Public Private Partnership

In

Highway Development

Schedules

(Volume-III)

for

4 – laning of Phagwara- Rupnagar Section of NH-344A from Km 0.00 (Design Chainage) to Km 80.820 (Design Chainage) in the State of Punjab on Hybrid Annuity Mode

Hybrid Annuity Project

Government of India

February, 2016

SCHEDULE - A

SITE OF THE PROJECT

1. The Site

1.1 Site of the four-lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.

1.2 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 of this Agreement.

1.3 Additional land required for Toll Plazas, Traffic Aid Posts, Medical Aid Posts and vehicle rescue posts or for construction of works specified in the Change of Scope Order issued under Clause 16.2.3 of this Agreement shall be acquired in accordance with the provisions of Clause 10.3.6 of this Agreement. Upon acquisition, such land shall form part of the Site and vest in the Authority.

Annex-I

(Schedule-A)

Site for Project

The Project Highway shall be developed in Km 17.700 – Km 27.000 of SH-18, Km 4.8 – Km 55.10 of MDR-56 and Km 27.620 – Km 6.6 as detailed below:

The Project highway includes all the project assets & its development & augmentation in accordance with this agreement including all interchanges/ junction.

1. Site

The project road starts from junction with NH-1 and after traversing a length of about 80.635 km along NH-344A, the project road ends near km 6/600 of SH-24 before start of Ropar bypass. The project road will serve as a high speed link between NH-21 and NH-1.

2. Land

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

Road	Chainage (Km)		ROW	Land use (AG/BU/BA/SU)	Remarks
	From	To			
SH-18	17.700	18.000	50.000	Open Land	
	18.000	19.000	50.000	Agricultural	
	19.000	20.000	50.000	Agricultural	
	20.000	21.000	50.000	Semi Urban	
	21.000	22.000	50.000	Semi Urban	
	22.000	23.000	50.000	Semi Urban	
	23.000	24.000	50.000	Open Land	
	24.000	25.000	50.000	Semi Urban	
	25.000	26.000	50.000	Open Land	
	26.000	27.000	50.000	Semi Urban	Mehli
MDR-56	4.800	5.000	33.540	Agricultural	
	5.000	6.000	33.540	Semi Urban	Bahua
	6.000	7.000	33.540	Semi Urban	
	7.000	8.000	33.540	Agricultural	

Road	Chainage (Km)		ROW	Land use (AG/BU/BA/SU)	Remarks
	From	To			
	8.000	9.000	33.540	Semi Urban	Bahar Majra
	9.000	10.000	32.62-33.54	Builtup	Jasso Majra
	10.000	11.000	32.620	Agricultural	
	11.000	12.000	30-32.92	Agricultural	
	12.000	13.000	32.62-32.92	Builtup	Behram
	13.000	14.000	32.620	Semi Urban	
	14.000	15.000	32.62-35.06	Agricultural	
	15.000	16.000	34.44-35.06	Semi Urban	Malla Sodhian
	16.000	17.000	34.440	Agricultural	
	17.000	18.000	32.92-34.44	Builtup	Dhahan
	18.000	19.000	32.920	Semi Urban	Jindowal
	19.000	20.000	32.920	Semi Urban	Bhadowal
	20.000	21.000	32.920	Semi Urban	Majari
	21.000	22.000	32.92-33.53	Builtup	Banga
	22.000	23.000	33.530	Builtup	
	23.000	24.000	33.530	Builtup	
	24.000	25.000	43.58-33.53	Semi Urban	
	25.000	26.000	33.530	Agricultural	
	26.000	27.000	33.530	Agricultural	
	27.000	28.000	33.530	Semi Urban	Kahma
	28.000	29.000	33.530	Agricultural	
	29.000	30.000	33.530	Agricultural	
	30.000	31.000	33.530	Semi Urban	Kariha
	31.000	32.000	33.530	Agricultural	
	32.000	33.000	33.530	Agricultural	
	33.000	34.000	33.530	Builtup	Nawanshahr
	34.000	35.000	33.530	Builtup	

Road	Chainage (Km)		ROW	Land use (AG/BU/BA/SU)	Remarks
	From	To			
	35.000	36.000	19.000	Builtup	
	36.000	37.000	19.000	Builtup	
	37.000	38.000	19-33.53	Builtup	
	38.000	39.000	33.530	Semi Urban	
	39.000	40.000	33.530	Semi Urban	
	40.000	41.000	18.44-33.53	Semi Urban	
	41.000	42.000	18.440	Builtup	Langroy
	42.000	43.000	27.75-30.18	Semi Urban	
	43.000	44.000	27.750	Builtup	Naimajra
	44.000	45.000	27.750	Semi Urban	
	45.000	46.000	27.750	Semi Urban	
	46.000	47.000	27.750	Agricultural	
	47.000	48.000	27.750	Agricultural	
	48.000	49.000	27.750	Agricultural	
	49.000	50.000	27.750	Agricultural	
	50.000	51.000	43.290	Semi Urban	Garhi
	51.000	52.000	43.290	Semi Urban	
	52.000	53.000	43.290	Semi Urban	
	53.000	54.000	43.29-48	Semi Urban	
	54.000	55.000	48.000	Agricultural	
	55.000	55.100	48.000	Agricultural	
SH-24	27.620	27.000	48.000	Semi Urban	
	27.000	26.000	48.000	Semi Urban	
	26.000	25.000	35.21-48	Agricultural	
	25.000	24.000	35.21-38.56	Agricultural	
	24.000	23.000	36.2-58.68	Agricultural	
	23.000	22.000	36.2-58.68	Semi Urban	Sudha Majra
	22.000	21.000	35.36-55.33	Agricultural	

Road	Chainage (Km)		ROW	Land use (AG/BU/BA/SU)	Remarks
	From	To			
	21.000	20.000	35.21-48.62	Agricultural	
	20.000	19.000	35.21-40.24	Builtup	Chahal
	19.000	18.000	35.210	Agricultural	
	18.000	17.000	35.21-36.89	Semi Urban	Bharthala
	17.000	16.000	35.51-40.24	Semi Urban	Paniyali Kalan
	16.000	15.000	40.240	Semi Urban	Jamitgarh
	15.000	14.000	40.240	Semi Urban	
	14.000	13.000	40.24-53.33	Agricultural	
	13.000	12.000	35.21-67.07	Semi Urban	
	12.000	11.000	67.070	Semi Urban	Taunsa
	11.000	10.000	67.070	Semi Urban	
	10.000	9.000	67.070	Semi Urban	
	9.000	8.000	67.07-70.42	Builtup	Rail Majra
	8.000	7.000	57.01-70.42	Builtup	
	7.000	6.600	60.360	Builtup	

3. Carriageway

The existing highway has been developed to two lane with paved shoulder NH standards with generally 7m wide carriageway with 1.5m paved shoulder and 1.5-2.0 m earthen shoulder on either side. The type of the existing pavement is flexible as per following details:

Road	Chainage		Carriageway		Shoulder		
			Type #	Width (m)	Type #	Width (m)	
	From	To				LHS	RHS
SH-18	17.700	18.000	B.T	14	ES	2	2

Road	Chainage		Carriageway		Shoulder		
			Type #	Width (m)	Type #	Width (m)	
	From	To				LHS	RHS
	18.000	19.000	B.T	14	ES	2	2
	19.000	20.000	B.T	14	ES	2	2
	20.000	21.000	B.T	14	ES	2	2
	21.000	22.000	B.T	14	ES	2	2
	22.000	23.000	B.T	14	ES	2	2
	23.000	24.000	B.T	14	ES	2	2
	24.000	25.000	B.T	14	ES	2	2
	25.000	26.000	B.T	14	ES	2	2
	26.000	27.000	B.T	14	ES	2-3	2-2.7
MDR-56	4.800	5.000	B.T	13.9	Foot Path	2	2
	5.000	6.000	B.T	10.1	ES	1.2-1.5	1.5-1.8
	6.000	7.000	B.T	10	ES	1.5	1.5-2
	7.000	8.000	B.T	10	ES	1.4-1.5	1.5
	8.000	9.000	B.T	10	ES	1.5	1.5
	9.000	10.000	B.T	10-10.2	ES	1.5	1.5
	10.000	11.000	B.T	10	ES	1.5-2.5	1.5-2.2
	11.000	12.000	B.T	9.9-10	ES	1.5	1.5
	12.000	13.000	B.T	9.8-10.2	ES	1.5	1.6
	13.000	14.000	B.T	10	ES	1.5-1.6	1.5-1.6
	14.000	15.000	B.T	10	ES	1.5	1.5-1.8
	15.000	16.000	B.T	9.8-10	ES	1.5	1.5
	16.000	17.000	B.T	9.8-9.9	ES	1.5	1.5-1.8
	17.000	18.000	B.T	9.7-10	ES	1.5-1.7	1.5-2
	18.000	19.000	B.T	10	ES	1.5	1.5
	19.000	20.000	B.T	10	ES	1.5	1.5-2.5
	20.000	21.000	B.T	9.7-2 x 8.1	ES	1.2-1.5	1.6-1.8
	21.000	22.000	B.T	2 x 8.1	ES	1.5-2	1.5-2
	22.000	23.000	B.T	2 x 8.1- 2x 9	ES	2-2.7	1-2.5
	23.000	24.000	B.T	2 x 8.1- 2 x 8.5	ES	1.8-2	1-1.8
	24.000	25.000	B.T	9.7	ES	1.5	1.5
	25.000	26.000	B.T	9.8-10.2	ES	1.5	1.5
	26.000	27.000	B.T	9.7-10	ES	1.5	1.5
	27.000	28.000	B.T	10-10.2	ES	1.5	1.5-2.2

Road	Chainage		Carriageway		Shoulder		
			Type #	Width (m)	Type #	Width (m)	
	From	To				LHS	RHS
	28.000	29.000	B.T	10	ES	1-1.5	1.0-1.5
	29.000	30.000	B.T	9.9-10	ES	1.5	1.5
	30.000	31.000	B.T	10	ES	1.5	1.5
	31.000	32.000	B.T	9.8-10	ES	1.5	1.5
	32.000	33.000	B.T	10	ES	1.5	1.5
	33.000	34.000	B.T	9-10	ES	1.7-2	1.7-2
	34.000	35.000	B.T	2 x 7.8	Footpath	2-3	2-3
	35.000	36.000	B.T	2 x 7.8-2 x 9.15	Footpath	2-3	2-3
	36.000	37.000	B.T	2 x 7.8-2 x 9.15	Footpath	2-3	2-3
	37.000	38.000	B.T	2x7.5- 2x7.8	ES	1.5-2	1.8-2
	38.000	39.000	B.T	10	ES	1.5	1.5
	39.000	40.000	B.T	10	ES	1-1.5	1.4-1.5
	40.000	41.000	B.T	9.7-10	ES	1.2-1.5	1.5-1.6
	41.000	42.000	B.T	10	ES	1.5-1.8	1.5-1.8
	42.000	43.000	B.T	10	ES	1.5	1.5
	43.000	44.000	B.T	9.8-10	ES	1-1.5	1.5-2
	44.000	45.000	B.T	9.8-10	ES	1.5	1.5
	45.000	46.000	B.T	10	ES	1.5-2	1.8-2
	46.000	47.000	B.T	9.9-10	ES	1.5	1.2-1.5
	47.000	48.000	B.T	9.9-10	ES	1.5	1-1.2
	48.000	49.000	B.T	9.8	ES	1.5	1-1.5
	49.000	50.000	B.T	9.8	ES	1.5-2	1.8-2
	50.000	51.000	B.T	9.3-9.5	ES	1-1.5	1.5-1.8
	51.000	52.000	B.T	9.6-9.8	ES	0.5-1	0.5-1
	52.000	53.000	B.T	10	ES	1.5-1.6	1.5-1.8
	53.000	54.000	B.T	9.8-10.1	ES	1.5-1.6	1.5-2.8
	54.000	55.000	B.T	9.1-9.8	ES	1.5	1.5-2
	55.000	55.100	B.T	9.1-9.5	ES	1.5	1.5
SH-24	27.620	27.000	B.T	9.3-9.8	ES	2-2.5	1-2.5
	27.000	26.000	B.T	9.3-9.7	ES	2.5-3	2.5-3
	26.000	25.000	B.T	9.8-10	ES	2	1.9-2
	25.000	24.000	B.T	9.9-10	ES	2.5	1.8-2
	24.000	23.000	B.T	9.9-10	ES	2	2.1
	23.000	22.000	B.T	10	ES	2	2-2.5
	22.000	21.000	B.T	10	ES	2	1.5-2

Road	Chainage		Carriageway		Shoulder		
			Type #	Width (m)	Type #	Width (m)	
	From	To				LHS	RHS
	21.000	20.000	B.T	10	ES	1.5-2	1.5
	20.000	19.000	B.T	10-10.1	ES	1.5-2	2
	19.000	18.000	B.T	10-10.2	ES	Sr-2.5	2.5
	18.000	17.000	B.T	10-10.2	ES	1.4-2	1.8-2
	17.000	16.000	B.T	10-12.5	ES	1.5-2	1.5
	16.000	15.000	B.T	10	ES	1.5-2	1.5-2
	15.000	14.000	B.T	10	ES	1.5-2	1.5-2
	14.000	13.000	B.T	10	ES	1.5	1.5
	13.000	12.000	B.T	10-10.4	ES	1.5-2.5	1.5-2
	12.000	11.000	B.T	9.7-10	ES	1.7-3	1.7-3
	11.000	10.000	B.T	10-10.2	ES	2-2.5	1.8-2
	10.000	9.000	B.T	9.1-10.1	ES	2	2-3
	9.000	8.000	B.T	8.9-10.1	ES	2	2
	8.000	7.000	B.T	9-10.1	ES	2-3	2-3
	7.000	6.600	B.T	12.5	ES	2.5	2.5

4. Service Road

The details of Service Road are given below:

S. No.	Existing Chainage		Width (m)	Length (Km)	Sides	Remarks
	From	To				
Nil						

5. Major Bridges

The Site includes the following major bridges:

Road	Location (Chainage)	Type of Structure			Span or Viaduct Arrangement	Width of Carriageway between kerbs (m)
		Super Structure	Sub Structure	Foundation	Number of Spans x Length of Span (m)	
MDR-56	54+721	Solid Slab	Wall	Open	13x5.3	12.4

6. Road over bridges (ROB)/ Road under bridges (RUB)

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

Sr. No.	Chainage (Km)	Type of Structure	No. of Spans with span Length(m)	Width (m)
NIL				

7. Grade Separators

The Site includes the following Grade Separators:

Sr. No.	Chainage (Km)	Type of Structure		No. of Spans with span Length(m)	Width (m)
		Foundation	Superstructure		
NIL					

8. Minor Bridges

The Site includes the following minor bridges

Road	Location (Chainage)	Type of Structure			Span or Viaduct Arrangement			Width of Carriage way between kerbs (m)
		Super Structure	Sub Structure	Foundation	Number of Spans	Skew	Length of Span (m)	
MDR-56	31+470 (MDR-56)	Solid Slab	Wall	Open	2	28.4°	4.9	12.4m
MDR-56	39+884	Solid Slab	Wall	Open	3		6.9	13.1 m
MDR-56	43+441	Solid Slab	Wall	Open	3	50.89°	9.4	12.3 m
MDR-56	53+300	Box	Box	Open	7		3.9	12.1 m
MDR-56	54+573	Arch	Wall	Open	3		15.5	15.1 m
MDR-56	54+721	Solid Slab	Wall	Open	13		5.3	11.2 m
SH-24	24+731 (SH-24)	T girder	Wall	Open	1		18	14.8 m
SH-24	23+814	T girder	Arch	Open	1		24.4	14.0 m
SH-24	22+645	Continuous Slab	Wall	Pile	1		39.5	14.3 m
SH-24	21+409	T girder	Box	Open	1		35	14.0 m
SH-24	18+881	Solid Slab	Wall	Open	4		2x11+10.8+11	10.5 m

Road	Location (Chainage)	Type of Structure			Span or Viaduct Arrangement			Width of Carriage way between kerbs (m)
		Super Structure	Sub Structure	Foundation	Number of Spans	Skew	Length of Span (m)	
SH-24	17+583	Solid Slab	Wall	Open	1		11	14.4 m
SH-24	16+231	Continuous Slab	Wall	Open	RHS - 5 LHS - 3		RHS - 4.3 LHS - (11+12. 8+11)	13.85 m
SH-24	15+676	T- girder	Wall	Open	1		18	12 m
SH-24	15+269	Solid Slab	Wall	Open	RHS - 7 LHS - 5		RHS - 4.3 LHS - (10+8.2 +4.3+8. 2+10)	14.5 m
SH-24	14+505	Slab	Wall	Open	RHS - 3 LHS - 3		RHS - 4.3 LHS - (7.7+4.2 +7.7)	14.15 m
SH-24	13+227	Slab	Wall	Open	RHS - 4LHS - 3		RHS - 4.1LHS - 8.0	14.4 m
SH-24	13+039	Slab	Wall	Open	RHS - 3 LHS - 1		RHS - 3.6 LHS - 18.6	14.4 m
SH-24	12+393	Slab	Wall	Open	RHS - 3 LHS - 3		RHS - 4.3 LHS - (7.2+4.2 +7.2)	14.3 m
SH-24	10+588	Slab	Wall	Open	1		7.3	14.2 m
SH-24	9+786	Slab	Wall	Open	RHS - 4 LHS - 3		RHS - 4.1 LHS - 8.9	14 m
SH-24	8+764	RCC Girder	Wall	Open	1		13	14 m
SH-24	7+353	Solid Slab	Wall	Open	1		8.9	14.45 m

9. Railway Level Crossings

The Site includes the following level crossing:

Sr. No.	Location (Km)	Remarks
1	34+647	Nawanshahr

10. Underpasses (Vehicular, Non Vehicular)

The Site includes the following underpasses:

Sr. No.	Chainage (Km)	Type of Structures	No. of Spans X Span length (m)	Width (m)
NIL				

11. Urban/ Semi-urban/ Builtup Sections

The details of Urban/ Semi-urban/ Builtup Sections are given below:

Existing Chainage		Remarks
From	To	
26+312	27+000	Mehli
5+000	5+609	Bahua
7+700	8+250	Bahar Majara
9+100	9+700	Jasso Majra
12+200	13+400	Behram
14+950	15+300	Malla Sodian
16+875	18+150	Dhahan
19+650	20+150	Mazari
20+991	23+995	Banga
25+900	26+400	Khatkar Kalan
27+250	27+774	Kahma
30+100	30+800	Kariha
33+000	38+500	Nwanshahr
40+500	41+800	Langroya
43+850	44+100	Nai Mazara
50+500	51+250	Garhi

27+902	27+204	Balachaur
23+200	22+850	Sudha Majra
19+300	19+050	Kathgarh
18+000	17+750	Bharthala
17+750	16+000	Panayli Khurd
16+000	15+000	Jamitgarh
12+000	11+000	Taunsa
11+000	6+600	Rail Majra

12. Major Junctions

The details of major junctions are as follows:

Sr No	Location (Existing)	At Grade	Separated	Category of Cross Road
1	17+700 of SH-18	At Grade		NH-1
2	21+900 of SH-18	At Grade		Phagwara- Mohali Expressway
3	27+000 of SH-18	At Grade		Phagwara Bypass
4	35+740 of MDR-56	At Grade		To Grahshankar Road
5	47+810 of MDR-56	At Grade		Rahon- Jadla Road
6	51+600 of MDR-56	At Grade		Balachaur Expressway
7	27+620 of SH-24	At Grade		SH -24 and MDR-56 intersection

13. Minor Junctions

The details of the minor junctions are as follows:

Sr. No.	Location (Existing)	Type		Leading to
		Junction Type	Cross Road	
1	18+229	X	Village	Nangal Majra
2	18+807	X	Village	Village Road
3	20+226	X	Village	Palahi, Phagwara
4	22+205	Y	Village	Village Road
5	22+658	X	Village	Bhulla Rai, Dana Mandi
6	23+948	X	Village	Purewal Nagar
7	24+306	Y	Village	Shastri Nagar

Sr. No.	Location (Existing)	Type		Leading to
		Junction Type	Cross Road	
8	24+579	X	Village	Gurunanak Nagar, Sukhchain Nagar
9	25+507	X	Village	Gonspur
10	5+948	T	Village	Bahua
11	6+171	Y	Village	Village Road
12	6+697	Y	Village	Village Road
13	7+944	Y	Village	Village Road
14	7+875	Y	Village	Village Road
15	8+143	T	Village	Kultham
16	8+572	Y	Village	Chak Mander
17	8+830	X	Village	Chak Mander, Kultham
18	9+189	Y	Village	Jasso Majra
19	9+410	X	Village	Jasso Majra, Sarhala Ranuan
20	9+448	Y	Village	Jasso Majra
21	10+379	Y	Village	Chak Mai das
22	12+123	Y	Village	Behram
23	12+456	Y	Village	Behram
24	12+520	Y	Village	Behram
25	12+625	Y	Village	Behram
26	12+885	Y	Village	Behram
27	12+995	Y	Village	Behram
28	13+046	Y	Village	Behram
29	13+133	Y	Village	Behram
30	13+835	T	Village	Chak Bilgan
31	14+988	Y	Village	Malla Sodhian
32	15+166	Y	Village	Malla Sodhian
33	15+283	Y	Village	Malla Sodhian
34	15+936	Y	Village	Lalpur
35	16+275	Y	Village	Bisla
36	17+061	Y	Village	Dhahan
37	17+815	Y	Village	Kaleran
38	18+591	Y	Village	Mallu Potta
39	19+887	X	Village	Mazari
40	20+022	Y	Village	Mazari
41	20+348	X	Village	Village Road

Sr. No.	Location (Existing)	Type		Leading to
		Junction Type	Cross Road	
42	20+394	Y	Village	Village Road
43	21+161	Y	Town	Banga
44	21+237	Y	Town	Banga
45	21+413	Y	Town	Banga
46	21+535	Y	Town	Banga
47	21+722	X	Town	Banga
48	22+160	X	Town	Banga
49	22+329	X	Town	Banga
50	22+620	Y	Town	Banga
51	22+826	Y	Town	Banga
52	23+556	X	Town	Banga
53	23+995	Y	Town	Banga
54	24+167	Y	Town	Village Road
55	25+325	X	Village	Village Road
56	26+053	X	Village	Khatkar Kalan
57	26+230	Y	Village	Khatkar Kalan
58	26+766	X	Village	Khatkar Kalan, Bhoot
59	27+434	X	Village	Kahma, Bhoot
60	27+891	Y	Village	Kahma
61	28+167	X	Village	Kahma
62	29+122	Y	Village	Kahma
63	29+314	X	Village	Bainsa, Kariha
64	30+261	X	Village	Malpur Arkan, Kariha
65	30+660	Y	Village	Malpur Arkan
66	30+885	Y	Village	Kariha
67	32+075	Y	Village	Village Road
68	42+777	X	Village	Sajwalpur
69	43+329	Y	Village	Sanawa
70	43+433	Y	Village	Village Road
71	43+692	Y	Village	Kishanpura
72	43+863	Y	Village	Nai Majara
73	44+120	Y	Village	Daulatpur
74	44+313	Y	Village	Village Road
75	45+208	X	Village	Daulatpur, Jadla
76	45+574	X	Village	Daulatpur, Jadla
77	46+302	X	Village	Jadli, Jadla

Sr. No.	Location (Existing)	Type		Leading to
		Junction Type	Cross Road	
78	47+799	Y	Village	Village Road
79	48+354	X	Village	Thathiala Dhaha, Birowal
80	49+247	Y	Village	Garle
81	26+257	X	Village	Balachaur, Sojowal
82	23+849	X	Village	Lohat, Lohgarh
83	23+133	Y	Village	Village Road
84	19+741	X	Village	Jalalpur
85	19+096	Y	Village	Katgarh
86	18+089	Y	Village	Village Road
87	17+953	Y	Village	Bharthala
88	17+911	T	Village	Village Road
89	17+529	Y	Village	Village Road
90	16+668	Y	Village	Panayali Kalan
91	16+208	X	Village	Panayali Khurd
92	16+060	Y	Village	Panayali Khurd
93	15+365	T	Village	Jamitgarh
94	14+840	X	Village	Majra Jathan
95	14+070	T	Village	Village Road
96	13+190	Y	Village	Fatepur
97	12+507	Y	Village	Village Road
98	11+967	X	Village	Tanusa
99	11+091	Y	Village	Dana Mandi
100	9+624	X	Village	Majra

14. Toll Plaza

There is no toll plaza at site.

15. Existing Median Width

S. No.	Existing Chainage		Width (m)	Remark
	From	To		
1	17+700 (SH-18)	27+000 (SH-18)	4.5	
2	21+000 (MDR-56)	24+000 (MDR-56)	1.2	
3	34+500	38+000	1.5	

16. Culverts

The Site has the following culverts:

S.No	Location (Chainage)	Type of Structure	Span Arrangement		Width of Culvert	
			Number of Spans	Overall Width of Span (m)	Total (m)	Carriageway (m)
1	18+627	Slab	1	1.5	23.7	14
2	19+025	Pipe	1	0.3 ϕ	24.8	14
3	19+120	Slab (Skew)	1	7.5	41.1	14
4	19+357	Pipe	1	0.3 ϕ	24.8	14
5	19+549	Slab (Skew)	1	1.9	27.3	14
6	19+648	Slab (Skew)	1	7.3	26.6	14
7	20+029	Slab	1	1.3	24.4	14
8	20+137	Slab	1	1	24.8	14
9	20+194	Slab	1	1.3	23.1	14
10	20+731	Slab	1	1.3	24.5	14
11	21+400	Slab	1	1.5	24.5	14
12	21+755	Slab	1	1.5	24.6	14
13	22+200	Pipe	1	0.3 ϕ	24.9	
14	22+500	Slab (Skew)	1	1.5	29.1	14
15	22+600	Pipe	1	0.6 ϕ	25.8	14
16	23+152	Slab	1	1.2	22.5	14
17	23+735	Slab	1	1.2	23.1	14
18	23+970	Pipe	1	0.4 ϕ	25.5	14
19	24+298	Slab	1	1.2	23	14
20	24+560	Slab	1	1.2	23.5	14
21	24+820	Pipe	1	0.4 ϕ	22.7	14
22	25+882	Slab	1	2.3	22.3	14
23	26+318	Pipe(Skew)	1	0.35 ϕ	30.9	20.5
24	26+384	Slab	1	1.5	22	14
25	26+760	Pipe	1	0.4 ϕ	21.95	14
26	6+150 (MDR-56)	Slab	1	2.3	13.6	10
27	9+403	Slab	1	1.5	12.6	10
28	10+318	Slab	1	3.8	13	10
29	12+615	Slab	1	6	13.6	10
30	12+705	Slab	1	3.8	13.6	10
31	13+615	Slab	1	2.3	13.5	9.5
32	13+935	Slab	1	3.8	13.3	9.5

S.No	Location (Chainage)	Type of Structure	Span Arrangement		Width of Culvert	
			Number of Spans	Overall Width of Span (m)	Total (m)	Carriageway (m)
33	14+010	Slab	2	1x3.2 + 1x3.8	13.7	9.5
34	15+135	Pipe	1	0.6 ϕ	14.1	9.9
35	17+122	Slab	2	1x3.2 + 1x3.8	14.9	10
36	20+607	Pipe	1	0.6 ϕ	15.5	10
37	26+088	Slab	1	3	14.3	10
38	27+465	Slab	1	3	13.1	9.5
39	32+580	Slab	1	2	13.3	9.5
40	34+200	Slab	1	1.7	13.1	9.5
41	34+425	Slab	1	3.8	13.1	9.5
42	39+050	Pipe			12.85	9.25
43	39+785	Slab	1	3.4	12.85	9.25
44	40+033	Slab	1	3.8	12.85	9.25
45	40+085	Slab (Skew)	1	6	18.15	10.46
46	40+111	Slab	1	3.5	13.25	9.25
47	41+300	Slab	1	1.2	11.3	9.9
48	43+713	Slab	1	3.7	13.05	9.25
49	43+828	Slab	2	1x 3.3+ 1x 3.7	13.95	9.25
50	46+548	Slab	1	1.8	13.05	9.25
51	47+350	Slab	1	1.8	12.85	9.25
52	47+624	Slab	1	1.8	12.85	9.25
53	47+822	Slab	1	1.8	12.85	9.25
54	48+156	Slab	1	1.8	12.85	9.25
55	48+437	Slab	1	1.8	12.85	9.25
56	48+690	Slab	1	1.8	13.05	9.25
57	48+811	Slab	1	1.8	13.05	9.25
58	48+955	Slab	1	2.3	12.85	9.25
59	50+800	Slab	1	2.5	13.75	9.25

S.No	Location (Chainage)	Type of Structure	Span Arrangement		Width of Culvert	
			Number of Spans	Overall Width of Span (m)	Total (m)	Carriageway (m)
60	50+840	Pipe	1	1.0 ϕ	13.5	9.6
61	50+910	Pipe	1	1.0 ϕ	14.3	9.29
62	52+963	Arch	1	1.5m	12.25	9.25
63	53+050	Pipe	1	0.3 ϕ	12.25	9.25
64	53+687	Pipe	1	0.450ϕ	14.75	9.25
65	53+913	Pipe	1	0.450 ϕ	14.75	9.25
66	54+357	Pipe	1	0.6 ϕ	17.25	9.25
67	54+457	Pipe	1	0.6 ϕ	17.25	9.25
68	22+173 (SH-24)	Pipe	1	1.0 ϕ	12	7.2
69	21+964	Pipe	1	1.0 ϕ	12.13	7.5
70	21+857	Pipe	1	1.0 ϕ	11.8	7.2
71	21+763	Pipe	1	1.0 ϕ	12.2	7.3
72	17+945	Pipe	1	0.45 ϕ	12.5	7.4
73	17+410	Pipe	1	0.45 ϕ	12.9	7.5
74	6+900	Pipe	1	0.6 ϕ	12.5	8.5

17. Road Side drains

The details of the roadside drains are as follows:

Sr. No.	ROAD	Location		Type	
		From (Km)	To (Km)	Masonry/cc (Pucca)	Earthern (Kucha)
1	MDR-56	17+700	18+192		Earthern (Kucha)
2	MDR-56	20+830	25+799		Earthern (Kucha)
3	MDR-56	12+467	12+601		Earthern (Kucha)
4	MDR-56	21+186	21+714		Earthern (Kucha)
5	MDR-56	21+619	22+081		Earthern (Kucha)

Sr. No.	ROAD	Location		Type	
		From (Km)	To (Km)	Masonry/cc (Pucca)	Earthern (Kucha)
6	MDR-56	21+880	22+226		Earthern (Kucha)
7	MDR-56	22+167	23+484		Earthern (Kucha)
8	MDR-56	22+280	22+348		Earthern (Kucha)
9	MDR-56	22+377	22+662		Earthern (Kucha)
10	MDR-56	22+734	23+629		Earthern (Kucha)
11	SH-24	15+502	15+395		Earthern (Kucha)
12	SH-24	11+670	11+534		Earthern (Kucha)
13	SH-24	11+511	11+383		Earthern (Kucha)
14	SH-24	11+369	11+096		Earthern (Kucha)
15	SH-24	11+088	10+925		Earthern (Kucha)
16	SH-24	10+909	10+712		Earthern (Kucha)
17	SH-24	8+731	8+687		Earthern (Kucha)
18	SH-24	8+668	8+516		Earthern (Kucha)

18. Bypasses

The details of the bypasses are as follows:

Sr. No.	Name of bypass (Town)	Chainage		Length (Km)	Carriageway	
		From	To		Width (m)	Type
1	Phagwara	17+685	27+000	9.315	19.047	Bitumen

19. Other Structures

Following are the details of existing median drainage structure:

Sr. No.	Chainage (Km)	Structure Type	Openings/ Spans X Length (m)	Width (m)
1	18+200	Pipe	1 x 0.3	17.5
2	18+487	Pipe	1 x 0.6	24.6
3	18+800	Pipe	1 x 0.3	17.7
4	19+500	Pipe	1 x 0.3	13.5
5	19+600	Pipe	1 x 0.3	15

Sr. No.	Chainage (Km)	Structure Type	Openings/ Spans X Length (m)	Width (m)
6	19+670	Pipe	1 x 0.3	12.8
7	19+900	Pipe	1 x 0.3	13
8	20+170	Pipe	1 x 0.3	13.8
9	20+200	Pipe	1 x 0.3	13.8
10	21+100	Pipe	1 x 0.3	14

20. Referencing System

The details of referencing system width are given below:

Sr. No.	Existing Chainage (Km)	Existing Road	Design Chainage (Km)	Remark
1	17.685	SH-18	0.000	
2	18.000		0.315	
3	19.000		1.315	
4	20.000		2.315	
5	21.000		3.315	
6	21.500		3.815	
7	22.500		4.815	
8	23.000		5.300	
9	24.000		6.300	
10	25.000		7.300	
11	26.000		8.300	
12	26.500		8.812	Mehli
13	27.000		9.312	
14	5.000	MDR-56	9.312	Bahua
15	5.600		9.915	
16	6.000		10.310	
17	7.000		11.310	
18	8.000		12.310	Bahar Majra
19	9.000		13.310	Jasso Majra
20	10.000		14.310	
21	11.000		15.310	

Sr. No.	Existing Chainage (Km)	Existing Road	Design Chainage (Km)	Remark
22	12.000		16.310	Behram
23	13.000		17.310	
24	14.000		18.310	
25	15.000		19.310	Malla Sodhian
26	16.000		20.310	
27	17.000		21.310	Dhahan
28	18.000		22.310	Jindowal
29	19.000		23.310	Bhadowal
30	20.000		24.310	Majari
31	21.000		25.315	Banga
32	22.000		26.315	
33	23.000		27.315	
34	24.000		28.315	
35	25.000		29.306	
36	26.000		30.300	
37	27.000		31.300	Kahma
38	28.000		32.300	
39	29.000		33.300	
40	30.000		34.300	Kariha
41	31.000		35.300	
42	32.000		36.300	
43	32.760		37.100	Nawanshahr Bypass
44	42.231		47.100	
45	43.000		47.900	Naimajra
46	44.000		49.050	
47	45.000		49.837	
48	46.000		50.822	
49	47.000		51.818	
50	48.000		52.800	
51	49.000		53.784	
52	50.000		54.783	Garhi
53	51.000		55.835	
54	52.000		56.800	
55	53.000		57.692	
56	54.000		58.660	
57	55.000		59.637	

Sr. No.	Existing Chainage (Km)	Existing Road	Design Chainage (Km)	Remark
58	55.165		59.800	
59	27.600	SH-24	59.800	
60	27.000		60.423	
61	26.000		61.427	
62	25.000		62.424	
63	24.000		63.413	
64	23.000		64.418	Sudha Majra
65	22.000		65.422	
66	21.000		66.393	
67	20.000		67.386	Chahal
68	19.000		68.384	
69	18.000		69.381	Bharthala
70	17.000		70.386	Paniyali Kalan
71	16.000		71.381	Jamitgarh
72	15.000		72.381	
73	14.000		73.381	
74	13.000		74.372	
75	12.000		75.378	Taunsa
76	11.000		76.372	
77	10.000		77.376	
78	9.000		77.369	Rail Majra
79	8.000		79.378	
80	7.000		80.376	
81	6.600		80.820	

21. Total Number of Structures

The total number of Structures on the Site is noted below:

(a)	No. of Major Bridges	-	01
(b)	No. of Railway Over Bridges	-	00
(c)	No. of Grade Separators	-	00
(d)	No. of Minor Bridges	-	22
(e)	No. of Vehicular/ Pedestrian Underpasses	-	00
(f)	No. of Box Culverts	-	00
(g)	No. of Slab Culverts	-	48
(h)	No. of Pipe Culverts	-	25
(i)	No. of Arch Culvert	-	01

(j) No. of median drainage Structure - 10

(k) No. of Foot Over Bridges - 00

22. Bus bays

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

Sr. No.	Road	Chainage (Km)	Length (m)	Left Hand side	Right Hand Side
1	MDR-56	12+565	68.650	LHS	
2	MDR-56	12+660	59.878		RHS
3	MDR-56	17+840	61.732		RHS
4	MDR-56	17+970	63.565	LHS	

23. Truck Lay byes

The details of truck lay byes are as follows:

Sr. No.	Chainage (Km)	Length (m)	Left Hand side	Right Hand Side
Nil				

SCHEDULE – B

Development of the Project Highway

1. Development of the Project Highway

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

2. Four Laning

2.1 Four laning shall include construction of the Four-Lane Project highway as described in **Annex-I** of this **Schedule-B** and **Annex-I** of **Schedule C**

2.2 Four laning shall be undertaken & completed by the Concessionaire inconformity with the specifications and standards set forth in **Annex-I** of **Schedule-D.**

Annex-I

(Schedule-B)

Description for Project

1. WIDTH OF CARRIAGEWAY

1.1 The paved carriageway shall be 18m (2 x 7.5 m) + 2x1.5 m) wide excluding the median.

Provided that in the following urban stretches, the width of carriageway shall be:

Sr. No.	Builtup Stretch (Township)	Design Chainage		Width
		From	To	
1	Mehli	8.694	9.92	As per the cross section schedule
2	BaharMajara	12.015	12.565	As per the cross section schedule
3	JassoMajra	13.415	14.015	As per the cross section schedule
4	Behram	16.515	17.715	As per the cross section schedule
5	MallaSodian	19.265	19.615	As per the cross section schedule
6	Dhahan	21.19	21.39	As per the cross section schedule
7	Dhahan	21.715	22.465	As per the cross section schedule
8	Mazari	23.965	24.465	As per the cross section schedule
9	Banga	24.64	28.89	As per the cross section schedule
10	KhatkarKalan	30.215	30.715	As per the cross section schedule
11	Kahma	31.565	32.565	As per the cross section schedule
12	Kariha	34.415	35.115	As per the cross section schedule
13	NaiMazara	48.719	48.969	As per the cross section schedule
14	Garhi	55.369	56.119	As per the cross section schedule
15	Balachaur	59.525	60.77	As per the cross section schedule
16	SudhaMajra	64.22	64.57	As per the cross section schedule
17	Kathgarh	68.12	68.37	As per the cross section schedule
18	Bharthala	69.42	69.67	As per the cross section schedule
19	Taunsa	72.72	72.92	As per the cross section schedule
20	Rail Majra	75.42	80.82	As per the cross section schedule

2. Project Facilities

Project facilities shall be constructed in conformity with Annex-I of Schedule- C.

3. Specifications and Standards

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

4. Other Features of four laning

4.1 Cross Sections

The Project Highway shall be widened to four lane dual configuration with paved shoulder with or without Service Roads. A typical cross section along with different types of cross section required to be developed in different segments of the project highway are indicated in **Appendix BI.**

Typical cross section for structures in **Appendix BXVI**

4.2 Alignment Plan and Longitudinal Section

Drawing volume is provided in soft copy at **Appendix B-II** for reference only. Plan-profile of project highway shall be designed as per schedule-D.

4.3 Bypass& Realignment

There is one bypass and two re-alignments in the project highway. The details of bypass and realignments to be provided are given at **Appendix B-III.**

4.16 Service Road

Service Roads shall be provided in lengths indicated in **Appendix –BIV.**

4.5 Proposed Right of Way

The details of the Proposed ROW are given in **Appendix B V**.

4.6 At Grade Intersection

At grade intersections shall be provided at the intersection of service roads and all intersecting roads at locations specified in **Appendix –B VI** for major intersections and in **Appendix BVII** for minor intersections**.**

4.7 Grade Separated Intersections

The grade separated intersections shall be provided as given at **Appendix B VIII.**

The elevated Structure shall be provided as given at **Appendix B IX**

4.8 Underpasses

Vehicular underpass shall be provided at location given at **Appendix –BX**

Pedestrian/ cattle underpass shall be provided at location given at **Appendix –BXI.**

4.9 Major bridges

Major bridges as listed in **Appendix BXII** shall be provided, widened, reconstructed, or extended

4.10 Minor bridges

Minor bridges as listed in **Appendix BXIII** shall be provided, widened, reconstructed, or extended.

4.11 Culverts

Culverts shall be provided, widened, reconstructed, or extended as listed in **Appendix BXIV.**

4.12 ROB/RUB

Details of ROB/RUBs to be provided are given at **Appendix BXV**. Following points shall be taken care of:

i).The proposed span arrangements of the ROBs are tentative and subject to change as per availability of railway boundaries requirement of the railways.

ii). ROB 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.

iii).The ROB shall be constructed and maintained by the concessionaire under supervision of the Railways

iv) All expenditure related to construction, maintenance and supervision of ROB (except P&E charges) shall be borne by the Concessionaire.

4.13 Entry/exit ramps

Entry /exit ramps for entering into or exiting from the project highway shall be provided wherever necessary**.**

4.14 Slope protection

The side slope shall be protected by using suitable slope protection measures wherever required along the present highway.

4.15 Utilities

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

4.16 Rainwater Harvesting

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 Rain water, Harvesting structure is mandatory in and around Water Crisis area, notified by the Central Ground Water Board.

Rainwater harvesting structures shall be provided at every 500 meters all along the road on both sides.

4.17. Pavement Design

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

Toll Plazas (from Chainage 15+800 & 70+500) and Nawashahr Bypass (from Chainage 37+100 to 47+100) pavement type shall be rigid.

Stage construction shall not be permitted.

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the main carriageway pavement for design traffic as given below or actual traffic whichever is higher.

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S. No.	Chainage (Design)		Design MSA
	From	To	
1	00+000	39+900	30
2	39+900	56+500	30
3	56+500	80+820	100

Appendix BI

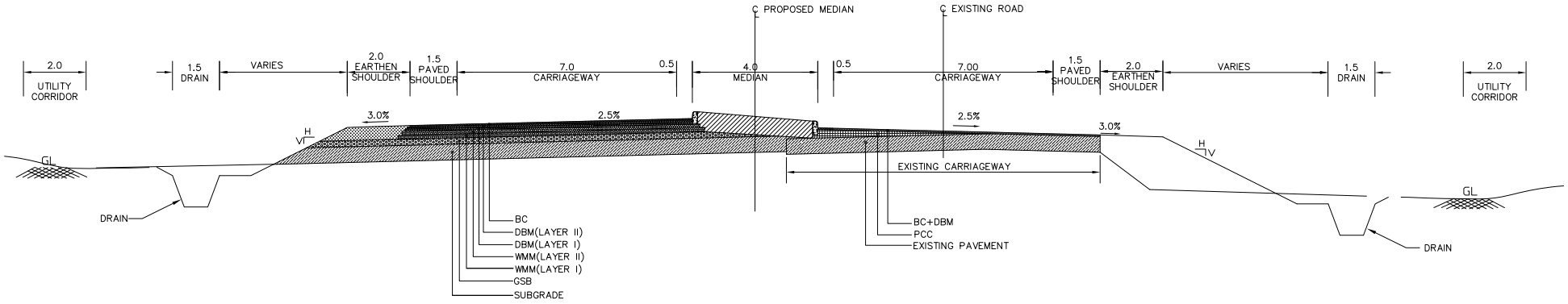
Typical Cross Section

1. Cross Section Type along the Project Corridor

TYPICAL CROSS-SECTION

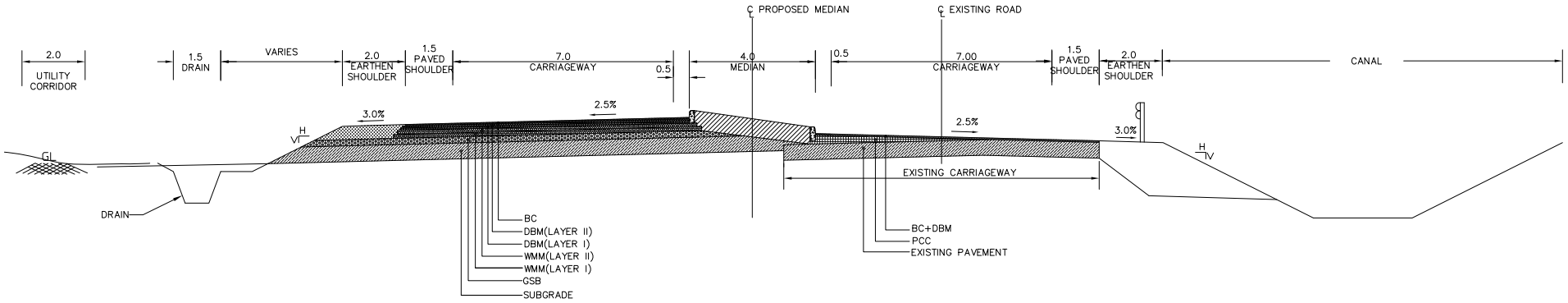
Design Chainage		Length (Km)	Proposed TCS Type	REMARKS
From	To			
0.000	3.601	3.601	TCS-8	
3.601	4.748	1.147	TCS-9	Proposed Flyover
4.748	6.420	1.672	TCS-8	
6.420	7.380	0.960	TCS-9	VUP
7.380	8.694	1.314	TCS-8	
8.694	9.315	0.621	TCS-9	Proposed Flyover
9.315	9.920	0.605	TCS-9	Mehli
9.920	12.015	2.095	TCS-1	
12.015	12.565	0.550	TCS-5	BaharMajara
12.565	13.415	0.850	TCS-1	
13.415	14.015	0.600	TCS-5	JassoMajra
14.015	16.515	2.500	TCS-1	
16.515	17.715	1.200	TCS-5	Behram
17.715	19.265	1.550	TCS-1	
19.265	19.615	0.350	TCS-5	MallaSodian
19.615	21.190	1.575	TCS-1	
21.190	21.390	0.200	TCS-7	DHAHAN
21.390	21.715	0.325	TCS-1	
21.715	22.465	0.750	TCS-5	DHAHAN
22.465	23.965	1.500	TCS-1	
23.965	24.465	0.500	TCS-7	Mazari
24.465	24.640	0.175	TCS-1	
24.640	25.319	0.679	TCS-12A	
25.319	28.319	3.000	TCS-12	ELEVATED STRUCTURE (KM 21 TO 24) at BANGA
28.319	28.890	0.571	TCS-12A	
28.890	30.215	1.325	TCS-1	
30.215	30.715	0.500	TCS-5	KhtkarKalan
30.715	31.565	0.850	TCS-1	

Design Chainage		Length	Proposed	REMARKS
31.565	32.065	0.500	TCS-5	Kahma
32.065	32.780	0.715	TCS-9	PUP
32.780	34.415	1.635	TCS-1	
34.415	35.115	0.700	TCS-5	Kariha
35.115	37.100	1.985	TCS-1	
37.100	38.550	1.450	TCS-3	
38.550	39.350	0.800	TCS-11A	ROB, Nwashahir Bypass
39.350	40.500	1.150	TCS-11	Flyover at Hoshiarpur Road Crossing of Bypass
40.500	47.100	6.600	TCS-3	Nwashahir Bypass
47.100	48.719	1.619	TCS-1	
48.719	48.969	0.250	TCS-7	NaiMazara
48.969	55.369	6.400	TCS-1	
55.369	56.119	0.750	TCS-5	Garhi
56.119	56.219	0.100	TCS-4	
56.219	56.700	0.481	TCS-3A	Realignment
56.700	57.100	0.400	TCS-1	
57.100	57.866	0.766	TCS-3A	Realignment
57.866	59.525	1.659	TCS-2	
59.525	60.223	0.698	TCS-10	Proposed Flyover LHS at Balachaur
60.223	60.770	0.547	TCS-6	
60.770	64.220	3.450	TCS-2	
64.220	64.570	0.350	TCS-6	SudhaMajra
64.570	68.120	3.550	TCS-2	
68.120	68.370	0.250	TCS-6	Kathgarh
68.370	69.420	1.050	TCS-2	
69.420	69.670	0.250	TCS-6	Bharthala
69.670	72.720	3.050	TCS-2	
72.720	72.920	0.200	TCS-6	
72.920	75.420	2.500	TCS-2	
75.420	80.820	5.400	TCS-6	Rail Majra

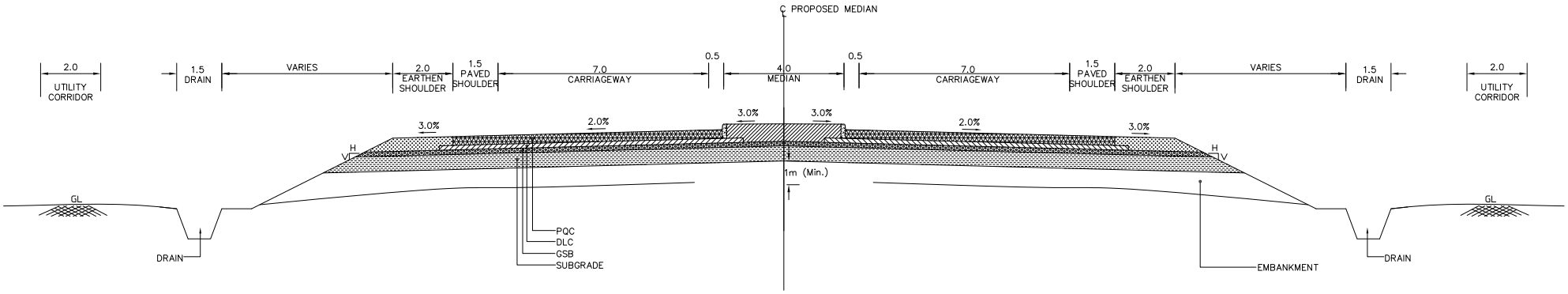


TYPICAL CROSS SECTION

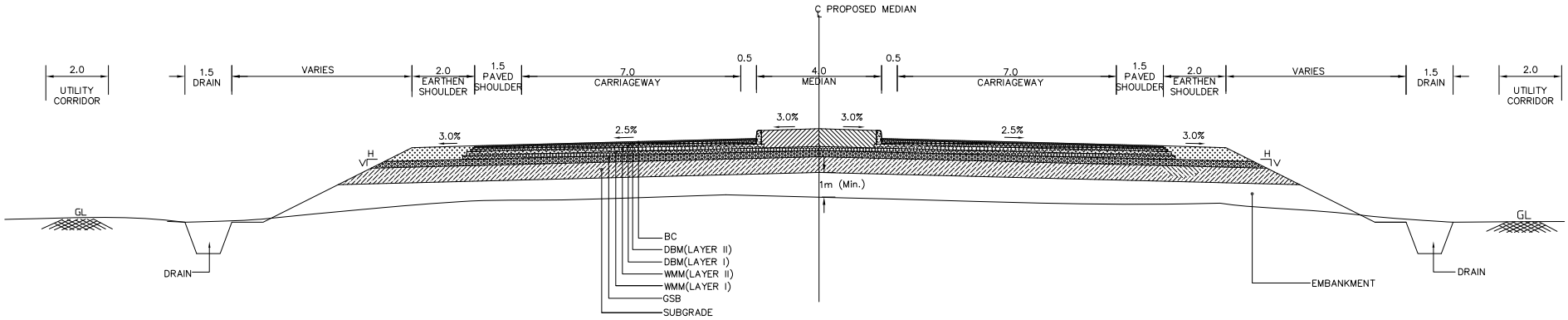
TCS - 1 : 4 LANE ECCENTRIC WIDENING ON LHS



TYPICAL CROSS SECTION
TCS - 2 : 4 LANE ECCENTRIC WIDENING ON LHS AND CANAL IS ON RHS



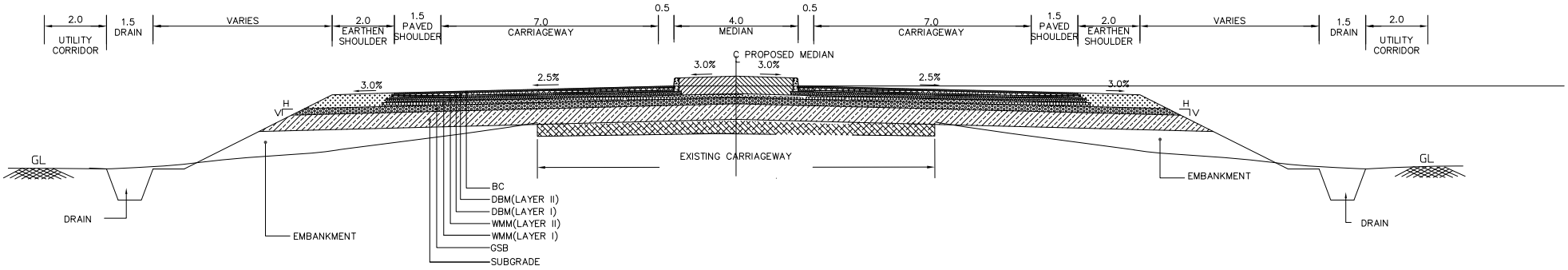
TYPICAL CROSS SECTION
TCS - 3 : 4 LANE DIVIDED CARRIAGEWAY FOR BYPASS / RE -ALIGNMENT
(RIGID PAVEMENT)



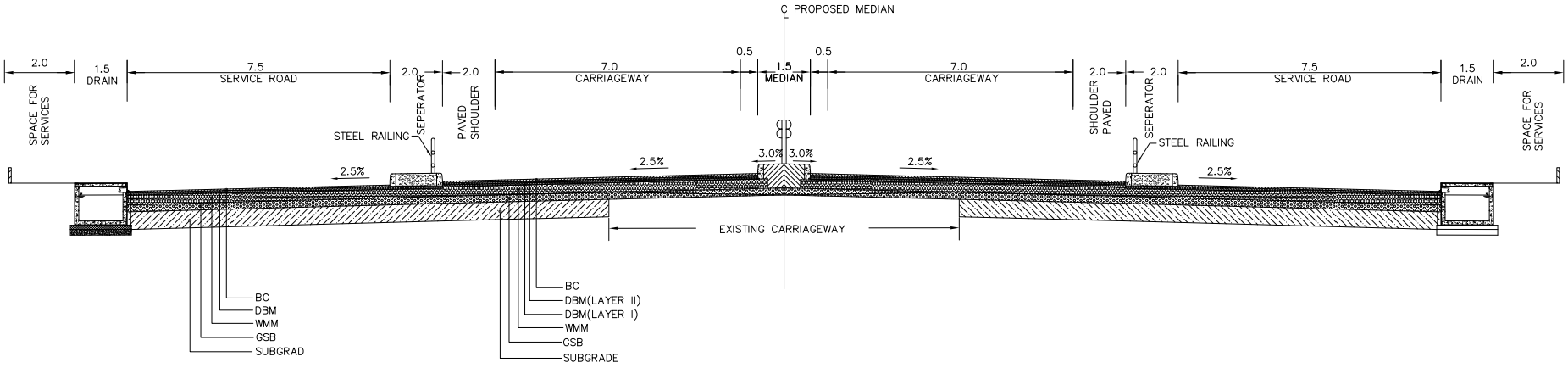
TYPICAL CROSS SECTION

TCS - 3A : 4 LANE DIVIDED CARRIAGEWAY FOR BYPASS / RE -ALIGNMENT

(FLEXIBLE PAVEMENT)

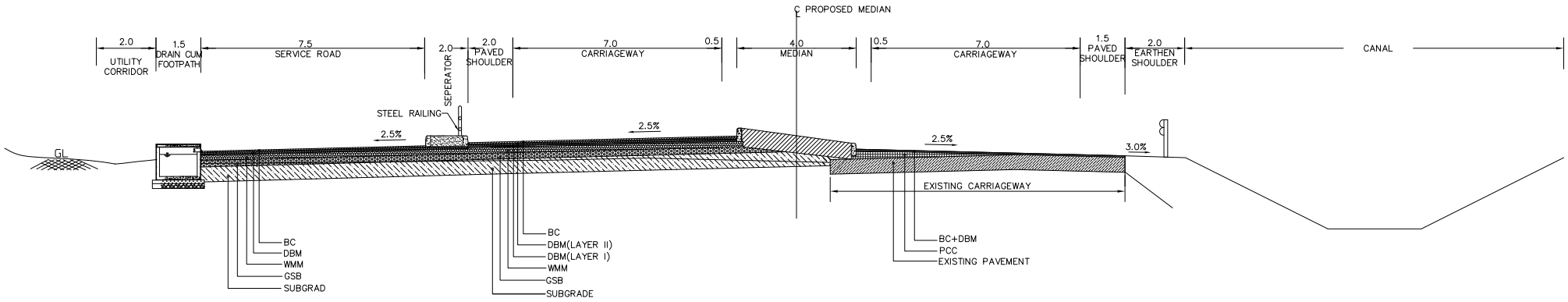


TYPICAL CROSS SECTION
TCS - 4 : 4 LANE DIVIDED CARRIAGEWAY BY CONCENTRIC WIDENING

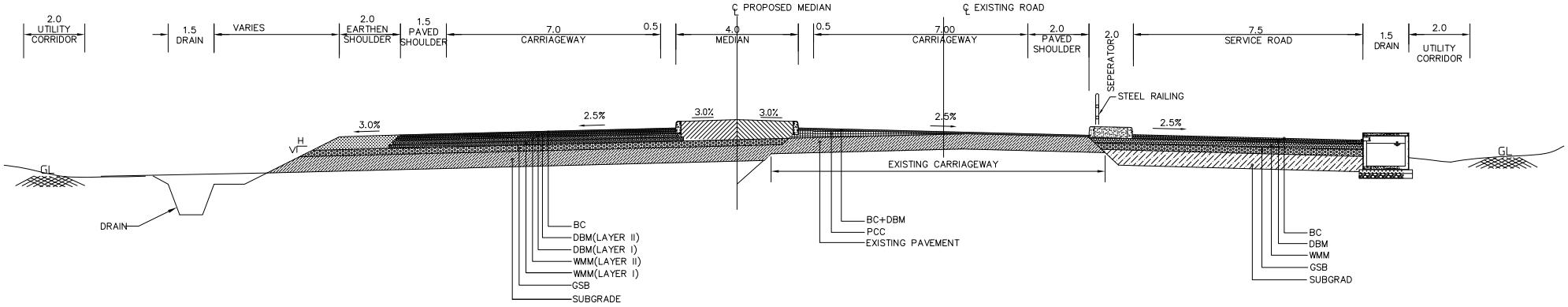


TYPICAL CROSS SECTION

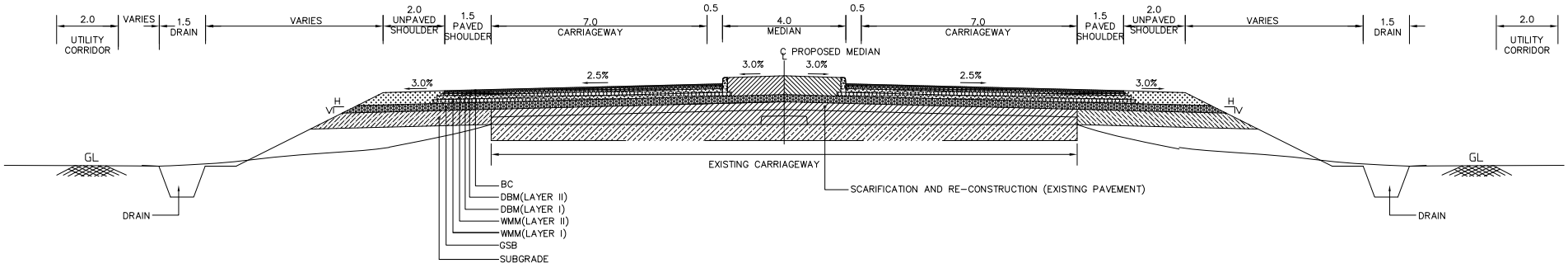
TCS - 5 : 4-LANE DIVIDED CARRIAGEWAY WITH BOTH SIDE SERVICE ROAD BY CONCENTRIC WIDENING



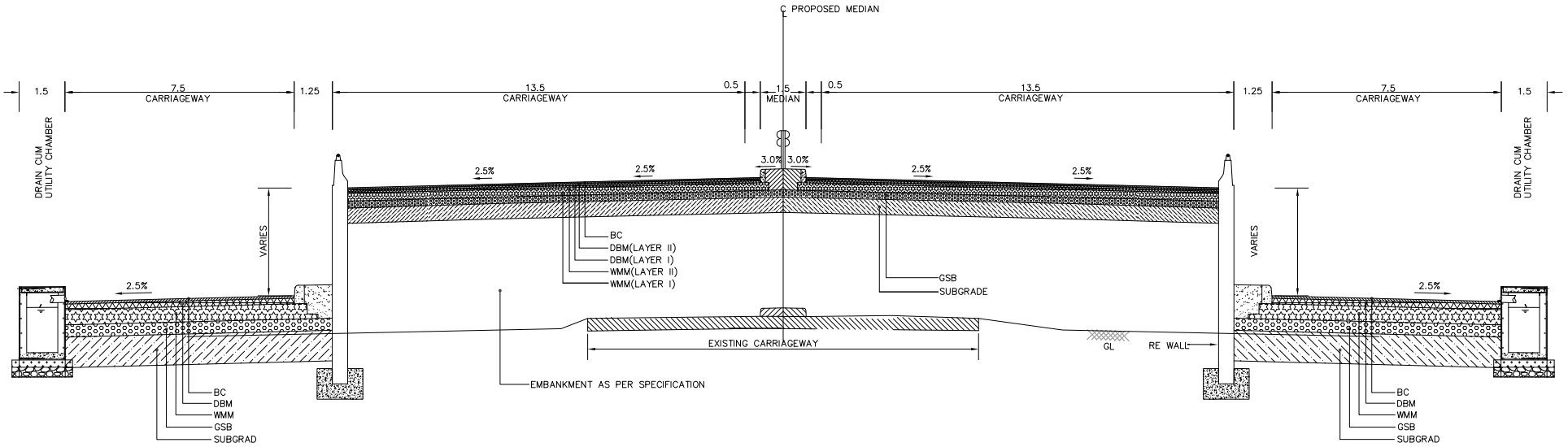
TYPICAL CROSS SECTION
TCS - 6 : 4-LANE WITH LHS SERVICE ROAD BY ECCENTRIC WIDENING AND CANAL IS ON RHS



TYPICAL CROSS SECTION
TCS - 7 : 4-LANE DIVIDED CARRIAGEWAY BY ECCENTRIC WIDENING WITH RHS SERVICE ROAD

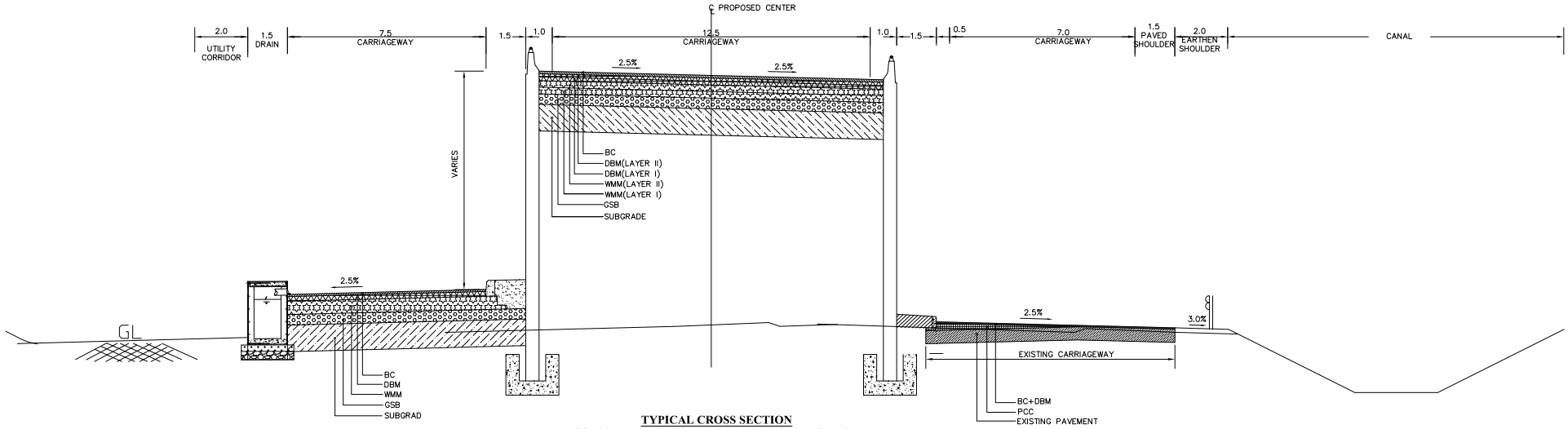


TYPICAL CROSS SECTION
TCS - 8 : EXISTING 4-LANE TO 4-LANE WITH PAVED SHOULDER

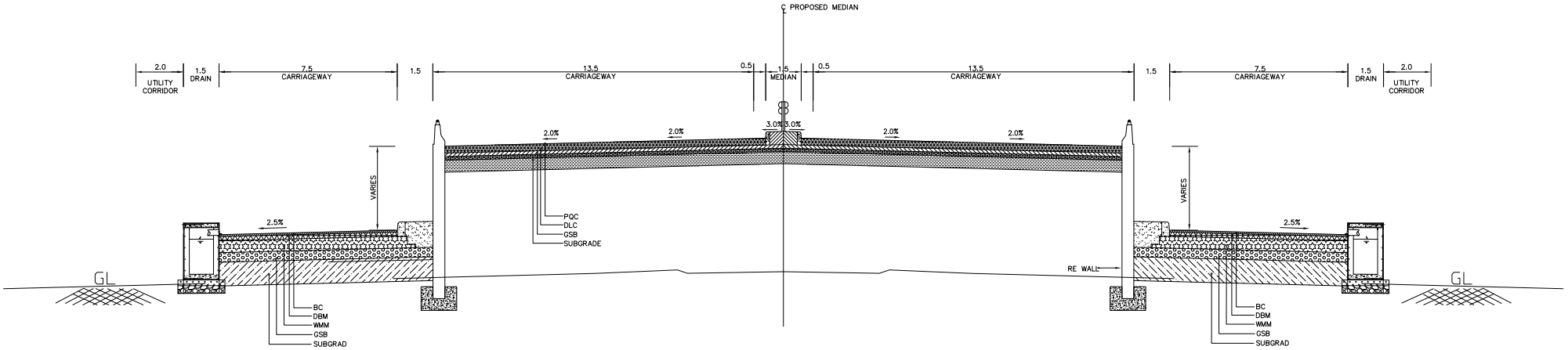


TYPICAL CROSS SECTION

TCS - 9 : EXISTING 4-LANE TO 4-LANE WITH SERVICE ROAD (APPROACH TO GRADE SEPARATION)

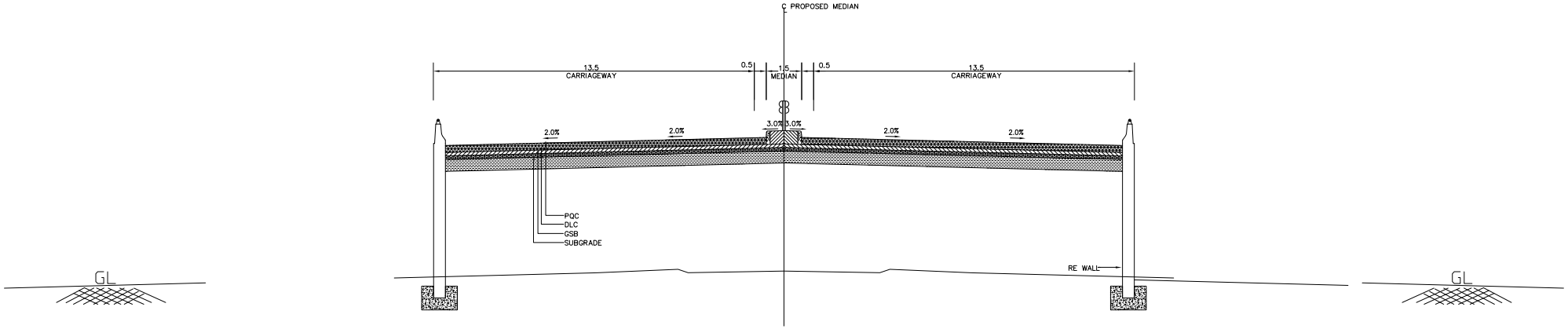


TYPICAL CROSS SECTION
TCS - 10 : HALF FLYOVER WITH LHS SERVICE ROAD
(APPROACH TO GRADE SEPARATION)

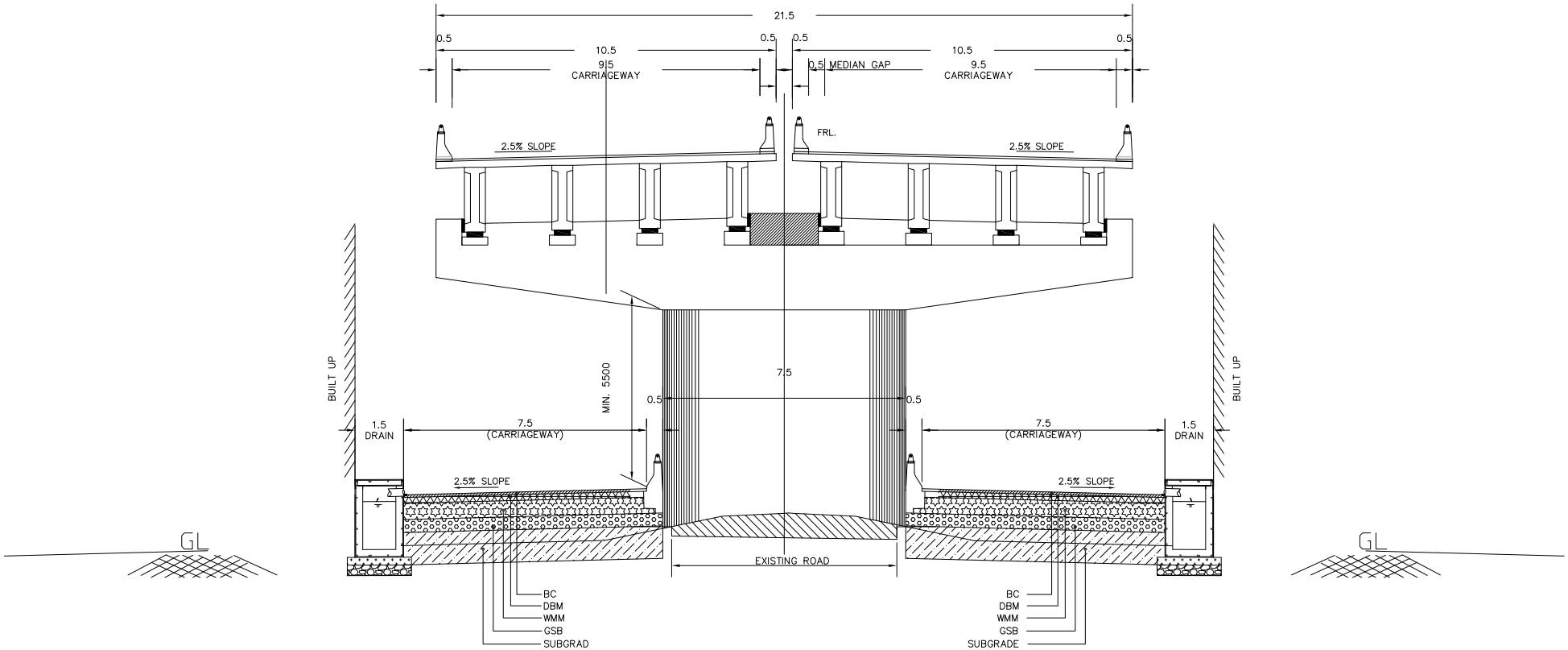


TYPICAL CROSS SECTION

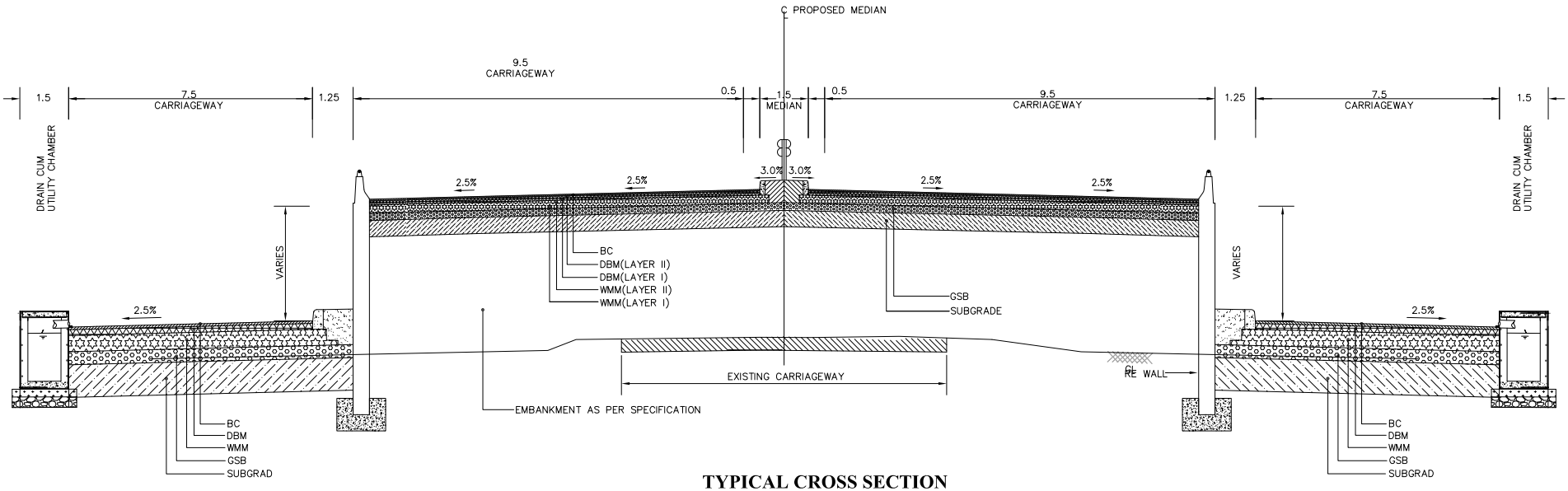
TCS - 11 : 4-LANE WITH BOTH SIDE SERVICE ROAD AT APPROACH TO GRADE SEPARATED STRUCTURE



TYPICAL CROSS SECTION
TCS - 11A: 4-LANE AT APPROACH TO GRADE SEPARATED STRUCTURE (RIGID PAVEMENT)



TYPICAL CROSS SECTION
TCS - 12 : 4 - LANE ELEVATED STRUCTURE WITH BOTH SIDE SERVICE ROAD INSIDE BANGA TOWN (GRADE SEPARATION)



TYPICAL CROSS SECTION
TCS - 12A : EXISTING 2/4-LANE TO 4-LANE WITH SERVICE ROAD AT BANGA TOWN (APPROACH TO GRADE SEPARATION)

Appendix BII

Alignment Plan and longitudinal Section are enclosed in digital form in CD marked as **Appendix BII.**

Appendix BIII

Details of Bypass/ Realignments

2. Bypass

Location of Bypass	Existing Chainage (Km)		Existing length (Km)	Design Chainage (Km)		Design length (Km)
	From	To		From	To	
Nawanshahr	32+760	42+231	9.471	37+100	47+100	10.000

3. Realignments

Existing Chainage (Km)		Existing length (Km)	Design Chainage (Km)		Design length (Km)	Remarks
From	To		From	To		
51+350	51+908	0.558	56+219	56+700	0.481	Garhi
52+303	53+196	0.893	57+100	57+866	0.766	Garhi

Appendix BIV

Details of Service Roads

Sr. No.	Location (Km)		Side	Length of Service Road (Km)
	From	To		
1	3.601	4.748	Both Side	2.294
2	6.420	7.380	Both Side	1.920
3	8.694	9.315	Both Side	1.242
4	9.315	9.920	Both Side	1.210
5	12.015	12.565	Both Side	1.100
6	13.415	14.015	Both Side	1.200
7	16.515	17.715	Both Side	2.400
8	19.265	19.615	Both Side	0.700
9	21.190	21.390	RHS	0.200
10	21.715	22.465	Both Side	1.500
11	23.965	24.465	RHS	0.500
12	24.640	25.319	Both Side	1.358
13	25.319	28.319	Both Side	6.000
14	28.319	28.890	Both Side	1.142
15	30.215	30.715	Both Side	1.000
16	31.565	32.065	Both Side	1.000
17	32.065	32.780	Both Side	1.430
18	34.415	35.115	Both Side	1.400
19	39.350	40.500	Both Side	2.300
20	48.719	48.969	RHS	0.250
21	55.369	56.119	Both Side	1.500
22	59.525	60.223	LHS	0.698
23	60.223	60.770	LHS	0.547
24	64.220	64.570	LHS	0.350
25	68.120	68.370	LHS	0.250
26	69.420	69.670	LHS	0.250
27	72.720	72.920	LHS	0.200
28	75.420	80.820	LHS	5.400
Total Length				**39.341**

The above mentioned locations of service roads are tentative and final locations shall be decided in consultation with IE and PD before start of work.

Appendix BV

Details of Proposed ROW

Proposed Chainage		Existing Chainage		Exist ROW (m)	Proposed ROW (m)
From	To	From	To		
0	9.312	17.673	27.003	50	50
9.312	13.427	5.003	9.117	33.54	48.5
13.427	15.389	9.117	11.079	32.62	42.5
15.389	16.185	11.079	11.875	30	43
16.185	16.493	11.875	12.183	32.92	42.5
16.493	18.985	12.183	14.675	32.62	42.5
18.985	19.559	14.675	15.249	35.06	45
19.559	21.773	15.249	17.463	34.44	43
21.773	25.983	17.463	21.668	32.92	42.5
25.983	28.833	21.668	24.518	33.53	42.5
28.833	29.148	24.518	24.833	43.58	50
29.148	37.1	24.833	32.76	33.53	48
37.1	47.1	Nawanshahr Bypass			45/60
47.1	47.199	42.01	42.33	30.18	43
47.199	54.764	42.33	49.98	27.75	44
54.764	56.219	49.98	51.35	48	48
56.219	56.7	Garhi Realignment			45
56.7	57.1	51.908	52.303	48	50
57.1	57.866	Garhi Realignment			45
57.866	58.157	53.193	53.465	43.29	48
58.157	60.423	53.465	56	48	50
60.423	62.024	27	25.4	48	49
62.024	62.535	25.4	24.878	35.21	36
62.535	63.328	24.878	24.085	38.56	44
63.328	63.638	24.085	23.78	36.2	45
63.638	63.881	23.78	23.537	45.27	50
63.881	63.943	23.537	23.475	58.68	60
63.943	64.186	23.475	23.232	53.65	58
64.186	64.248	23.232	23.17	58.68	60
64.248	64.557	23.17	22.865	55.33	58
64.557	64.862	22.865	22.56	58.68	60
64.862	65.411	22.56	21.982	36.2	42

Proposed Chainage		Existing Chainage		Exist ROW (m)	Proposed ROW (m)
65.411	65.747	21.982	21.646	55.33	41-60
65.747	66.052	21.646	21.341	50.3	54
66.052	66.204	21.341	21.189	43.89	46-50
66.204	66.356	21.189	21.037	35.36	41
66.356	66.807	21.037	20.579	35.21	38
66.807	67.112	20.579	20.274	41.92	48
67.112	67.414	20.274	19.97	48.62	55
67.414	67.567	19.97	19.817	38.56	40
67.567	67.872	19.817	19.512	39.32	42
67.872	68.024	19.512	19.36	40.24	44
68.024	68.177	19.36	19.207	36.89	40
68.177	70.16	19.207	17.226	35.21	40-52
70.16	70.46	17.226	16.921	36.89	40
70.46	70.613	16.921	16.768	35.51	37
70.613	73.652	16.768	13.72	40.24	42-46
73.652	73.957	13.72	13.415	45.27	50
73.957	74.573	13.415	12.805	53.33	54
74.573	75.183	12.805	12.195	53.65	58
75.183	75.335	12.195	12.043	35.21	40
75.335	79.221	12.043	8.157	67.07	73
79.221	79.719	8.157	7.657	70.42	79
79.719	79.969	7.657	7.407	57.01	66
79.969	80.820	7.407	6.651	60.36	65

Appendix BVI

Major Intersections (Junctions/Intersections)

Sr. No.	Location (Km)	Type of Intersection	Cross Road		
			Side	Leading to	Width (m)
1	Km 0+000	Y	Right	Phagwara	7.0
2	Km 4+200	X	-	Hoshiarpur	7.5
3	Km 9+300	Y	Right	Phagwara	7.0
4	Km 37+400	Y	Right	Nawanshahr	10.0
5	Km 46+800	Y	Right	Langroy	13.0
6	Km56+500	X	-	Balachaur	8.0
7	Km 59+800	X	-	SH-24	7.0

Appendix BVII

Minor Junctions

Sr. No.	Location (Existing)	Location (Design)	Name of Road	Type		Width (m)	Type of Surface	Side	Leading to
				Junction Type	Cross Road				
1	18+229	0+535	SH-18	X	Village	L(3.25) R (3.67)	BT	Both	NangalMajra
2	18+807	1+100		X	Village	L (3.49) R (3049)	BT	Both	Village Road
3	20+226	2+560		X	Village	L (6.4)R(7)	BT	Both	Palahi, Phagwara
4	22+205	4+521		Y	Village	R(3.1)	BT	RHS	Village Road
5	22+658	5+065		X	Village	L(4.7)R(5.2)	BT	Both	BhullaRai, Dana Mandi
6	23+948	6+258		X	Village	L(4.5)R(5.3)	BT	Both	Purewal Nagar
7	24+306	6+617		Y	Village	R(3.59)	BT	RHS	Shastri Nagar
8	24+579	6+895		X	Village	L(3.2) R(2.3)	BT	Both	Gurunanak Nagar, Sukhchain Nagar
9	25+507	7+800		X	Village	L(3.69) R(3.12)	BT	Both	Gonspur
10	5+948	10+259	MDR-56	T	Village	L(3.15)	BT	LHS	Bahua
11	6+171	10+483		Y	Village	L(2.9)	BT	LHS	Village Road
12	6+697	11+024		Y	Village	L(3.0)	BT	LHS	Village Road
13	7+944	11+269		Y	Village	L(3.5)	BT	LHS	Village Road

Sr. No.	Location	Location	Name	Type		Width (m)	Type of	Side	Leading to
14	7+875	12+245		Y	Village	R(3.23)	BT	RHS	Village Road
15	8+143	12+513		T	Village	R(3.28)	BT	RHS	Kultham
16	8+572	12+941		Y	Village	L(3.0)	BT	LHS	ChakMander
17	8+830	13+200		X	Village	L(3.5) R(3.7)	BT	Both	ChakMander, Kultham
18	9+189	13+560		Y	Village	L(3.0)	BT	LHS	JassoMajra
19	9+410	13+782		X	Village	L(3.2)R(3.4)	BT	Both	JassoMajra, SarhalaRanuan
20	9+448	13+824		Y	Village	L(3.0)	BT	LHS	JassoMajra
21	10+379	14+716		T	Village	R(3.3)	BT	RHS	Chak Maidas
22	12+123	16+443	MDR-56	Y	Village	R(2.5)	BT	RHS	Behram
23	12+456	16+775		Y	Village	L(3.18)	BT	LHS	Behram
24	12+520	16+838		Y	Village	R(3.18)	BT	RHS	Behram
25	12+625	16+943		Y	Village	R(3.12) R(4.01)	BT	RHS	Behram
26	12+885	17+200		Y	Village	R(3.25)	BT	RHS	Behram
27	12+995	17+300		Y	Village	L(7.58)	BT	LHS	Behram
28	13+046	17+363		Y	Village	L(3.07)	BT	RHS	Behram
29	13+133	17+450		Y	Village	L(2.48)	BT	LHS	Behram
30	13+835	18+144		T	Village	R(3.12)	BT	RHS	ChakBilgan
31	14+988	19+300		Y	Village	L(3.09)	BT	LHS	MallaSodhian
32	15+166	19+478		Y	Village	R(2.82)	BT	RHS	MallaSodhian
33	15+283	19+597		Y	Village	L(3.09)	BT	LHS	MallaSodhian
34	15+936	20+249		Y	Village	R(3.20)	BT	RHS	Lalpur
35	16+275	20+600		Y	Village	L(2.97)	BT	LHS	Bisla
36	17+061	21+386		Y	Village	R(2.83)	BT	RHS	Dhahan
37	17+815	22+143		Y	Village	L(4.95)	BT	LHS	Kaleran

Sr. No.	Location	Location	Name	Type		Width (m)	Type of	Side	Leading to
38	18+591	22+920	MDR-56	Y	Village	R(2.78)	BT	RHS	MalluPotta
39	19+887	24+205		X	Village	L(2.9) R(2.65)	BT	Both	Mazari
40	20+022	24+348		Y	Village	R(3.48)	BT	RHS	Mazari
41	20+348	24+673		X	Village	L(2.08) R(3.39)	BT	Both	Village Road
42	20+394	24+719		Y	Village	L(2.75)	BT	LHS	Village Road
43	21+161	25+490		Y	Town	R(3.75)	BT	RHS	Banga
44	21+237	25+563		Y	Town	L(4.3)	BT	LHS	Banga
45	21+413	25+739		Y	Town	R(2.4)	BT	RHS	Banga
46	21+535			Y	Town	R(3.51)	BT	RHS	Banga
47	21+722	26+060		X	Town	L(5.6) R(3.23)	BT	Both	Banga
48	22+160	26+300		X	Town	L(4.3) R)	BT	Both	Banga
49	22+329	26+480		X	Town	L(5.6) L (4.0)	BT	Both	Banga
50	22+620	26+500		Y	Town	R(6.17)	BT	RHS	Banga
51	22+826	26+538		Y	Town	L(6.9)	BT	LHS	Banga
52	23+556	26+621		X	Town	L(2.7) R(3.2)	BT	Both	Banga
53	23+995	26+713		Y	Town	L(3.4)	BT	LHS	Banga
54	24+167	26+952		Y	Town	R(3.2)	BT	RHS	Village Road
55	25+325	29+639		X	Village	L(2.9) R(4.6)	BT	Both	Village Road
56	26+053	30+358		X	Village	L(4.6) R(7.2)	BT	Both	KhatkarKalan
57	26+230	30+535		Y	Village	R(4.6)	BT	RHS	KhatkarKalan
58	26+766	31+072		X	Village	L(3.59) R(2.76)	BT	Both	KhatkarKalan, Bhoot
59	27+434	31+734		X	Village	L(2.8) R(3.2)	BT	Both	Kahma, Bhoot
60	27+891	32+182		Y	Village	R(2.95)	BT	RHS	Kahma
61	28+167	32+459		X	Village	L(2.94) R(3.2)	BT	Both	Kahma

Sr. No.	Location	Location	Name	Type		Width (m)	Type of	Side	Leading to
62	29+122	33+416		Y	Village	R(2.38)	BT	RHS	Kahma
63	29+314	33+608		X	Village	L(3.5) R(3.04)	BT	Both	Bainsa, Kariha
64	30+261	34+600		X	Village	L(3.0) R(4.5)	BT	Both	MalpurArkan, Kariha
65	30+660	34+990		Y	Village	L(2.9)	BT	LHS	MalpurArkan
66	30+885	35+217		Y	Village	R(2.9)	BT	RHS	Kariha
67	32+075	36+400		Y	Village	L(2.9)	BT	LHS	Village Road
68		42+060		X	Village	L(2.8) R(3.07)	BT	Both	L() R()
69		46+920		Y	Village	L(2.9)	BT	LHS	L(Kishanpur)
70	42+777	47+683		X	Village	L(2.8) R(3.07)	BT	Both	Sajwalpur
71	43+329	48+234		Y	Village	R(3.14)	BT	RHS	Sanawa
72	43+433	48+337	MDR-56	Y	Village	R(2.5)	BT	RHS	Village Road
73	43+692	48+600		Y	Village	L(3.0)	BT	LHS	Kishanpura
74	43+863	48+920		Y	Village	R(3.3)	BT	RHS	NaiMajara
75	44+120	49+180		Y	Village	L(2.9)	BT	LHS	Daulatpur
76	44+313	49+373		Y	Village	R(2.72)	BT	RHS	Village Road
77	45+208	50+050		X	Village	L(3.43) R(2.92)	BT	Both	Daulatpur, Jadla
78	45+574	50+414		X	Village	L(5.03) R(4.71)	BT	Both	Daulatpur, Jadla
79	46+302	51+134		X	Village	L(3.1) R(3.1)	BT	Both	Jadli, Jadla
80	47+799	52+600		Y	Village	R(2.4)	BT	RHS	Village Road
81	48+354	53+166		X	Village	L(2.5) R(3.2)	BT	Both	ThathialaDhaha, Birowal

Sr. No.	Location	Location	Name	Type		Width (m)	Type of	Side	Leading to
82	49+247	54+036		Y	Village	L(3.74)	BT	LHS	Garle
83	26+257	61+171		X	Village	L(2.6) R(3.5)	BT	Both	Balachaur, Sojowal
84	23+849	63+570		X	Village	L(2.8) R(4.1)	BT	Both	Lohat, Lohgarh
85	23+133	64+287		Y	Village	L(3.12)	BT	LHS	Village Road
86	19+741	67+646		X	Village	L(2.8) R(2.3)	BT	Both	Jalalpur
87	19+096	68+289		Y	Village	L(5.65)	BT	LHS	Katgarh
88	18+089	69+296		Y	Village	L(2.9)	BT	LHS	Village Road
89	17+953	69+429		Y	Village	L(2.77)	BT	LHS	Bharthala
90	17+911	69+474		T	Village	R(2.75)	BT	RHS	Village Road
91	17+529	69+855	SH-24	Y	Village	L(2.76)	BT	LHS	Village Road
92	16+668	70+723		Y	Village	L(3.63)	BT	LHS	PanayaliKalan
93	16+208	71+177		X	Village	L(3.2) R(2.9)	BT	Both	PanayaliKhurd
94	16+060	71+324		Y	Village	L(2.5)	BT	LHS	PanayaliKhurd
95	15+365	72+019		T	Village	L(2.8)	BT	LHS	Jamitgarh
96	14+840	72+544		X	Village	L(3.45) R(3.04)	BT	Both	MajraJathan
97	14+070	73+315		T	Village	L(2.85)	BT	LHS	Village Road
98	13+190	74+181		Y	Village	L(4.13)	BT	LHS	Fatepur
99	12+507	74+867		Y	Village	L(3.09)	BT	LHS	Village Road
100	11+967	75+413		X	Village	L(3.0) R(3.3)	BT	Both	Tanusa
101	11+091	76+285		Y	Village	L(2.99)	BT	LHS	Dana Mandi

Sr. No.	Location	Location	Name	Type		Width (m)	Type of	Side	Leading to
102	9+624	77+747		X	Village	L(3.29) R(3.37)	BT	Both	Majra

Appendix BVIII

Details of Proposed Grade Separated Intersections

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

S. No.	Location of structure	Existing/ Proposed	Proposed Span Arrangement	Minimum Vertical Clearance	Type
1	4+200	Proposed	1 x 25+1 x 40+ 1 x 25	5.5	6 lane as per TYPE-1
2	9+320	Proposed	1 x 25+1 x 30+ 1 x 25	5.5	6 lane as per TYPE-1
3	39+900	Proposed	1 x 25+1 x 30+ 1 x 25	5.5	6 lane as per TYPE-1
4	59+800	Proposed	1 x 25+1 x 30+ 1 x 25	5.5	3 lane as per TYPE-3

Note:
1. Approaches to Grade-separated structures shall be of RE Wall.

Appendix BIX

Details of Elevated Structure

S. No.	Location of structure	Existing/ Proposed	Proposed Span Arrangement	Minimum Vertical Clearance above Service Road	Type
1	25+319 to 28+319	Proposed	100 X 30	5.5	4 lane as per TYPE-4

Note:

1. Approaches to elevated structures shall be of RE Wall.

Appendix BX

Details of Proposed VUP

In the case of grade separated structures, the type of structure shall be as follows:
Refer to the manual and specify the type of vehicular underpass/ overpass.

S. No.	Location (Chainage)	Span Arrangement	Minimum Horizontal Clearance	Minimum Vertical Clearance	Type
1	6+894	19 m	12 m	5.5 m	6 lane as per TYPE-1

Note:

1. Approaches to VUP shall be of RE Wall.

Appendix BXI

Details of Proposed Cattle and pedestrian under pass / over pass

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

Refer to paragraph 2.10 of the manual and specify the requirement of cattle and underpass/ overpass.

S. No.	Location (Chainage)	Minimum Horizontal Clearance	Minimum Vertical Clearance	Type
1	32+450	7 m	4.5 m	6 lane as per TYPE-2

Note:

1. Approaches to PUP shall be of RE Wall.

Appendix BXII

Reconstruction/New Construction of Existing Major Bridge

S NO.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
14	54+721	59+370	Right	New 2-Lane bridge on LHS of existing bridge	RCC Girder + Slab	11 + 3 X 15.9 + 11	Additional 2 lane as per TYPE-8

*** The proposed span arrangement is tentative and the same shall be finalized in consultation with IC. Any changes in span arrangement shall not be treated as change in scope of work**

Rehabilitation/Repair/Widening of Existing Major Bridge

S NO.	Existing Chainage (km)	Design Chainage (km)	Width (m)	Span Arrangement (No. X Length)	Type Of Structure			Detail Of Rehabilitation	Detail Of Repair	Detail Of Widening
					Foundation	Sub-Structure	Super-Structure			
1	54+721	59+370	2 lane	13 X 5.3	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil

Appendix BXIII

Reconstruction/New Construction of Existing Minor Bridge

S NO.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
1	31+470	35+790	26° Skew	New 2-Lane bridge on LHS of existing bridge	Box	1 X 10 (skew) (clear)	Additional 2 lane as per TYPE-8
2	39+844	38+305	38° Skew	New 4-Lane bridge	Box	3 X 7 (skew) (clear)	4 lane as per TYPE-5
3	43+441	48+292	51° Skew	New 2-Lane bridge on LHS of existing bridge	Box	3 X 8 (skew) (clear)	Additional 2 lane as per TYPE-8
4	53+300	57+967	Right	New 2-Lane bridge on LHS of existing bridge	PSC Girder	1 X 28	Additional 2 lane as per TYPE-8
5	54+573	59+225	Right	New 2-Lane bridge on LHS of existing bridge	RCC Girder	3 X 16	Additional 2 lane as per TYPE-8
6	24+731	62+692	Right	New 3-Lane bridge on LHS of existing bridge	RCC Girder	1 X 18	Additional 3 lane as per TYPE-9
7	23+814	63+602	Right	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 X 26	Additional 3 lane as per TYPE-9

S NO.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
8	22+645	64+777	Right	New 3-Lane bridge on LHS+ Reconstruction from 9m width RHS of existing bridge	RCC Solid Slab	5 X 7.5	6 Lane as per TYPE-7
9	21+409	66+007	Right	New 3-Lane bridge on LHS of existing bridge	PSC Girder	1 X 35	Additional 3 lane as per TYPE-9
10	18+881	68+506	Right	New 3-Lane bridge on LHS of existing bridge	RCC Solid Slab	4 X 11	Additional 3 lane as per TYPE-7
11	17+583	69+802	Right	New 3-Lane bridge on LHS of existing bridge	Box	1 X 10 (clear)	Additional 3 lane as per TYPE-9
12	16+231	71+154	Right	New 3-Lane bridge on LHS+ Reconstruction by 9m width on RHS of existing bridge	RCC Solid Slab	11 + 12.8 + 11	6 Lane as per TYPE-7
13	15+676	71+708	Right	New 3-Lane bridge on LHS of existing bridge + New 2-Lane bridge on RHS of new 3-Lane bridge & LHS to existing bridge	RCC Girder	1 X 18	Additional 3 lane as per TYPE-12
14	15+269	72+117	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	RCC Girder	3 X 15	6 Lane as per TYPE-6
15	14+505	72+880	Right	New 3-Lane bridge on LHS + Reconstruction of	Box	3 X 7	6 Lane as per

S NO.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
				3- Lane bridge on RHS		(clear)	TYPE-6
16	13+227	74+148	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	3 X 8 (clear)	6 Lane as per TYPE-6
17	13+039	74+336	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	2 X 8 (clear)	6 Lane as per TYPE-6
18	12+393	74+987	Right	New 3-Lane bridge on LHS + Reconstruction of 3- Lane bridge on RHS	Box	2 X 9 (clear)	6 Lane as per TYPE-6
19	10+588	76+793	Right	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	Box	1 X 6.5(clear)	Additional 2 lane as per TYPE-10
20	9+786	77+591	Right	New 2-Lane bridge on Service Road + New 2-Lane bridge on LHS of main carriageway bridge + Reconstruction of new 3- Lane bridge on RHS	Box	3 X 8 (clear)	4 Lane as per TYPE-11

S NO.	Existing Chainage (km)	Design Chainage (km)	Type Of Crossing	Proposed Structural Configuration	Proposed Structure Type	Proposed Span Arrangement (No. x Length)	Total Structure Width
21	8+764	78+613	Right	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	RCC Girder	1 X 13	Additional 2 lane as per TYPE-10
22	7+353	80+018	Right	New 2-Lane bridge on LHS of existing bridge + New 2-Lane Service Road bridge on LHS of main carriageway	Box	1 X 8 (clear)	Additional 2 lane as per TYPE-10

*** The proposed span arrangement is tentative and the same shall be finalized in consultation with IC. Any changes in span arrangement shall not be treated as change in scope of work**

Rehabilitation/Repair/Widening of Existing Minor Bridge

S NO.	Existing Chainage (km)	Design Chainage (km)	Span Arrangement (No. X Length)	Side of Existing 2-lane Bridge	Type of Structure			Detail Of Rehabilitation	Detail Of Repair	Detail Of Widening
					Foundation	Sub-Structure	Super-Structure			
1	31+470	35+790	2 X 4.9	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
2	43+441	48+292	3 X 9.4	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
3	53+300	57+967	7 X 3.9	-	Open	Box	Box	General Rehabilitation	Routine Maintenance	Nil

S NO.	Existing Chainage (km)	Design Chainage (km)	Span Arrangement (No. X Length)	Side of Existing 2-lane Bridge	Type of Structure			Detail Of Rehabilitation	Detail Of Repair	Detail Of Widening
					Foundation	Sub-Structure	Super-Structure			
4	54+573	59+225	3 X 15.5	-	Open	Wall	Arch	General Rehabilitation	Routine Maintenance	Nil
5	24+731	62+692	1 X 18	-	Open	Wall	T girder	General Rehabilitation	Routine Maintenance	Nil
6	23+814	63+602	1 X 25.6	-	Open	Arch	T girder	General Rehabilitation	Routine Maintenance	Nil
7	22+645	64+777	5 X 7.3	LHS	Pile	Wall	Continuous Slab	General Rehabilitation	Routine Maintenance	Nil
8	21+409	66+007	1 X 35	-	Open	Box	T girder	General Rehabilitation	Routine Maintenance	Nil
9	18+881	68+506	2X11+10.8+11	RHS	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	WIDENING by 2m on RHS of existing bridge on LHS to match the total proposed width of 16 m (Ref. TYPE-7)
			4 X 11	LHS						
10	17+583	69+802	1 X 11	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
11	16+231	71+154	11+12.8+11	LHS	Pile	Wall	Continuous Slab	General Rehabilitation	Routine Maintenance	Nil

S NO.	Existing Chainage (km)	Design Chainage (km)	Span Arrangement (No. X Length)	Side of Existing 2-lane Bridge	Type of Structure			Detail Of Rehabilitation	Detail Of Repair	Detail Of Widening
					Foundation	Sub-Structure	Super-Structure			
12	15+676	71+708	1 X 18	-	Open	Wall	T girder	General Rehabilitation	Routine Maintenance	WIDENING by 9m on LHS of existing bridge to match the total proposed width of 16 m (Ref. TYPE-12)
13	10+588	76+793	1 X 7.3	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil
14	8+764	78+613	1 X 13	-	Open	Wall	RCC Girder	General Rehabilitation	Routine Maintenance	Nil
15	7+353	80+018	1 X 8.9	-	Open	Wall	Solid Slab	General Rehabilitation	Routine Maintenance	Nil

Appendix BXIV

Schedule of Widening/Reconstruction/New Construction of Culverts

S.No	Existing Ch.	Design Ch.	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
1	18+200	0+516	Reconstruct	Pipe	Pipe	2.0x2.0	Cross Drainage
2	18+487	0+802	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
3	18+627	0+858	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
4	18+800	1+113	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
5	19+025	1+339	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
6	19+120	1+429	Reconstruct	Slab	Box	6.0x3.5	Cross Drainage
7	19+357	1+672	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
8	19+500	1+815	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
9	19+549	1+862	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
10	19+600	1+919	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
11	19+648	1+967	Reconstruct	Slab	Box	6.0x3.5	Cross Drainage
12	19+670	1+989	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
13	19+900	2+212	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
14	20+029	2+341	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
15	20+170	2+483	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
16	20+194	2+507	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
17	20+200	2+513	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
18	20+137	2+690	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage

S.No	Existing Ch.	Design Ch.	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
19	20+731	3+209	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
20	21+100	3+408	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
21	21+400	3+708	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
22	21+755	4+064	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
23	22+200	4+514	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
24	22+500	4+817	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
25	22+600	4+917	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
26	23+152	5+464	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
27	23+735	6+045	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
28	23+970	6+254	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
29	24+298	6+608	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
30	24+560	6+891	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
31	24+820	7+135	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
32	25+882	8+196	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
33	26+318	8+630	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
34	26+384	8+695	Reconstruct	Slab	Box	3.0x3.0	Cross Drainage
35	26+760	9+081	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
36	6+150	10+457	Widening	Slab	Box	3.0x3.0	Cross Drainage
37	9+403	13+774	Widening	Slab	Box	2.0x2.0	Cross Drainage
38	10+318	14+655	Widening	Slab	Box	4.0x4.0	Cross Drainage
39	12+615	16+932	Widening	Slab	Box	6.0x3.5	Cross Drainage

S.No	Existing Ch.	Design Ch.	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
40	12+705	17+022	Widening	Slab	Box	4.0x4.0	Cross Drainage
41	13+615	17+924	Widening	Slab	Box	3.0x3.0	Cross Drainage
42	13+935	18+246	Widening	Slab	Box	4.0x4.0	Cross Drainage
43	14+010	18+321	Widening	Slab	Box	6.0x3.5	Cross Drainage
44	15+135	19+445	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
45	17+122	21+442	Widening	Slab	Box	6.0x3.5	Cross Drainage
46	20+607	24+929	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
47	26+088	30+392	Widening	Slab	Box	3.0x3.0	Cross Drainage
48	27+465	31+764	Widening	Slab	Box	3.0x3.0	Cross Drainage
49	32+580	36+928	Widening	Slab	Box	2.0x2.0	Cross Drainage
50	-	37+480	New Construction	-	Box	3.0x3.0	Cross Drainage
51	-	37+905	New Construction	-	Box	3.0x3.0	Cross Drainage
52	-	38+050	New Construction	-	Pipe	1.2m dia	Cross Drainage
53	-	38+510	New Construction	-	Pipe	1.2m dia	Cross Drainage
54	-	39+520	New Construction	-	Box	3.0x3.0	Cross Drainage
55	-	42+310	New Construction	-	Pipe	1.2m dia	Cross Drainage
56	-	42+437	New Construction	-	Box	6.0x3.5	Cross Drainage
57	-	42+665	New Construction	-	Pipe	1.2m dia	Cross Drainage
58	-	43+225	New Construction	-	Box	3.0x3.0	Cross Drainage
59	-	43+760	New Construction	-	Box	3.0x3.0	Cross Drainage
60	-	44+210	New Construction	-	Pipe	1.2m dia	Cross Drainage

S.No	Existing Ch.	Design Ch.	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
61	-	45+010	New Construction	-	Box	3.0x3.0	Cross Drainage
62	-	45+725	New Construction	-	Pipe	1.2m dia	Cross Drainage
63	-	46+163	New Construction	-	Pipe	1.2m dia	Cross Drainage
64	-	46+606	New Construction	-	Box	3.0x3.0	Cross Drainage
65	43+713	48+770	Widening	Slab	Box	3.0x3.0	Cross Drainage
66	43+828	48+885	Widening	Slab	Box	6.0x3.5	Cross Drainage
67	46+548	51+367	Widening	Slab	Box	2.0x2.0	Cross Drainage
68	47+350	52+160	Widening	Slab	Box	2.0x2.0	Cross Drainage
69	47+624	52+434	Widening	Slab	Box	2.0x2.0	Cross Drainage
70	47+822	52+632	Widening	Slab	Box	2.0x2.0	Cross Drainage
71	48+156	52+967	Widening	Slab	Box	2.0x2.0	Cross Drainage
72	48+437	53+226	Widening	Slab	Box	2.0x2.0	Cross Drainage
73	48+690	53+478	Widening	Slab	Box	2.0x2.0	Cross Drainage
74	48+811	53+599	Widening	Slab	Box	2.0x2.0	Cross Drainage
75	48+955	53+743	Widening	Slab	Box	2.0x2.0	Cross Drainage
76	50+800	55+590	Widening	Slab	Box	2.0x2.0	Cross Drainage
77	50+840	55+667	Widening	Pipe	Pipe	1m dia	Cross Drainage
78	50+910	55+739	Widening	Pipe	Pipe	1m dia	Cross Drainage
79	52+963	57+654	Reconstruct	Arch	Box	2.0x2.0	Cross Drainage
80	53+050	57+728	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
81	53+687	58+349	Widening	Pipe	Pipe	1m dia	Cross Drainage

S.No	Existing Ch.	Design Ch.	Proposal	Existing Type	Proposed Type	Proposed Size (m)	Remarks
82	53+913	58+575	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
83	54+357	59+022	Widening	Pipe	Pipe	1m dia	Cross Drainage
84	54+457	59+124	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
85	22+173	65+250	Widening	Pipe	Pipe	1m dia	Cross Drainage
86	21+964	65+460	Widening	Pipe	Pipe	1m dia	Cross Drainage
87	21+857	65+568	Widening	Pipe	Pipe	1m dia	Cross Drainage
88	21+763	65+662	Widening	Pipe	Pipe	1m dia	Cross Drainage
89	17+945	69+439	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
90	17+410	69+978	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage
91	6+900	80+477	Reconstruct	Pipe	Pipe	1.2m dia	Cross Drainage

Appendix BXV

Road over-bridges (ROB)

Road over bridges shall be provided as given below:

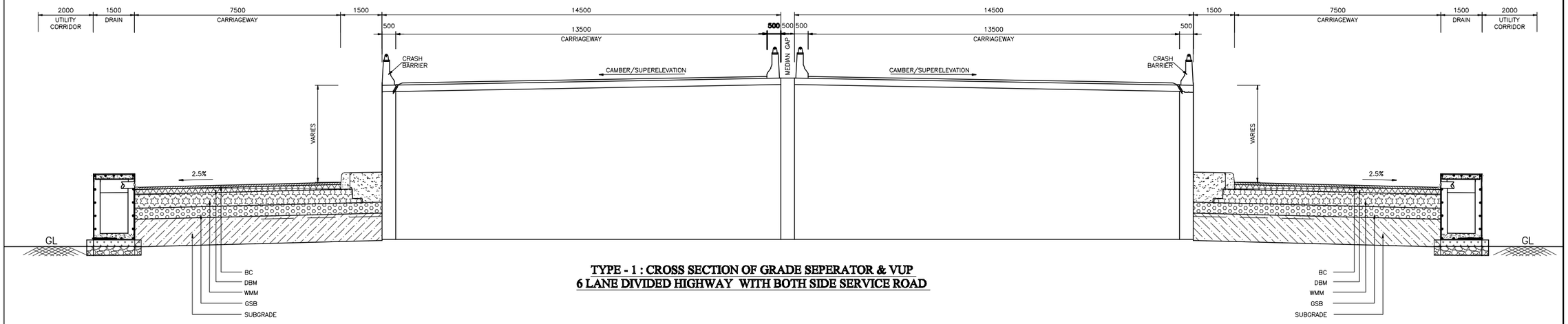
Sr. No.	Location	Design Chainage	Existing/ Proposed	Proposed Span	Type
1	Bypass	39+100	Proposed	ROB shall be constructed as per requirement of Railway Department	4 lane as per TYPE-5

Notes:

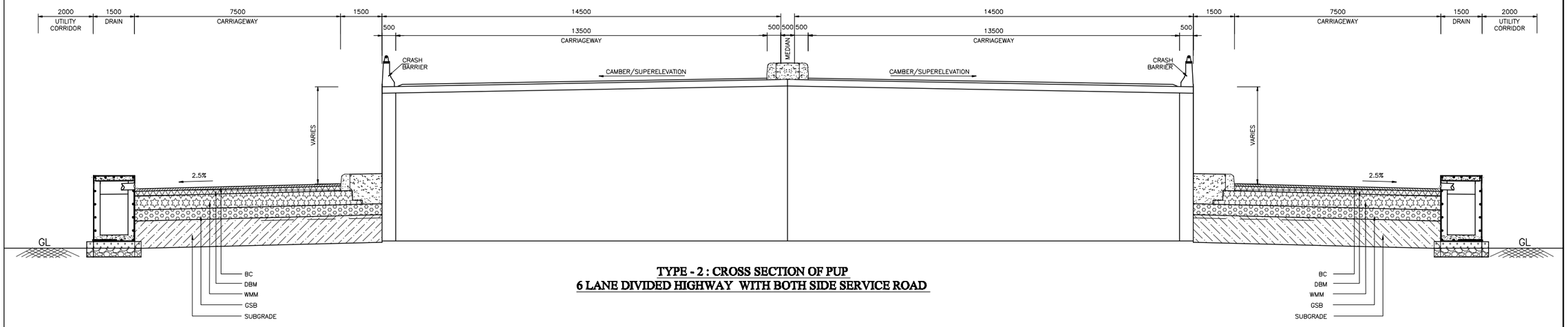
1. ROB shall be constructed as per requirement of Railway Department. No cost whatsoever shall be applicable on this account.
2. Minimum cross-section of ROB shall be as per 4-Lane manual.

Appendix BXVI

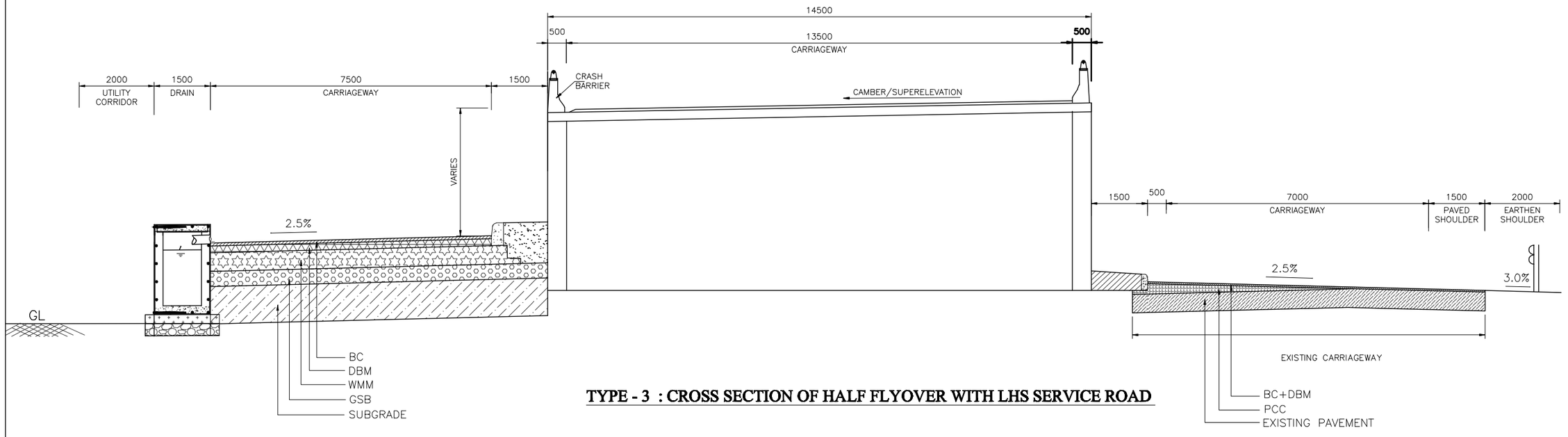
Typical Cross Section for Structures



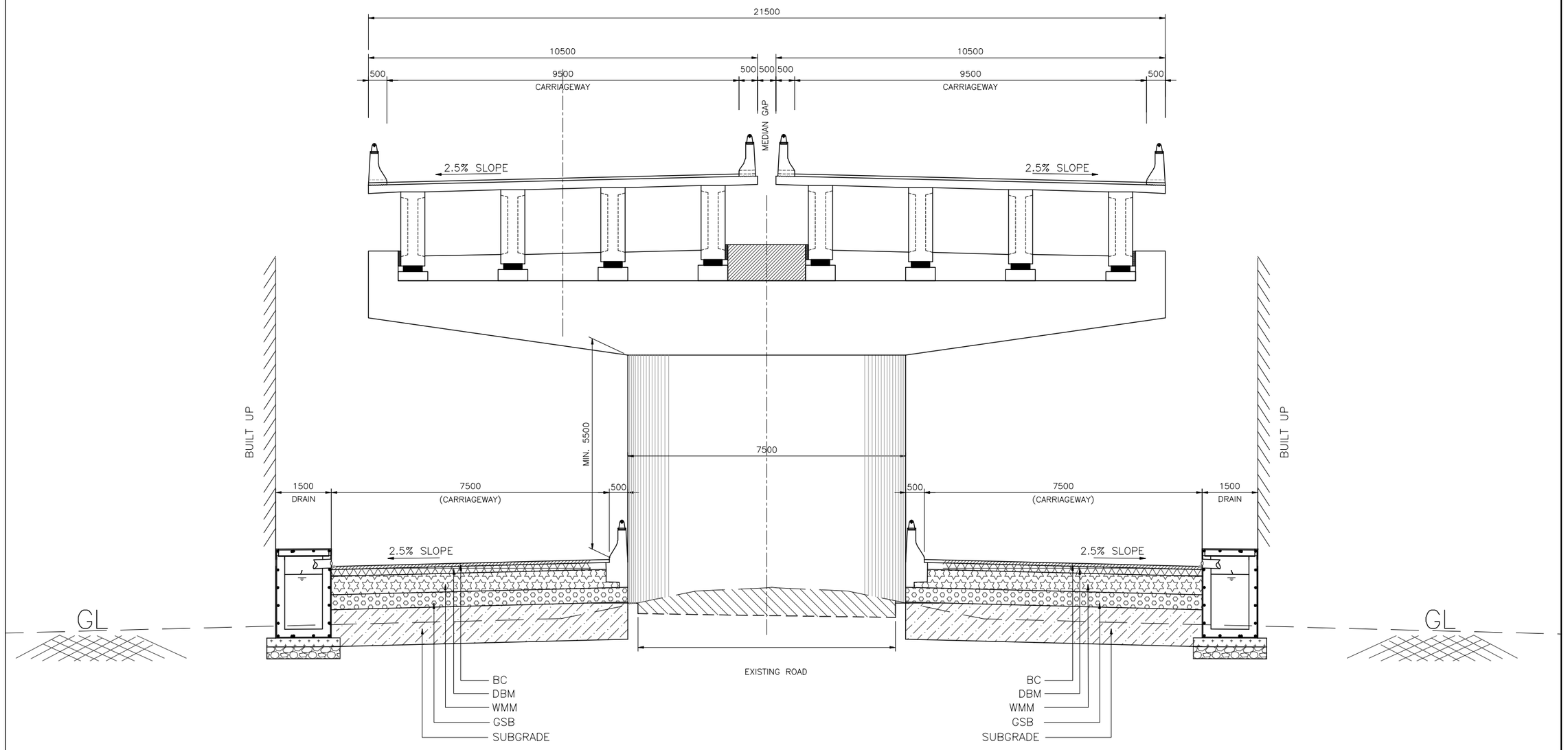
TYPE - 1 : CROSS SECTION OF GRADE SEPERATOR & VUP
6 LANE DIVIDED HIGHWAY WITH BOTH SIDE SERVICE ROAD



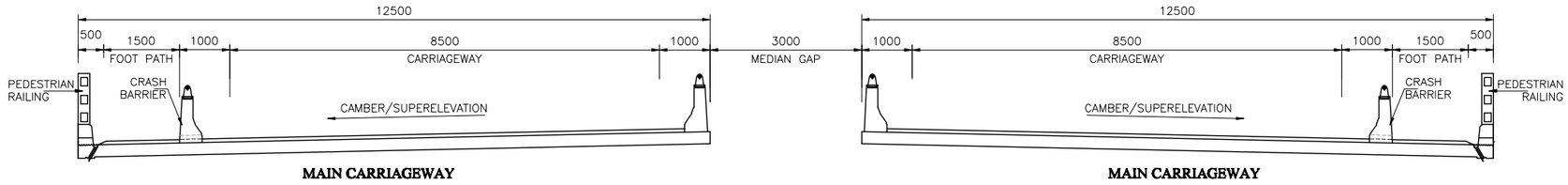
TYPE - 2 : CROSS SECTION OF PUP
6 LANE DIVIDED HIGHWAY WITH BOTH SIDE SERVICE ROAD



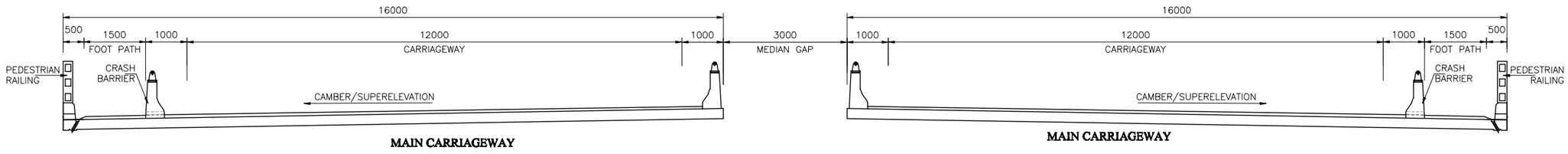
TYPE - 3 : CROSS SECTION OF HALF FLYOVER WITH LHS SERVICE ROAD



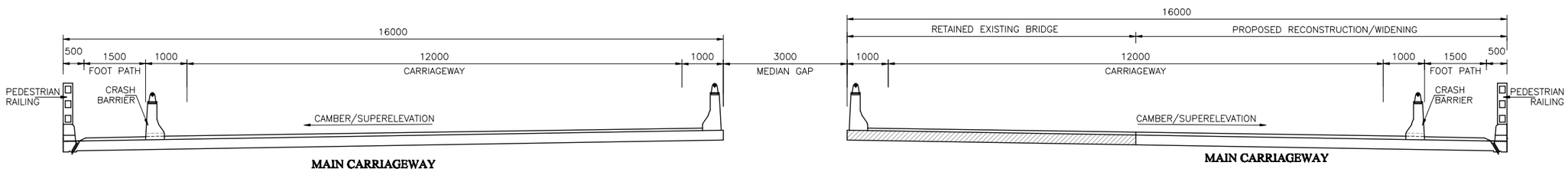
TYPE - 4 : 4 - LANE ELEVATED STRUCTURE WITH BOTH SIDE SERVICE ROAD INSIDE BANGA TOWN (GRADE SEPARATION)



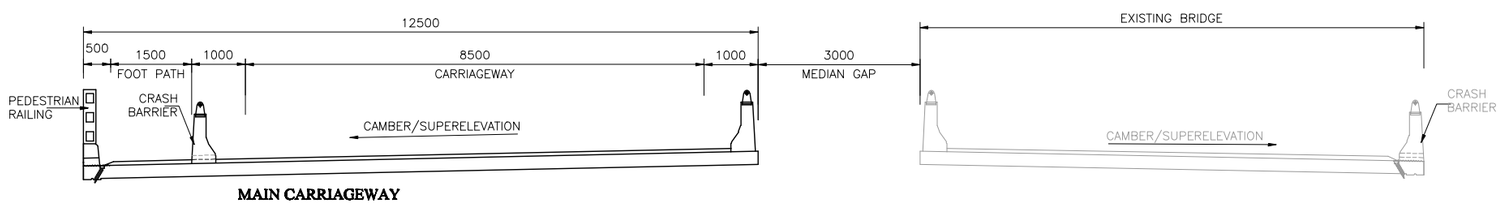
TYPE - 5 : CROSS SECTION OF BRIDGE/ROB AT DECK LEVEL
4 LANE DIVIDED HIGHWAY



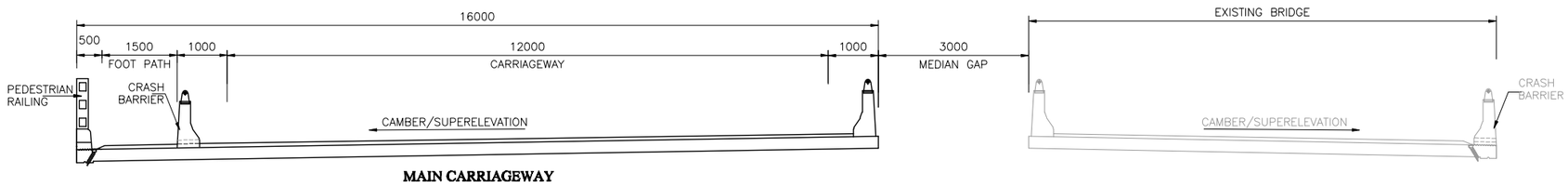
TYPE - 6 : CROSS SECTION OF BRIDGE AT DECK LEVEL
6 LANE DIVIDED HIGHWAY (BOTH SIDES NEW BRIDGE FOR 6 LANE STANDARDS)



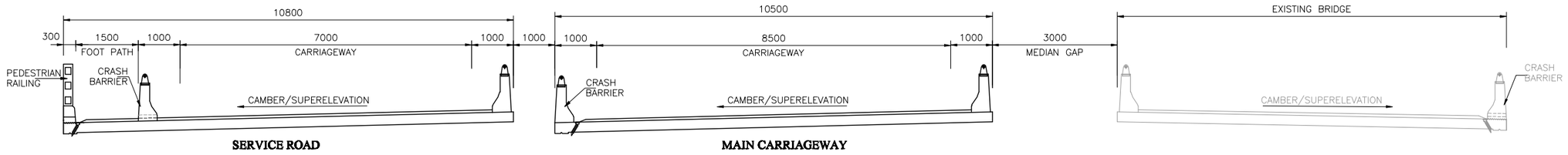
TYPE - 7 : CROSS SECTION OF BRIDGE AT DECK LEVEL-WITH FOOTPATH
6 LANE DIVIDED HIGHWAY (ONE SIDE NEW 3 LANE BRIDGE OTHER SIDE WIDENING/PART RECONSTRUCTION TO 3 LANE



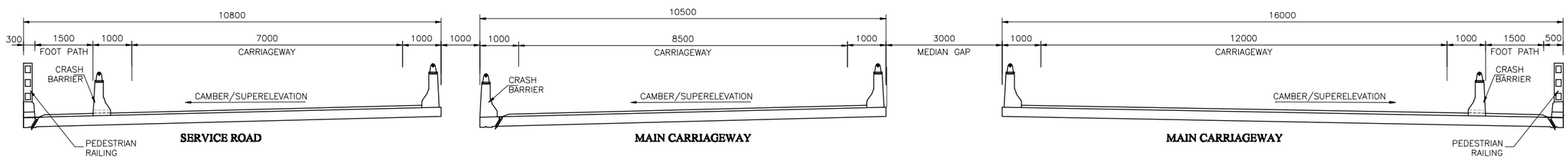
TYPE - 8 : CROSS SECTION OF BRIDGE AT DECK LEVEL
4 LANE DIVIDED HIGHWAY (ONE SIDE NEW BRIDGE AND OTHER SIDE EXISTING 2 LANE BRIDGE)



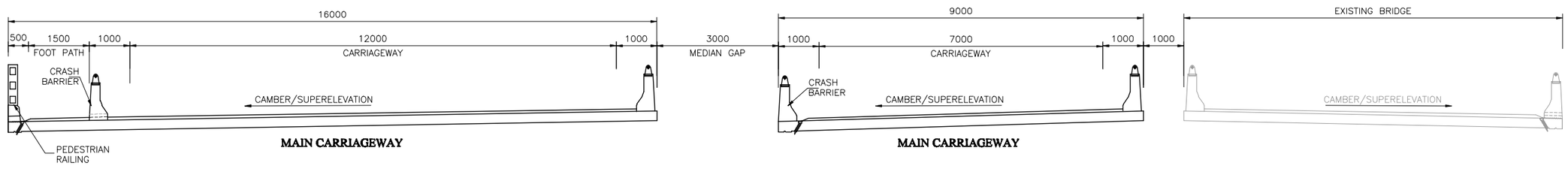
TYPE - 9 : CROSS SECTION OF BRIDGE AT DECK LEVEL
4 LANE DIVIDED HIGHWAY (ONE SIDE NEW BRIDGE AND OTHER SIDE EXISTING 2 LANE BRIDGE)



TYPE - 10 : CROSS SECTION OF BRIDGE AT DECK LEVEL WITH ONE SIDE SERVICE ROAD
(ONE SIDE NEW BRIDGE FOR MAIN C/WAY & SERVICE ROAD AND OTHER SIDE EXISTING BRIDGE)



TYPE - 11 : CROSS SECTION OF BRIDGE AT DECK LEVEL WITH ONE SIDE SERVICE ROAD
(ONE SIDE NEW BRIDGE FOR MAIN C/WAY AND ONE SIDE SERVICE ROAD)



TYPE - 12 : CROSS SECTION OF BRIDGE AT DECK LEVEL
6 LANE DIVIDED HIGHWAY (ONE SIDE NEW 3 LANE BRIDGE FOR LHS MAIN C/WAY AND FOR RHS MAIN C/WAY NEW 2 LANE BRIDGE ADJACENT TO EXISTING BRIDGE)

SCHEDULE - C

PROJECT FACILITIES

1. Project Facilities

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

a) Toll plaza;
b) Roadside Furniture;
c) Pedestrian Facilities;
d) Landscaping and Tree plantation;
e) Truck lay-byes;
f) Bus-bays and bus shelters;
g) Others
    1. Street Lighting
    2. Highway patrol Units
    3. A.T.M.S.
    4. Rest Areas
    5. Emergency Medical Services
    6. Crane Services
    7. Communication Services
    8. Operation and Maintenance centre

1.2 Project Facilities to be completed on or before COD have been described in Annex-I of this Schedule-C.

Annex – I

(Schedule-C)

Project Facilities

1. Project Facilities

The Concessionaire shall construct the Project Facilities described in this Annex-I to form part of the [Two-Lane] Project. The Project Facilities shall Include:

(a) Toll plaza(s);
(b) Roadside furniture;
(c) Pedestrian facilities;
(d) Tree plantation;
(e) Truck lay-bys;
(f) bus-bays and bus shelters;
(g) Buildings for Traffic Aid Posts;
(h) Building for Medical Aid Post; and
[(i) others (to be specified)]

2. Description of Project Facilities

Each of the Project Facilities is briefly described below:

a) Toll Plaza

As stipulated in section 10 of the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership (IRC: SP: 84-2014)

Sr. No.	Design Chainage (Km)	Number of Lanes	Remarks
1	15+800	2 x (3+1)	Both Sides
2	70+500	2 x (3+1)	Both Sides

b) Road Side Furniture

i. **Traffic Signs and Pavement Markings**

Traffic Signs and pavement markings shall include road side signs, overhead signs, curve mounted signs and road marking along the project highway. The locations for these provisions shall be finalized in consultation with Independent Engineer

ii. Concrete Crash Barrier, Metal Beam Crash Barrier, Separators (MS Railings)

The minimum length of Concrete Crash Barrier shall be 33000 m, Metal beam crash barrier shall be 21000 m, and separator (M.S. Railings) shall be 41000 m.

iii. Traffic Survey Devices wherever required
iv. Boundary Stones
v. Hectometer/ Kilometer Stones
vi. Traffic Blinker Signal (L.E.D) at Intersections

c) Pedestrian Facilities;

As stipulated in section 12.2 of the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership (IRC: SP: 84-2014)

d) Landscaping and Tree Plantation;

As stipulated in section 11 of the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership (IRC: SP: 84-2014)

e) Truck Lay-Bye;

As stipulated in section 12.4 of the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership (IRC: SP: 84-2014)

Sr. No.	Design Chainage (Km)	Carriageway (m)	Remarks
1.	1+600	7.5	
2.	45+500	7.5	

f) Bus-Bay and Bus Shelter;

As stipulated in section 12.5 of the Manual of Specifications and Standards for Four-laning of Highways through Public Private Partnership (IRC: SP: 84-2014)

Sr. No.	LHS	LHS Design Chainage Km/m	RHS	RHS Design Chainage Km/m
1	Bus Bay & Shelter	0+742	Bus Bay & Shelter	0+858

2	Bus Bay & Shelter	3+150	Bus Bay & Shelter	3+255
3	Bus Bay & Shelter	5+125	Bus Bay & Shelter	5+100
4	Bus Bay & Shelter	8+200	Bus Bay & Shelter	8+200
5	Bus Bay & Shelter	10+255	Bus Bay & Shelter	10+255
6	Bus Bay & Shelter	13+050	Bus Bay & Shelter	13+150
7	Bus Bay & Shelter	15+300	Bus Bay & Shelter	15+300
8	Bus Bay & Shelter	20+050	Bus Bay & Shelter	20+050
9	Bus Bay & Shelter	22+720	Bus Bay & Shelter	22+720
10	Bus Bay & Shelter	25+100	Bus Bay & Shelter	25+100
11	Bus Bay & Shelter	29+450	Bus Bay & Shelter	29+550
12	Bus Bay & Shelter	31+200	Bus Bay & Shelter	31+200
13	Bus Bay & Shelter	34+100	Bus Bay & Shelter	34+100
14	Bus Bay & Shelter	36+550	Bus Bay & Shelter	36+660
15	Bus Bay & Shelter	47+500	Bus Bay & Shelter	47+600
16	Bus Bay & Shelter	49+590	Bus Bay & Shelter	49+700
17	Bus Bay & Shelter	52+940	Bus Bay & Shelter	53+060
18	Bus Bay & Shelter	55+000	Bus Bay & Shelter	55+100

19	Bus Bay & Shelter	60+200		
20	Bus Bay & Shelter	63+200		
21	Bus Bay & Shelter	69+525		
22	Bus Bay & Shelter	73+050		
23	Bus Bay & Shelter	75+600		
24	Bus Bay & Shelter	78+200		
25	Bus Bay & Shelter	80+550		

(g) Buildings for Traffic Aid Posts

The Concessionaire shall, in accordance with the type designs prescribed for such police outpost buildings by the State Government or a substitute thereof, construct buildings not exceeding 25 (twenty five) square meters of plinth area, for each of the Traffic Aid Posts, and hand them over to the Authority no later than 30 (thirty) days prior to the Scheduled Completion Date. The Traffic Aid Post(s) shall be deemed to be part of the Site and shall vest in the Authority.

(h) Building for Medical Aid Post

The Concessionaire shall, at its cost and in accordance with the type designs prescribed for such buildings by the State Medical Department (or a substitute thereof to be designated by the Authority), construct an aid post building and hand it over to the Authority, no later than 30 (thirty) days prior to COD. The Medical Aid Post(s) shall be deemed to be part of the Site and shall vest in the Authority.

Others;

i. Street Lighting

Lighting providing as per provisions of 4- lane manual (IRC: SP: 84-2014)

ii. Highway Patrol Units

Highway Patrol units shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014).

iii. Advance Traffic Management System (ATMS)

Advance Traffic Management System (ATMS) shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014).

iv. Rest Area

Two numbers Rest Area are proposed at Km 54+850 on both sides.

v. Emergency Medical Services

Emergency medical Services shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014).

vi. Cranes

Crane Services shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014).

vii. Communication Services

Communication Services shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014).

viii. Operation and Maintenance Centre

Operation and Maintenance Centre shall be provided as per provisions of 4- lane manual (IRC: SP: 84-2014

SCHEDULE- D

SPECIFICATIONS AND STANDARDS

1. Specification and Standards for the Project

The Concessionaire shall comply with the Specifications and Standards set for thin Annex-I of this Schedule-D for construction of the Project.

Annex-I

(Schedule-D)

Specifications and Standards for the Project

1 Manual of Specifications and Standards to apply

[Subject to the provisions of Paragraph 2, Development of the following Project Highway shall conform to the Manual of Specifications as given below:

Stretch	Design Chainage		Manual of Specifications and
	From	To	
NH 344A	0	80.820	Manual of Specifications & Standards for Four Laning of Highways through Public Private Partnership (IRC:SP:84-2014)

2 [Deviations from the Manual Specified in Para-1 above for Respective Stretches of the Project Highway

Notwithstanding anything to the contrary contained in the aforesaid Manual, the following Specifications and Standards shall apply to the above stretches of the Project Highway, and for purposes of this agreement, the aforesaid Manuals shall be deemed to be amended to the extent set forth below:

<table>
<tr><th>S. No.</th><th>Clauses referred in Manual</th><th>Items</th><th>Provisions as per Manual</th><th>Design Chainage</th><th>Deviation from the manual with Remarks</th></tr>
<tr><td>1.</td><td>4.2.1</td><td>Embankment</td><td>No Section of the road is overtopped. Top of Subgrade shall be atleast 0.5m above the general ground level</td><td>i) Main Carriageway
<table>
<tr><th rowspan="2">Sr. No.</th><th colspan="2">Design Chainage</th><th rowspan="2">Length</th><th rowspan="2">Remarks</th></tr>
<tr><th>From</th><th>To</th></tr>
<tr><td>1</td><td>9.920</td><td>12.001</td><td>2.081</td><td>RHS</td></tr>
<tr><td>2</td><td>12.550</td><td>13.420</td><td>0.870</td><td>RHS</td></tr>
<tr><td>3</td><td>14.070</td><td>16.450</td><td>2.380</td><td>RHS</td></tr>
<tr><td>4</td><td>17.920</td><td>19.170</td><td>1.250</td><td>RHS</td></tr>
<tr><td>5</td><td>19.730</td><td>21.700</td><td>1.970</td><td>RHS</td></tr>
<tr><td>6</td><td>22.490</td><td>24.720</td><td>2.230</td><td>RHS</td></tr>
<tr><td>7</td><td>28.920</td><td>30.100</td><td>1.180</td><td>RHS</td></tr>
<tr><td>8</td><td>30.900</td><td>31.500</td><td>0.600</td><td>RHS</td></tr>
<tr><td>9</td><td>33.020</td><td>34.350</td><td>1.330</td><td>RHS</td></tr>
<tr><td>10</td><td>35.150</td><td>36.820</td><td>1.670</td><td>RHS</td></tr>
<tr><td>11</td><td>47.250</td><td>55.350</td><td>8.100</td><td>RHS</td></tr>
<tr><td>12</td><td>56.930</td><td>57.100</td><td>0.170</td><td>RHS</td></tr>
<tr><td>13</td><td>57.910</td><td>62.950</td><td>5.040</td><td>RHS</td></tr>
<tr><td>14</td><td>63.350</td><td>63.800</td><td>0.450</td><td>RHS</td></tr>
<tr><td>15</td><td>64.240</td><td>69.170</td><td>4.930</td><td>RHS</td></tr>
<tr><td>16</td><td>69.660</td><td>71.790</td><td>2.130</td><td>RHS</td></tr>
<tr><td>17</td><td>72.995</td><td>73.950</td><td>0.955</td><td>RHS</td></tr>
<tr><td>18</td><td>75.650</td><td>76.840</td><td>1.19</td><td>RHS</td></tr>
<tr><td>19</td><td>77.900</td><td>80.820</td><td>2.92</td><td>RHS</td></tr>
</table></td><td>Rehabilitation of Existing carriage way is proposed with overlay taking care of drainage issue, as existing carriageway pavement is mostly in good to fair condition.</td></tr>
<tr><td>2.</td><td>Clause 2.3</td><td>Minimum ROW</td><td>ROW– 60.0 m</td><td colspan="2">Km0.000 to Km 75.335;
Km 79.717-Km 79.970;
Km 80.724 to Km 80.820</td><td>The existing ROW, which is less than 60 m is retained</td></tr>
</table>

S. No.	Clauses referred in Manual	Items	Provisions as per Manual	Design Chainage	Deviation from the manual with Remarks
3.	7.19	Elevated Structure	Width of Superstructure 2 x14.5 (Ref. fig 7.8 of IRC:SP:84 2014)	Km 25.319 to km 28.319	Width of Superstructure 2 10.5 (The proposed cross section as given in Schedule Bhas to be followed)
4.	7.3 (iv)	Minor Bridge	New three Lane bridge with one side footpath (15.8 m width) + Existing bridge + New two-lane bridge with one side footpath (12.3 m width)	Km 71.708	New three-lane bridge with one side footpath (16 m width) (The proposed width as given in 7.3.1 (iv) and 7.3.2 of Schedule has to be followed. + New two lane bridge without footpath and paved shoulder (9 m width) + Existing Bridge
5.	2.10 & 7.19	Typical Cross-sections	Roadway Width – 14.5 m as per Fig 7.8	Km 24.640 to Km 28.890 (TCS-12 and TCS-12A)	Roadway width is 9.5 m.
6.	7.1 (IV)	Half flyover	In built-up sections via duct spans shall be provided in the approaches of the structure. However, embankment / RE wall / Retaining wall may be provided upto 5m height. For this purpose the height shall be measured from existing road level.	Km 59+800	RE wall height provided at this location is more than 5m.

S. No.	Clauses referred in Manual	Items	Provisions as per Manual	Design Chainage	Deviation from the manual with Remarks
7.	2.7 (fig.2.6)	TCS- 6	4-lane divided highway with both side service road and with raised median	Km (60.223 to 60.770) km (64.220 to 64.570) Km (68.120 to 68.370) Km (69.420 to 69.670) Km (72.657 to 72.857) Km (75.420 to 80.820)	4-lane divided highway with left side service road and with raised median. Service road on RHS is not possible due to presence of canal/ space Constrain
8	2.7 (fig.2.6)	TCS-7	4-lane divided highway with both side service road and with raised	Km (21.190 to 21.390) km (23.965 to 24.465) Km (48.719 to 48.969)	4-lane divided highway with right side service road and with raised median. Service road on LHS is not proposed to avoid land acquisition issue/ site requirement