11.0	33+300	34+295	995	7.5
	33+860	34+295	435	7.5				
5	35+290	36+190	900	7.5	35+290	36+190	900	7.5
6	37+985	38+965	980	7.5	37+985	38+965	980	7.5
7	39+600	40+380	780	11.0	39+600	40+910	1310	7.5
	40+380	40+910	530	7.5				
8	44+530	47+360	2830	7.5	44+530	47+180	2650	7.5
9	48+325	49+040	715	7.5	48+325	49+040	715	7.5
Total Length (m)			**10755**				**10575**	

(b) Connecting Roads shall be constructed at the locations and for the lengths indicated below:

Sl. No.	Chainage (km)		Right Hand side (RHS)/Left Hand side (LHS)/Both side	Length (m)	C/Way Width (m)
	From km	To km			

Nil

Note:

(i) The above lengths are tentative, and minimum specified, is excluding the tapering length/merging length of acceleration/deceleration lane. The entry and exit shall be constructed as per IRC: SP: 84: 2019.

(ii) Length of service road and connecting road given in above table excludes length across the Project Highway for proper connectivity of crossroad on either side of Project Highway as given in the alignment plan enclosed at **Annex-III, Schedule-A** which shall be deemed to be included in the scope of work.

(iii) The length of service road / connecting road shown in above table is minimum and may increase as per actual site conditions and No Change of Scope shall be admissible on this account.

(iv) In addition to the above, construction of temporary roads of required length and width for the maintenance of traffic during execution shall be deemed to be part the project and will not attract any change of scope.

ix. Grade Separated Structures

(a) Grade separated structures shall be provided as per paragraph 2.13 of the IRC SP 84-2019. The requisite particulars are given below:

Sl. No	Chainage (km)	Length (m)	Number and length of Spans (m)	Remarks if Any
1	21+900	2x11.6	1 x 20 x 5.5	VUP
2	22+950	2x11.6	1 x 12 x 4.0	LVUP
3	24+325	2x11.6	1 x 12 x 4.0	LVUP
4	26+610	2x11.6	1 x 20 x 5.5	VUP
5	31+610	2x11.6	1 x 20 x 5.5	VUP
6	33+860	2x11.6	1 x 20 x 5.5	VUP
7	35+810	2x11.6	1 x 20 x 5.5	VUP
8	36+513	2x11.6	1 x 12 x 4.0	LVUP
9	38+450	2x11.6	1 x 20 x 5.5	VUP
10	40+380	2x11.6	1 x 20 x 5.5	VUP
11	41+743	2x11.6	1 x 12 x 4.0	LVUP
12	43+375	2x11.6	1 x 12 x 4.0	LVUP
13	44+050	2x11.6	1 x 12 x 4.0	LVUP

14	44+960	2x11.6	1 x 20 x 5.5	VUP
15	47+355	2x11.6	1 x 12 x 4.0	LVUP
16	48+820	2x11.6	2 x 12 x 5.5	VOP

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

Sl. No.	Location (Design Chainage)	Type of Structure	Cross road at			Remarks, if any
			Existing level	Raised Level	Lowered Level	
1	21+900	Girder Type	*	*	*	VUP
2	22+950	Box Type	*	*	*	LVUP
3	24+325	Box Type	*	*	*	LVUP
4	26+610	Girder Type	*	*	*	VUP
5	31+610	Girder Type	*	*	*	VUP
6	33+860	Girder Type	*	*	*	VUP
7	35+810	Girder Type	*	*	*	VUP
8	36+513	Box Type	*	*	*	LVUP
9	38+450	Girder Type	*	*	*	VUP
10	40+380	Girder Type	*	*	*	VUP
11	41+743	Box Type	*	*	*	LVUP
12	43+375	Box Type	*	*	*	LVUP
13	44+050	Box Type	*	*	*	LVUP
14	44+960	Girder Type	*	*	*	VUP
15	47+355	Box Type	*	*	*	LVUP
16	48+820	Box Type	*	*	*	VOP

*Cross road levels shall be decided in accordance with the manual as per the requirement of main carriageway geometrics and the same shall be finalized in consultation with Authority's Engineer. It is clarified that, any raising or lowering of crossroad levels and development of approaches along crossroad is also covered under scope of this work and same will not attract change of scope.

x. Cattle and pedestrian Underpass / Overpass

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

S. No.	Chainage (km)	Type of Crossing
NIL		

xi. Typical cross-sections of the Project Highway

(a) Types of cross-sections required to be developed in different segments of the project road are indicated in Appendix B-I.

(b) TCS schedule as given in Appendix B-I shall be treated as an approximate assessment. Actual length of the TCS schedule shall be prepared by the

contractor based on detailed investigations and site requirements. Any variation in length of respective TCS specified in 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 Article13of EPC Contract agreement.

3. Intersections and Grade Separators

All intersectionsand grade separators shallbeasper Section 3of the Manual.Existing intersectionswhicharedeficientshallbeimprovedtothe prescribed standards.

Draft layout of major junctions is shown in Plan & Profile drawings for reference. Properly designed intersections shall be developed at the location given below:

(i) At-gradeintersections

Sl. No.	Design Chainage	Existing Chainage	Type of Junctions (T, Y, +)	Side	Type of Road (SH/ MDR/ ODR/ VR)	Remarks
1	21+455	14+375	T	RHS	VR	Minor Junction
2	21+615	14+535	T	LHS	VR	Minor Junction
3	21+900	14+800	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
4	26+000	18+100	Y (Free Left)	LHS	NH-306 (Exist. Road)	Major Junction
5	26+200	18+300	T	RHS	VR	Minor Junction
6	26+350	18+470	T	LHS	VR	Minor Junction
7	26+680	18+720	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
8	28+450	21+060	Y (Free Left)	LHS	NH-306 (Exist. Road)	Major Junction
9	30+310	22+920	Y (Free Left)	RHS	NH-306 (Exist. Road)	Major Junction
10	31+610	24+990	4 Legged (Below Underpass)	BHS	NH-306 (Exist. Road)	Major Junction
11	33+140	25+700	Y (Free Left)	RHS	NH-306 (Exist. Road)	Major Junction
12	33+860	26+410	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction

Sl. No.	Design Chainage	Existing Chainage	Type of Junctions (T, Y, +)	Side	Type of Road (SH/ MDR/ ODR/ VR)	Remarks
13	35+620	28+180	T	LHS	VR	Minor Junction
14	35+810	28+400	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
15	37+530	30+040	Y (Free Left)	LHS	NH-306 (Exist. Road)	Major Junction
16	37+620	30+135	T	RHS	VR	Minor Junction
17	38+450	31+000	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
18	39+450	32+210	Y (Free Left)	LHS	NH-306 (Exist. Road)	Major Junction
19	40+400	33+170	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
20	44+960	37+900	T (Below Underpass)	LHS	NH-306 (Exist. Road)	Major Junction
21	45+355	38+260	T	RHS	VR	Minor Junction
22	46+768	39+720	+	BHS	VR	Minor Junction
23	47+355	40+350	+	BHS	VR	Minor Junction
24	48+820	42+000	4 Legged (Below Underpass)	BHS	NH-306 (Exist. Road)	Major Junction
25	31+040	Bypass	+	LHS	VR	Minor Junction
26	31+955	Bypass	T	RHS	VR	Minor Junction

Note: *It is clarified that if any other junction is identified during development of the project highway in addition to those mentioned above shall also be improved with proper drainage facilities as per standards. The length of development along crossroad shall be decided as per site condition in accordance with manual. It shall be covered within the scope of work. The Number, location & type of junction shown in above table are minimum and it may increase as per actual site condition and increase in number will not attract change of Scope on this account. For reference refer plan metric drawing.*

Junctions shall be improved as per IRC: SP: 84-2019 and MOST type design for intersection on National Highways, 1992.

(ii) Grade separated intersection with/without ramps.

Sl. No.	Chainage (km)	Type of Structure	Length (m)	Number and length of clear Spans (m)	Type of Grade Separator
1	21+900	Girder Type	2x11.6	1 x 20 x 5.5	VUP
2	22+950	Box Type	2x11.6	1 x 12 x 4.0	LVUP
3	24+325	Box Type	2x11.6	1 x 12 x 4.0	LVUP
4	26+610	Girder Type	2x11.6	1 x 20 x 5.5	VUP
5	31+610	Girder Type	2x11.6	1 x 20 x 5.5	VUP
6	33+860	Girder Type	2x11.6	1 x 20 x 5.5	VUP
7	35+810	Girder Type	2x11.6	1 x 20 x 5.5	VUP
8	36+513	Box Type	2x11.6	1 x 12 x 4.0	LVUP
9	38+450	Girder Type	2x11.6	1 x 20 x 5.5	VUP
10	40+380	Girder Type	2x11.6	1 x 20 x 5.5	VUP
11	41+743	Box Type	2x11.6	1 x 12 x 4.0	LVUP
12	43+375	Box Type	2x11.6	1 x 12 x 4.0	LVUP
13	44+050	Box Type	2x11.6	1 x 12 x 4.0	LVUP
14	44+960	Girder Type	2x11.6	1 x 20 x 5.5	VUP
15	47+355	Box Type	2x11.6	1 x 12 x 4.0	LVUP
16	48+820	Box Type	2x11.6	2 x 12 x 5.5	VOP

Note: The layout of these intersections are shown in alignment plans specified in Annex III of Schedule-A. Development of all ramps/slip roads as shown in alignment plans is included in the scope of work and any modification of layout or increase in length of ramps/slip roads will not attract change of Scope.

4. Road Embankment and Cut Section

(i) Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications

and Standards given in section 4 of the manual 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 at the required locations as per proposed plan and profile or further raised to meet requisite specifications

(iii) Surplus cut earth

All of surplus cutting soils shall be transported and be disposed to the Spoil Banks in accordance with Schedule D.

5. Pavement Design

i. Pavement design shall be carried out in accordance with Section 5 of the IRC SP 37-2018 and IRC SP: 59-2019.

ii. Type of pavement

Flexible pavement shall be provided including Bus bay, Rest Area, Truck Lay Bye and Intersections.

iii. 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 40 MSA with a minimum design period of 20 years. CBR value as obtained at site shall be taken for design if less than 8%. Maximum value of CBR to be taken for design shall not exceed 8%.

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

a) Design Period and strategy

A) Main carriageway:

Flexible pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

B) Service road/Slip Road:

Flexible pavement shall be designed for a minimum design period of 20 years. Stage construction shall not be permitted.

C) Strengthening of Existing pavement:

Nil

b) Design Traffic

A) Main carriageway:

Notwithstanding anything to the contrary contained in this Agreement or the IRC SP 84-2019, the contractor shall design the pavement for design traffic of not less than 40 million standard axles (MSA) for Main carriageway.

B) Service Road

As per manual, service road, slip road and connecting road shall be designed for minimum 10 MSA.

C) Strengthening of Existing pavement

Nil

iv. Reconstruction of stretches

The Existing flexible pavement shall be dismantled and reconstructed as flexible pavement.

6. Roadside Drainage

Drainage system including surface and subsurface drains for the Project Highway shall be constructed in entire length including drains and culverts required along the crossroads at junctions/ interchanges/other locations as per Section 6 of manual and as per TCS schedule provided as Appendix B-I to this schedule.

In the cutting sections, lined/unlined drain shall be provided at the top of cut slope and at every bench provided for drainage system adequacy and effectiveness All measures shall be taken to prevent ingress of countryside runoff entering into road formation width.

Any repair/ reconstruction required for the existing culverts along project highway/along crossroads at junctions shall be carried out. This will not attract any change of scope.

i) RCC cover drain:

RCC cover drain shall be provided at following locations.

Sl No	LHS			RHS		
	Chainage (m)		Length (m)	Chainage (m)		Length (m)
	From	To		From	To	
1	20+000	20+300	300	20+000	20+300	300
2	21+420	22+375	955	21+420	22+375	955
3	26+160	26+660	500	26+160	26+660	500
4	26+660	27+140	480	26+660	27+140	480
5	30+970	32+060	1090	30+970	32+060	1090
6	33+300	33+860	560	33+300	33+860	560
7	33+860	34+295	435	33+860	34+295	435
8	34+295	34+900	605	34+295	34+900	605
9	35+305	36+190	885	35+305	36+190	885

10	37+985	38+965	980	37+985	38+965	980
11	39+600	40+380	780	39+600	40+380	780
12	40+380	40+910	530	40+380	40+910	530
13	44+530	45+430	900	44+530	45+430	900
14	45+430	47+070	1640	45+430	47+070	1640
15	47+070	47+360	290	47+070	47+360	290
16	48+320	49+040	720	48+320	49+040	720
	Total Length		**11650**			**11650**

Note: The above locations are minimum. Additional locations if any required as per site condition shall be provided as per manual. It shall not be treated as change in scope of work.

ii) PCC Open drain (On Hill Side):

PCC Open drain on hill side shall be provided on hill side at following locations.

Sl No	LHS			RHS		
	Chainage (m)		Length (m)	Chainage (m)		Length (m)
	From	To		From	To	
1	47+620	47+780	160	47+360	47+420	60
2	47+900	47+970	70	47+600	47+790	190
3	48+220	48+330	110	47+900	47+980	80
4	48+690	48+800	110	48+690	48+880	190
5	48+840	48+880	40	48+930	49+290	360
6	49+160	49+190	30	49+330	49+360	30
	Total Length		**520**			**910**

Note: The above locations are minimum. Additional locations if any required as per site condition shall be provided as per manual. It shall not be treated as change in scope of work.

iii) PCC Open drain (On Valley Side):

PCC Open drain on valley side shall be provided on hill side at following locations.

Sl No	LHS			RHS		
	Chainage (m)		Length (m)	Chainage (m)		Length (m)
	From	To		From	To	
1	47+410	47+620	210	47+420	47+600	180
2	47+780	47+900	120	47+790	47+900	110
3	47+970	48+220	250	47+980	48+690	710
4	48+330	48+690	360	48+880	48+930	50

5	48+800	48+840	40	49+290	49+330	40
6	48+880	49+160	280			
7	49+190	49+360	170			
	Total Length		**1430**			**1090**

Note: The above locations are minimum. Additional locations if any required as per site condition shall be provided as per manual. It shall not be treated as change in scope of work.

iv) Open Un-line Drain:

Open Un-line drain shall be provided at following locations.

Sl.no.	LHS			RHS		
	Chainage		Length (m)	Chainage		Length (m)
	From	To		From	To	
1	20+300	21+420	1120	20+300	21+420	1120
2	22+375	26+160	3785	22+375	26+160	3785
3	27+140	30+970	3830	27+140	30+970	3830
4	32+060	33+300	1240	32+060	33+300	1240
5	34+900	35+305	405	34+900	35+305	405
6	36+190	37+985	1795	36+190	37+985	1795
7	38+965	39+600	635	38+965	39+600	635
8	40+910	44+530	3620	40+910	44+530	3620
		Total Length	**16430**			**16430**

Note: The above locations are minimum. Additional locations if any required as per site condition shall be provided as per manual. It shall not be treated as change in scope of work.

7. Design of Structures

i. General

(a) All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the IRC SP 84-2019 and shall conform to the cross- sectional features and other details specified in this schedule. Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

(b) Width of the carriageway of new bridges shall be as follows:

Refer to paragraph 7.3 (ii) of the IRC SP 84-2019 and specified width of carriageway of all new four lane bridges shall have footpaths on either side. The cross-sectional features shall be as per Fig.7.6 of the IRC SP 84-2019.

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

(d) The structures shall be designed to carry utility services like electric cable, water pipeline, OFC etc. as per the requirement of site.

(e) Cross-section of the new culverts and bridges at deck level shall conform to the typical cross-sections given in section 7 of the Manual. Extra widening shall be provided for all Culverts/Bridges/Other structures in curved sections as per manual.

(f) IRC Class Special Vehicle loading shall be taken into account in the design of all structures.

ii. Culvert

Overall width of all culverts shall be equal to the roadway width of the approaches. All culverts shall be constructed as per Schedule-D.

(a) Reconstruction of existing culverts:

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

S. No.	Existing Chainage (Km)	Design Chainage (Km)	Existing Type	Existing Span	Proposed Type	Proposed Span	Remarks
1	21+290	28+670	Pipe	2x0.9	Box Culvert	1 x 3 x 3	
2	21+470	28+849	Pipe	2x0.9	Box Culvert	1 x 3 x 3	
3	21+600	28+980	Pipe	2x1.2	Box Culvert	1 x 3 x 3	
4	22+380	29+758	Pipe	2x1.2	Box Culvert	1 x 3 x 3	
5	26+010	33+460	Pipe	2x0.9	Box Culvert	1 x 3 x 3	
6	26+810	34+250	Pipe	2x1.2	Box Culvert	1 x 3 x 3	
7	27+255	34+700	Pipe	2x1.2	Box Culvert	1 x 3 x 3	
8	27+930	35+370	Slab	1x4	Box Culvert	1 x 5 x 4	
9	30+900	38+390	Pipe	1 x 0.9	Box Culvert	1 x 2 x 2	
10	32+840	40+085	Pipe	2x1.2	Box Culvert	1 x 2 x 2	
11	38+350	45+400	Pipe	1 x 0.9	Box Culvert	1 x 2 x 2	
12	38+570	45+615	Pipe	2x1.2	Box Culvert	1 x 2 x 2	
13	38+800	45+840	Pipe	2x1.2	Box Culvert	1 x 2 x 2	
14	39+300	46+345	Pipe	2x1.2	Box Culvert	1 x 2 x 2	

15	39+645	46+690	Pipe	2x1.2	Box Culvert	1 x 2 x 2	
16	40+140	47+190	Slab	1x2.8	Box Culvert	1 x 4 x 3	
17	40+300	47+290	Pipe	1x0.9	Box Culvert	1 x 3 x 3	

(b) Widening of existing culverts

Allexistingculvertswhicharenottobereconstructedshallbewidenedto theroadwaywidthoftheProjectHighwayasperthetypicalcrosssection giveninsection7.3 (i), (iii) and Fig. 7.1 to Fig. 7.5oftheIRC SP 84-2019.Repairsandstrengthening ofexisting structures whererequiredshall be carried out.

Sl. No	Chainage (km)	Span / Opening	Remarks , if any
Nil			

(c) Additional new culverts

New culverts shall be constructed for width equal to the roadway width of the Project Highway & as per typical cross-section given in this Schedule-B and alignment plan. The particulars are given in the table below:

Sl. No.	Existing Chainage (Km)	Design Chainage (Km)	Proposed Type	Proposed Span	Remarks
1	-	20+215	Box Culvert	1 x 2 x 2	
2	-	20+720	Box Culvert	1 x 2 x 2	
3	-	21+050	Box Culvert	1 x 2 x 2	
4	-	21+310	Box Culvert	1 x 2 x 2	
5	-	21+840	Box Culvert	1 x 2 x 2	
6	-	22+085	Box Culvert	1 x 2 x 2	
7	-	22+580	Box Culvert	1 x 2 x 2	
8	-	22+760	Box Culvert	1 x 2 x 2	
9	-	23+070	Box Culvert	1 x 2 x 2	
10	-	23+350	Box Culvert	1 x 2 x 2	
11	-	23+909	Box Culvert	1 x 5 x 4	
12	-	24+340	Box Culvert	1 x 2 x 2	
13	-	24+520	Box Culvert	1 x 2 x 2	
14	-	25+410	Box Culvert	1 x 2 x 2	

Sl. No.	Existing Chainage	Design Chainage (Km)	Proposed Type	Proposed Span	Remarks
15	-	25+780	Box Culvert	1 x 3 x 3	
16	-	26+590	Box Culvert	1 x 2 x 2	
17	-	26+940	Box Culvert	1 x 2 x 2	
18	-	27+155	Box Culvert	1 x 2 x 2	
19	-	28+360	Box Culvert	1 x 2 x 2	
20	-	28+510	Box Culvert	1 x 2 x 2	
21	-	30+320	Box Culvert	1 x 2 x 2	
22	-	30+520	Box Culvert	1 x 2 x 2	
23	-	30+865	Box Culvert	1 x 2 x 2	
24	-	31+090	Box Culvert	1 x 3 x 3	
25	-	31+700	Box Culvert	1 x 3 x 3	
26	-	32+170	Box Culvert	1 x 3 x 3	
27	-	32+515	Box Culvert	1 x 3 x 3	
28	-	32+935	Box Culvert	1 x 3 x 3	
29	-	33+235	Box Culvert	1 x 3 x 3	
30	-	35+050	Box Culvert	1 x 2 x 2	
31	-	35+680	Box Culvert	1 x 3 x 3	
32	-	35+980	Box Culvert	1 x 3 x 3	
33	-	36+610	Box Culvert	1 x 3 x 3	
34	-	38+930	Box Culvert	1 x 2 x 2	
35	-	39+440	Box Culvert	1 x 2 x 2	
36	-	40+390	Box Culvert	1 x 2 x 2	
37	-	40+680	Box Culvert	1 x 2 x 2	
38	-	41+045	Box Culvert	1 x 3 x 3	
39	-	42+080	Box Culvert	1 x 3 x 3	
40	-	42+735	Box Culvert	1 x 3 x 3	
41	-	43+435	Box Culvert	1 x 2 x 2	

Sl. No.	Existing Chainage	Design Chainage (Km)	Proposed Type	Proposed Span	Remarks
42	-	44+310	Box Culvert	1 x 2 x 2	
43	-	44+695	Box Culvert	1 x 2 x 2	
44	-	45+045	Box Culvert	1 x 2 x 2	
45	-	47+825	Box Culvert	1 x 2 x 2	
46	-	48+920	Box Culvert	1 x 2 x 2	
47	-	49+030	Box Culvert	1 x 2 x 2	
48	-	49+310	Box Culvert	1 x 2 x 2	
49	-	48+167	Pipe (NP-4)	4 x 2.0m dia.	Min. Length (95.0 m)
50	-	48+390	Pipe (NP-4)	4 x 2.0m dia.	Min. Length (112.5 m)
51	-	48+610	Pipe (NP-4)	4 x 2.0m dia.	Min. Length (115.0 m)

(d) Additional Culverts at Junction and Crossroads

The contractor shall construct the culverts at crossroads and junctions as per the list below:

Sl. No.	Chainage (km)	Proposed Type	Proposed Span	Remarks
1	21+600	Box	1x2	Cross Road
2	21+900	Box	1x2	Cross Road
3	26+000	Box	1x2	Cross Road
4	26+200	Box	1x2	Cross Road
5	26+350	Box	1x2	Cross Road
6	26+610	Box	1x2	Cross Road
7	28+420	Box	1x2	Cross Road
8	30+300	Box	1x2	Cross Road
9	31+060	Box	1x2	Cross Road
10	31+600	Box	1x2	Cross Road
11	31+960	Box	1x2	Cross Road
12	33+100	Box	1x2	Cross Road
13	33+900	Box	1x2	Cross Road

Sl. No.	Chainage (km)	**Proposed Type**	**Proposed Span**	**Remarks**
14	35+900	Box	1x2	Cross Road
15	36+480	Box	1x2	Cross Road
16	37+500	Box	1x2	Cross Road
17	38+400	Box	1x2	Cross Road
18	39+400	Box	1x2	Cross Road
19	40+440	Box	1x2	Cross Road
20	44+940	Box	1x2	Cross Road
21	45+320	Box	1x2	Cross Road
22	46+700	Box	1x2	Cross Road
23	46+840	Box	1x2	Cross Road
24	47+330	Box	1x2	Cross Road
25	48+800	Box	1x2	Cross Road

Note:

- *The overall width of culverts shall be equal to Roadway width including the gap between main carriageway & service road/slip/connecting road, in case there is any service road/slip/connecting road. Any additional Barrel length required as per site conditions shall not constitute a Change of Scope, save and except any variations arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13 of EPC Contract Agreement.*
- *Location of culverts are indicative and span arrangement is minimum specified. Exact location of these culverts may be decided in consultation with Authority Engineer. The actual location/vent way/span arrangements of culverts shall be determined on the basis of detailed investigations by the Contractor in accordance with the Specifications and Standards. Any variations in number of culverts/vent way/span arrangements 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 of EPC Contract Agreement.*

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

Sl. No.	**Chainage (km)**	**Type of repair required**

NIL

(f) Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

iii. Bridges

(a) Existing bridges to be re-constructed/widened/retain.

(i) Theexisting bridgesatthefollowing locationsshallbere-constructed as new Structures:

S. No.	Bridge location (km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc.	Remarks
1	Exist Ch: 22+560 Prop Ch: 29+938	Exist Slab Culvert, Prop MNB, Box Type	Prop Span 1 x 10m, Prop Width 2 x13.5m	With Footpath
2	Exist Ch: 30+215 Prop Ch: 37+700	Exist MNB, Box Girder type Prop MNB,PSC Girder type	Prop Span 1 x 40m, Prop Width 2 x 13.5m	With Footpath
3	Exist Ch: 38+490 Prop Ch: 45+533	Exist MNB, RCC Slab type Prop MNB,Box type	Prop Span 1 x 10m, Prop Width 2 x 11.6+2 x 11.0m	With Footpath
4	Exist Ch: 39+210 Prop Ch: 46+257	Exist MNB, RCC Slab type Prop MNB, PSCGirder type	Prop Span 1 x 20m, Prop Width 2 x 11.6+2 x 11.0m	With Footpath
5	Exist Ch: 39+990 Prop Ch: 47+033	Exist MNB, RCC Slab type Prop MNB,PSC Girder type	Prop Span 1 x 20m, Prop Width 2 x 11.6+2 x 11.0m	With Footpath

Note: - Proposed span arrangement is minimum and the same shall be finalized as per site condition in accordance with the Manual in consent with the concerned authority. Any increase in length/span/height shall not be treated as change in scope of work.

(ii) The following narrow bridges shall be widened:

Sl. No.	Chainage (km)	Existing width (m)	Extent of widening (m)	Cross-section at deck level for widening @
NIL				

(b) 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.

Sl. No	Chainage (km)	Name of Nala	Square Span (m)	Skew (deg.)	Width of Structure (m)
a) Major Bridge					
NIL					
b) Minor Bridge					
1	36+750 PSC Girder type, with Footpath		2 x 25		2 x 13.5
2	37+170 PSC Girder type, with Footpath		1 x 15		2 x 13.5
3	41+230 Box Type, with Footpath		1 x 12		2 x 13.5
4	47+480 PSC Girder type, with Footpath		1 x 15		2 x 13.5

Note: *Proposed span arrangement is minimum and the same shall be finalized as per site condition in accordance with the Manual in consent with the concerned authority. Any increase in length/span/height shall not be treated as change in scope of work.*

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

Sl. No.	Chainage (km)	Remarks
NIL		

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

Sl. No.	Chainage (km)	Remarks
NIL		

(e) Drainage system for bridge decks

Aneffectivedrainagesystemforbridgedecksshallbeprovidedasspecified in paragraph 7.21 of the manual

Structures in marine environment

Sl. No.	Chainage (km)	Remarks
Nil		

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 rail) shall be provided at the following level crossings, as per GAD drawings attached.

Sl. No.	Chainage (km)	Length of bridge(m)
Nil		

Note:

- The proposed span arrangement of ROBs are minimum. It may subject to change as per availability of railway boundaries/ requirement of the railways. Any increase in the cost due to change in the span arrangement and total length shall not be treated as change of scope of work.
- ROBs shall be designed, constructed, and maintained as per the requirements of Railway authorities. The construction plans shall be prepared in consultation with the concerned railway authority.
- The ROBs shall be constructed and maintained by the Contractor under supervision of the Railways.
- All expenditure related to construction, maintenance and supervision of ROBs (except plan and estimate (P&E) charges) shall be borne by the Contractor.
- During construction, at the location of the existing level crossing, diversion road with level crossing if any shall be suitably provided by the Contractor.

(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.	LocationofLevelCrossing(chainagekm)	Numberandlengthofspan(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 (ix) and 3 of this Annex-I.

vi. Repairs and strengthening of bridges and structures.

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

(a) Bridges

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

(b) ROB/ RUB

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

(c) Overpasses/Underpasses and other structures

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

vii. List of Major Bridges and structures

The following is the list of the major Bridges and structures:

Sl. No.	Chainage (km)
NIL	

8. Traffic Control Devices and Road Safety Works

(i) Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual. Any requirements in the traffic control devices; road safety works 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 of EPC Contract agreement.

(a) Traffic Signs:

Traffic signs include roadside signs, overhead signs and curb mounted, shall be provided all along the entire Project Highway as per schedule D. All advance direction/destination, reassurance, place identification signs along main road shall be overhead mounted on gantry. Exact location and number of overhead gantry signs to be decided by Contractor in accordance to manual with prior approval from AE and authority. Any increase shall not be constituted as change of Scope. The letter size and siting of all signs along main road shall be designed for the minimum design speed. Minimum number of full overhead gantry sign and cantilever overhead gantry sign shall be provided in accordance with manual.

(b) Pavement Marking:

Pavement markings shall cover road marking for the entire Project Highway as per manual.

(c) Safety Barrier:

THRIE- Metal Beam barriers shall be provided all along the project highway on either side of main carriageway as per provision in the manual and TCS given in Appendix B-I. Minimum length of THRIE- Metal Beam barrier and RCC crash barrier shall be provided as per schedule.

(ii) Reflective Pavement Markers (Road Studs)

Reflective Pavement markers (RRPM) i.e., road studs along the both side of entire project highway at the locations as per provision of clause 9.5 of Section 9 in the manual (IRC: SP-84-2019).

(iii) Specifications of the reflective sheeting

Retro reflective sheeting shall be of high intensity grade with encapsulated lens or with micro prismatic retro reflective element in accordance with ASTM Standard D 4956-09 and as per provision of 9.2 of section 9 in the manual (IRC: SP-84-2019).

9. Roadside Furniture

(i) Roadside furniture including boundary pillar, pedestrian guard rail, pedestrian crossing, delineators, studs, MS Railing etc. shall be provided in accordance with the provisions of Section 9 and 12 of manual and Schedule D.

LED traffic blinkers: To be provided at all junctions, pedestrian crossings, exits and at other locations as per manual.

Noise barriers: shall be provided in accordance with manual; Locations shall be decided as per site condition in consent with Authority.

(ii) Overhead traffic signs: Full width overhear signs and Cantilever signs shall be provided as per manual (IRC SP: 84-2019)

10. Compulsory Afforestation

Compensatory afforestation should be as per Forest Conservation Act.

11. Hazardous Locations

Roadside safety barriers shall be provided at all locations of hazards such as high embankment, roadside obstacles, sharp curves, Flyover and bridge approaches, overpasses, ROB and any other locations identified in consultation with Authority Engineer during the execution of the project highway.

12. Special Requirement

Project Road passing through plain and rolling in major stretch and few portion in hilly terrain therefore special requirement for Hill Roads is required.

Slope Protection on Hill Roads

As the project involve cutting of existing hill slopes, it is imperative that slopes are to be stabilized for insuring longevity of the slopes and the roads. Slope stability, erosion control and landslide correction shall be accomplished in accordance with IRC: SP 48:1998, IRC: 56-2011 and manual. The contractor shall be responsible for accurate assessment of the actual requirement & prepare design for slope protection & stabilization as per manual.

Any increase in length over the above will not be considered as change of scope. Therefore, contractor should carry out 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.

Disposal of Debris: - As per Manual.

A. RETAINING WALL/REINFORCES SOIL WALL (RS WALL) /BREAST WALL

Protection wall in the form of Breast/Retaining wall/Reinforced soil wall shall be constructed at following locations.

A-1 BREAST WALL

Breast walls shall be constructed at the following locations.

LHS					RHS			
Sl No	Chainage (m)		Length (m)	Height (m)	Chainage (m)		Length (m)	Height (m)
	From	To			From	To		
1					47+640	47+770	130	4
2					47+920	47+960	40	4
3					48+740	48+830	90	4
4					49+390	49+490	100	6
	Total Length						360	

Note: *The proposed locations are minimum and any change in length/height shall not be treated as change in scope of work.*

A-2 Retainingwall

Retaining walls shall be constructed at the following locations.

LHS					RHS			
Sl No	Chainage (m)		Length (m)	Height (m)	Chainage (m)		Length (m)	Height (m)
	From	To			From	To		
1	21+640	21+690	50	2				
2	22+730	22+780	50	2	22+730	22+780		2
3	25+650	25+850	200	2	25+650	25+850		2
4	28+300	29+370	1070	2	28+300	29+370	1070	2
5	29+600	30+400	800	2	29+600	30+400	800	2
6	36+540	36+680	140	2	36+540	36+680	140	2
7	40+940	41+120	180	2	40+940	41+120	180	2
8	42+700	42+800	100	2	42+700	42+800	100	2
9	47+460	47+620	160	3	47+460	47+540	80	3
10	47+780	47+850	70	6	47+990	48+670	680	5
11	48+900	49+050	150	6				
Total Length=			2970				3050	

Note: *The proposed locations are minimum and any change in length & height shall not be treated as change in scope of work.*

A-3 Reinforced Soil wall (RS Wall)

Reinforced Soil wall shall be constructed at the following locations.

Reinforced Soil Wall								
Sl No	LHS				RHS			
	Chainage (m)		Length (m)	Height (m)	Chainage (m)		Length (m)	Height (m)
	From	To			From	To		
1	47+990	48+210	220	12				
2	48+330	48+690	360	10				

Reinforced Soil Wall								
Sl No	LHS				RHS			
	Chainage (m)		Length (m)	Height (m)	Chainage (m)		Length (m)	Height (m)
	From	To			From	To		
	Total Length		580					

Note: *The proposed locations are minimum and any change in length & height shall not be treated as change in scope of work.*

A-4 Reinforced Earth wall (RE Wall)

RE Wall quantity on approaches is 153294Sqm (17936m) is minimum. However, addition in the quantity shall not attract change of Scope and shall be borne by the contractor.

A-6 Other Protection Works

i. Drainage Pipes on cut slopes – Perforated PVC rigid pipes of 5m length with internal dia. of 38 mm to 50mm shall be provided at a spacing of 5m c/c.

ii. Cut Slope treatment by Vetiver Grass: Area 1068 sqm.

iii. Cut Slope treatment by Seeding and Mulching: Area 1602sqm

iv. Cut Slope treatment by non-woven coir erosion control blanket/DT Mesh for Face 2.7/3.7mm dia. wire, ZN+PVC - Area 9543 Sqm

v. Cut Slope treatment by Soil Nailing with/without shotcrete – Area (NIL)

vi. Fill Slope treatment with erosion control blankets - *Embankment fill slope protection shall be provided as per requirement of the site as per Manual, however minimum 65234sqm Turfing and 142183sqm Erosion control (using geo-green) shall be provided, keeping in view sustainability, the geogreen blanket should have minimum 7.5 kn/m MD and should be certified by atleast Central Government Organization and product has minimum 5-7 years product performance certificate by MORT&H and its agencies*

Note:

- *The locations and quantity of various protection works specified in this above clause (A-6) of schedule B is tentative and minimum specified. The contractor shall be responsible for accurate assessment of slope protection & stabilization measures as per schedule D. Any change in location, increase in quantity, change in specifications or change in type of protection work shall not constitute a Change of Scope. Therefore, contractor should carry out thorough investigation at site and assess the requirement of slope protection and slide prone zone and other safety features on his own before submission of bid.*

- *Before placement of support system at site, the slopes shall be stripped to remove the excess debris / hanging boulders, stones, muck, shrubs etc. and site specific best possible smooth surface shall be prepared. The support system shall be laced on this smooth surface.*

RAINWATER HARVESTING

(i) As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of Rainwater, harvesting structure is mandatory in and around Water Crisis area, notified by the Central Ground Water Board.

(ii) Rainwater harvesting structures shall be provided at every 1000m on either side.

(iii) Rainwater harvesting structure shall be provided as per IRC: SP:42-2014 (Guideline for road drainage) and IRC: SP:50-2013 (Guidelines on Urban Drainage)

13. Utility Shifting

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

Note-I:

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

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

(c) The dismantled material/scrap of existing Utility to be shifted/ dismantled shall belong to the Contractor who would be free to dispose-off the dismantled material as deemed fitby them unless the Contractor is required to deposit the dismantled material to utility owning department as per the norm and practice and in that case the amount of credit for dismantled material may be availed by the Contractor as per estimate agreed between them.

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

Note II: - Copy of Utility shifting plan enclosed.

13.1 Details of proposed Utilities Schedules

Utilities Relocation Plan and its Schedule initially prepared by DPR consultant followed by joined verification with P&E&PHE department in presence of NHIDCL officers dully certified, details as shown below.

13.2 Electrical Utilities

The Site includes the following Electrical Utilities:

The shifting of utilities and felling of trees shall be carried out by the contractor. The cost of the same shall be borne by the Authority. The details of utilities are as follows:

Sr. No	Type of Utility	Unit	Quantity	Location/stretch (LHS/RHS)
A	Electrical Utilities			
A1	Electrical Poles (LT 3 phase composite / LT 3 phase line/11Kv / 33Kv)	Nos.	2604	-
A2	LT 3 phase composite / LT 3 phase line /11Kv / 33Kv Length	Circuit Km	111.07	-
A3	Transformer 25 kVA/63 Kva/100 Kva	Nos.	59	-
A4	HT lines (11kv & 33 kv) underground crossing location	Nos.	13	-
B	Water/Sewage pipeline	m	18000	

B1	Hand pumps	Nos.	0	00/00
B2	Water supply (Diff Dia. and Specification)	meters	18000	
C	Telephones & OFC			
C1	Telephones	Nos.	00	
C2	OFC	Nos	0	
D	Felling of Tress	Nos.	400	

The details of items/quantities/works to be executed for shifting of utilities is tentative. All works/quantities/ miscellaneous items to be executed at site as per detailed estimate of utility owning department, without any additional claim/Change of Scope.

13.3 **Any Other Lines-No.**

14. **Utility Duct: 30nos. (NP-4 class) of 1.0m dia. has been provided across the project** highway.

15. **Change of Scope**

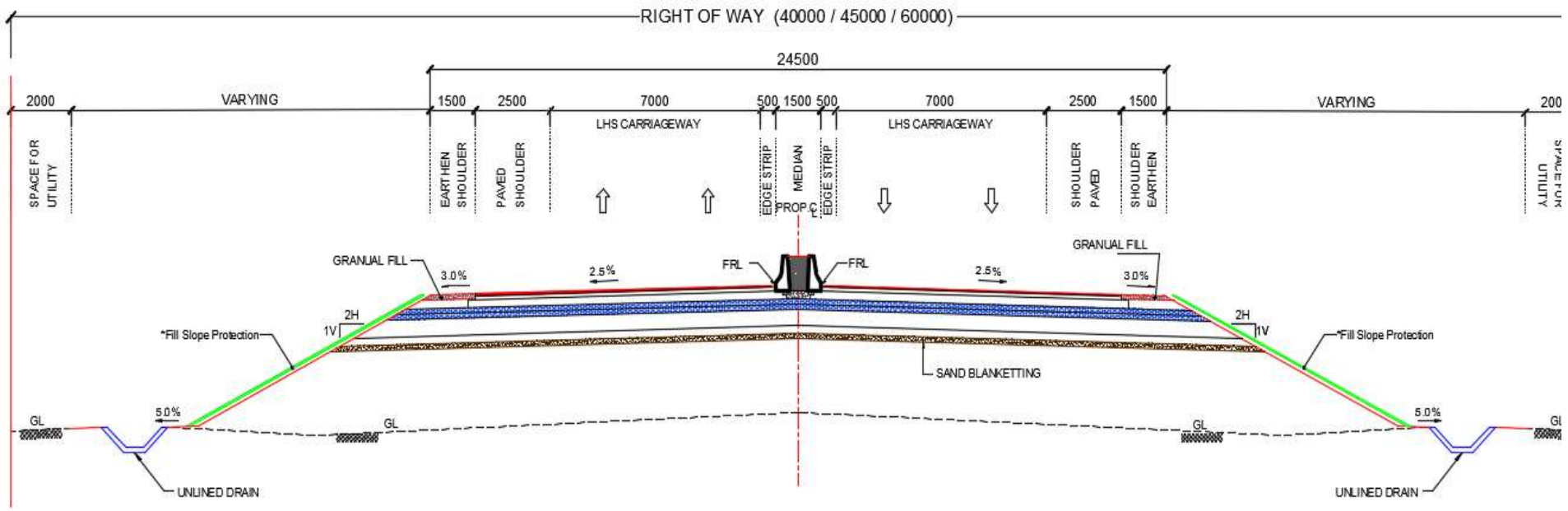
The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified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

APPENDIX B-I

Typical Cross Section Schedule

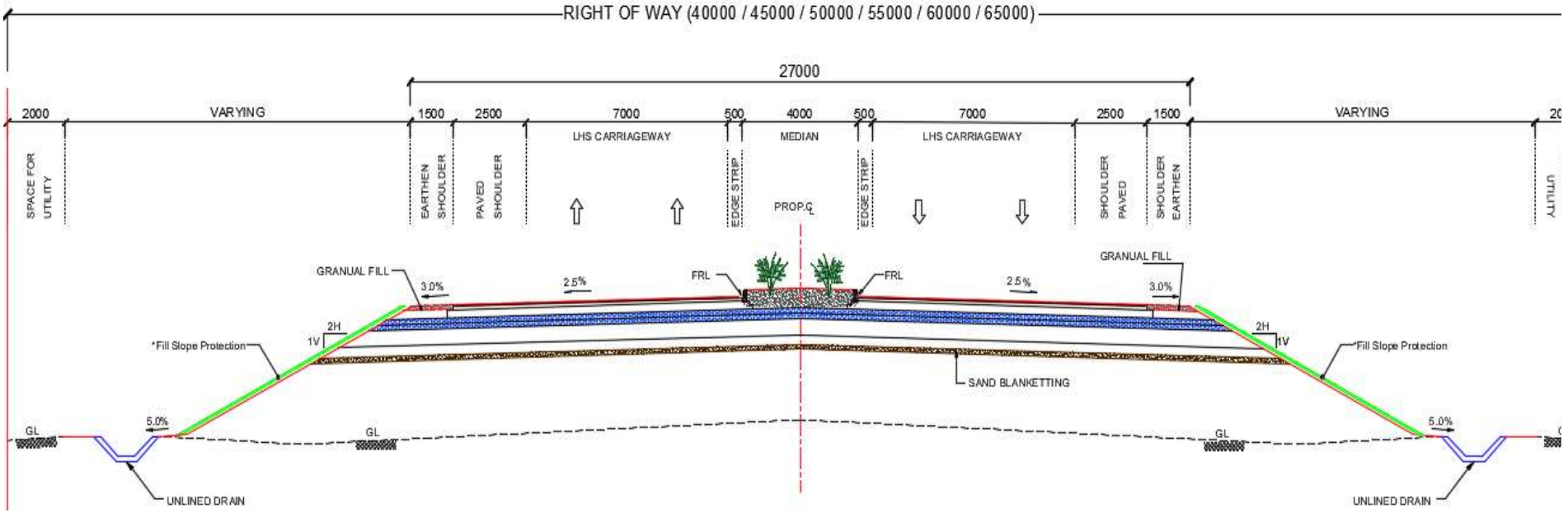
Chainage (m)		Length (m)	TCS Type	Remarks Description
From	To			
20+000	20+300	300	TCS 3	Follow Existing
20+300	21+420	1120	TCS 1	Follow Existing
21+420	22+375	955	TCS 10	New Alignment
22+375	26+160	3785	TCS 2	New Alignment
26+160	26+660	500	TCS 11	Follow Existing
26+660	27+140	480	TCS 10	New Alignment
27+140	30+970	3830	TCS 2	Follow Existing
30+970	32+060	1090	TCS 10	New Alignment
32+060	33+300	1240	TCS 2	New Alignment
33+300	33+860	560	TCS 12	Follow Existing

Chainage (m)		Length (m)	TCS Type	Remarks Description
From	To			
33+860	34+295	435	TCS 9	Follow Existing
34+295	34+900	605	TCS 3	Follow Existing
34+900	35+305	405	TCS 1	Follow Existing
35+305	36+190	885	TCS 10	New Alignment
36+190	37+985	1795	TCS 2	New Alignment
37+985	38+965	980	TCS 10	Follow Existing
38+965	39+600	635	TCS 2	New Alignment
39+600	40+380	780	TCS 12	Follow Existing
40+380	40+910	530	TCS 9	New Alignment
40+910	44+530	3620	TCS 2	New Alignment
44+530	45+430	900	TCS 9	New Alignment
45+430	47+070	1640	TCS 4	Follow Existing
47+070	47+360	290	TCS 9	New Alignment
47+360	47+460	100	TCS 5	New Alignment
47+460	47+620	160	TCS 7	New Alignment
47+620	47+780	160	TCS 6	New Alignment
47+780	47+850	70	TCS 7	New Alignment
47+850	47+970	120	TCS 6	New Alignment
47+970	48+320	350	TCS 8	New Alignment
48+320	49+040	720	TCS 13	New Alignment
49+040	49+360	320	TCS 6	New Alignment



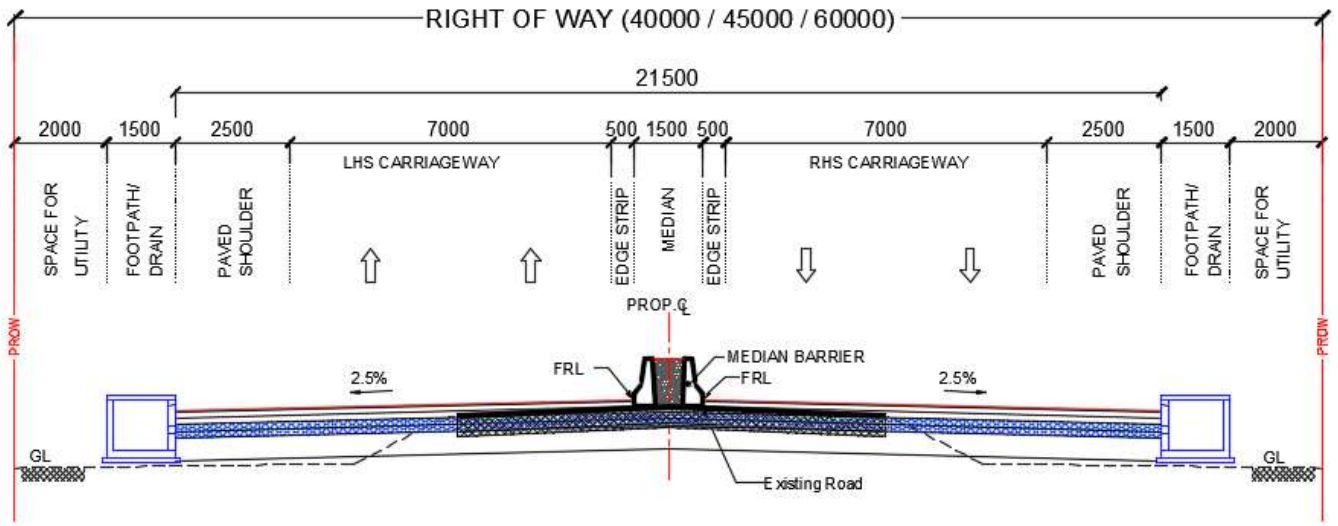
**Note: Anchoring of the blanket of natural geotextile made from coconut fibre reinforced with closely woven polymer nettings and seeds broadcasting on the treated site. For details refer standard drawing*

4-Lane Road with Paved and Earthen Shoulder with 2.5m raised median (TCS-1)

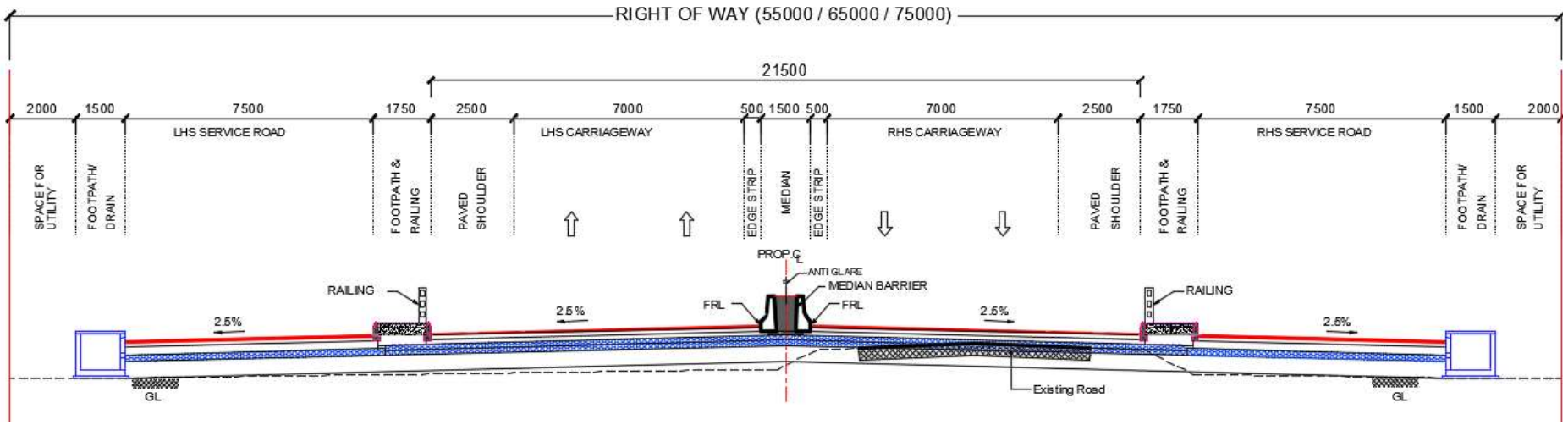


**Note: Anchoring of the blanket of natural geotextile made from coconut fibre reinforced with closely woven polymer nettings and seeds broadcasting on the treated site. For details refer standard drawing*

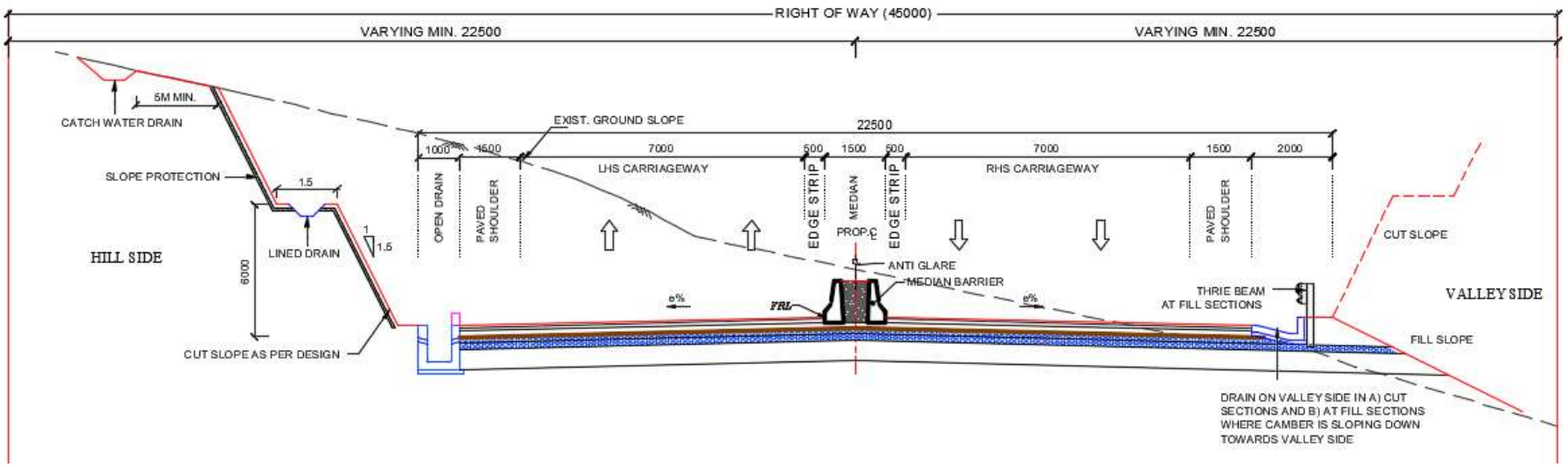
4-Lane Road with Paved and Earthen Shoulder in Rural Area with 5.0m raised median (TCS-2)



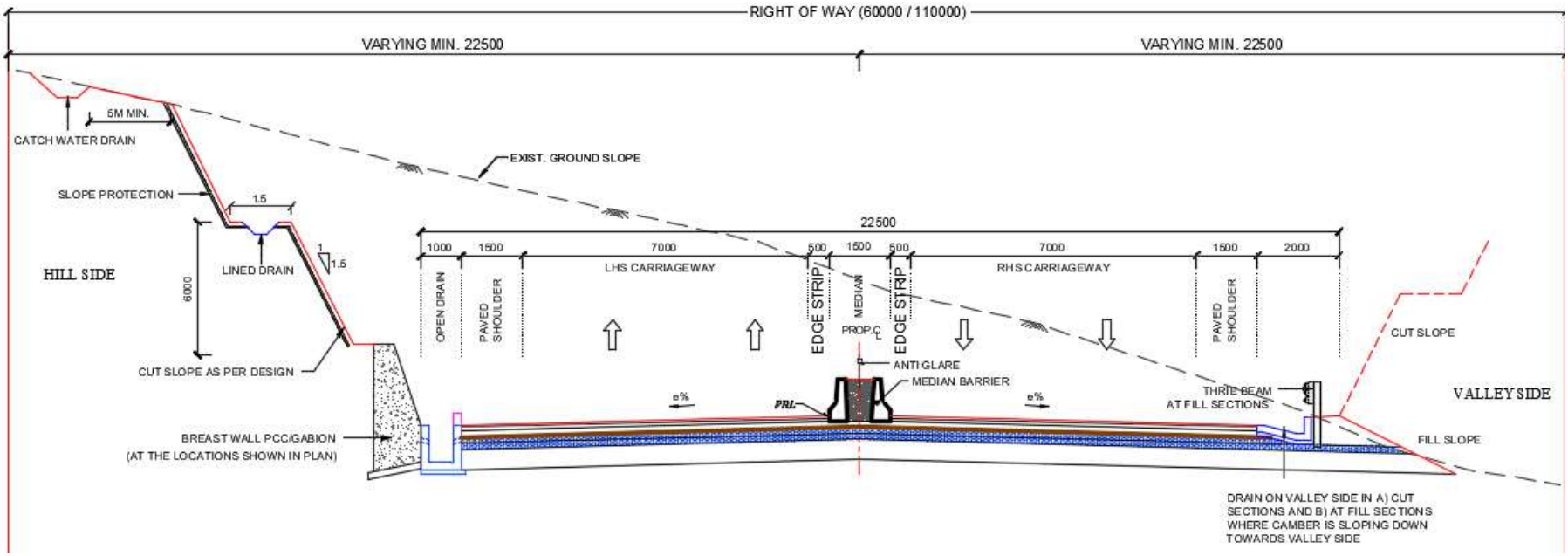
4 Lane with Paved Shoulder and RCC Drain on Both Side in Built-up Area along the Existing Road with 2.5 m Median (TCS-3)



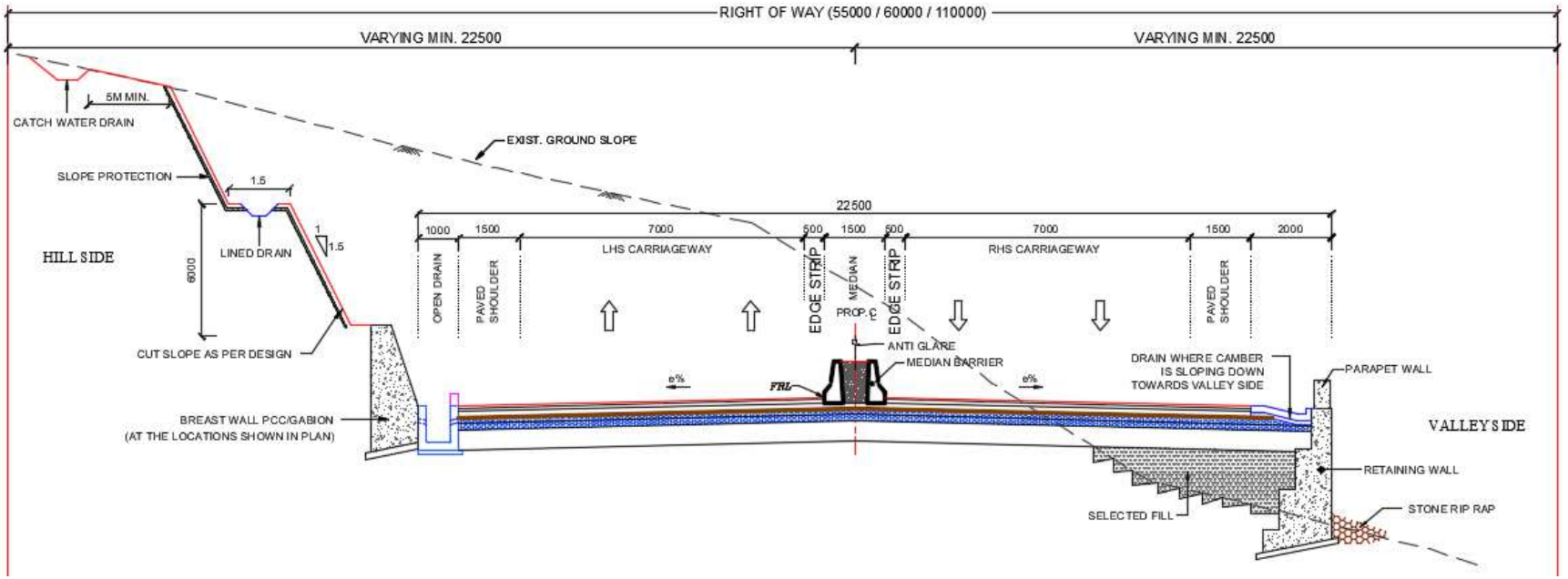
4 Lane with Paved Shoulder and 7.5m wide Service Road and RCC Drain on both side in Built-up Area along the Existing Road with 2.5m Median (TCS-4)



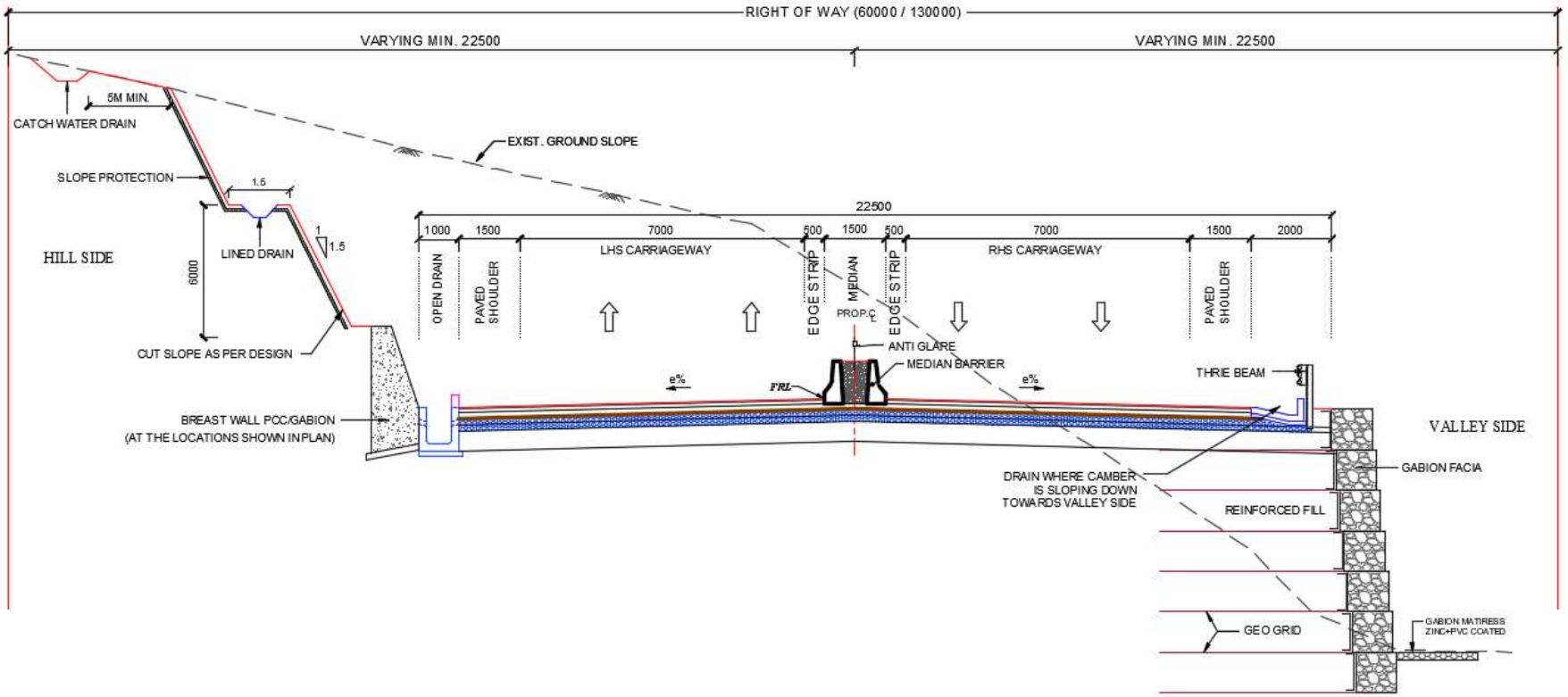
4-lane divided highway with Cut on Hill Side and Cut/Fill on Valley Side (TCS-5)



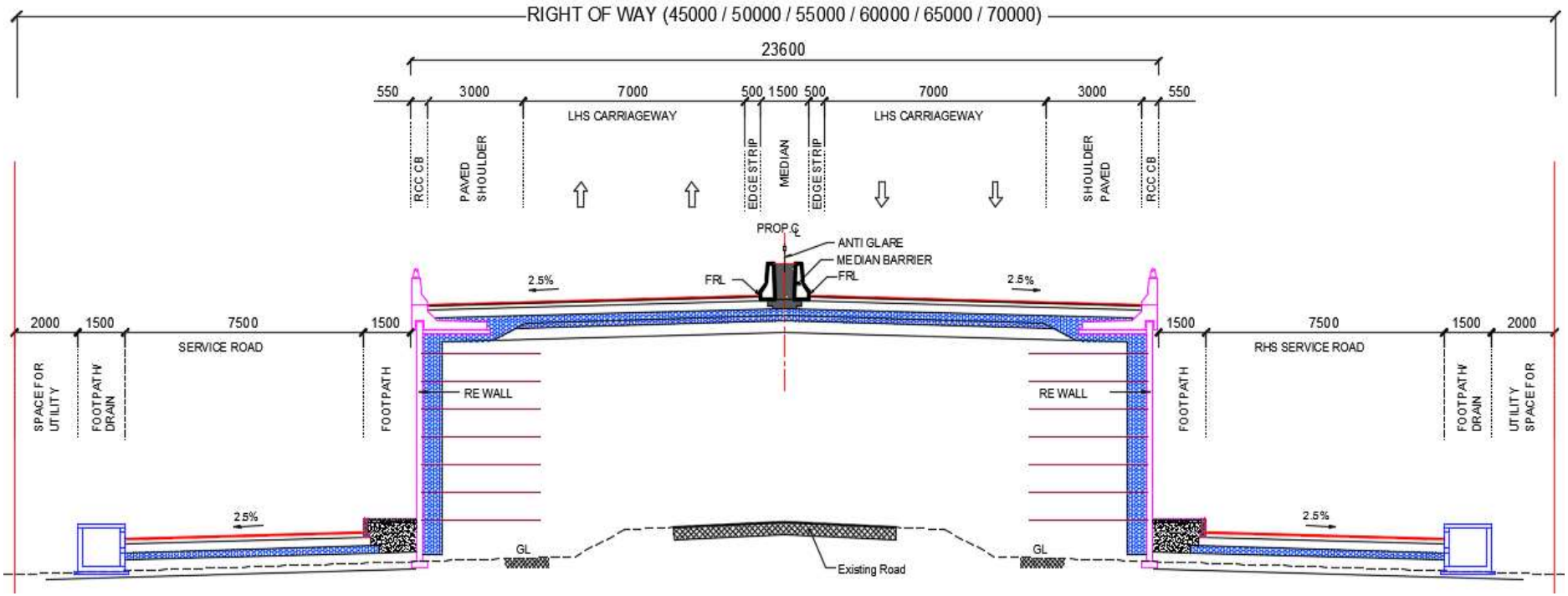
4-Lane divided highway with Breast Wall on Hill Side and Cut/Fill on Valley Side (TCS-6)



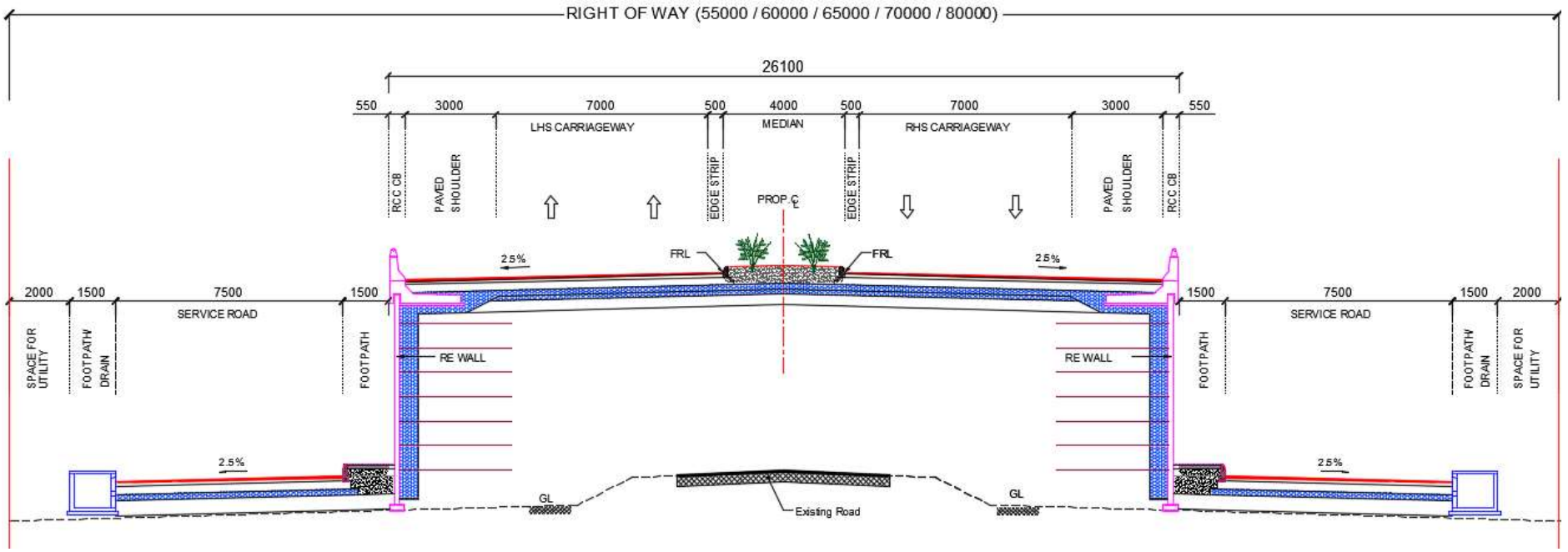
4-Lane divided highway with Breast Wall on Hill Side and Realignment wall on Valley Side (TCS-7)



4-Lane divided highway with Breast Wall on Hill Side and Reinforcement Soil Wall on Valley Side (TCS-8)

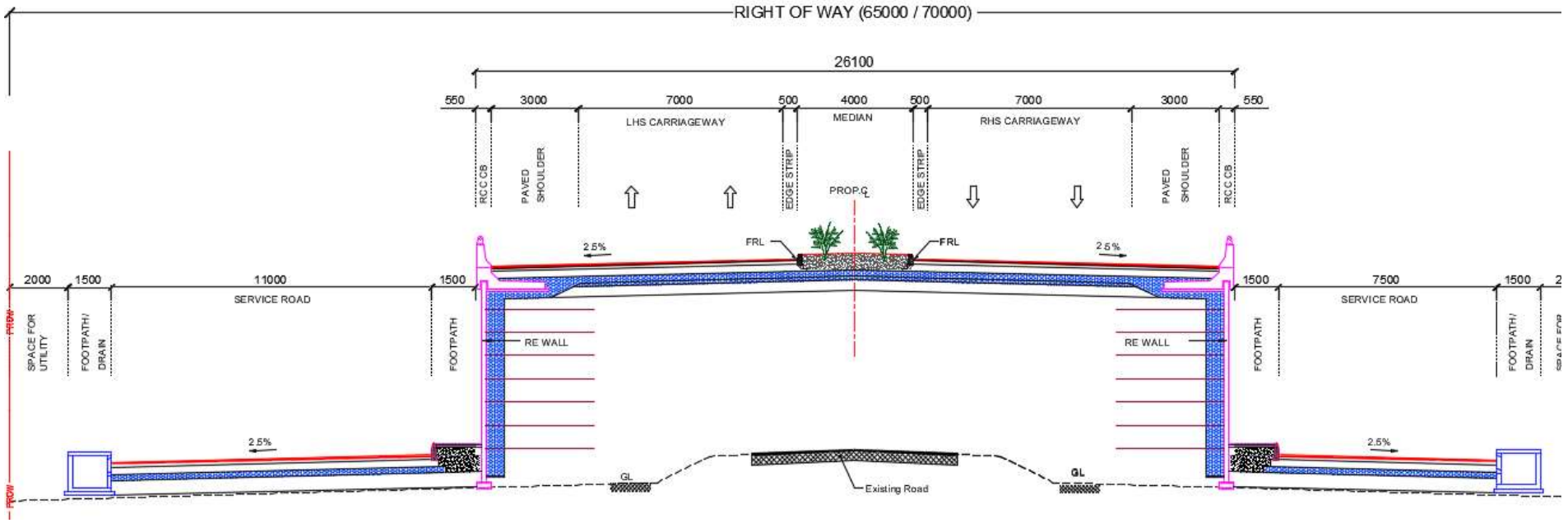


4-Lane Approaches of Grade separated structure with 7.5m wide Service Road and RCC Drain on both side with 2.5 m median (TCS-9)

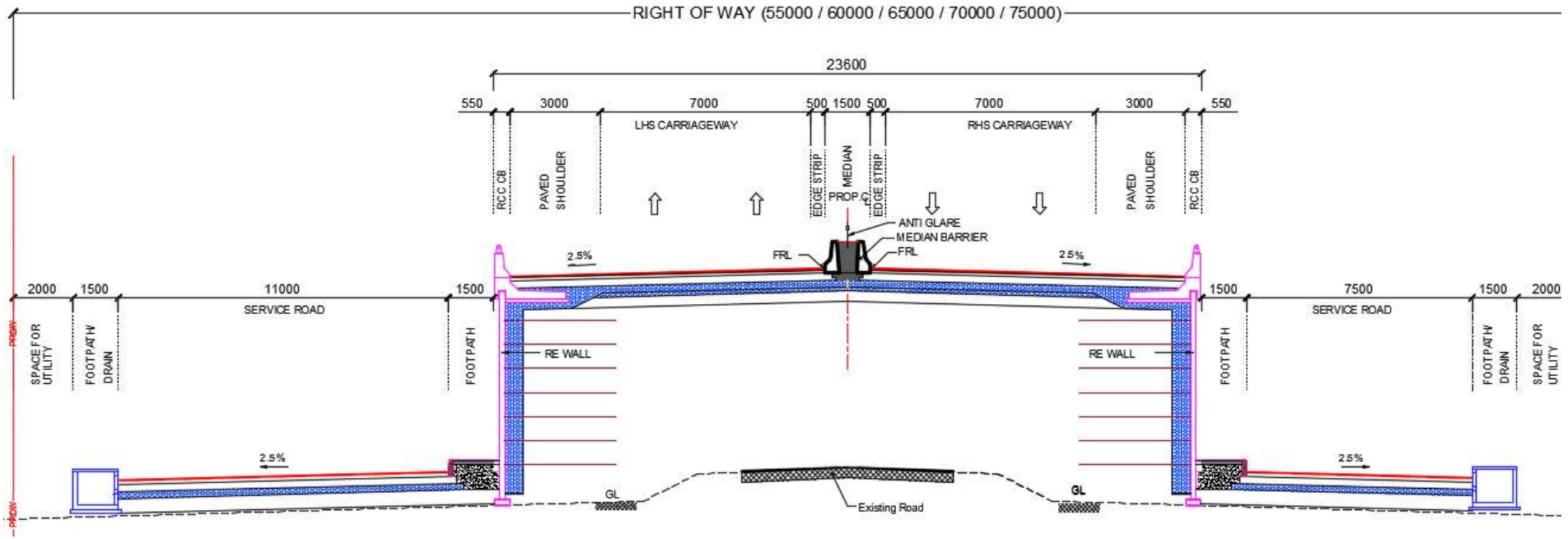


4-Lane Approaches of Grade separated structure with 7.5m wide Service Road and RCC Drain on both side with 5.0 m median (TCS-10)

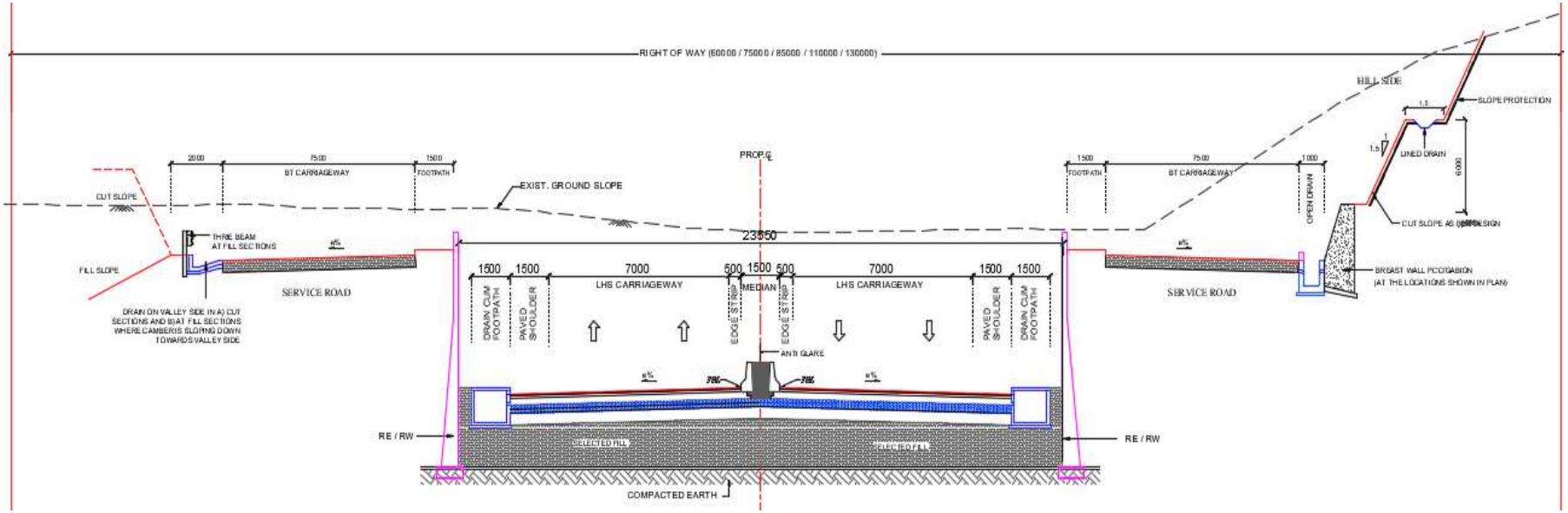
Four laning of Dhanehari–VairengteSecction (Package-2) from Existing Chainage km 12+920 to km 43+000of NH 306 (Design Chainage km 20+000 to km 49+360) on Silchar - Vairengte - Sairang road in the State of Assam under BharatmalaPariyojna on EPC mode.



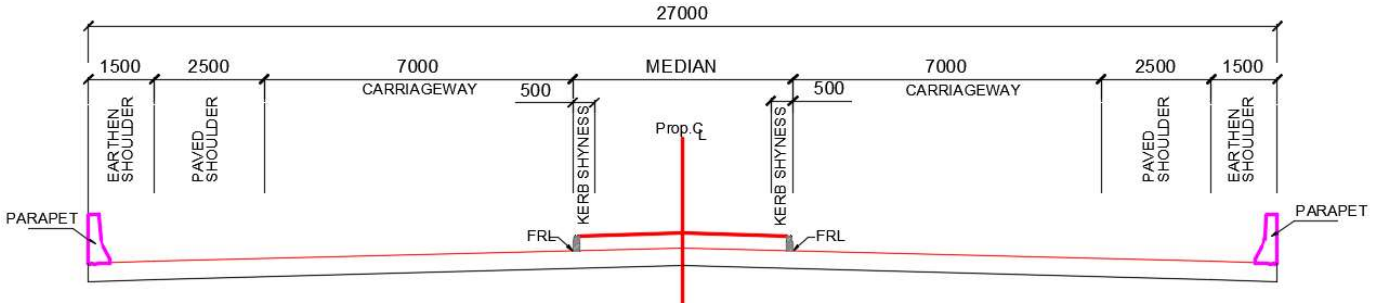
4 Lane Approaches of Grade separated structure with Service Road and RCC Drain on both side along Existing Road with 5.0 m Median (TCS-11)



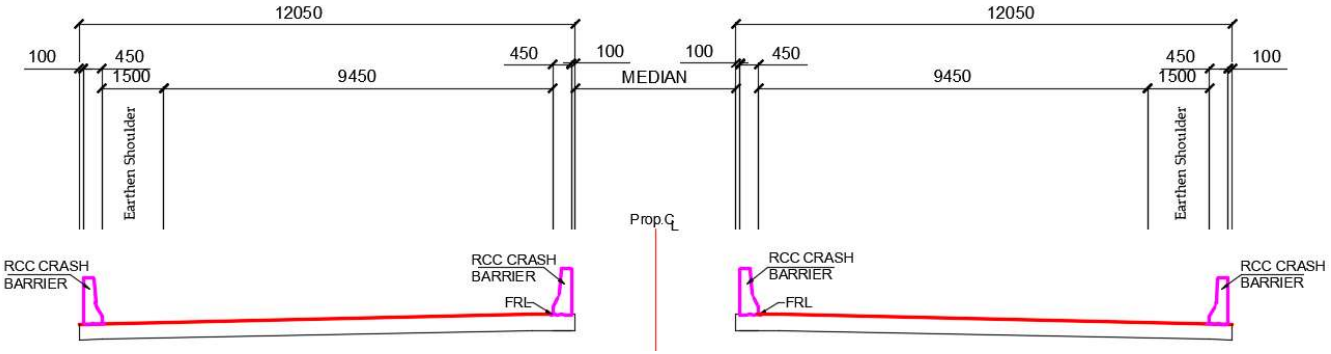
4 Lane Approaches of Grade separated structure with Service Road and RCC Drain on both side along Existing Road with 2.5 m Median (TCS-12)



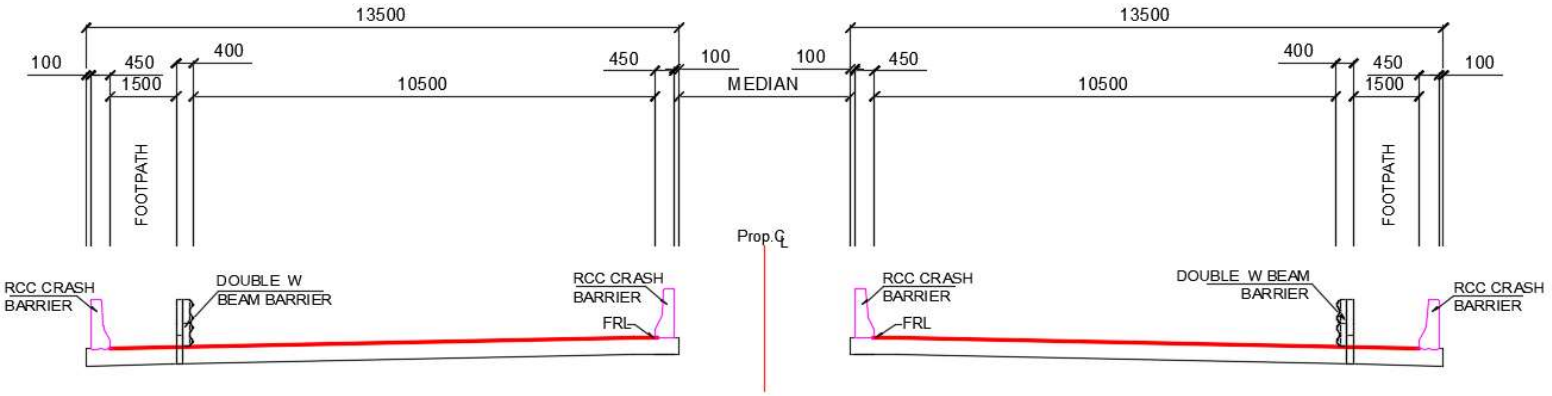
Lane Divided highway at VOP Approaches (TCS-13)



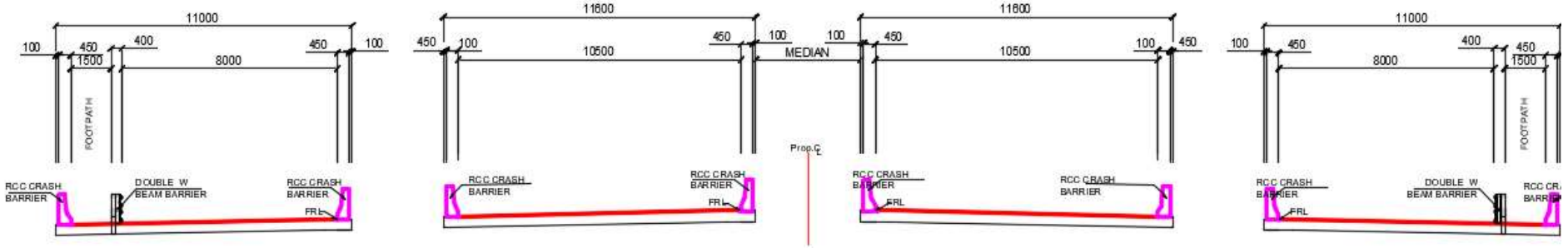
4-Lane Buired Culvert (Pipe and Slab) at road Level (TCS-14)



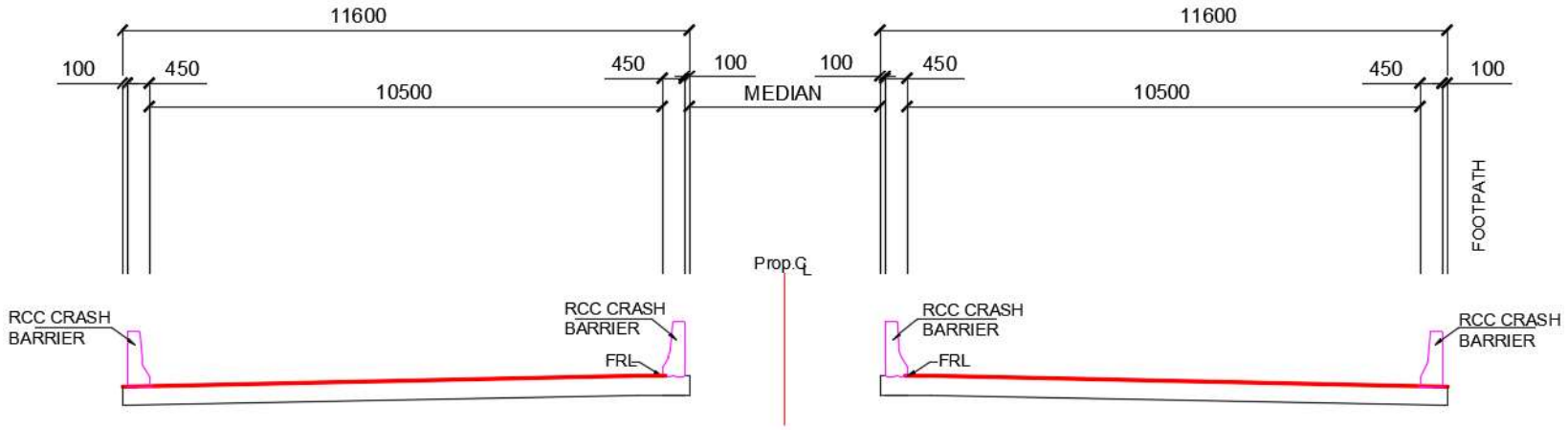
4-Lane Slab/ Box Culvert at Road Level (TCS-15)



4-Lane Bridge at Deck Level without Footpath (TCS-16)



4-Lane Bridge at Deck Level with Service Road and Footpath (TCS-17)



4-Lane Grade separated Structures at Deck level (TCS-18)