

**National Highway Infrastructure
Development Corporation Limited**
(Ministry of Road, Transport & Highways)
Government of India

Development, Maintenance, Management and Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis. (Package-4: From Km 133+320 to Km 164+355, Design Length – 31.035 Km)

TECHNICAL SCHEDULES (A to D)

February, 2026

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SCHEDULE-A

(See Clause 2.1 and 8.1)

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** The dates of handing over the Right of Way to the Concessionaire are specified in Annex-II of this Schedule-A.
- 1.3** An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attach to, the Site shall be prepared jointly by the Authority Representative and the Concessionaire, and such inventory shall form part of the memorandum referred to in Clause 8.2(i) of this Agreement.
- 1.4** The alignment plans of the Project Highway are specified in Annex-III of Schedule-A. The proposed profile of the Project Highways shall be followed by the Concessionaire with minimum FRL as indicated in the alignment plan. The Concessionaire, however, improve/upgrade the Road Profile as indicated in Annex-III based on site/design requirement.
- 1.5** The status of the environment clearances obtained or awaited is given in Annex-IV of Schedule-A.

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**Annex – I
(Schedule-A)**

Site for Four Laning

1. Site

The Site of the [Four-Lane] Project Highway starts from Design Chainage 133+320 near Kuliang Village in East Jaintia Hills District in Meghalaya, and terminates at Design Chainage 164+355 near Jagdishpur Pt IV Village in Cachher District in Assam. The total design length of the project alignment is 31.035 km in the State of Meghalaya & Assam.

The land, carriageway and structures comprising the Site are described below.

| S. No. | Existing Chainage (km) | | Design Chainage (km) | | Remarks |
|--------|------------------------|-----|----------------------|---------|--|
| | Start | End | Start | End | |
| 1 | - | - | 133+320 | 164+355 | Proposed alignment for PKG-4 (Entirely Greenfield) |

2. Land

The site of the project highway comprises the land (existing right of way) as described below. An Index map showing the features of Project Highway is given in Appendix A-I.

The Proposed Right of Way Coordinates are given in Appendix A-II.

The Index Map/location plan of the project highway is given at **Appendix A-I of Schedule-A.**

| Sl. No. | Existing Chainage (km) | | EROW (m) | Remarks |
|---|------------------------|----|----------|---------|
| | From | To | | |
| Proposed alignment for High-Speed Corridor PKG-4 (Entire Length Greenfield) | | | | |

3. Carriageway

The carriageway width and type of the existing pavement shown in table below.

| S. No. | Existing Chainage (km) | | Length (km) | Carriageway Width (m) | Pavement Type | Remarks |
|---|------------------------|----|-------------|-----------------------|---------------|---------|
| | From | To | | | | |
| Proposed alignment for High-Speed Corridor PKG-4 (Entire Length Greenfield) | | | | | | |

4. Major Bridges-

The site includes the following major bridge:

Main Carriageway

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | Span arrangement (No. x Span) (m) | Width (m) |
|--------|------------------------|----------------------|-------------------|-----------------------------------|-----------|
| Nil | | | | | |

Cross Road/Approach Road

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | Span arrangement (No. x Span) (m) | Width (m) |
|---|------------------------|----------------------|-------------------|-----------------------------------|-----------|
| Existing Major Bridge at Connecting Road towards Kalain via NH-06 near Proposed Interchange at 151+520 | | | | | |
| 1 | | 2+575 | RCC T Beam | 1x19 + 1x35 + 1x12 | 8.40 |

5. Railway Over Bridges / Road under Bridges

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

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | No. of Spans | Width (m) | No. of Tracks | Remarks |
|--------|------------------------|----------------------|-------------------|--------------|-----------|---------------|---------|
| Nil | | | | | | | |

6. Grade Separators

The site includes the following Grade Separators:

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | No. of Spans with span length (m) | Width (m) |
|--------|------------------------|----------------------|-------------------|-----------------------------------|-----------|
| Nil | | | | | |

7. Minor Bridges

The Site includes the following Minor Bridges:

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | Span arrangement (No. x Span) (m) | Width (m) |
|--------|------------------------|----------------------|-------------------|-----------------------------------|-----------|
| Nil | | | | | |

8. Railway Line / Level Crossings

The Site includes the following Railway Line / Level Crossing:

| S. No. | Existing Chainage (km) | Design Chainage (km) | Railway Crossing Type | No. of Tracks |
|--------|------------------------|----------------------|-----------------------|---------------|
| Nil | | | | |

9. Vehicular Underpasses

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Structure | Clear Span arrangement (No. x Span) (m) | Width (m) |
|--------|------------------------|----------------------|-------------------|---|-----------|
| Nil | | | | | |

10. Culverts

The Site has the following culverts:

Main Carriageway

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Culvert | Span / Opening with span length (m) | Width (m) |
|--------|------------------------|----------------------|-----------------|-------------------------------------|-----------|
| Nil | | | | | |

Interchanges

| S. No. | Existing Chainage (km) | Design Chainage (km) | Type of Culvert | Span / Opening with span length (m) | Width (m) |
|--|------------------------|----------------------|-----------------|-------------------------------------|-----------|
| Existing culverts at Connecting Road to Proposed Interchange at 134+780 (Umkiang) | | | | | |
| 1 | | 0+125 | Slab | 1 x 1.5 | 3.75 |
| 2 | | 0+220 | HPC+Slab (VCW) | 2x0.6+2x1 | 5.5 |
| 3 | | 0+525 | HPC | 3 x 0.6 | 3.75 |
| Existing culverts at Connecting Road to Proposed Interchange at 151+520 (Kalain) | | | | | |
| 4 | | 1+380 | Slab | 1x5 | 7.5 |
| 5 | | 1+620 | Slab | 1x5 | 7.5 |

11. Toll Plaza:

| S. No. | Existing Chainage (km) | Type of Structure | Remarks |
|--------|------------------------|-------------------|---------|
| Nil | | | |

12. Total Number of Structures

The total number of structures on the Site indicated below:

- (a) No. of Major Bridges – 01
- (b) No. of Railway Over Bridges – Nil
- (c) No. of Grade Separators – Nil
- (d) No. of Underpasses – Nil
- (e) No. of Minor Bridges – Nil
- (f) No. of Culverts – 05
- (g) Toll Plaza – Nil

13. Bus bays/Bus shelters and Truck lay-byes

13.1 Truck Lay-byes

The location of existing truck lay-byes are given below:

| S. No. | Existing Chainage (km) | Side | Village |
|--------|------------------------|------|---------|
| Nil | | | |

14. Road Side Drains (Lined)

| S. No. | Existing Chainage (km) | | Side |
|--------|------------------------|----|------|
| | From | To | |
| Nil | | | |

15. Major Junction

The details of major junctions are as follows:

| S. No. | Existing Chainage (km) | Design Chainage (km) | Side (Left/ Right/ Both) | Type of Junction | Category of Road | Remarks |
|--------|------------------------|----------------------|--------------------------|------------------|------------------|---------|
| Nil | | | | | | |

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

16. Minor Junction

The details of minor junctions are as follows:

| S. No. | Existing Chainage (km) | Design Chainage (km) | Side (Left/ Right/ Both) | Type of Junction | Remarks |
|--------|------------------------|----------------------|--------------------------|------------------|---------|
| Nil | | | | | |

17. Built up Area

The existing highway passes through the following built-up areas:

| S. No. | Existing Chainage (km) | | Length (km) | Side | Village name |
|--------|------------------------|----|-------------|--------------------|--------------|
| | From | To | | (LHS / RHS / Both) | |
| Nil | | | | | |

18. Bypasses under consideration

| S. No. | Name of Bypass | Existing Chainage (km) | | Design Length (km) | Remarks |
|--------|----------------|------------------------|-----|--------------------|---------|
| | | Start | End | | |
| Nil | | | | | |

19. Electrical Utilities

The site includes the following electrical utilities:

(a) Extra High-Tension Lines (EHT Lines)

| S. No. | Design Chainage (m) | Crossings | | | | | | Remarks | Authority |
|--------|---------------------|-----------|--------|--------|--------|--------|--------|--|-----------|
| | | 765K V | 400K V | 500K V | 230K V | 132K V | 110K V | | |
| 1 | 134+660 | | 1 | | | | | Shifting/Height raising Required | NETCL |
| 2 | 136+250 | | 1 | | | | | Towers outside RoW. Requisite Vertical clearance available | NETCL |
| 3 | 140+400 | | 1 | | | | | Towers outside RoW. | NETCL |

| S. No. | Design Chainage (m) | Crossings | | | | | | Remarks | Authority |
|--------|---------------------|-----------|--------|--------|--------|--------|--------|--|------------|
| | | 765K V | 400K V | 500K V | 230K V | 132K V | 110K V | | |
| | | | | | | | | Requisite Vertical clearance available | |
| 4 | 142+070 | | 1 | | | | | Height raising Required | NETCL |
| 5 | 143+120 | | | | | 1 | | Shifting/Height raising Required | POWER GRID |
| 6 | 143+200 | | | | | 1 | | Shifting/Height raising Required | MePTCL |
| 7 | 146+940 | | | | | 1 | | Shifting/Height Raising Required | AEGCL |
| 8 | 151+940 | | | | | 1 | | Shifting/Height raising Required | AEGCL |
| 9 | 153+200 | | | | | 1 | | Height raising Required | Power grid |
| 10 | 154+420 | | 1 | | | | | Height raising Required | NETCL |
| 11 | 154+720 | | 1 | | | | | Height raising Required | NETCL |
| 12 | 155+020 | | 1 | | | | | Height raising Required | NETCL |
| 13 | 0+960 | | | | | 1 | | Height Raising Required | AEGCL |

- SC – Single Circuit, DC – Double Circuit

Note: Shutdown charges, supervision charges, land charges shall be borne by the

Authority.

(b) Low Tension Lines (LT Lines)

| S. No. | Design Chainage | Length (in Km) | | | LT (UG) | Crossings | | | Transformer (63 Kv/ 100 KV/ 200KV) No. |
|--------|-----------------|----------------|-------|------|---------|-----------|-------|----|--|
| | | 33 KV | 11 KV | LT | | 33 KV | 11 KV | LT | |
| 1 | 146+420 | - | 0.11 | - | - | | | 1 | |
| 2 | 149+220 | 0.15 | - | - | - | | 1 | | |
| 3 | 151+020 | - | - | 0.15 | - | | 2 | | |
| 4 | 151+520 | - | 0.2 | - | - | 1 | 3 | | |
| 5 | 153+420 | | | | | | | 1 | |
| 6 | 153+470 | | | | | | 1 | | |
| 7 | 154+470 | - | 0.2 | - | - | | 1 | 1 | |
| 8 | 154+920 | - | 0.2 | - | - | | 1 | 1 | |
| 9 | 156+470 | - | - | - | - | | | 1 | |
| 10 | 158+220 | - | - | - | - | | 1 | 1 | |
| 11 | 159+920 | - | - | - | - | | | 1 | |
| 12 | 163+720 | - | - | - | - | | | 1 | |
| 13 | 163+920 | - | - | - | - | | 1 | | |
| 14 | 164+320 | - | - | - | - | | 1 | | |

Note: Shutdown charges, supervision charges, land charges shall be borne by the Authority.

20. Water Pipeline Utilities

The site includes the following water pipeline utilities:

| S. No. | Design Chainage (m) | Length (m) | Dia. (mm) | Type of pipe | Crossings (Nos.) |
|--------|----------------------------------|------------|-----------|--------------|------------------|
| 1 | 163+920 | 120 | 90 | | 1 |
| | | 120 | 110 | | |
| 2 | 158+220 | 120 | 110 | | 1 |
| 3 | 156+420 | 400 | 110 | | 1 |
| 4 | 154+470 | 230 | 110 | | 1 |
| 5 | 153+170 | 150 | 160 | | 1 |
| 6 | 150+220 | 300 | 110 | | 1 |
| 7 | 147+020 | 250 | 110 | | 1 |
| 8 | 144+870 Treatment plant affected | 350 | 110 | | 1 |
| 9 | 144+870 | 200 | 50 | G.I. | 1 |

Note: Shutdown charges, Supervision charges, land charges shall be borne by the Authority.

21. IGGL

The site includes the following gas pipeline utilities:

| S. No. | Design Chainage (km) | | Length (m) | Dia (mm) | Type of pipe | Crossings (Nos.) |
|---------------|-----------------------------|-----------|-------------------|-----------------|---------------------|-------------------------|
| | From | To | | | | |
| 1 | 135+700 | 136+220 | | 2500 | CAST STEEL | 1 |
| 2 | 138+970 | 139+660 | | 2500 | CAST STEEL | 1 |
| 3 | 140+170 | 140+570 | | 2500 | CAST STEEL | 1 |
| 4 | 141+860 | 142+100 | | 2500 | CAST STEEL | 1 |
| 5 | 163+520 | 163+980 | | 2500 | CAST STEEL | 1 |

Note: Shutdown charges, Supervision charges, land charges shall be borne by the Authority.

Annex - II

(Schedule-A)

DATES FOR PROVIDING RIGHT OF WAY OF CONSTRUCTION ZONE

The dates on which the Authority shall provide Right of Way of Construction Zone to the Concessionaire on different stretches of the Site are stated below:

| SI. No | From km to km | Length (km) | Width (m) | Date of providing Right of Way* |
|-------------------------------------|-----------------------|-----------------------|-----------------------|--|
| -1 | -2 | -3 | -4 | -5 |
| (i) Full Right of Way (full width) | Table Mentioned below | Table Mentioned below | Table Mentioned below | 80% on appointed date and remaining within 150 days from appointed date. |
| (ii) Part Right of Way (part width) | | | | |
| (a) Stretch | – | – | – | – |
| (b) Stretch | | | | |
| (c) Stretch | | | | |
| (iii) Balance Right of Way (width) | | | | |
| (a) Stretch | – | – | – | – |
| (b) Stretch | | | | |
| (c) Stretch | | | | |

For Main Carriageway

| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 1 | 133+320 | 133+370 | 50 | 48 | 34 | 82 |
| 2 | 133+370 | 133+420 | 50 | 36 | 30 | 66 |
| 3 | 133+420 | 133+470 | 50 | 40 | 24 | 64 |
| 4 | 133+470 | 133+570 | 100 | 30 | 28 | 58 |
| 5 | 133+570 | 133+620 | 50 | 32 | 32 | 64 |
| 6 | 133+620 | 133+670 | 50 | 34 | 34 | 68 |
| 7 | 133+670 | 133+720 | 50 | 24 | 34 | 58 |
| 8 | 133+720 | 133+820 | 100 | 44 | 40 | 84 |
| 9 | 133+820 | 133+970 | 150 | 30 | 30 | 60 |
| 10 | 133+970 | 134+070 | 100 | 34 | 32 | 66 |
| 11 | 134+070 | 134+170 | 100 | 30 | 32 | 62 |
| 12 | 134+170 | 134+220 | 50 | 30 | 34 | 64 |

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| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 13 | 134+220 | 134+270 | 50 | 36 | 34 | 70 |
| 14 | 134+270 | 134+320 | 50 | 34 | 34 | 68 |
| 15 | 134+320 | 134+620 | 300 | 40 | 42 | 82 |
| 16 | 134+620 | 134+820 | 200 | 60 | 42 | 102 |
| 17 | 134+820 | 134+970 | 150 | 40 | 62 | 102 |
| 18 | 134+970 | 135+170 | 200 | 45 | 43 | 88 |
| 19 | 135+170 | 135+270 | 100 | 45 | 0 | 45 |
| 20 | 135+270 | 135+420 | 150 | 36 | 34 | 70 |
| 21 | 135+420 | 135+470 | 50 | 36 | 44 | 80 |
| 22 | 135+470 | 135+520 | 50 | 30 | 44 | 74 |
| 23 | 135+520 | 135+570 | 50 | 38 | 46 | 84 |
| 24 | 135+570 | 135+670 | 100 | 38 | 38 | 76 |
| 25 | 135+670 | 135+720 | 50 | 40 | 38 | 78 |
| 26 | 135+720 | 135+820 | 100 | 38 | 30 | 68 |
| 27 | 135+820 | 135+870 | 50 | 40 | 32 | 72 |
| 28 | 135+870 | 135+920 | 50 | 38 | 32 | 70 |
| 29 | 135+920 | 136+020 | 100 | 36 | 36 | 72 |
| 30 | 136+020 | 136+070 | 50 | 34 | 50 | 84 |
| 31 | 136+070 | 136+120 | 50 | 38 | 52 | 90 |
| 32 | 136+120 | 136+320 | 200 | 60 | 60 | 120 |
| 33 | 136+320 | 136+420 | 100 | 75 | 68 | 143 |
| 34 | 136+420 | 136+620 | 200 | 75 | 60 | 135 |
| 35 | 136+620 | 136+720 | 100 | 28 | 36 | 64 |
| 36 | 136+720 | 136+770 | 50 | 32 | 36 | 68 |
| 37 | 136+770 | 136+820 | 50 | 32 | 42 | 74 |
| 38 | 136+820 | 136+920 | 100 | 44 | 42 | 86 |
| 39 | 136+920 | 136+970 | 50 | 44 | 44 | 88 |
| 40 | 136+970 | 137+020 | 50 | 58 | 62 | 120 |
| 41 | 137+020 | 137+070 | 50 | 58 | 72 | 130 |
| 42 | 137+070 | 137+120 | 50 | 50 | 80 | 130 |
| 43 | 137+120 | 137+170 | 50 | 50 | 64 | 114 |
| 44 | 137+170 | 137+220 | 50 | 38 | 64 | 102 |
| 45 | 137+220 | 137+270 | 50 | 32 | 64 | 96 |
| 46 | 137+270 | 137+320 | 50 | 54 | 56 | 110 |
| 47 | 137+320 | 137+370 | 50 | 44 | 56 | 100 |
| 48 | 137+370 | 137+420 | 50 | 40 | 58 | 98 |
| 49 | 137+420 | 137+470 | 50 | 30 | 58 | 88 |
| 50 | 137+470 | 137+520 | 50 | 64 | 58 | 122 |
| 51 | 137+520 | 137+620 | 100 | 64 | 54 | 118 |
| 52 | 137+620 | 137+670 | 50 | 64 | 50 | 114 |
| 53 | 137+670 | 137+720 | 50 | 76 | 48 | 124 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 54 | 137+720 | 137+820 | 100 | 70 | 48 | 118 |
| 55 | 137+820 | 137+870 | 50 | 55 | 50 | 105 |
| 56 | 137+870 | 137+970 | 100 | 75 | 50 | 125 |
| 57 | 137+970 | 138+020 | 50 | 75 | 48 | 123 |
| 58 | 138+020 | 138+070 | 50 | 58 | 48 | 106 |
| 59 | 138+070 | 138+120 | 50 | 58 | 54 | 112 |
| 60 | 138+120 | 138+320 | 200 | 50 | 54 | 104 |
| 61 | 138+320 | 138+370 | 50 | 42 | 48 | 90 |
| 62 | 138+370 | 138+420 | 50 | 84 | 48 | 132 |
| 63 | 138+420 | 138+470 | 50 | 42 | 52 | 94 |
| 64 | 138+470 | 138+620 | 150 | 50 | 54 | 104 |
| 65 | 138+620 | 138+670 | 50 | 46 | 54 | 100 |
| 66 | 138+670 | 138+770 | 100 | 46 | 72 | 118 |
| 67 | 138+770 | 138+870 | 100 | 50 | 54 | 104 |
| 68 | 138+870 | 138+920 | 50 | 62 | 66 | 128 |
| 69 | 138+920 | 138+970 | 50 | 38 | 72 | 110 |
| 70 | 138+970 | 139+020 | 50 | 94 | 72 | 166 |
| 71 | 139+020 | 139+070 | 50 | 94 | 108 | 202 |
| 72 | 139+070 | 139+220 | 150 | 104 | 108 | 212 |
| 73 | 139+220 | 139+270 | 50 | 104 | 52 | 156 |
| 74 | 139+270 | 139+320 | 50 | 108 | 52 | 160 |
| 75 | 139+320 | 139+370 | 50 | 108 | 50 | 158 |
| 76 | 139+370 | 139+420 | 50 | 112 | 50 | 162 |
| 77 | 139+420 | 139+470 | 50 | 112 | 86 | 198 |
| 78 | 139+470 | 139+520 | 50 | 42 | 86 | 128 |
| 79 | 139+520 | 139+570 | 50 | 42 | 92 | 134 |
| 80 | 139+570 | 139+620 | 50 | 40 | 86 | 126 |
| 81 | 139+620 | 139+670 | 50 | 40 | 76 | 116 |
| 82 | 139+670 | 139+720 | 50 | 124 | 84 | 208 |
| 83 | 139+720 | 139+770 | 50 | 124 | 76 | 200 |
| 84 | 139+770 | 139+870 | 100 | 124 | 58 | 182 |
| 85 | 139+870 | 139+920 | 50 | 96 | 58 | 154 |
| 86 | 139+920 | 140+020 | 100 | 66 | 54 | 120 |
| 87 | 140+020 | 140+120 | 100 | 66 | 62 | 128 |
| 88 | 140+120 | 140+170 | 50 | 58 | 62 | 120 |
| 89 | 140+170 | 140+270 | 100 | 58 | 88 | 146 |
| 90 | 140+270 | 140+420 | 150 | 82 | 88 | 170 |
| 91 | 140+420 | 140+520 | 100 | 82 | 66 | 148 |
| 92 | 140+520 | 140+570 | 50 | 82 | 50 | 132 |
| 93 | 140+570 | 140+670 | 100 | 32 | 50 | 82 |
| 94 | 140+670 | 140+720 | 50 | 32 | 58 | 90 |

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| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 95 | 140+720 | 140+770 | 50 | 36 | 58 | 94 |
| 96 | 140+770 | 140+870 | 100 | 66 | 58 | 124 |
| 97 | 140+870 | 140+920 | 50 | 66 | 76 | 142 |
| 98 | 140+920 | 141+020 | 100 | 122 | 76 | 198 |
| 99 | 141+020 | 141+070 | 50 | 154 | 76 | 230 |
| 100 | 141+070 | 141+120 | 50 | 148 | 76 | 224 |
| 101 | 141+120 | 141+170 | 50 | 148 | 60 | 208 |
| 102 | 141+170 | 141+220 | 50 | 90 | 60 | 150 |
| 103 | 141+220 | 141+270 | 50 | 94 | 60 | 154 |
| 104 | 141+270 | 141+320 | 50 | 138 | 60 | 198 |
| 105 | 141+320 | 141+370 | 50 | 130 | 60 | 190 |
| 106 | 141+370 | 141+420 | 50 | 88 | 60 | 148 |
| 107 | 141+420 | 141+470 | 50 | 88 | 54 | 142 |
| 108 | 141+470 | 141+520 | 50 | 78 | 54 | 132 |
| 109 | 141+520 | 141+620 | 100 | 78 | 66 | 144 |
| 110 | 141+620 | 141+670 | 50 | 65 | 66 | 131 |
| 111 | 141+670 | 141+720 | 50 | 65 | 78 | 143 |
| 112 | 141+720 | 141+820 | 100 | 112 | 78 | 190 |
| 113 | 141+820 | 141+870 | 50 | 82 | 78 | 160 |
| 114 | 141+870 | 141+920 | 50 | 82 | 64 | 146 |
| 115 | 141+920 | 142+020 | 100 | 86 | 64 | 150 |
| 116 | 142+020 | 142+170 | 150 | 74 | 48 | 122 |
| 117 | 142+170 | 142+370 | 200 | 42 | 80 | 122 |
| 118 | 142+370 | 142+470 | 100 | 48 | 80 | 128 |
| 119 | 142+470 | 142+570 | 100 | 38 | 104 | 142 |
| 120 | 142+570 | 142+620 | 50 | 96 | 56 | 152 |
| 121 | 142+620 | 142+670 | 50 | 96 | 48 | 144 |
| 122 | 142+670 | 142+720 | 50 | 120 | 48 | 168 |
| 123 | 142+720 | 142+870 | 150 | 120 | 60 | 180 |
| 124 | 142+870 | 142+920 | 50 | 96 | 60 | 156 |
| 125 | 142+920 | 143+020 | 100 | 96 | 54 | 150 |
| 126 | 143+020 | 143+070 | 50 | 66 | 54 | 120 |
| 127 | 143+070 | 143+170 | 100 | 48 | 42 | 90 |
| 128 | 143+170 | 143+220 | 50 | 80 | 58 | 138 |
| 129 | 143+220 | 143+270 | 50 | 92 | 48 | 140 |
| 130 | 143+270 | 143+320 | 50 | 80 | 48 | 128 |
| 131 | 143+320 | 143+370 | 50 | 96 | 56 | 152 |
| 132 | 143+370 | 143+420 | 50 | 120 | 52 | 172 |
| 133 | 143+420 | 143+520 | 100 | 96 | 52 | 148 |
| 134 | 143+520 | 143+570 | 50 | 102 | 52 | 154 |
| 135 | 143+570 | 143+620 | 50 | 92 | 52 | 144 |

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| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 136 | 143+620 | 143+670 | 50 | 88 | 52 | 140 |
| 137 | 143+670 | 143+770 | 100 | 58 | 46 | 104 |
| 138 | 143+770 | 143+870 | 100 | 58 | 40 | 98 |
| 139 | 143+870 | 143+920 | 50 | 66 | 36 | 102 |
| 140 | 143+920 | 143+970 | 50 | 62 | 64 | 126 |
| 141 | 143+970 | 144+020 | 50 | 56 | 34 | 90 |
| 142 | 144+020 | 144+070 | 50 | 60 | 34 | 94 |
| 143 | 144+070 | 144+120 | 50 | 60 | 40 | 100 |
| 144 | 144+120 | 144+520 | 400 | 22.5 | 22.5 | 45 |
| 145 | 144+520 | 144+620 | 100 | 40 | 36 | 76 |
| 146 | 144+620 | 144+670 | 50 | 30 | 36 | 66 |
| 147 | 144+670 | 144+720 | 50 | 30 | 72 | 102 |
| 148 | 144+720 | 144+820 | 100 | 44 | 72 | 116 |
| 149 | 144+820 | 144+920 | 100 | 40 | 72 | 112 |
| 150 | 144+920 | 144+970 | 50 | 40 | 64 | 104 |
| 151 | 144+970 | 145+070 | 100 | 48 | 64 | 112 |
| 152 | 145+070 | 145+120 | 50 | 48 | 30 | 78 |
| 153 | 145+120 | 145+170 | 50 | 30 | 30 | 60 |
| 154 | 145+170 | 145+220 | 50 | 30 | 48 | 78 |
| 155 | 145+220 | 145+320 | 100 | 32 | 48 | 80 |
| 156 | 145+320 | 145+370 | 50 | 32 | 30 | 62 |
| 157 | 145+370 | 145+720 | 350 | 30 | 30 | 60 |
| 158 | 145+720 | 145+770 | 50 | 36 | 30 | 66 |
| 159 | 145+770 | 145+820 | 50 | 36 | 52 | 88 |
| 160 | 145+820 | 145+870 | 50 | 30 | 52 | 82 |
| 161 | 145+870 | 146+520 | 650 | 30 | 30 | 60 |
| 162 | 146+520 | 146+670 | 150 | 34 | 30 | 64 |
| 163 | 146+670 | 146+870 | 200 | 30 | 30 | 60 |
| 164 | 146+870 | 146+970 | 100 | 35 | 30 | 65 |
| 165 | 146+970 | 147+170 | 200 | 30 | 30 | 60 |
| 166 | 147+170 | 147+270 | 100 | 45 | 30 | 75 |
| 167 | 147+270 | 148+420 | 1150 | 30 | 30 | 60 |
| 168 | 148+420 | 148+670 | 250 | 30 | 35 | 65 |
| 169 | 148+670 | 148+820 | 150 | 30 | 45 | 75 |
| 170 | 148+820 | 149+320 | 500 | 30 | 30 | 60 |
| 171 | 149+320 | 149+770 | 450 | 30 | 35 | 65 |
| 172 | 149+770 | 151+020 | 1250 | 30 | 30 | 60 |
| 173 | 151+020 | 152+020 | 1000 | 55 | 55 | 110 |
| 174 | 152+020 | 152+870 | 850 | 30 | 30 | 60 |
| 175 | 152+870 | 152+970 | 100 | 30 | 35 | 65 |
| 176 | 152+970 | 153+570 | 600 | 35 | 35 | 70 |

| S. No. | Chainage (m) | | Length (m) | Row Width (m) | | Total Width (m) |
|--------|--------------|---------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 177 | 153+570 | 154+170 | 600 | 30 | 30 | 60 |
| 178 | 154+170 | 154+320 | 150 | 38 | 35 | 73 |
| 179 | 154+320 | 154+370 | 50 | 38 | 40 | 78 |
| 180 | 154+370 | 154+420 | 50 | 45 | 40 | 85 |
| 181 | 154+420 | 154+670 | 250 | 45 | 45 | 90 |
| 182 | 154+670 | 154+820 | 150 | 40 | 40 | 80 |
| 183 | 154+820 | 155+020 | 200 | 35 | 35 | 70 |
| 184 | 155+020 | 156+370 | 1350 | 30 | 30 | 60 |
| 185 | 156+370 | 156+520 | 150 | 30 | 35 | 65 |
| 186 | 156+520 | 156+670 | 150 | 35 | 35 | 70 |
| 187 | 156+670 | 156+870 | 200 | 30 | 30 | 60 |
| 188 | 156+870 | 156+970 | 100 | 30 | 35 | 65 |
| 189 | 156+970 | 157+070 | 100 | 35 | 35 | 70 |
| 190 | 157+070 | 157+170 | 100 | 35 | 30 | 65 |
| 191 | 157+170 | 157+320 | 150 | 35 | 35 | 70 |
| 192 | 157+320 | 157+970 | 650 | 30 | 30 | 60 |
| 193 | 157+970 | 158+070 | 100 | 35 | 35 | 70 |
| 194 | 158+070 | 158+420 | 350 | 40 | 40 | 80 |
| 195 | 158+420 | 158+570 | 150 | 35 | 35 | 70 |
| 196 | 158+570 | 159+920 | 1350 | 30 | 30 | 60 |
| 197 | 159+920 | 160+120 | 200 | 35 | 35 | 70 |
| 198 | 160+120 | 160+170 | 50 | 40 | 35 | 75 |
| 199 | 160+170 | 160+320 | 150 | 40 | 40 | 80 |
| 200 | 160+320 | 160+370 | 50 | 40 | 35 | 75 |
| 201 | 160+370 | 160+520 | 150 | 51 | 35 | 86 |
| 202 | 160+520 | 160+570 | 50 | 51 | 30 | 81 |
| 203 | 160+570 | 160+720 | 150 | 35 | 30 | 65 |
| 204 | 160+720 | 160+820 | 100 | 35 | 35 | 70 |
| 205 | 160+820 | 160+920 | 100 | 35 | 30 | 65 |
| 206 | 160+920 | 161+520 | 600 | 30 | 30 | 60 |
| 207 | 161+520 | 161+620 | 100 | 35 | 35 | 70 |
| 208 | 161+620 | 161+970 | 350 | 30 | 30 | 60 |
| 209 | 161+970 | 162+070 | 100 | 35 | 30 | 65 |
| 210 | 162+070 | 163+470 | 1400 | 30 | 30 | 60 |

1. Interchange at Ch. 134+780 Cross Road of Umkiang

| S. No. | Chainage (m) | | Length (m) | RoW Width (m) | | Total Width (m) |
|--------|--------------|------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 1 | 300 | 1104 | 804 | 10 | 10 | 20 |

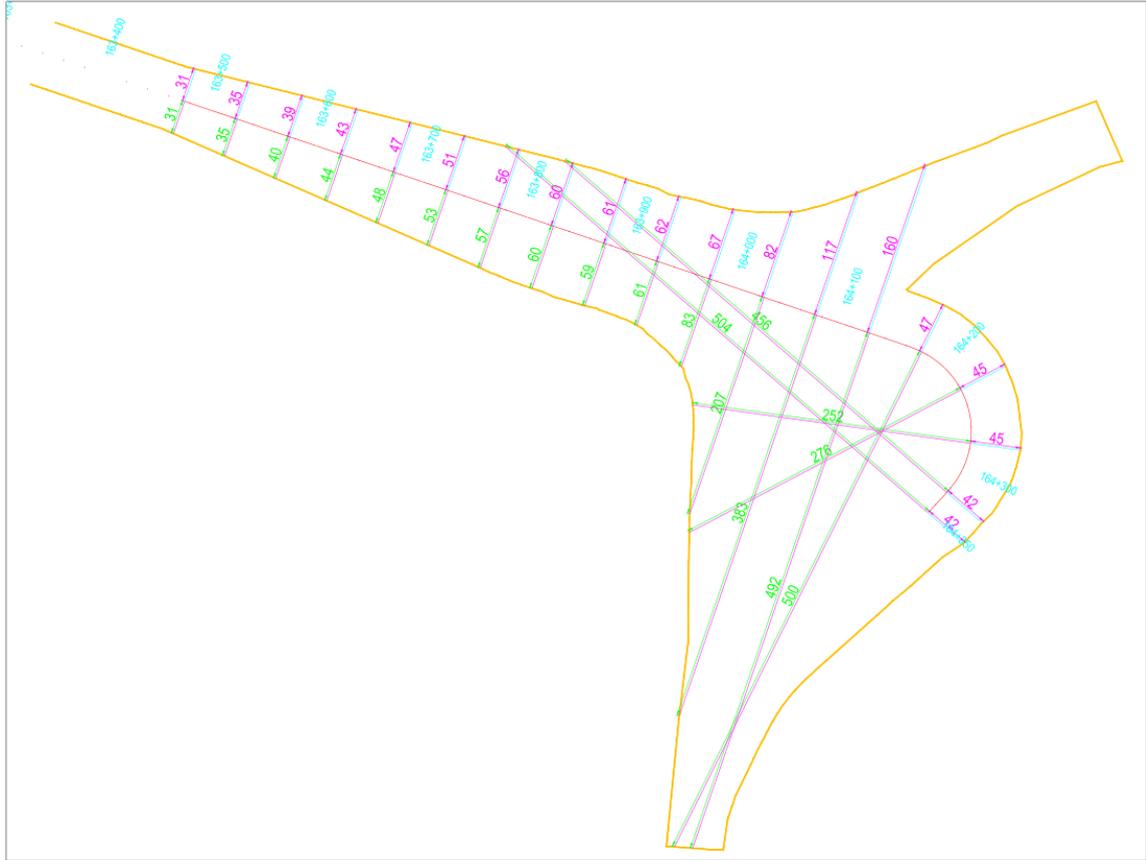
2. Interchange at Ch. 151+520 Cross Road of Kalain (NH-06)

| S. No. | Chainage (m) | | Length (m) | RoW Width (m) | | Total Width (m) |
|--------|--------------|------|------------|---------------|-------|-----------------|
| | From | To | | Left | Right | |
| 1 | 0 | 2782 | 2782 | 12 | 12 | 24 |

3. Trumpet Interchange at Ch. 164+120 (Badarpur Bypass)

| Design Chainage | ROW Width (m) | | Total Width (m) |
|-----------------|---------------|-----|-----------------|
| | LHS | RHS | |
| 163+480 | 31 | 31 | 62 |
| 163+525 | 35 | 35 | 70 |
| 163+575 | 39 | 40 | 79 |
| 163+625 | 43 | 44 | 87 |
| 163+675 | 47 | 48 | 95 |
| 163+725 | 51 | 53 | 104 |
| 163+775 | 56 | 57 | 113 |
| 163+825 | 60 | 60 | 120 |
| 163+875 | 61 | 59 | 120 |
| 163+925 | 62 | 61 | 123 |
| 163+975 | 67 | 83 | 150 |
| 164+025 | 82 | 207 | 289 |
| 164+075 | 117 | 383 | 500 |
| 164+125 | 160 | 492 | 652 |
| 164+175 | 47 | 500 | 547 |
| 164+225 | 45 | 276 | 321 |
| 164+275 | 45 | 252 | 297 |
| 164+325 | 42 | 456 | 498 |
| 164+350 | 42 | 504 | 546 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)



ANNEX-III

(Schedule-A)

ALIGNMENT PLAN

The alignment plan of the Project Highway is available on E - Tendering portal of NHIDCL.

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

- (i) The alignment of the Project Highway enclosed in alignment plan **(Plan & Profile given with Drawing Volume)**. Finished road level indicated in the alignment plan shall be minimum requirement. In any case, the finished road level of the project highway shall not be less than those indicated in the alignment plan. The Concessionaire shall, however, improve/upgrade the road profile as indicated in Annex-III based on site/design requirement.
- (ii) Traffic Signage plan of the Project Highway showing numbers & locations of traffic signs is enclosed, which is minimum requirement. The Concessionaire shall, however, improve/upgrade upon the traffic signage plan as indicated in Annex-III of Schedule-A based on site/design requirement as per IRC: SP: 84 & IRC: 67 and other project facilities/road furniture as per IRC standards/Manual.

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ANNEX-IV

(Schedule-A)

ENVIRONMENTAL CLEARANCES

Environmental Clearance : Not Applicable

Forest Clearance : Deemed Forest identification under progress.

Wildlife Clearance/ESZ : The stretches passing through ESZ are Km 139.620 to Km 140.320= 0.700, Km 140.920 to km 141.520= 0.600, Km 141.620 to Km 141.720= 0.100 in Meghalaya section Km 141.720 to 145.920= 4.2 Km. in Assam Section.

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Appendix A-I (Schedule-A)

INDEX MAP/LOCATION

PLAN OF THE PROJECT HIGHWAY



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Appendix A-II (Schedule-A)

Proposed ROW Co-ordinates

Main Carriageway

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 1 | 133+320 | 435542.79 | 2772409.30 | 435565.92 | 2772451.36 | 435526.41 | 2772379.50 |
| 2 | 133+370 | 435586.61 | 2772385.21 | 435603.95 | 2772416.75 | 435572.16 | 2772358.92 |
| 3 | 133+420 | 435630.42 | 2772361.12 | 435649.69 | 2772396.17 | 435618.86 | 2772340.09 |
| 4 | 133+470 | 435674.24 | 2772337.03 | 435688.69 | 2772363.32 | 435660.75 | 2772312.50 |
| 5 | 133+520 | 435718.05 | 2772312.94 | 435732.51 | 2772339.23 | 435704.56 | 2772288.41 |
| 6 | 133+570 | 435761.87 | 2772288.86 | 435777.29 | 2772316.90 | 435746.45 | 2772260.81 |
| 7 | 133+620 | 435805.68 | 2772264.77 | 435822.06 | 2772294.56 | 435789.30 | 2772234.97 |
| 8 | 133+670 | 435849.50 | 2772240.68 | 435861.06 | 2772261.71 | 435833.12 | 2772210.89 |
| 9 | 133+720 | 435893.31 | 2772216.59 | 435914.51 | 2772255.15 | 435874.04 | 2772181.54 |
| 10 | 133+770 | 435937.17 | 2772192.58 | 435958.03 | 2772231.32 | 435918.21 | 2772157.36 |
| 11 | 133+820 | 435981.52 | 2772169.49 | 435995.00 | 2772196.29 | 435968.04 | 2772142.69 |
| 12 | 133+870 | 436026.49 | 2772147.65 | 436039.23 | 2772174.81 | 436013.76 | 2772120.48 |
| 13 | 133+920 | 436072.05 | 2772127.05 | 436084.07 | 2772154.53 | 436060.03 | 2772099.56 |
| 14 | 133+970 | 436117.90 | 2772107.11 | 436131.45 | 2772138.29 | 436105.15 | 2772077.76 |
| 15 | 134+020 | 436163.76 | 2772087.18 | 436177.31 | 2772118.36 | 436151.01 | 2772057.83 |
| 16 | 134+070 | 436209.62 | 2772067.25 | 436221.57 | 2772094.76 | 436196.86 | 2772037.90 |
| 17 | 134+120 | 436255.47 | 2772047.32 | 436267.43 | 2772074.83 | 436242.72 | 2772017.97 |
| 18 | 134+170 | 436301.33 | 2772027.39 | 436313.29 | 2772054.91 | 436287.78 | 2771996.21 |
| 19 | 134+220 | 436347.19 | 2772007.46 | 436361.54 | 2772040.48 | 436333.63 | 2771976.28 |
| 20 | 134+270 | 436393.04 | 2771987.53 | 436406.59 | 2772018.72 | 436379.49 | 2771956.35 |
| 21 | 134+320 | 436438.90 | 2771967.60 | 436454.84 | 2772004.29 | 436422.16 | 2771929.08 |
| 22 | 134+370 | 436484.76 | 2771947.68 | 436500.70 | 2771984.36 | 436468.02 | 2771909.16 |
| 23 | 134+420 | 436530.61 | 2771927.75 | 436546.56 | 2771964.43 | 436513.87 | 2771889.23 |
| 24 | 134+470 | 436576.47 | 2771907.82 | 436592.41 | 2771944.50 | 436559.73 | 2771869.30 |
| 25 | 134+520 | 436622.33 | 2771887.89 | 436638.27 | 2771924.57 | 436605.59 | 2771849.37 |
| 26 | 134+570 | 436668.18 | 2771867.96 | 436684.13 | 2771904.64 | 436651.44 | 2771829.44 |
| 27 | 134+620 | 436714.04 | 2771848.03 | 436737.95 | 2771903.06 | 436697.30 | 2771809.51 |
| 28 | 134+670 | 436759.90 | 2771828.10 | 436783.81 | 2771883.13 | 436743.16 | 2771789.58 |
| 29 | 134+720 | 436805.72 | 2771808.11 | 436830.14 | 2771862.91 | 436788.63 | 2771769.74 |
| 30 | 134+770 | 436850.61 | 2771786.11 | 436879.62 | 2771838.63 | 436830.30 | 2771749.35 |
| 31 | 134+820 | 436892.94 | 2771759.56 | 436916.05 | 2771792.21 | 436857.13 | 2771708.95 |
| 32 | 134+870 | 436932.07 | 2771728.47 | 436958.65 | 2771758.36 | 436890.87 | 2771682.14 |
| 33 | 134+920 | 436967.51 | 2771693.23 | 436997.22 | 2771720.02 | 436921.47 | 2771651.72 |
| 34 | 134+970 | 436999.71 | 2771654.99 | 437034.66 | 2771683.34 | 436966.31 | 2771627.91 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 35 | 135+020 | 437031.20 | 2771616.15 | 437066.16 | 2771644.49 | 436997.80 | 2771589.07 |
| 36 | 135+070 | 437062.69 | 2771577.31 | 437097.64 | 2771605.65 | 437029.29 | 2771550.23 |
| 37 | 135+120 | 437094.18 | 2771538.47 | 437129.13 | 2771566.81 | 437060.78 | 2771511.39 |
| 38 | 135+170 | 437125.67 | 2771499.64 | 437160.62 | 2771527.98 | 437096.15 | 2771475.70 |
| 39 | 135+220 | 437157.16 | 2771460.80 | 437192.11 | 2771489.14 | 437127.64 | 2771436.87 |
| 40 | 135+270 | 437188.64 | 2771421.96 | 437226.61 | 2771444.63 | 437162.23 | 2771400.55 |
| 41 | 135+320 | 437220.13 | 2771383.12 | 437248.10 | 2771405.79 | 437193.72 | 2771361.71 |
| 42 | 135+370 | 437251.62 | 2771344.28 | 437279.59 | 2771366.95 | 437225.21 | 2771322.87 |
| 43 | 135+420 | 437283.11 | 2771305.44 | 437311.07 | 2771328.11 | 437248.93 | 2771277.73 |
| 44 | 135+470 | 437314.60 | 2771266.60 | 437337.90 | 2771285.50 | 437280.42 | 2771238.89 |
| 45 | 135+520 | 437346.09 | 2771227.76 | 437375.61 | 2771251.70 | 437310.36 | 2771198.79 |
| 46 | 135+570 | 437377.58 | 2771188.93 | 437407.09 | 2771212.86 | 437348.06 | 2771164.99 |
| 47 | 135+620 | 437409.07 | 2771150.09 | 437438.58 | 2771174.02 | 437379.55 | 2771126.15 |
| 48 | 135+670 | 437440.55 | 2771111.25 | 437471.63 | 2771136.44 | 437411.04 | 2771087.32 |
| 49 | 135+720 | 437472.04 | 2771072.41 | 437501.56 | 2771096.34 | 437448.74 | 2771053.52 |
| 50 | 135+770 | 437503.54 | 2771033.57 | 437533.01 | 2771057.55 | 437480.26 | 2771014.64 |
| 51 | 135+820 | 437536.10 | 2770995.64 | 437565.28 | 2771023.01 | 437512.76 | 2770973.75 |
| 52 | 135+870 | 437572.49 | 2770961.40 | 437596.75 | 2770990.65 | 437552.06 | 2770936.77 |
| 53 | 135+920 | 437612.86 | 2770931.96 | 437632.21 | 2770962.32 | 437593.51 | 2770901.61 |
| 54 | 135+970 | 437656.59 | 2770907.79 | 437672.01 | 2770940.32 | 437641.18 | 2770875.26 |
| 55 | 136+020 | 437703.00 | 2770889.26 | 437713.61 | 2770921.56 | 437687.39 | 2770841.75 |
| 56 | 136+070 | 437751.35 | 2770876.65 | 437758.62 | 2770913.95 | 437741.40 | 2770825.61 |
| 57 | 136+120 | 437800.90 | 2770870.17 | 437804.94 | 2770930.04 | 437796.85 | 2770810.31 |
| 58 | 136+170 | 437850.86 | 2770869.92 | 437847.41 | 2770929.83 | 437854.31 | 2770810.02 |
| 59 | 136+220 | 437900.50 | 2770875.72 | 437890.72 | 2770934.92 | 437910.28 | 2770816.52 |
| 60 | 136+270 | 437949.70 | 2770884.60 | 437938.83 | 2770943.61 | 437960.58 | 2770825.60 |
| 61 | 136+320 | 437998.88 | 2770893.67 | 437985.28 | 2770967.42 | 438011.20 | 2770826.79 |
| 62 | 136+370 | 438048.05 | 2770902.73 | 438034.45 | 2770976.49 | 438060.37 | 2770835.86 |
| 63 | 136+420 | 438097.22 | 2770911.80 | 438083.62 | 2770985.55 | 438108.10 | 2770852.79 |
| 64 | 136+470 | 438146.39 | 2770920.86 | 438132.79 | 2770994.62 | 438157.27 | 2770861.86 |
| 65 | 136+520 | 438195.56 | 2770929.93 | 438181.97 | 2771003.68 | 438206.43 | 2770870.92 |
| 66 | 136+570 | 438244.90 | 2770938.00 | 438235.55 | 2771012.42 | 438252.38 | 2770878.47 |
| 67 | 136+620 | 438294.76 | 2770941.18 | 438294.73 | 2770969.18 | 438294.81 | 2770905.18 |
| 68 | 136+670 | 438344.64 | 2770938.12 | 438348.10 | 2770965.90 | 438340.19 | 2770902.39 |
| 69 | 136+720 | 438393.74 | 2770928.86 | 438401.62 | 2770959.88 | 438384.87 | 2770893.97 |
| 70 | 136+770 | 438441.31 | 2770913.56 | 438452.99 | 2770943.35 | 438425.97 | 2770874.46 |
| 71 | 136+820 | 438486.59 | 2770892.44 | 438507.64 | 2770931.08 | 438466.50 | 2770855.56 |
| 72 | 136+870 | 438528.99 | 2770865.98 | 438554.06 | 2770902.14 | 438505.06 | 2770831.47 |
| 73 | 136+920 | 438569.62 | 2770836.85 | 438595.41 | 2770872.51 | 438543.84 | 2770801.20 |
| 74 | 136+970 | 438610.14 | 2770807.55 | 438644.13 | 2770854.55 | 438573.81 | 2770757.31 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 75 | 137+020 | 438650.66 | 2770778.25 | 438684.64 | 2770825.25 | 438608.47 | 2770719.91 |
| 76 | 137+070 | 438691.17 | 2770748.96 | 438720.47 | 2770789.47 | 438644.29 | 2770684.13 |
| 77 | 137+120 | 438731.69 | 2770719.66 | 438760.99 | 2770760.17 | 438694.19 | 2770667.80 |
| 78 | 137+170 | 438772.21 | 2770690.36 | 438794.47 | 2770721.15 | 438734.70 | 2770638.50 |
| 79 | 137+220 | 438812.72 | 2770661.06 | 438831.47 | 2770686.99 | 438775.22 | 2770609.20 |
| 80 | 137+270 | 438853.24 | 2770631.76 | 438884.88 | 2770675.52 | 438820.42 | 2770586.38 |
| 81 | 137+320 | 438893.75 | 2770602.46 | 438919.54 | 2770638.11 | 438860.94 | 2770557.08 |
| 82 | 137+370 | 438934.27 | 2770573.16 | 438957.71 | 2770605.57 | 438900.28 | 2770526.16 |
| 83 | 137+420 | 438974.79 | 2770543.86 | 438992.37 | 2770568.17 | 438940.80 | 2770496.86 |
| 84 | 137+470 | 439015.31 | 2770514.57 | 439052.75 | 2770566.47 | 438981.37 | 2770467.53 |
| 85 | 137+520 | 439056.24 | 2770485.86 | 439091.98 | 2770538.95 | 439026.09 | 2770441.07 |
| 86 | 137+570 | 439098.29 | 2770458.81 | 439131.79 | 2770513.35 | 439070.03 | 2770412.80 |
| 87 | 137+620 | 439141.43 | 2770433.54 | 439172.62 | 2770489.42 | 439117.05 | 2770389.88 |
| 88 | 137+670 | 439185.58 | 2770410.08 | 439219.83 | 2770477.93 | 439163.95 | 2770367.23 |
| 89 | 137+720 | 439230.64 | 2770388.42 | 439260.08 | 2770451.93 | 439210.45 | 2770344.87 |
| 90 | 137+770 | 439276.03 | 2770367.45 | 439305.37 | 2770431.00 | 439255.91 | 2770323.87 |
| 91 | 137+820 | 439321.43 | 2770346.49 | 439344.48 | 2770396.43 | 439300.47 | 2770301.10 |
| 92 | 137+870 | 439366.82 | 2770325.53 | 439398.26 | 2770393.63 | 439345.86 | 2770280.14 |
| 93 | 137+920 | 439412.22 | 2770304.57 | 439443.66 | 2770372.67 | 439391.26 | 2770259.18 |
| 94 | 137+970 | 439457.61 | 2770283.61 | 439489.05 | 2770351.71 | 439437.49 | 2770240.03 |
| 95 | 138+020 | 439503.01 | 2770262.65 | 439527.32 | 2770315.31 | 439482.89 | 2770219.08 |
| 96 | 138+070 | 439548.40 | 2770241.70 | 439572.72 | 2770294.35 | 439525.76 | 2770192.67 |
| 97 | 138+120 | 439593.50 | 2770220.12 | 439616.20 | 2770264.67 | 439568.99 | 2770172.01 |
| 98 | 138+170 | 439637.32 | 2770196.05 | 439662.75 | 2770239.09 | 439609.84 | 2770149.56 |
| 99 | 138+220 | 439679.54 | 2770169.28 | 439707.62 | 2770210.65 | 439649.22 | 2770124.60 |
| 100 | 138+270 | 439720.03 | 2770139.96 | 439750.40 | 2770179.68 | 439687.23 | 2770097.06 |
| 101 | 138+320 | 439759.58 | 2770109.37 | 439785.31 | 2770142.56 | 439730.17 | 2770071.43 |
| 102 | 138+370 | 439798.90 | 2770078.49 | 439852.10 | 2770143.49 | 439768.50 | 2770041.34 |
| 103 | 138+420 | 439835.87 | 2770044.86 | 439865.96 | 2770074.17 | 439798.62 | 2770008.58 |
| 104 | 138+470 | 439868.43 | 2770006.96 | 439908.32 | 2770037.11 | 439825.36 | 2769974.40 |
| 105 | 138+520 | 439896.02 | 2769965.30 | 439939.35 | 2769990.24 | 439849.22 | 2769938.36 |
| 106 | 138+570 | 439918.19 | 2769920.52 | 439964.29 | 2769939.88 | 439868.40 | 2769899.61 |
| 107 | 138+620 | 439935.62 | 2769873.67 | 439979.11 | 2769888.67 | 439884.58 | 2769856.06 |
| 108 | 138+670 | 439951.89 | 2769826.39 | 439995.39 | 2769841.36 | 439883.81 | 2769802.96 |
| 109 | 138+720 | 439968.16 | 2769779.11 | 440011.66 | 2769794.08 | 439900.08 | 2769755.68 |
| 110 | 138+770 | 439984.43 | 2769731.83 | 440031.71 | 2769748.10 | 439933.37 | 2769714.26 |
| 111 | 138+820 | 440000.70 | 2769684.55 | 440047.98 | 2769700.82 | 439949.64 | 2769666.98 |
| 112 | 138+870 | 440016.97 | 2769637.27 | 440075.59 | 2769657.45 | 439954.56 | 2769615.80 |
| 113 | 138+920 | 440033.24 | 2769589.99 | 440069.17 | 2769602.36 | 439965.15 | 2769566.57 |
| 114 | 138+970 | 440049.51 | 2769542.71 | 440138.39 | 2769573.30 | 439981.42 | 2769519.29 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 115 | 139+020 | 440066.20 | 2769495.59 | 440154.00 | 2769529.16 | 439965.33 | 2769457.01 |
| 116 | 139+070 | 440086.61 | 2769449.97 | 440178.75 | 2769498.20 | 439990.92 | 2769399.90 |
| 117 | 139+120 | 440112.50 | 2769407.24 | 440197.91 | 2769466.57 | 440023.80 | 2769345.62 |
| 118 | 139+170 | 440143.52 | 2769368.06 | 440220.86 | 2769437.58 | 440063.19 | 2769295.87 |
| 119 | 139+220 | 440179.17 | 2769333.06 | 440247.25 | 2769411.68 | 440145.13 | 2769293.75 |
| 120 | 139+270 | 440218.92 | 2769302.77 | 440278.88 | 2769392.59 | 440190.04 | 2769259.52 |
| 121 | 139+320 | 440262.13 | 2769277.68 | 440310.42 | 2769374.28 | 440239.77 | 2769232.96 |
| 122 | 139+370 | 440308.13 | 2769258.17 | 440345.33 | 2769363.81 | 440291.52 | 2769211.01 |
| 123 | 139+420 | 440356.20 | 2769244.54 | 440379.95 | 2769354.00 | 440337.97 | 2769160.50 |
| 124 | 139+470 | 440405.60 | 2769237.02 | 440409.32 | 2769278.86 | 440397.99 | 2769151.36 |
| 125 | 139+520 | 440455.55 | 2769235.71 | 440454.05 | 2769277.69 | 440458.83 | 2769143.77 |
| 126 | 139+570 | 440505.40 | 2769239.44 | 440501.56 | 2769279.26 | 440513.67 | 2769153.84 |
| 127 | 139+620 | 440555.17 | 2769244.27 | 440551.31 | 2769284.08 | 440562.50 | 2769168.62 |
| 128 | 139+670 | 440604.94 | 2769249.09 | 440592.97 | 2769372.51 | 440613.04 | 2769165.48 |
| 129 | 139+720 | 440654.70 | 2769253.92 | 440642.73 | 2769377.34 | 440662.04 | 2769178.27 |
| 130 | 139+770 | 440704.47 | 2769258.70 | 440693.35 | 2769382.20 | 440709.68 | 2769200.93 |
| 131 | 139+820 | 440754.38 | 2769261.53 | 440753.20 | 2769385.53 | 440754.93 | 2769203.54 |
| 132 | 139+870 | 440804.30 | 2769259.23 | 440814.04 | 2769354.74 | 440798.42 | 2769201.53 |
| 133 | 139+920 | 440853.66 | 2769251.41 | 440867.59 | 2769315.92 | 440842.26 | 2769198.63 |
| 134 | 139+970 | 440901.84 | 2769238.17 | 440922.85 | 2769300.73 | 440884.66 | 2769186.97 |
| 135 | 140+020 | 440948.27 | 2769219.66 | 440976.07 | 2769279.51 | 440922.14 | 2769163.43 |
| 136 | 140+070 | 440992.35 | 2769196.12 | 441026.62 | 2769252.52 | 440960.15 | 2769143.13 |
| 137 | 140+120 | 441033.55 | 2769167.83 | 441068.98 | 2769213.75 | 440995.67 | 2769118.75 |
| 138 | 140+170 | 441071.36 | 2769135.16 | 441111.66 | 2769176.86 | 441010.21 | 2769071.87 |
| 139 | 140+220 | 441105.42 | 2769098.58 | 441149.53 | 2769136.25 | 441038.51 | 2769041.43 |
| 140 | 140+270 | 441137.35 | 2769060.11 | 441200.65 | 2769112.23 | 441069.42 | 2769004.17 |
| 141 | 140+320 | 441169.13 | 2769021.51 | 441232.44 | 2769073.63 | 441101.20 | 2768965.57 |
| 142 | 140+370 | 441200.92 | 2768982.91 | 441264.22 | 2769035.03 | 441132.99 | 2768926.97 |
| 143 | 140+420 | 441232.70 | 2768944.31 | 441296.00 | 2768996.44 | 441181.75 | 2768902.36 |
| 144 | 140+470 | 441264.48 | 2768905.71 | 441327.79 | 2768957.84 | 441213.54 | 2768863.76 |
| 145 | 140+520 | 441296.30 | 2768867.14 | 441359.27 | 2768919.65 | 441257.90 | 2768835.12 |
| 146 | 140+570 | 441329.64 | 2768829.90 | 441352.35 | 2768852.45 | 441294.16 | 2768794.67 |
| 147 | 140+620 | 441367.00 | 2768796.72 | 441386.71 | 2768821.92 | 441336.19 | 2768757.34 |
| 148 | 140+670 | 441408.20 | 2768768.45 | 441424.62 | 2768795.92 | 441378.44 | 2768718.67 |
| 149 | 140+720 | 441452.61 | 2768745.54 | 441467.08 | 2768778.50 | 441429.28 | 2768692.43 |
| 150 | 140+770 | 441499.52 | 2768728.34 | 441518.32 | 2768791.61 | 441483.00 | 2768672.75 |
| 151 | 140+820 | 441548.13 | 2768716.69 | 441561.06 | 2768781.41 | 441536.76 | 2768659.82 |
| 152 | 140+870 | 441597.22 | 2768707.24 | 441609.63 | 2768772.07 | 441582.94 | 2768632.60 |
| 153 | 140+920 | 441646.33 | 2768697.85 | 441669.26 | 2768817.67 | 441632.05 | 2768623.20 |
| 154 | 140+970 | 441695.44 | 2768688.45 | 441718.37 | 2768808.27 | 441681.16 | 2768613.80 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 155 | 141+020 | 441744.55 | 2768679.05 | 441773.49 | 2768830.31 | 441730.27 | 2768604.41 |
| 156 | 141+070 | 441793.66 | 2768669.66 | 441821.48 | 2768815.02 | 441779.38 | 2768595.01 |
| 157 | 141+120 | 441842.77 | 2768660.26 | 441870.58 | 2768805.62 | 441831.49 | 2768601.33 |
| 158 | 141+170 | 441891.88 | 2768650.86 | 441908.79 | 2768739.26 | 441880.60 | 2768591.93 |
| 159 | 141+220 | 441940.99 | 2768641.47 | 441958.65 | 2768733.79 | 441929.71 | 2768582.53 |
| 160 | 141+270 | 441989.98 | 2768631.47 | 442021.46 | 2768765.83 | 441976.29 | 2768573.05 |
| 161 | 141+320 | 442037.88 | 2768617.27 | 442082.47 | 2768739.39 | 442017.30 | 2768560.91 |
| 162 | 141+370 | 442083.66 | 2768597.24 | 442123.91 | 2768675.49 | 442056.21 | 2768543.88 |
| 163 | 141+420 | 442126.58 | 2768571.65 | 442176.27 | 2768644.27 | 442096.08 | 2768527.08 |
| 164 | 141+470 | 442166.16 | 2768541.14 | 442216.39 | 2768600.81 | 442131.39 | 2768499.82 |
| 165 | 141+520 | 442204.06 | 2768508.52 | 442255.07 | 2768567.54 | 442160.90 | 2768458.59 |
| 166 | 141+570 | 442241.89 | 2768475.83 | 442292.89 | 2768534.84 | 442198.73 | 2768425.90 |
| 167 | 141+620 | 442279.72 | 2768443.13 | 442322.22 | 2768492.31 | 442236.56 | 2768393.20 |
| 168 | 141+670 | 442317.55 | 2768410.44 | 442360.05 | 2768459.62 | 442266.54 | 2768351.43 |
| 169 | 141+720 | 442355.38 | 2768377.74 | 442428.61 | 2768462.48 | 442304.37 | 2768318.73 |
| 170 | 141+770 | 442393.49 | 2768345.39 | 442463.86 | 2768432.52 | 442344.48 | 2768284.71 |
| 171 | 141+820 | 442434.04 | 2768316.18 | 442477.80 | 2768385.53 | 442392.41 | 2768250.22 |
| 172 | 141+870 | 442477.88 | 2768292.21 | 442512.65 | 2768366.47 | 442450.74 | 2768234.25 |
| 173 | 141+920 | 442524.37 | 2768273.89 | 442550.84 | 2768355.71 | 442504.67 | 2768212.99 |
| 174 | 141+970 | 442572.78 | 2768261.50 | 442588.84 | 2768345.99 | 442560.82 | 2768198.63 |
| 175 | 142+020 | 442622.35 | 2768255.25 | 442627.00 | 2768329.11 | 442619.33 | 2768207.35 |
| 176 | 142+070 | 442672.33 | 2768254.38 | 442671.54 | 2768328.37 | 442672.84 | 2768206.38 |
| 177 | 142+120 | 442722.33 | 2768255.01 | 442721.37 | 2768329.01 | 442722.95 | 2768207.02 |
| 178 | 142+170 | 442772.32 | 2768255.66 | 442771.78 | 2768297.66 | 442773.35 | 2768175.67 |
| 179 | 142+220 | 442822.32 | 2768256.23 | 442822.22 | 2768298.23 | 442822.52 | 2768176.23 |
| 180 | 142+270 | 442872.28 | 2768254.55 | 442875.40 | 2768296.43 | 442866.33 | 2768174.77 |
| 181 | 142+320 | 442921.93 | 2768248.76 | 442928.53 | 2768290.24 | 442909.36 | 2768169.75 |
| 182 | 142+370 | 442970.92 | 2768238.86 | 442982.38 | 2768285.47 | 442951.82 | 2768161.17 |
| 183 | 142+420 | 443018.97 | 2768225.07 | 443033.49 | 2768270.82 | 442994.77 | 2768148.82 |
| 184 | 142+470 | 443066.59 | 2768209.82 | 443078.19 | 2768246.01 | 443034.86 | 2768110.78 |
| 185 | 142+520 | 443114.21 | 2768194.57 | 443125.80 | 2768230.76 | 443082.48 | 2768095.53 |
| 186 | 142+570 | 443161.82 | 2768179.31 | 443191.11 | 2768270.74 | 443144.74 | 2768125.98 |
| 187 | 142+620 | 443209.44 | 2768164.06 | 443238.73 | 2768255.48 | 443194.80 | 2768118.35 |
| 188 | 142+670 | 443257.06 | 2768148.81 | 443293.67 | 2768263.08 | 443242.41 | 2768103.09 |
| 189 | 142+720 | 443304.67 | 2768133.55 | 443341.28 | 2768247.83 | 443286.37 | 2768076.41 |
| 190 | 142+770 | 443352.29 | 2768118.30 | 443388.90 | 2768232.58 | 443333.98 | 2768061.16 |
| 191 | 142+820 | 443400.06 | 2768103.53 | 443432.66 | 2768219.01 | 443383.75 | 2768045.79 |
| 192 | 142+870 | 443448.72 | 2768092.11 | 443466.37 | 2768186.48 | 443437.68 | 2768033.14 |
| 193 | 142+920 | 443498.21 | 2768085.16 | 443507.23 | 2768180.74 | 443493.14 | 2768031.40 |
| 194 | 142+970 | 443548.14 | 2768082.74 | 443548.44 | 2768178.74 | 443547.97 | 2768028.74 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 195 | 143+020 | 443598.10 | 2768084.55 | 443593.92 | 2768150.42 | 443601.51 | 2768030.66 |
| 196 | 143+070 | 443647.99 | 2768087.86 | 443644.79 | 2768135.76 | 443650.78 | 2768045.96 |
| 197 | 143+120 | 443697.88 | 2768091.19 | 443694.68 | 2768139.08 | 443700.67 | 2768049.28 |
| 198 | 143+170 | 443747.76 | 2768094.52 | 443742.44 | 2768174.34 | 443751.62 | 2768036.64 |
| 199 | 143+220 | 443797.65 | 2768097.84 | 443791.53 | 2768189.64 | 443800.85 | 2768049.95 |
| 200 | 143+270 | 443847.54 | 2768101.17 | 443842.22 | 2768180.99 | 443850.74 | 2768053.27 |
| 201 | 143+320 | 443897.43 | 2768104.49 | 443891.05 | 2768200.28 | 443901.16 | 2768048.62 |
| 202 | 143+370 | 443947.32 | 2768107.82 | 443939.34 | 2768227.55 | 443950.78 | 2768055.93 |
| 203 | 143+420 | 443997.21 | 2768111.14 | 443990.83 | 2768206.93 | 444000.67 | 2768059.26 |
| 204 | 143+470 | 444047.10 | 2768114.47 | 444040.71 | 2768210.26 | 444050.56 | 2768062.59 |
| 205 | 143+520 | 444096.99 | 2768117.80 | 444090.20 | 2768219.57 | 444100.45 | 2768065.91 |
| 206 | 143+570 | 444146.88 | 2768121.12 | 444140.76 | 2768212.92 | 444150.34 | 2768069.24 |
| 207 | 143+620 | 444196.77 | 2768124.45 | 444190.91 | 2768212.25 | 444200.23 | 2768072.56 |
| 208 | 143+670 | 444246.66 | 2768127.77 | 444242.80 | 2768185.65 | 444249.72 | 2768081.88 |
| 209 | 143+720 | 444296.55 | 2768131.10 | 444292.69 | 2768188.97 | 444299.61 | 2768085.20 |
| 210 | 143+770 | 444346.44 | 2768134.42 | 444342.63 | 2768192.30 | 444349.06 | 2768094.51 |
| 211 | 143+820 | 444396.38 | 2768136.71 | 444395.68 | 2768194.71 | 444396.86 | 2768096.71 |
| 212 | 143+870 | 444446.32 | 2768134.82 | 444452.11 | 2768200.56 | 444443.16 | 2768098.96 |
| 213 | 143+920 | 444495.82 | 2768127.95 | 444507.41 | 2768188.85 | 444483.87 | 2768065.07 |
| 214 | 143+970 | 444544.40 | 2768116.17 | 444560.30 | 2768169.86 | 444534.74 | 2768083.57 |
| 215 | 144+020 | 444591.55 | 2768099.60 | 444614.24 | 2768155.14 | 444578.69 | 2768068.12 |
| 216 | 144+070 | 444636.81 | 2768078.40 | 444664.94 | 2768131.40 | 444618.06 | 2768043.07 |
| 217 | 144+120 | 444679.73 | 2768052.80 | 444692.21 | 2768071.52 | 444667.25 | 2768034.08 |
| 218 | 144+170 | 444719.88 | 2768023.03 | 444734.17 | 2768040.42 | 444705.60 | 2768005.65 |
| 219 | 144+220 | 444756.86 | 2767989.41 | 444772.81 | 2768005.28 | 444740.91 | 2767973.54 |
| 220 | 144+270 | 444790.30 | 2767952.26 | 444807.75 | 2767966.46 | 444772.84 | 2767938.07 |
| 221 | 144+320 | 444820.00 | 2767912.06 | 444838.58 | 2767924.75 | 444801.41 | 2767899.37 |
| 222 | 144+370 | 444847.72 | 2767870.45 | 444866.48 | 2767882.87 | 444828.96 | 2767858.02 |
| 223 | 144+420 | 444875.33 | 2767828.76 | 444894.09 | 2767841.19 | 444856.57 | 2767816.34 |
| 224 | 144+470 | 444902.94 | 2767787.08 | 444921.70 | 2767799.50 | 444884.18 | 2767774.65 |
| 225 | 144+520 | 444930.55 | 2767745.39 | 444963.90 | 2767767.48 | 444900.54 | 2767725.51 |
| 226 | 144+570 | 444958.16 | 2767703.71 | 444991.51 | 2767725.80 | 444928.15 | 2767683.83 |
| 227 | 144+620 | 444985.77 | 2767662.02 | 445010.78 | 2767678.59 | 444955.76 | 2767642.14 |
| 228 | 144+670 | 445013.38 | 2767620.34 | 445038.39 | 2767636.90 | 444953.35 | 2767580.58 |
| 229 | 144+720 | 445040.99 | 2767578.65 | 445077.67 | 2767602.95 | 444980.96 | 2767538.89 |
| 230 | 144+770 | 445068.60 | 2767536.97 | 445105.29 | 2767561.26 | 445008.58 | 2767497.21 |
| 231 | 144+820 | 445096.21 | 2767495.28 | 445129.56 | 2767517.37 | 445036.19 | 2767455.52 |
| 232 | 144+870 | 445123.82 | 2767453.60 | 445157.17 | 2767475.68 | 445063.80 | 2767413.84 |
| 233 | 144+920 | 445151.43 | 2767411.91 | 445184.78 | 2767434.00 | 445098.08 | 2767376.57 |
| 234 | 144+970 | 445179.51 | 2767370.54 | 445218.48 | 2767398.57 | 445127.55 | 2767333.17 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 235 | 145+020 | 445210.77 | 2767331.55 | 445246.54 | 2767363.55 | 445163.07 | 2767288.87 |
| 236 | 145+070 | 445246.07 | 2767296.17 | 445278.15 | 2767331.87 | 445226.01 | 2767273.86 |
| 237 | 145+120 | 445284.99 | 2767264.83 | 445302.51 | 2767289.18 | 445267.48 | 2767240.47 |
| 238 | 145+170 | 445326.86 | 2767237.52 | 445342.47 | 2767263.13 | 445301.88 | 2767196.53 |
| 239 | 145+220 | 445369.65 | 2767211.65 | 445386.19 | 2767239.05 | 445344.84 | 2767170.57 |
| 240 | 145+270 | 445412.45 | 2767185.81 | 445428.99 | 2767213.20 | 445387.64 | 2767144.72 |
| 241 | 145+320 | 445455.25 | 2767159.96 | 445471.79 | 2767187.35 | 445439.74 | 2767134.28 |
| 242 | 145+370 | 445498.05 | 2767134.11 | 445513.56 | 2767159.79 | 445482.55 | 2767108.43 |
| 243 | 145+420 | 445540.76 | 2767108.11 | 445556.74 | 2767133.49 | 445524.77 | 2767082.72 |
| 244 | 145+470 | 445581.73 | 2767079.49 | 445600.32 | 2767103.04 | 445563.14 | 2767055.95 |
| 245 | 145+520 | 445618.94 | 2767046.14 | 445640.32 | 2767067.19 | 445597.56 | 2767025.10 |
| 246 | 145+570 | 445651.70 | 2767008.41 | 445675.53 | 2767026.62 | 445627.86 | 2766990.20 |
| 247 | 145+620 | 445679.49 | 2766966.89 | 445705.42 | 2766981.99 | 445653.57 | 2766951.79 |
| 248 | 145+670 | 445701.90 | 2766922.23 | 445729.50 | 2766933.98 | 445674.30 | 2766910.48 |
| 249 | 145+720 | 445718.56 | 2766875.12 | 445753.19 | 2766884.98 | 445689.71 | 2766866.90 |
| 250 | 145+770 | 445729.22 | 2766826.30 | 445764.80 | 2766831.77 | 445677.82 | 2766818.40 |
| 251 | 145+820 | 445733.71 | 2766776.54 | 445763.70 | 2766777.36 | 445681.73 | 2766775.11 |
| 252 | 145+870 | 445731.96 | 2766726.60 | 445761.82 | 2766723.68 | 445702.10 | 2766729.52 |
| 253 | 145+920 | 445724.00 | 2766677.27 | 445753.26 | 2766670.65 | 445694.74 | 2766683.89 |
| 254 | 145+970 | 445709.95 | 2766629.32 | 445738.15 | 2766619.10 | 445681.74 | 2766639.54 |
| 255 | 146+020 | 445690.03 | 2766583.49 | 445716.74 | 2766569.84 | 445663.32 | 2766597.15 |
| 256 | 146+070 | 445664.55 | 2766540.51 | 445689.35 | 2766523.63 | 445639.75 | 2766557.39 |
| 257 | 146+120 | 445633.92 | 2766501.04 | 445656.42 | 2766481.20 | 445611.41 | 2766520.87 |
| 258 | 146+170 | 445598.81 | 2766465.46 | 445619.26 | 2766443.51 | 445578.37 | 2766487.41 |
| 259 | 146+220 | 445561.88 | 2766431.76 | 445582.06 | 2766409.56 | 445541.70 | 2766453.96 |
| 260 | 146+270 | 445524.88 | 2766398.13 | 445545.06 | 2766375.93 | 445504.70 | 2766420.33 |
| 261 | 146+320 | 445487.88 | 2766364.50 | 445508.06 | 2766342.30 | 445467.70 | 2766386.70 |
| 262 | 146+370 | 445450.88 | 2766330.87 | 445471.05 | 2766308.67 | 445430.70 | 2766353.07 |
| 263 | 146+420 | 445413.88 | 2766297.23 | 445434.12 | 2766275.09 | 445393.64 | 2766319.38 |
| 264 | 146+470 | 445377.99 | 2766262.44 | 445399.86 | 2766241.90 | 445356.13 | 2766282.98 |
| 265 | 146+520 | 445346.12 | 2766223.96 | 445373.61 | 2766203.95 | 445321.87 | 2766241.61 |
| 266 | 146+570 | 445319.29 | 2766181.80 | 445349.06 | 2766165.37 | 445293.03 | 2766196.29 |
| 267 | 146+620 | 445297.93 | 2766136.63 | 445329.52 | 2766124.04 | 445270.07 | 2766147.73 |
| 268 | 146+670 | 445282.37 | 2766089.15 | 445311.41 | 2766081.60 | 445253.34 | 2766096.69 |
| 269 | 146+720 | 445272.85 | 2766040.09 | 445302.60 | 2766036.23 | 445243.10 | 2766043.96 |
| 270 | 146+770 | 445269.52 | 2765990.24 | 445299.52 | 2765990.11 | 445239.52 | 2765990.36 |
| 271 | 146+820 | 445272.43 | 2765940.35 | 445302.21 | 2765943.97 | 445242.65 | 2765936.74 |
| 272 | 146+870 | 445281.54 | 2765891.22 | 445315.49 | 2765899.74 | 445252.44 | 2765883.92 |
| 273 | 146+920 | 445296.70 | 2765843.61 | 445329.32 | 2765856.29 | 445268.74 | 2765832.74 |
| 274 | 146+970 | 445317.68 | 2765798.26 | 445344.07 | 2765812.53 | 445291.29 | 2765783.99 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 275 | 147+020 | 445344.15 | 2765755.88 | 445368.55 | 2765773.33 | 445319.75 | 2765738.43 |
| 276 | 147+070 | 445375.70 | 2765717.13 | 445397.73 | 2765737.49 | 445353.66 | 2765696.78 |
| 277 | 147+120 | 445411.49 | 2765682.24 | 445431.64 | 2765704.47 | 445391.34 | 2765660.02 |
| 278 | 147+170 | 445448.74 | 2765648.89 | 445478.73 | 2765682.44 | 445428.74 | 2765626.52 |
| 279 | 147+220 | 445486.01 | 2765615.57 | 445516.00 | 2765649.11 | 445466.02 | 2765593.20 |
| 280 | 147+270 | 445523.70 | 2765582.71 | 445542.74 | 2765605.89 | 445504.66 | 2765559.53 |
| 281 | 147+320 | 445564.09 | 2765553.29 | 445580.22 | 2765578.59 | 445547.96 | 2765527.99 |
| 282 | 147+370 | 445607.82 | 2765529.11 | 445620.66 | 2765556.22 | 445594.97 | 2765502.00 |
| 283 | 147+420 | 445654.22 | 2765510.57 | 445663.59 | 2765539.07 | 445644.85 | 2765482.07 |
| 284 | 147+470 | 445702.57 | 2765497.97 | 445708.31 | 2765527.41 | 445696.83 | 2765468.52 |
| 285 | 147+520 | 445752.08 | 2765491.10 | 445755.01 | 2765520.96 | 445749.14 | 2765461.24 |
| 286 | 147+570 | 445801.88 | 2765486.63 | 445804.51 | 2765516.52 | 445799.24 | 2765456.75 |
| 287 | 147+620 | 445851.68 | 2765482.24 | 445854.32 | 2765512.12 | 445849.04 | 2765452.35 |
| 288 | 147+670 | 445901.49 | 2765477.84 | 445904.13 | 2765507.73 | 445898.85 | 2765447.96 |
| 289 | 147+720 | 445951.29 | 2765473.45 | 445953.93 | 2765503.33 | 445948.66 | 2765443.56 |
| 290 | 147+770 | 446001.10 | 2765469.05 | 446003.74 | 2765498.94 | 445998.46 | 2765439.17 |
| 291 | 147+820 | 446050.91 | 2765464.66 | 446053.54 | 2765494.54 | 446048.27 | 2765434.77 |
| 292 | 147+870 | 446100.71 | 2765460.26 | 446103.35 | 2765490.15 | 446098.08 | 2765430.38 |
| 293 | 147+920 | 446150.52 | 2765455.87 | 446153.16 | 2765485.75 | 446147.88 | 2765425.98 |
| 294 | 147+970 | 446200.33 | 2765451.47 | 446202.96 | 2765481.35 | 446197.69 | 2765421.59 |
| 295 | 148+020 | 446250.13 | 2765447.07 | 446252.84 | 2765476.95 | 446247.43 | 2765417.19 |
| 296 | 148+070 | 446299.77 | 2765444.16 | 446304.67 | 2765470.75 | 446294.87 | 2765411.56 |
| 297 | 148+120 | 446348.46 | 2765429.93 | 446357.01 | 2765458.69 | 446339.91 | 2765401.18 |
| 298 | 148+170 | 446395.37 | 2765412.72 | 446407.44 | 2765440.19 | 446383.30 | 2765385.26 |
| 299 | 148+220 | 446439.77 | 2765389.80 | 446455.17 | 2765415.55 | 446424.37 | 2765364.05 |
| 300 | 148+270 | 446480.97 | 2765361.52 | 446499.46 | 2765385.14 | 446462.47 | 2765337.90 |
| 301 | 148+320 | 446518.31 | 2765328.33 | 446539.60 | 2765349.46 | 446497.02 | 2765307.19 |
| 302 | 148+370 | 446551.23 | 2765290.73 | 446574.99 | 2765309.06 | 446527.48 | 2765272.41 |
| 303 | 148+420 | 446580.10 | 2765249.92 | 446605.00 | 2765266.65 | 446551.05 | 2765230.40 |
| 304 | 148+470 | 446607.96 | 2765208.40 | 446632.87 | 2765225.11 | 446578.89 | 2765188.90 |
| 305 | 148+520 | 446635.81 | 2765166.88 | 446660.72 | 2765183.59 | 446606.74 | 2765147.38 |
| 306 | 148+570 | 446663.66 | 2765125.35 | 446688.58 | 2765142.07 | 446634.60 | 2765105.86 |
| 307 | 148+620 | 446691.52 | 2765083.83 | 446716.43 | 2765100.54 | 446662.45 | 2765064.33 |
| 308 | 148+670 | 446719.37 | 2765042.31 | 446744.29 | 2765059.02 | 446682.00 | 2765017.24 |
| 309 | 148+720 | 446747.23 | 2765000.78 | 446772.14 | 2765017.50 | 446709.85 | 2764975.72 |
| 310 | 148+770 | 446775.08 | 2764959.26 | 446799.99 | 2764975.97 | 446737.71 | 2764934.19 |
| 311 | 148+820 | 446802.93 | 2764917.74 | 446827.85 | 2764934.45 | 446778.02 | 2764901.03 |
| 312 | 148+870 | 446830.79 | 2764876.22 | 446855.70 | 2764892.93 | 446805.87 | 2764859.50 |
| 313 | 148+920 | 446858.64 | 2764834.69 | 446883.55 | 2764851.40 | 446833.73 | 2764817.98 |
| 314 | 148+970 | 446886.50 | 2764793.17 | 446911.40 | 2764809.89 | 446861.59 | 2764776.45 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 315 | 149+020 | 446915.07 | 2764752.14 | 446939.14 | 2764770.04 | 446890.99 | 2764734.24 |
| 316 | 149+070 | 446946.83 | 2764713.56 | 446969.01 | 2764733.76 | 446924.65 | 2764693.36 |
| 317 | 149+120 | 446982.29 | 2764678.33 | 447002.34 | 2764700.65 | 446962.24 | 2764656.02 |
| 318 | 149+170 | 447021.09 | 2764646.83 | 447038.81 | 2764671.03 | 447003.36 | 2764622.62 |
| 319 | 149+220 | 447062.84 | 2764619.35 | 447078.06 | 2764645.20 | 447047.62 | 2764593.50 |
| 320 | 149+270 | 447107.12 | 2764596.18 | 447119.68 | 2764623.42 | 447094.56 | 2764568.94 |
| 321 | 149+320 | 447153.49 | 2764577.55 | 447163.27 | 2764605.91 | 447142.09 | 2764544.46 |
| 322 | 149+370 | 447201.50 | 2764563.64 | 447208.40 | 2764592.83 | 447193.45 | 2764529.57 |
| 323 | 149+420 | 447250.64 | 2764554.51 | 447254.87 | 2764584.21 | 447245.70 | 2764519.86 |
| 324 | 149+470 | 447300.25 | 2764548.28 | 447303.84 | 2764578.06 | 447296.07 | 2764513.53 |
| 325 | 149+520 | 447349.89 | 2764542.30 | 447353.48 | 2764572.08 | 447345.71 | 2764507.55 |
| 326 | 149+570 | 447399.53 | 2764536.32 | 447403.12 | 2764566.11 | 447395.35 | 2764501.57 |
| 327 | 149+620 | 447449.17 | 2764530.35 | 447452.76 | 2764560.13 | 447444.99 | 2764495.60 |
| 328 | 149+670 | 447498.82 | 2764524.37 | 447502.40 | 2764554.16 | 447494.63 | 2764489.62 |
| 329 | 149+720 | 447548.46 | 2764518.39 | 447552.04 | 2764548.18 | 447544.27 | 2764483.65 |
| 330 | 149+770 | 447598.10 | 2764512.42 | 447601.68 | 2764542.20 | 447594.51 | 2764482.63 |
| 331 | 149+820 | 447647.74 | 2764506.44 | 447651.33 | 2764536.23 | 447644.16 | 2764476.66 |
| 332 | 149+870 | 447697.38 | 2764500.47 | 447700.97 | 2764530.25 | 447693.80 | 2764470.68 |
| 333 | 149+920 | 447747.02 | 2764494.49 | 447750.61 | 2764524.28 | 447743.44 | 2764464.71 |
| 334 | 149+970 | 447796.66 | 2764488.46 | 447800.51 | 2764518.21 | 447792.81 | 2764458.71 |
| 335 | 150+020 | 447845.96 | 2764480.24 | 447852.11 | 2764509.60 | 447839.82 | 2764450.87 |
| 336 | 150+070 | 447894.42 | 2764467.97 | 447902.99 | 2764496.72 | 447885.85 | 2764439.22 |
| 337 | 150+120 | 447941.69 | 2764451.71 | 447952.62 | 2764479.65 | 447930.76 | 2764423.78 |
| 338 | 150+170 | 447987.44 | 2764431.58 | 448000.66 | 2764458.51 | 447974.22 | 2764404.65 |
| 339 | 150+220 | 448031.43 | 2764407.83 | 448046.42 | 2764433.81 | 448016.44 | 2764381.84 |
| 340 | 150+270 | 448074.69 | 2764382.77 | 448089.73 | 2764408.73 | 448059.66 | 2764356.81 |
| 341 | 150+320 | 448117.96 | 2764357.71 | 448133.00 | 2764383.67 | 448102.92 | 2764331.75 |
| 342 | 150+370 | 448161.22 | 2764332.64 | 448176.26 | 2764358.60 | 448146.19 | 2764306.68 |
| 343 | 150+420 | 448204.49 | 2764307.58 | 448219.53 | 2764333.54 | 448189.45 | 2764281.62 |
| 344 | 150+470 | 448247.75 | 2764282.52 | 448262.79 | 2764308.48 | 448232.72 | 2764256.56 |
| 345 | 150+520 | 448291.17 | 2764257.72 | 448305.70 | 2764283.97 | 448276.64 | 2764231.48 |
| 346 | 150+570 | 448335.31 | 2764234.23 | 448348.97 | 2764260.94 | 448321.65 | 2764207.52 |
| 347 | 150+620 | 448380.19 | 2764212.20 | 448392.96 | 2764239.35 | 448367.42 | 2764185.06 |
| 348 | 150+670 | 448425.77 | 2764191.65 | 448437.69 | 2764219.18 | 448413.85 | 2764164.12 |
| 349 | 150+720 | 448471.71 | 2764171.91 | 448483.54 | 2764199.48 | 448459.88 | 2764144.35 |
| 350 | 150+770 | 448517.65 | 2764152.19 | 448529.49 | 2764179.76 | 448505.82 | 2764124.62 |
| 351 | 150+820 | 448563.60 | 2764132.47 | 448575.43 | 2764160.04 | 448551.77 | 2764104.90 |
| 352 | 150+870 | 448609.55 | 2764112.75 | 448621.38 | 2764140.32 | 448597.71 | 2764085.18 |
| 353 | 150+920 | 448655.49 | 2764093.03 | 448667.33 | 2764120.59 | 448643.66 | 2764065.46 |
| 354 | 150+970 | 448701.44 | 2764073.30 | 448713.27 | 2764100.87 | 448689.61 | 2764045.74 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 355 | 151+020 | 448747.39 | 2764053.58 | 448769.08 | 2764104.12 | 448725.69 | 2764003.04 |
| 356 | 151+070 | 448793.33 | 2764033.86 | 448815.03 | 2764084.40 | 448771.64 | 2763983.32 |
| 357 | 151+120 | 448839.28 | 2764014.14 | 448860.97 | 2764064.68 | 448817.58 | 2763963.60 |
| 358 | 151+170 | 448884.99 | 2763993.90 | 448908.67 | 2764043.54 | 448861.32 | 2763944.25 |
| 359 | 151+220 | 448928.79 | 2763969.84 | 448958.20 | 2764016.32 | 448899.39 | 2763923.36 |
| 360 | 151+270 | 448969.27 | 2763940.54 | 449004.24 | 2763982.99 | 448934.30 | 2763898.09 |
| 361 | 151+320 | 449005.77 | 2763906.42 | 449045.76 | 2763944.18 | 448965.78 | 2763868.66 |
| 362 | 151+370 | 449037.74 | 2763868.02 | 449082.13 | 2763900.50 | 448993.35 | 2763835.54 |
| 363 | 151+420 | 449064.67 | 2763825.93 | 449112.76 | 2763852.62 | 449016.58 | 2763799.24 |
| 364 | 151+470 | 449086.14 | 2763780.81 | 449137.18 | 2763801.30 | 449035.10 | 2763760.32 |
| 365 | 151+520 | 449101.82 | 2763733.37 | 449155.02 | 2763747.33 | 449048.62 | 2763719.40 |
| 366 | 151+570 | 449111.46 | 2763684.34 | 449165.99 | 2763691.56 | 449056.94 | 2763677.12 |
| 367 | 151+620 | 449114.96 | 2763634.49 | 449169.95 | 2763635.17 | 449059.96 | 2763633.81 |
| 368 | 151+670 | 449114.28 | 2763584.50 | 449169.27 | 2763583.18 | 449059.30 | 2763585.82 |
| 369 | 151+720 | 449113.08 | 2763534.51 | 449168.06 | 2763533.19 | 449058.10 | 2763535.84 |
| 370 | 151+770 | 449111.88 | 2763484.53 | 449166.86 | 2763483.21 | 449056.89 | 2763485.85 |
| 371 | 151+820 | 449110.74 | 2763434.54 | 449165.73 | 2763433.62 | 449055.74 | 2763435.46 |
| 372 | 151+870 | 449110.71 | 2763384.54 | 449165.70 | 2763385.43 | 449055.72 | 2763383.65 |
| 373 | 151+920 | 449112.35 | 2763334.57 | 449167.29 | 2763337.30 | 449057.42 | 2763331.85 |
| 374 | 151+970 | 449115.66 | 2763284.69 | 449170.47 | 2763289.24 | 449060.85 | 2763280.13 |
| 375 | 152+020 | 449120.45 | 2763234.92 | 449150.29 | 2763237.96 | 449090.60 | 2763231.87 |
| 376 | 152+070 | 449125.53 | 2763185.18 | 449155.37 | 2763188.22 | 449095.68 | 2763182.13 |
| 377 | 152+120 | 449130.61 | 2763135.43 | 449160.45 | 2763138.48 | 449100.77 | 2763132.39 |
| 378 | 152+170 | 449135.69 | 2763085.69 | 449165.54 | 2763088.74 | 449105.85 | 2763082.64 |
| 379 | 152+220 | 449140.77 | 2763035.95 | 449170.62 | 2763039.00 | 449110.93 | 2763032.90 |
| 380 | 152+270 | 449145.85 | 2762986.21 | 449175.70 | 2762989.26 | 449116.01 | 2762983.16 |
| 381 | 152+320 | 449150.93 | 2762936.47 | 449180.78 | 2762939.52 | 449121.09 | 2762933.42 |
| 382 | 152+370 | 449156.02 | 2762886.73 | 449185.86 | 2762889.78 | 449126.17 | 2762883.68 |
| 383 | 152+420 | 449161.10 | 2762836.99 | 449190.94 | 2762840.04 | 449131.25 | 2762833.94 |
| 384 | 152+470 | 449166.18 | 2762787.25 | 449196.02 | 2762790.29 | 449136.33 | 2762784.20 |
| 385 | 152+520 | 449171.26 | 2762737.50 | 449201.10 | 2762740.55 | 449141.41 | 2762734.46 |
| 386 | 152+570 | 449176.34 | 2762687.76 | 449206.18 | 2762690.81 | 449146.49 | 2762684.71 |
| 387 | 152+620 | 449181.42 | 2762638.02 | 449211.27 | 2762641.07 | 449151.58 | 2762634.97 |
| 388 | 152+670 | 449186.50 | 2762588.28 | 449216.35 | 2762591.33 | 449156.66 | 2762585.23 |
| 389 | 152+720 | 449191.58 | 2762538.54 | 449221.43 | 2762541.59 | 449161.74 | 2762535.49 |
| 390 | 152+770 | 449196.66 | 2762488.80 | 449226.51 | 2762491.85 | 449166.82 | 2762485.75 |
| 391 | 152+820 | 449201.74 | 2762439.06 | 449231.59 | 2762442.11 | 449171.90 | 2762436.01 |
| 392 | 152+870 | 449207.06 | 2762389.34 | 449236.85 | 2762392.82 | 449172.29 | 2762385.28 |
| 393 | 152+920 | 449213.48 | 2762339.76 | 449243.18 | 2762343.98 | 449178.83 | 2762334.83 |
| 394 | 152+970 | 449221.14 | 2762290.35 | 449255.66 | 2762296.14 | 449186.63 | 2762284.55 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 395 | 153+020 | 449230.04 | 2762241.15 | 449264.40 | 2762247.80 | 449195.68 | 2762234.49 |
| 396 | 153+070 | 449240.16 | 2762192.18 | 449274.34 | 2762199.70 | 449205.98 | 2762184.67 |
| 397 | 153+120 | 449251.50 | 2762143.49 | 449285.49 | 2762151.85 | 449217.52 | 2762135.12 |
| 398 | 153+170 | 449264.01 | 2762095.08 | 449297.83 | 2762104.11 | 449230.20 | 2762086.06 |
| 399 | 153+220 | 449276.91 | 2762046.77 | 449310.73 | 2762055.80 | 449243.10 | 2762037.74 |
| 400 | 153+270 | 449289.81 | 2761998.47 | 449323.63 | 2762007.50 | 449256.00 | 2761989.44 |
| 401 | 153+320 | 449302.71 | 2761950.16 | 449336.53 | 2761959.19 | 449268.90 | 2761941.13 |
| 402 | 153+370 | 449315.61 | 2761901.85 | 449349.43 | 2761910.88 | 449281.80 | 2761892.82 |
| 403 | 153+420 | 449328.71 | 2761853.60 | 449362.34 | 2761863.30 | 449295.09 | 2761843.89 |
| 404 | 153+470 | 449344.88 | 2761806.31 | 449377.27 | 2761819.57 | 449312.48 | 2761793.05 |
| 405 | 153+520 | 449366.65 | 2761761.34 | 449397.14 | 2761778.53 | 449336.17 | 2761744.15 |
| 406 | 153+570 | 449393.87 | 2761719.43 | 449417.96 | 2761737.31 | 449369.78 | 2761701.55 |
| 407 | 153+620 | 449426.09 | 2761681.25 | 449447.77 | 2761701.99 | 449404.42 | 2761660.50 |
| 408 | 153+670 | 449462.83 | 2761647.37 | 449481.75 | 2761670.66 | 449443.91 | 2761624.09 |
| 409 | 153+720 | 449503.50 | 2761618.35 | 449519.37 | 2761643.81 | 449487.63 | 2761592.89 |
| 410 | 153+770 | 449547.47 | 2761594.62 | 449560.04 | 2761621.86 | 449534.90 | 2761567.38 |
| 411 | 153+820 | 449593.93 | 2761576.18 | 449603.89 | 2761604.48 | 449583.97 | 2761547.88 |
| 412 | 153+870 | 449641.23 | 2761559.96 | 449650.92 | 2761588.35 | 449631.53 | 2761531.57 |
| 413 | 153+920 | 449688.55 | 2761543.81 | 449698.24 | 2761572.20 | 449678.85 | 2761515.42 |
| 414 | 153+970 | 449735.86 | 2761527.66 | 449745.56 | 2761556.05 | 449726.17 | 2761499.26 |
| 415 | 154+020 | 449783.18 | 2761511.50 | 449792.87 | 2761539.89 | 449773.49 | 2761483.11 |
| 416 | 154+070 | 449830.45 | 2761495.20 | 449840.64 | 2761523.42 | 449820.26 | 2761466.98 |
| 417 | 154+120 | 449876.74 | 2761476.35 | 449889.20 | 2761503.63 | 449864.28 | 2761449.06 |
| 418 | 154+170 | 449921.31 | 2761453.71 | 449939.91 | 2761486.84 | 449904.17 | 2761423.19 |
| 419 | 154+220 | 449963.83 | 2761427.44 | 449985.13 | 2761458.91 | 449944.22 | 2761398.45 |
| 420 | 154+270 | 450004.37 | 2761398.18 | 450027.00 | 2761428.71 | 449983.53 | 2761370.06 |
| 421 | 154+320 | 450044.54 | 2761368.40 | 450067.17 | 2761398.93 | 450020.72 | 2761336.27 |
| 422 | 154+370 | 450084.71 | 2761338.63 | 450111.51 | 2761374.78 | 450060.89 | 2761306.49 |
| 423 | 154+420 | 450124.88 | 2761308.85 | 450151.68 | 2761345.01 | 450098.08 | 2761272.70 |
| 424 | 154+470 | 450165.05 | 2761279.08 | 450191.84 | 2761315.23 | 450138.25 | 2761242.93 |
| 425 | 154+520 | 450205.22 | 2761249.31 | 450232.01 | 2761285.46 | 450178.42 | 2761213.15 |
| 426 | 154+570 | 450245.38 | 2761219.53 | 450272.18 | 2761255.68 | 450218.59 | 2761183.38 |
| 427 | 154+620 | 450285.55 | 2761189.76 | 450312.35 | 2761225.91 | 450258.76 | 2761153.61 |
| 428 | 154+670 | 450325.72 | 2761159.98 | 450349.54 | 2761192.12 | 450301.90 | 2761127.85 |
| 429 | 154+720 | 450365.89 | 2761130.21 | 450389.71 | 2761162.34 | 450342.07 | 2761098.07 |
| 430 | 154+770 | 450405.85 | 2761100.17 | 450430.55 | 2761131.63 | 450381.16 | 2761068.70 |
| 431 | 154+820 | 450444.05 | 2761067.92 | 450467.57 | 2761093.84 | 450420.54 | 2761042.00 |
| 432 | 154+870 | 450479.86 | 2761033.03 | 450505.16 | 2761057.21 | 450454.55 | 2761008.86 |
| 433 | 154+920 | 450513.08 | 2760995.68 | 450540.04 | 2761017.99 | 450486.11 | 2760973.37 |
| 434 | 154+970 | 450544.22 | 2760956.56 | 450571.72 | 2760978.20 | 450516.71 | 2760934.92 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 435 | 155+020 | 450575.13 | 2760917.27 | 450598.71 | 2760935.82 | 450551.56 | 2760898.72 |
| 436 | 155+070 | 450606.05 | 2760877.97 | 450629.63 | 2760896.52 | 450582.48 | 2760859.42 |
| 437 | 155+120 | 450636.97 | 2760838.68 | 450660.55 | 2760857.23 | 450613.39 | 2760820.13 |
| 438 | 155+170 | 450667.89 | 2760799.38 | 450691.47 | 2760817.93 | 450644.31 | 2760780.83 |
| 439 | 155+220 | 450698.81 | 2760760.09 | 450722.38 | 2760778.64 | 450675.23 | 2760741.54 |
| 440 | 155+270 | 450729.73 | 2760720.80 | 450753.30 | 2760739.35 | 450706.15 | 2760702.24 |
| 441 | 155+320 | 450760.64 | 2760681.50 | 450784.22 | 2760700.05 | 450737.07 | 2760662.95 |
| 442 | 155+370 | 450791.56 | 2760642.21 | 450815.14 | 2760660.76 | 450767.99 | 2760623.66 |
| 443 | 155+420 | 450822.48 | 2760602.91 | 450846.06 | 2760621.46 | 450798.91 | 2760584.36 |
| 444 | 155+470 | 450853.40 | 2760563.62 | 450876.98 | 2760582.17 | 450829.82 | 2760545.07 |
| 445 | 155+520 | 450884.32 | 2760524.32 | 450907.90 | 2760542.87 | 450860.74 | 2760505.77 |
| 446 | 155+570 | 450915.24 | 2760485.03 | 450938.81 | 2760503.58 | 450891.66 | 2760466.48 |
| 447 | 155+620 | 450946.16 | 2760445.73 | 450969.73 | 2760464.29 | 450922.58 | 2760427.18 |
| 448 | 155+670 | 450977.07 | 2760406.44 | 451000.65 | 2760424.99 | 450953.50 | 2760387.89 |
| 449 | 155+720 | 451007.99 | 2760367.15 | 451031.57 | 2760385.70 | 450984.42 | 2760348.59 |
| 450 | 155+770 | 451038.91 | 2760327.85 | 451062.49 | 2760346.40 | 451015.33 | 2760309.30 |
| 451 | 155+820 | 451069.83 | 2760288.56 | 451093.41 | 2760307.11 | 451046.25 | 2760270.01 |
| 452 | 155+870 | 451100.75 | 2760249.26 | 451124.32 | 2760267.81 | 451077.17 | 2760230.71 |
| 453 | 155+920 | 451131.67 | 2760209.97 | 451155.24 | 2760228.52 | 451108.09 | 2760191.42 |
| 454 | 155+970 | 451162.58 | 2760170.67 | 451186.16 | 2760189.22 | 451139.01 | 2760152.12 |
| 455 | 156+020 | 451193.50 | 2760131.38 | 451217.08 | 2760149.93 | 451169.93 | 2760112.83 |
| 456 | 156+070 | 451224.42 | 2760092.08 | 451248.00 | 2760110.64 | 451200.84 | 2760073.53 |
| 457 | 156+120 | 451255.34 | 2760052.79 | 451278.92 | 2760071.34 | 451231.76 | 2760034.24 |
| 458 | 156+170 | 451286.26 | 2760013.50 | 451309.84 | 2760032.05 | 451262.68 | 2759994.94 |
| 459 | 156+220 | 451317.18 | 2759974.20 | 451340.75 | 2759992.75 | 451293.60 | 2759955.65 |
| 460 | 156+270 | 451348.10 | 2759934.91 | 451371.67 | 2759953.46 | 451324.52 | 2759916.36 |
| 461 | 156+320 | 451379.01 | 2759895.61 | 451402.59 | 2759914.16 | 451355.44 | 2759877.06 |
| 462 | 156+370 | 451409.93 | 2759856.32 | 451433.51 | 2759874.87 | 451382.43 | 2759834.68 |
| 463 | 156+420 | 451440.85 | 2759817.02 | 451464.43 | 2759835.58 | 451413.34 | 2759795.38 |
| 464 | 156+470 | 451471.77 | 2759777.73 | 451495.35 | 2759796.28 | 451444.26 | 2759756.09 |
| 465 | 156+520 | 451502.57 | 2759738.34 | 451530.28 | 2759759.72 | 451474.85 | 2759716.97 |
| 466 | 156+570 | 451532.78 | 2759698.50 | 451560.81 | 2759719.47 | 451504.76 | 2759677.54 |
| 467 | 156+620 | 451562.71 | 2759658.45 | 451590.75 | 2759679.40 | 451534.67 | 2759637.50 |
| 468 | 156+670 | 451592.64 | 2759618.40 | 451616.67 | 2759636.35 | 451568.60 | 2759600.44 |
| 469 | 156+720 | 451622.56 | 2759578.34 | 451646.60 | 2759596.30 | 451598.53 | 2759560.38 |
| 470 | 156+770 | 451652.49 | 2759538.29 | 451676.52 | 2759556.24 | 451628.46 | 2759520.33 |
| 471 | 156+820 | 451682.42 | 2759498.23 | 451706.45 | 2759516.19 | 451658.38 | 2759480.27 |
| 472 | 156+870 | 451712.34 | 2759458.18 | 451736.38 | 2759476.13 | 451684.31 | 2759437.23 |
| 473 | 156+920 | 451742.27 | 2759418.12 | 451766.30 | 2759436.08 | 451714.23 | 2759397.17 |
| 474 | 156+970 | 451772.20 | 2759378.07 | 451800.24 | 2759399.02 | 451744.16 | 2759357.12 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 475 | 157+020 | 451802.00 | 2759337.92 | 451830.38 | 2759358.41 | 451773.63 | 2759317.43 |
| 476 | 157+070 | 451829.38 | 2759296.11 | 451859.72 | 2759313.56 | 451803.37 | 2759281.16 |
| 477 | 157+120 | 451851.53 | 2759251.32 | 451883.81 | 2759264.85 | 451823.87 | 2759239.73 |
| 478 | 157+170 | 451867.93 | 2759204.12 | 451901.65 | 2759213.52 | 451834.22 | 2759194.73 |
| 479 | 157+220 | 451878.32 | 2759155.25 | 451912.94 | 2759160.37 | 451843.69 | 2759150.13 |
| 480 | 157+270 | 451882.84 | 2759105.47 | 451917.80 | 2759107.16 | 451847.88 | 2759103.79 |
| 481 | 157+320 | 451884.73 | 2759055.51 | 451914.71 | 2759056.58 | 451854.75 | 2759054.43 |
| 482 | 157+370 | 451886.52 | 2759005.54 | 451916.50 | 2759006.62 | 451856.54 | 2759004.47 |
| 483 | 157+420 | 451888.32 | 2758955.57 | 451918.30 | 2758956.65 | 451858.33 | 2758954.50 |
| 484 | 157+470 | 451890.11 | 2758905.61 | 451920.09 | 2758906.68 | 451860.13 | 2758904.53 |
| 485 | 157+520 | 451892.24 | 2758855.65 | 451922.18 | 2758857.48 | 451862.30 | 2758853.83 |
| 486 | 157+570 | 451896.93 | 2758805.88 | 451926.69 | 2758809.69 | 451867.17 | 2758802.08 |
| 487 | 157+620 | 451904.92 | 2758756.53 | 451934.36 | 2758762.32 | 451875.48 | 2758750.75 |
| 488 | 157+670 | 451916.18 | 2758707.83 | 451945.17 | 2758715.56 | 451887.19 | 2758700.10 |
| 489 | 157+720 | 451930.24 | 2758659.85 | 451958.92 | 2758668.65 | 451901.56 | 2758651.05 |
| 490 | 157+770 | 451944.91 | 2758612.05 | 451973.59 | 2758620.85 | 451916.23 | 2758603.25 |
| 491 | 157+820 | 451959.57 | 2758564.25 | 451988.25 | 2758573.05 | 451930.89 | 2758555.45 |
| 492 | 157+870 | 451974.24 | 2758516.45 | 452002.92 | 2758525.25 | 451945.56 | 2758507.65 |
| 493 | 157+920 | 451988.90 | 2758468.65 | 452017.58 | 2758477.45 | 451960.22 | 2758459.85 |
| 494 | 157+970 | 452003.57 | 2758420.85 | 452037.03 | 2758431.11 | 451970.11 | 2758410.58 |
| 495 | 158+020 | 452018.24 | 2758373.04 | 452051.69 | 2758383.34 | 451984.78 | 2758362.75 |
| 496 | 158+070 | 452033.58 | 2758325.46 | 452071.40 | 2758338.47 | 451995.75 | 2758312.45 |
| 497 | 158+120 | 452050.86 | 2758278.55 | 452088.09 | 2758293.19 | 452013.64 | 2758263.90 |
| 498 | 158+170 | 452070.18 | 2758232.43 | 452106.73 | 2758248.68 | 452033.62 | 2758216.18 |
| 499 | 158+220 | 452091.46 | 2758187.19 | 452127.31 | 2758204.94 | 452055.62 | 2758169.45 |
| 500 | 158+270 | 452113.92 | 2758142.52 | 452149.64 | 2758160.54 | 452078.21 | 2758124.51 |
| 501 | 158+320 | 452136.44 | 2758097.88 | 452172.16 | 2758115.89 | 452100.73 | 2758079.87 |
| 502 | 158+370 | 452158.96 | 2758053.24 | 452194.67 | 2758071.25 | 452123.24 | 2758035.23 |
| 503 | 158+420 | 452180.71 | 2758008.22 | 452212.66 | 2758022.52 | 452148.77 | 2757993.93 |
| 504 | 158+470 | 452199.49 | 2757961.89 | 452232.38 | 2757973.87 | 452166.61 | 2757949.91 |
| 505 | 158+520 | 452214.91 | 2757914.34 | 452248.57 | 2757923.95 | 452181.26 | 2757904.74 |
| 506 | 158+570 | 452226.91 | 2757865.81 | 452256.26 | 2757872.02 | 452197.56 | 2757859.61 |
| 507 | 158+620 | 452236.63 | 2757816.77 | 452266.07 | 2757822.51 | 452207.18 | 2757811.03 |
| 508 | 158+670 | 452246.19 | 2757767.69 | 452275.63 | 2757773.43 | 452216.74 | 2757761.95 |
| 509 | 158+720 | 452255.75 | 2757718.61 | 452285.20 | 2757724.35 | 452226.30 | 2757712.88 |
| 510 | 158+770 | 452265.31 | 2757669.54 | 452294.76 | 2757675.27 | 452235.86 | 2757663.80 |
| 511 | 158+820 | 452274.87 | 2757620.46 | 452304.32 | 2757626.20 | 452245.43 | 2757614.72 |
| 512 | 158+870 | 452284.43 | 2757571.38 | 452313.88 | 2757577.12 | 452254.99 | 2757565.65 |
| 513 | 158+920 | 452294.28 | 2757522.36 | 452323.62 | 2757528.60 | 452264.93 | 2757516.12 |
| 514 | 158+970 | 452305.28 | 2757473.59 | 452334.46 | 2757480.56 | 452276.10 | 2757466.62 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 515 | 159+020 | 452317.35 | 2757425.07 | 452346.44 | 2757432.40 | 452288.26 | 2757417.74 |
| 516 | 159+070 | 452329.57 | 2757376.58 | 452358.66 | 2757383.91 | 452300.48 | 2757369.25 |
| 517 | 159+120 | 452341.79 | 2757328.10 | 452370.88 | 2757335.43 | 452312.70 | 2757320.77 |
| 518 | 159+170 | 452354.01 | 2757279.62 | 452383.10 | 2757286.95 | 452324.92 | 2757272.28 |
| 519 | 159+220 | 452366.22 | 2757231.13 | 452395.31 | 2757238.46 | 452337.13 | 2757223.80 |
| 520 | 159+270 | 452378.44 | 2757182.65 | 452407.53 | 2757189.98 | 452349.35 | 2757175.32 |
| 521 | 159+320 | 452390.66 | 2757134.16 | 452419.75 | 2757141.50 | 452361.57 | 2757126.83 |
| 522 | 159+370 | 452403.94 | 2757085.97 | 452432.51 | 2757095.11 | 452375.37 | 2757076.82 |
| 523 | 159+420 | 452422.11 | 2757039.42 | 452449.32 | 2757052.05 | 452394.90 | 2757026.79 |
| 524 | 159+470 | 452445.94 | 2756995.50 | 452471.36 | 2757011.43 | 452420.52 | 2756979.58 |
| 525 | 159+520 | 452475.06 | 2756954.90 | 452498.30 | 2756973.87 | 452451.82 | 2756935.92 |
| 526 | 159+570 | 452509.02 | 2756918.24 | 452529.71 | 2756939.96 | 452488.32 | 2756896.52 |
| 527 | 159+620 | 452547.12 | 2756885.90 | 452565.51 | 2756909.61 | 452528.74 | 2756862.19 |
| 528 | 159+670 | 452586.94 | 2756855.66 | 452605.04 | 2756879.59 | 452568.84 | 2756831.74 |
| 529 | 159+720 | 452626.81 | 2756825.49 | 452644.91 | 2756849.42 | 452608.71 | 2756801.57 |
| 530 | 159+770 | 452666.69 | 2756795.33 | 452684.79 | 2756819.25 | 452648.59 | 2756771.40 |
| 531 | 159+820 | 452706.56 | 2756765.16 | 452724.66 | 2756789.08 | 452688.46 | 2756741.23 |
| 532 | 159+870 | 452746.43 | 2756734.99 | 452764.54 | 2756758.92 | 452728.33 | 2756711.07 |
| 533 | 159+920 | 452786.31 | 2756704.82 | 452807.43 | 2756732.74 | 452765.19 | 2756676.91 |
| 534 | 159+970 | 452826.18 | 2756674.66 | 452847.30 | 2756702.57 | 452805.07 | 2756646.74 |
| 535 | 160+020 | 452866.06 | 2756644.49 | 452887.17 | 2756672.40 | 452844.94 | 2756616.58 |
| 536 | 160+070 | 452905.93 | 2756614.32 | 452927.05 | 2756642.23 | 452884.81 | 2756586.41 |
| 537 | 160+120 | 452945.80 | 2756584.15 | 452969.94 | 2756616.05 | 452924.69 | 2756556.24 |
| 538 | 160+170 | 452985.68 | 2756553.99 | 453009.81 | 2756585.88 | 452961.54 | 2756522.09 |
| 539 | 160+220 | 453025.55 | 2756523.82 | 453049.69 | 2756555.72 | 453001.42 | 2756491.92 |
| 540 | 160+270 | 453065.42 | 2756493.65 | 453089.56 | 2756525.55 | 453041.29 | 2756461.75 |
| 541 | 160+320 | 453105.30 | 2756463.48 | 453129.43 | 2756495.38 | 453084.18 | 2756435.57 |
| 542 | 160+370 | 453145.17 | 2756433.32 | 453175.94 | 2756473.99 | 453124.05 | 2756405.40 |
| 543 | 160+420 | 453184.81 | 2756402.85 | 453216.82 | 2756442.55 | 453162.85 | 2756375.60 |
| 544 | 160+470 | 453221.90 | 2756369.36 | 453258.35 | 2756405.04 | 453196.89 | 2756344.88 |
| 545 | 160+520 | 453254.56 | 2756331.54 | 453295.17 | 2756362.39 | 453230.67 | 2756313.39 |
| 546 | 160+570 | 453282.24 | 2756289.94 | 453312.54 | 2756307.48 | 453256.28 | 2756274.91 |
| 547 | 160+620 | 453304.53 | 2756245.22 | 453336.77 | 2756258.84 | 453276.89 | 2756233.54 |
| 548 | 160+670 | 453321.06 | 2756198.07 | 453354.75 | 2756207.56 | 453292.19 | 2756189.93 |
| 549 | 160+720 | 453332.31 | 2756149.36 | 453366.63 | 2756156.23 | 453297.99 | 2756142.49 |
| 550 | 160+770 | 453342.03 | 2756100.32 | 453376.36 | 2756107.12 | 453307.70 | 2756093.51 |
| 551 | 160+820 | 453351.75 | 2756051.27 | 453386.08 | 2756058.07 | 453322.32 | 2756045.44 |
| 552 | 160+870 | 453361.46 | 2756002.22 | 453395.80 | 2756009.03 | 453332.04 | 2755996.39 |
| 553 | 160+920 | 453371.18 | 2755953.18 | 453400.61 | 2755959.01 | 453341.75 | 2755947.35 |
| 554 | 160+970 | 453380.63 | 2755904.08 | 453410.17 | 2755909.32 | 453351.09 | 2755898.84 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 555 | 161+020 | 453388.19 | 2755854.66 | 453417.95 | 2755858.49 | 453358.44 | 2755850.83 |
| 556 | 161+070 | 453393.40 | 2755804.93 | 453423.30 | 2755807.35 | 453363.49 | 2755802.52 |
| 557 | 161+120 | 453396.23 | 2755755.02 | 453426.21 | 2755756.00 | 453366.24 | 2755754.04 |
| 558 | 161+170 | 453397.09 | 2755705.03 | 453427.09 | 2755705.36 | 453367.09 | 2755704.70 |
| 559 | 161+220 | 453397.63 | 2755655.03 | 453427.63 | 2755655.36 | 453367.64 | 2755654.70 |
| 560 | 161+270 | 453398.18 | 2755605.03 | 453428.18 | 2755605.36 | 453368.18 | 2755604.71 |
| 561 | 161+320 | 453398.73 | 2755555.04 | 453428.73 | 2755555.37 | 453368.73 | 2755554.71 |
| 562 | 161+370 | 453399.28 | 2755505.04 | 453429.27 | 2755505.37 | 453369.28 | 2755504.71 |
| 563 | 161+420 | 453400.03 | 2755455.05 | 453430.02 | 2755455.98 | 453370.05 | 2755454.11 |
| 564 | 161+470 | 453404.02 | 2755405.23 | 453433.73 | 2755409.39 | 453374.31 | 2755401.07 |
| 565 | 161+520 | 453414.02 | 2755356.28 | 453447.81 | 2755365.41 | 453380.24 | 2755347.14 |
| 566 | 161+570 | 453430.05 | 2755308.95 | 453462.44 | 2755322.22 | 453397.67 | 2755295.67 |
| 567 | 161+620 | 453451.86 | 2755263.99 | 453477.98 | 2755278.74 | 453425.73 | 2755249.24 |
| 568 | 161+670 | 453479.09 | 2755222.10 | 453503.17 | 2755239.99 | 453455.01 | 2755204.21 |
| 569 | 161+720 | 453511.34 | 2755183.93 | 453533.00 | 2755204.69 | 453489.68 | 2755163.18 |
| 570 | 161+770 | 453548.10 | 2755150.08 | 453567.00 | 2755173.38 | 453529.19 | 2755126.79 |
| 571 | 161+820 | 453588.79 | 2755121.08 | 453604.64 | 2755146.55 | 453572.94 | 2755095.61 |
| 572 | 161+870 | 453632.78 | 2755097.38 | 453645.33 | 2755124.63 | 453620.22 | 2755070.13 |
| 573 | 161+920 | 453679.38 | 2755079.34 | 453688.43 | 2755107.94 | 453670.32 | 2755050.74 |
| 574 | 161+970 | 453727.86 | 2755067.26 | 453734.19 | 2755101.68 | 453722.44 | 2755037.75 |
| 575 | 162+020 | 453777.38 | 2755060.40 | 453781.25 | 2755095.19 | 453774.06 | 2755030.59 |
| 576 | 162+070 | 453827.08 | 2755054.95 | 453830.35 | 2755084.77 | 453823.81 | 2755025.13 |
| 577 | 162+120 | 453876.78 | 2755049.50 | 453880.05 | 2755079.33 | 453873.51 | 2755019.68 |
| 578 | 162+170 | 453926.48 | 2755044.06 | 453929.75 | 2755073.88 | 453923.22 | 2755014.24 |
| 579 | 162+220 | 453976.19 | 2755038.61 | 453979.45 | 2755068.43 | 453972.92 | 2755008.79 |
| 580 | 162+270 | 454025.89 | 2755033.17 | 454029.16 | 2755062.99 | 454022.62 | 2755003.34 |
| 581 | 162+320 | 454075.59 | 2755027.72 | 454078.86 | 2755057.54 | 454072.32 | 2754997.90 |
| 582 | 162+370 | 454125.29 | 2755022.27 | 454128.56 | 2755052.09 | 454122.03 | 2754992.45 |
| 583 | 162+420 | 454175.00 | 2755016.83 | 454178.26 | 2755046.65 | 454171.73 | 2754987.00 |
| 584 | 162+470 | 454224.70 | 2755011.38 | 454227.97 | 2755041.20 | 454221.43 | 2754981.56 |
| 585 | 162+520 | 454274.40 | 2755005.93 | 454277.67 | 2755035.75 | 454271.13 | 2754976.11 |
| 586 | 162+570 | 454324.10 | 2755000.49 | 454327.37 | 2755030.31 | 454320.84 | 2754970.66 |
| 587 | 162+620 | 454373.81 | 2754995.04 | 454377.07 | 2755024.86 | 454370.54 | 2754965.22 |
| 588 | 162+670 | 454423.51 | 2754989.59 | 454426.78 | 2755019.41 | 454420.24 | 2754959.77 |
| 589 | 162+720 | 454473.21 | 2754984.15 | 454476.48 | 2755013.97 | 454469.94 | 2754954.33 |
| 590 | 162+770 | 454522.91 | 2754978.70 | 454526.18 | 2755008.52 | 454519.65 | 2754948.88 |
| 591 | 162+820 | 454572.62 | 2754973.25 | 454575.88 | 2755003.08 | 454569.35 | 2754943.43 |
| 592 | 162+870 | 454622.32 | 2754967.81 | 454625.59 | 2754997.63 | 454619.05 | 2754937.99 |
| 593 | 162+920 | 454672.02 | 2754962.36 | 454675.29 | 2754992.18 | 454668.75 | 2754932.54 |
| 594 | 162+970 | 454721.67 | 2754956.50 | 454725.62 | 2754986.24 | 454717.73 | 2754926.76 |

| Coordinate System - Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|------------|------------|-----------|------------|------------|------------|
| S. No. | DESIGN CHAINAGE | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 595 | 163+020 | 454771.12 | 2754949.10 | 454776.06 | 2754978.69 | 454766.18 | 2754919.51 |
| 596 | 163+070 | 454820.29 | 2754940.05 | 454826.21 | 2754969.46 | 454814.37 | 2754910.64 |
| 597 | 163+120 | 454869.14 | 2754929.37 | 454876.03 | 2754958.56 | 454862.24 | 2754900.17 |
| 598 | 163+170 | 454917.60 | 2754917.06 | 454925.46 | 2754946.01 | 454909.73 | 2754888.11 |
| 599 | 163+220 | 454965.62 | 2754903.15 | 454974.45 | 2754931.82 | 454956.79 | 2754874.48 |
| 600 | 163+270 | 455013.16 | 2754887.68 | 455022.81 | 2754916.08 | 455003.52 | 2754859.27 |
| 601 | 163+320 | 455060.49 | 2754871.55 | 455070.17 | 2754899.95 | 455050.82 | 2754843.16 |
| 602 | 163+370 | 455107.82 | 2754855.43 | 455117.50 | 2754883.83 | 455098.15 | 2754827.03 |
| 603 | 163+420 | 455155.15 | 2754839.31 | 455164.82 | 2754867.70 | 455145.48 | 2754810.91 |
| 604 | 163+470 | 455202.48 | 2754823.18 | 455212.15 | 2754851.58 | 455192.80 | 2754794.78 |
| 605 | 163+520 | 455249.81 | 2754807.06 | | | | |
| 606 | 163+570 | 455297.14 | 2754790.93 | | | | |
| 607 | 163+620 | 455344.46 | 2754774.81 | | | | |
| 608 | 163+670 | 455391.79 | 2754758.68 | | | | |
| 609 | 163+720 | 455439.12 | 2754742.56 | | | | |
| 610 | 163+770 | 455486.45 | 2754726.44 | | | | |
| 611 | 163+820 | 455533.78 | 2754710.31 | | | | |
| 612 | 163+870 | 455581.11 | 2754694.19 | | | | |
| 613 | 163+920 | 455628.44 | 2754678.06 | | | | |
| 614 | 163+970 | 455675.77 | 2754661.94 | | | | |
| 615 | 164+020 | 455723.09 | 2754645.82 | | | | |
| 616 | 164+070 | 455770.42 | 2754629.69 | | | | |
| 617 | 164+120 | 455817.75 | 2754613.57 | | | | |
| 618 | 164+170 | 455865.02 | 2754597.27 | | | | |
| 619 | 164+220 | 455904.23 | 2754567.51 | | | | |
| 620 | 164+270 | 455918.75 | 2754520.51 | | | | |
| 621 | 164+320 | 455903.02 | 2754473.90 | | | | |
| 622 | 164+355 | 455880.95 | 2754448.91 | | | | |

Part of Trumpet Interchange at km 164+120 (Badarpur Bypass). Details tabulated separately below

1. Interchange at Ch. 134+780 Cross Road of Umkiang

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 1 | 300 | 436764.036 | 2771890.454 | 436755.642 | 2771885.018 | 436772.429 | 2771895.889 |
| 2 | 310 | 436759.138 | 2771899.165 | 436750.132 | 2771894.819 | 436768.144 | 2771903.511 |
| 3 | 320 | 436755.366 | 2771908.419 | 436745.888 | 2771905.229 | 436764.843 | 2771911.609 |
| 4 | 330 | 436752.776 | 2771918.071 | 436742.974 | 2771916.088 | 436762.577 | 2771920.054 |
| 5 | 340 | 436751.397 | 2771927.970 | 436741.433 | 2771927.117 | 436761.360 | 2771928.823 |
| 6 | 350 | 436750.997 | 2771937.959 | 436740.997 | 2771937.902 | 436760.997 | 2771938.016 |
| 7 | 360 | 436751.105 | 2771947.958 | 436741.107 | 2771948.155 | 436761.103 | 2771947.761 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 8 | 370 | 436751.356 | 2771957.955 | 436741.362 | 2771958.324 | 436761.349 | 2771957.586 |
| 9 | 380 | 436751.975 | 2771967.934 | 436742.017 | 2771968.847 | 436761.934 | 2771967.022 |
| 10 | 390 | 436753.349 | 2771977.836 | 436743.522 | 2771979.689 | 436763.176 | 2771975.983 |
| 11 | 400 | 436755.690 | 2771987.554 | 436746.097 | 2771990.378 | 436765.282 | 2771984.729 |
| 12 | 410 | 436758.987 | 2771996.990 | 436749.729 | 2772000.770 | 436768.245 | 2771993.210 |
| 13 | 420 | 436763.088 | 2772006.108 | 436754.102 | 2772010.496 | 436772.074 | 2772001.720 |
| 14 | 430 | 436767.639 | 2772015.012 | 436758.787 | 2772019.665 | 436776.491 | 2772010.360 |
| 15 | 440 | 436772.305 | 2772023.857 | 436763.460 | 2772028.524 | 436781.149 | 2772019.191 |
| 16 | 450 | 436776.971 | 2772032.702 | 436768.127 | 2772037.368 | 436785.816 | 2772028.035 |
| 17 | 460 | 436781.638 | 2772041.546 | 436772.794 | 2772046.213 | 436790.482 | 2772036.879 |
| 18 | 470 | 436786.305 | 2772050.390 | 436777.460 | 2772055.057 | 436795.149 | 2772045.724 |
| 19 | 480 | 436790.968 | 2772059.236 | 436782.113 | 2772063.882 | 436799.823 | 2772054.591 |
| 20 | 490 | 436795.537 | 2772068.131 | 436786.582 | 2772072.583 | 436804.492 | 2772063.680 |
| 21 | 500 | 436799.845 | 2772077.155 | 436790.750 | 2772081.313 | 436808.940 | 2772072.998 |
| 22 | 510 | 436803.862 | 2772086.313 | 436794.655 | 2772090.215 | 436813.069 | 2772082.410 |
| 23 | 520 | 436807.717 | 2772095.540 | 436798.483 | 2772099.377 | 436816.951 | 2772091.702 |
| 24 | 530 | 436811.555 | 2772104.774 | 436802.320 | 2772108.612 | 436820.789 | 2772100.937 |
| 25 | 540 | 436815.392 | 2772114.008 | 436806.158 | 2772117.846 | 436824.626 | 2772110.171 |
| 26 | 550 | 436819.268 | 2772123.227 | 436810.103 | 2772127.226 | 436828.434 | 2772119.227 |
| 27 | 560 | 436823.506 | 2772132.282 | 436814.588 | 2772136.807 | 436832.424 | 2772127.758 |
| 28 | 570 | 436828.525 | 2772140.925 | 436820.175 | 2772146.427 | 436836.876 | 2772135.423 |
| 29 | 580 | 436834.621 | 2772148.841 | 436827.194 | 2772155.537 | 436842.049 | 2772142.145 |
| 30 | 590 | 436841.945 | 2772155.626 | 436835.911 | 2772163.600 | 436847.979 | 2772147.652 |
| 31 | 600 | 436850.468 | 2772160.824 | 436846.066 | 2772169.803 | 436854.870 | 2772151.846 |
| 32 | 610 | 436859.764 | 2772164.483 | 436856.794 | 2772174.032 | 436862.735 | 2772154.935 |
| 33 | 620 | 436869.470 | 2772166.868 | 436867.652 | 2772176.701 | 436871.288 | 2772157.035 |
| 34 | 630 | 436879.359 | 2772168.336 | 436878.171 | 2772178.265 | 436880.548 | 2772158.406 |
| 35 | 640 | 436889.307 | 2772169.353 | 436888.352 | 2772179.307 | 436890.262 | 2772159.399 |
| 36 | 650 | 436899.262 | 2772170.308 | 436898.307 | 2772180.262 | 436900.217 | 2772160.354 |
| 37 | 660 | 436909.216 | 2772171.263 | 436908.261 | 2772181.217 | 436910.171 | 2772161.309 |
| 38 | 670 | 436919.170 | 2772172.218 | 436918.215 | 2772182.172 | 436920.125 | 2772162.264 |
| 39 | 680 | 436929.126 | 2772173.157 | 436928.262 | 2772183.120 | 436929.990 | 2772163.194 |
| 40 | 690 | 436939.104 | 2772173.800 | 436938.765 | 2772183.795 | 436939.443 | 2772163.806 |
| 41 | 700 | 436949.099 | 2772173.664 | 436949.784 | 2772183.641 | 436948.414 | 2772163.688 |
| 42 | 710 | 436959.007 | 2772172.361 | 436960.898 | 2772182.180 | 436957.116 | 2772162.541 |
| 43 | 720 | 436968.725 | 2772170.015 | 436971.423 | 2772179.644 | 436966.027 | 2772160.386 |
| 44 | 730 | 436978.286 | 2772167.085 | 436981.348 | 2772176.605 | 436975.223 | 2772157.566 |
| 45 | 740 | 436987.802 | 2772164.014 | 436990.874 | 2772173.531 | 436984.730 | 2772154.498 |
| 46 | 750 | 436997.319 | 2772160.942 | 437000.391 | 2772170.459 | 436994.247 | 2772151.426 |
| 47 | 760 | 437006.835 | 2772157.870 | 437009.907 | 2772167.387 | 437003.763 | 2772148.354 |
| 48 | 770 | 437016.352 | 2772154.798 | 437019.424 | 2772164.315 | 437013.280 | 2772145.282 |
| 49 | 780 | 437025.868 | 2772151.726 | 437028.940 | 2772161.243 | 437022.796 | 2772142.210 |
| 50 | 790 | 437035.385 | 2772148.654 | 437038.457 | 2772158.171 | 437032.313 | 2772139.138 |
| 51 | 800 | 437044.901 | 2772145.583 | 437047.964 | 2772155.102 | 437041.838 | 2772136.063 |
| 52 | 810 | 437054.459 | 2772142.643 | 437057.171 | 2772152.268 | 437051.746 | 2772133.017 |

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 53 | 820 | 437064.170 | 2772140.270 | 437066.154 | 2772150.071 | 437062.187 | 2772130.469 |
| 54 | 830 | 437074.074 | 2772138.940 | 437074.776 | 2772148.915 | 437073.373 | 2772128.965 |
| 55 | 840 | 437084.063 | 2772139.033 | 437083.116 | 2772148.988 | 437085.011 | 2772129.078 |
| 56 | 850 | 437093.858 | 2772140.966 | 437090.951 | 2772150.535 | 437096.764 | 2772131.398 |
| 57 | 860 | 437103.090 | 2772144.771 | 437098.517 | 2772153.664 | 437107.664 | 2772135.879 |
| 58 | 870 | 437111.621 | 2772149.973 | 437105.824 | 2772158.121 | 437117.419 | 2772141.825 |
| 59 | 880 | 437119.466 | 2772156.168 | 437112.877 | 2772163.691 | 437126.054 | 2772148.646 |
| 60 | 890 | 437126.814 | 2772162.949 | 437119.880 | 2772170.155 | 437133.748 | 2772155.744 |
| 61 | 900 | 437133.970 | 2772169.934 | 437126.975 | 2772177.081 | 437140.965 | 2772162.788 |
| 62 | 910 | 437141.116 | 2772176.929 | 437134.122 | 2772184.075 | 437148.111 | 2772169.783 |
| 63 | 920 | 437148.263 | 2772183.924 | 437141.268 | 2772191.070 | 437155.258 | 2772176.777 |
| 64 | 930 | 437155.409 | 2772190.919 | 437148.414 | 2772198.065 | 437162.404 | 2772183.772 |
| 65 | 940 | 437162.556 | 2772197.914 | 437155.561 | 2772205.060 | 437169.551 | 2772190.767 |
| 66 | 950 | 437169.702 | 2772204.909 | 437162.707 | 2772212.055 | 437176.697 | 2772197.762 |
| 67 | 960 | 437176.849 | 2772211.903 | 437169.854 | 2772219.050 | 437183.844 | 2772204.757 |
| 68 | 970 | 437183.995 | 2772218.898 | 437177.000 | 2772226.045 | 437190.990 | 2772211.752 |
| 69 | 980 | 437191.142 | 2772225.893 | 437184.147 | 2772233.040 | 437198.136 | 2772218.747 |
| 70 | 990 | 437198.288 | 2772232.888 | 437191.293 | 2772240.034 | 437205.283 | 2772225.742 |
| 71 | 1000 | 437205.435 | 2772239.883 | 437198.440 | 2772247.029 | 437212.429 | 2772232.736 |
| 72 | 1010 | 437212.569 | 2772246.890 | 437205.509 | 2772253.972 | 437219.629 | 2772239.808 |
| 73 | 1020 | 437219.490 | 2772254.106 | 437212.068 | 2772260.807 | 437226.913 | 2772247.404 |
| 74 | 1030 | 437225.823 | 2772261.839 | 437217.750 | 2772267.740 | 437233.897 | 2772255.939 |
| 75 | 1040 | 437231.250 | 2772270.233 | 437222.595 | 2772275.242 | 437239.905 | 2772265.224 |
| 76 | 1050 | 437235.958 | 2772279.054 | 437227.017 | 2772283.533 | 437244.899 | 2772274.575 |
| 77 | 1060 | 437240.357 | 2772288.034 | 437231.371 | 2772292.422 | 437249.343 | 2772283.646 |
| 78 | 1070 | 437245.204 | 2772296.771 | 437236.921 | 2772302.375 | 437253.487 | 2772291.168 |
| 79 | 1080 | 437251.938 | 2772304.106 | 437245.771 | 2772311.979 | 437258.105 | 2772296.234 |
| 80 | 1090 | 437260.619 | 2772309.007 | 437256.804 | 2772318.251 | 437264.434 | 2772299.764 |
| 81 | 1100 | 437270.044 | 2772312.342 | 437266.891 | 2772321.832 | 437273.197 | 2772302.852 |
| 82 | 1104 | 437273.782 | 2772313.584 | 437270.630 | 2772323.074 | 437276.935 | 2772304.095 |

2. Interchange at Ch. 151+520 Cross Road of Kalain (NH-06)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 1 | 0 | 449128.354 | 2763737.243 | 449128.473 | 2763749.242 | 449128.235 | 2763725.244 |
| 2 | 10 | 449138.353 | 2763737.143 | 449138.473 | 2763749.143 | 449138.234 | 2763725.144 |
| 3 | 20 | 449148.353 | 2763737.044 | 449148.472 | 2763749.043 | 449148.234 | 2763725.044 |
| 4 | 30 | 449158.353 | 2763736.944 | 449158.472 | 2763748.944 | 449158.233 | 2763724.945 |
| 5 | 40 | 449168.352 | 2763736.845 | 449168.471 | 2763748.844 | 449168.233 | 2763724.845 |
| 6 | 50 | 449178.352 | 2763736.745 | 449178.471 | 2763748.745 | 449178.232 | 2763724.746 |
| 7 | 60 | 449188.351 | 2763736.646 | 449188.470 | 2763748.645 | 449188.232 | 2763724.646 |
| 8 | 70 | 449198.351 | 2763736.546 | 449198.470 | 2763748.545 | 449198.231 | 2763724.547 |
| 9 | 80 | 449208.350 | 2763736.446 | 449208.470 | 2763748.446 | 449208.231 | 2763724.447 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 10 | 90 | 449218.350 | 2763736.347 | 449218.469 | 2763748.346 | 449218.230 | 2763724.347 |
| 11 | 100 | 449228.349 | 2763736.247 | 449228.469 | 2763748.247 | 449228.230 | 2763724.248 |
| 12 | 110 | 449238.349 | 2763736.148 | 449238.468 | 2763748.147 | 449238.229 | 2763724.148 |
| 13 | 120 | 449248.348 | 2763736.048 | 449248.468 | 2763748.048 | 449248.229 | 2763724.049 |
| 14 | 130 | 449258.348 | 2763735.949 | 449258.467 | 2763747.948 | 449258.228 | 2763723.949 |
| 15 | 140 | 449268.347 | 2763735.849 | 449268.467 | 2763747.848 | 449268.228 | 2763723.850 |
| 16 | 150 | 449278.347 | 2763735.749 | 449278.466 | 2763747.749 | 449278.227 | 2763723.750 |
| 17 | 160 | 449288.346 | 2763735.650 | 449288.466 | 2763747.649 | 449288.227 | 2763723.650 |
| 18 | 170 | 449298.346 | 2763735.550 | 449298.465 | 2763747.550 | 449298.226 | 2763723.551 |
| 19 | 180 | 449308.345 | 2763735.449 | 449308.472 | 2763747.448 | 449308.218 | 2763723.450 |
| 20 | 190 | 449318.344 | 2763735.304 | 449318.564 | 2763747.302 | 449318.123 | 2763723.306 |
| 21 | 200 | 449328.340 | 2763735.033 | 449328.760 | 2763747.025 | 449327.920 | 2763723.040 |
| 22 | 210 | 449338.328 | 2763734.554 | 449339.054 | 2763746.532 | 449337.603 | 2763722.576 |
| 23 | 220 | 449348.298 | 2763733.786 | 449349.432 | 2763745.732 | 449347.164 | 2763721.839 |
| 24 | 230 | 449358.233 | 2763732.649 | 449359.873 | 2763744.536 | 449356.592 | 2763720.761 |
| 25 | 240 | 449368.106 | 2763731.070 | 449370.317 | 2763742.865 | 449365.896 | 2763719.276 |
| 26 | 250 | 449377.885 | 2763728.985 | 449380.723 | 2763740.645 | 449375.048 | 2763717.325 |
| 27 | 260 | 449387.527 | 2763726.338 | 449391.080 | 2763737.800 | 449383.974 | 2763714.876 |
| 28 | 270 | 449396.973 | 2763723.061 | 449401.282 | 2763734.260 | 449392.664 | 2763711.861 |
| 29 | 280 | 449406.179 | 2763719.162 | 449411.225 | 2763730.049 | 449401.134 | 2763708.274 |
| 30 | 290 | 449415.106 | 2763714.658 | 449420.865 | 2763725.185 | 449409.346 | 2763704.130 |
| 31 | 300 | 449423.712 | 2763709.569 | 449430.234 | 2763719.642 | 449417.189 | 2763699.497 |
| 32 | 310 | 449431.983 | 2763703.951 | 449438.987 | 2763713.695 | 449424.979 | 2763694.208 |
| 33 | 320 | 449439.937 | 2763697.892 | 449447.416 | 2763707.277 | 449432.459 | 2763688.508 |
| 34 | 330 | 449447.591 | 2763691.457 | 449455.497 | 2763700.485 | 449439.684 | 2763682.430 |
| 35 | 340 | 449454.975 | 2763684.715 | 449463.222 | 2763693.432 | 449446.728 | 2763675.998 |
| 36 | 350 | 449462.133 | 2763677.733 | 449470.637 | 2763686.200 | 449453.630 | 2763669.266 |
| 37 | 360 | 449469.116 | 2763670.575 | 449477.795 | 2763678.861 | 449460.436 | 2763662.288 |
| 38 | 370 | 449475.978 | 2763663.301 | 449484.758 | 2763671.481 | 449467.198 | 2763655.121 |
| 39 | 380 | 449482.780 | 2763655.971 | 449491.588 | 2763664.120 | 449473.972 | 2763647.821 |
| 40 | 390 | 449489.571 | 2763648.631 | 449498.379 | 2763656.780 | 449480.763 | 2763640.481 |
| 41 | 400 | 449496.363 | 2763641.290 | 449505.171 | 2763649.440 | 449487.555 | 2763633.141 |
| 42 | 410 | 449503.154 | 2763633.950 | 449511.961 | 2763642.102 | 449494.348 | 2763625.799 |
| 43 | 420 | 449509.962 | 2763626.626 | 449518.724 | 2763634.825 | 449501.200 | 2763618.426 |
| 44 | 430 | 449516.834 | 2763619.361 | 449525.497 | 2763627.665 | 449508.171 | 2763611.057 |
| 45 | 440 | 449523.805 | 2763612.191 | 449532.349 | 2763620.618 | 449515.262 | 2763603.765 |
| 46 | 450 | 449530.878 | 2763605.122 | 449539.300 | 2763613.670 | 449522.456 | 2763596.574 |
| 47 | 460 | 449538.051 | 2763598.155 | 449546.350 | 2763606.822 | 449529.752 | 2763589.487 |
| 48 | 470 | 449545.323 | 2763591.291 | 449553.498 | 2763600.076 | 449537.148 | 2763582.506 |
| 49 | 480 | 449552.692 | 2763584.531 | 449560.740 | 2763593.432 | 449544.644 | 2763575.630 |
| 50 | 490 | 449560.157 | 2763577.877 | 449568.077 | 2763586.892 | 449552.237 | 2763568.862 |
| 51 | 500 | 449567.715 | 2763571.329 | 449575.520 | 2763580.443 | 449559.909 | 2763562.214 |
| 52 | 510 | 449575.335 | 2763564.854 | 449583.082 | 2763574.018 | 449567.588 | 2763555.689 |
| 53 | 520 | 449582.975 | 2763558.401 | 449590.717 | 2763567.569 | 449575.232 | 2763549.233 |
| 54 | 530 | 449590.615 | 2763551.948 | 449598.357 | 2763561.116 | 449582.872 | 2763542.781 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|---|------------------------|--------------------|-----------------|------------------|-----------------|-------------------|-----------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 55 | 540 | 449598.254 | 2763545.496 | 449605.997 | 2763554.664 | 449590.512 | 2763536.328 |
| 56 | 550 | 449605.894 | 2763539.044 | 449613.637 | 2763548.212 | 449598.152 | 2763529.876 |
| 57 | 560 | 449613.534 | 2763532.592 | 449621.277 | 2763541.759 | 449605.791 | 2763523.424 |
| 58 | 570 | 449621.174 | 2763526.139 | 449628.917 | 2763535.307 | 449613.431 | 2763516.971 |
| 59 | 580 | 449628.814 | 2763519.687 | 449636.557 | 2763528.855 | 449621.071 | 2763510.519 |
| 60 | 590 | 449636.454 | 2763513.235 | 449644.197 | 2763522.403 | 449628.711 | 2763504.067 |
| 61 | 600 | 449644.094 | 2763506.782 | 449651.837 | 2763515.950 | 449636.351 | 2763497.615 |
| 62 | 610 | 449651.734 | 2763500.330 | 449659.476 | 2763509.498 | 449643.991 | 2763491.162 |
| 63 | 620 | 449659.374 | 2763493.878 | 449667.116 | 2763503.046 | 449651.631 | 2763484.710 |
| 64 | 630 | 449667.013 | 2763487.426 | 449674.756 | 2763496.593 | 449659.271 | 2763478.258 |
| 65 | 640 | 449674.653 | 2763480.973 | 449682.396 | 2763490.141 | 449666.911 | 2763471.805 |
| 66 | 650 | 449682.293 | 2763474.521 | 449690.036 | 2763483.689 | 449674.551 | 2763465.353 |
| 67 | 660 | 449689.933 | 2763468.069 | 449697.676 | 2763477.237 | 449682.190 | 2763458.901 |
| 68 | 670 | 449697.573 | 2763461.616 | 449705.316 | 2763470.784 | 449689.830 | 2763452.449 |
| 69 | 680 | 449705.213 | 2763455.164 | 449712.956 | 2763464.332 | 449697.470 | 2763445.996 |
| 70 | 690 | 449712.853 | 2763448.712 | 449720.596 | 2763457.880 | 449705.110 | 2763439.544 |
| 71 | 700 | 449720.493 | 2763442.260 | 449728.235 | 2763451.427 | 449712.750 | 2763433.092 |
| 72 | 710 | 449728.133 | 2763435.807 | 449735.875 | 2763444.975 | 449720.390 | 2763426.639 |
| 73 | 720 | 449735.773 | 2763429.355 | 449743.515 | 2763438.523 | 449728.030 | 2763420.187 |
| 74 | 730 | 449743.412 | 2763422.903 | 449751.155 | 2763432.071 | 449735.670 | 2763413.735 |
| 75 | 740 | 449751.052 | 2763416.450 | 449758.794 | 2763425.619 | 449743.311 | 2763407.281 |
| 76 | 750 | 449758.699 | 2763410.006 | 449766.438 | 2763419.195 | 449750.981 | 2763400.818 |
| 77 | 760 | 449766.337 | 2763403.554 | 449774.077 | 2763412.743 | 449758.621 | 2763394.363 |
| 78 | 770 | 449774.077 | 2763397.100 | 449781.716 | 2763406.291 | 449766.260 | 2763387.908 |
| 79 | 780 | 449781.816 | 2763390.647 | 449789.355 | 2763400.839 | 449774.099 | 2763381.453 |
| 80 | 790 | 449789.555 | 2763384.194 | 449797.094 | 2763394.387 | 449782.738 | 2763375.001 |
| 81 | 800 | 449797.294 | 2763377.741 | 449804.733 | 2763387.935 | 449790.377 | 2763368.548 |
| 82 | 810 | 449805.033 | 2763371.288 | 449812.372 | 2763381.483 | 449798.016 | 2763362.095 |
| 83 | 820 | 449812.772 | 2763364.835 | 449820.011 | 2763375.031 | 449805.655 | 2763355.642 |
| 84 | 830 | 449820.511 | 2763358.382 | 449827.650 | 2763368.579 | 449813.294 | 2763349.189 |
| 85 | 840 | 449828.250 | 2763351.929 | 449835.289 | 2763362.127 | 449820.933 | 2763342.736 |
| 86 | 850 | 449835.989 | 2763345.476 | 449842.928 | 2763355.675 | 449828.572 | 2763336.283 |
| 87 | 860 | 449843.728 | 2763339.023 | 449850.567 | 2763349.223 | 449836.211 | 2763329.830 |
| 88 | 870 | 449851.467 | 2763332.570 | 449858.206 | 2763342.771 | 449843.850 | 2763323.377 |
| 89 | 880 | 449859.206 | 2763326.117 | 449865.845 | 2763336.319 | 449851.489 | 2763316.924 |
| 90 | 890 | 449866.945 | 2763319.664 | 449873.484 | 2763329.867 | 449859.128 | 2763310.471 |
| 91 | 900 | 449874.684 | 2763313.211 | 449881.123 | 2763323.415 | 449866.767 | 2763304.018 |
| 92 | 910 | 449882.423 | 2763306.758 | 449888.762 | 2763316.963 | 449874.406 | 2763297.565 |
| 93 | 920 | 449890.162 | 2763300.305 | 449896.401 | 2763310.511 | 449882.045 | 2763291.112 |
| 94 | 930 | 449897.901 | 2763293.852 | 449904.040 | 2763304.059 | 449889.684 | 2763284.659 |
| 95 | 940 | 449905.640 | 2763287.399 | 449911.679 | 2763297.607 | 449897.323 | 2763278.206 |
| 96 | 950 | 449913.379 | 2763280.946 | 449919.318 | 2763291.155 | 449904.962 | 2763271.753 |
| 97 | 960 | 449921.118 | 2763274.493 | 449926.957 | 2763284.703 | 449912.601 | 2763265.300 |
| 98 | 970 | 449928.857 | 2763268.040 | 449934.596 | 2763278.251 | 449920.240 | 2763258.847 |
| 99 | 980 | 449936.596 | 2763261.587 | 449942.235 | 2763271.799 | 449927.879 | 2763252.394 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 100 | 990 | 449966.135 | 2763291.995 | 449970.830 | 2763303.038 | 449961.439 | 2763280.951 |
| 101 | 1000 | 449975.337 | 2763288.082 | 449980.033 | 2763299.125 | 449970.642 | 2763277.038 |
| 102 | 1010 | 449984.540 | 2763284.169 | 449989.236 | 2763295.212 | 449979.844 | 2763273.125 |
| 103 | 1020 | 449993.743 | 2763280.256 | 449998.438 | 2763291.299 | 449989.047 | 2763269.212 |
| 104 | 1030 | 450002.945 | 2763276.341 | 450007.652 | 2763287.379 | 449998.237 | 2763265.303 |
| 105 | 1040 | 450012.133 | 2763272.395 | 450016.896 | 2763283.410 | 450007.371 | 2763261.381 |
| 106 | 1050 | 450021.302 | 2763268.404 | 450026.120 | 2763279.394 | 450016.484 | 2763257.413 |
| 107 | 1060 | 450030.457 | 2763264.380 | 450035.286 | 2763275.366 | 450025.628 | 2763253.395 |
| 108 | 1070 | 450039.611 | 2763260.356 | 450044.441 | 2763271.341 | 450034.782 | 2763249.370 |
| 109 | 1080 | 450048.766 | 2763256.331 | 450053.595 | 2763267.317 | 450043.937 | 2763245.346 |
| 110 | 1090 | 450057.920 | 2763252.307 | 450062.750 | 2763263.292 | 450053.091 | 2763241.322 |
| 111 | 1100 | 450067.075 | 2763248.283 | 450071.904 | 2763259.268 | 450062.246 | 2763237.297 |
| 112 | 1110 | 450076.229 | 2763244.258 | 450081.059 | 2763255.244 | 450071.400 | 2763233.273 |
| 113 | 1120 | 450085.384 | 2763240.234 | 450090.213 | 2763251.219 | 450080.554 | 2763229.248 |
| 114 | 1130 | 450094.538 | 2763236.209 | 450099.367 | 2763247.195 | 450089.709 | 2763225.224 |
| 115 | 1140 | 450103.693 | 2763232.185 | 450108.522 | 2763243.170 | 450098.863 | 2763221.200 |
| 116 | 1150 | 450112.847 | 2763228.161 | 450117.676 | 2763239.146 | 450108.018 | 2763217.175 |
| 117 | 1160 | 450122.002 | 2763224.136 | 450126.831 | 2763235.121 | 450117.172 | 2763213.151 |
| 118 | 1170 | 450131.156 | 2763220.112 | 450135.985 | 2763231.097 | 450126.327 | 2763209.126 |
| 119 | 1180 | 450140.311 | 2763216.087 | 450145.140 | 2763227.073 | 450135.481 | 2763205.102 |
| 120 | 1190 | 450149.465 | 2763212.063 | 450154.294 | 2763223.048 | 450144.636 | 2763201.078 |
| 121 | 1200 | 450158.619 | 2763208.039 | 450163.449 | 2763219.024 | 450153.790 | 2763197.053 |
| 122 | 1210 | 450167.774 | 2763204.014 | 450172.603 | 2763214.999 | 450162.945 | 2763193.029 |
| 123 | 1220 | 450176.928 | 2763199.990 | 450181.758 | 2763210.975 | 450172.099 | 2763189.004 |
| 124 | 1230 | 450186.083 | 2763195.965 | 450190.912 | 2763206.951 | 450181.254 | 2763184.980 |
| 125 | 1240 | 450195.237 | 2763191.941 | 450200.067 | 2763202.926 | 450190.408 | 2763180.956 |
| 126 | 1250 | 450204.392 | 2763187.917 | 450209.221 | 2763198.902 | 450199.562 | 2763176.931 |
| 127 | 1260 | 450213.546 | 2763183.892 | 450218.376 | 2763194.877 | 450208.717 | 2763172.907 |
| 128 | 1270 | 450222.701 | 2763179.868 | 450227.530 | 2763190.853 | 450217.871 | 2763168.882 |
| 129 | 1280 | 450231.855 | 2763175.843 | 450236.684 | 2763186.829 | 450227.026 | 2763164.858 |
| 130 | 1290 | 450241.010 | 2763171.819 | 450245.839 | 2763182.804 | 450236.180 | 2763160.834 |
| 131 | 1300 | 450250.165 | 2763167.796 | 450254.982 | 2763178.786 | 450245.347 | 2763156.805 |
| 132 | 1310 | 450259.333 | 2763163.804 | 450264.096 | 2763174.819 | 450254.571 | 2763152.790 |
| 133 | 1320 | 450268.522 | 2763159.858 | 450273.229 | 2763170.897 | 450263.815 | 2763148.820 |
| 134 | 1330 | 450277.730 | 2763155.959 | 450282.382 | 2763167.021 | 450273.078 | 2763144.897 |
| 135 | 1340 | 450286.958 | 2763152.105 | 450291.555 | 2763163.190 | 450282.362 | 2763141.021 |
| 136 | 1350 | 450296.203 | 2763148.293 | 450300.769 | 2763159.391 | 450291.637 | 2763137.196 |
| 137 | 1360 | 450305.451 | 2763144.488 | 450310.017 | 2763155.585 | 450300.884 | 2763133.391 |
| 138 | 1370 | 450314.698 | 2763140.683 | 450319.265 | 2763151.780 | 450310.132 | 2763129.586 |
| 139 | 1380 | 450323.946 | 2763136.878 | 450328.512 | 2763147.975 | 450319.380 | 2763125.780 |
| 140 | 1390 | 450333.194 | 2763133.072 | 450337.760 | 2763144.170 | 450328.628 | 2763121.975 |
| 141 | 1400 | 450342.442 | 2763129.267 | 450347.008 | 2763140.365 | 450337.875 | 2763118.170 |
| 142 | 1410 | 450351.689 | 2763125.462 | 450356.256 | 2763136.559 | 450347.123 | 2763114.365 |
| 143 | 1420 | 450360.937 | 2763121.657 | 450365.503 | 2763132.754 | 450356.371 | 2763110.560 |
| 144 | 1430 | 450370.185 | 2763117.852 | 450374.751 | 2763128.949 | 450365.619 | 2763106.754 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 145 | 1440 | 450379.432 | 2763114.046 | 450383.999 | 2763125.144 | 450374.866 | 2763102.949 |
| 146 | 1450 | 450388.680 | 2763110.241 | 450393.246 | 2763121.339 | 450384.114 | 2763099.144 |
| 147 | 1460 | 450397.928 | 2763106.436 | 450402.494 | 2763117.533 | 450393.362 | 2763095.339 |
| 148 | 1470 | 450407.176 | 2763102.631 | 450411.742 | 2763113.728 | 450402.609 | 2763091.534 |
| 149 | 1480 | 450416.423 | 2763098.826 | 450420.990 | 2763109.923 | 450411.857 | 2763087.728 |
| 150 | 1490 | 450425.671 | 2763095.020 | 450430.237 | 2763106.118 | 450421.105 | 2763083.923 |
| 151 | 1500 | 450434.918 | 2763091.213 | 450439.502 | 2763102.303 | 450430.333 | 2763080.123 |
| 152 | 1510 | 450444.150 | 2763087.369 | 450448.790 | 2763098.436 | 450439.510 | 2763076.303 |
| 153 | 1520 | 450453.362 | 2763083.480 | 450458.057 | 2763094.523 | 450448.667 | 2763072.436 |
| 154 | 1530 | 450462.555 | 2763079.544 | 450467.306 | 2763090.564 | 450457.805 | 2763068.524 |
| 155 | 1540 | 450471.728 | 2763075.563 | 450476.534 | 2763086.559 | 450466.923 | 2763064.567 |
| 156 | 1550 | 450480.882 | 2763071.537 | 450485.728 | 2763082.515 | 450476.037 | 2763060.559 |
| 157 | 1560 | 450490.031 | 2763067.499 | 450494.876 | 2763078.478 | 450485.186 | 2763056.521 |
| 158 | 1570 | 450499.180 | 2763063.462 | 450504.025 | 2763074.440 | 450494.334 | 2763052.483 |
| 159 | 1580 | 450508.328 | 2763059.424 | 450513.173 | 2763070.402 | 450503.483 | 2763048.446 |
| 160 | 1590 | 450517.477 | 2763055.386 | 450522.322 | 2763066.365 | 450512.632 | 2763044.408 |
| 161 | 1600 | 450526.625 | 2763051.349 | 450531.471 | 2763062.327 | 450521.780 | 2763040.370 |
| 162 | 1610 | 450535.774 | 2763047.311 | 450540.619 | 2763058.289 | 450530.929 | 2763036.332 |
| 163 | 1620 | 450544.923 | 2763043.273 | 450549.768 | 2763054.251 | 450540.077 | 2763032.295 |
| 164 | 1630 | 450554.071 | 2763039.235 | 450558.916 | 2763050.214 | 450549.226 | 2763028.257 |
| 165 | 1640 | 450563.220 | 2763035.198 | 450568.065 | 2763046.176 | 450558.375 | 2763024.219 |
| 166 | 1650 | 450572.368 | 2763031.160 | 450577.214 | 2763042.138 | 450567.523 | 2763020.182 |
| 167 | 1660 | 450581.517 | 2763027.122 | 450586.362 | 2763038.101 | 450576.672 | 2763016.144 |
| 168 | 1670 | 450590.666 | 2763023.085 | 450595.511 | 2763034.063 | 450585.820 | 2763012.106 |
| 169 | 1680 | 450599.814 | 2763019.047 | 450604.659 | 2763030.025 | 450594.969 | 2763008.069 |
| 170 | 1690 | 450608.963 | 2763015.009 | 450613.808 | 2763025.987 | 450604.118 | 2763004.031 |
| 171 | 1700 | 450618.111 | 2763010.971 | 450622.957 | 2763021.950 | 450613.266 | 2762999.993 |
| 172 | 1710 | 450627.260 | 2763006.934 | 450632.105 | 2763017.912 | 450622.415 | 2762995.955 |
| 173 | 1720 | 450636.409 | 2763002.896 | 450641.254 | 2763013.874 | 450631.563 | 2762991.918 |
| 174 | 1730 | 450645.557 | 2762998.858 | 450650.402 | 2763009.837 | 450640.712 | 2762987.880 |
| 175 | 1740 | 450654.706 | 2762994.821 | 450659.551 | 2763005.799 | 450649.861 | 2762983.842 |
| 176 | 1750 | 450663.854 | 2762990.783 | 450668.700 | 2763001.761 | 450659.009 | 2762979.805 |
| 177 | 1760 | 450673.003 | 2762986.745 | 450677.848 | 2762997.724 | 450668.158 | 2762975.767 |
| 178 | 1770 | 450682.152 | 2762982.707 | 450686.997 | 2762993.686 | 450677.306 | 2762971.729 |
| 179 | 1780 | 450691.300 | 2762978.670 | 450696.145 | 2762989.648 | 450686.455 | 2762967.691 |
| 180 | 1790 | 450700.449 | 2762974.632 | 450705.294 | 2762985.610 | 450695.604 | 2762963.654 |
| 181 | 1800 | 450709.597 | 2762970.594 | 450714.443 | 2762981.573 | 450704.752 | 2762959.616 |
| 182 | 1810 | 450718.746 | 2762966.557 | 450723.591 | 2762977.535 | 450713.901 | 2762955.578 |
| 183 | 1820 | 450727.895 | 2762962.519 | 450732.740 | 2762973.497 | 450723.049 | 2762951.541 |
| 184 | 1830 | 450737.043 | 2762958.481 | 450741.888 | 2762969.460 | 450732.198 | 2762947.503 |
| 185 | 1840 | 450746.192 | 2762954.444 | 450751.037 | 2762965.422 | 450741.347 | 2762943.465 |
| 186 | 1850 | 450755.340 | 2762950.406 | 450760.186 | 2762961.384 | 450750.495 | 2762939.428 |
| 187 | 1860 | 450764.489 | 2762946.368 | 450769.334 | 2762957.346 | 450759.644 | 2762935.390 |
| 188 | 1870 | 450773.638 | 2762942.330 | 450778.483 | 2762953.309 | 450768.792 | 2762931.352 |
| 189 | 1880 | 450782.786 | 2762938.293 | 450787.631 | 2762949.271 | 450777.941 | 2762927.314 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 190 | 1890 | 450791.935 | 2762934.255 | 450796.780 | 2762945.233 | 450787.090 | 2762923.277 |
| 191 | 1900 | 450801.083 | 2762930.217 | 450805.929 | 2762941.196 | 450796.238 | 2762919.239 |
| 192 | 1910 | 450810.232 | 2762926.180 | 450815.077 | 2762937.158 | 450805.387 | 2762915.201 |
| 193 | 1920 | 450819.381 | 2762922.142 | 450824.226 | 2762933.120 | 450814.535 | 2762911.164 |
| 194 | 1930 | 450828.529 | 2762918.104 | 450833.374 | 2762929.082 | 450823.684 | 2762907.126 |
| 195 | 1940 | 450837.678 | 2762914.066 | 450842.523 | 2762925.045 | 450832.833 | 2762903.088 |
| 196 | 1950 | 450846.826 | 2762910.029 | 450851.672 | 2762921.007 | 450841.981 | 2762899.050 |
| 197 | 1960 | 450855.975 | 2762905.991 | 450860.820 | 2762916.969 | 450851.130 | 2762895.013 |
| 198 | 1970 | 450865.124 | 2762901.953 | 450869.969 | 2762912.932 | 450860.278 | 2762890.975 |
| 199 | 1980 | 450874.272 | 2762897.916 | 450879.118 | 2762908.894 | 450869.427 | 2762886.937 |
| 200 | 1990 | 450883.421 | 2762893.878 | 450888.266 | 2762904.856 | 450878.576 | 2762882.900 |
| 201 | 2000 | 450892.569 | 2762889.840 | 450897.415 | 2762900.819 | 450887.724 | 2762878.862 |
| 202 | 2010 | 450901.718 | 2762885.802 | 450906.563 | 2762896.781 | 450896.873 | 2762874.824 |
| 203 | 2020 | 450910.867 | 2762881.765 | 450915.712 | 2762892.743 | 450906.021 | 2762870.786 |
| 204 | 2030 | 450920.015 | 2762877.727 | 450924.861 | 2762888.705 | 450915.170 | 2762866.749 |
| 205 | 2040 | 450929.164 | 2762873.689 | 450934.009 | 2762884.668 | 450924.319 | 2762862.711 |
| 206 | 2050 | 450938.312 | 2762869.652 | 450943.158 | 2762880.630 | 450933.467 | 2762858.673 |
| 207 | 2060 | 450947.461 | 2762865.614 | 450952.306 | 2762876.592 | 450942.616 | 2762854.636 |
| 208 | 2070 | 450956.610 | 2762861.576 | 450961.455 | 2762872.555 | 450951.764 | 2762850.598 |
| 209 | 2080 | 450965.758 | 2762857.539 | 450970.604 | 2762868.517 | 450960.913 | 2762846.560 |
| 210 | 2090 | 450974.907 | 2762853.501 | 450979.752 | 2762864.479 | 450970.062 | 2762842.523 |
| 211 | 2100 | 450984.055 | 2762849.463 | 450988.901 | 2762860.441 | 450979.210 | 2762838.485 |
| 212 | 2110 | 450993.204 | 2762845.425 | 450998.049 | 2762856.404 | 450988.359 | 2762834.447 |
| 213 | 2120 | 451002.353 | 2762841.388 | 451007.198 | 2762852.366 | 450997.507 | 2762830.409 |
| 214 | 2130 | 451011.501 | 2762837.350 | 451016.347 | 2762848.328 | 451006.656 | 2762826.372 |
| 215 | 2140 | 451020.650 | 2762833.312 | 451025.495 | 2762844.291 | 451015.805 | 2762822.334 |
| 216 | 2150 | 451029.798 | 2762829.275 | 451034.644 | 2762840.253 | 451024.953 | 2762818.296 |
| 217 | 2160 | 451038.947 | 2762825.237 | 451043.792 | 2762836.215 | 451034.102 | 2762814.259 |
| 218 | 2170 | 451048.106 | 2762821.222 | 451052.896 | 2762832.225 | 451043.316 | 2762810.220 |
| 219 | 2180 | 451057.279 | 2762817.242 | 451062.054 | 2762828.251 | 451052.505 | 2762806.232 |
| 220 | 2190 | 451066.454 | 2762813.263 | 451071.228 | 2762824.272 | 451061.680 | 2762802.254 |
| 221 | 2200 | 451075.628 | 2762809.284 | 451080.403 | 2762820.294 | 451070.854 | 2762798.275 |
| 222 | 2210 | 451084.803 | 2762805.306 | 451089.577 | 2762816.315 | 451080.029 | 2762794.297 |
| 223 | 2220 | 451093.977 | 2762801.327 | 451098.752 | 2762812.337 | 451089.203 | 2762790.318 |
| 224 | 2230 | 451103.152 | 2762797.349 | 451107.926 | 2762808.358 | 451098.377 | 2762786.339 |
| 225 | 2240 | 451112.326 | 2762793.370 | 451117.101 | 2762804.380 | 451107.552 | 2762782.361 |
| 226 | 2250 | 451121.501 | 2762789.392 | 451126.275 | 2762800.401 | 451116.726 | 2762778.382 |
| 227 | 2260 | 451130.675 | 2762785.413 | 451135.449 | 2762796.422 | 451125.901 | 2762774.404 |
| 228 | 2270 | 451139.850 | 2762781.434 | 451144.624 | 2762792.444 | 451135.075 | 2762770.425 |
| 229 | 2280 | 451149.024 | 2762777.456 | 451153.798 | 2762788.465 | 451144.250 | 2762766.447 |
| 230 | 2290 | 451158.199 | 2762773.477 | 451162.973 | 2762784.487 | 451153.424 | 2762762.468 |
| 231 | 2300 | 451167.373 | 2762769.499 | 451172.147 | 2762780.508 | 451162.599 | 2762758.489 |
| 232 | 2310 | 451176.548 | 2762765.520 | 451181.322 | 2762776.530 | 451171.773 | 2762754.511 |
| 233 | 2320 | 451185.722 | 2762761.542 | 451190.496 | 2762772.551 | 451180.948 | 2762750.532 |
| 234 | 2330 | 451194.896 | 2762757.563 | 451199.671 | 2762768.572 | 451190.122 | 2762746.554 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Coordinate System Universal Transverse Mercator (UTM)-WGS84 (Zone 46N) | | | | | | | |
|--|-----------------|-------------|-------------|------------|-------------|------------|-------------|
| S. No. | DESIGN CHAINAGE | CENTRE LINE | | LEFT SIDE | | RIGHT SIDE | |
| | | Easting | Northing | Easting | Northing | Easting | Northing |
| 235 | 2340 | 451204.071 | 2762753.584 | 451208.845 | 2762764.594 | 451199.297 | 2762742.575 |
| 236 | 2350 | 451213.245 | 2762749.606 | 451218.020 | 2762760.615 | 451208.471 | 2762738.596 |
| 237 | 2360 | 451222.420 | 2762745.627 | 451227.194 | 2762756.637 | 451217.646 | 2762734.618 |
| 238 | 2370 | 451231.589 | 2762741.636 | 451236.408 | 2762752.626 | 451226.770 | 2762730.647 |
| 239 | 2380 | 451240.717 | 2762737.553 | 451245.709 | 2762748.466 | 451235.726 | 2762726.641 |
| 240 | 2390 | 451249.755 | 2762733.274 | 451255.045 | 2762744.045 | 451244.465 | 2762722.503 |
| 241 | 2400 | 451258.648 | 2762728.701 | 451264.344 | 2762739.263 | 451252.952 | 2762718.139 |
| 242 | 2410 | 451267.352 | 2762723.780 | 451273.462 | 2762734.108 | 451261.242 | 2762713.452 |
| 243 | 2420 | 451275.879 | 2762718.557 | 451282.298 | 2762728.696 | 451269.460 | 2762708.417 |
| 244 | 2430 | 451284.277 | 2762713.128 | 451290.881 | 2762723.148 | 451277.674 | 2762703.108 |
| 245 | 2440 | 451292.605 | 2762707.592 | 451299.273 | 2762717.569 | 451285.937 | 2762697.615 |
| 246 | 2450 | 451300.918 | 2762702.035 | 451307.588 | 2762712.010 | 451294.249 | 2762692.059 |
| 247 | 2460 | 451309.255 | 2762696.512 | 451315.740 | 2762706.609 | 451302.771 | 2762686.415 |
| 248 | 2470 | 451317.775 | 2762691.278 | 451323.851 | 2762701.627 | 451311.700 | 2762680.930 |
| 249 | 2480 | 451326.498 | 2762686.389 | 451332.155 | 2762696.972 | 451320.841 | 2762675.806 |
| 250 | 2490 | 451335.409 | 2762681.853 | 451340.638 | 2762692.654 | 451330.180 | 2762671.052 |
| 251 | 2500 | 451344.494 | 2762677.677 | 451349.287 | 2762688.678 | 451339.702 | 2762666.675 |
| 252 | 2510 | 451353.740 | 2762673.867 | 451358.089 | 2762685.051 | 451349.391 | 2762662.683 |
| 253 | 2520 | 451363.130 | 2762670.430 | 451367.028 | 2762681.779 | 451359.231 | 2762659.081 |
| 254 | 2530 | 451372.643 | 2762667.350 | 451376.237 | 2762678.800 | 451369.050 | 2762655.901 |
| 255 | 2540 | 451382.184 | 2762664.356 | 451385.778 | 2762675.805 | 451378.591 | 2762652.907 |
| 256 | 2550 | 451391.726 | 2762661.362 | 451395.319 | 2762672.811 | 451388.132 | 2762649.912 |
| 257 | 2560 | 451401.267 | 2762658.367 | 451404.860 | 2762669.817 | 451397.674 | 2762646.918 |
| 258 | 2570 | 451410.808 | 2762655.373 | 451414.401 | 2762666.822 | 451407.215 | 2762643.923 |
| 259 | 2580 | 451420.349 | 2762652.378 | 451423.942 | 2762663.828 | 451416.756 | 2762640.929 |
| 260 | 2590 | 451429.890 | 2762649.384 | 451433.484 | 2762660.833 | 451426.297 | 2762637.935 |
| 261 | 2600 | 451439.431 | 2762646.390 | 451443.025 | 2762657.839 | 451435.838 | 2762634.940 |
| 262 | 2610 | 451449.062 | 2762643.702 | 451451.900 | 2762655.362 | 451446.223 | 2762632.043 |
| 263 | 2620 | 451458.849 | 2762641.662 | 451460.905 | 2762653.485 | 451456.794 | 2762629.839 |
| 264 | 2630 | 451468.751 | 2762640.279 | 451470.015 | 2762652.212 | 451467.488 | 2762628.345 |
| 265 | 2640 | 451478.723 | 2762639.558 | 451479.189 | 2762651.549 | 451478.258 | 2762627.567 |
| 266 | 2650 | 451488.721 | 2762639.503 | 451488.387 | 2762651.498 | 451489.056 | 2762627.507 |
| 267 | 2660 | 451498.701 | 2762640.114 | 451497.568 | 2762652.060 | 451499.833 | 2762628.168 |
| 268 | 2670 | 451508.617 | 2762641.389 | 451506.692 | 2762653.233 | 451510.543 | 2762629.544 |
| 269 | 2680 | 451518.443 | 2762643.247 | 451516.106 | 2762655.017 | 451520.779 | 2762631.476 |
| 270 | 2690 | 451528.251 | 2762645.194 | 451525.915 | 2762656.964 | 451530.588 | 2762633.423 |
| 271 | 2700 | 451538.060 | 2762647.141 | 451535.723 | 2762658.911 | 451540.396 | 2762635.370 |
| 272 | 2710 | 451547.884 | 2762649.008 | 451545.883 | 2762660.841 | 451549.884 | 2762637.176 |
| 273 | 2720 | 451557.781 | 2762650.428 | 451556.376 | 2762662.345 | 451559.186 | 2762638.510 |
| 274 | 2730 | 451567.738 | 2762651.350 | 451566.931 | 2762663.322 | 451568.544 | 2762639.377 |
| 275 | 2740 | 451577.728 | 2762651.771 | 451577.522 | 2762663.769 | 451577.933 | 2762639.773 |
| 276 | 2750 | 451587.726 | 2762651.692 | 451588.122 | 2762663.685 | 451587.330 | 2762639.698 |
| 277 | 2760 | 451597.717 | 2762651.265 | 451598.243 | 2762663.254 | 451597.191 | 2762639.277 |
| 278 | 2770 | 451607.708 | 2762650.827 | 451608.233 | 2762662.815 | 451607.182 | 2762638.839 |
| 279 | 2782 | 451619.696 | 2762650.301 | 451620.222 | 2762662.290 | 451619.170 | 2762638.313 |

3. Trumpet Interchange at Ch. 164+120 (Badarpur Bypass)

| Sr. No. | Design Chainage | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
|---------|-----------------|------------|------------|-----------|------------|------------|------------|
| | | Easting | Northing | Northing | Easting | Easting | Northing |
| 1 | 163+480 | 455211.94 | 2754819.96 | 455221.88 | 2754849.13 | 455201.99 | 2754790.73 |
| 2 | 163+490 | 455221.41 | 2754816.73 | 455231.62 | 2754846.69 | 455211.17 | 2754786.68 |
| 3 | 163+500 | 455230.88 | 2754813.51 | 455241.35 | 2754844.24 | 455220.35 | 2754782.62 |
| 4 | 163+510 | 455240.34 | 2754810.28 | 455251.08 | 2754841.80 | 455229.54 | 2754778.57 |
| 5 | 163+520 | 455249.81 | 2754807.06 | 455260.81 | 2754839.36 | 455238.72 | 2754774.52 |
| 6 | 163+530 | 455259.27 | 2754803.83 | 455270.54 | 2754836.91 | 455247.91 | 2754770.46 |
| 7 | 163+540 | 455268.74 | 2754800.61 | 455280.27 | 2754834.47 | 455257.09 | 2754766.41 |
| 8 | 163+550 | 455278.20 | 2754797.38 | 455290.01 | 2754832.02 | 455266.27 | 2754762.36 |
| 9 | 163+560 | 455287.67 | 2754794.16 | 455299.74 | 2754829.58 | 455275.46 | 2754758.30 |
| 10 | 163+570 | 455297.14 | 2754790.93 | 455309.47 | 2754827.13 | 455284.64 | 2754754.25 |
| 11 | 163+580 | 455306.60 | 2754787.71 | 455319.20 | 2754824.69 | 455293.82 | 2754750.20 |
| 12 | 163+590 | 455316.07 | 2754784.48 | 455328.93 | 2754822.24 | 455303.01 | 2754746.14 |
| 13 | 163+600 | 455325.53 | 2754781.26 | 455338.66 | 2754819.80 | 455312.19 | 2754742.09 |
| 14 | 163+610 | 455335.00 | 2754778.03 | 455348.39 | 2754817.35 | 455321.37 | 2754738.04 |
| 15 | 163+620 | 455344.46 | 2754774.81 | 455358.13 | 2754814.91 | 455330.56 | 2754733.98 |
| 16 | 163+630 | 455353.93 | 2754771.58 | 455367.86 | 2754812.46 | 455339.74 | 2754729.93 |
| 17 | 163+640 | 455363.40 | 2754768.36 | 455377.59 | 2754810.02 | 455348.92 | 2754725.88 |
| 18 | 163+650 | 455372.86 | 2754765.13 | 455387.32 | 2754807.57 | 455358.11 | 2754721.82 |
| 19 | 163+660 | 455382.33 | 2754761.91 | 455397.05 | 2754805.13 | 455367.29 | 2754717.77 |
| 20 | 163+670 | 455391.79 | 2754758.68 | 455406.78 | 2754802.69 | 455376.47 | 2754713.72 |
| 21 | 163+680 | 455401.26 | 2754755.46 | 455416.52 | 2754800.24 | 455385.66 | 2754709.66 |
| 22 | 163+690 | 455410.73 | 2754752.23 | 455426.25 | 2754797.80 | 455394.84 | 2754705.61 |
| 23 | 163+700 | 455420.19 | 2754749.01 | 455435.98 | 2754795.35 | 455404.02 | 2754701.56 |
| 24 | 163+710 | 455429.66 | 2754745.79 | 455445.71 | 2754792.91 | 455413.21 | 2754697.50 |
| 25 | 163+720 | 455439.12 | 2754742.56 | 455455.44 | 2754790.46 | 455422.39 | 2754693.45 |
| 26 | 163+730 | 455448.59 | 2754739.34 | 455465.17 | 2754788.02 | 455431.57 | 2754689.40 |
| 27 | 163+740 | 455458.05 | 2754736.11 | 455474.91 | 2754785.57 | 455440.76 | 2754685.34 |
| 28 | 163+750 | 455467.52 | 2754732.89 | 455484.64 | 2754783.13 | 455449.94 | 2754681.29 |
| 29 | 163+760 | 455476.99 | 2754729.66 | 455494.37 | 2754780.68 | 455459.13 | 2754677.24 |
| 30 | 163+770 | 455486.45 | 2754726.44 | 455504.10 | 2754778.24 | 455468.31 | 2754673.18 |
| 31 | 163+780 | 455495.92 | 2754723.21 | 455513.83 | 2754775.79 | 455477.49 | 2754669.13 |
| 32 | 163+790 | 455505.38 | 2754719.99 | 455523.56 | 2754773.35 | 455486.64 | 2754664.98 |
| 33 | 163+800 | 455514.85 | 2754716.76 | 455533.29 | 2754770.91 | 455495.95 | 2754661.30 |
| 34 | 163+810 | 455524.31 | 2754713.54 | 455543.03 | 2754768.46 | 455505.15 | 2754657.28 |
| 35 | 163+820 | 455533.78 | 2754710.31 | 455552.76 | 2754766.02 | 455514.55 | 2754653.86 |
| 36 | 163+830 | 455543.25 | 2754707.09 | 455562.46 | 2754763.48 | 455524.04 | 2754650.70 |
| 37 | 163+840 | 455552.71 | 2754703.86 | 455572.12 | 2754760.82 | 455533.55 | 2754647.62 |
| 38 | 163+850 | 455562.18 | 2754700.64 | 455581.87 | 2754758.44 | 455542.67 | 2754643.37 |
| 39 | 163+860 | 455571.64 | 2754697.41 | 455591.40 | 2754755.39 | 455552.27 | 2754640.56 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Design Chainage | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
|---------|-----------------|------------|------------|-----------|------------|------------|------------|
| | | Easting | Northing | Northing | Easting | Easting | Northing |
| 40 | 163+870 | 455581.11 | 2754694.19 | 455600.89 | 2754752.26 | 455561.88 | 2754637.75 |
| 41 | 163+880 | 455590.57 | 2754690.96 | 455610.37 | 2754749.06 | 455571.50 | 2754634.98 |
| 42 | 163+890 | 455600.04 | 2754687.74 | 455619.88 | 2754745.97 | 455581.32 | 2754632.79 |
| 43 | 163+900 | 455609.51 | 2754684.51 | 455629.53 | 2754743.30 | 455590.61 | 2754629.04 |
| 44 | 163+910 | 455618.97 | 2754681.29 | 455639.00 | 2754740.08 | 455600.01 | 2754625.63 |
| 45 | 163+920 | 455628.44 | 2754678.06 | 455648.03 | 2754735.58 | 455609.33 | 2754621.99 |
| 46 | 163+930 | 455637.90 | 2754674.84 | 455657.87 | 2754733.44 | 455618.29 | 2754617.28 |
| 47 | 163+940 | 455647.37 | 2754671.61 | 455667.80 | 2754731.57 | 455626.62 | 2754610.70 |
| 48 | 163+950 | 455656.83 | 2754668.39 | 455677.48 | 2754728.99 | 455634.81 | 2754603.73 |
| 49 | 163+960 | 455666.30 | 2754665.16 | 455687.04 | 2754726.03 | 455642.87 | 2754596.38 |
| 50 | 163+970 | 455675.77 | 2754661.94 | 455696.78 | 2754723.63 | 455650.63 | 2754588.15 |
| 51 | 163+980 | 455685.23 | 2754658.71 | 455706.74 | 2754721.84 | 455658.40 | 2754579.94 |
| 52 | 163+990 | 455694.70 | 2754655.49 | 455716.88 | 2754720.61 | 455663.95 | 2754565.24 |
| 53 | 164+000 | 455704.16 | 2754652.26 | 455727.16 | 2754719.76 | 455668.30 | 2754546.98 |
| 54 | 164+010 | 455713.63 | 2754649.04 | 455737.63 | 2754719.49 | 455669.02 | 2754518.10 |
| 55 | 164+020 | 455723.09 | 2754645.82 | 455748.26 | 2754719.67 | 455667.31 | 2754482.08 |
| 56 | 164+030 | 455732.56 | 2754642.59 | 455758.89 | 2754719.88 | 455665.74 | 2754446.45 |
| 57 | 164+040 | 455742.03 | 2754639.37 | 455770.12 | 2754721.82 | 455665.03 | 2754413.35 |
| 58 | 164+050 | 455751.49 | 2754636.14 | 455781.76 | 2754724.98 | 455664.68 | 2754381.33 |
| 59 | 164+060 | 455760.96 | 2754632.92 | 455793.58 | 2754728.67 | 455664.45 | 2754349.65 |
| 60 | 164+070 | 455770.42 | 2754629.69 | 455805.54 | 2754732.78 | 455662.08 | 2754311.66 |
| 61 | 164+080 | 455779.89 | 2754626.47 | 455817.72 | 2754737.51 | 455656.39 | 2754263.96 |
| 62 | 164+090 | 455789.36 | 2754623.24 | 455829.96 | 2754742.42 | 455652.08 | 2754220.29 |
| 63 | 164+100 | 455798.82 | 2754620.02 | 455842.40 | 2754752.16 | 455647.76 | 2754176.63 |
| 64 | 164+110 | 455808.29 | 2754616.79 | 455854.69 | 2754757.22 | 455647.82 | 2754145.78 |
| 65 | 164+120 | 455817.75 | 2754613.57 | 455867.94 | 2754762.17 | 455658.11 | 2754144.97 |
| 66 | 164+130 | 455827.22 | 2754610.34 | 455881.13 | 2754766.94 | 455668.40 | 2754144.16 |
| 67 | 164+140 | 455836.68 | 2754607.12 | 455894.20 | 2754771.34 | 455678.69 | 2754143.35 |
| 68 | 164+150 | 455846.15 | 2754603.89 | 455907.84 | 2754645.07 | 455689.05 | 2754142.77 |
| 69 | 164+160 | 455855.61 | 2754600.67 | 455921.06 | 2754640.87 | 455734.95 | 2754248.78 |
| 70 | 164+170 | 455865.02 | 2754597.27 | 455934.90 | 2754635.04 | 455687.38 | 2754142.84 |
| 71 | 164+180 | 455874.18 | 2754593.28 | 455948.70 | 2754627.43 | 455652.07 | 2754145.45 |
| 72 | 164+190 | 455882.85 | 2754588.30 | 455962.12 | 2754617.60 | 455654.25 | 2754242.29 |
| 73 | 164+200 | 455890.83 | 2754582.28 | 455975.17 | 2754606.06 | 455662.62 | 2754316.16 |
| 74 | 164+210 | 455897.99 | 2754575.32 | 455987.90 | 2754593.94 | 455664.55 | 2754363.47 |
| 75 | 164+220 | 455904.23 | 2754567.51 | 455999.54 | 2754580.22 | 455664.82 | 2754399.48 |
| 76 | 164+230 | 455909.45 | 2754558.99 | 456010.55 | 2754565.78 | 455665.41 | 2754429.77 |
| 77 | 164+240 | 455913.57 | 2754549.88 | 456020.13 | 2754550.87 | 455666.05 | 2754456.16 |
| 78 | 164+250 | 455916.52 | 2754540.33 | 456028.19 | 2754535.43 | 455667.28 | 2754480.14 |
| 79 | 164+260 | 455918.25 | 2754530.49 | 456034.98 | 2754519.92 | 455667.91 | 2754502.35 |
| 80 | 164+270 | 455918.74 | 2754520.51 | 456040.84 | 2754504.31 | 455669.24 | 2754523.77 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Design Chainage | CENTRELINE | | LEFT SIDE | | RIGHT SIDE | |
|---------|-----------------|------------|------------|-----------|------------|------------|------------|
| | | Easting | Northing | Northing | Easting | Easting | Northing |
| 81 | 164+280 | 455917.99 | 2754510.54 | 455959.16 | 2754489.13 | 455668.46 | 2754545.21 |
| 82 | 164+290 | 455916.00 | 2754500.75 | 455954.07 | 2754474.42 | 455662.30 | 2754569.07 |
| 83 | 164+300 | 455912.80 | 2754491.28 | 455946.04 | 2754461.11 | 455632.22 | 2754605.98 |
| 84 | 164+310 | 455908.45 | 2754482.29 | 455938.05 | 2754448.20 | 455285.77 | 2754833.08 |
| 85 | 164+320 | 455903.02 | 2754473.90 | 455928.37 | 2754438.52 | 455540.06 | 2754769.20 |
| 86 | 164+330 | 455896.74 | 2754466.12 | 455921.08 | 2754429.97 | 455553.15 | 2754765.92 |
| 87 | 164+340 | 455890.03 | 2754458.71 | 455914.20 | 2754422.69 | 455559.95 | 2754764.19 |
| 88 | 164+355 | 455879.83 | 2754447.70 | 455892.73 | 2754435.72 | 455866.86 | 2754459.51 |

SCHEDULE – B
(See Clause 2.1)

DEVELOPMENT OF THE PROJECT HIGHWAY

1. Development of the Project Highway

The Project Highway shall generally follow the alignment plan specified in Annex-III of Schedule-A, unless otherwise specified by the Authority. Notwithstanding anything to the contrary contained in this Agreement or IRC: SP:84, the proposed plan & profile, locations of different structures/drains/service & slip road/RE walls, Chainage of different structures/drains/service & slip road/RE walls, length of different structures/drains/service & slip road/RE walls etc. of the project highway as indicated in the Schedule A, Schedule B, Schedule C and their Annexures shall be treated as minimum requirement. Based on site/design requirement, the Concessionaire shall finalize their Detailed Designs (Development stage) including plan & profile of the project highway as described in this **Schedule-B** and in **Schedule-C** and submit the same to Authority & **Independent Engineer** for its Consent/Approval and Safety Audit by Safety Auditor, before the start of the execution of project.

The Concessionaire shall, at its own cost and expense, deploy grading, paving and compaction equipment fitted with Machine Guidance & Control System (MGCS) for finishing of all grades including Embankment, Subgrade, GSB, WMM, DBM/DLC & BC/SMA/PQC. The Machine Guidance & Control System used by the Concessionaire shall be capable of delivering accuracy as per the applicable IRC specifications. During the construction period, the concessionaire shall furnish all the physical Progress Data (All types of Surface Grading Data, Compaction, Temperature Data, etc.) obtained through Machine Control and Guidance System/CMS to Authority & **Independent Engineer** for monitoring of construction on daily basis. These digital data and desired output shall be made available at the location (Server/Cloud) finalised by Authority'.

NHIDCL reserves the right to check/verify design calculations and drawings of all components of the stretch of National Highway including the structures falling within the scope of work. The Concessionaire shall be required to furnish all data pertaining to detailed designs, drawings, calculations, Design Basis Report, input files of Design Software used in the project, etc. to the Authority and/or the Independent Engineer free of cost within a time as specified by the Authority and/or the Independent Engineer.

2. Rehabilitation and Augmentation

Rehabilitation and augmentation shall include Four lane road with Paved shoulders configuration & Six Lane structures including approaches as described in Annex-I of this Schedule-B and in Schedule-C.

3. Specifications & Standards

The Project Highway shall be designed and constructed in conformity with the specifications and standards set forth in **Annex-I of Schedule-D**.

ANNEX – I (Schedule-B)

Description of the Project

1. DEVELOPMENT OF THE PROJECT HIGHWAY

The Project Highway shall generally follow the alignment plan specified in Annex-III of Schedule-A, unless otherwise specified by the Authority. Notwithstanding anything to the contrary contained in this Agreement or IRC: SP:84, the proposed plan & profile, locations of different structures/drains/service & slip road/RE walls, Chainage of different structures/drains/service & slip road/RE walls, length of different structures/drains/service & slip road/RE walls etc. of the project highway as indicated in the Schedule A, Schedule B, Schedule C and their Annexures shall be treated as minimum requirement. Based on site/design requirement, the Concessionaire shall finalize their Detailed Designs (Development stage) including plan & profile of the project highway as described in this **Schedule-B** and in **Schedule-C** and submit the same to Authority & Independent Engineer for its Consent/Approval and Safety Audit by Safety Auditor, before the start of the execution of project.

The concessionaire/contractor shall, at its own cost and expense adopt Automated & Intelligent Machine aided Construction (AI-MC) for execution of the project in line with MoRTH circular No. RW/NH-33044/31/2024-S&R(P&B)(Computer No. 245397) dt. 23.06.2025 The Concessionaire shall, at its own cost and expense, deploy grading, paving and compaction equipment fitted with Machine Guidance & Control System (MGCS) for finishing of all grades including Embankment, Subgrade, GSB/CTSB, WMM/CTB, DBM/DLC & BC/SMA/PQC. The Machine Guidance & Control System used by the Concessionaire shall be capable of delivering accuracy as per the applicable IRC specifications and MoRTH circular No. RW/NH-33044/31/2024-S&R(P&B)(Computer No. 245397) dt. 23.06.2025. During the construction period, the Concessionaire shall furnish all the physical Progress Data (All types of Surface Grading Data, Compaction, Temperature Data, etc.) obtained through Machine Control and Guidance System/CMS to Authority & Independent Engineer for monitoring of construction on daily basis. These digital data and desired output shall be made available at the location (Server/Cloud) finalised by Authority.

NHIDCL reserves the right to check/verify design calculations and drawings of all components of the stretch of National Highway including the structures falling within the scope of work. The Concessionaire shall be required to furnish all data pertaining to detailed designs, drawings, calculations, Design Basis Report, input

files of Design Software used in the project, etc. to the Authority and/or the Independent Engineer free of cost within a time as specified by the Authority and/or the Independent Engineer.

1.1. Width of Carriageway

- 1.1.1. Four lane road with paved shoulders configuration & four/six Lane structures including approaches shall be undertaken. The paved carriageway shall be 18.0 metre for four laning (including paved shoulder of 1.5m and kerb shyness) and 25m for Six laning (including paved shoulder of 1.5m and kerb shyness). The earthen shoulder shall be 1.5 metre on valley side for main carriageway and both sides for ramps/loops in case of embankment.
- 1.1.2. In built-up sections/areas the width of paved carriageway shall be 18.0 metre for four laning (including paved shoulder of 1.5m and kerb shyness).

The project road is passing through the built-up areas as given below:

| S. No. | Existing Chainage (km) | | Design Chainage (km) | | Length (km) | Side (LHS / RHS / Both) | Village name |
|--------|------------------------|----|----------------------|----|-------------|-------------------------|--------------|
| | From | To | From | To | | | |
| Nil | | | | | | | |

- 1.1.3. Except as otherwise provided in this Agreement, the width shall be adjusted to fit into appropriate plans and cross sections developed in accordance with TCS enclosed.
- 1.1.4. The entire cross-sectional elements shall be accommodated in the available/proposed ROW. If required, suitable retaining structures shall be provided to accommodate the highway cross-section within the available/proposed ROW. The details of such section are mentioned in Schedule-B. **Retaining structures over and above the quantities mentioned in Sch-B shall not constitute a Change of Scope up to the positive variation of 10% of the Scope.** It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.and the same upto an increase of 10% of the proposed scope shall not constitute a Change of Scope.

1.2. Width of Median

- 1.2.1. The width of median including kerb shyness shall be 5 metre (Flushed median) for hilly section & 7 m for plain section with Depressed median (With turfing on either side) for all the sections including built up section.

1.2.2. The metal beam (Thrie-beam) crash barrier shall be provided on either side of median side.

1.2.3. Deleted

1.2.4. A suitable anti-glare measures shall be proposed. (Clause No. 2.5.6 IRC:SP:84)

2. GEOMETRIC DESIGN & GENERAL FEATURES OF PROJECT HIGHWAY

2.1. **General:** Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual. **Intermediate sight distance (desirable minimum sight distance) shall be followed for design of all summit vertical curves and Headlight Sight Distance for all Valley curves** including structures as well as highways.

2.2. **Design Speed:** The project road shall be designed for 80 Kmph considering High Speed Corridor.

2.3. Improvement of the existing road geometrics

2.3.1. The existing road geometrics shall be improved as per the codal provisions. In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and appropriate safety measures shall be provided in form of road signs, pavement markings etc.

The deficient stretches are as follows.

| Sr. No. | Stretch (Design Chainage) (km) | | Type of deficiency | Remarks |
|---------|-----------------------------------|----|--------------------|---------|
| | From | To | | |
| Nil | | | | |

2.3.2. The entire cross-sectional elements shall be accommodated in the available/proposed ROW. If required, suitable full height retaining structures shall be provided to accommodate the highway cross section within the available/proposed ROW. The details of such sections are mentioned in Schedule-B. **Retaining structures over and above the quantities mentioned in Sch-B shall not constitute a Change of Scope up to the positive variation of 10% of the Scope.** It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.and the same upto an increase of 10% of the proposed scope shall not constitute a Change of Scope.

2.3.3. Realignments

The existing road shall improve to the standards as specified in the Manual at the following locations:

| Sr. No. | Existing Chainage (km) | | Design Chainage (km) | | Length (km) |
|---------|------------------------|----|----------------------|----|-------------|
| | From | To | From | To | |
| Nil | | | | | |

2.3.4. Bypasses

The existing road shall be bypassed to the standards as specified in the Manual at the following locations:

| Sr. No. | Name of Bypass | Existing Chainage(km) | | Design Chainage (km) | | Length (km) |
|---------|----------------|-----------------------|----|----------------------|----|-------------|
| | | From | To | From | To | |
| Nil | | | | | | |

2.4. Right of Way

Details of the Right of Way along Project Highways are given in Annex-II of Schedule-A.

2.5. Type of shoulders

2.5.1. The Design Specification of paved shoulder shall conform to the requirements specified in Paragraph 5.10 of the Manual.

2.5.2. Paved shoulders and the edge strip on median side shall be of same specification and pavement composition as of main carriageway.

2.5.3. Deleted

2.5.4. Deleted

2.5.5. In open country, paved shoulders of 1.5m width shall be provided.

2.5.6. The Design Specification of earthen shoulder shall conform to the requirements specified in Paragraph 5.11 of the Manual.

2.5.7. The earthen shoulder of 1.5m width shall be provided with top 150 mm with well graded naturals or moorum gravel crust stones or combination thereof, confirming to Clause 401 of MoRTH specification.

2.6. Lateral and Vertical Clearance at Underpasses

- 2.6.1. In case of VUP/ LVUP/ SVUP, the finish road level shall be kept 150 mm above the existing ground level/service road/ cross road (whichever is higher) to ensure that these VUP/ LVUP/ SVUP don't become water accumulation points. (Clause No. 2.10 IRC: SP:84)
- 2.6.2. The vertical and horizontal clearance at the underpasses shall be as per Clause 2.10.2 of the Manual. The provision of guardrails/crash barriers shall be as per clause 2.10.1 of the Manual.

2.7. Lateral and vertical clearances at Overpasses

- 2.7.1. Lateral and vertical clearances for overpasses shall be as per paragraph 2.11 of the Manual.
- 2.7.2. Lateral Clearance: The width of the opening at the Overpasses shall be as follows:

Main Carriageway

| Sr. No. | Location Chainage (km) | No. of Spans | Span / opening (m) | Remarks |
|---------|------------------------|--------------|--------------------|---------|
| 1 | 136+320 | 3 | 40 | VOP |
| 2 | 141+680 | 3 | 20 | VOP |
| | | | 40 | |
| | | | 20 | |

2.8. Service Roads/Slip Roads/Connecting Roads:

- 2.8.1. **Service Road:** The height of embankment of service road shall confirm to clause 4.2.1 of the Manual.
- 2.8.2. The Service Roads shall be constructed at the locations and for the lengths indicated below:

| S. No. | Design Chainage (Km) | | Length | | Paved Carriageway width including shyness (m) | Total Length (m) | Remarks |
|--------|----------------------|----|--------|-----|---|------------------|---------|
| | From | To | LHS | RHS | | | |
| 1 | | | | | Nil | | |

(MCW – Main carriageway, LHS – Left Hand Side and RHS – Right Hand Side)

2.8.3. The Parking bays shall be provided along service road.

| Sr. No. | Design Chainage of Parking Bay | | Remarks |
|---------|--------------------------------|------------------|---------|
| | LHS Service Road | RHS Service Road | |
| 1 | Nil | | |

2.8.4. Slip Road: The height of embankment of slip road shall confirm to clause 4.2.1 of the Manual.

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

| Sr. No. | Design Chainage (km) | | Length (km) | | Paved Carriageway Width including shyness (m) | Total (Km) | Remarks |
|---------|----------------------|----|-------------|-----|---|------------|---------|
| | From | To | LHS | RHS | | | |
| Nil | | | | | | | |

(MCW – main carriageway, LHS – Left Hand Side and RHS – Right Hand Side)

2.8.5. A Separator Between Main Carriageway and Service/Slip Road

A separator along with pedestrian railing between main carriageway and service/slip road shall be provided to prevent the pedestrians, local vehicles and animals entering the highway.

| Sr. No. | Design Chainage (Km) | | Length of Separator (km) | | Total | Remarks |
|---------|----------------------|----|--------------------------|-----|-------|---------|
| | From | To | LHS | RHS | | |
| Nil | | | | | | |

(MCW – main carriageway, LHS – Left Hand Side and RHS – Right Hand Side)

Note:

- i. Above length of the service/slip roads is minimum specified. The actual length of the service/slip/connecting roads shall be determined by the Concessionaire in accordance with the approved plan & profile and design approved from the Independent Engineer. Any increase/ decrease up to 5 percent length from the length specified in this Clause of Schedule-B shall not constitute a CoS.
- ii. The Acceleration, deceleration lane, right turning storage lane, entry/exit

lanes shall be constructed in addition to length given in above table and shall be deemed to be part of the scope and no Change of Scope shall be considered for the same.

- iii. Any structures falling within acceleration/deceleration lane /taper shall be constructed to the required width. This increase in width shall not be treated as change of scope.

2.9. Grade Separated Structures

Grade separated structures shall be constructed as per Clause 2.13 of the Manual. Proposed levels at structure locations as shown in plan & profile specified in Annex-III of Schedule-A are minimum requirement and only for guidance purpose and any increase in levels shall not constitute any change of scope. Entry/Exit arrangement from main carriageway shall be 50m before/after the start/end of approach road to grade separator i.e., start/end of valley curve (Clause No. 2.12.2.2 IRC:SP:84). RCC barrier shall start from start of valley curve and end after grade separator at end of valley curve.

The sub-structure shall be continued in the median portion with RCC barrier wherever superstructure has not been proposed in median portion. (Clause 7 .1 (vii) IRC: SP: 84).

Where, crash barrier on the median side is not continuous along the project highway, 50m long MBCB Safety barriers on median side shall be provided on both sides approaches of the structures. MBCB provided towards median side of each of the structure shall be joined on ends in semi-circular shape. (Clause No. 4.3.5 and 4.9, IRC 119).

Where crash barrier on the shoulder sides are not continuous along the project highway, 50m long MBCB Safety barriers on shoulder side shall be provided on both sides approaches of the bridge/ structures or till 3m embankment height whichever is more.

2.5m/1.5m/0.75m wide footpaths shall be provided at grade intersection below structures for each direction of pedestrian movement (refer fig 3.1 to 3.6 IRC: SP:84).

The requisite particulars are given below:

2.9.1. Vehicle Overpass (VOP)/Overpasses

For Main Carriageway

| Sr. No. | Design Chainage (km) | LHS Roadway Width(m) | RHS Roadway Width(m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|---------|----------------------|----------------------|----------------------|-------------------------------------|---------------------------------|--------------------------------|----------------|---------|
| 1 | 136+320 | As per GAD | | Yes | L-120m (minimum span 40m) | 5.50 | | |
| 2 | 141+680 | As per GAD | | Yes | L-80m (minimum span 40m) | 5.50 | | |

2.9.2. Vehicular Underpasses (VUP)

For Main Carriageway

| Sr. No. | Design Chainage (km) | LHS Roadway Width (m) | RHS Roadway Width(m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|---------|----------------------|-----------------------|----------------------|-------------------------------------|-----------------------------------|--------------------------------|----------------|---------|
| 1 | 134+778 | 15.1 | 15.1 | No | L-33.40m (minimum span 33.40m) | 5.5 | 28 | |
| 2 | 151+512 | 15.1 | 15.1 | No | L-33.40m (minimum span 33.40m) | 5.5 | 20 | |
| 3 | 154+460 | 15.1 | 15.1 | No | L-33.40m (minimum span 33.40m) | 5.5 | - | |

For Interchanges

| Sr. No. | Design Chainage (km) | LHS Roadway Width(m) | RHS Roadway Width(m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|-----------------------------------|----------------------|----------------------|----------------------|-------------------------------------|---------------------------------|--------------------------------|----------------|---------|
| Interchange at Ch. 164+120 | | | | | | | | |
| 1 | 0+300 (Ramp-1) | As per GAD | | - | L-20 m (minimum span 20.00m) | 5.5 | - | Trumpet |
| 2 | 0+290 (Ramp-3) | As per GAD | | - | L-20 m (minimum span 20.00m) | 5.5 | - | Trumpet |

2.9.3. Light Vehicular Underpasses (LVUP)

Main Carriageway

| Sr. No. | Design Chainage (Km) | LHS Roadway Width (m) | RHS Roadway Width (m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) |
|---------|----------------------|--------------------------------|--------------------------------|-------------------------------------|---|--------------------------------|----------------|
| 1 | 135+250 | 1 x 15.10 (Skew Width-20.319m) | 1 x 15.10 (Skew Width-20.319m) | - | L-12 m (minimum span 12.00m, Skew Length-14.833m) | 4 | 36 |
| 2 | 149+050 | 1 x 15.10 (Skew Width-20.319m) | 1 x 15.10 (Skew Width-20.319m) | - | L-12 m (minimum span 12.00m, Skew Length-16.148m) | 4 | 42 |
| 3 | 151+030 | 1 x 15.10 (Skew Width-15.333m) | 1 x 15.10 (Skew Width-16.530m) | - | L-12 m (minimum span 12.00m) | 4 | 10 |
| 4 | 153+180 | 1 x 15.10 (Skew Width-15.970m) | 1 x 15.10 (Skew Width-15.970m) | - | L-12 m (minimum span 12.00m, Skew Length-12.691m) | | 19 |

| Sr. No. | Design Chainage (Km) | LHS Roadway Width (m) | RHS Roadway Width (m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) |
|---------|----------------------|--------------------------------|--------------------------------|-------------------------------------|---|--------------------------------|----------------|
| 5 | 158+210 | 1 x 15.10 (Skew Width-16.404m) | 1 x 15.10 (Skew Width-16.404m) | - | L-12 m (minimum span 12.00m, Skew Length-13.036m) | | 23 |
| 6 | 160+195 | 1 x 15.10 (Skew Width-15.333m) | 1 x 15.10 (Skew Width-15.333m) | - | L-12 m (minimum span 12.00m) | | 10 |

2.9.4. Small Vehicular Underpasses (SVUP)/ Utility Underpasses

Main Carriageway

| Sr. No. | Design Chainage (km) | LHS Roadway Width (m) | RHS Roadway Width (m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|---------|----------------------|--------------------------------|--------------------------------|-------------------------------------|--|--------------------------------|----------------|---------|
| 1 | 146+345 | 1 x 15.10 | 1 x 15.10 | - | L-7 m (minimum span 7.00m) | 4 | - | - |
| 2 | 147+537 | 1 x 15.10 | 1 x 15.10 | - | L-7 m (minimum span 7.00m) | 4 | - | - |
| 3 | 147+705 | 1 x 15.10 | 1 x 15.10 | - | L-7 m (minimum span 7.00m) | 4 | - | - |
| 4 | 150+590 | 1 x 15.10 (Skew Width-16.947m) | 1 x 15.10 (Skew Width-16.947m) | - | L-7 m (minimum span 7.00m, Skew Length-7.856m) | 4 | 27 | - |
| 5 | 153+872 | 1 x 15.10 (Skew Width-15.183m) | 1 x 15.10 (Skew Width-15.183m) | - | L-7 m (minimum span 7.00m) | 4 | 6 | - |
| 6 | 155+305 | 1 x 15.10 | 1 x 15.10 | - | L-7 m (minimum span 7.00m) | 4 | - | |

| Sr. No. | Design Chainage (km) | LHS Roadway Width (m) | RHS Roadway Width (m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|---------|----------------------|-----------------------------------|-----------------------------------|-------------------------------------|--|--------------------------------|----------------|---------|
| 7 | 156+880 | 1 x 15.10 (Skew Width-17.806m) | 1 x 15.10 (Skew Width-17.806m) | - | L-7 m (minimum span 7.00m, Skew Length-8.254m) | 4 | 32 | |
| 8 | 158+760 | 1 x 15.10 (Skew Width-15.437m) | 1 x 15.10 (Skew Width-15.437m) | - | L-7 m (minimum span 7.00m, Skew Length-7.156m) | 4 | 12 | |
| 9 | 160+305 | 1 x 15.10 | 1 x 15.10 | - | L-7 m (minimum span 7.00m) | 4 | - | |

For Interchanges

| Sr. No. | Design Chainage (km) | LHS Roadway Width(m) | RHS Roadway Width(m) | Super Structure Provision in Median | Total length & minimum span (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|-----------------------------------|----------------------|----------------------|----------------------|-------------------------------------|---------------------------------|--------------------------------|----------------|---------------------|
| Interchange at Ch. 134+780 | | | | | | | | |
| | Nil | | | | | | | |
| Interchange at Ch. 151+520 | | | | | | | | |
| | Nil | | | | | | | |
| Interchange at Ch. 164+120 | | | | | | | | |
| 1 | 0+275 (Ramp-1) | 1 x 12.50 | 1 x 12.50 | - | L-20 m (minimum span 20.00m) | 4.0 | - | Utility underpasses |
| 2 | 0+325 (Ramp-3) | 1 x 12.50 | 1 x 12.50 | - | L-20 m (minimum span 20.00m) | 4.0 | - | Utility underpasses |

2.9.5. Cattle and Pedestrian underpasses

| Sr. No. | Design Chainage (Km) | LHS Roadway Width (m) | RHS Roadway Width (m) | Super Structure Provision in Median | Span Arrangement (m) | Minimum Vertical Clearance (m) | Skew Angle (°) | Remarks |
|---------|----------------------|-----------------------|-----------------------|-------------------------------------|----------------------|--------------------------------|----------------|---------|
| Nil | | | | | | | | |

2.9.6. Interchanges (IC)

| Sr. No. | Design Chainage (km) | Name of Structure | Span Arrangement (m) | Total Width (m) | Typical Cross Section | Remarks |
|---------|----------------------|-------------------|----------------------|-----------------|-----------------------|----------------|
| 1 | 134+780 | VUP with Ramp | As Per GAD | | | Interchange-01 |
| 2 | 151+520 | VUP with Ramp | As Per GAD | | | Interchange-02 |
| 3 | 164+120 | Trumpet | As Per GAD | | | Interchange-03 |

Note: Layout, Geometric Design and Typical Cross Sections of Interchange are included in Annexure to Schedule-B.

2.9.7. Details of Ramps, Crossroads and Connecting Roads at Interchanges (IC)

| Sr. No. | Carriageway Widths including Kerb Shyness (m) | Length (m) | Description of Ramps, Crossroads and Connecting Roads | Remarks |
|---------|---|------------|---|------------------------------|
| 1 | 9.5 | 713 | Ramp-01 | Interchange-01 At Km 134+780 |
| 2 | 9.5 | 851 | Ramp-02 | |
| 3 | 9.5 | 1104 | Connectivity to Umkiang | |
| 4 | 9.5 | 907 | Ramp-01 | Interchange-02 At Km 151+520 |
| 5 | 9.5 | 855 | Ramp-02 | |
| 6 | 12.0 | 2782 | Connectivity to Kalain road | Interchange-03 At Km 164+120 |
| 7 | 9.5 | 676 | Ramp-01 | |
| 8 | 9.5 | 342 | Ramp-02 | |
| 9 | 9.5 | 602 | Ramp-03 | |
| 10 | 9.5 | 283 | Loop | |

Development of BSF Patrolling Roads along High-Speed corridor with Fencing and Amenities

| Sr. No. | Carriageway Widths including Kerb Shyness (m) | Length (m) | Description of Ramps, Crossroads and Connecting Roads | Remarks |
|---------|---|------------|---|--|
| 1 | 3.75 | 153 | (RHS Road No.01 near Km 140+550 of Main carriageway) Connectivity for BSF Patrolling | Amenities, Lightings, camps, watch towers with flood lights, border outposts, camps etc as required shall be provided, in coordination with BSF. |
| 2 | 3.75 | 674 | (RHS Road no 2 near Km 141+300 of Main carriageway) Connectivity for BSF Patrolling | |
| 3 | 3.75 | 303 | (Road no 3 near Km 141+680 of Main carriageway) Connectivity for BSF Patrolling | |

Note: Layout, Geometric Design and Typical Cross Sections of Interchange are included in Annexure to Schedule-B.

2.10. Typical Cross Section (TCS) of the Project Highway

The Project Highway shall involve the new construction of a four-lane configuration with paved shoulders in greenfield alignment. It will be a controlled-access facility, with entry and exit points strategically limited to prevent congestion and ensure a high-speed corridor. Service roads will be provided at selected locations. Typical cross sections required to be developed in different sections of the Project Highway are given below:

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|---------|---------------|-------------|------------|----------|--|
| 1 | 133+320 | 133+380 | 60 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 2 | 133+380 | 133+400 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 3 | 133+400 | 133+420 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 4 | 133+420 | 133+440 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 5 | 133+440 | 133+460 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 6 | 133+460 | 133+480 | 20 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 7 | 133+480 | 133+500 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 8 | 133+500 | 133+520 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 9 | 133+520 | 133+540 | 20 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 10 | 133+540 | 133+640 | 100 | TCS-14 | 4 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 11 | 133+640 | 133+680 | 40 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 12 | 133+680 | 133+700 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 13 | 133+700 | 133+740 | 40 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 14 | 133+740 | 133+760 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 15 | 133+760 | 133+920 | 160 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 16 | 133+920 | 134+000 | 80 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 17 | 134+000 | 134+065 | 65 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 18 | 134+065 | 134+205 | 140 | MJB | Major Bridge |
| 19 | 134+205 | 134+240 | 35 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 20 | 134+240 | 134+280 | 40 | TCS-5A | 6 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 21 | 134+280 | 134+300 | 20 | TCS-4A | 6 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 22 | 134+300 | 134+500 | 200 | TCS-5A | 6 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 23 | 134+500 | 134+760 | 260 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 24 | 134+760 | 134+794 | 34 | VUP | VUP |
| 25 | 134+794 | 134+920 | 126 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 26 | 134+920 | 134+960 | 40 | TCS-14A | 6 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 27 | 134+960 | 135+135 | 175 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 28 | 135+135 | 135+165 | 30 | MNB | Minor Bridge |
| 29 | 135+165 | 135+200 | 35 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 30 | 135+200 | 135+245 | 45 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 31 | 135+245 | 135+257 | 12 | LVUP | LVUP |
| 32 | 135+257 | 135+440 | 183 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 33 | 135+440 | 135+460 | 20 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 34 | 135+460 | 135+480 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 35 | 135+480 | 135+500 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 36 | 135+500 | 135+540 | 40 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 37 | 135+540 | 135+660 | 120 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 38 | 135+660 | 135+680 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 39 | 135+680 | 135+700 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 40 | 135+700 | 135+720 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 41 | 135+720 | 135+740 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 42 | 135+740 | 135+760 | 20 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 43 | 135+760 | 135+780 | 20 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 44 | 135+780 | 135+800 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 45 | 135+800 | 135+840 | 40 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 46 | 135+840 | 135+920 | 80 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 47 | 135+920 | 135+940 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 48 | 135+940 | 135+960 | 20 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 49 | 135+960 | 136+040 | 80 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 50 | 136+040 | 136+060 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 51 | 136+060 | 136+140 | 80 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 52 | 136+140 | 136+160 | 20 | TCS-14 | 4 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 53 | 136+160 | 136+180 | 20 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 54 | 136+180 | 136+200 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 55 | 136+200 | 136+220 | 20 | TCS-14 | 4 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 56 | 136+220 | 136+240 | 20 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 57 | 136+240 | 136+380 | 140 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 58 | 136+380 | 136+440 | 60 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 59 | 136+440 | 136+450 | 10 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 60 | 136+450 | 136+720 | 270 | Viaduct | Viaduct |
| 61 | 136+720 | 136+740 | 20 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 62 | 136+740 | 136+780 | 40 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 63 | 136+780 | 136+800 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 64 | 136+800 | 136+820 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 65 | 136+820 | 136+860 | 40 | TCS-11 | 4 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 66 | 136+860 | 136+880 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 67 | 136+880 | 136+900 | 20 | TCS-1 | 4 - Lane Divided Highway Cutting Section (Cutting Height < 3m) New Construction Section |
| 68 | 136+900 | 137+120 | 220 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 69 | 137+120 | 137+140 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 70 | 137+140 | 137+160 | 20 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 71 | 137+160 | 137+180 | 20 | TCS-1A | 6 - Lane Divided Highway Cutting Section (Cutting Height < 3m) New Construction Section |
| 72 | 137+180 | 137+198 | 18 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 73 | 137+198 | 137+330 | 132 | Viaduct | Viaduct |
| 74 | 137+330 | 137+380 | 50 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 75 | 137+380 | 137+400 | 20 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 76 | 137+400 | 137+420 | 20 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 77 | 137+420 | 137+440 | 20 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 78 | 137+440 | 137+460 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 79 | 137+460 | 137+480 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 80 | 137+480 | 137+515 | 35 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 81 | 137+515 | 137+525 | 10 | Viaduct | Viaduct |
| 82 | 137+525 | 137+600 | 75 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 83 | 137+600 | 137+620 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 84 | 137+620 | 137+680 | 60 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 85 | 137+680 | 137+726 | 46 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 86 | 137+726 | 137+756 | 30 | Viaduct | Viaduct |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 87 | 137+756 | 137+780 | 24 | TCS-7A | 6 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 88 | 137+780 | 137+800 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 89 | 137+800 | 137+820 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 90 | 137+820 | 137+840 | 20 | TCS-6A | 6 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 91 | 137+840 | 137+860 | 20 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 92 | 137+860 | 137+880 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 93 | 137+880 | 137+900 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 94 | 137+900 | 137+910 | 10 | TCS-7A | 6 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 95 | 137+910 | 138+015 | 105 | Viaduct | Viaduct |
| 96 | 138+015 | 138+040 | 25 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 97 | 138+040 | 138+060 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 98 | 138+060 | 138+100 | 40 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 99 | 138+100 | 138+240 | 140 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 100 | 138+240 | 138+280 | 40 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 101 | 138+280 | 138+300 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 102 | 138+300 | 138+400 | 100 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 103 | 138+400 | 138+420 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 104 | 138+420 | 138+560 | 140 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 105 | 138+560 | 138+580 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 106 | 138+580 | 138+620 | 40 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 107 | 138+620 | 138+640 | 20 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 108 | 138+640 | 138+665 | 25 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 109 | 138+665 | 138+710 | 45 | Viaduct | Viaduct |
| 110 | 138+710 | 138+740 | 30 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 111 | 138+740 | 138+780 | 40 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 112 | 138+780 | 138+800 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 113 | 138+800 | 138+815 | 15 | TCS-4A | 6 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 114 | 138+815 | 138+880 | 65 | Viaduct | Viaduct |
| 115 | 138+880 | 138+900 | 20 | TCS-5A | 6 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 116 | 138+900 | 138+926 | 26 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 117 | 138+926 | 139+150 | 224 | Viaduct | Viaduct |
| 118 | 139+150 | 139+180 | 30 | TCS-14A | 6 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 119 | 139+180 | 139+200 | 20 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 120 | 139+200 | 139+220 | 20 | TCS-2A | 6 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 121 | 139+220 | 139+240 | 20 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 122 | 139+240 | 139+258 | 18 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 123 | 139+258 | 139+370 | 112 | Viaduct | Viaduct |
| 124 | 139+370 | 139+440 | 70 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 125 | 139+440 | 139+460 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 126 | 139+460 | 139+582 | 122 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 127 | 139+582 | 139+640 | 58 | Viaduct | Viaduct |
| 128 | 139+640 | 139+700 | 60 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 129 | 139+700 | 139+720 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 130 | 139+720 | 139+740 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 131 | 139+740 | 139+750 | 10 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 132 | 139+750 | 139+914 | 164 | Viaduct | Viaduct |
| 133 | 139+914 | 139+940 | 26 | TCS-6A | 6 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 134 | 139+940 | 139+960 | 20 | TCS-7A | 6 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 135 | 139+960 | 139+980 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 136 | 139+980 | 140+220 | 240 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 137 | 140+220 | 140+240 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 138 | 140+240 | 140+440 | 200 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 139 | 140+440 | 140+480 | 40 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 140 | 140+480 | 140+500 | 20 | TCS-7A | 6 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 141 | 140+500 | 140+700 | 200 | Viaduct | Viaduct |
| 142 | 140+700 | 140+755 | 55 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 143 | 140+755 | 140+765 | 10 | Viaduct | Viaduct |
| 144 | 140+765 | 140+820 | 55 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 145 | 140+820 | 140+840 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 146 | 140+840 | 140+860 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 147 | 140+860 | 141+340 | 480 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 148 | 141+340 | 141+380 | 40 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 149 | 141+380 | 141+400 | 20 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 150 | 141+400 | 141+410 | 10 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 151 | 141+410 | 141+440 | 30 | MNB | Minor Bridge |
| 152 | 141+440 | 141+460 | 20 | TCS-13C | 6 - Lane Divided Highway with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 153 | 141+460 | 141+500 | 40 | TCS-13C | 6 - Lane Divided Highway with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 154 | 141+500 | 141+515 | 15 | TCS-13C | 6 - Lane Divided Highway with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 155 | 141+515 | 141+535 | 20 | MNB | Minor Bridge |
| 156 | 141+535 | 141+580 | 45 | TCS-13C | 6 - Lane Divided Highway with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 157 | 141+580 | 141+840 | 260 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 158 | 141+840 | 141+860 | 20 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 159 | 141+860 | 141+880 | 20 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 160 | 141+880 | 141+980 | 100 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 161 | 141+980 | 142+020 | 40 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 162 | 142+020 | 142+040 | 20 | TCS-13B | 4 - Lane Divided Highway (6-Lane formation cutting) with BSF patrolling road on one side with Fencing (One Breast wall & One Retaining wall) New Construction |
| 163 | 142+040 | 142+050 | 10 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 164 | 142+050 | 142+560 | 510 | Viaduct | Viaduct |
| 165 | 142+560 | 142+580 | 20 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 166 | 142+580 | 142+620 | 40 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 167 | 142+620 | 142+980 | 360 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 168 | 142+980 | 143+100 | 120 | Viaduct | Viaduct |
| 169 | 143+100 | 143+120 | 20 | TCS-2A | 6 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 170 | 143+120 | 143+140 | 20 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 171 | 143+140 | 143+240 | 100 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 172 | 143+240 | 143+260 | 20 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 173 | 143+260 | 143+280 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 174 | 143+280 | 143+300 | 20 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 175 | 143+300 | 143+400 | 100 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 176 | 143+400 | 143+420 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 177 | 143+420 | 143+440 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 178 | 143+440 | 143+460 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 179 | 143+460 | 143+480 | 20 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 180 | 143+480 | 143+660 | 180 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 181 | 143+660 | 143+710 | 50 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 182 | 143+710 | 143+740 | 30 | Viaduct | Viaduct |
| 183 | 143+740 | 143+820 | 80 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 184 | 143+820 | 143+840 | 20 | TCS-2A | 6 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 185 | 143+840 | 143+860 | 20 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 186 | 143+860 | 143+900 | 40 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 187 | 143+900 | 143+960 | 60 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 188 | 143+960 | 144+000 | 40 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 189 | 144+000 | 144+020 | 20 | TCS-13A | 6 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 190 | 144+020 | 144+040 | 20 | TCS-11A | 6 - Lane Divided Highway (One side Retaining Wall, One side filling 3m to 7m) New Construction |
| 191 | 144+040 | 144+070 | 30 | TCS-14A | 6 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 192 | 144+070 | 144+478 | 408 | Viaduct | Viaduct |
| 193 | 144+478 | 144+500 | 22 | TCS-14A | 6 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 194 | 144+500 | 144+520 | 20 | TCS-4A | 6 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 195 | 144+520 | 145+040 | 520 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 196 | 145+040 | 145+060 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 197 | 145+060 | 145+100 | 40 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 198 | 145+100 | 145+120 | 20 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 199 | 145+120 | 145+180 | 60 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 200 | 145+180 | 145+200 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 201 | 145+200 | 145+220 | 20 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 202 | 145+220 | 145+240 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 203 | 145+240 | 145+280 | 40 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 204 | 145+280 | 145+300 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 205 | 145+300 | 145+320 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 206 | 145+320 | 145+760 | 440 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 207 | 145+760 | 145+780 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 208 | 145+780 | 145+800 | 20 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 209 | 145+800 | 145+840 | 40 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 210 | 145+840 | 145+860 | 20 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 211 | 145+860 | 145+880 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 212 | 145+880 | 146+280 | 400 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 213 | 146+280 | 146+342 | 62 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 214 | 146+342 | 146+349 | 7 | SVUP | SVUP |
| 215 | 146+349 | 146+420 | 71 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 216 | 146+420 | 146+520 | 100 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 217 | 146+520 | 146+540 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 218 | 146+540 | 146+600 | 60 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 219 | 146+600 | 146+640 | 40 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 220 | 146+640 | 146+700 | 60 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 221 | 146+700 | 146+720 | 20 | TCS-13 | 4 - Lane Divided Highway (One Breast wall & One Retaining wall) New Construction |
| 222 | 146+720 | 146+740 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 223 | 146+740 | 146+760 | 20 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 224 | 146+760 | 146+780 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 225 | 146+780 | 146+820 | 40 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 226 | 146+820 | 146+900 | 80 | TCS-14 | 4 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 227 | 146+900 | 146+920 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 228 | 146+920 | 146+940 | 20 | TCS-14 | 4 - Lane Divided Highway (Both side Retaining wall in high Emb.) New Construction |
| 229 | 146+940 | 146+960 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 230 | 146+960 | 146+980 | 20 | TCS-1 | 4 - Lane Divided Highway Cutting Section (Cutting Height < 3m) New Construction Section |
| 231 | 146+980 | 147+000 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 232 | 147+000 | 147+149 | 149 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 233 | 147+149 | 147+156 | 7 | SVUP | SVUP |
| 234 | 147+156 | 147+178 | 22 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 235 | 147+178 | 147+252 | 74 | MJB | Major Bridge |
| 236 | 147+252 | 147+317 | 65 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 237 | 147+317 | 147+324 | 7 | SVUP | SVUP |
| 238 | 147+324 | 147+500 | 176 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 239 | 147+500 | 147+580 | 80 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 240 | 147+580 | 147+620 | 40 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 241 | 147+620 | 147+880 | 260 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 242 | 147+880 | 147+900 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 243 | 147+900 | 147+940 | 40 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 244 | 147+940 | 147+980 | 40 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 245 | 147+980 | 148+000 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 246 | 148+000 | 148+040 | 40 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 247 | 148+040 | 148+060 | 20 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 248 | 148+060 | 148+080 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 249 | 148+080 | 148+100 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 250 | 148+100 | 148+140 | 40 | TCS-2 | 4 - Lane Divided Highway (Partial Cut/Fill <3m) New Construction Section |
| 251 | 148+140 | 148+160 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 252 | 148+160 | 148+180 | 20 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 253 | 148+180 | 148+200 | 20 | TCS-4 | 4 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 254 | 148+200 | 148+220 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m, One side Filling 3m to 7m) New Construction |
| 255 | 148+220 | 148+240 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 256 | 148+240 | 148+260 | 20 | TCS-1 | 4 - Lane Divided Highway Cutting Section (Cutting Height < 3m) New Construction Section |
| 257 | 148+260 | 148+280 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 258 | 148+280 | 148+380 | 100 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 259 | 148+380 | 148+400 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 260 | 148+400 | 148+480 | 80 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 261 | 148+480 | 148+517 | 37 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 262 | 148+517 | 148+527 | 10 | MNB | Minor Bridge |
| 263 | 148+527 | 148+640 | 113 | TCS-17 | 6- Lane Divided Highway for MNB/MJB Approach Road |
| 264 | 148+640 | 148+660 | 20 | TCS-3A | 6 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 265 | 148+660 | 148+860 | 200 | TCS-9A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 266 | 148+860 | 148+900 | 40 | TCS-10A | 6 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 267 | 148+900 | 148+920 | 20 | TCS-7A | 6 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 268 | 148+920 | 148+940 | 20 | TCS-4A | 6 - Lane Divided Highway (Filling Height <3m) New Construction Section |
| 269 | 148+940 | 148+986 | 46 | TCS-6A | 6 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 270 | 148+986 | 148+994 | 8 | MNB | Minor Bridge |
| 271 | 148+994 | 149+044 | 50 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 272 | 149+044 | 149+056 | 12 | LVUP | LVUP |
| 273 | 149+056 | 149+160 | 104 | TCS-17A | 6- Lane Divided Highway for VUP/LVUP/Viaduct Approach Road |
| 274 | 149+160 | 149+180 | 20 | TCS-3A | 6 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 275 | 149+180 | 149+240 | 60 | TCS-8A | 6 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|--|
| 276 | 149+240 | 149+260 | 20 | TCS-10 | 4 - Lane Divided Highway (Both sides Breast wall) New Construction |
| 277 | 149+260 | 149+300 | 40 | TCS-1 | 4 - Lane Divided Highway Cutting Section (Cutting Height < 3m) New Construction Section |
| 278 | 149+300 | 149+320 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 279 | 149+320 | 149+360 | 40 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 280 | 149+360 | 149+380 | 20 | TCS-7 | 4 - Lane Divided Highway with Breast wall on one side (One side Filling <3m) New Construction |
| 281 | 149+380 | 149+400 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 282 | 149+400 | 149+420 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 283 | 149+420 | 149+440 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 284 | 149+440 | 149+460 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |
| 285 | 149+460 | 149+520 | 60 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 286 | 149+520 | 149+560 | 40 | TCS-8 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting <3m) New Construction Section |
| 287 | 149+560 | 149+720 | 160 | TCS-9 | 4 - Lane Divided Highway with Breast wall on one side (One side Cutting 3m to 7m) New Construction Section |
| 288 | 149+720 | 149+740 | 20 | TCS-3 | 4 - Lane Divided Highway (Partial F 3m to 7m, C<3m) New Construction Section |
| 289 | 149+740 | 149+760 | 20 | TCS-6 | 4 - Lane Divided Highway (One side Filling <3m,One side Filling 3m to 7m) New Construction |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 290 | 149+760 | 149+820 | 60 | TCS-5 | 4 - Lane Divided Highway (Filling Height 3m to 7m) New Construction Section |
| 291 | 149+820 | 149+920 | 100 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 292 | 149+920 | 149+977 | 57 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 293 | 149+977 | 149+987 | 10 | MNB | Minor Bridge |
| 294 | 149+987 | 150+202 | 215 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 295 | 150+202 | 150+209 | 7 | SVUP | SVUP |
| 296 | 150+209 | 150+565 | 356 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 297 | 150+565 | 150+575 | 10 | MNB | Minor Bridge |
| 298 | 150+575 | 150+935 | 360 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 299 | 150+935 | 150+945 | 10 | MNB | Minor Bridge |
| 300 | 150+945 | 151+024 | 79 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 301 | 151+024 | 151+036 | 12 | LVUP | LVUP |
| 302 | 151+036 | 151+245 | 209 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 303 | 151+245 | 151+255 | 10 | MNB | Minor Bridge |
| 304 | 151+255 | 151+495 | 240 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 305 | 151+495 | 151+529 | 34 | VUP | VUP |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 306 | 151+529 | 151+915 | 386 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 307 | 151+915 | 151+925 | 10 | MNB | Minor Bridge |
| 308 | 151+925 | 151+980 | 55 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 309 | 151+980 | 153+140 | 1160 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 310 | 153+140 | 153+174 | 34 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 311 | 153+174 | 153+186 | 12 | LVUP | LVUP |
| 312 | 153+186 | 153+340 | 154 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 313 | 153+340 | 153+385 | 45 | MNB | Minor Bridge |
| 314 | 153+385 | 153+484 | 99 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 315 | 153+484 | 153+491 | 7 | SVUP | SVUP |
| 316 | 153+491 | 153+640 | 149 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 317 | 153+640 | 154+280 | 640 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 318 | 154+280 | 154+443 | 163 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 319 | 154+443 | 154+477 | 34 | VUP | VUP |
| 320 | 154+477 | 154+917 | 440 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|---------|---------------|-------------|------------|----------|---|
| | | | | | side) New Construction Section For Plain and Rolling terrain |
| 321 | 154+917 | 154+924 | 7 | SVUP | SVUP |
| 322 | 154+924 | 155+310 | 386 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 323 | 155+310 | 155+330 | 20 | MNB | Minor Bridge |
| 324 | 155+330 | 155+800 | 470 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 325 | 155+800 | 155+820 | 20 | MNB | Minor Bridge |
| 326 | 155+820 | 155+860 | 40 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 327 | 155+860 | 156+320 | 460 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 328 | 156+320 | 156+492 | 172 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 329 | 156+492 | 156+499 | 7 | SVUP | SVUP |
| 330 | 156+499 | 156+955 | 456 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 331 | 156+955 | 157+045 | 90 | MJB | Major Bridge |
| 332 | 157+045 | 157+505 | 460 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 333 | 157+505 | 157+515 | 10 | MNB | Minor Bridge |
| 334 | 157+515 | 157+680 | 165 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 335 | 157+680 | 157+690 | 10 | MNB | Minor Bridge |
| 336 | 157+690 | 157+995 | 305 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|---------|---------------|-------------|------------|----------|---|
| | | | | | side) New Construction Section For Plain and Rolling terrain |
| 337 | 157+995 | 158+005 | 10 | MNB | Minor Bridge |
| 338 | 158+005 | 158+199 | 194 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 339 | 158+199 | 158+211 | 12 | LVUP | LVUP |
| 340 | 158+211 | 158+372 | 161 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 341 | 158+372 | 158+379 | 7 | SVUP | SVUP |
| 342 | 158+379 | 158+540 | 161 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 343 | 158+540 | 159+740 | 1200 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 344 | 159+740 | 159+773 | 33 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 345 | 159+773 | 159+798 | 25 | MNB | Minor Bridge |
| 346 | 159+798 | 159+917 | 119 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 347 | 159+917 | 159+924 | 7 | SVUP | SVUP |
| 348 | 159+924 | 160+189 | 265 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 349 | 160+189 | 160+201 | 12 | LVUP | LVUP |
| 350 | 160+201 | 160+360 | 159 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 351 | 160+360 | 161+060 | 700 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type | TCS Description |
|----------------|----------------------|--------------------|-------------------|-----------------|---|
| 352 | 161+060 | 161+095 | 35 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 353 | 161+095 | 161+105 | 10 | MNB | Minor Bridge |
| 354 | 161+105 | 161+505 | 400 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 355 | 161+505 | 161+585 | 80 | MJB | Major Bridge |
| 356 | 161+585 | 161+952 | 367 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 357 | 161+952 | 161+968 | 16 | MNB | Minor Bridge |
| 358 | 161+968 | 162+020 | 52 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 359 | 162+020 | 163+680 | 1660 | TCS-5B | 4 - Lane Divided Highway (Filling Height> 3m) New Construction Section For Plain and Rolling terrain |
| 360 | 163+680 | 163+715 | 35 | TCS-5C | 6 - Lane Divided Highway (Filling Height> 3m with Retaining wall on both side) New Construction Section For Plain and Rolling terrain |
| 361 | 163+715 | 164+355 | 640 | VUP & Viaduct | VUP & Viaduct |
| | | | 31035.0 | M | |

Note:

1. *Any variations in the lengths of various TCS as specified in the Table 2.10 shall not constitute a Change of Scope.*
2. *Lengths mentioned in the above list for cross section types concerned to structures are inclusive of structure length.*
3. *RE wall to be provided for full height on all structures.*
4. *Toe wall to be provided where ROW is restricted and water bodies along the proposed highway on the sections specified in Schedule-B.*

5. Chainage may be adjusted according to location of structures as per Site conditions.
6. Carriageway width tapering shall be provided 1 in 50 as per manual Clause 2.5.4
7. Intermediate Sight Distance (Desirable Minimum Sight Distance) shall be followed for design of all summit vertical curves and Headlight Sight Distance for all Valley Curves including structures as well as highways.
8. A utility corridor, along with earthen Drain/ Lined drain/Covered Drain as per TCS shall be accommodated in the ROW.

3. Intersections and Grade Separated Intersections

All at-grade intersections and grade separated intersections shall be as per Section 3 of the Manual. Existing at-grade intersections shall be improved to the prescribed standards.

The service road pavement composition shall be continued on crossroads of the intersections for the length specified for at-grade and grade separated intersections.

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

(a) At-grade intersections Major Junctions:

Improvement of major junctions shall be carried out at the following locations:

| Sr. No. | Design Chainage (Km) | Type of Junction | Leads to | | Median Opening | Category of Cross Road | Carriageway Width (m) of crossroad | Length of crossroad to be developed | |
|---------|----------------------|------------------|----------|-------|----------------|------------------------|------------------------------------|-------------------------------------|-----|
| | | | Left | Right | | | | LHS | RHS |
| 1. | | | | | Nil | | | | |

(b) Minor Intersections:

| Sr. No. | Design Chainage (Km) | Type of Junction | Leads to | | Median Opening | Category of Cross Road | Carriageway Width (m) of crossroad | Length of crossroads to be developed | |
|---------|----------------------|------------------|----------|-------|----------------|------------------------|------------------------------------|--------------------------------------|-----|
| | | | Left | Right | | | | LHS | RHS |
| | | | | | Nil | | | | |

Note:

1. "Typical Layout as per type Designs for Intersections on National Highways, 1992, Geometric Design and Typical Cross Sections of Major Junction is included in Annexure – IV to Schedule-B."
2. Type of Junction to be improved as per Manual. (clause No. 3.2.5 IRC: SP:84)
3. The Concessionaire shall take up 'Detailed Engineering study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned out in section-3 of the Manual. Auxiliary lanes including storage, acceleration and deceleration lane along with physical islands to be provided.

The cross road at the junctions which are having a level difference from the main carriageway, are to be improved at the level of main carriageway for the length of 30 metre and then to be merged with the cross road at the gradient not more than 1:50.

4. For minor / major layout for left-in / left out arrangement with physical islands with hazard marking. Where there is space constraint to provide physical islands, the effect of junction kept wide opened can be avoided by ghost island with marking.
5. U-turn facility shall be created. (Fig. 3.7 of manual).

3.1. At-Grade Intersections below Grade Separators/interchanges: These shall be provided as given at para 2.9 of this Annexure-I of Schedule B (Clause No. 3.4.7 of IRC: SP:84)

| S. No. | Design Chainage (Km) | Junction Type (T, Y, +) | Leads to | | U-Turn provision in Viaduct Spans | Category of Cross Road | Carriageway Width of Cross Road (m) | Length of Cross Road to be Developed (m) | |
|--------|----------------------|----------------------------|------------|------------|-----------------------------------|------------------------|-------------------------------------|--|-----|
| | | | Left | Right | | | | LHS | RHS |
| 1 | 136+320 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 2 | 141+680 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 3 | 146+345 | + | To Village | To Village | No | VR | 3.75 | 150 | 150 |

| S. No. | Design Chainage (Km) | Junction Type (T, Y, +) | Leads to | | U-Turn provision in Viaduct Spans | Category of Cross Road | Carriageway Width of Cross Road (m) | Length of Cross Road to be Developed (m) | |
|--------|----------------------|----------------------------|------------|------------|-----------------------------------|------------------------|-------------------------------------|--|-----|
| | | | Left | Right | | | | LHS | RHS |
| 4 | 147+152 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 5 | 147+320 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 6 | 149+050 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 7 | 150+205 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 8 | 151+030 | + | To Village | To Village | No | VR | 5.5 | 50 | 50 |
| 9 | 151+512 | + | To Village | To Airport | No | VR | 5.5 | 50 | 50 |
| 10 | 153+180 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 11 | 153+487 | + | To Village | To Village | No | VR | 3.5 | 50 | 50 |
| 12 | 154+460 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 13 | 154+920 | + | To Village | To Village | No | VR | 3.5 | 50 | 50 |
| 14 | 156+495 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 15 | 158+210 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 16 | 158+375 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 17 | 159+920 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 18 | 160+195 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |
| 19 | 163+920 | + | To Village | To Village | No | VR | 3.75 | 50 | 50 |

***Note-** The concessionaire shall construct approach roads from the interchanges at Km 134+780 and Km 151+520 up to the existing NH-06/roads in a 2-Lane + Paved Shoulder configuration, with lengths of 1104 m and 2782 m respectively. New junctions should be developed at both ends. Additionally, the concessionaire shall realign and develop the existing BSF Patrolling roads—Road 1 (153 m), Road 2 (674

m), and Road 3 (303 m)—as per the attached cross-section in ANNEX – II (SCHEDULE – B).

Note:

1. *The Concessionaire shall take up 'Detailed Engineering study' to ascertain further details of all intersections and treatment of the intersections shall be designed in accordance with the latest guidelines mentioned in Section 3 of manual*
2. *Junction improvement under grade separators shall be carried out as per manual with proper entry/exit to crossroads and slip/service road, etc. Auxiliary lanes including storage, acceleration and deceleration lane along with physical islands to be provided*
3. *Locations of grade-separated structures are indicative. Exact location should be decided in consultation with Independent Engineer. The list of above major & minor junctions is indicative only and any additional junctions required in the Project Highway shall have to be constructed by the Contractor in consultation with the Independent Engineer. However, no change of scope on account of additional junction will be accepted*
4. *Only Entry or Exit shall be designed at any location (provision of entry/exit by ghost island not permitted).*
5. *Intersection Layout, Entry/Exit, Right Turning Lane, U-Turns, Geometric Design and Typical Cross Sections of Interchange are included in Annexure to Schedule-B."*
6. *For cross road drainage facility new HP culverts on cross / approach roads shall be constructed.*
7. *Improvement of culverts/drain up to 50m on the cross/connecting roads on Major & Minor junctions shall be in the scope of contractor.*
8. *The cross road at junctions shall be regraded to attain similar gradient as per MoRTH standards & Type Designs for Intersections on National Highways, whichever is more & repaved by existing paved material.*

4. Road Embankment and Cut Section

Construction of road embankment/cuttings shall conform to the Specifications and Standards given in **Section 4** of the manual. Notwithstanding anything to the

contrary contained in this Agreement or manual, the difference in proposed profile and OGL for plain terrain as indicated in Annexure-III of schedule A shall be minimum requirement.

Based on site/design requirement, the Concessionaire shall design the alignment plans and profiles of the project highway based on site/design requirement mentioned in Schedule B with approval from the Independent Engineer within the available Right of Way. However, it is clarified that bottom of subgrade level shall be at-least 1000 mm above HFL/Existing ground level.

The side slopes shall not be steeper than 2H:1V for fill section & 1H:1V for cut section. In no case, the side slope in cutting section shall not be steeper than 1H:1V. In case, there is a ROW constraint than, suitable soil retaining structures shall be provided.

For stability of slope upto 3 metre height, turfing can be adapted. For the slope from 3-6 metre, suitable geocell, geo-grid, geo-green etc. can be provided with suitable drainage chutes and suitable energy dissipaters as per IRC 56. For the slope more than 6 metre height, a complete slope stability analysis as per IRC:75 shall be done, and the slopes shall be compulsorily protected as per IRC codal provisions and suitable drains/chutes and energy dissipaters etc. shall be provided for effective drainage of the water. In case of cut section, hydro seeding & mulching shall be adapted.

Where pond ash is used for embankment construction, the embankment shall be designed and constructed in accordance with IRC: SP: 58 (Clause No. 4.2.4 & 4.4.4.i (d) IRC: SP: 84)

The Concessionaire shall deploy grading, paving and compaction equipment fitted with Machine Guidance & Control System (MGCS) for finishing of all grades including Embankment, and Subgrade. 3D Machine Guidance and Control Systems for Motor Graders / Paver and 3D Machine Guidance System in Compactors and Dozers shall be done with help of 3D Digital model generated from Design to ensure quality standards as per IRC specifications and productivity improvement. Further, Concessionaire shall ensure the generation of measurable digital records that can be shared on a digital drive or can viewed in real time. The hardware and software used by the Concessionaire shall have features and specifications mentioned at Schedule D.

5. Pavement Design

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

5.1.1. Concessionaire shall develop 3D digital models and use 3D Machine Guidance and Control Systems for Motor Graders and Paver and 3D Machine Guidance System in Compactors and Dozers to ensure quality standards as per IRC specifications and productivity improvement. Further, Concessionaire shall generate measurable digital records that can be shared on a digital drive or can viewed in real time. The hardware and software used by the Concessionaire shall have features and specifications mentioned at Schedule D.

5.2. Type of Pavement and Design requirement

The pavement shall be Flexible type for entire length of project highway (For Main Carriageway, Interchanges and Connecting Roads) and **Rigid Pavement shall be provided in BSF Patrolling Road.**

5.2.1. Design Period and Strategy: - Flexible Pavement shall be designed for a minimum design period of 20 years and minimum sub grade CBR of 8% and maximum subgrade CBR of 10%. Stage construction shall not be permitted.

5.2.2. Recommended Pavement Design: - Notwithstanding anything to the contrary contained in this Agreement or the manual, the Concessionaire shall design the pavement of main carriageway for a minimum design traffic of 110 MSA.

5.2.3. The pavement for service road/slip roads/ramps shall be designed for projected traffic of 50 MSA subject to minimum as follows:

i. Ramps for minimum 50 MSA

ii. Connecting Road to existing NH 06 connectivity to umkiang and kalain shall be designed for minimum 20 MSA.

5.2.4. Deleted

5.2.5. Deleted

5.2.6. Deleted

5.2.7. Deleted

5.3. Deleted

5.4. Reconstruction of Stretches with New pavement

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

| Sr. No. | Design Chainage (km) | | Pavement composition | Remarks |
|---------|----------------------|----|----------------------|---------|
| | From | To | | |
| Nil | | | | |
| | | | | |

5.5. Bituminous Mix for Overlay

The following stretches of the existing road shall be provided bituminous overlay as follows:

| Sr. No. | Design Chainage (km) | | Overlay Pavement Composition | Remarks |
|---------|----------------------|----|------------------------------|---------|
| | From | To | | |
| Nil | | | | |

6. Roadside Drainage

6.1. Drainage system including surface and subsurface drains for the Project Highway including crossroads shall be provided as per section 6 of the Manual. Concessionaire shall provide a drainage plan along with its drainage profile which should be reviewed and approved by the **Independent** Engineer. RCC Drain shall conform to the cross-sectional features and other details as given in Annexure II to Schedule-B and shall be provided as under:

Details of RCC Drain for Main Carriageway

| LEFT | | | RIGHT | | |
|-------------------|-----------------|------------|-------------------|-----------------|------------|
| FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) | FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) |
| 133+320 | 133+460 | 140 | 133+320 | 133+380 | 60 |
| 133+500 | 133+520 | 20 | 133+460 | 133+520 | 60 |
| 133+700 | 133+740 | 40 | 135+460 | 135+480 | 20 |
| 135+840 | 135+920 | 80 | 135+500 | 135+540 | 40 |
| 136+060 | 136+140 | 80 | 135+660 | 135+680 | 20 |
| 136+240 | 136+440 | 200 | 135+700 | 135+800 | 100 |
| 136+740 | 136+820 | 80 | 135+840 | 135+920 | 80 |
| 136+880 | 137+120 | 240 | 136+060 | 136+140 | 80 |
| 137+160 | 137+198 | 38 | 136+240 | 136+440 | 200 |
| 137+330 | 137+420 | 90 | 136+740 | 136+820 | 80 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| LEFT | | | RIGHT | | |
|-------------------|-----------------|------------|-------------------|-----------------|------------|
| FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) | FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) |
| 137+440 | 137+515 | 75 | 136+880 | 137+198 | 318 |
| 137+525 | 137+726 | 201 | 137+330 | 137+380 | 50 |
| 137+756 | 137+820 | 64 | 137+440 | 137+480 | 40 |
| 137+860 | 137+910 | 50 | 137+600 | 137+620 | 20 |
| 138+015 | 138+300 | 285 | 137+680 | 137+726 | 46 |
| 138+400 | 138+665 | 265 | 137+780 | 137+820 | 40 |
| 138+740 | 138+800 | 60 | 137+860 | 137+900 | 40 |
| 138+900 | 138+926 | 26 | 138+015 | 138+560 | 545 |
| 139+440 | 139+582 | 142 | 138+580 | 138+620 | 40 |
| 139+700 | 139+740 | 40 | 138+780 | 138+800 | 20 |
| 139+940 | 140+500 | 560 | 139+200 | 139+240 | 40 |
| 140+840 | 141+410 | 570 | 139+370 | 139+582 | 212 |
| 141+440 | 141+515 | 75 | 139+640 | 139+740 | 100 |
| 141+535 | 142+040 | 505 | 139+960 | 140+480 | 520 |
| 142+580 | 142+980 | 400 | 140+840 | 141+400 | 560 |
| 143+100 | 143+400 | 300 | 142+620 | 142+980 | 360 |
| 143+420 | 143+710 | 290 | 143+120 | 143+240 | 120 |
| 143+740 | 143+820 | 80 | 143+260 | 143+280 | 20 |
| 143+840 | 143+960 | 120 | 143+300 | 143+400 | 100 |
| 144+520 | 145+100 | 580 | 143+420 | 143+440 | 20 |
| 145+280 | 145+300 | 20 | 143+480 | 143+710 | 230 |
| 145+780 | 145+840 | 60 | 143+740 | 143+840 | 100 |
| 146+700 | 146+760 | 60 | 143+900 | 143+960 | 60 |
| 146+960 | 146+980 | 20 | 144+000 | 144+020 | 20 |
| 148+060 | 148+140 | 80 | 144+520 | 145+060 | 540 |
| 148+220 | 148+260 | 40 | 145+120 | 145+200 | 80 |
| 148+860 | 148+900 | 40 | 145+240 | 145+300 | 60 |
| 149+180 | 149+300 | 120 | 145+780 | 145+860 | 80 |
| 149+420 | 149+440 | 20 | 146+720 | 146+740 | 20 |
| 149+520 | 149+560 | 40 | 146+960 | 146+980 | 20 |
| | | | 147+880 | 147+900 | 20 |
| | | | 147+940 | 148+000 | 60 |
| | | | 148+140 | 148+180 | 40 |
| | | | 148+240 | 148+280 | 40 |
| | | | 148+640 | 148+920 | 280 |

| LEFT | | | RIGHT | | |
|-------------------|-----------------|-------------|-------------------|-----------------|-------------|
| FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) | FROM CHAINAGE (M) | TO CHAINAGE (M) | LENGTH (M) |
| | | | 149+160 | 149+400 | 240 |
| | | | 149+520 | 149+740 | 220 |
| | | 6196 | Total | | 6061 |

Details of RCC Drain for Interchanges

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|---|--------|-------------|---|--------|-------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| Interchange at km 134+780 including Approach/connecting roads | | - | Interchange at km 134+780 including Approach/connecting roads | | 100 |
| Interchange at km 151+520 including Approach/connecting roads | | 2712 | Interchange at km 151+520 including Approach/connecting roads | | 2712 |
| Interchange at km 164+120 including Approach/connecting roads | | - | Interchange at km 164+120 including Approach/connecting roads | | - |
| Total | | 2712 | Total | | 2812 |

RCC Drain for the Development of BSF Patrolling road

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|-------------------------------------|--------|------------|-------------------------------------|--------|------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| Road 1 (RHS near Km 140+550 of MCW) | | 153 | Road 1 (RHS near Km 140+550 of MCW) | | 153 |
| Road 3 (near Km 141+680 of MCW) | | 223 | Road 3 (near Km 141+680 of MCW) | | 223 |
| Total | | 376 | Total | | 376 |

Note:

- *Unlined drain and lined covered drain/RCC drain/Footpath cum drain shall conform to the cross-sectional features and other details specified as per section 2.10 of Annex-I of Schedule-B.*

- *The water from main carriageway to be drained to the nearest RCC drain through piping network which will be laid below slip/service road. Interval to be decided based on-site conditions.*
- *The above locations are minimum. Additional locations, if any required to maintain continuity in drainage to the nearest outfall/cross drainage structure as per site condition shall be provided as per manual. Any increase in length upto 10% of the scope defined above shall not be treated as a change in scope of work.*

6.2. Unlined Drains other than the above-mentioned locations shall be provided in the entire project length which gets terminated at all crossroad locations. In case, the definite outfall is not available, a rainwater harvesting system shall be provided at the deepest location for dispersal of water.

The size of Unlined drain should have a minimum width of 0.6m at bottom, minimum depth of 0.6m and a minimum side slope of 2H to 1V. The Bed slope should be based on drainage profile.

The drainage plan shall account for the water from the ROW area along with the area outside the ROW as well.

6.3. Median Drain

Lined drain shall be provided in the centre of the median in the entire stretch of the Project Highway with depressed/Flushed median and turfing on both side of the Drain as per IRC SP 42. Draining of storm water from one carriageway to other carriageway is not permitted. The concessionaire shall design the median drain based on site/design requirement mentioned in schedule D with approval from the Independent Engineer and shall be connected with the nearest culvert/outfall.

6.4. Drainage arrangement between Main Carriageway and Service/Slip Roads

A suitable drainage arrangement for draining storm water of main carriageway shall be provided. Storm water of main carriageway to service road is not permitted.

6.5. Drainage where Embankment Height is more than 3m

Drainage chutes shall be provided at suitable interval (maximum spacing c/c 20m) on embankment slopes as per Typical cross section attached as ANNEX – II (SCHEDULE – B). The drainage arrangement shall include kerb, cement concrete

drainage channel at the edge roadway, Cement Concrete Chutes, CC bedding, energy dissipation basin, etc. Mountable Kerb shall be provided beyond the post of MBCB to channelize storm water into chute.

6.6. Drainage for Structures (Clause No. 6.8 IRC: SP: 84)

A suitable drainage arrangement for draining storm water from deck slab shall be provided. Water shall not fall on any surface of the structures, or remain standing or flowing over the road below structure.

6.7. Drainage for Underpass and Subways Structures (Clause No. 6.8.3 IRC: SP: 84)

A suitable drainage arrangement for draining storm water from Underpass and Subways shall be provided.

6.8. Drainage arrangement of Retaining Structures

Vertical Drop-down drainage pipes with suitable cleaning provision shall be provided at suitable interval. Drainage fixtures and dropdown pipes shall be of rigid, corrosion resistant material not less than 100mm dia. The storm water of main carriageway draining on service road is not permitted.

Few photographs showing the drainage arrangement are presented for reference.



Takedown pipe at interval with 300mm Dia. HP in separator and cross connection to side drains.



Alternatively: Long pipe sloped along ramp with connection with drainage spout & vertical take down pipe and connected to main drain

7. Design of Structures

7.1. General

Project Highway is proposed to be constructed to Four lane configuration and structure shall be designed for Six lanes configuration. As such, superstructure of all bridges, culverts and structures is to be designed for edge movement of the vehicle considering stitching of new superstructure in future due to widening for additional lane. **All bridges, culverts and structures to be designed for Special Vehicle (SV) loading, Class 70R, Class A and congestion factor, whichever is critical, as per latest IRC provisions.**

All structures except wherever expansion joints have been provided, the pavement layers (WMM, DBM & BC) shall be continued over the structures for smooth riding quality of the project highway. These structures shall be designed considering the dead load of pavement (WMM, DBM, BC, etc.) layers.

All major structures will be designed preferably as continuous slab to reduce the number of expansion joints on the MJB/ ROBS/ flyover/ interchange etc.

7.1.1. All structures to be designed for Special Vehicle (SV) loading, Class 70R, Class A and congestion factor, whichever is critical, as per latest IRC provisions. and constructed in accordance with section-7 of the manual and shall conform to the cross-sectional features and other details specified therein. **Seismic Design of Structures to conform as per the latest IS codes and Seismic Zones.**

7.1.2. Clear deck width of bridges/grade separated structures/ RoBs (measured from inside to inside of crash barrier) in their approaches shall be equal to the roadway width (carriageway width+ paved shoulder width+ earthen shoulder width+ width of median including shyness for raised median /depressed median as applicable). In case of footpath on bridge/RoB, the width of earthen shoulder shall be tapered at the rate of 1:15 (MORTH Circular: RW/NH-33044/22/2020-S&R dated 4th June, 2024).

7.1.3. The Safety Barrier and Footpath on Bridges and ROB shall continue on approaches. The footpath shall be provided with paved surface & railing till the embankment height is more than 3m (Clause No. 7.17 IRC: SP:84)

Details of Structures with footpaths

| Sr. No. | Location at km | Skew Angle | Footpath Width(m) | Remarks |
|----------------|-----------------------|-------------------|--------------------------|----------------------------|
| 1 | 136+320 | - | 1.5 | Footpath on Bridges |
| 2 | 141+680 | - | 1.5 | Footpath on Bridges |

7.1.4. All bridges shall be high-level bridges.

7.1.5. All structures shall be designed to carry utility services on outer side of RCC barrier/Railing as per site requirement. **The design loads for the crash barriers shall be as per IRC-6.**

7.1.6. Cross section of the new culverts and bridges at deck level for the Project Highway shall conform to the typical cross sections given in Section 2.10 of Annex-I Schedule-B.

7.1.7. An inspection gallery along with a caged ladder (access from the deck slab) to be provided at each pier location for facilitating regular inspection of structures. An indicative General Arrangement Drawing (GAD) has been prepared and is attached at Appendix-A which may be made a part of Concession/Contract Agreement. For location where access for the deck slab is not possible from the top, the same may be provided from the bottom i.e. by providing staircase along the pier up to the top of pier cap along with an inspection platform all around the pier cap as shown in the indicative GAD. If this is not feasible, then some other

kind of arrangement has to be made to provide access to the top of pier cap for inspecting bearings, underneath the box/slab structures etc.

- 7.1.8. Staircase (with stone masonry/concrete) in the approaches to box/slab culverts (near the end of return wall)/minor and major bridge by the side of abutments on either side of the carriageway to access the underneath box/slab culverts/bridges. An indicative picture is shown below (for understanding purpose only)



7.2. Culverts

7.2.1. Overall width of all culverts shall be equal to the roadway width of the approaches. The overall width of culverts shall be including width of main carriageway and slip/service roads/Entry ramps/Exit Ramps/Acceleration/Deceleration lanes, etc. All culverts shall also be continued in median and in gap between main carriageway and service road.

7.2.2. New/Reconstruction of existing RCC pipe culverts: The existing culverts at the following locations shall be re-constructed as new culverts:

| Sr. No | Design Chainage | Culvert Type | Skew Angle | Span/Opening (m) | New/Reconstruction | Culvert Crossing Type (Balancing/Stream, etc.) | Remarks |
|--------|-----------------|--------------|------------|------------------|--------------------|--|---------|
| Nil | | | | | | | |

7.2.3. Widening of existing RCC Pipe culverts

All existing culverts which are to be retained shall be widened to the proposed roadway width of the Project Highway as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

| Sr. No | Design Chainage | Culvert Type | Skew Angle | Span/ Opening (m) | Repairs / Rehabilitation proposals | Culvert Crossing Type (Balancing/ Stream, etc.) | Remarks |
|--------|-----------------|--------------|------------|-------------------|------------------------------------|---|---------|
| Nil | | | | | | | |

7.2.4. Construction of Box Culverts:

7.2.5. **New/Reconstruction of box culverts** (given in table below) shall be constructed for width equal to the proposed roadway width of the Project Highway & as per typical cross-section given in schedule B. The details are given as under:

Main Carriageway

| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|--------------|
| 1 | 133+400 | 1 | 3 | | Drain | New Proposed |
| 2 | 133+450 | 1 | 3 | 28 | Drain | New Proposed |
| 3 | 133+540 | 1 | 3 | | Drain | New Proposed |
| 4 | 133+620 | 1 | 3 | | Drain | New Proposed |
| 5 | 133+780 | 1 | 5 | | Drain | New Proposed |
| 6 | 134+245 | 1 | 5 | | Drain | New Proposed |
| 7 | 134+310 | 1 | 3 | | Drain | New Proposed |
| 8 | 134+470 | 1 | 3 | | Drain | New Proposed |
| 9 | 134+525 | 1 | 3 | | Drain | New Proposed |
| 10 | 134+660 | 1 | 5 | 22 | Drain | New Proposed |
| 11 | 135+220 | 1 | 3 | | Drain | New Proposed |
| 12 | 135+325 | 1 | 5 | | Drain | New Proposed |
| 13 | 135+475 | 1 | 3 | | Drain | New Proposed |
| 14 | 135+720 | 1 | 5 | | Drain | New Proposed |
| 15 | 135+810 | 1 | 5 | | Drain | New Proposed |
| 16 | 135+940 | 1 | 5 | | Drain | New Proposed |
| 17 | 136+015 | 1 | 5 | | Drain | New Proposed |
| 18 | 136+160 | 1 | 5 | | Drain | New Proposed |
| 19 | 136+820 | 1 | 5 | | Drain | New Proposed |
| 20 | 136+840 | 1 | 5 | | Drain | New Proposed |
| 21 | 137+145 | 1 | 3 | | Drain | New Proposed |

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| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|---------------|-----------------------------|------------------------|-----------------------------|-------------------|------------------------------|----------------|
| 22 | 137+420 | 1 | 6 | | Drain | New Proposed |
| 23 | 137+660 | 1 | 5 | | Drain | New Proposed |
| 24 | 137+830 | 1 | 5 | | Drain | New Proposed |
| 25 | 138+360 | 1 | 5 | | Drain | New Proposed |
| 26 | 138+565 | 1 | 5 | | Drain | New Proposed |
| 27 | 139+415 | 1 | 6 | | Drain | New Proposed |
| 28 | 140+210 | 1 | 3 | | Drain | New Proposed |
| 29 | 141+180 | 1 | 3 | | Drain | New Proposed |
| 30 | 141+850 | 1 | 3 | | Drain | New Proposed |
| 31 | 143+240 | 1 | 3 | | Drain | New Proposed |
| 32 | 143+260 | 1 | 5 | | Drain | New Proposed |
| 33 | 143+400 | 1 | 3 | | Drain | New Proposed |
| 34 | 143+460 | 1 | 5 | | Drain | New Proposed |
| 35 | 143+670 | 1 | 3 | | Drain | New Proposed |
| 36 | 143+850 | 1 | 5 | | Drain | New Proposed |
| 37 | 143+975 | 1 | 6 | | Drain | New Proposed |
| 38 | 145+100 | 1 | 3 | | Drain | New Proposed |
| 39 | 145+210 | 1 | 3 | | Drain | New Proposed |
| 40 | 145+410 | 1 | 5 | | Drain | New Proposed |
| 41 | 145+520 | 1 | 5 | | Drain | New Proposed |
| 42 | 145+730 | 1 | 5 | | Drain | New Proposed |
| 43 | 145+910 | 1 | 3 | | Drain | New Proposed |
| 44 | 146+040 | 1 | 3 | | Drain | New Proposed |
| 45 | 146+200 | 1 | 5 | | Drain | New Proposed |
| 46 | 146+315 | 1 | 5 | | Drain | New Proposed |
| 47 | 146+320 | 1 | 3 | 25 | Drain | New Proposed |
| 48 | 146+515 | 1 | 3 | | Drain | New Proposed |
| 49 | 146+580 | 1 | 3 | | Drain | New Proposed |
| 50 | 146+690 | 1 | 5 | | Drain | New Proposed |
| 51 | 146+795 | 1 | 5 | | Drain | New Proposed |
| 52 | 146+940 | 1 | 5 | | Drain | New Proposed |
| 53 | 147+075 | 1 | 5 | | Drain | New Proposed |
| 54 | 147+360 | 1 | 3 | | Drain | New Proposed |
| 55 | 147+460 | 1 | 3 | 29 | Drain | New Proposed |
| 56 | 147+500 | 1 | 3 | | Drain | New Proposed |
| 57 | 147+586 | 1 | 3 | 17 | Drain | New Proposed |
| 58 | 147+690 | 1 | 5 | | Drain | New Proposed |
| 59 | 147+770 | 1 | 5 | | Drain | New Proposed |
| 60 | 147+850 | 1 | 5 | | Drain | New Proposed |
| 61 | 147+920 | 1 | 3 | | Drain | New Proposed |

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| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|---------------|-----------------------------|------------------------|-----------------------------|-------------------|------------------------------|----------------|
| 62 | 148+000 | 1 | 3 | | Drain | New Proposed |
| 63 | 148+040 | 1 | 3 | | Drain | New Proposed |
| 64 | 148+140 | 1 | 3 | | Drain | New Proposed |
| 65 | 148+190 | 1 | 3 | 27 | Drain | New Proposed |
| 66 | 148+330 | 1 | 5 | 29 | Drain | New Proposed |
| 67 | 148+620 | 1 | 5 | | Drain | New Proposed |
| 68 | 148+780 | 1 | 3 | | Drain | New Proposed |
| 69 | 148+945 | 1 | 5 | | Drain | New Proposed |
| 70 | 149+122 | 1 | 3 | 48 | Drain | New Proposed |
| 71 | 149+440 | 1 | 3 | | Drain | New Proposed |
| 72 | 149+470 | 1 | 5 | 15 | Drain | New Proposed |
| 73 | 149+580 | 1 | 3 | | Drain | New Proposed |
| 74 | 149+625 | 1 | 3 | | Drain | New Proposed |
| 75 | 149+790 | 1 | 5 | 17 | Drain | New Proposed |
| 76 | 149+910 | 1 | 5 | | Drain | New Proposed |
| 77 | 150+110 | 1 | 5 | | Drain | New Proposed |
| 78 | 150+440 | 1 | 3 | | Drain | New Proposed |
| 79 | 150+720 | 1 | 3 | | Drain | New Proposed |
| 80 | 151+380 | 1 | 5 | | Drain | New Proposed |
| 81 | 151+650 | 1 | 6 | | Drain | New Proposed |
| 82 | 151+800 | 1 | 5 | | Drain | New Proposed |
| 83 | 152+070 | 1 | 5 | | Drain | New Proposed |
| 84 | 152+380 | 1 | 5 | | Drain | New Proposed |
| 85 | 152+580 | 1 | 3 | | Drain | New Proposed |
| 86 | 152+720 | 1 | 3 | | Drain | New Proposed |
| 87 | 152+850 | 1 | 3 | | Drain | New Proposed |
| 88 | 153+060 | 1 | 5 | | Drain | New Proposed |
| 89 | 153+460 | 1 | 3 | | Drain | New Proposed |
| 90 | 153+600 | 1 | 5 | | Drain | New Proposed |
| 91 | 153+700 | 1 | 5 | | Drain | New Proposed |
| 92 | 153+860 | 1 | 5 | | Drain | New Proposed |
| 93 | 154+100 | 1 | 5 | | Drain | New Proposed |
| 94 | 154+260 | 1 | 6 | | Drain | New Proposed |
| 95 | 154+600 | 1 | 6 | | Drain | New Proposed |
| 96 | 154+680 | 1 | 6 | | Drain | New Proposed |
| 97 | 154+840 | 1 | 3 | | Drain | New Proposed |
| 98 | 155+010 | 1 | 5 | 36 | Drain | New Proposed |
| 99 | 155+150 | 1 | 3 | | Drain | New Proposed |
| 100 | 155+260 | 1 | 5 | | Drain | New Proposed |
| 101 | 155+470 | 1 | 5 | | Drain | New Proposed |

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| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|---------------|-----------------------------|------------------------|-----------------------------|-------------------|------------------------------|----------------|
| 102 | 155+560 | 1 | 5 | | Drain | New Proposed |
| 103 | 155+640 | 1 | 3 | | Drain | New Proposed |
| 104 | 156+060 | 1 | 5 | | Drain | New Proposed |
| 105 | 156+200 | 1 | 3 | | Drain | New Proposed |
| 106 | 156+280 | 1 | 5 | | Drain | New Proposed |
| 107 | 156+400 | 1 | 5 | | Drain | New Proposed |
| 108 | 156+580 | 1 | 5 | 45 | Drain | New Proposed |
| 109 | 156+700 | 1 | 3 | | Drain | New Proposed |
| 110 | 157+120 | 1 | 5 | | Drain | New Proposed |
| 111 | 157+220 | 1 | 5 | | Drain | New Proposed |
| 112 | 157+320 | 1 | 5 | | Drain | New Proposed |
| 113 | 157+570 | 1 | 3 | | Drain | New Proposed |
| 114 | 157+860 | 1 | 5 | | Drain | New Proposed |
| 115 | 158+055 | 1 | 5 | | Drain | New Proposed |
| 116 | 158+170 | 1 | 5 | | Drain | New Proposed |
| 117 | 158+260 | 1 | 5 | | Drain | New Proposed |
| 118 | 158+360 | 1 | 5 | | Drain | New Proposed |
| 119 | 158+520 | 1 | 3 | | Drain | New Proposed |
| 120 | 158+660 | 1 | 3 | | Drain | New Proposed |
| 121 | 158+770 | 1 | 5 | | Drain | New Proposed |
| 122 | 158+830 | 1 | 3 | | Drain | New Proposed |
| 123 | 158+940 | 1 | 3 | | Drain | New Proposed |
| 124 | 159+050 | 1 | 3 | | Drain | New Proposed |
| 125 | 159+200 | 1 | 3 | | Drain | New Proposed |
| 126 | 159+320 | 1 | 3 | | Drain | New Proposed |
| 127 | 159+460 | 1 | 3 | | Drain | New Proposed |
| 128 | 160+060 | 1 | 3 | | Drain | New Proposed |
| 129 | 160+110 | 1 | 3 | | Drain | New Proposed |
| 130 | 160+340 | 1 | 3 | | Drain | New Proposed |
| 131 | 160+450 | 1 | 3 | | Drain | New Proposed |
| 132 | 160+480 | 1 | 3 | | Drain | New Proposed |
| 133 | 160+620 | 1 | 3 | | Drain | New Proposed |
| 134 | 160+720 | 1 | 3 | | Drain | New Proposed |
| 135 | 160+995 | 1 | 3 | | Drain | New Proposed |
| 136 | 161+320 | 1 | 3 | | Drain | New Proposed |
| 137 | 161+660 | 1 | 3 | | Drain | New Proposed |
| 138 | 161+860 | 1 | 3 | | Drain | New Proposed |
| 139 | 162+120 | 1 | 3 | | Drain | New Proposed |
| 140 | 162+260 | 1 | 3 | | Drain | New Proposed |
| 141 | 162+460 | 1 | 3 | | Drain | New Proposed |

| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|--------------|
| 142 | 162+620 | 1 | 3 | | Drain | New Proposed |
| 143 | 162+760 | 1 | 3 | | Drain | New Proposed |
| 144 | 162+860 | 1 | 3 | | Drain | New Proposed |
| 145 | 163+000 | 1 | 3 | | Drain | New Proposed |
| 146 | 163+070 | 1 | 3 | | Drain | New Proposed |
| 147 | 163+282 | 1 | 3 | | Drain | New Proposed |
| 148 | 163+600 | 1 | 3 | 38 | Drain | New Proposed |

Culverts on Cross road at Interchange Km 134+780

| S. No. | Design Chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|----------------|
| 1 | 0+338 | 1 | 2 | 35 | Drain | New Proposed |
| 2 | 0+445 | 1 | 3 | - | Drain | New Proposed |
| 3 | 0+525 | 1 | 2 | - | Drain | Reconstruction |
| 4 | 0+680 | 1 | 3 | - | Drain | New Proposed |
| 5 | 0+880 | 1 | 2 | - | Drain | New Proposed |
| 6 | 0+960 | 1 | 2 | - | Drain | New Proposed |
| 7 | 1+080 | 1 | 2 | - | Drain | New Proposed |
| 8 | 0+125 | 1 | 2 | - | Drain | Reconstruction |

Culverts on Cross road at Interchange Km 151+520

| S. No. | Design chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|----------------|
| 1 | 0+100 | 1 | 2 | - | Drain | New Proposed |
| 2 | 1+380 | 1 | 5 | - | Drain | Reconstruction |
| 3 | 1+620 | 1 | 5 | - | Drain | Reconstruction |

Culverts at Interchange Km 164+120

| S. No. | Design chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|--------------|
| 1 | 0+480 (Ramp-1) | 1 | 5 | 30 | Drain | New Proposed |
| 2 | 0+510 (Ramp 1) | 1 | 3 | 15 | Drain | New Proposed |
| 3 | 0+100 (Ramp 2) | 1 | 3 | - | Drain | New Proposed |
| 4 | 0+220 (Ramp 2) | 1 | 5 | - | Drain | New Proposed |

| S. No. | Design chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|----------------------|-----------------|----------------------|------------|-----------------------|--------------|
| 5 | 0+275 (Ramp 2) | 1 | 5 | - | Drain | New Proposed |
| 6 | 0+092 (Ramp 3) | 1 | 5 | 18 | Drain | New Proposed |
| 7 | 0+140 (Loop) | 1 | 5 | 53 | Drain | New Proposed |

Culverts for the Development of BSF Patrolling

| S. No. | Design chainage (Km) | Number of Spans | Span Arrangement (m) | Skew Angle | Culvert Crossing Type | Remarks |
|--------|---------------------------------------|-----------------|----------------------|------------|-----------------------|---------------------------------|
| 1 | 0+020 (Road 1 near Km 140+550 of MCW) | 1 | 2.0 x 2.0 | 30 | Drain | New Proposed (with Sluice gate) |
| 2 | 0+100 (Road 1 near Km 140+550 of MCW) | 1 | 3.0 x 3.0 | 15 | Drain | New Proposed (with Sluice gate) |
| 3 | 0+240 (Road 2 near Km 141+300 of MCW) | 1 | 3.0 | - | Drain | New Proposed (with Sluice gate) |
| 4 | 0+270 (Road 3 near Km 141+680 of MCW) | 1 | 2.0 x 2.0 | - | Drain | New Proposed (with Sluice gate) |

7.2.6. Widening of existing box culverts

All existing culverts which are to be retained shall be widened to the proposed roadway width of the Project Highway as per the typical cross section given in Schedule-B. Repairs and strengthening of existing structures where required shall be carried out.

| Sr. No | Design Chainage | Culvert Type | Skew Angle | Span/ Opening (m) | Repairs / Rehabilitation proposals | Culvert Crossing Type (Balancing/ Stream, etc.) | Remarks |
|--------|-----------------|--------------|------------|-------------------|------------------------------------|---|---------|
| Nil | | | | | | | |

7.2.7. Culverts on Crossroads

Box Type Structures on Crossroads: (Clause No. 6.2.7 IRC: SP:84)

| Sr. No | Design Chainage (km) | Span Arrangement (m) | Type (Box) | Length of Culvert | Remark |
|--|----------------------|----------------------|------------|-------------------|--------|
| 36 Nos. Box barrels of 2X2m shall be provided to junction. | | | | | |

7.2.8. Utility ducts in the form of NP-4 RCC Pipe dia. 600mm shall be provided across the Project Highway @ 0.5km c/c and along with inspection chamber for crossing of utilities as per details given below.

| Sr. No | Design Chainage (km) | | Remark |
|--------|--|---------|--|
| | From | To | |
| 1 | 133.320 | 144.520 | 18 Nos. Single Row for one utility services @ 300m |
| 2 | 133.320 | 144.520 | 19 Nos. Double Row for two utility services @ 600m |
| 3 | 144.520 | 164.355 | 33 Nos. Single Row for one utility services @ 300m |
| 4 | 144.520 | 164.355 | 33 Nos. Double Row for two utility services @ 600m |
| 5 | 560 m Length (Both side length- 1120 m) | | Longitudinal duct (Meghalaya section) |
| 6 | 560 m Length (Both side length- 1190.10 m) | | Longitudinal duct (Assam section) |

Note:

- The locations of the utility ducts shall be finalized in consultation with Independent Engineer/Authority.
- The span given above are minimum and the proposed dimensions shall be based on hydraulic calculations and approval from Independent Engineer. The barrel length of the culverts shall be as per requirement of the highway embankment and approval from the Independent Engineer. Any change in span/opening and barrel length shall not constitute a change of scope.
- All Culverts structures shall be designed to carry utility services like OFC Cables, Electricity Lines etc
- In addition to the above locations, the Concessionaire shall construct culverts at the depressed locations along the Profile of Proposed Highway wherever required for cross drainage. These additional Culverts if required shall not constitute a Change of Scope. It is clarified that as per site requirement New Culverts if required for drainage arrangement shall be identified & constructed as per standard set forth in Schedule 'D' & as per instruction of Independent Engineer without any cost to the client.

7.3. Bridges

7.3.1. Existing Bridges to be reconstructed/widened:

Existing bridges proposed for to be re-construction as new structures.

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Span arrangement | Type of Crossing | Total Proposed width (m) | | Typical Cross Section of Manual | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|---------------------------------|------------|---------|
| | | | | | MCW | SR | | | |
| Nil | | | | | | | | | |

Existing narrow bridges proposed to be retained and widened:

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Span arrangement | Type of Crossing | Total Proposed width (m) | | Typical Cross Section of Manual | Skew Angle |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|---------------------------------|------------|
| | | | | | MCW | SR | | |
| Nil | | | | | | | | |

Note:

- 1 All Major and Minor Bridges to be designed for approach protection with concrete Toe wall with filter media and stone/ block pitching up to HFL of bridge +0.6 m with full height stone/ block pitching in cone filling portion of all four sides of abutments.
- 2 All river bridges & underpasses without slip roads shall be provided with steps for accessing the bottom in all two-cone filling portion for easy assessable bridges and approaches.

7.3.2. Additional New Bridges: New bridges at the following locations on the Project Highway shall be constructed. GADs for the new bridges are attached in the drawings folder:

Main Carriageway

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|----------------------------|----|------------|------------------|
| | | | | | MCW | SR | | |
| 1 | 134+135 | 140 | 35 | Stream | 2 x 13.50 + 1 x 13.0 | - | - | New construction |

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|------------|------------------|
| | | | | | MCW | SR | | |
| 2 | 135+150 | 30 | 30 | Stream | 2 x 15.10 | - | - | New construction |
| 3 | 136+585 | 270 | 45 | Stream | 2 x 15.10 | - | - | New construction |
| 4 | 137+264 | 132 | 44 | Stream | 2 x 15.10 | - | - | New construction |
| 5 | 137+520 | 10 | 10 | Stream | 2 x 15.10 | - | - | New construction |
| 6 | 137+745 | 30 | 30 | Stream | 2 x 15.10 | - | - | New construction |
| 7 | 137+960 | 105 | 35 | Stream | 2 x 15.10 | - | - | New construction |
| 8 | 138+688 | 45 | 45 | Stream | 2 x 15.10 | - | - | New construction |
| 9 | 138+848 | 65 | 65 | Stream | 2 x 15.10 | - | - | New construction |
| 10 | 139+038 | 224 | 112 | Stream | 2 x 15.10 | - | - | New construction |
| 11 | 139+314 | 112 | 112 | Stream | 1 x 15.10 | - | - | New construction |
| 12 | 139+595 | 25 | 25 | Stream | 1 x 15.10 | - | - | New construction |
| 13 | 139+615 | 90 | 45 | Stream | 2 x 15.10 | - | - | New construction |
| 14 | 139+832 | 164 | 82 | Stream | 2 x 15.10 | - | - | New construction |
| 15 | 140+600 | 200 | 40 | Stream | 2 x 15.10 | - | - | New construction |
| 16 | 140+760 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 17 | 141+425 | 30 | 30 | Stream | 2 x 13.50 | - | - | New construction |
| 18 | 141+525 | 20 | 10 | Stream | 2 x 15.10 | - | - | New construction |
| 19 | 142+305 | 510 | 102 | Stream | 2 x 15.10 | - | - | New construction |
| 20 | 143+040 | 120 | 40 | Stream | 2 x 15.10 | - | - | New construction |
| 21 | 143+725 | 30 | 30 | Stream | 2 x 15.10 | - | - | New construction |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|-----------------------------|----|------------|------------------|
| | | | | | MCW | SR | | |
| 22 | 144+274 | 408 | 102 | Stream | 2 x 13.50 + 1 x 13.0 | - | - | New construction |
| 23 | 147+215 | 74 | 74 | Stream | 2 x 15.10 | - | - | New construction |
| 24 | 148+522 | 10 | 10 | Stream | 2 x 13.50 | - | 13 | New construction |
| 25 | 148+983 | 8 | 8 | Stream | 2 x 13.50 | - | 13 | New construction |
| 26 | 149+982 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 27 | 150+570 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 28 | 150+940 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 29 | 151+250 | 10 | 10 | Stream | 2 x 13.50 + 2 x 12.50 | - | 26 | New construction |
| 30 | 151+920 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 31 | 153+363 | 45 | 45 | Stream | 2 x 13.50 | - | - | New construction |
| 32 | 155+320 | 20 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 33 | 155+810 | 20 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 34 | 157+000 | 90 | 25 | Stream | 2 x 13.50 | - | - | New construction |
| 35 | 157+510 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 36 | 157+685 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 37 | 158+000 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 38 | 159+785 | 25 | 25 | Stream | 2 x 13.50 | - | - | New construction |
| 39 | 161+100 | 10 | 10 | Stream | 2 x 13.50 | - | - | New construction |
| 40 | 161+545 | 80 | 40 | Stream | 2 x 13.50 | - | 35 | New construction |

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|------------|------------------------|
| | | | | | MCW | SR | | |
| 41 | 161+960 | 16 | 8 | Stream | 2 x 13.50 | - | - | New construction |
| 42 | 164+035 | 640 | 32 | Stream | 1 x 15.10 | - | - | New construction (LHS) |
| | | | | | 1 x 15.10 | - | - | New construction (RHS) |

Interchange at Ch. 134.780 Km

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum Span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|------------|----------------|
| | | | | | MCW | SR | | |
| 1 | 0+220 | 30 | 5 | Stream | 1x8.5 | - | - | Reconstruction |

Bridges for the Development of BSF Patrolling

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|------------------------------------|---------------------------|------------------|------------------|--------------------------|----|------------|-------------------------------------|
| | | | | | MCW | SR | | |
| 1 | 0+485 (Road no 2 at Km 141+300) | 30 | 10 | Stream | 1x8.5 | - | - | New construction (with Sluice gate) |
| 2 | 0+570 (Road no 2 at Km 141+300) | 20 | 10 | Stream | 1x8.5 | - | - | New construction (with Sluice gate) |

Interchange at Ch. 151.520 Km

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum Span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|------------|----------------|
| | | | | | MCW | SR | | |
| 1 | 2+575 | 70 | 35 | Stream | 1x16 | - | - | Reconstruction |

Interchange at Ch. 164.120 Km

| Sr. No | Design Chainage (Km) | Total Proposed length (m) | Minimum Span (m) | Type of Crossing | Total Proposed width (m) | | Skew Angle | Remarks |
|--------|----------------------|---------------------------|------------------|------------------|--------------------------|----|------------|---------|
| | | | | | MCW | SR | | |
| 1 | 0+044 (Ramp-2) | 80 | 40 | Stream | 1 x 15.10 | - | - | |
| 2 | 0+045 (Loop) | 80 | 40 | Stream | 1 x 15.10 | - | - | |

Note:

1. The span & Length given above are minimum and the proposed dimensions shall be based on hydraulic calculations and approval from Independent Engineer. Any increase in length up to 10% of the proposed length will not constitute a Change of Scope. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.
2. Concessionaire can adopt any type of structure (RCC/PSC - Slab/Box/Girder Type etc) for Bridge Construction. Span arrangement of Bridge shall be designed by contractor on the basis of detailed surveys & investigations subject to minimum specified in GAD. Foundation levels/Type shall be decided after detailed Geo-Technical investigation. Waterway, Finished Road Level, soffit etc. shall be decided on the basis of survey conforming to various codal provision applicable. However, the minimum Proposed FRL as per enclosed GAD for all minor bridges shall be maintained.
3. All Major and Minor Bridges to be designed for approach protection with concrete Toe wall with filter media and stone/ block pitching up to HFL of bridge +0.6 m with full height stone/ block pitching in cone filling portion of all two sides of abutments.

4. All river bridges & underpasses without slip roads shall be provided with steps for accessing the bottom in all two-cone filling portion for easy assessable bridges and approaches.
5. Requisite Stream/River Training work wherever required for the structures are to be considered within the scope of the work.
6. The connecting spans between viaducts in the Ramps of Interchanges is in the scope of the Concessionaire

7.3.3. The railings of existing bridges shall be replaced by crash barriers at the following locations:

| Sr. No. | Design Chainage | | Length (km) | Remarks |
|---------|-----------------|----|-------------|---------|
| | From | To | | |
| Nil | | | | |

7.3.4. The existing bridges/ RoB/ Grade Separators/ RUB retained on the project highway shall be upgraded and rehabilitation measures/proposals shall be as follows:

| Sr. No. | Design Chainage (km) | Rehabilitation Proposals | Remarks |
|---------|----------------------|--------------------------|---------|
| Nil | | | |

7.3.5. Structures in marine environment: Nil.

7.4. Railroad Bridges (ROB/RUB)

7.4.1. Design, construction and detailing of ROB/RUB shall be as specified in Section 7 of the manual.

7.4.2. Road over bridges (road over rail) shall be provided at the following locations, as per GAD drawings attached:

| Sr. No. | Design Chainage (Km) | Proposed Span Arrangement (m) | Type of super-structure (i.e. Bow string, simply supported composite structure etc. | Name of crossing | Total Width (m) | Skew Angle | Remarks |
|---------|----------------------|-------------------------------|---|------------------|-----------------|------------|---------|
| Nil | | | | | | | |

Note:

If the length/width of the span/ type of super-structure is changed due to any reason the COS shall be considered.

1. ROB shall be designed, constructed and maintained as per the requirements of Railway authorities. The construction plan shall be prepared in consultation with the concerned railway authority.
2. The ROB shall be constructed and maintained by the concessionaire under supervision of the Railways.
3. All charges payable to the Railways like D&G, capitalized maintenance, signaling, cabling, OHE modification, earthing etc. except P&E charges shall be borne by the Concessionaire.

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

| Sr. No. | Existing Chainage (km) | Design Chainage (km) | No. of Tracks | Proposed Structure Type | Proposed Span arrangement No of span x span length (m) | Skew Angle (degrees) | Total width of the structure (m) |
|---------|------------------------|----------------------|---------------|-------------------------|---|----------------------|----------------------------------|
| Nil | | | | | | | |

7.5. Grade Separated Structures

The grade separated structures shall be provided at the locations and of the type and length specified in paragraphs 2.9 ,2.10 and 3 of Annexure-I of Schedule-B.

7.6. FoB/Skywalks

FoB/Skywalks shall be provided in built-up areas/ near schools. DPR consultant to provide detailed drawings of FOB in schedule B.

| Sr. No. | Location at km | FoB Type | Remarks |
|---------|----------------|----------|---------|
| Nil | | | |

7.7. A summary of Culverts, Bridges and Structures shall be as follows:

For Main Carriageway

| S. No. | Type of Structure | New Proposed/ Reconstruction |
|--------------|-------------------|------------------------------|
| 1 | Major Bridge | 4 |
| 2 | Minor Bridge | 19 |
| 3 | Viaduct | 19 |
| 4 | Box Culvert | 148 |
| 5 | VOP | 2 |
| 6 | VUP | 3 |
| 7 | LVUP | 6 |
| 8 | SVUP | 9 |
| 9 | Utility underpass | 0 |
| 10 | Overpass | 0 |
| 11 | Underpass | 0 |
| Total | | 210 |

For Interchanges/Existing Cross Roads/BSF Patrolling road

| S. No. | Type of Structure | New Proposed | Reconstruction | Grand Total |
|--------------|-------------------|--------------|----------------|-------------|
| 1 | Major Bridge | - | 1 | 1 |
| 2 | Minor Bridge | - | 2 | 2 |
| 3 | Viaduct | 2 | - | 2 |
| 4 | Box Culvert | 19 | 4 | 23 |
| 5 | VOP | - | - | 0 |
| 6 | VUP | 2 | - | 2 |
| 7 | LVUP | - | - | 0 |
| 8 | SVUP | - | - | 0 |
| 9 | Utility underpass | 2 | - | 2 |
| 10 | Overpass | - | - | 0 |
| 11 | Underpass | - | - | 0 |
| Total | | 25 | 7 | 32 |

Note:

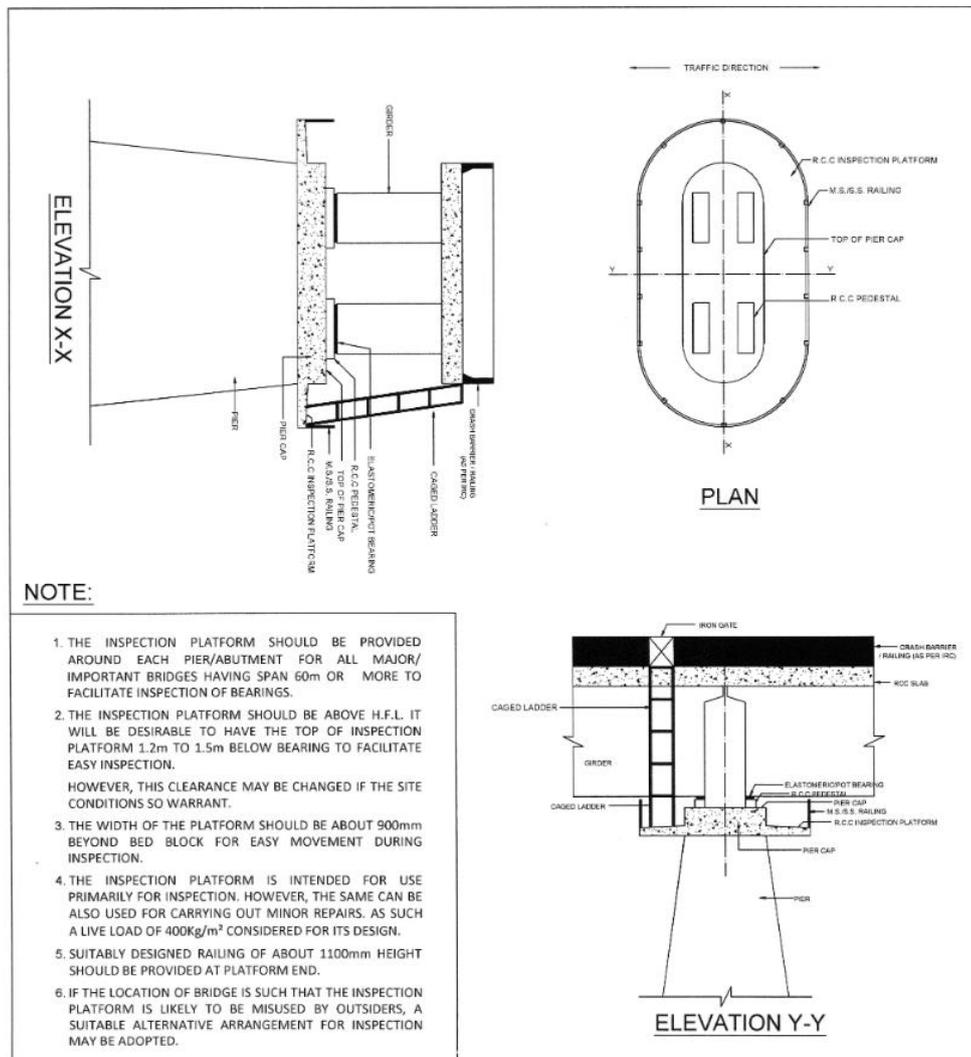
- a. Foundation levels/Type shall be decided after detailed Geo-Technical investigation & will be finalized after consultation with Independent Engineer/Authority for approval of work in field. If the founding level of foundation required is deeper than the founding level shown in GAD due to site & design

requirement, the extra depth of foundation shall not be treated under the clause of Change of Scope.

b. Span arrangement should be adopted as per requirement and decision by IWAI/Irrigation Authority/Other concerned Authority guidelines wherever required considering navigational requirement. Any change in span arrangement due to this with not constitute change of scope.

c. All structures to be designed for Special Vehicle (SV) loading, Class 70R, Class A and congestion factors, whichever is critical, as per latest IRC provisions

d. Project highway is proposed to be constructed to four lane configurations with provision for widening in future. As such, superstructure of all bridges, culverts and structures is to be designed for edge movement of the vehicle considering stitching of new superstructure in future due to widening for additional lane.



8. Traffic Control Devices and Road Safety Works

8.1. Traffic control devices and road safety works shall be provide in accordance with Section 9 of the IRC: SP: 84.

8.2. Traffic Signs:

Traffic signs shall be provided as per IRC 67 as mentioned in Schedule-C.

8.3. Pavement Marking

Pavement markings shall be completed as per IRC 35 as mentioned in Schedule-C.

8.4. Safety Barrier

The safety barriers shall be provided in accordance with Section-9 of the manual.

The Safety Barrier length proposed are excluding the safety barrier already proposed on Culverts, Grade Separated Structures, Interchange, Bridges, RoB and RUB as applicable cross sections respectively.

End Treatment of Steel barriers/Rope Barrier shall be specified i.e., **MELT or P-4 confirming to EN 1317-4**, TT, MCB barrier to Concrete Barrier End Treatment to Concrete barrier shall be done.

The details of the Thrie-beam Crash barrier locations are as below:

For Main Carriageway

| LEFT SIDE | | | | RIGHT SIDE | | | |
|-----------|---------|------------|-----------|------------|---------|------------|-----------|
| From (m.) | To (m.) | Length (m) | Remark | From (m.) | To (m.) | Length (m) | Remark |
| 133+480 | 133+500 | 20 | High Emb. | 133+400 | 133+460 | 60 | High Emb. |
| 133+540 | 133+660 | 120 | High Emb. | 133+540 | 133+720 | 180 | High Emb. |
| 133+740 | 133+960 | 220 | High Emb. | 133+740 | 133+980 | 240 | High Emb. |
| 134+205 | 134+760 | 555 | High Emb. | 134+205 | 134+760 | 555 | High Emb. |
| 134+794 | 135+135 | 341 | High Emb. | 134+794 | 135+135 | 341 | High Emb. |
| 135+165 | 135+245 | 80 | High Emb. | 135+165 | 135+200 | 35 | High Emb. |
| 135+257 | 135+700 | 443 | High Emb. | 135+220 | 135+245 | 25 | High Emb. |
| 135+720 | 135+840 | 120 | High Emb. | 135+257 | 135+340 | 83 | High Emb. |
| 135+920 | 136+060 | 140 | High Emb. | 135+920 | 136+060 | 140 | High Emb. |
| 136+140 | 136+220 | 80 | High Emb. | 136+140 | 136+220 | 80 | High Emb. |

| LEFT SIDE | | | | RIGHT SIDE | | | |
|-----------|---------|------------|-----------|------------|---------|------------|-----------|
| From (m.) | To (m.) | Length (m) | Remark | From (m.) | To (m.) | Length (m) | Remark |
| 136+440 | 136+450 | 10 | High Emb. | 136+440 | 136+450 | 10 | High Emb. |
| 136+720 | 136+740 | 20 | High Emb. | 136+720 | 136+740 | 20 | High Emb. |
| 136+820 | 136+880 | 60 | High Emb. | 136+820 | 136+880 | 60 | High Emb. |
| 137+140 | 137+160 | 20 | High Emb. | 137+380 | 137+440 | 60 | High Emb. |
| 137+420 | 137+440 | 20 | High Emb. | 137+480 | 137+515 | 35 | High Emb. |
| 138+300 | 138+380 | 80 | High Emb. | 137+525 | 137+600 | 75 | High Emb. |
| 138+710 | 138+740 | 30 | High Emb. | 137+620 | 137+680 | 60 | High Emb. |
| 138+800 | 138+815 | 15 | High Emb. | 137+820 | 137+860 | 40 | High Emb. |
| 138+880 | 138+900 | 20 | High Emb. | 138+560 | 138+580 | 20 | High Emb. |
| 139+150 | 139+258 | 108 | High Emb. | 138+620 | 138+665 | 45 | High Emb. |
| 139+370 | 139+440 | 70 | High Emb. | 138+710 | 138+760 | 50 | High Emb. |
| 139+640 | 139+700 | 60 | High Emb. | 138+880 | 138+926 | 46 | High Emb. |
| 139+740 | 139+750 | 10 | High Emb. | 139+150 | 139+180 | 30 | High Emb. |
| 140+700 | 140+755 | 55 | High Emb. | 139+240 | 139+258 | 18 | High Emb. |
| 140+765 | 140+840 | 75 | High Emb. | 139+914 | 139+940 | 26 | High Emb. |
| 142+040 | 142+050 | 10 | High Emb. | 140+765 | 140+800 | 35 | High Emb. |
| 143+400 | 143+420 | 20 | High Emb. | 141+440 | 142+050 | 610 | High Emb. |
| 143+960 | 144+070 | 110 | High Emb. | 142+560 | 142+620 | 60 | High Emb. |
| 144+478 | 144+500 | 22 | High Emb. | 143+100 | 143+120 | 20 | High Emb. |
| 145+120 | 145+280 | 160 | High Emb. | 143+240 | 143+260 | 20 | High Emb. |
| 145+300 | 145+780 | 480 | High Emb. | 143+280 | 143+300 | 20 | High Emb. |
| 145+860 | 146+280 | 420 | High Emb. | 143+400 | 143+420 | 20 | High Emb. |
| 146+420 | 146+700 | 280 | High Emb. | 143+440 | 143+480 | 40 | High Emb. |
| 146+760 | 146+960 | 200 | High Emb. | 143+840 | 143+880 | 40 | High Emb. |
| 147+500 | 147+980 | 480 | High Emb. | 143+960 | 143+980 | 20 | High Emb. |
| 148+020 | 148+060 | 40 | High Emb. | 144+040 | 144+070 | 30 | High Emb. |
| 148+140 | 148+180 | 40 | High Emb. | 144+478 | 144+500 | 22 | High Emb. |
| 148+260 | 148+480 | 220 | High Emb. | 145+320 | 145+760 | 440 | High Emb. |
| 148+640 | 148+860 | 220 | High Emb. | 145+880 | 146+280 | 400 | High Emb. |
| 148+920 | 148+940 | 20 | High Emb. | 146+420 | 146+600 | 180 | High Emb. |
| 149+160 | 149+180 | 20 | High Emb. | 146+620 | 146+720 | 100 | High Emb. |
| 149+320 | 149+360 | 40 | High Emb. | 146+760 | 146+960 | 200 | High Emb. |
| 149+380 | 149+400 | 20 | High Emb. | 146+980 | 147+000 | 20 | High Emb. |
| 149+460 | 149+520 | 60 | High Emb. | 147+500 | 147+880 | 380 | High Emb. |
| 149+560 | 149+977 | 417 | High Emb. | 148+000 | 148+020 | 20 | High Emb. |
| 149+987 | 150+202 | 215 | High Emb. | 148+040 | 148+100 | 60 | High Emb. |
| 150+209 | 150+565 | 356 | High Emb. | 148+200 | 148+220 | 20 | High Emb. |
| 150+575 | 150+935 | 360 | High Emb. | 148+280 | 148+480 | 200 | High Emb. |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| LEFT SIDE | | | | RIGHT SIDE | | | |
|-----------------|---------|--------------|-----------|-----------------|---------|--------------|-----------|
| From (m.) | To (m.) | Length (m) | Remark | From (m.) | To (m.) | Length (m) | Remark |
| 150+945 | 151+024 | 79 | High Emb. | 148+940 | 148+986 | 46 | High Emb. |
| 151+036 | 151+245 | 209 | High Emb. | 149+400 | 149+520 | 120 | High Emb. |
| 151+255 | 151+495 | 240 | High Emb. | 149+760 | 149+977 | 217 | High Emb. |
| 151+529 | 151+915 | 386 | High Emb. | 149+987 | 150+202 | 215 | High Emb. |
| 151+925 | 152+800 | 875 | High Emb. | 150+209 | 150+565 | 356 | High Emb. |
| 152+860 | 153+174 | 314 | High Emb. | 150+575 | 150+935 | 360 | High Emb. |
| 153+186 | 153+340 | 154 | High Emb. | 150+945 | 151+024 | 79 | High Emb. |
| 153+385 | 153+484 | 99 | High Emb. | 151+036 | 151+245 | 209 | High Emb. |
| 153+491 | 154+443 | 952 | High Emb. | 151+255 | 151+495 | 240 | High Emb. |
| 154+477 | 154+917 | 440 | High Emb. | 151+529 | 151+915 | 386 | High Emb. |
| 154+924 | 155+310 | 386 | High Emb. | 151+925 | 152+780 | 855 | High Emb. |
| 155+330 | 155+800 | 470 | High Emb. | 152+840 | 153+174 | 334 | High Emb. |
| 155+820 | 156+492 | 672 | High Emb. | 153+186 | 153+340 | 154 | High Emb. |
| 156+499 | 156+955 | 456 | High Emb. | 153+385 | 153+484 | 99 | High Emb. |
| 157+020 | 157+505 | 485 | High Emb. | 153+491 | 154+443 | 952 | High Emb. |
| 157+515 | 157+680 | 165 | High Emb. | 154+477 | 154+917 | 440 | High Emb. |
| 157+690 | 157+995 | 305 | High Emb. | 154+924 | 155+310 | 386 | High Emb. |
| 158+005 | 158+199 | 194 | High Emb. | 155+330 | 155+800 | 470 | High Emb. |
| 158+211 | 158+372 | 161 | High Emb. | 155+820 | 156+492 | 672 | High Emb. |
| 158+379 | 159+773 | 1394 | High Emb. | 156+499 | 156+955 | 456 | High Emb. |
| 159+798 | 159+917 | 119 | High Emb. | 157+020 | 157+505 | 485 | High Emb. |
| 159+924 | 160+189 | 265 | High Emb. | 157+515 | 157+680 | 165 | High Emb. |
| 160+201 | 161+095 | 894 | High Emb. | 157+690 | 157+995 | 305 | High Emb. |
| 161+105 | 161+505 | 400 | High Emb. | 158+005 | 158+199 | 194 | High Emb. |
| 161+585 | 161+952 | 367 | High Emb. | 158+211 | 158+372 | 161 | High Emb. |
| 161+968 | 163+715 | 1747 | High Emb. | 158+379 | 159+773 | 1394 | High Emb. |
| | | | | 159+798 | 159+917 | 119 | High Emb. |
| | | | | 159+924 | 160+189 | 265 | High Emb. |
| | | | | 160+201 | 161+095 | 894 | High Emb. |
| | | | | 161+105 | 161+505 | 400 | High Emb. |
| | | | | 161+585 | 161+952 | 367 | High Emb. |
| | | | | 161+968 | 163+715 | 1747 | High Emb. |
| For Median | | 26967 | | For Median | | 26967 | |
| TOTAL(m) | | 46177 | | TOTAL(m) | | 45800 | |

For Interchanges

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|---------------------------|--------------------|-------------|---------------------------|--------------------|-------------|
| Design Chainage From | Design Chainage To | Length (m) | Design Chainage From | Design Chainage To | Length (m) |
| Interchange at km 134+780 | | 645 | Interchange at km 134+780 | | 140 |
| Interchange at km 151+520 | | 627 | Interchange at km 151+520 | | 515 |
| Interchange at km 164+120 | | 1663 | Interchange at km 164+120 | | 1663 |
| Total (m) | | 2935 | Total (m) | | 2318 |

- a. Thrie- Beam metal crash barriers shall be provided in entire length at both edge of median as per TCS referred in schedule-B but excluding stretches covered by bridges/structures and stretches covered by median where concrete barriers to be provided as per the length given in Table above.
- b. Thrie-Beam metal crash barriers shall be provided in entire length on outer side earthen shoulder of each main carriageway and Loops/ Ramps of interchanges as per TCS referred in schedule-B but excluding stretches covered by bridges/structures, and RE wall structures, where concrete barriers to be provided as per the length given in Table above.
- c. Concrete Crash barriers shall be provided on bridges/structures, by RE Walls/ retaining walls as specified in Schedule B and Schedule D.
- d. The above mentioned locations of Thrie Beam are indicative and minimum. The Concessionaire has to install the Thrie Beam as per site requirements and relevant IRC codes and any increase in length up to 10% of the scope provided above shall not constitute a Change of Scope. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.

9. Roadside Furniture

- 9.1. It shall be provided as per the details mentioned in Schedule-C.

10. Hazardous Locations

The safety barriers shall be provided at the following hazardous location such as ponds, well, electric sub-station, Electric tower, spilt carriageway, etc.

| Sr. No. | Location Stretch | | Type of Safety Barrier | LHS/ RHS |
|---------|------------------|---------|------------------------|----------|
| | From (Km) | To (Km) | | |
| | Nil | | | |

11. Special Requirements

As the project road passes through hilly/mountainous terrain and involves significant hill cutting, stability of cut slopes and hills alongside the road is the essence of the contract for environment preservation, sustainability, and safety of all stake holders. Hence, the Concessionaire shall undertake detailed investigations and design of all cut/ fill slopes beyond 3m depth / height for safety & stability. Investigations shall inter-alia include fill soil, sub-soil, rock strata for engineering properties, faults & fractures, geological studies. The stability of hills & the cut slopes are to be ensured with appropriate slope stabilization, erosion control and landslide correction measures in accordance with IRC: SP 48, IRC: 56 and manual for insuring safety & longevity of the slopes and the roads. The Concessionaire shall be responsible for precise assessment of the actual requirement & prepare design for slope protection & stabilization as per manual. Top down excavation, stable slopes with proper benches, and properly planned surface and sub-surface drainage arrangements shall be key part of the concessionaire's responsibility. The hill cutting should invariably be done in 1H:1V slope with a bench of 2m width with Catch Water Drain at a height of every of 6-7m. If the Concessionaire adopts a steeper cut slope, the same is to be substantiated with requisite soil investigations, design and the Slope Stabilisation Measures and will have to be done at the cost of the Concessionaire. Also, the Cut slopes should be designed in such a manner as to keep the toe line of cutting within available RoW and protection measures like rock bolting/ soil nailing/ reinforcing, as appropriate, shall be applied to ensure both stability and protection from erosion/ withering as per Engineering Guidelines on Landslide Mitigation Measures for Indian Roads IRC: SP-106. Concessionaire shall obtain approval/ no objection from the Independent Engineer and Authority before implementation of slope protection work in steeper cut slope. Moreover, adequate Catch Water Drains, Berm Drains, Cascade Drains, Road Side Drains, Culverts and other types of cross drainage structures as may be required as per site conditions for eventual safe release to stable natural streams is imperative. Ensuring sub-surface drainage through perforated pipe drains, gravel filters, weep holes, chimney drains etc at appropriate places and sufficient sizes and spacing shall also become part of the overall scope of slope protection/stabilization.

Provision for Turfing as part of the slope protection/erosion control measures has been made for the exposed face of the cut in the entire project stretch. Cut Slope treatment for a minimum length of 5288 m by Hydro seeding and mulching, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering. Additionally, Full-face shotcrete, welded mesh, weep holes, and full drainage

provisions (As per Cross section attached as Annexure-II of Schedule B) shall be provided for rockfall measures in a length of 1700 m (For Main Carriageway). The turfing shall be installed in accordance with the approved drawings, manufacturer's recommendations, and relevant specifications to ensure effective erosion control and stabilization of the slope surface. Necessary turfing, seeding & mulching, or plantation works, wherever required, shall be carried out immediately after laying the Turfing/seeding Mulching to achieve vegetation growth and long-term stability. Moreover, slope management with drainage maintenance would be essential part of the maintenance period of concessionaire. The Concessionaire shall obtain approval / No Objection Certificate from the Independent Engineer and the Authority prior to implementation of Slope Protection/Erosion control measures and maintain records of source, quality, and installation for verification.

Protection measures including sub-surface & surface drainage provisions for cut slope and valley slope should be designed on the basis of detailed geotechnical investigation bore holes at identified critical locations-such as deep cut/fill sections, bridge abutments, soft ground zones, landslide-prone areas, or zones with abrupt changes in soil conditions carried out at an interval of 500m or closer as along the project alignment to determine subsurface soil stratification and engineering properties of slope forming materials. This will facilitate accurate characterization of soil types and support the design of appropriate protection measures. In case of deep cut sections having height more than 5.0m, the depth of bore hole should be minimum to the depth of cutting above finished road level or 5.0m below competent stratum whichever is achieved earlier.

Concessionaire shall submit the updated inventory and condition map of each and every structures/ building (commercial/ non-commercial), private land, land use, access roads, revenue & forest land within '100m each side of the edge of the proposed right of way (PROW), Also video evidence with date & time stamped should be submitted.

Construction in Stages: - Construction should be done in stages. The initial period of about one year should be given for the cutting of hill slopes for the road and completion of protection works for stabilization of the slopes. The subsequent works shall be taken up for those sections only where the formation cutting and protection measures remain stable after one monsoon season.

Any increase in the length up to 10% of the provision 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 16. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%. Therefore, the Concessionaire 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.

Special Technical Conditions for ground Improvement

Ground Improvement, Settlement Control and Acceptance Criteria Soft Soil & Floodplain Stretches – Silchar–Badarpur Zone

1. Applicability (Mandatory)

These Special Technical Conditions shall mandatorily apply to all identified soft soil and floodplain stretches within the Silchar–Badarpur zone, as indicated in the DPR, drawings, schedules, and as directed by the Engineer. Compliance with these provisions is compulsory and shall not be subject to variation, relaxation, or waiver.

2. Typical Cross Section (Mandatory)

The Contractor shall construct the embankment and pavement strictly in accordance with the approved Typical Cross Section comprising a 7.0 m wide carriageway with 1.5 m paved shoulder and 1.5 m earthen shoulder on either side, depressed median, and camber/superelevation of 2.5%. Provision of side drains, utility corridors, chute/flume drains, slope protection using geocells filled with PCC, CC kerbs and lined channels, and thrie-beam crash barriers shall be compulsory and executed as shown in the drawings.

3. Ground Improvement Works (Mandatory)

- 3.1. The Contractor shall execute ground improvement works using prefabricated vertical drains (PVDs) in all designated soft soil stretches.
- 3.2. PVDs shall be installed at spacing of 1.0 m c/c and depths of minimum 10 m, or as directed by the Engineer based on site-specific soil conditions.
- 3.3. A non-woven geotextile (min. 300 GSM) separator/filter layer, along with a sand blanket of approved thickness, shall be provided over the prepared ground prior to commencement of embankment construction. The non-woven geotextile (300 GSM) shall conform to the relevant specifications and shall function as a separator and filter, preventing intermixing of subgrade and embankment materials while allowing adequate drainage. The sand blanket shall be laid, leveled, and compacted as per approved drawings and specifications, all to the satisfaction of the Engineer.

3.4. The Contractor shall provide and install NEOLOY Geocell made of Novel Polymeric Alloy (NPA), having a cell depth of min. 200 mm, filled with PCC M-15 for slope protection of embankments as shown in **Typical Cross-Section 5B**. The geocell material shall have a density greater than 1.0 g/cm³ and shall be provided with a multitude of rhomboidal indentations. The geocells shall be textured and perforated, with horizontal rows of perforations having a maximum hole diameter of 10 mm. The perforations shall be spaced at 19 mm center-to-center within each row, and the total perforated area shall constitute $\pm 22\%$ of the cell wall area.

The geocell material shall have **UV resistance greater than 1600 minutes**, a **minimum sheet thickness of 1.20 mm**, and a **minimum yield strength of 23 kN/m**. All materials, properties, and installation shall conform to the relevant specifications and shall be completed to the satisfaction of the Engineer.

3.5. All ground improvement works shall strictly conform to IRC: SP:48 and relevant MoRTH Specifications. Deviation without written approval of the Engineer shall constitute a material breach of Contract.

4. Construction Methodology (Non-Negotiable)

4.1. The Contractor shall remove and dispose of all unserviceable soil up to the required depth, as directed by the Engineer, until firm strata / suitable founding material is encountered, at locations where the embankment with retaining wall is proposed in waterlogged areas. The excavated unserviceable material shall be replaced with approved good-quality soil, laid in layers, watered, and compacted to the specified density as shown in **Typical Cross-Section 5C** in accordance with MoRTH Specifications and approved drawings.

4.2. Commencement of pavement layers without compliance with settlement acceptance criteria shall not be permitted under any circumstances.

5. Settlement Monitoring (Mandatory)

5.1. The Contractor shall install settlement plates, piezometers, and any additional instruments as directed by the Engineer at approved locations.

5.2. Monitoring shall be continuous and systematic during embankment construction, consolidation period, and post-construction stage.

5.3. All monitoring data shall be submitted, plotted, and interpreted by the Contractor and certified by the Engineer.

6. Settlement Acceptance Criteria (Non-Negotiable)

- 6.1 Progression to pavement construction shall be permitted only after achievement of not less than 90% degree of primary consolidation of the foundation soil or when the observed rate of settlement reduces to less than 5 mm per month, whichever occurs later, in accordance with IRC: SP:48 and IRC:75.
- 6.2 The maximum allowable residual post-construction settlement shall not exceed 25 mm, measured at the top of embankment from the date of completion of embankment works.
- 6.3 Settlement and pore water pressure monitoring shall continue for a minimum of 6 months after completion of pavement layers or throughout the Defect Liability Period, whichever is longer.
- 6.4 Non-compliance with the above acceptance criteria shall automatically disqualify the work from milestone completion and COD consideration.

7. Engineer's Certification (Binding)

Certification by the Engineer confirming compliance with the settlement acceptance criteria shall be a mandatory prerequisite for:

- Commencement of pavement layers
- Achievement of physical completion milestones
- Issuance of Completion / COD

14. Contractor's Risk and Liability (Absolute)

6.1 The Contractor shall bear full responsibility and risk for achieving the specified settlement criteria and long-term performance of the embankment and pavement.

6.2 Any distress, differential settlement, pavement deformation, or failure attributable to inadequate consolidation or non-compliance with these SCC provisions during the Defect Liability Period shall be rectified by the Contractor at its own cost, without entitlement to time extension or additional payment.

15. Measurement and Payment (Final)

No separate measurement or payment shall be made for ground improvement works, staged construction, surcharge, settlement monitoring, or compliance with acceptance criteria.

Disposal of Debris: -

As per clause “13.13” of section 13 (Special Requirement for Hill Road) of IRC:SP-84:2019 specified in Schedule-D.

Approximate quantity of **2468162** cum of muck/debris is anticipated to be generated from roadway cutting and excavation works. The Concessionaire/Contractor shall identify suitable muck disposal locations in consultation with the local village authorities, District Administration and Forest Department, as applicable.

All statutory approvals, permissions, and No-Objection Certificates (NOCs) required for muck disposal shall be obtained by the Concessionaire/Contractor at his own cost, in addition to the clearances stipulated under Schedule-E of the Contract.

No muck disposal shall be permitted within Reserved Forest areas. Disposal of approximately **2468162** cum of muck/debris shall be carried out only at designated approved locations by providing suitable retaining structures of adequate height and properly design for stability, complete in all respects, as per MoRTH Specifications and directions of the Engineer, including all leads, lifts, labour, materials, equipment, and incidentals.

Retaining structures and protection, works shall be provided at locations as provided in TCS Schedule in Clause 2.10 of Annex-I of Schedule-B. Location of the Retaining wall and Toe wall with stone pitching is given below and shall be considered as minimum requirement.

However, the concessionaire can propose the new innovative technology in consultation with Authority/Independent Engineers.

RCC Crash Barrier with Friction Slab

| S. No. | Item | LHS | | RHS | | Total Length (m) | Location | Remarks |
|--------|------------------------|----------------------|--------------------|----------------------|--------------------|------------------|----------|-----------------------|
| | | Design Chainage From | Design Chainage To | Design Chainage From | Design Chainage To | | | |
| 1 | RCC Crash Barrier with | 134+000 | 134+065 | 134+000 | 134+065 | 130 | | At the top of RE wall |
| | | 134+205 | 134+240 | 134+205 | 134+240 | 70 | | |

| S. No. | Item | LHS | | RHS | | Total Length (m) | Location | Remarks |
|--------|------------------------------------|----------------------|--------------------|----------------------|--------------------|------------------|-----------------------|--------------------------------------|
| | | Design Chainage From | Design Chainage To | Design Chainage From | Design Chainage To | | | |
| | Friction Slab for Main Carriageway | 134+500 | 134+760 | 134+500 | 134+760 | 520 | At the top of RE wall | (Structure length shall be deducted) |
| | | 134+794 | 134+920 | 134+794 | 134+920 | 252 | | |
| | | 134+960 | 135+135 | 134+960 | 135+135 | 350 | | |
| | | 135+165 | 135+200 | 135+165 | 135+200 | 70 | | |
| | | 135+200 | 135+245 | 135+200 | 135+245 | 90 | | |
| | | 135+257 | 135+440 | 135+257 | 135+440 | 366 | | |
| | | 136+440 | 136+450 | 136+440 | 136+450 | 20 | | |
| | | 136+720 | 136+740 | 136+720 | 136+740 | 40 | | |
| | | 140+700 | 140+755 | 140+700 | 140+755 | 110 | | |
| | | 140+765 | 140+820 | 140+765 | 140+820 | 110 | | |
| | | 146+280 | 146+342 | 146+280 | 146+342 | 124 | | |
| | | 146+349 | 146+420 | 146+349 | 146+420 | 142 | | |
| | | 147+000 | 147+149 | 147+000 | 147+149 | 298 | | |
| | | 147+156 | 147+178 | 147+156 | 147+178 | 44 | | |
| | | 147+252 | 147+317 | 147+252 | 147+317 | 130 | | |
| | | 147+324 | 147+500 | 147+324 | 147+500 | 352 | | |
| | | 148+480 | 148+517 | 148+480 | 148+517 | 74 | | |
| | | 148+527 | 148+640 | 148+527 | 148+640 | 226 | | |
| | | 148+994 | 149+044 | 148+994 | 149+044 | 100 | | |
| | | 149+056 | 149+160 | 149+056 | 149+160 | 208 | | |
| | Total Length (m) | | | | | 3826 | | |

Retaining Wall/ Stone Pitching/Toe Wall/Breast Wall

RCC Retaining Wall- (For Main Carriageway)

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|------------------|---------|------------|-------------------|---------|------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 133+540 | 133+640 | 100 | 133+540 | 133+680 | 140 |
| 134+920 | 134+960 | 40 | 134+920 | 134+960 | 40 |
| 135+440 | 135+460 | 20 | 136+140 | 136+160 | 20 |
| 135+500 | 135+660 | 160 | 136+200 | 136+220 | 20 |
| 135+740 | 135+760 | 20 | 137+400 | 137+440 | 40 |
| 135+800 | 135+840 | 40 | 137+480 | 137+515 | 35 |
| 135+940 | 135+960 | 20 | 137+525 | 137+600 | 75 |
| 136+140 | 136+180 | 40 | 137+620 | 137+680 | 60 |
| 136+200 | 136+220 | 20 | 137+840 | 137+860 | 20 |
| 136+820 | 136+860 | 40 | 138+640 | 138+665 | 25 |

| Left Side | | | Right Side | | |
|------------------|---------------|-------------------|-------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 137+140 | 137+160 | 20 | 138+710 | 138+780 | 70 |
| 138+300 | 138+400 | 100 | 139+150 | 139+180 | 30 |
| 139+150 | 139+258 | 108 | 141+440 | 141+515 | 75 |
| 139+370 | 139+440 | 70 | 141+535 | 142+040 | 505 |
| 139+640 | 139+700 | 60 | 142+560 | 142+620 | 60 |
| 139+740 | 139+750 | 10 | 143+100 | 143+120 | 20 |
| 142+040 | 142+050 | 10 | 143+240 | 143+260 | 20 |
| 143+960 | 144+070 | 110 | 143+280 | 143+300 | 20 |
| 144+478 | 144+500 | 22 | 143+460 | 143+480 | 20 |
| 146+820 | 146+900 | 80 | 143+860 | 143+900 | 40 |
| 146+920 | 146+940 | 20 | 144+040 | 144+070 | 30 |
| 149+920 | 149+977 | 57 | 144+478 | 144+500 | 22 |
| 149+987 | 150+202 | 215 | 146+700 | 146+720 | 20 |
| 150+209 | 150+565 | 356 | 146+820 | 146+900 | 80 |
| 150+575 | 150+935 | 360 | 146+920 | 146+940 | 20 |
| 150+945 | 151+024 | 79 | 149+920 | 149+977 | 57 |
| 151+036 | 151+245 | 209 | 149+987 | 150+202 | 215 |
| 151+255 | 151+495 | 240 | 150+209 | 150+565 | 356 |
| 151+529 | 151+915 | 386 | 150+575 | 150+935 | 360 |
| 151+925 | 151+980 | 55 | 150+945 | 151+024 | 79 |
| 153+140 | 153+174 | 34 | 151+036 | 151+245 | 209 |
| 153+186 | 153+340 | 154 | 151+255 | 151+495 | 240 |
| 153+385 | 153+484 | 99 | 151+529 | 151+915 | 386 |
| 153+491 | 153+640 | 149 | 151+925 | 151+980 | 55 |
| 154+280 | 154+443 | 163 | 153+140 | 153+174 | 34 |
| 154+477 | 154+917 | 440 | 153+186 | 153+340 | 154 |
| 154+924 | 155+310 | 386 | 153+385 | 153+484 | 99 |
| 155+330 | 155+800 | 470 | 153+491 | 153+640 | 149 |
| 155+820 | 155+860 | 40 | 154+280 | 154+443 | 163 |
| 156+320 | 156+492 | 172 | 154+477 | 154+917 | 440 |
| 156+499 | 156+955 | 456 | 154+924 | 155+310 | 386 |
| 157+020 | 157+505 | 485 | 155+330 | 155+800 | 470 |
| 157+515 | 157+680 | 165 | 155+820 | 155+860 | 40 |
| 157+690 | 157+995 | 305 | 156+320 | 156+492 | 172 |
| 158+005 | 158+199 | 194 | 156+499 | 156+955 | 456 |
| 158+211 | 158+372 | 161 | 157+020 | 157+505 | 485 |
| 158+379 | 158+540 | 161 | 157+515 | 157+680 | 165 |

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|------------------|---------|-----------------|-------------------|---------|-----------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 159+740 | 159+773 | 33 | 157+690 | 157+995 | 305 |
| 159+798 | 159+917 | 119 | 158+005 | 158+199 | 194 |
| 159+924 | 160+189 | 265 | 158+211 | 158+372 | 161 |
| 160+201 | 160+360 | 159 | 158+379 | 158+540 | 161 |
| 161+060 | 161+095 | 35 | 159+740 | 159+773 | 33 |
| 161+105 | 161+505 | 400 | 159+798 | 159+917 | 119 |
| 161+585 | 161+952 | 367 | 159+924 | 160+189 | 265 |
| 161+968 | 162+020 | 52 | 160+201 | 160+360 | 159 |
| 163+680 | 163+715 | 35 | 161+060 | 161+095 | 35 |
| | | | 161+105 | 161+505 | 400 |
| | | | 161+585 | 161+952 | 367 |
| | | | 161+968 | 162+020 | 52 |
| | | 8566.000 | | | 8963.000 |

RCC Retaining Wall- (For Interchanges)

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|---------------------------|--------------------|-------------|---------------------------|--------------------|-------------|
| Design Chainage From | Design Chainage To | Length (m) | Design Chainage From | Design Chainage To | Length (m) |
| Interchange at km 134+780 | | 234 | Interchange at km 134+780 | | 211 |
| Interchange at km 151+520 | | 1462 | Interchange at km 151+520 | | Nil |
| Interchange at km 164+120 | | 1663 | Interchange at km 164+120 | | 1663 |
| Total (m) | | 3359 | Total (m) | | 1874 |

Note:

RCC Retaining wall of suitable height (as per site requirement) shall be provided to accommodate the highway cross section within the available/proposed ROW. However, the concessionaire can propose the new innovative technology in consultation with IE.

- a. The location of retaining wall along main carriageway shall be placed in such a way that lane addition could be done without recasting/reconstruction. The design and construction of partial RE wall/ retaining wall shall be done for full height considering future widening.
- b. In addition to above retaining wall mentioned above, cross wall shall be provided behind each abutment.

- c. In addition to above, RE wall/Retaining wall shall be provided at toll plaza and other locations to restrict the embankment slope within the right of way.
- d. “Guidelines to discontinue construction practices for gap slabs between abutments and RS walls; closing/back RS walls behind abutments; RS walls exceeding 10 m in height; RS wall panels in wing walls; and use of geo-composites behind RS walls, relating to construction of RS walls for flyovers/underpasses/ROBs/structures/viaducts.” Should be adopted as per NHAI Policy Circular No. 18.111./2025 dated 21st October, 2025.
- e. The length specified hereinabove shall be treated as an approximate assessment and minimum. The actual lengths as required on the basis of detailed investigations shall be determined by the Concessionaire in accordance with the Specifications and Standards. Any increase in the lengths specified in this Schedule-B up to 10% of 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 16. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.

Breast wall (For Main Carriageway) (of appropriate type)

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|-------------------------|---------------|-------------------|--------------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 133+320 | 133+460 | 140 | 133+320 | 133+380 | 60 |
| 133+500 | 133+520 | 20 | 133+480 | 133+520 | 40 |
| 135+840 | 135+920 | 80 | 135+460 | 135+480 | 20 |
| 136+060 | 136+140 | 80 | 135+500 | 135+540 | 40 |
| 136+240 | 136+440 | 200 | 135+700 | 135+720 | 20 |
| 136+740 | 136+800 | 60 | 135+740 | 135+760 | 20 |
| 136+900 | 137+120 | 220 | 135+840 | 135+920 | 80 |
| 137+180 | 137+198 | 18 | 136+060 | 136+140 | 80 |
| 137+330 | 137+420 | 90 | 136+240 | 136+440 | 200 |
| 137+440 | 137+515 | 75 | 136+740 | 136+820 | 80 |
| 137+525 | 137+726 | 201 | 136+900 | 137+160 | 260 |
| 137+756 | 137+820 | 64 | 137+180 | 137+198 | 18 |
| 137+860 | 137+910 | 50 | 137+330 | 137+380 | 50 |
| 138+015 | 138+240 | 225 | 137+460 | 137+480 | 20 |
| 138+280 | 138+300 | 20 | 137+780 | 137+800 | 20 |
| 138+420 | 138+665 | 245 | 137+860 | 137+880 | 20 |
| 138+740 | 138+800 | 60 | 138+015 | 138+060 | 45 |

| Left Side | | | Right Side | | |
|------------------|---------------|-------------------|-------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 138+900 | 138+926 | 26 | 138+100 | 138+560 | 460 |
| 139+460 | 139+582 | 122 | 138+580 | 138+620 | 40 |
| 139+720 | 139+740 | 20 | 138+780 | 138+800 | 20 |
| 139+940 | 140+220 | 280 | 139+220 | 139+240 | 20 |
| 140+240 | 140+500 | 260 | 139+370 | 139+582 | 212 |
| 140+860 | 141+410 | 550 | 139+640 | 139+740 | 100 |
| 141+460 | 141+515 | 55 | 139+960 | 140+480 | 520 |
| 141+535 | 141+840 | 305 | 140+840 | 141+380 | 540 |
| 141+860 | 142+040 | 180 | 142+620 | 142+980 | 360 |
| 142+580 | 142+980 | 400 | 143+120 | 143+240 | 120 |
| 143+120 | 143+240 | 120 | 143+260 | 143+280 | 20 |
| 143+260 | 143+400 | 140 | 143+300 | 143+400 | 100 |
| 143+420 | 143+710 | 290 | 143+480 | 143+660 | 180 |
| 143+740 | 143+820 | 80 | 143+740 | 143+820 | 80 |
| 143+840 | 143+960 | 120 | 143+900 | 143+960 | 60 |
| 144+520 | 145+100 | 580 | 144+000 | 144+020 | 20 |
| 145+800 | 145+840 | 40 | 144+520 | 145+040 | 520 |
| 146+700 | 146+740 | 40 | 145+120 | 145+200 | 80 |
| 148+080 | 148+100 | 20 | 145+240 | 145+300 | 60 |
| 148+220 | 148+240 | 20 | 145+780 | 145+840 | 60 |
| 148+860 | 148+900 | 40 | 146+720 | 146+740 | 20 |
| 149+240 | 149+260 | 20 | 147+940 | 148+000 | 60 |
| | | | 148+160 | 148+180 | 20 |
| | | | 148+660 | 148+920 | 260 |
| | | | 149+180 | 149+260 | 80 |
| | | | 149+300 | 149+380 | 80 |
| | | | 149+520 | 149+720 | 200 |
| For BSF Road | | 100 | For BSF Road | | 100 |
| | | 5656 | | | 5465 |

Note: Breast wall of suitable height (as per site requirement) shall be provided to accommodate the highway cross section within the available/proposed ROW. Above length of the Breast wall is minimum specified. The actual length shall be determined by the Concessionaire in accordance with the approved plan & profile and design approved from the Independent Engineer. Any increase in length upto 10% from the length specified in this Clause of Schedule-B shall not constitute a Change of Scope. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.

And the same upto an increase of 10% of the proposed scope shall not constitute a Change of Scope.

Stone Pitching for Main Carriageway

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|------------------|---------|------------|-------------------|---------|------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 133+480 | 133+500 | 20 | 133+400 | 133+420 | 20 |
| 133+540 | 133+680 | 140 | 133+440 | 133+460 | 20 |
| 133+760 | 133+920 | 160 | 133+540 | 133+640 | 100 |
| 134+240 | 134+280 | 40 | 133+680 | 133+700 | 20 |
| 134+300 | 134+500 | 200 | 133+740 | 133+920 | 180 |
| 134+920 | 134+960 | 40 | 134+240 | 134+280 | 40 |
| 135+460 | 135+540 | 80 | 134+300 | 134+500 | 200 |
| 135+660 | 135+700 | 40 | 134+920 | 134+960 | 40 |
| 135+720 | 135+760 | 40 | 135+440 | 135+460 | 20 |
| 135+780 | 135+800 | 20 | 135+540 | 135+660 | 120 |
| 135+920 | 135+940 | 20 | 135+800 | 135+840 | 40 |
| 135+960 | 136+040 | 80 | 135+940 | 136+060 | 120 |
| 136+140 | 136+160 | 20 | 136+140 | 136+220 | 80 |
| 136+180 | 136+220 | 40 | 136+820 | 136+880 | 60 |
| 136+860 | 136+880 | 20 | 137+380 | 137+420 | 40 |
| 137+140 | 137+160 | 20 | 137+480 | 137+515 | 35 |
| 137+420 | 137+440 | 20 | 137+525 | 137+600 | 75 |
| 137+840 | 137+860 | 20 | 137+620 | 137+680 | 60 |
| 138+300 | 138+400 | 100 | 137+820 | 137+840 | 20 |
| 138+710 | 138+740 | 30 | 138+560 | 138+580 | 20 |
| 138+880 | 138+900 | 20 | 138+620 | 138+665 | 45 |
| 139+150 | 139+180 | 30 | 138+740 | 138+780 | 40 |
| 139+220 | 139+240 | 20 | 138+880 | 138+926 | 46 |
| 139+370 | 139+440 | 70 | 139+150 | 139+200 | 50 |
| 139+640 | 139+700 | 60 | 139+240 | 139+258 | 18 |
| 140+820 | 140+840 | 20 | 139+740 | 139+750 | 10 |
| 142+040 | 142+050 | 10 | 139+914 | 139+940 | 26 |
| 142+560 | 142+580 | 20 | 141+400 | 141+410 | 10 |
| 143+400 | 143+420 | 20 | 141+440 | 141+515 | 75 |
| 144+000 | 144+020 | 20 | 141+535 | 142+040 | 505 |
| 144+040 | 144+070 | 30 | 142+580 | 142+620 | 40 |
| 144+478 | 144+500 | 22 | 143+280 | 143+300 | 20 |
| 145+120 | 145+180 | 60 | 143+400 | 143+420 | 20 |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Left Side | | | Right Side | | |
|------------------|---------------|-------------------|-------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 145+220 | 145+280 | 60 | 143+440 | 143+480 | 40 |
| 145+300 | 145+780 | 480 | 143+840 | 143+900 | 60 |
| 145+860 | 146+280 | 420 | 143+960 | 144+000 | 40 |
| 146+420 | 146+700 | 280 | 144+020 | 144+070 | 50 |
| 146+780 | 146+960 | 180 | 144+478 | 144+500 | 22 |
| 147+500 | 147+980 | 480 | 145+320 | 145+760 | 440 |
| 148+020 | 148+060 | 40 | 145+880 | 146+280 | 400 |
| 148+140 | 148+180 | 40 | 146+420 | 146+520 | 100 |
| 148+260 | 148+380 | 120 | 146+540 | 146+600 | 60 |
| 148+400 | 148+480 | 80 | 146+640 | 146+720 | 80 |
| 148+640 | 148+860 | 220 | 146+760 | 146+960 | 200 |
| 149+160 | 149+180 | 20 | 146+980 | 147+000 | 20 |
| 149+320 | 149+360 | 40 | 147+500 | 147+580 | 80 |
| 149+380 | 149+400 | 20 | 147+620 | 147+880 | 260 |
| 149+460 | 149+520 | 60 | 148+000 | 148+020 | 20 |
| 149+560 | 149+820 | 260 | 148+040 | 148+080 | 40 |
| 149+920 | 149+977 | 57 | 148+200 | 148+220 | 20 |
| 149+987 | 150+202 | 215 | 148+280 | 148+480 | 200 |
| 150+209 | 150+565 | 356 | 148+940 | 148+986 | 46 |
| 150+575 | 150+935 | 360 | 149+400 | 149+520 | 120 |
| 150+945 | 151+024 | 79 | 149+760 | 149+820 | 60 |
| 151+036 | 151+245 | 209 | 149+920 | 149+977 | 57 |
| 151+255 | 151+495 | 240 | 149+987 | 150+202 | 215 |
| 151+529 | 151+915 | 386 | 150+209 | 150+565 | 356 |
| 151+925 | 151+980 | 55 | 150+575 | 150+935 | 360 |
| 153+140 | 153+174 | 34 | 150+945 | 151+024 | 79 |
| 153+186 | 153+340 | 154 | 151+036 | 151+245 | 209 |
| 153+385 | 153+484 | 99 | 151+255 | 151+495 | 240 |
| 153+491 | 153+640 | 149 | 151+529 | 151+915 | 386 |
| 154+280 | 154+443 | 163 | 151+925 | 151+980 | 55 |
| 154+477 | 154+917 | 440 | 153+140 | 153+174 | 34 |
| 154+924 | 155+310 | 386 | 153+186 | 153+340 | 154 |
| 155+330 | 155+800 | 470 | 153+385 | 153+484 | 99 |
| 155+820 | 155+860 | 40 | 153+491 | 153+640 | 149 |
| 156+320 | 156+492 | 172 | 154+280 | 154+443 | 163 |
| 156+499 | 156+955 | 456 | 154+477 | 154+917 | 440 |
| 157+020 | 157+505 | 485 | 154+924 | 155+310 | 386 |

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|------------------|---------|--------------|-------------------|---------|--------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 157+515 | 157+680 | 165 | 155+330 | 155+800 | 470 |
| 157+690 | 157+995 | 305 | 155+820 | 155+860 | 40 |
| 158+005 | 158+199 | 194 | 156+320 | 156+492 | 172 |
| 158+211 | 158+372 | 161 | 156+499 | 156+955 | 456 |
| 158+379 | 158+540 | 161 | 157+020 | 157+505 | 485 |
| 159+740 | 159+773 | 33 | 157+515 | 157+680 | 165 |
| 159+798 | 159+917 | 119 | 157+690 | 157+995 | 305 |
| 159+924 | 160+189 | 265 | 158+005 | 158+199 | 194 |
| 160+201 | 160+360 | 159 | 158+211 | 158+372 | 161 |
| 161+060 | 161+095 | 35 | 158+379 | 158+540 | 161 |
| 161+105 | 161+505 | 400 | 159+740 | 159+773 | 33 |
| 161+585 | 161+952 | 367 | 159+798 | 159+917 | 119 |
| 161+968 | 162+020 | 52 | 159+924 | 160+189 | 265 |
| 163+680 | 163+715 | 35 | 160+201 | 160+360 | 159 |
| | | | 161+060 | 161+095 | 35 |
| | | | 161+105 | 161+505 | 400 |
| | | | 161+585 | 161+952 | 367 |
| | | | 161+968 | 162+020 | 52 |
| | | | 163+680 | 163+715 | 35 |
| | | 11808 | | | 12029 |

Stone Pitching (For Interchanges)

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|---------------------------|--------------------|-------------|---------------------------|--------------------|-------------|
| Design Chainage From | Design Chainage To | Length (m) | Design Chainage From | Design Chainage To | Length (m) |
| Interchange at km 134+780 | | 234 | Interchange at km 134+780 | | 211 |
| Interchange at km 151+520 | | 747 | Interchange at km 151+520 | | Nil |
| Interchange at km 164+120 | | 1663 | Interchange at km 164+120 | | 1663 |
| Total (m) | | 2644 | Total (m) | | 1874 |

Note: Above length of the Stone Pitching is minimum specified. The actual length shall be determined by the Concessionaire in accordance with the approved plan & profile and design approved from the Independent Engineer. Any increase in length upto 10% from the length specified in this Clause of Schedule-B shall not constitute a Change of Scope. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.and the same upto an increase of 10% of the proposed scope shall not constitute a Change of Scope.

Wherever the height of embankment is more than 3m, the stone pitching will be done on full face of the embankment slope excluding berm portion upto the top edge of earthen shoulder.

RCC Toe Wall

| <u>Left Side</u> | | | <u>Right Side</u> | | |
|-------------------------|---------------|-------------------|--------------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 133+480 | 133+500 | 20 | 133+400 | 133+420 | 20 |
| 133+640 | 133+680 | 40 | 133+440 | 133+460 | 20 |
| 133+760 | 133+920 | 160 | 133+680 | 133+700 | 20 |
| 134+240 | 134+280 | 40 | 133+740 | 133+920 | 180 |
| 134+300 | 134+500 | 200 | 134+240 | 134+280 | 40 |
| 135+460 | 135+540 | 80 | 134+300 | 134+500 | 200 |
| 135+660 | 135+700 | 40 | 135+440 | 135+460 | 20 |
| 135+720 | 135+760 | 40 | 135+540 | 135+660 | 120 |
| 135+780 | 135+800 | 20 | 135+800 | 135+840 | 40 |
| 135+920 | 135+940 | 20 | 135+940 | 136+060 | 120 |
| 135+960 | 136+040 | 80 | 136+160 | 136+200 | 40 |
| 136+180 | 136+200 | 20 | 136+820 | 136+880 | 60 |
| 136+860 | 136+880 | 20 | 137+380 | 137+420 | 40 |
| 137+140 | 137+160 | 20 | 137+480 | 137+515 | 35 |
| 137+420 | 137+440 | 20 | 137+525 | 137+600 | 75 |
| 137+840 | 137+860 | 20 | 137+620 | 137+680 | 60 |
| 138+300 | 138+400 | 100 | 137+820 | 137+840 | 20 |
| 138+710 | 138+740 | 30 | 138+560 | 138+580 | 20 |
| 138+880 | 138+900 | 20 | 138+620 | 138+665 | 45 |
| 139+220 | 139+240 | 20 | 138+740 | 138+780 | 40 |
| 139+370 | 139+440 | 70 | 138+880 | 138+926 | 46 |
| 139+640 | 139+700 | 60 | 139+180 | 139+200 | 20 |
| 140+820 | 140+840 | 20 | 139+240 | 139+258 | 18 |
| 142+040 | 142+050 | 10 | 139+740 | 139+750 | 10 |
| 142+560 | 142+580 | 20 | 139+914 | 139+940 | 26 |
| 143+400 | 143+420 | 20 | 141+400 | 141+410 | 10 |
| 144+000 | 144+020 | 20 | 142+580 | 142+620 | 40 |
| 145+120 | 145+180 | 60 | 143+280 | 143+300 | 20 |
| 145+220 | 145+280 | 60 | 143+400 | 143+420 | 20 |
| 145+300 | 145+780 | 480 | 143+440 | 143+480 | 40 |
| 145+860 | 146+280 | 420 | 143+840 | 143+900 | 60 |
| 146+420 | 146+700 | 280 | 143+960 | 144+000 | 40 |

| Left Side | | | Right Side | | |
|------------------|---------------|-------------------|-------------------|---------------|-------------------|
| Ch. From | Ch. To | Length (m) | Ch. From | Ch. To | Length (m) |
| 146+780 | 146+820 | 40 | 144+020 | 144+040 | 20 |
| 146+900 | 146+920 | 20 | 145+320 | 145+760 | 440 |
| 146+940 | 146+960 | 20 | 145+880 | 146+280 | 400 |
| 147+500 | 147+980 | 480 | 146+420 | 146+520 | 100 |
| 148+020 | 148+060 | 40 | 146+540 | 146+600 | 60 |
| 148+140 | 148+180 | 40 | 146+640 | 146+700 | 60 |
| 148+260 | 148+380 | 120 | 146+760 | 146+820 | 60 |
| 148+400 | 148+480 | 80 | 146+900 | 146+920 | 20 |
| 148+640 | 148+860 | 220 | 146+940 | 146+960 | 20 |
| 149+160 | 149+180 | 20 | 146+980 | 147+000 | 20 |
| 149+320 | 149+360 | 40 | 147+500 | 147+580 | 80 |
| 149+380 | 149+400 | 20 | 147+620 | 147+880 | 260 |
| 149+460 | 149+520 | 60 | 148+000 | 148+020 | 20 |
| 149+560 | 149+920 | 360 | 148+040 | 148+080 | 40 |
| 151+980 | 153+020 | 1040 | 148+200 | 148+220 | 20 |
| 153+640 | 154+280 | 640 | 148+280 | 148+480 | 200 |
| 155+860 | 156+320 | 460 | 148+940 | 148+986 | 46 |
| 158+540 | 159+740 | 1200 | 149+400 | 149+520 | 120 |
| 160+360 | 161+060 | 700 | 149+760 | 149+920 | 160 |
| 162+020 | 163+680 | 1660 | 151+980 | 153+020 | 1040 |
| | | | 153+640 | 154+280 | 640 |
| | | | 155+860 | 156+320 | 460 |
| | | | 158+540 | 159+740 | 1200 |
| | | | 160+360 | 161+060 | 700 |
| | | | 162+020 | 163+680 | 1660 |
| | | 9790.000 | | | 9411.000 |

Note:

RCC Toe wall of suitable height (as per site requirement) shall be provided to accommodate the highway cross section within the available/proposed ROW.

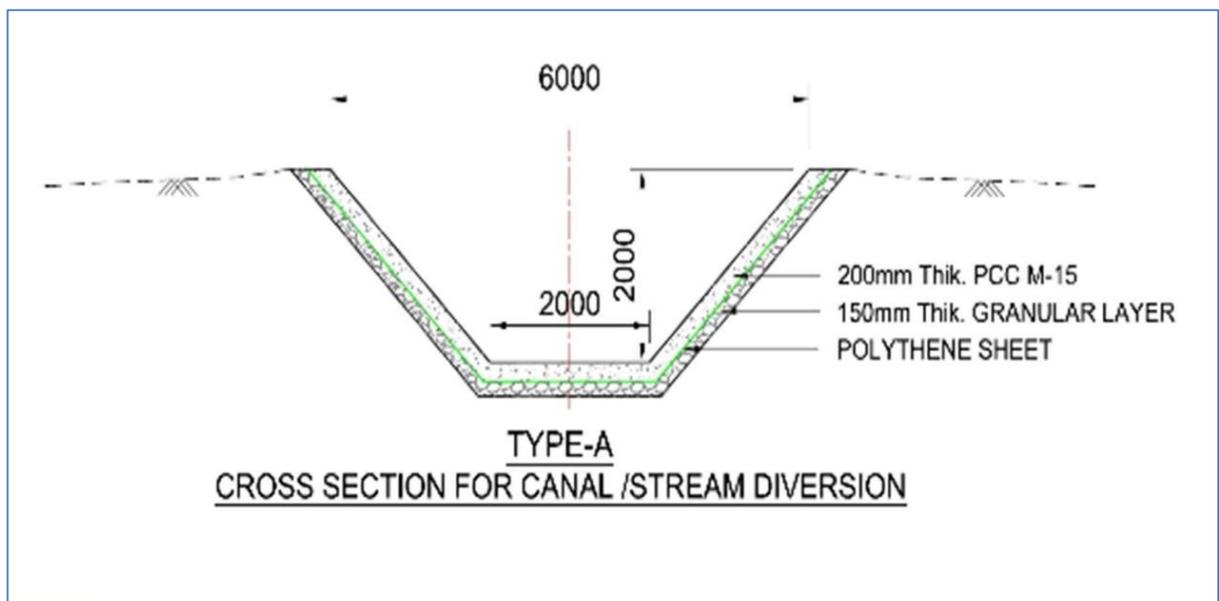
- a. The location of RCC Toe wall along main carriageway shall be placed in such a way that lane addition could be done without recasting/reconstruction.
- b. In addition to above, RCC Toe wall shall be provided at toll plaza and other locations to restrict the embankment slope within the right of way.

- c. The length of Toe Wall specified hereinabove shall be treated as an approximate assessment and minimum. The actual lengths as required on the basis of detailed investigations shall be determined by the Concessionaire in accordance with the Specifications and Standards. Any increase in the lengths upto 10% specified in this Schedule-B 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 16. It is to clarify that for increase in length beyond 10%, the Change of scope shall be applicable only for quantity beyond additional 10%.and the same upto an increase of 10% of the proposed scope shall not constitute a Change of Scope.

All investigations, reports, designs, and rectification works shall comply with relevant IRC/MoRTH guidelines, ensuring long-term stability and safety of the project corridor.

Diversion of Nallah

Diversion of Nallah shall be constructed as per site requirement.



Note:

The actual cross-section of canal/ stream to be shifted and extent of such shifting (length) shall be determined by the Concessionaire as per the site/ design requirement with approval of concerned State Department/authority / Independent Engineer.

12. Open Well within RoW

The Open well shall be identified, and appropriate treatment shall be provided.

| Sr. No. | Design Chainage | Well Dimension | Well Depth | Filling Material for Well | Slab on Top of Well Yes/No | Remarks |
|---------|-----------------|----------------|------------|---------------------------|----------------------------|---------|
| | | | | | | Nil |

13. Shifting of Utilities

The Concessionaire shall undertake the work of shifting of Utilities (including electrical lines, water pipes, gas pipe lines and telephone cables) indicated in clause no 19 and 20 of Annexure –I Schedule-A to an appropriate location or alignment, in accordance with the provisions of Concession Agreement.

Note:

1. *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 Concessionaire 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 Concessionaire 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 Concessionaire to Utility Owning Department whenever asked by the Concessionaire. The decision/ approval of Utility Owning Department shall be binding on the Concessionaire.*
2. *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 Concessionaire furnishes demand of Utility Owning Department along with a copy of estimated cost given by the later.*
3. *The dismantled material/scrap of existing Utility to be shifted/ dismantled shall belong to the Concessionaire who would be free to dispose-off the dismantled material as deemed fit by them, unless the Concessionaire is required to deposit the dismantled material to Utility Owning Department*

as per the norm and practice. In that case, the amount of credit for dismantled material may be availed by the Concessionaire as per estimate agreed between them.

4. The utilities shall be handed over after shifting work is complete 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.
5. Existing lights, junction boxes, connection to individual properties along the affected section shall be disconnected and reconnected as part of utility relocation and the same shall be in the scope of the Concessionaire.
6. **The requisite Land for relocation/shifting of Utilities and Shutdown Charges wherever applicable shall be borne by the Authority.**

Note II: It is obligation of successful bidder to keep all public utilities functional all time without any cost to Authority beyond quoted amount. Copy of Utility shifting/relocation plans enclosed as Annex-III to Schedule-A.

14. Work Zone Traffic Management Plans: Annexure-II schedule B-type cross sections

The traffic diversion plans shall be prepared as per IRC SP 55 for smooth flow of traffic and safety. A diversion plan shall be proposed for construction of Culvert, Grade Separated Structures, Bridges, RoB/RUB, etc. and traffic management plan for widening/ reconstruction of carriageway.

| Sr. No. | Design Chainage (Km) | Construction Activity | Diversion | Traffic Management Plan | Barricading Type III/IV/CC Barrier with Lighting along barrier | Deployment of Flagman in Habitation/ Schools/ Hospital, etc. | Remarks |
|---------|----------------------|-----------------------|-----------|-------------------------|--|--|---------|
| 1 | 134+135 | MJB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 2 | 134+778 | VUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 3 | 135+150 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 4 | 135+250 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Design Chainage (Km) | Construction Activity | Diversion | Traffic Management Plan | Barricading Type III/IV/CC Barrier with Lighting along barrier | Deployment of Flagman in Habitation/ Schools/ Hospital, etc. | Remarks |
|----------------|-----------------------------|------------------------------|------------------|--------------------------------|---|---|----------------|
| 5 | 136+320 | VOP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 6 | 136+585 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 7 | 137+264 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 8 | 137+520 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 9 | 137+745 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 10 | 137+963 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 11 | 138+688 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 12 | 138+848 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 13 | 139+038 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 14 | 139+314 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 15 | 139+595 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 16 | 139+615 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 17 | 139+832 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 18 | 140+600 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 19 | 140+760 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 20 | 141+425 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 21 | 141+525 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 22 | 141+680 | VOP | Yes | As per IRC SP 55 | Type-IV | Flagman | |

| Sr. No. | Design Chainage (Km) | Construction Activity | Diversion | Traffic Management Plan | Barricading Type III/IV/CC Barrier with Lighting along barrier | Deployment of Flagman in Habitation/Schools/Hospital, etc. | Remarks |
|----------------|-----------------------------|------------------------------|------------------|--------------------------------|---|---|----------------|
| 23 | 142+305 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 24 | 143+040 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 25 | 143+725 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 26 | 144+274 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 27 | 146+345 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 28 | 147+152 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 29 | 147+215 | MJB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 30 | 147+320 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 31 | 148+522 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 32 | 148+983 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 33 | 149+050 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 34 | 149+982 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 35 | 150+205 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 36 | 150+570 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 37 | 150+940 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 38 | 151+030 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 39 | 151+250 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 40 | 151+512 | VUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |

Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Design Chainage (Km) | Construction Activity | Diversion | Traffic Management Plan | Barricading Type III/IV/CC Barrier with Lighting along barrier | Deployment of Flagman in Habitation/ Schools/ Hospital, etc. | Remarks |
|----------------|-----------------------------|------------------------------|------------------|--------------------------------|---|---|----------------|
| 41 | 151+920 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 42 | 153+180 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 43 | 153+363 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 44 | 153+487 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 45 | 154+460 | VUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 46 | 154+920 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 47 | 155+320 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 48 | 155+810 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 49 | 156+495 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 50 | 157+000 | MJB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 51 | 157+510 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 52 | 157+685 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 53 | 158+000 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 54 | 158+210 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 55 | 158+375 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 56 | 159+785 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 57 | 159+920 | SVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 58 | 160+195 | LVUP | Yes | As per IRC SP 55 | Type-IV | Flagman | |

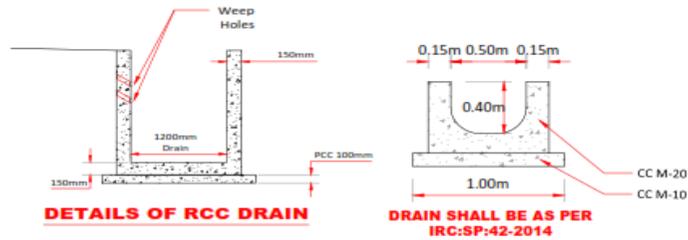
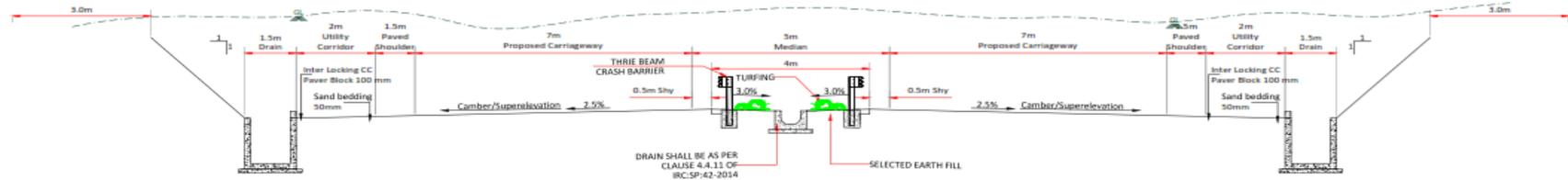
Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)

| Sr. No. | Design Chainage (Km) | Construction Activity | Diversion | Traffic Management Plan | Barricading Type III/IV/CC Barrier with Lighting along barrier | Deployment of Flagman in Habitation/Schools/Hospital, etc. | Remarks |
|----------------|-----------------------------|------------------------------|------------------|--------------------------------|---|---|----------------------|
| 59 | 161+100 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 60 | 161+545 | MJB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 61 | 161+960 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 62 | 164+035 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | |
| 63 | 0+300 | VUP | Yes | As per IRC SP 55 | Type-IV | Flagman | Trumpet Interchange |
| 64 | 0+290 | VUP | Yes | As per IRC SP 55 | Type-IV | Flagman | Trumpet Interchange |
| 65 | 0+044 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | Trumpet Interchange |
| 66 | 0+045 | Viaduct | Yes | As per IRC SP 55 | Type-IV | Flagman | Trumpet Interchange |
| 67 | 0+485 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | BORDER ROAD (ROAD 2) |
| 68 | 0+570 | MNB | Yes | As per IRC SP 55 | Type-IV | Flagman | BORDER ROAD (ROAD 2) |

ANNEX – II (SCHEDULE – B) - TYPICAL CROSS SECTION

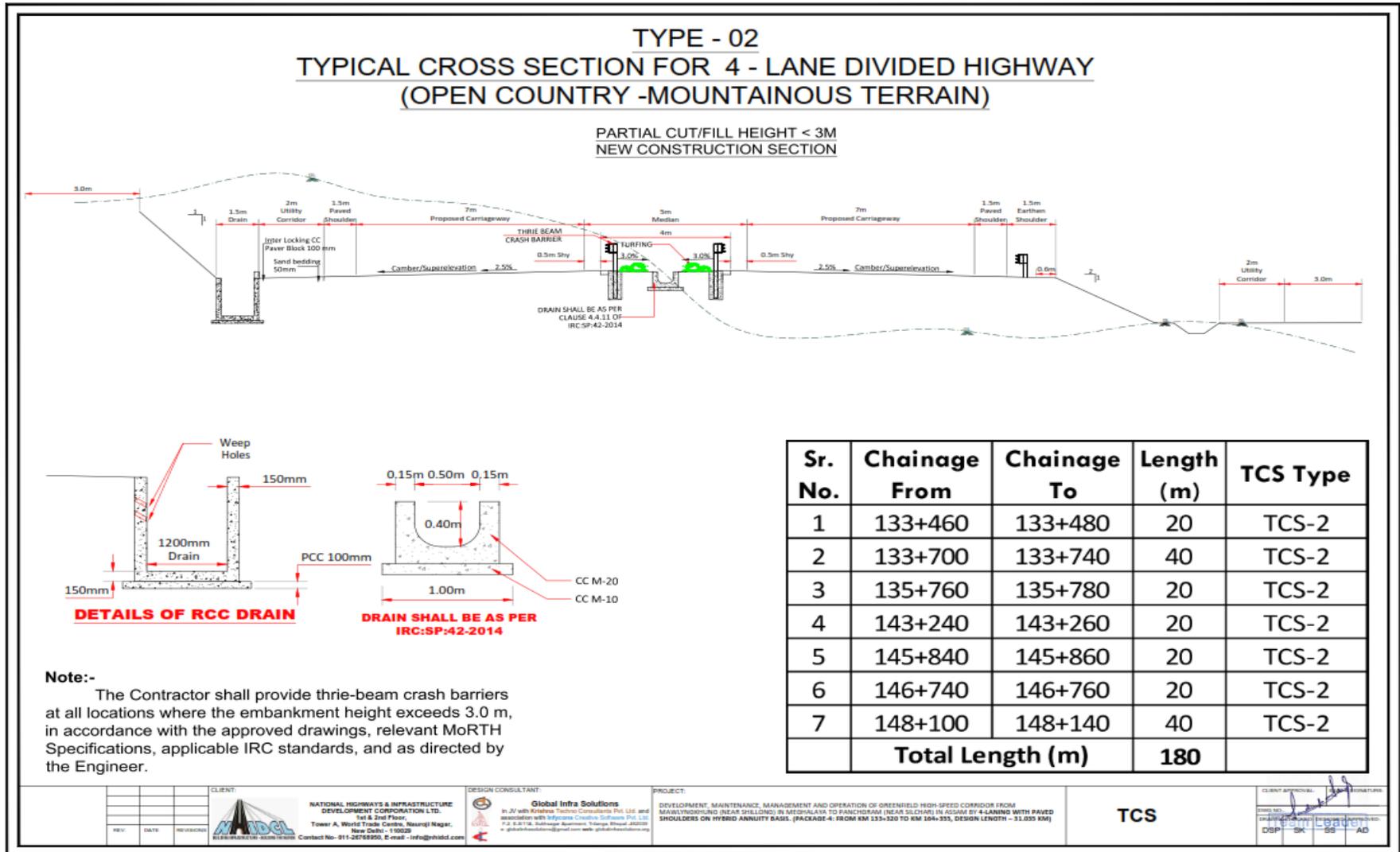
TYPE - 01 TYPICAL CROSS SECTION FOR 4 - LANE DIVIDED HIGHWAY (OPEN COUNTRY - MOUNTAINOUS TERRAIN)

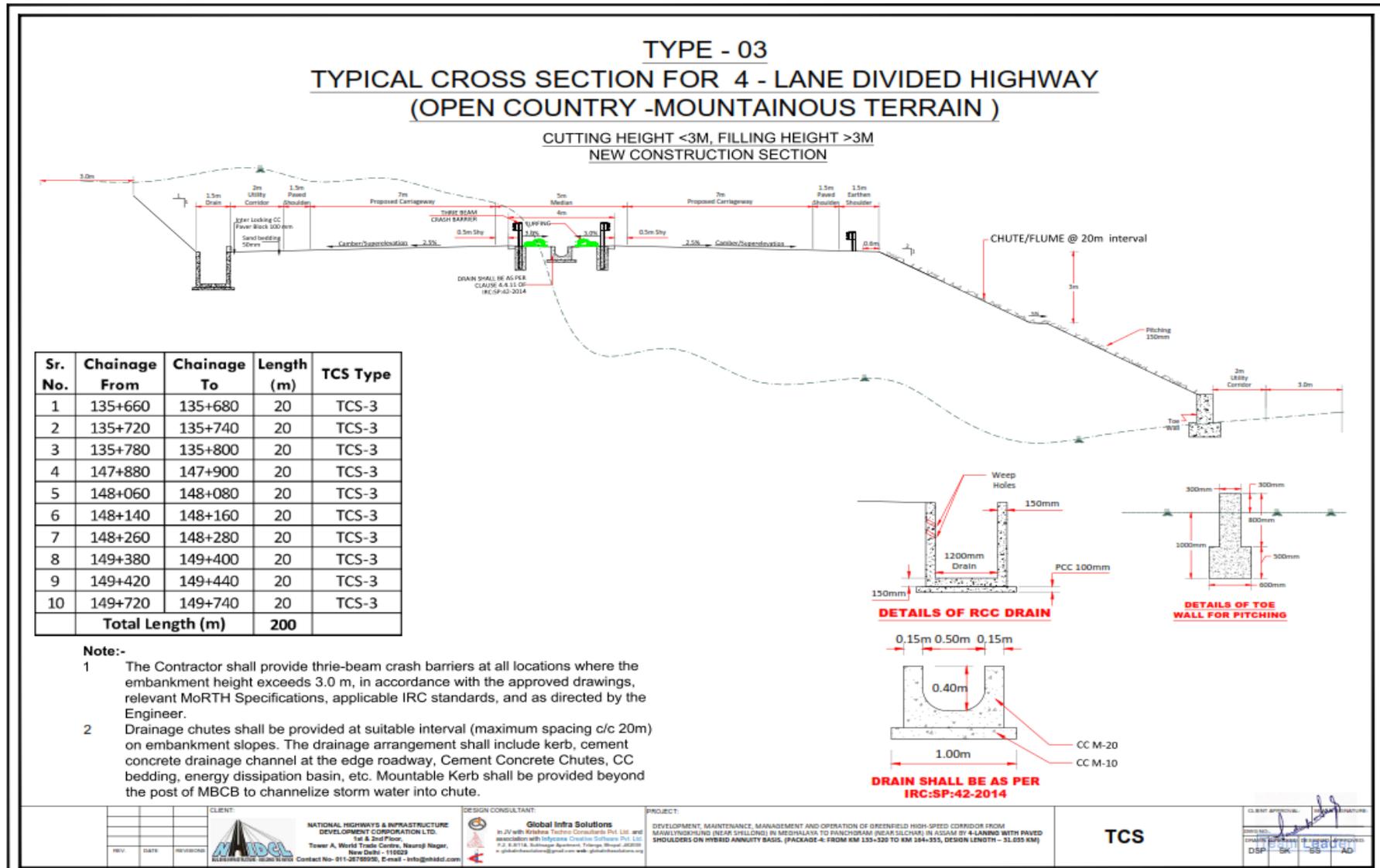
CUTTING HEIGHT < 3M
NEW CONSTRUCTION SECTION



| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type |
|-------------------------|---------------|-------------|------------|----------|
| 1 | 136+880 | 136+900 | 20 | TCS-1 |
| 2 | 146+960 | 146+980 | 20 | TCS-1 |
| 3 | 148+240 | 148+260 | 20 | TCS-1 |
| 4 | 149+260 | 149+300 | 40 | TCS-1 |
| Total Length (m) | | | 100 | |

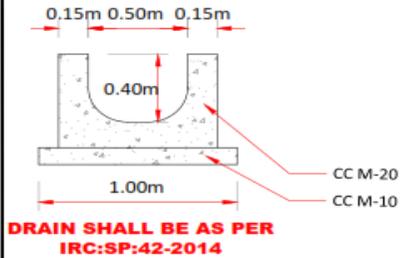
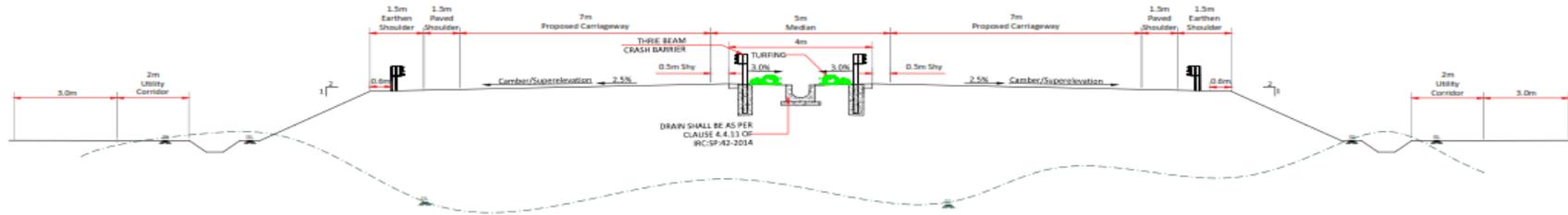
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>REV</th> <th>DATE</th> <th>REVISIONS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> | REV | DATE | REVISIONS | | | | <p>CLIENT:</p> <p>NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 1st & 2nd Floor, Tower A, World Trade Centre, Narcoji Nagar, New Delhi - 110029 Contact No- 011-2676855, E-mail - info@nhaidcl.com</p> | <p>DESIGN CONSULTANT:</p> <p>Global Infra Solutions In JV with Kishore Techno Consultants Pvt. Ltd. and associates with Hyderabad Creative Software Pvt. Ltd. P.2, K.V.1A, Subhanga Apartment, Tilanga, Bhubaneswar 751029 or globalinfra@globalinfra.com or info@globalinfra.com</p> | <p>PROJECT:</p> <p>DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-4: FROM KM 133+320 TO KM 164+355, DESIGN LENGTH - 31.035 KM)</p> | <p>TCS</p> | <p>CLIENT APPROVAL & SIGNATURE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DSP</td> <td>SK</td> <td>SS</td> <td>AD</td> </tr> </table> | DSP | SK | SS | AD |
|--|------|-----------|-----------|--|--|--|---|--|---|-------------------|--|-----|----|----|----|
| REV | DATE | REVISIONS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| DSP | SK | SS | AD | | | | | | | | | | | | |





TYPE - 04
TYPICAL CROSS SECTION FOR 4 - LANE DIVIDED HIGHWAY
(OPEN COUNTRY -MOUNTAINOUS TERRAIN)

FILLING SECTION <3M
 NEW CONSTRUCTION SECTION

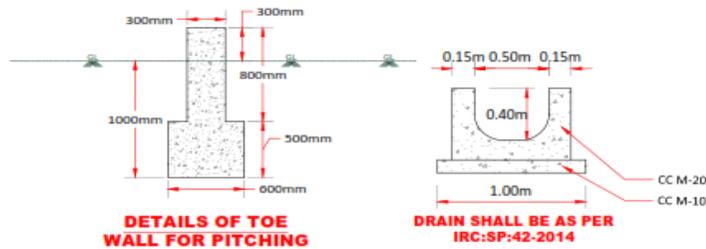
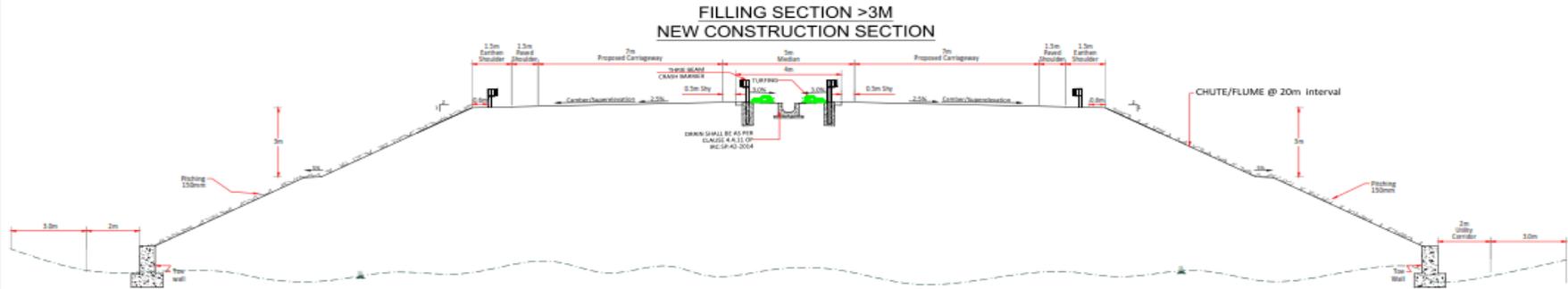


Note:-
 The Contractor shall provide thrie-beam crash barriers at all locations where the embankment height exceeds 3.0 m, in accordance with the approved drawings, relevant MoRTH Specifications, applicable IRC standards, and as directed by the Engineer.

| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type |
|-------------------------|---------------|-------------|------------|----------|
| 1 | 133+520 | 133+540 | 20 | TCS-4 |
| 2 | 133+920 | 134+000 | 80 | TCS-4 |
| 3 | 136+220 | 136+240 | 20 | TCS-4 |
| 4 | 145+100 | 145+120 | 20 | TCS-4 |
| 5 | 145+200 | 145+220 | 20 | TCS-4 |
| 6 | 148+180 | 148+200 | 20 | TCS-4 |
| Total Length (m) | | | 180 | |

| | | | | | | | | | | | | | | |
|---|------|----------|----------|--|--|--|--|--|--|---|--|--|-----|--|
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| REV | DATE | REVISION | | | | | | | | | | | | |
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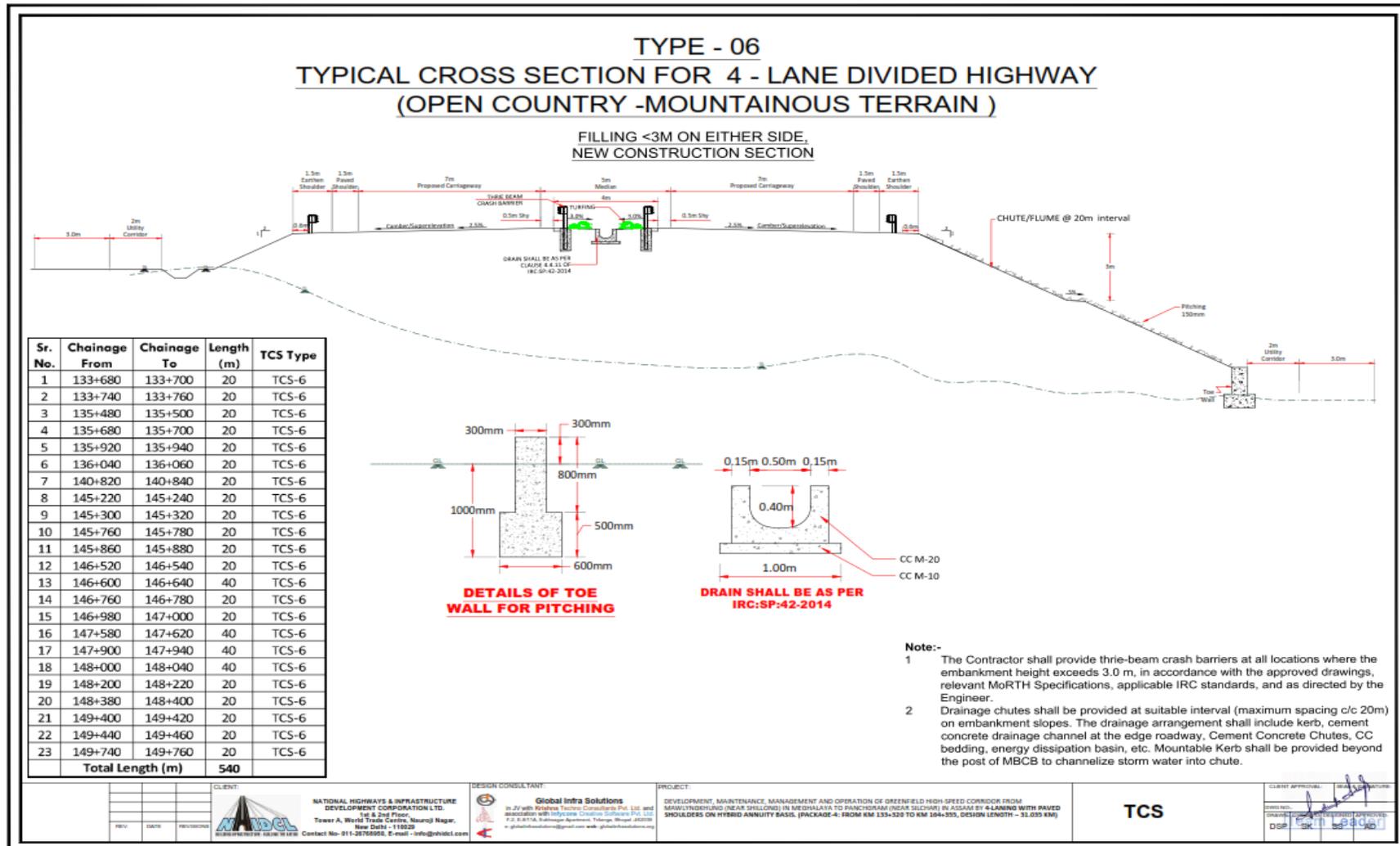
TYPE - 05 TYPICAL CROSS SECTION FOR 4 - LANE DIVIDED HIGHWAY (OPEN COUNTRY -MOUNTAINOUS TERRAIN)

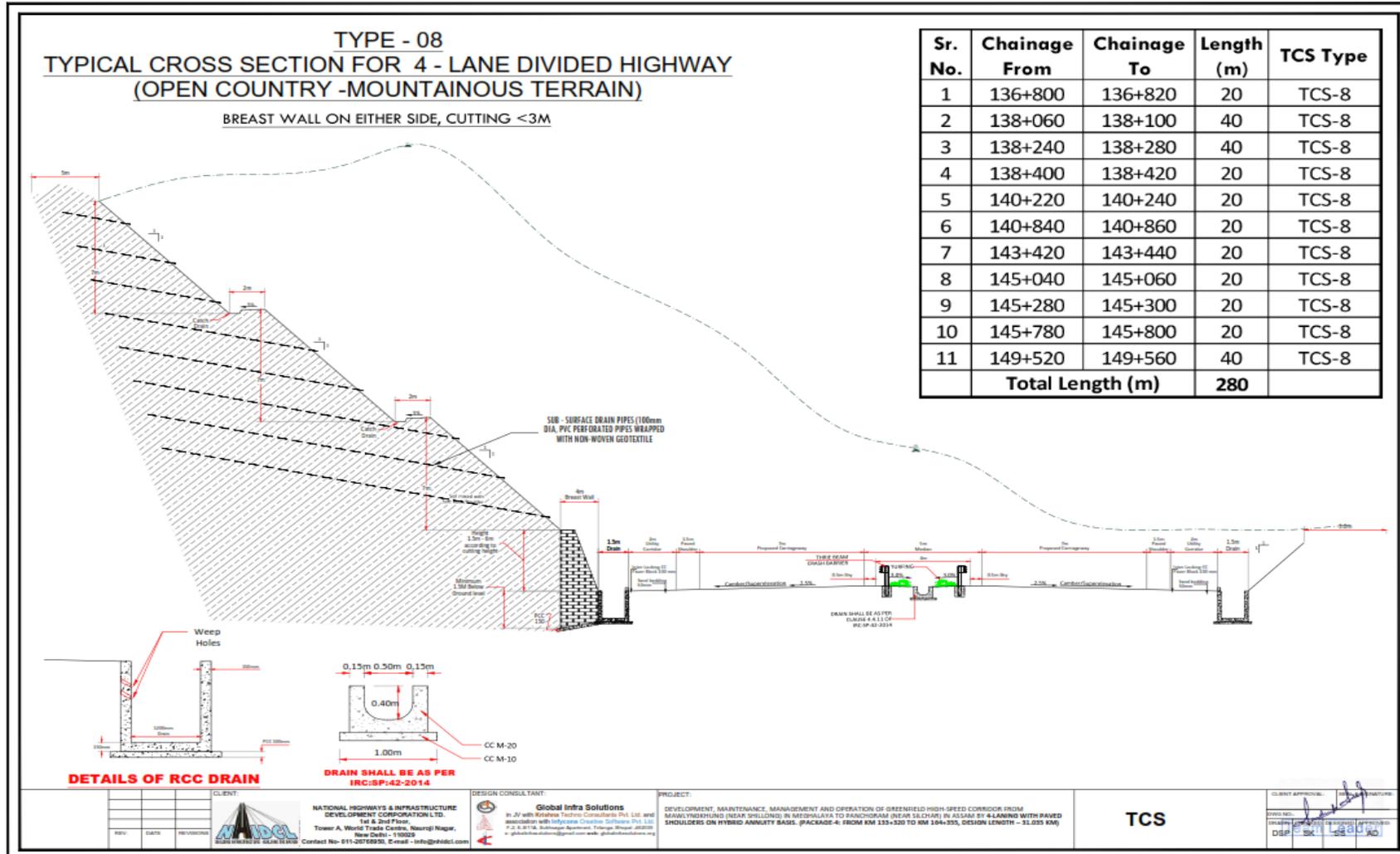


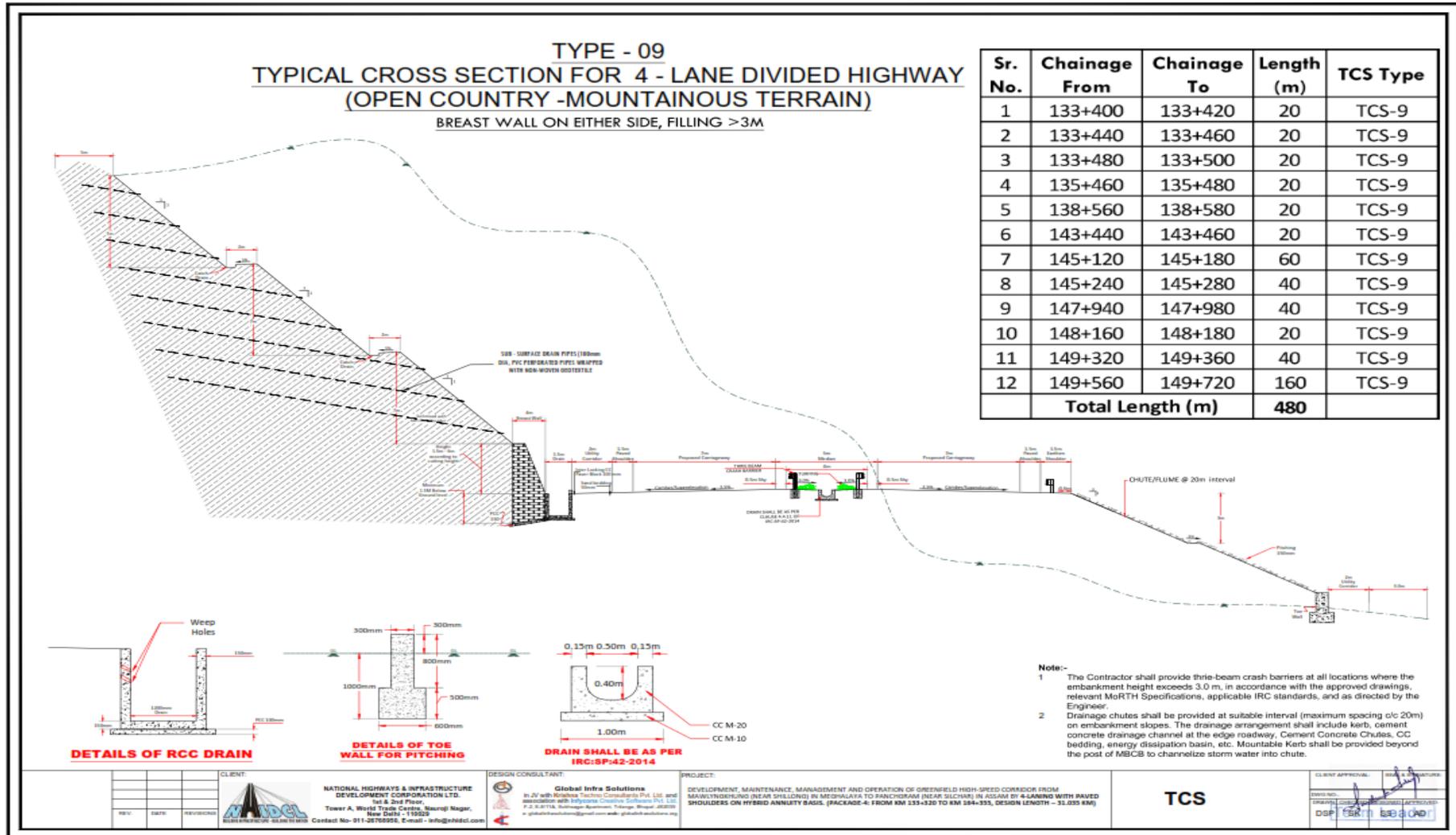
- Note:-**
- The Contractor shall provide three-beam crash barriers at all locations where the embankment height exceeds 3.0 m, in accordance with the approved drawings, relevant MoRTH Specifications, applicable IRC standards, and as directed by the Engineer.
 - Drainage chutes shall be provided at suitable interval (maximum spacing c/c 20m) on embankment slopes. The drainage arrangement shall include kerb, cement concrete drainage channel at the edge roadway, Cement Concrete Chutes, CC bedding, energy dissipation basin, etc. Mountable Kerb shall be provided beyond the post of MBCB to channelize storm water into chute.

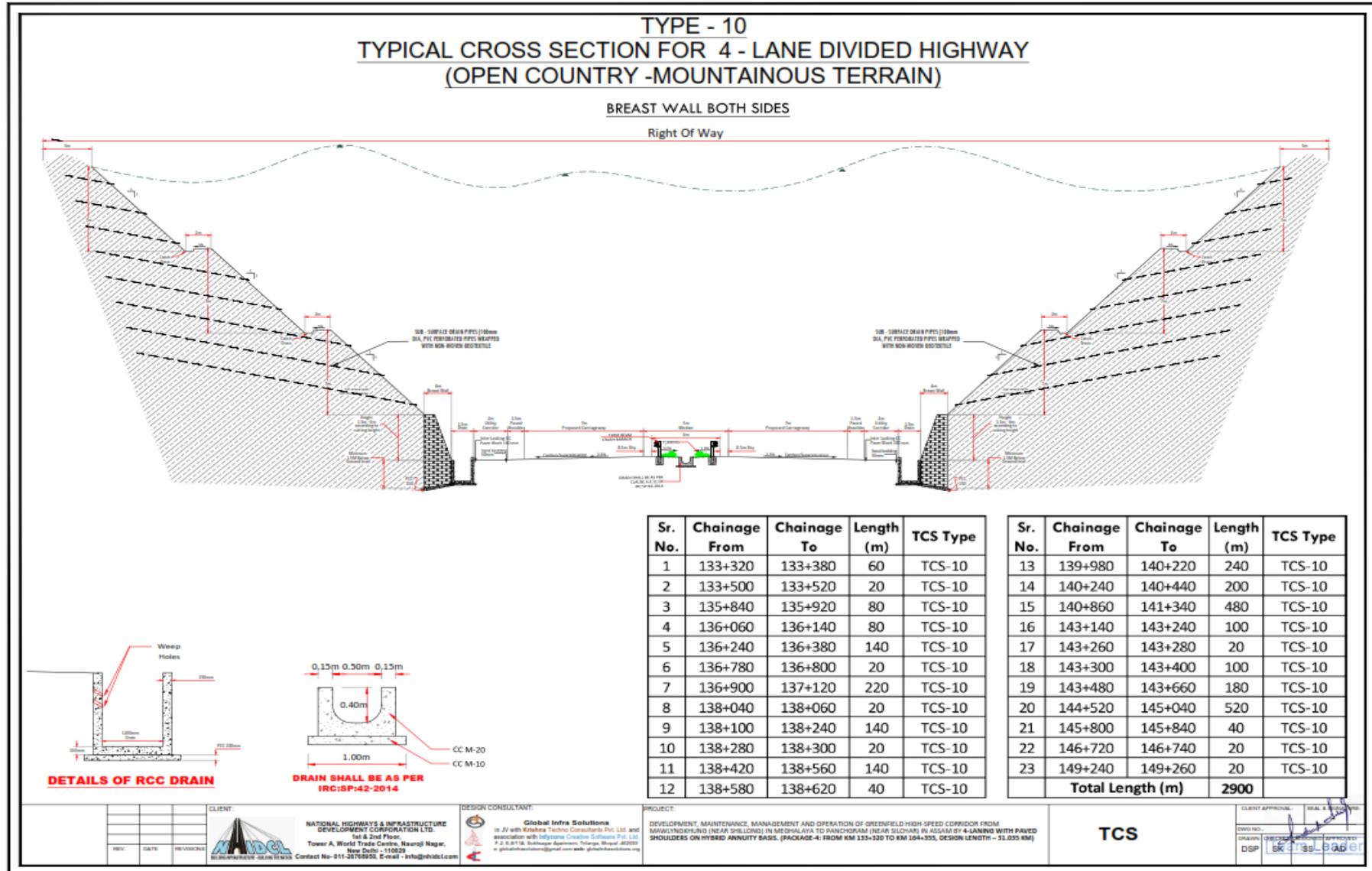
| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type |
|-------------------------|---------------|-------------|-------------|----------|
| 1 | 133+760 | 133+920 | 160 | TCS-5 |
| 2 | 135+960 | 136+040 | 80 | TCS-5 |
| 3 | 136+180 | 136+200 | 20 | TCS-5 |
| 4 | 136+860 | 136+880 | 20 | TCS-5 |
| 5 | 143+400 | 143+420 | 20 | TCS-5 |
| 6 | 145+320 | 145+760 | 440 | TCS-5 |
| 7 | 145+880 | 146+280 | 400 | TCS-5 |
| 8 | 146+420 | 146+520 | 100 | TCS-5 |
| 9 | 146+540 | 146+600 | 60 | TCS-5 |
| 10 | 146+640 | 146+700 | 60 | TCS-5 |
| 11 | 146+780 | 146+820 | 40 | TCS-5 |
| 12 | 146+900 | 146+920 | 20 | TCS-5 |
| 13 | 146+940 | 146+960 | 20 | TCS-5 |
| 14 | 147+500 | 147+580 | 80 | TCS-5 |
| 15 | 147+620 | 147+880 | 260 | TCS-5 |
| 16 | 148+040 | 148+060 | 20 | TCS-5 |
| 17 | 148+280 | 148+380 | 100 | TCS-5 |
| 18 | 148+400 | 148+480 | 80 | TCS-5 |
| 19 | 149+460 | 149+520 | 60 | TCS-5 |
| 20 | 149+760 | 149+820 | 60 | TCS-5 |
| Total Length (m) | | | 2100 | |

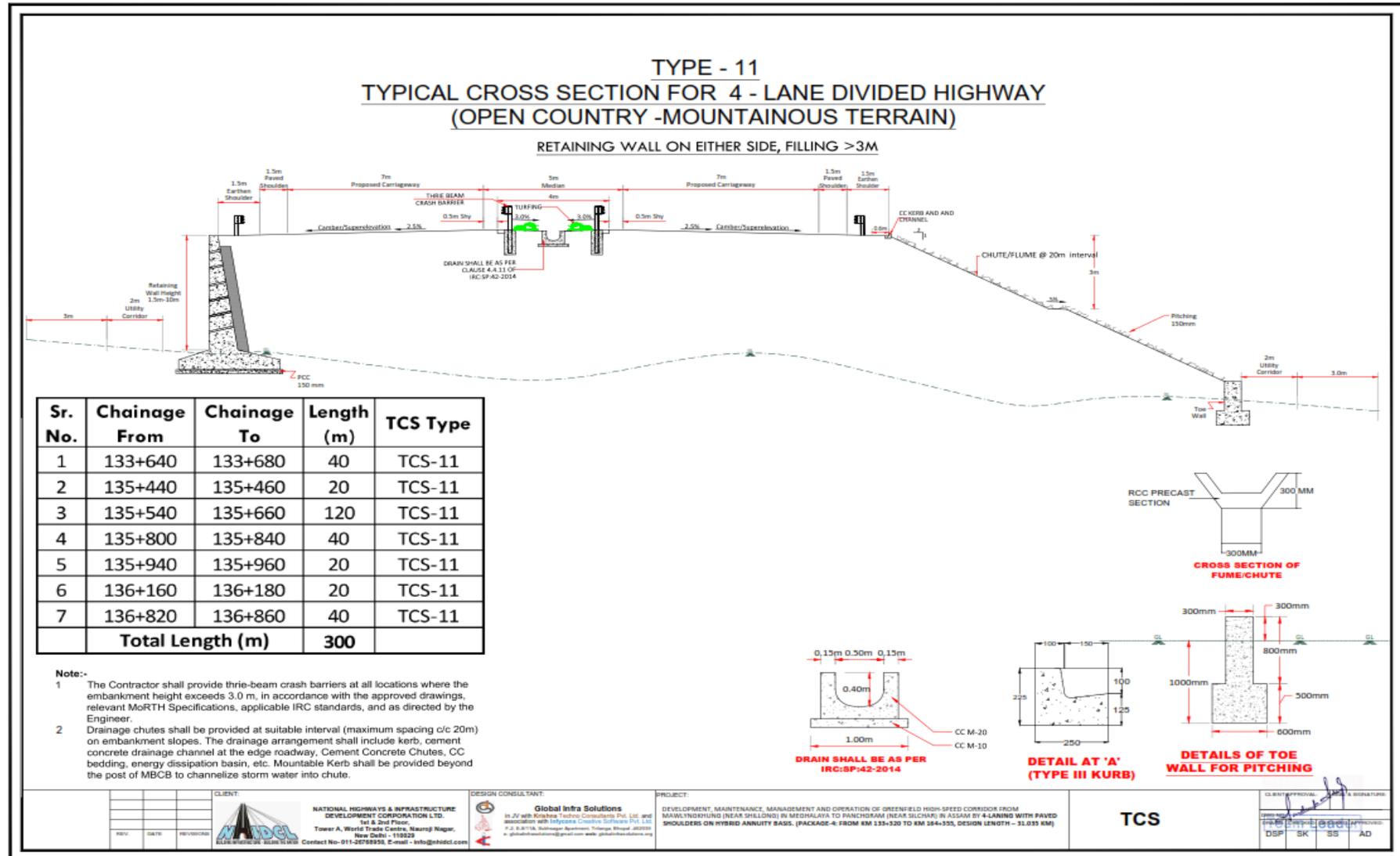
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| REV | DATE | PROVISIONS | | | | | | | | | |
| | | | | | | | | | | | |

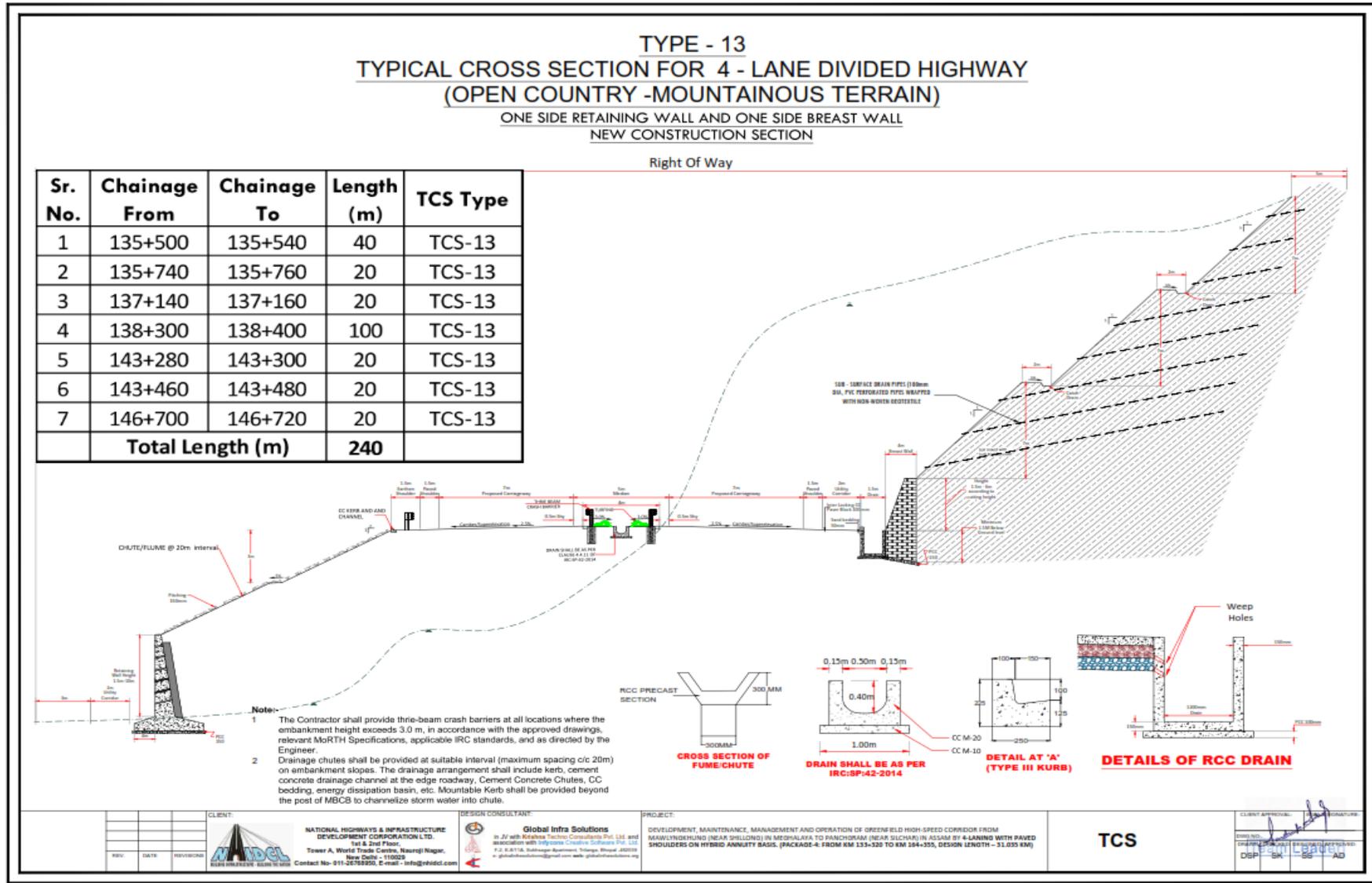


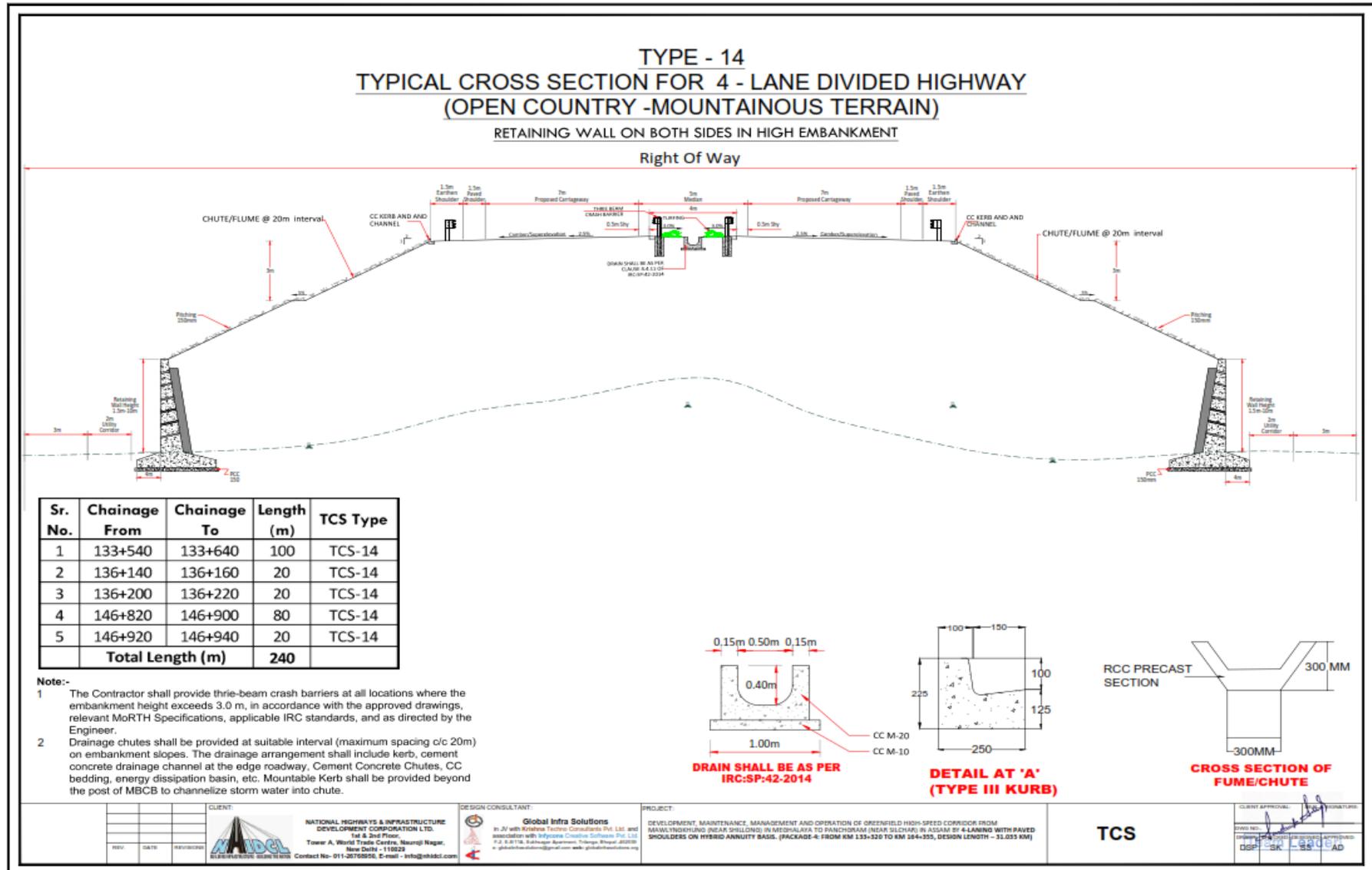


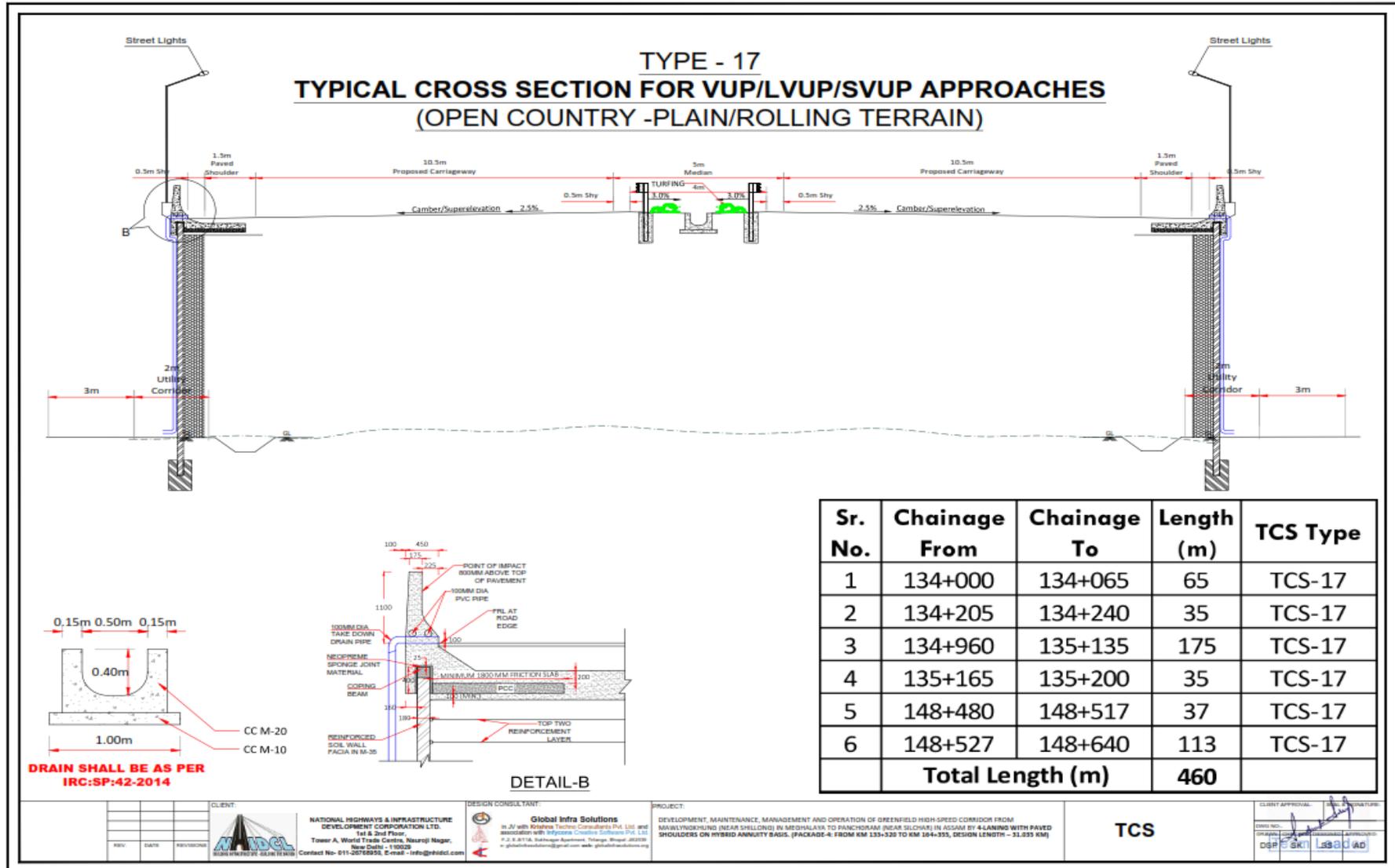


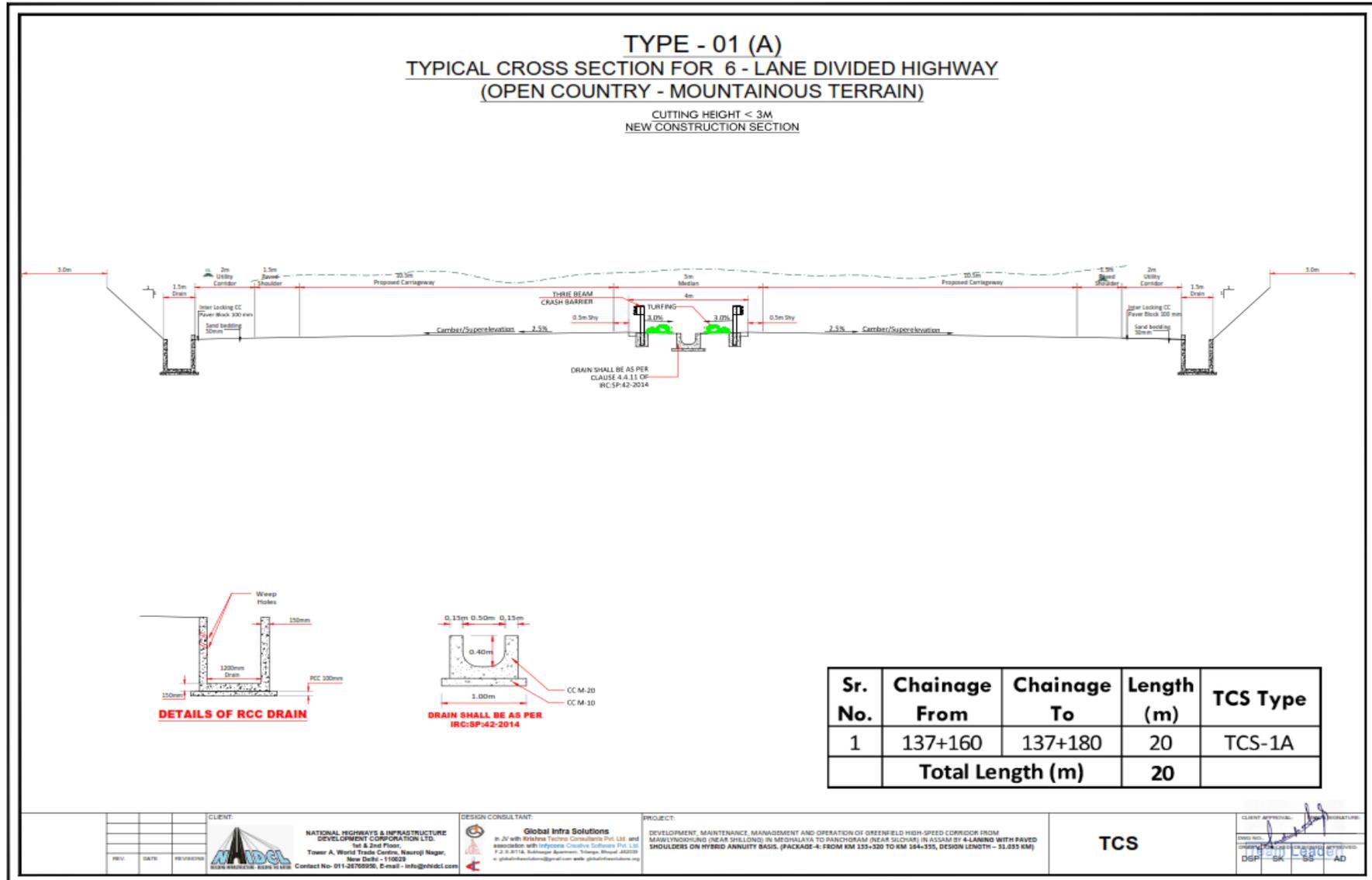


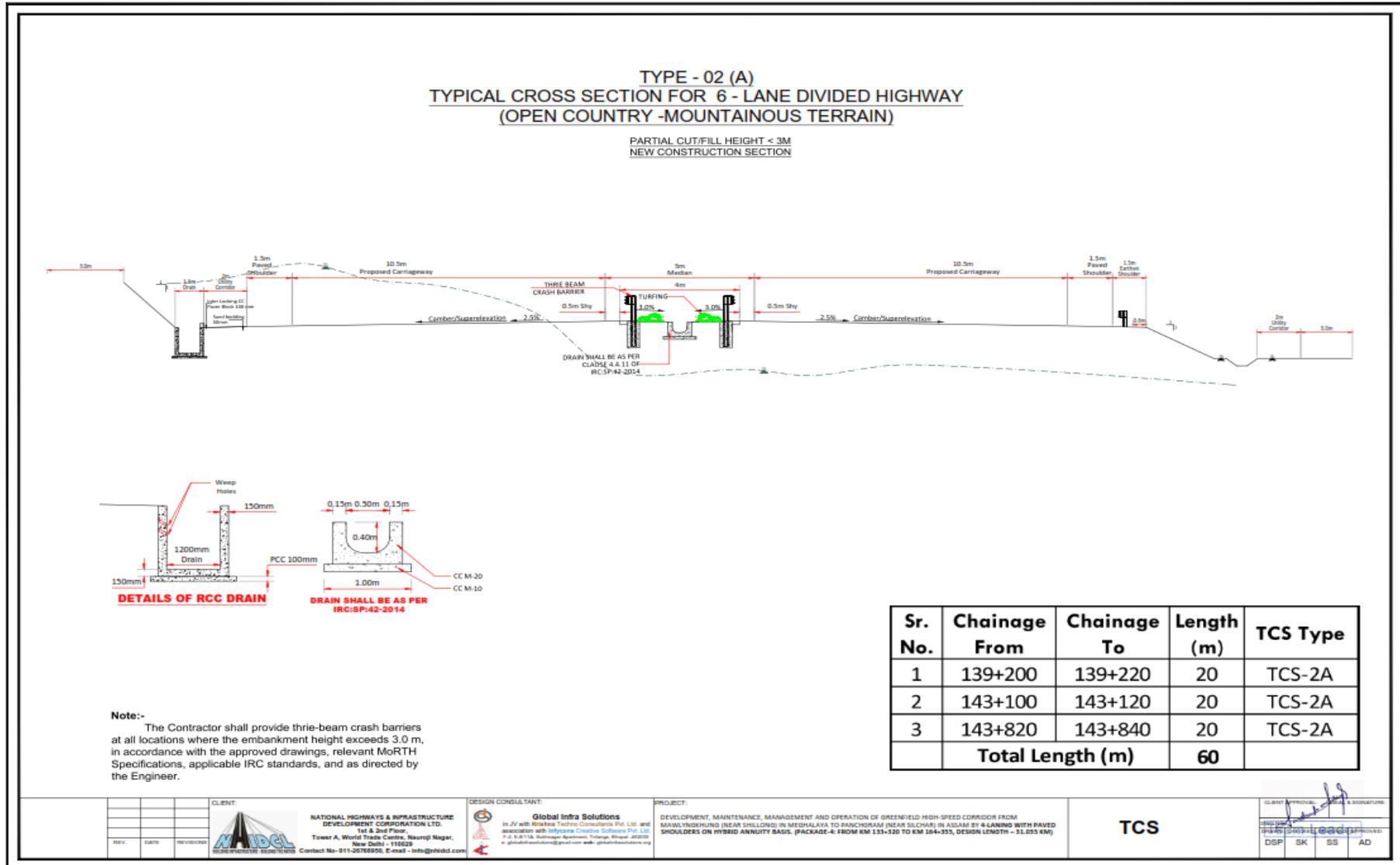


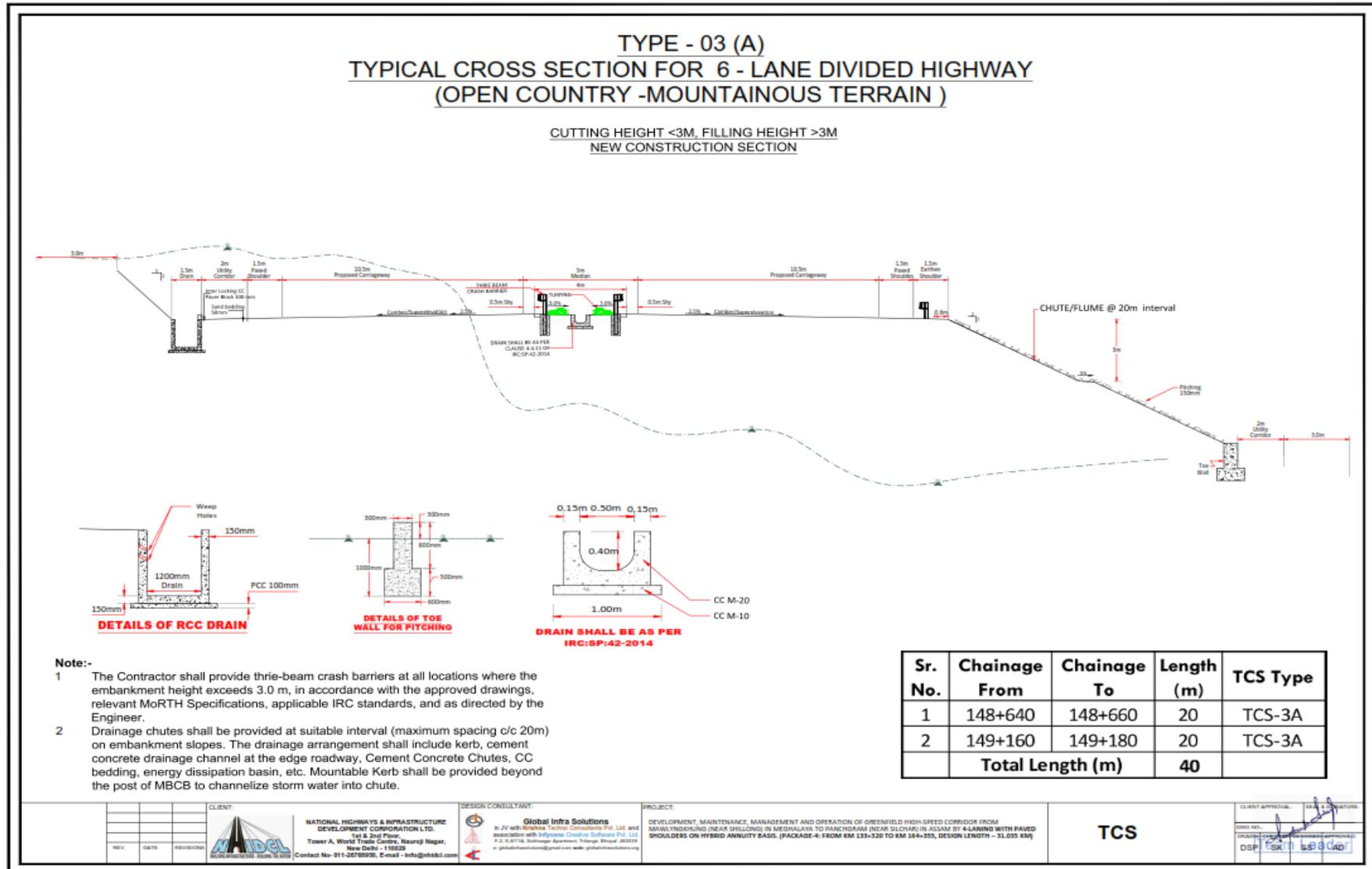






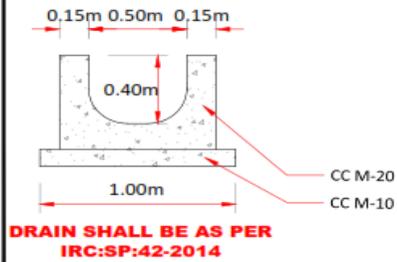
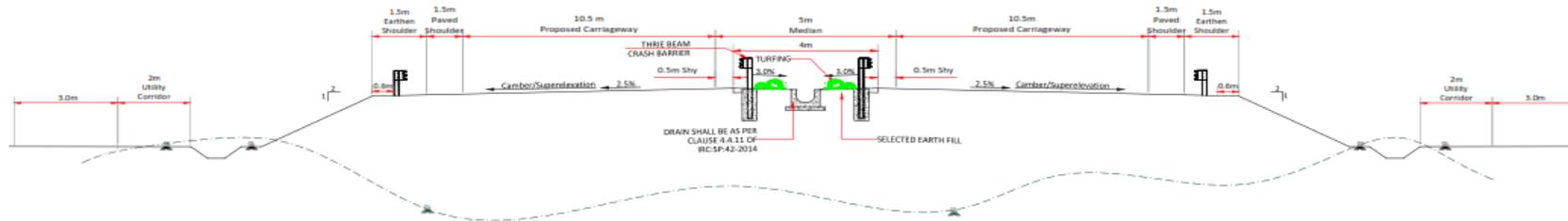






TYPE - 04 (A)
TYPICAL CROSS SECTION FOR 6 - LANE DIVIDED HIGHWAY
(OPEN COUNTRY -MOUNTAINOUS TERRAIN)

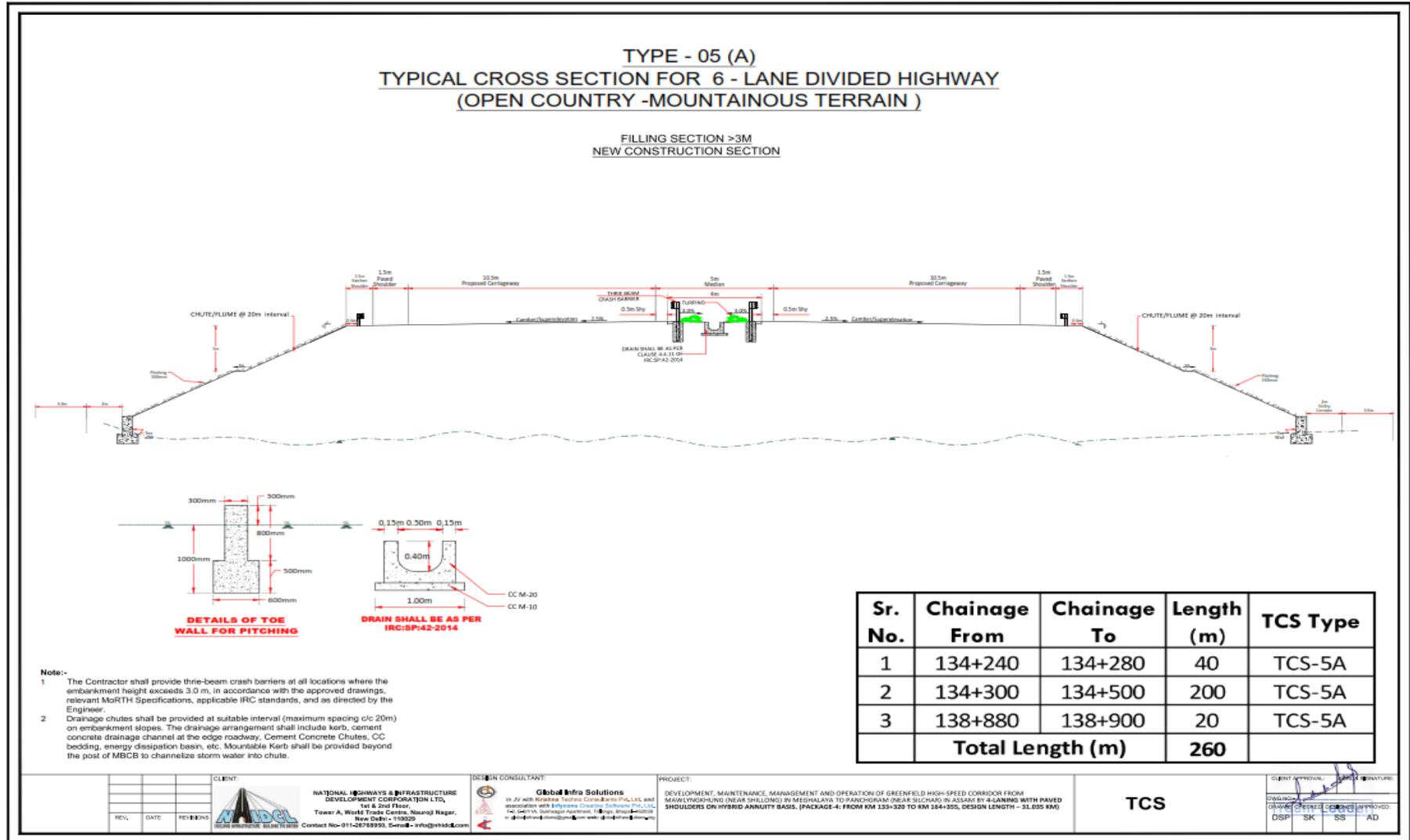
FILLING SECTION <3M
 NEW CONSTRUCTION SECTION

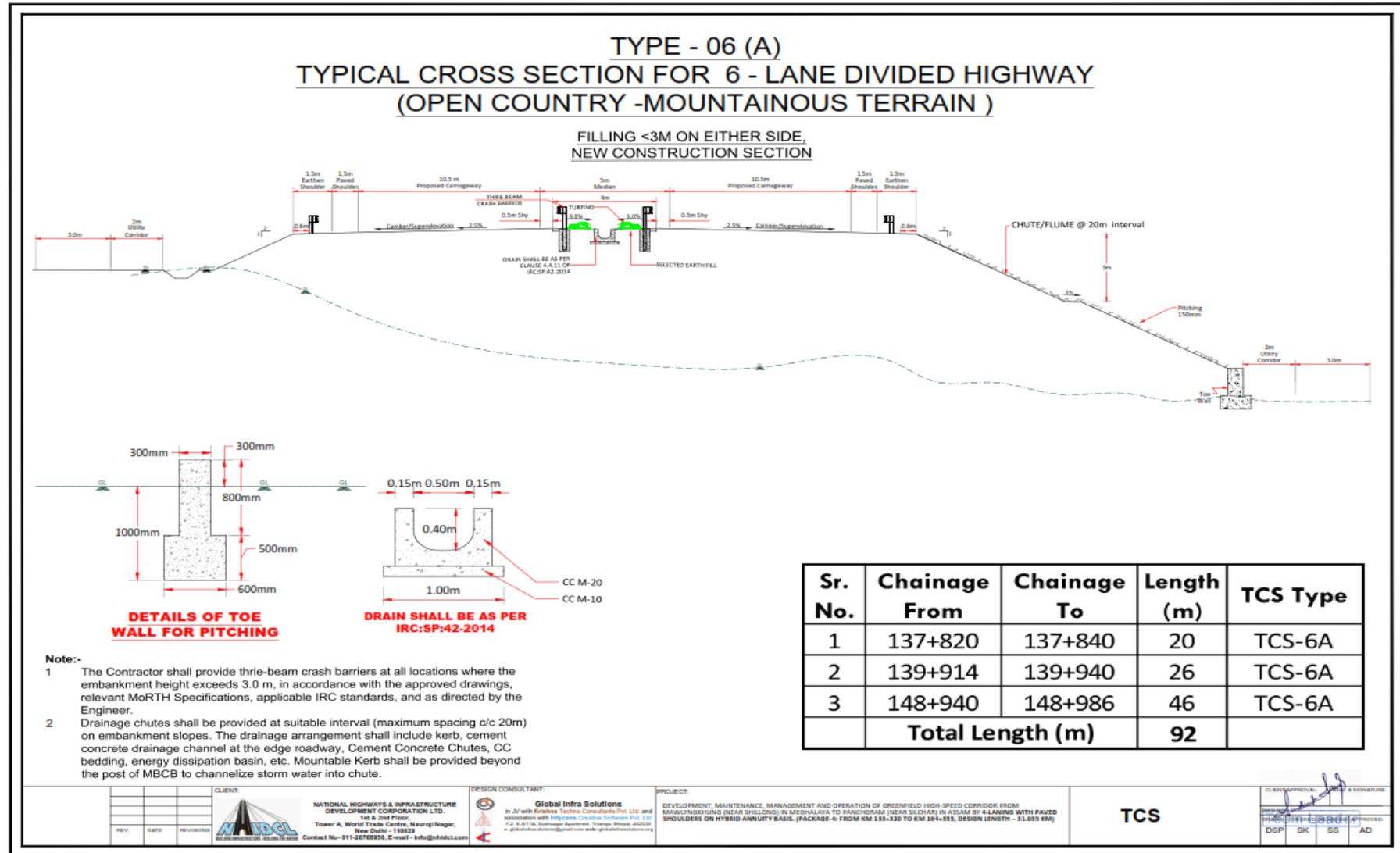


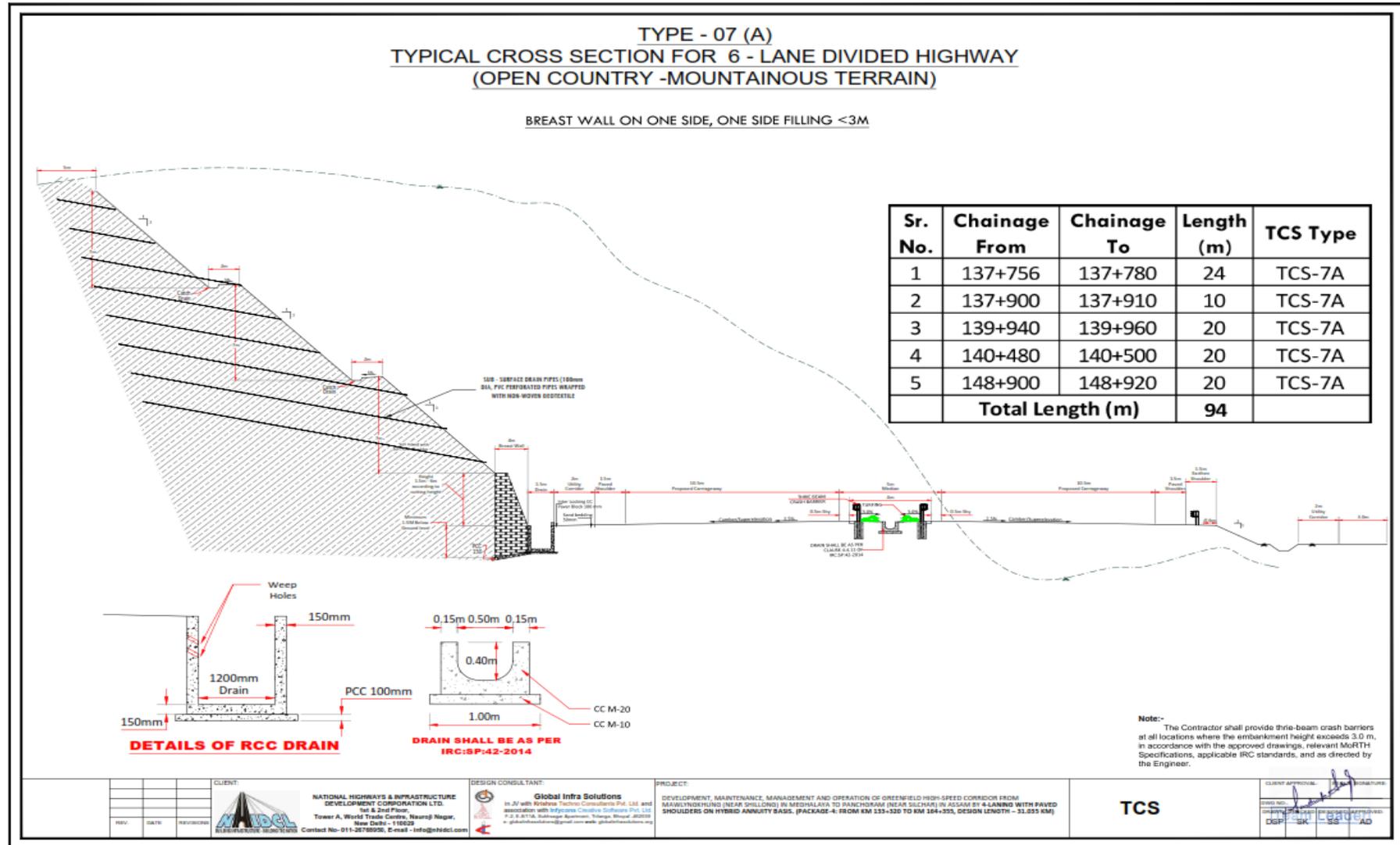
| Sr. No. | Chainage From | Chainage To | Length (m) | TCS Type |
|-------------------------|---------------|-------------|------------|----------|
| 1 | 134+280 | 134+300 | 20 | TCS-4A |
| 2 | 138+800 | 138+815 | 15 | TCS-4A |
| 3 | 144+500 | 144+520 | 20 | TCS-4A |
| 4 | 148+920 | 148+940 | 20 | TCS-4A |
| Total Length (m) | | | 75 | |

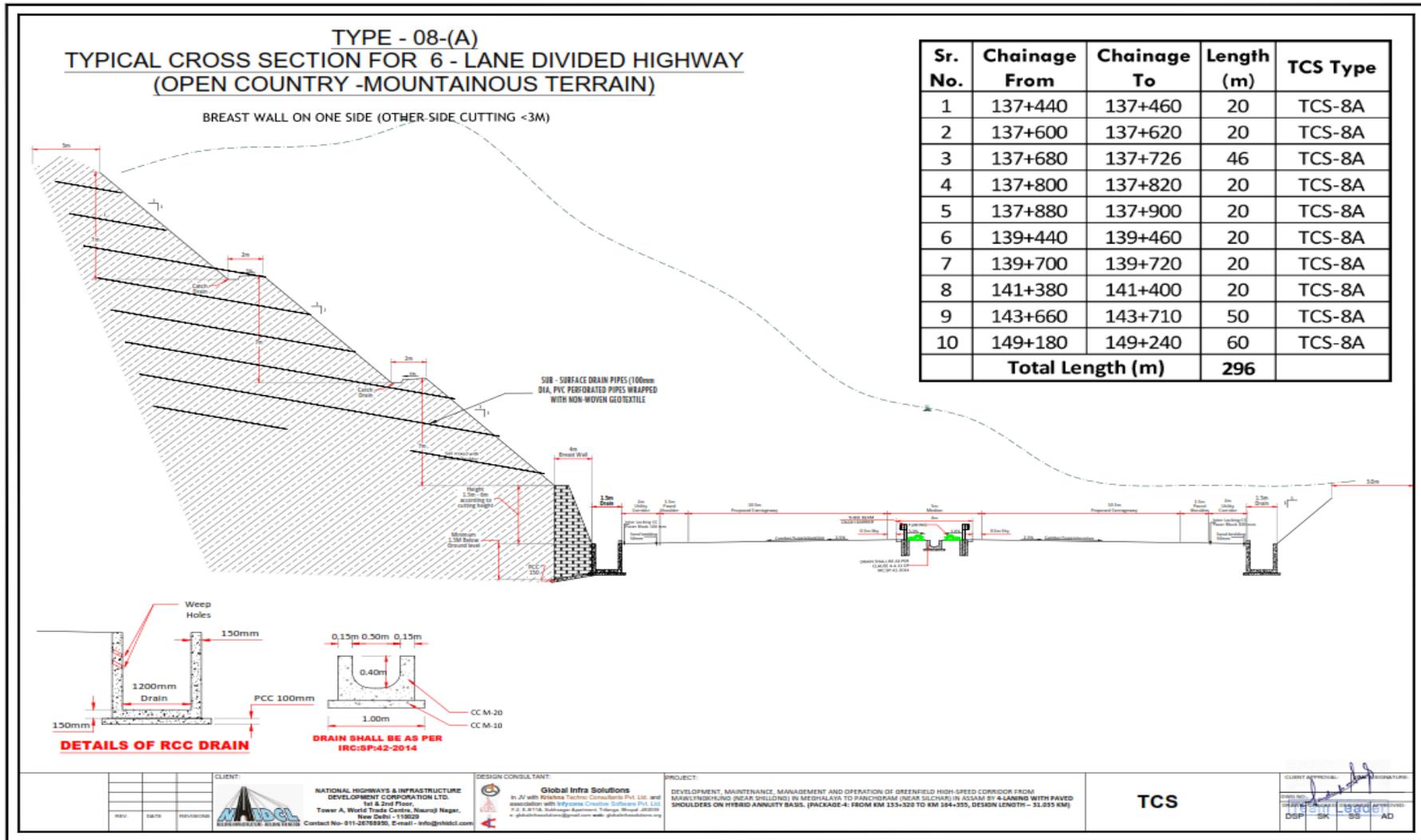
Note:-
 The Contractor shall provide thrie-beam crash barriers at all locations where the embankment height exceeds 3.0 m, in accordance with the approved drawings, relevant MoRTH Specifications, applicable IRC standards, and as directed by the Engineer.

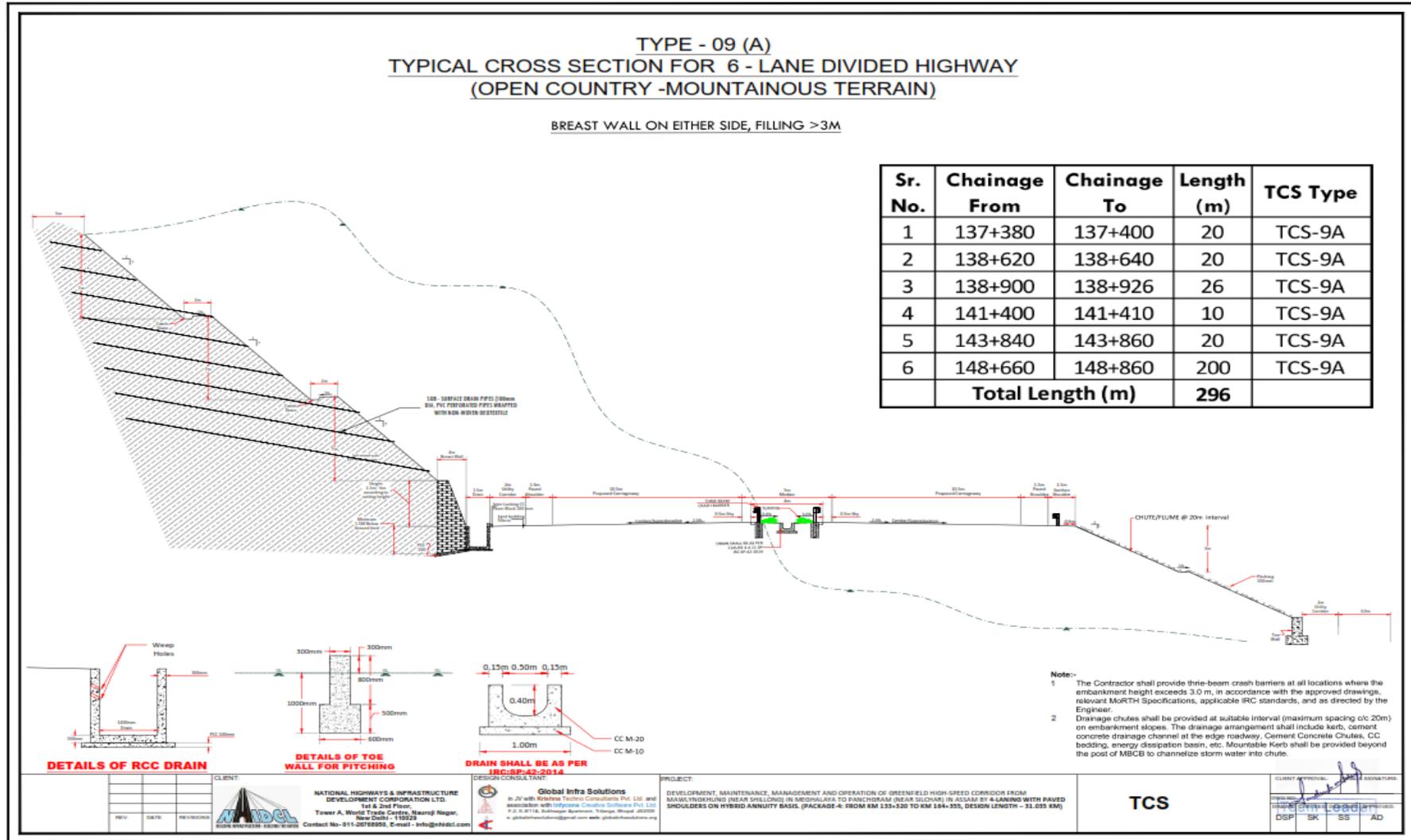
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|---|------|-----------|-----------|--|--|--|--|--|--|-----|--|
| REV. | DATE | REVISIONS | | | | | | | | | |
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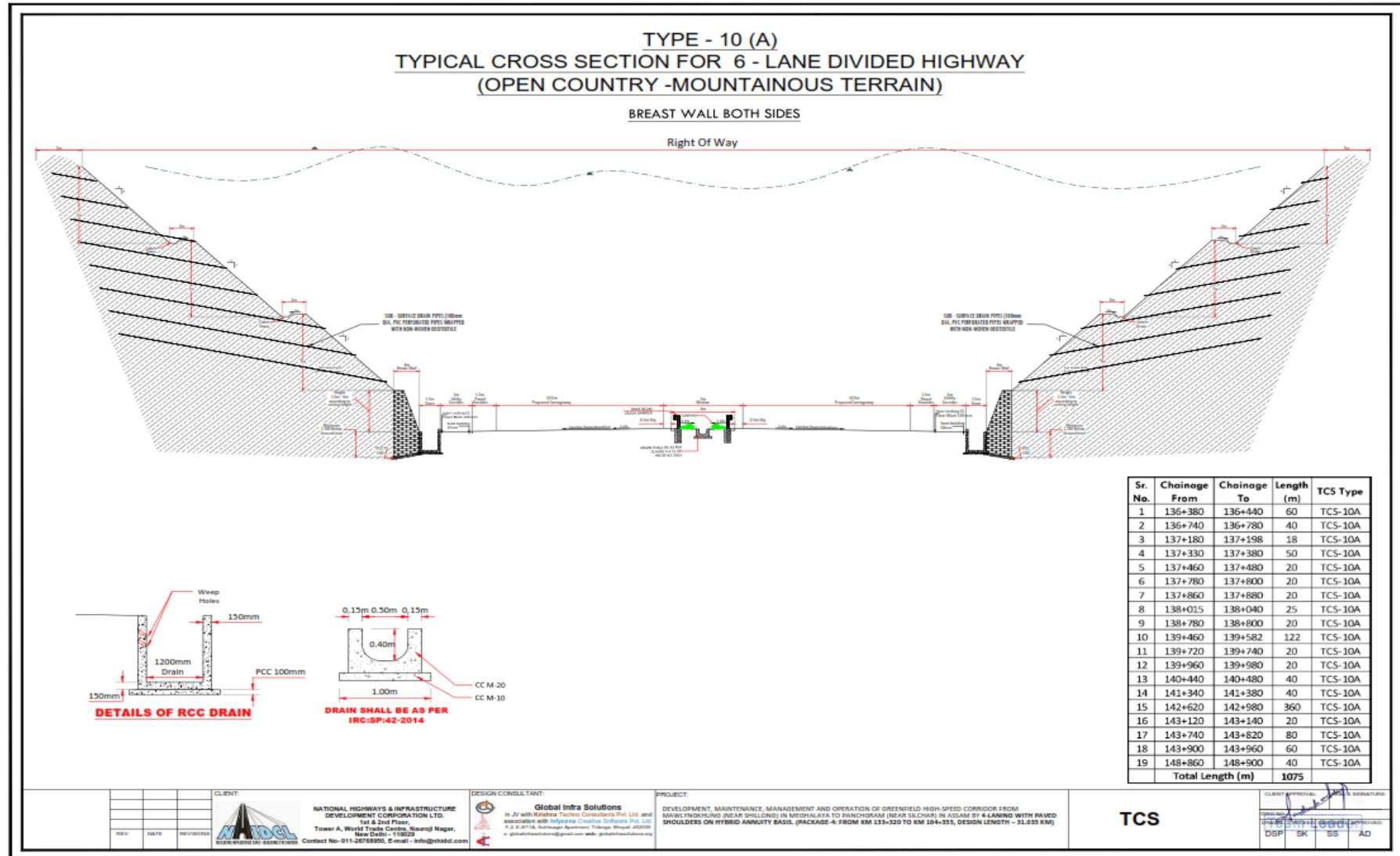


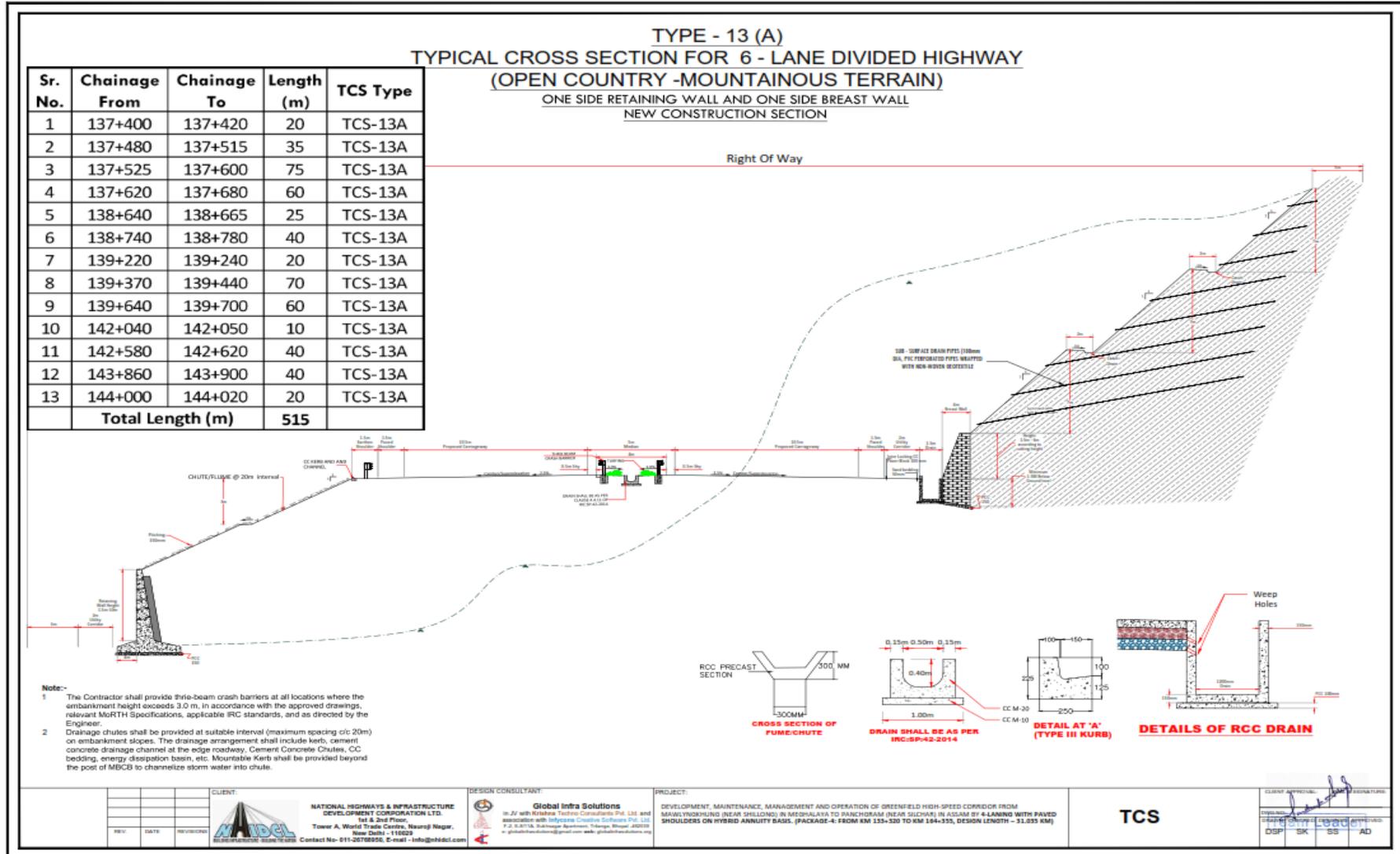


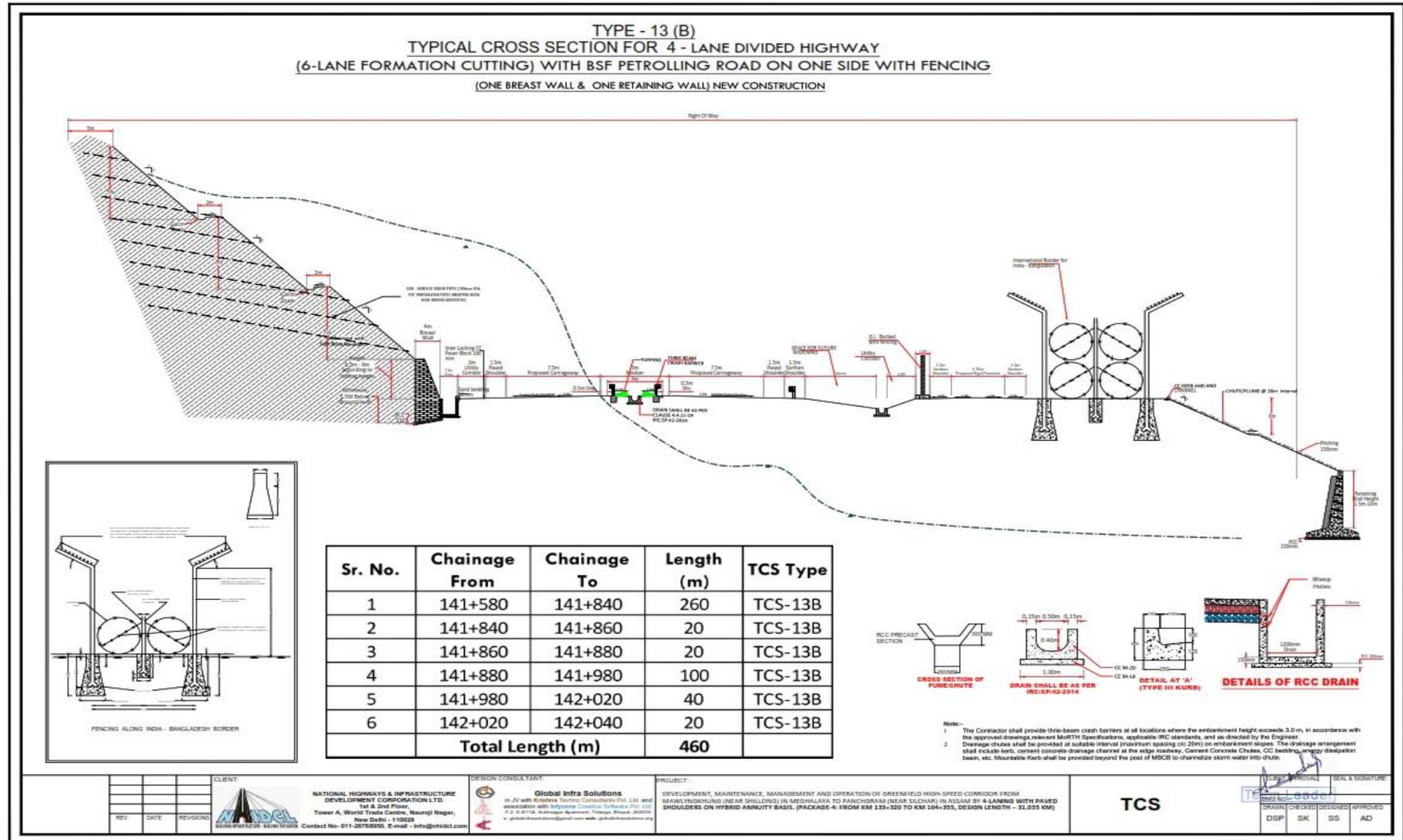


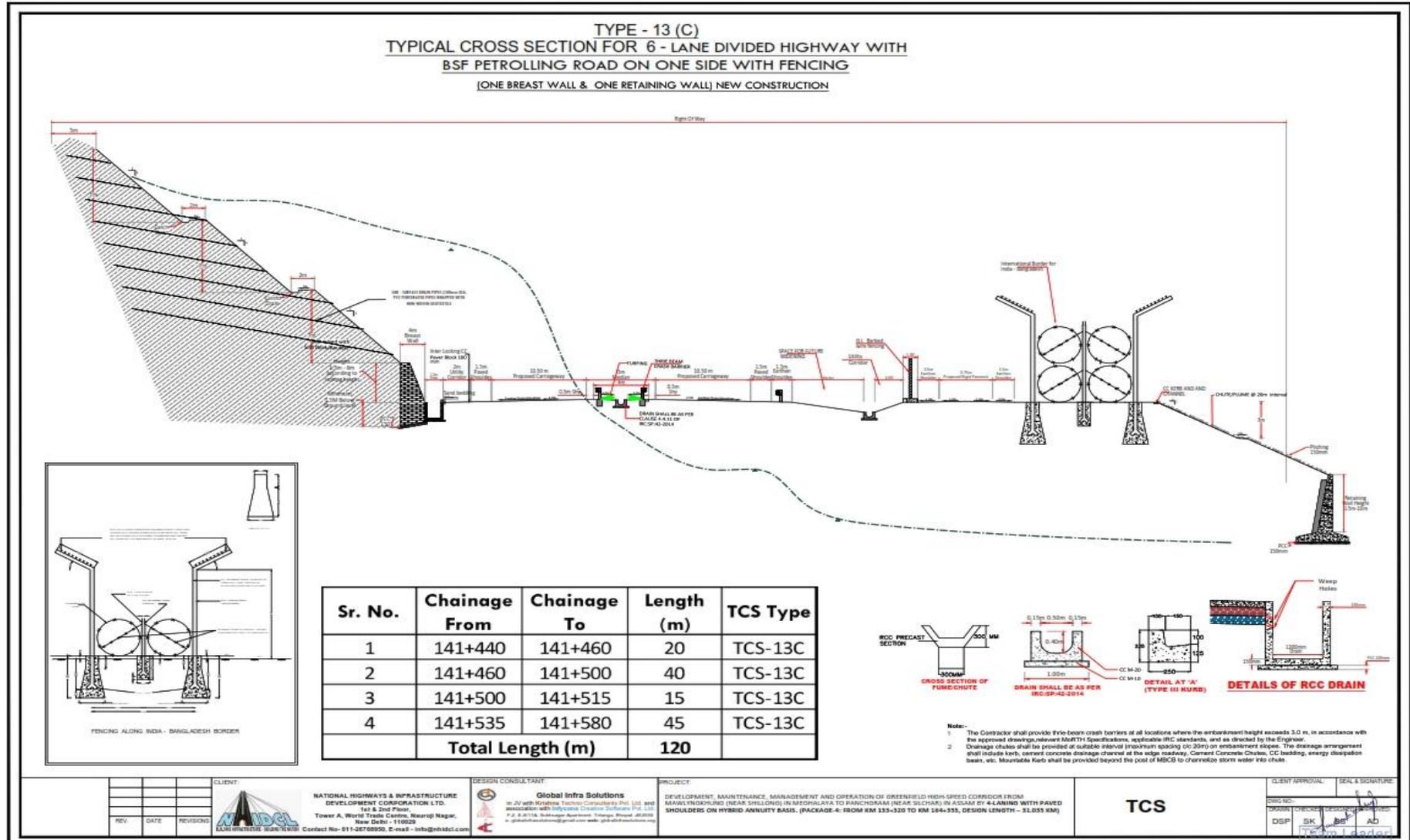


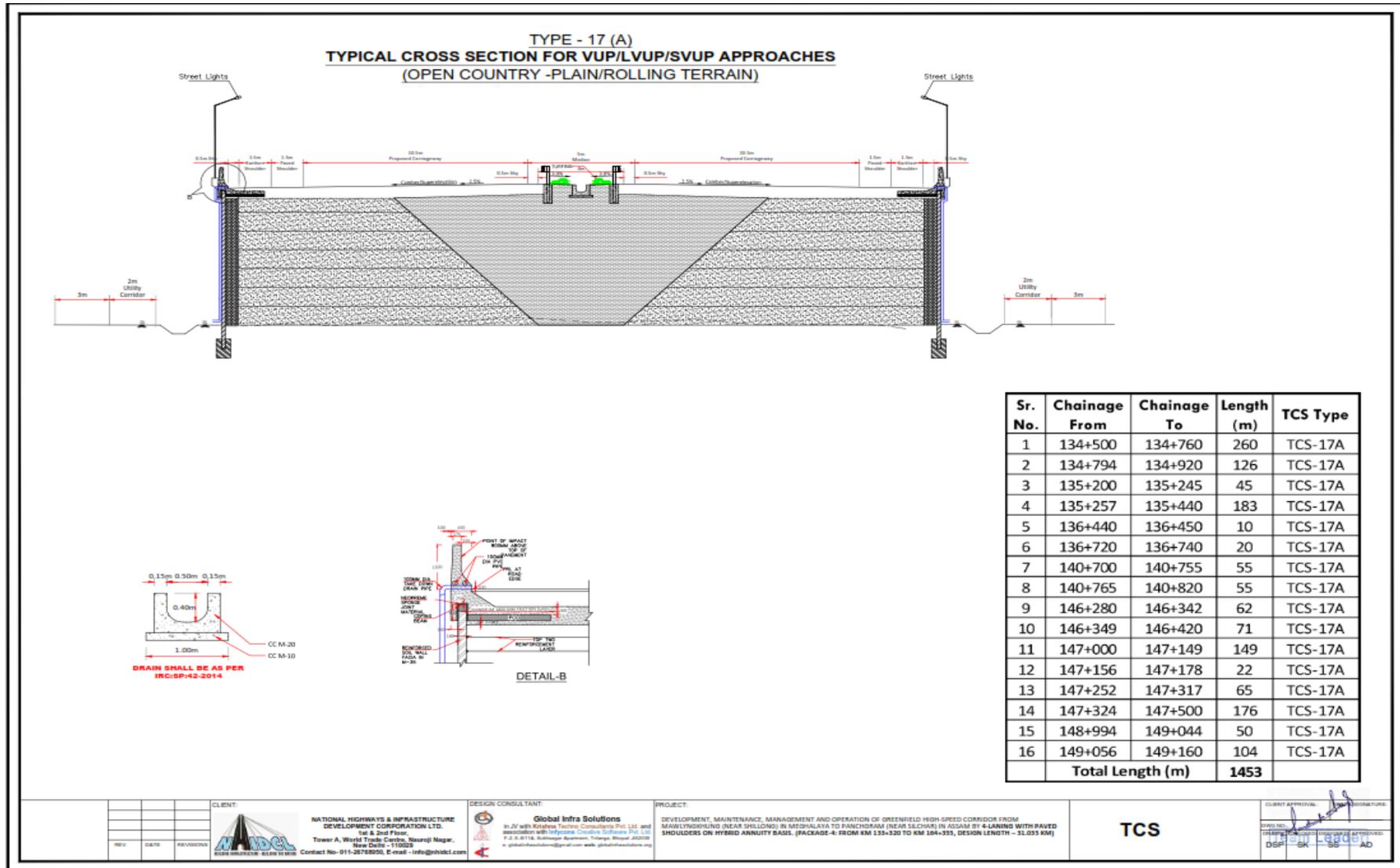


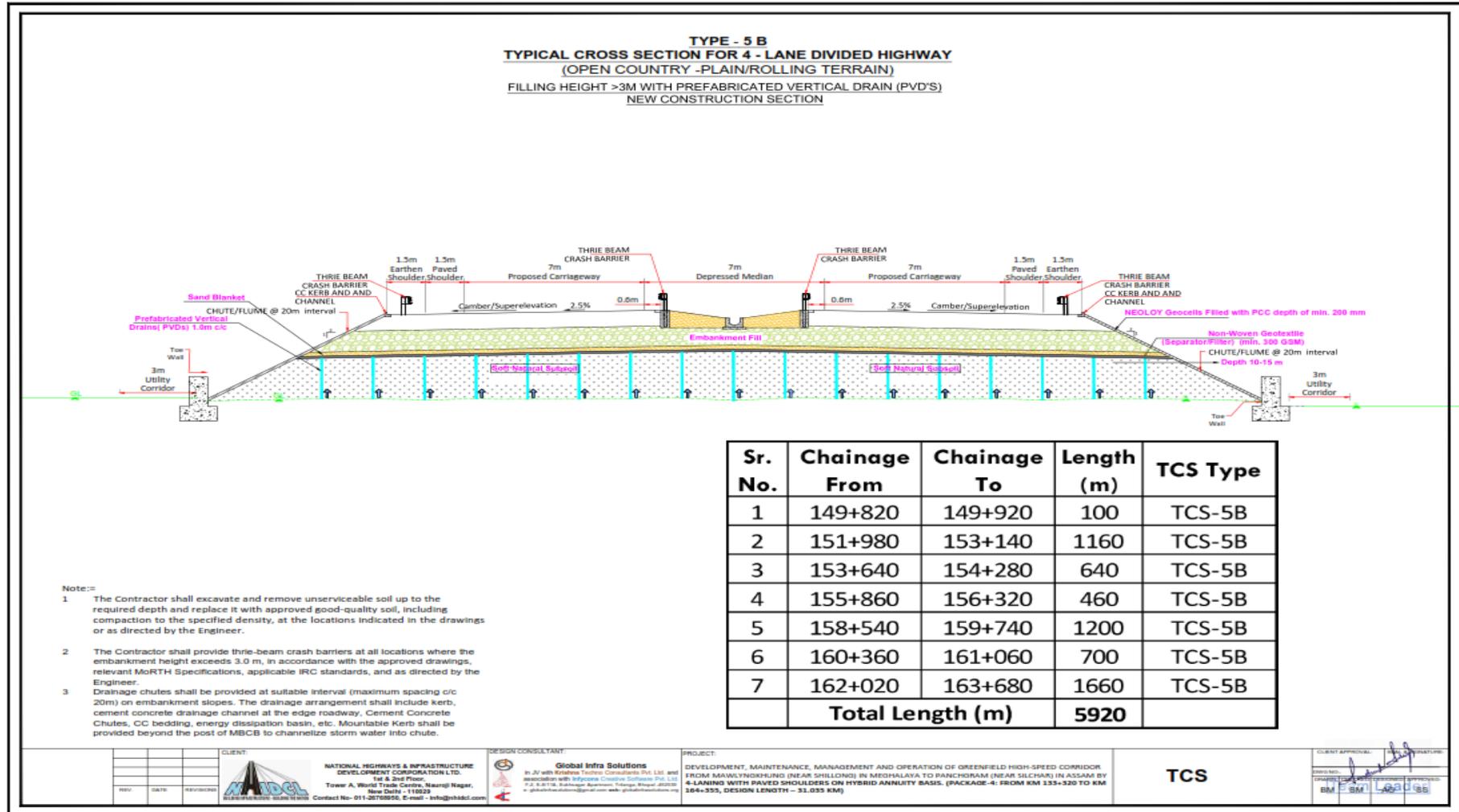


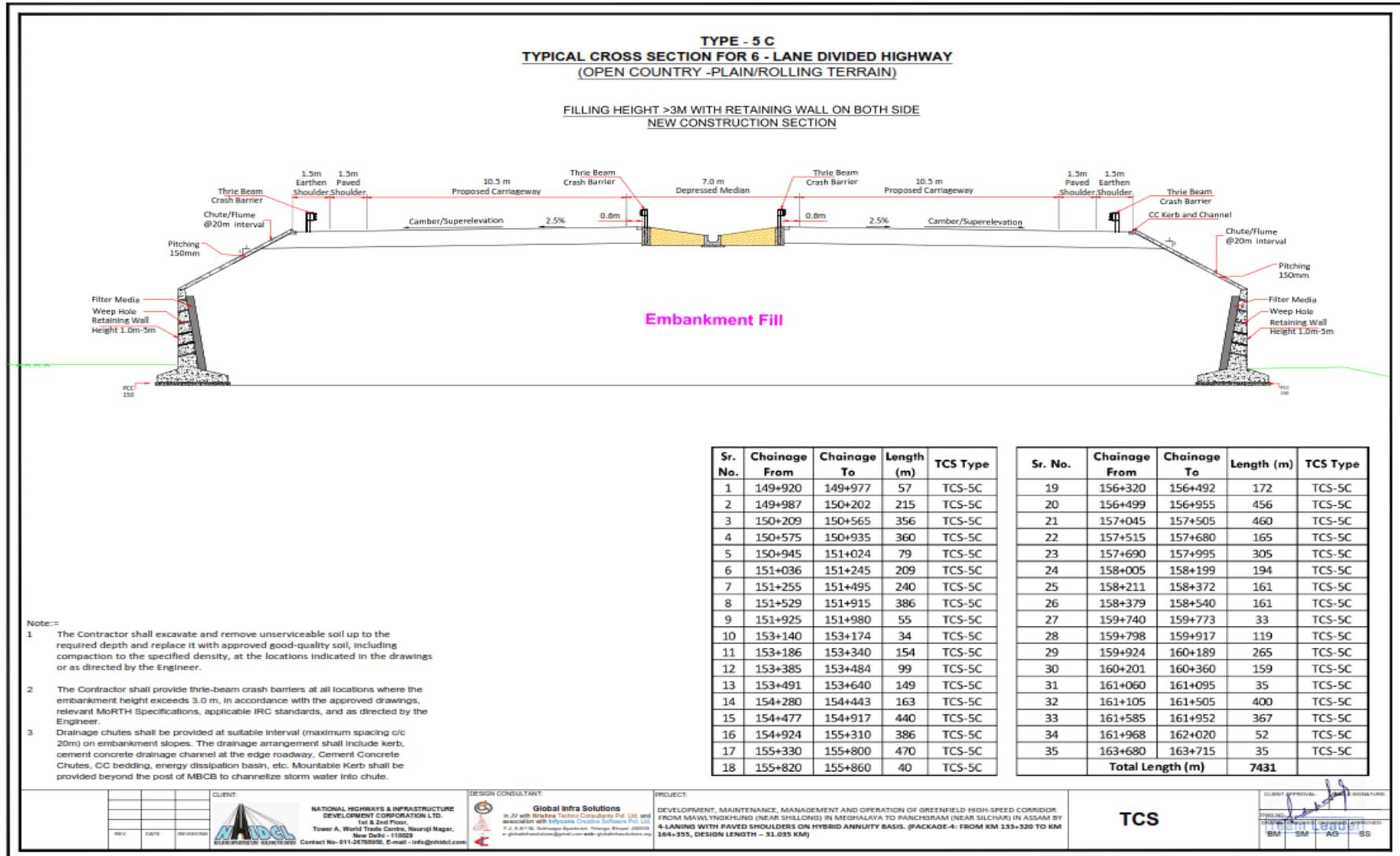




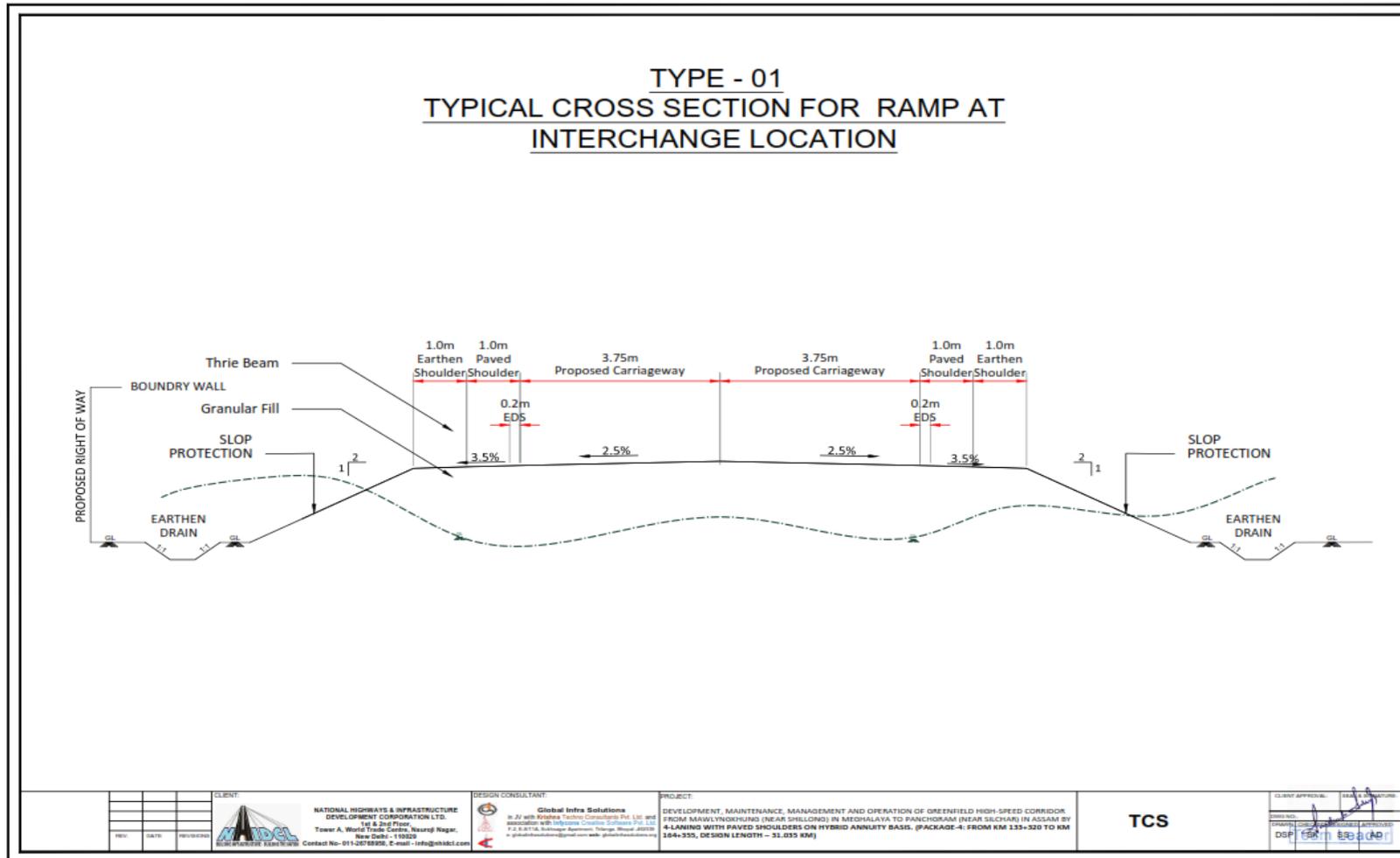




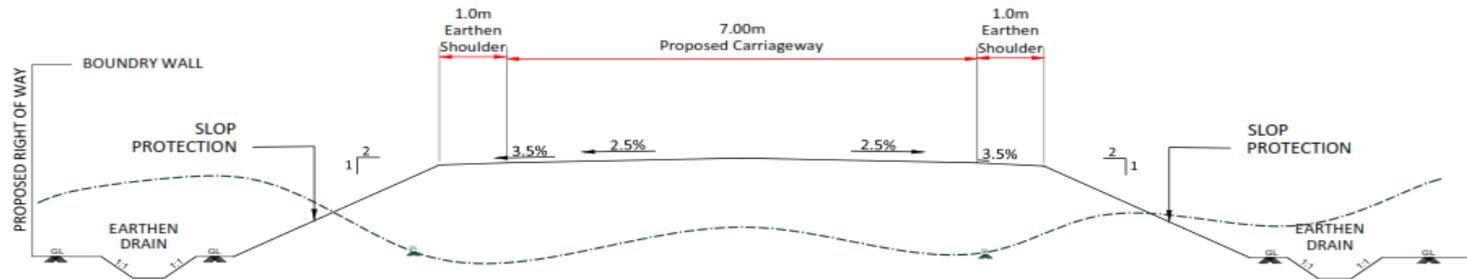




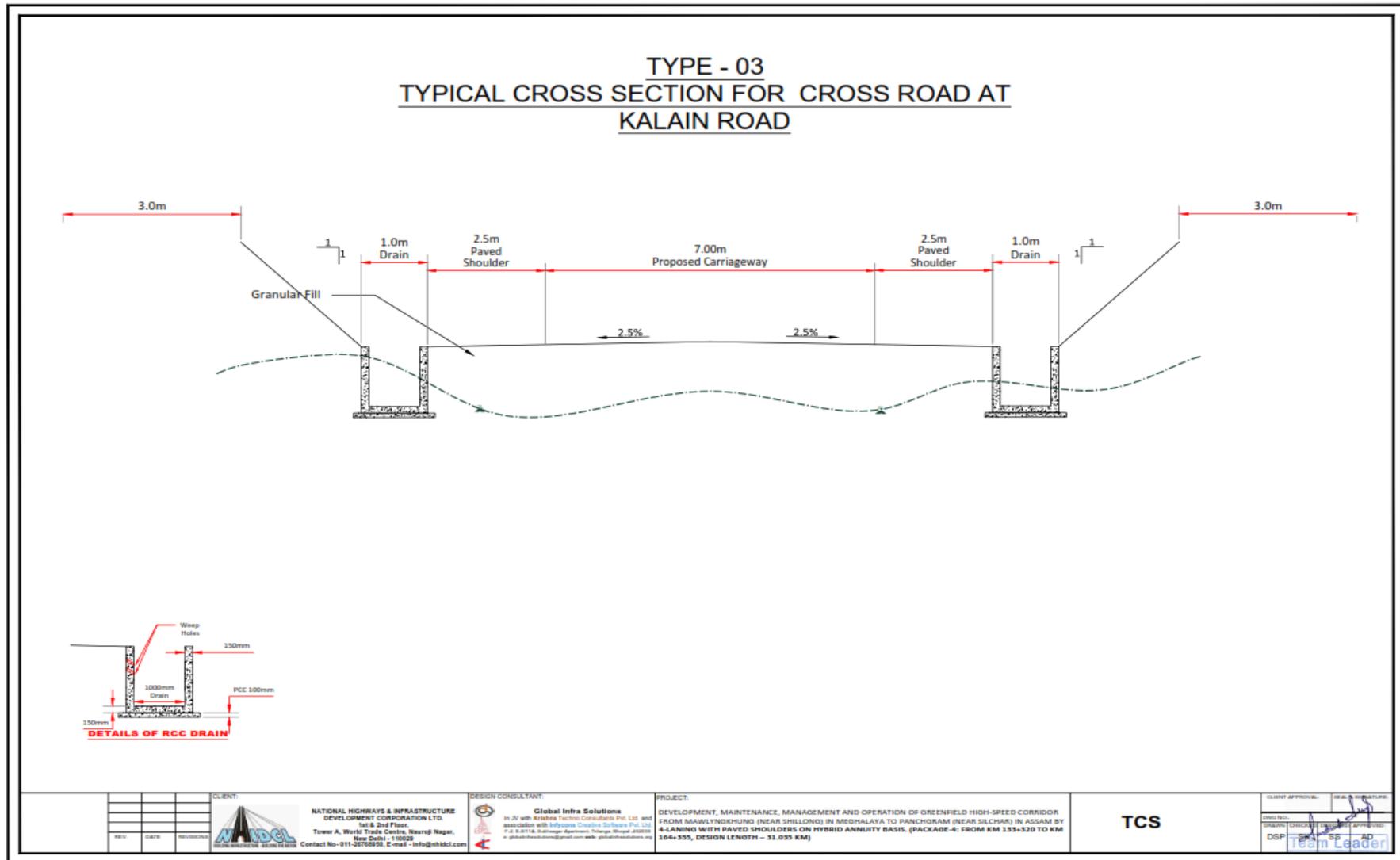
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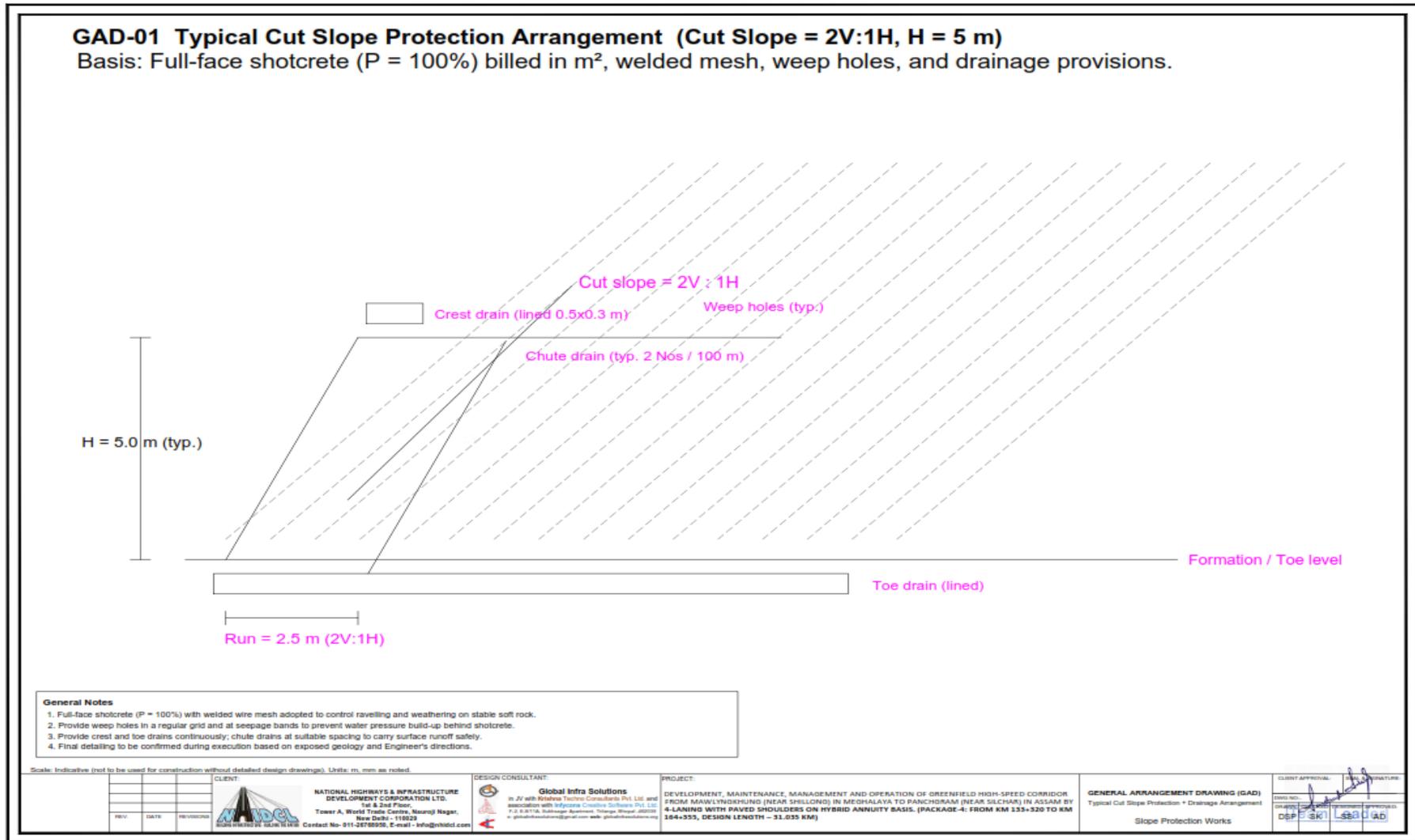


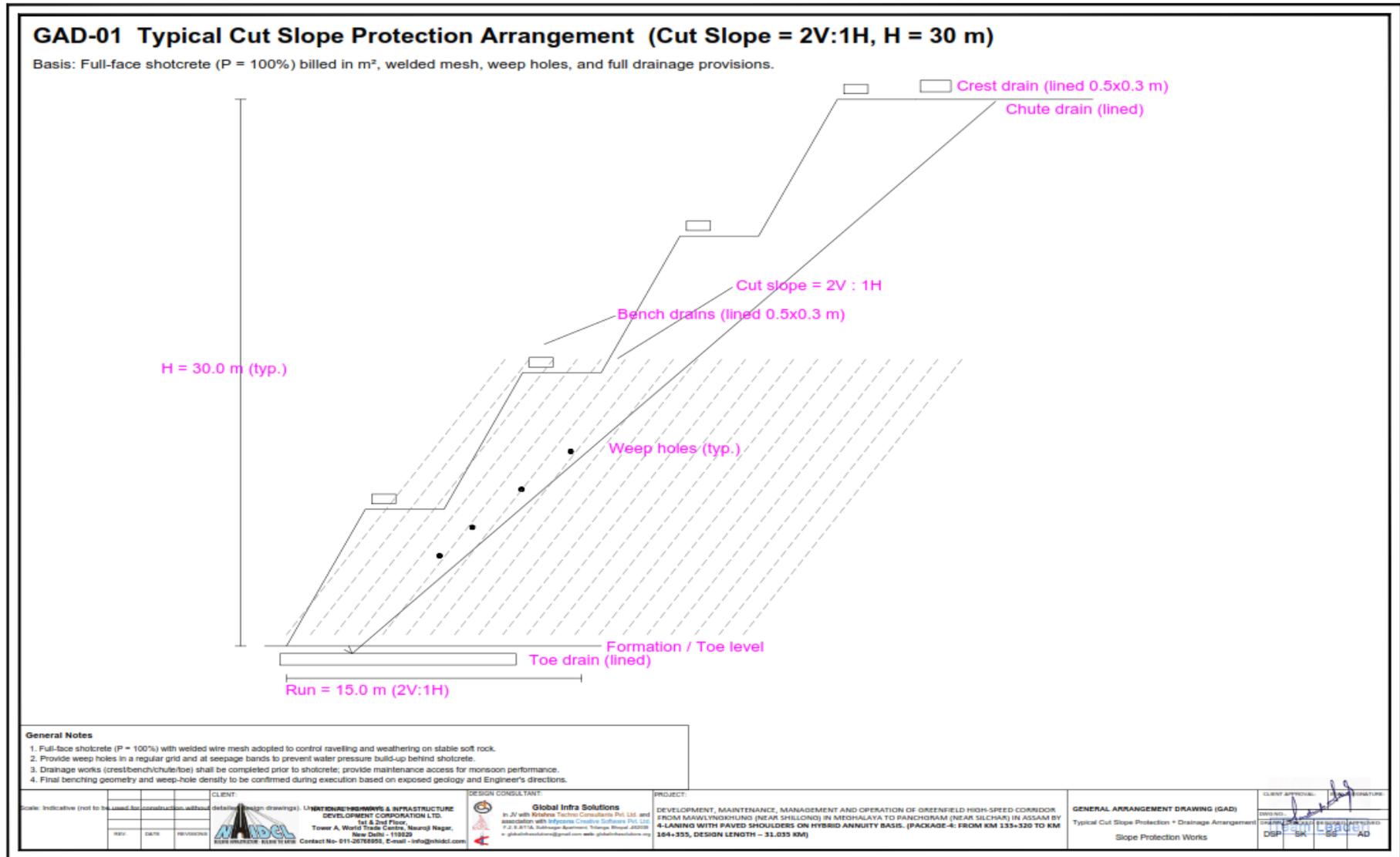
TYPE - 02
TYPICAL CROSS SECTION FOR CROSS ROAD AT
UMKIANG ROAD

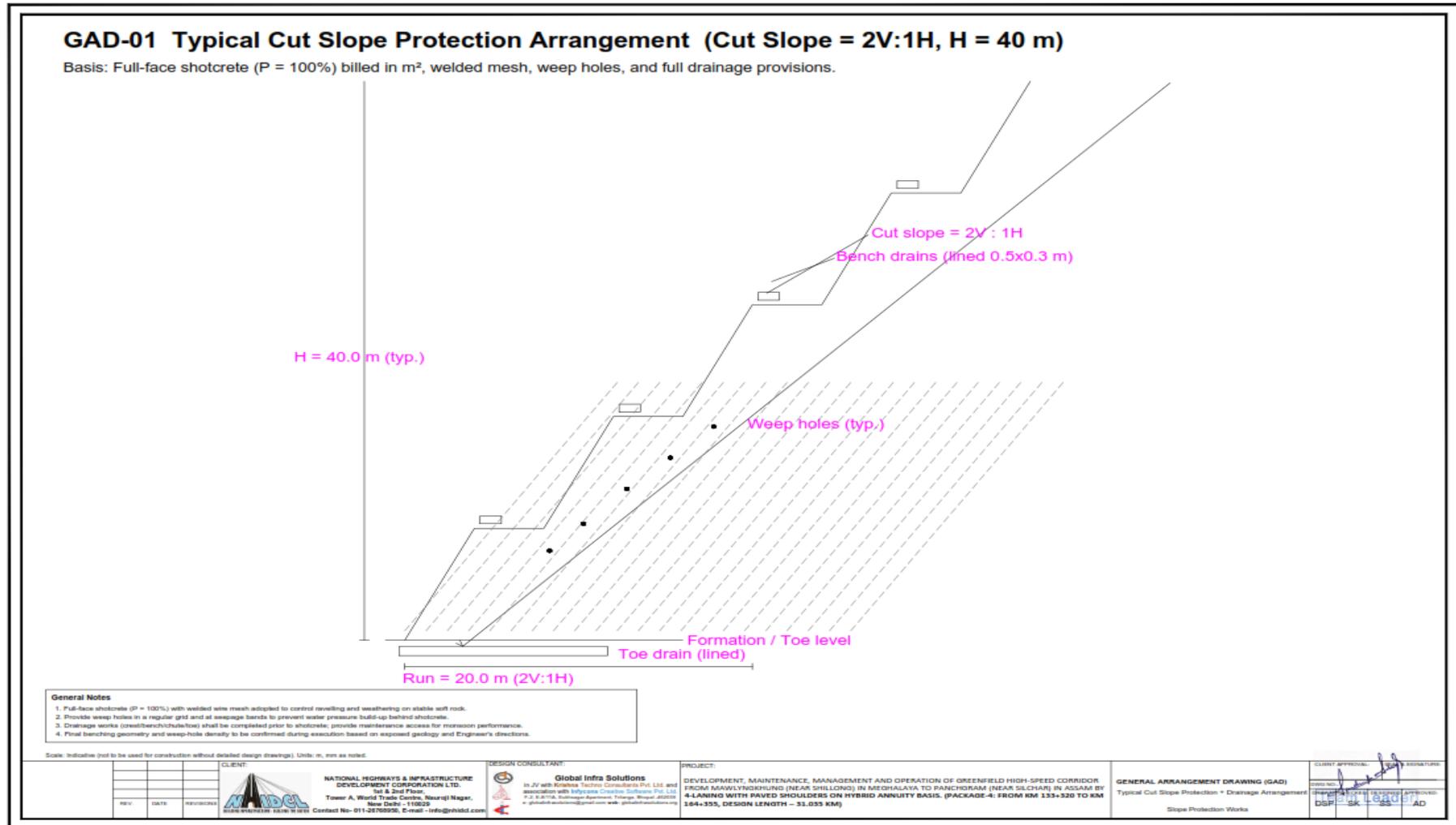


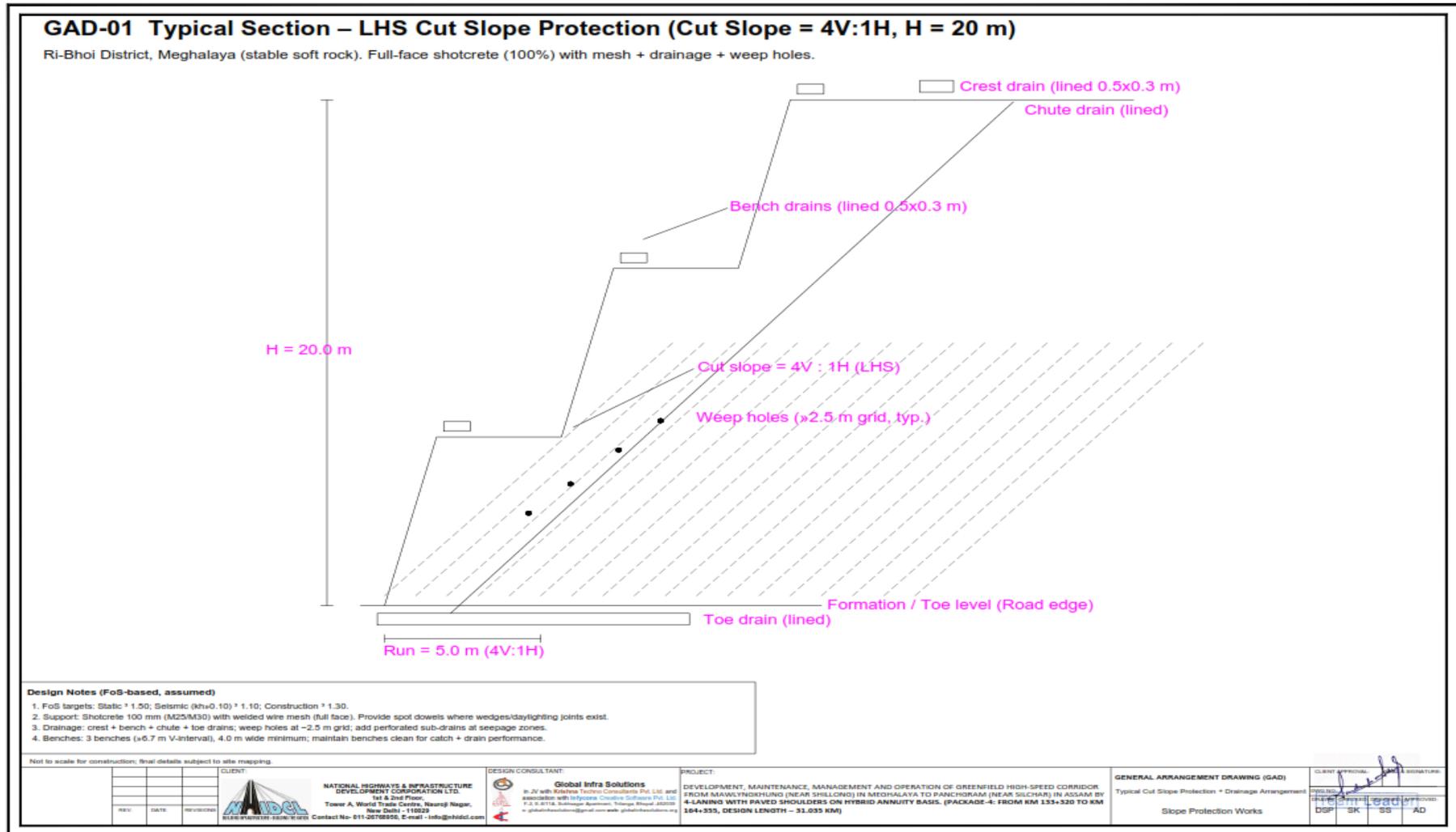
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|------|------|-----------|---|--|--|-------------------|---|
| REV. | DATE | REVISIONS | <p>CLIENT:</p>  <p>NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 1st & 2nd Floor, Tower A, World Trade Centre, Narroji Nagar, New Delhi - 110029 Contact No- 911-26769950, E-mail - info@nhidcl.com</p> | <p>DESIGN CONSULTANT:</p>  <p>Global Infra Solutions In JV with Kishore Techno Consultants Pvt. Ltd. and associated with Indira Creative Solutions Pvt. Ltd. F-2, B-17/18, Subhagar Apartment, Triloke Bhilai, 802015 e- globalinfraconsulting@gmail.com web- globalinfraconsulting.com</p> | <p>PROJECT:</p> <p>DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHLUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-4: FROM KM 133+320 TO KM 164+355, DESIGN LENGTH - 31.035 KM)</p> | <p>TCS</p> | <p>CLIENT APPROVAL:</p>  <p>DESIGNER:</p>  <p>CHECKED:</p>  <p>DATE:</p> |
|------|------|-----------|---|--|--|-------------------|---|







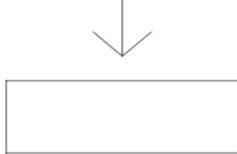




GAD-03 Drainage Details – Full Shotcrete Runoff Control (4V:1H, H = 20 m)

Typical lined drains + weep holes for Meghalaya monsoon performance (CAD-trace monochrome).

Detail A – Crest Drain (Section)



Lined drain 0.50 m (w) x 0.30 m (d) typ.
Concrete/stone masonry lining as per SOR.

Detail B – Bench Drain to Chute Junction



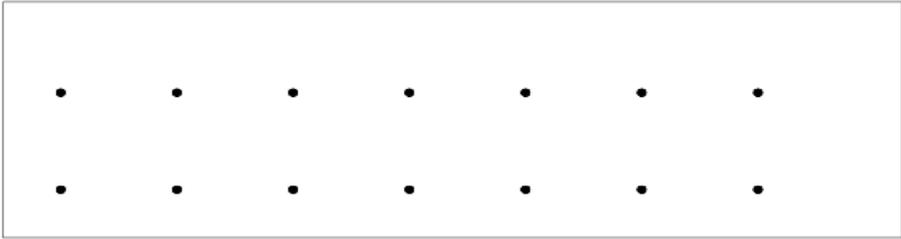
Provide silt trap/clean-out and proper energy dissipation at chute toe.

Detail C – Toe Drain (Section)



Toe drain lined 0.50 x 0.30 m typ. Provide cover slabs where required.

Detail D – Weep Holes (Elevation on Shotcrete)



Weep holes: 75–100 mm dia PVC through shotcrete; typical grid ~2.5 m x 2.5 m; provide more at seepage bands.

Drainage Notes

1. Complete crest drain and at least one chute before commencing shotcrete to avoid uncontrolled runoff on fresh lining.
2. Provide proper outfalls with erosion protection; avoid discharge onto carriageway/formation.
3. Maintain bench drains regularly during monsoon to prevent blockage and overlapping onto shotcrete face.
4. Add perforated sub-drains behind shotcrete at benches if persistent seepage is encountered during excavation.

| REV. | DATE | REVISIONS |
|------|------|-----------|
| | | |

CLIENT:

NATIONAL HIGHWAYS & INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
 Tower A, World Trade Centre, Naraina II, New Delhi - 110029
 Contact No- 011-26106555, E-mail - info@madcl.com

DESIGN CONSULTANT:

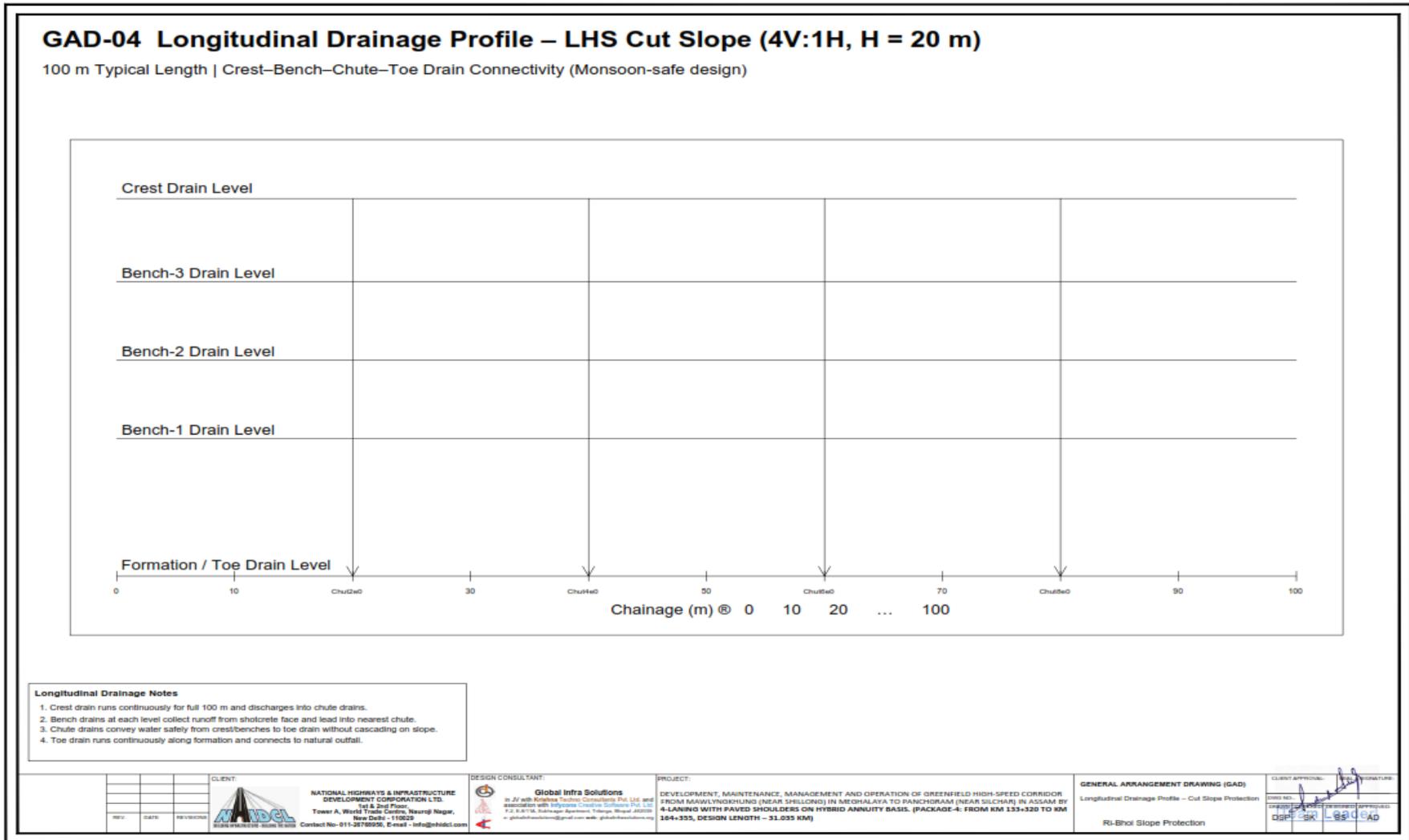
Global Infra Solutions
 is JV with Kishore Techno Consultants Pvt. Ltd. and associated with Infycore Creative Solutions Pvt. Ltd.
 G-2 & 2/F, Indraprastha Square, Vasant Vihar, New Delhi-110029
 www.globalinfra.com

PROJECT:
 DEVELOPMENT, MAINTENANCE, MANAGEMENT AND OPERATION OF GREENFIELD HIGH-SPEED CORRIDOR FROM MAWLYNGKHUNG (NEAR SHILLONG) IN MEGHALAYA TO PANCHGRAM (NEAR SILCHAR) IN ASSAM BY 4-LANING WITH PAVED SHOULDERS ON HYBRID ANNUITY BASIS. (PACKAGE-4: FROM KM 133+320 TO KM 164+355, DESIGN LENGTH – 31.035 KM)

GENERAL ARRANGEMENT DRAWING (GAD):
 Typical Cut Slope Protection + Drainage Arrangement
 Ri-Bhol Slope Protection

DETAILS (Not to scale)

| | |
|-----------------|--------------------|
| CLIENT APPROVAL | DESIGNER SIGNATURE |
| | |
| DESIGNED BY | DESIGNED BY |
| DSP - SK | SS - AD |



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SCHEDULE – C
(See Clause 2.1)

PROJECT FACILITIES

1 Project Facilities

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
 - i. Kilometer and Hectometer Stones
 - ii. Traffic Signs
 - iii. Overhead Signs
 - iv. Road Marking
 - v. Road Delineators
 - vi. Reflective Pavement Markers & Solar Studs
 - vii. Traffic Impact Attenuators
 - viii. Boundary pillars
- c) Operation and Maintenance centers
- d) Way side Amenities / Service Areas
- e) Truck lay-byes
- f) Bus Bay and Bus shelter
- g) Pedestrian Facilities
- h) Highway Lighting
- i) Rainwater Harvesting
- j) Environmental Management Plan
- k) Landscaping and Tree Plantation
- l) Advanced Traffic Management System (ATMS)
- m) Highway Patrol Units
- n) Emergency medical services
- o) Crane Service

1.1 Project Facilities for Project Highway

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

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Annexure – I
(Schedule-C)

PROJECT FACILITIES

1. Project Facilities

The Concessionaire shall construct the Project Facilities described in this Annexure-I to form part of the Project Highway. The Project Facilities shall include:

- a) Toll Plaza**
- b) Roadside furniture**
 - i. Kilometer and Hectometer Stones
 - ii. Traffic Signs
 - iii. Overhead Signs
 - iv. Road Marking
 - v. Road Delineators
 - vi. Reflective Pavement Markers & Solar Studs
 - vii. Traffic Impact Attenuators
 - viii. Boundary pillars
- c) Operation and Maintenance centers**
- d) Wayside Amenities / Service Areas**
- e) Truck lay-byes**
- f) Bus Bay and Bus shelter**
- g) Pedestrian Facilities**
- h) Highway Lighting**
- i) Rainwater Harvesting**
- j) Environmental Management Plan**
- k) Landscaping and Tree Plantation**
- l) Advanced Traffic Management System (ATMS)**
- m) Highway Patrol Units**
- n) Emergency medical services**
- o) Crane Service**

Description of Project Facilities

Each of the Project Facilities is briefly described below:

1. Toll Plaza

Tolling system shall be provided in entire length of the project and the same is integrated with the adjoining packages. The toll plazas shall be provided as per NHA circular No.17.5.82 dated 24/5/2021 and Schedule D. Minimum Lane requirement in the opening year are as follows.

Toll plaza shall be provided at the following locations.

| S. No. | Existing Chainage (km) | Design Chainage (km) | Direction | Minimum number of Toll Lanes | | Remarks |
|--------|------------------------|----------------------|--|------------------------------|------|--|
| | | | | Entry | Exit | |
| 1 | - | 0+160 | Service road -1 Umkiang to Silchar | | 2 | Interchange-01 At Km 134+780 |
| 2 | - | 0+460 | Service road -1 HSC to Umkiang | 2 | | |
| 3 | - | 0+600 | Service road-2 HSC to Umkiang Cross road | 2 | | |
| 4 | - | 0+160 | Service road-2 Umkiang cross road to HSC | | 2 | |
| 5 | - | 0+340 | Service road -1 HSC to Kalain | | 2 | Interchange-02 At Km 151+520 |
| 6 | - | 0+640 | Service road -1 Kalain to HSC | 2 | | |
| 7 | - | 0+330 | Service road-2 HSC to Jalalpur | | 2 | |
| 8 | - | 0+580 | Service road-2 Jalalpur to HSC | 2 | | |
| 9 | - | 0+175 | Ramp-1 HSC to Mohanpur Pt | | 3 | (Trumpet) Interchange-03 At Km 164+120 |
| 10 | - | 0+150 | Ramp-2 HSC to Kandigram Chaita (NH-37) | | 3 | |
| 11 | - | 0+430 | Ramp-3 Kandigram Chaita (NH-37) to HSC | 3 | | |
| 12 | - | 0+250 | Loop- Mohanpur Pt to HSC | 3 | | |

Note:

1. The Toll Plaza shall be constructed as per Manual (Schedule D) considering the modification as per NHA Circular NHA/Policy Guidelines/Management of Toll Plaza/2021 Policy Circular No. 17.5.82 dated 24th May, 2021. However, layout as mentioned in Schedule-C shall be followed.
 2. Based on the toll lanes as given above, toll Booth complex, weigh bridges, electrical systems, and all other facilities required/ mentioned in manual shall be provided as per specification mentioned in Schedule D
 3. No. of toll lane specified above are to be provided. The Concessionaire shall design and provide toll lane as per Manual (Schedule D) & NHA Circular NHA/Policy Guidelines/Management of Toll Plaza/2021 Policy Circular No.17.5.82 dated 24th May, 2021 subject to as specified above.
 4. All Toll Lanes to be equipped with Hybrid ETC equipment's as per NHA/Policy Guidelines/Management of Toll Plaza/2021 Policy Circular No. 17.5.82 dated 24th May, 2021.
 5. A separate Highway Nest with toilet facility for road users shall be provided near toll plaza location along with parking facility. One toilet block on each direction shall be provided. These toilet facilities shall follow CPWD specifications for sanitary ware items and fittings such as WC, wash basin, Wash basin-Under counter, Urinal flat back, PVC Cistern, IWC Orissa Pan, Flush Valve -CP, Wash Basin pillar cock-CP, Bib Cock-CP, Health Faucet, W/c Bib cock, Wash Basin angle cock. One WC shall be provided for specially challenged persons.
 6. Point of Sale (POS) with card swapping machines shall be provided.
 7. Provide Lane markings and Traffic Signs as per IRC: SP: 84, IRC 35 and IRC 67 (Clause No. 10.8 & 10.9 of IRC: SP:84)
 8. Solar panels shall be erected over the either on FOB or over Toll plaza / Admin building to generate the green energy. Same shall be utilized for toll plaza lighting and other energy requirement within toll plaza area along with conventional lighting.
 9. Medium speed Weigh in Motion (MSWIM) devices shall be provided in all toll lanes at Toll plaza Location. In addition to MSWIM, Static weigh Bridge (SWBs) shall be provided on each direction as per manual. (Clause No. 10.6, IRC: SP:84)
 10. Provide Impact Attenuators on Toll Plaza islands in the direction of traffic. Impact attenuators shall be self-restoring conform to section 10.6 of IRC SP 99 i.e. Manual of Specifications and Standards for Expressways. (Clause No9.6, IRC: SP:84)
- 2. Roadside furniture**

2.1. Kilometre and Hectometre Stones

| S. No. | Item | Number | Remarks |
|--------|--|--------|--|
| 1 | Kilometer Marker/ Stones (including 5th Kilometer stone) | 64 | The KM/Hectometer stones/ marker can be Concrete/ Stones and shall be placed on both outer side of the earthen shoulder. The size of Kilometer/ 5 th Kilometer/Hectometer will be as per Manual. In case KM/Hectometer marker are to be fixed on separator between Main Carriageway & Service Road then these should be fixed as reflective signs. |
| 2 | Hectometer Marker/ Stones | 251 | In case of Access Control Highway/ Expressway, KM/Hectometer marker should be fixed as reflective signs. Km/ Hectometre stones are required to provide on main carriageway and Service Road, both If continuous service road is provided throughout project length (Service Road length is more than 1 Km). |

2.2. Traffic Signs

Traffic Signs include roadside signs, overhead signs and kerb mounted signs etc. shall be provided along the entire Project Highway and on all Side, **Roads joining the main carriageway/service road in line with IRC 67 and MoRTH guidelines RT-25035/07/2023 dated 24.12.2024.** A QR code shall be marked on back of each sign as per IRC 67.

All signs shall be of Micro Prismatic Grade Sheeting Corresponding to Class C sheeting as per ASTM D 4956 Type VIII, IX and XI.

All shoulder mounted signs shall be supported on GI Pipes. Overhead Signs shall be placed on a structurally sound gantry or cantilever structure made of GI pipes. On multi-lane roads (6 lanes or above), signs shall be mounted overhead.

The siting of signs shall confirm to Table 4.1 and Fig 4.1 of IRC 67. The two successive signs shall be placed at a minimum distance of $0.6 \times V$ metre (V is design speed in Kmph).

The overhead gantry/Cantilever signs shall be placed as given below: (**Clause No. 16.3.2 of IRC 67 2022**)

| S. No. | Item | Carriageway (Left, Right, Both) |
|---------------|---|--|
| 1 | Overhead Gantry signs | |
| a | Start of Project | - |
| b | End of project | At the end of Package |
| 2 | Overhead Gantry signs | |
| a | Reassurance Sign- (Before 10 Km of exit) At 3 Nos. Interchanges exit | Both Side |
| 3 | Overhead Gantry signs (Vehicle Type) 2 nos. for each direction | Both Side |
| 4 | Cantilever Gantry signs | |
| a | Advance Direction Sign 2Km Before Exit At 3 Nos. Interchanges exit | Both Side |
| 5 | Cantilever Gantry signs at Fee Plaza | |
| a | At Ch. 134.785 Entry, 134.390 Exit, 134.735 Entry, 135.135 Exit. 151.575 Entry, 151.195 Exit, 151.415 Entry, 151.740 Exit, 163.525 Exit, 0+080 Exit, 0+260 Entry, 29.750 Entry (NH-37). | Both Side |

The detailed minimum number of signage indicating places, direction, distances, and other features shall be marked on the alignment plan and submitted, which are as mentioned below.

Note: The locations of the placement of signs shall be finalized in consultation with Independent Engineer/ Authority, as per site requirement.

| S. No. | Road Signs | Number | Remarks |
|---------------|----------------------------------|---------------|----------------|
| I | Mandatory/Regulatory | | |
| 1 | Stop signs | - | |
| 2 | Give Way Signs | | |
| 3 | Prohibitory signs | 12 | |
| 4 | No Parking signs | | |
| 5 | No Stopping signs | | |
| 6 | Speed Limit signs (Circular) | 26 | |
| 7 | Speed Limit signs (Vehicle Type) | 26 | |
| 8 | Vehicle Control signs | | |

| S. No. | Road Signs | Number | Remarks |
|---------------|---|---------------|-------------------------------|
| 9 | Restriction Ends sign | | |
| 10 | Compulsory Direction Control and other signs | | |
| II | Cautionary/Warning | | |
| 1 | Left/Right Curve | 82 | |
| 2 | Left / Right Curve with side road | | |
| 2 | Right/Left Hairpin Bend | - | |
| 3 | Right/Left Reverse Bend | - | |
| 4 | Series of Bends | | |
| 5 | 270 Degree Loop | | |
| 6 | Side Road | | |
| 7 | Y-intersection | | |
| 8 | Cross Road | | |
| 9 | Roundabout | | |
| 10 | Traffic Signals | | |
| 11 | T-intersection | | |
| 12 | Major Road Ahead | | |
| 13 | Staggered Inter-section | | |
| 14 | Merging Traffic Ahead | 6 | |
| 15 | Narrow Road Ahead | | |
| 16 | Road Widens | | |
| 17 | Narrow Bridge Ahead | | |
| 18 | Steep Ascent/Descent | | |
| 20 | Reduced Carriageway | | |
| 21 | Start /End of Dual Carriageway | | |
| 23 | Gap in Median | | |
| 24 | Pedestrian Crossing | | |
| 25 | Pedestrian crossing with backing board | | |
| 26 | School Ahead | | |
| 27 | Built Up Area | | |
| 28 | Two Way Operation (on main carriage way /service road | | Based on requirement by AE/IE |
| 29 | Two Way Traffic on Cross Road Ahead | | |
| 30 | Danger Warning Sign | | |
| 31 | Deaf or Blind Persons Likely on Road Ahead | | |
| 32 | Cycle Crossing | | |
| 33 | Cycle Route Ahead (Warning for Cycles on road ahead) | | |

| S. No. | Road Signs | Number | Remarks |
|---------------|---|---------------|----------------|
| 34 | Dangerous Dip | | |
| 35 | Speed Breaker | | |
| 36 | Rumble Strip | 12 | |
| 37 | Rough Road | | |
| 38 | Dangerous Ditch | | |
| 39 | Slippery Road | | |
| 40 | Slippery Road because of Ice | | |
| 41 | Opening or Swing Bridge | | |
| 42 | Overhead Cable | 4 | |
| 43 | Play Ground Ahead | | |
| 44 | Quay Side or River Bank | | |
| 45 | Sudden Side Winds | | |
| 46 | Tunnel Ahead Warning | | |
| 47 | Falling Rocks | | |
| 48 | Cattle Crossing | | |
| 49 | Wild Animals likely to be on Road Ahead | | |
| 50 | Queues Likely Ahead | | |
| 51 | Low flying Aircraft | | |
| 52 | Unguarded Railway Crossing | | |
| 53 | Guarded Railway Crossing | | |
| 54 | Crash prone area ahead | | |
| 55 | U- Turn | - | |
| III | Chevron Signs | | |
| 1 | Single Chevron | 368 | |
| 2 | Double Chevron | | |
| 3 | Triple Chevron | | |
| IV | Object Hazard Marker Sign | | |
| 1 | Left /Right side Object Hazard Marker | 222 | |
| 2 | Two-way Object Hazard Marker | - | |
| V | Informatory/Guide | | |
| 1 | Direction and Place Identification signs | 60 | |
| 2 | Stack Type Advance Direction Sign (Shoulder Mounted) | | |
| 3 | Stack Type Advance Direction Sign with cautionary / regulatory signs (Shoulder Mounted) | | |
| 4 | Map Type Advance Direction Sign (Shoulder Mounted) | | |

| S. No. | Road Signs | Number | Remarks |
|---------------|---|---------------|---|
| 5 | Map Type Advance Direction Sign for roundabout (Shoulder Mounted) | | |
| 6 | Flag Type Direction Sign | 18 | |
| 7 | Reassurance Sign | 12 | |
| 8 | Place Identification Sign | | |
| 9 | Bus Lay Bay | - | |
| 10 | Toll Booth Ahead | 12 | |
| 11 | Weigh Bridge Ahead | | |
| 12 | Shoulder Mounted Sign in Advance of a Grade Separated Junction/ Interchange | | |
| 13 | Expressway Sign | | |
| 14 | Gantry Mounted Advanced Direction Sign Ahead of a Flyover in Urban/City Roads | | Instead of continuous sign board, Separate Signs shall be provided for each information |
| 15 | Gantry Mounted advance Direction Sign Ahead of a Grade Separated Junction | | |
| 16 | Gantry Mounted advance Direction Sign Ahead of a At Grade Intersection | | |
| 17 | Gantry Mounted Advance Direction Sign for Interchange | 6 | |
| 18 | Cantilever Gantry Mounted Advance Direction Sign for Interchange | 6 | |
| 19 | Lane Dedicated Gantry Sign | 2 | |
| 20 | Definition/Supplementary Plates | | |
| 21 | Tourism Related Sign | | |
| 22 | Tourist Destination Direction Information Signs Without Photograph | | |
| 23 | Tourist Destination Direction Information Signs With Photograph | | |
| 24 | Finger Destination direction Information Sign for Pedestrians | | |
| 25 | Tourist Map Information Sign | | |
| 26 | Boundary Sign at Entrance to a City/Place | | |
| 27 | Boundary Sign at Entrance to a Tourist Destination | | |
| VI | Facility Information signs | | |
| 1 | Eating Place | 12 | |
| 2 | Light Refreshment | | |
| 3 | Resting Place | | |

| S. No. | Road Signs | Number | Remarks |
|---------------|--|---------------|----------------|
| 4 | First Aid Post | | |
| 5 | Toilet | 2 | |
| 6 | Filling Station (Fuel Pump) | 2 | |
| 7 | Hospital | - | |
| 9 | U-Turn Ahead | | |
| 10 | Pedestrian Subway | | |
| 11 | Police Station | | |
| 12 | Picnic Site | | |
| 13 | Repair Facility | | |
| 14 | Railway Station/Metro Station/Monorail Station | - | |
| 15 | Industrial Area | | |
| 16 | Cycle Rickshaw Stand | | |
| 17 | Taxi Stand | | |
| 18 | Auto Rickshaw Stand | | |
| 19 | Home Zone | | |
| 20 | Camp Site | | |
| 21 | Airport | | |
| 22 | Golf Course | | |
| 23 | National Heritage | | |
| 24 | No Through Road | | |
| 25 | No Through Side Road | | |
| 26 | Toll Road Ahead | - | |
| 27 | Guide Sign on Toll Lane Portal | | |
| 28 | Country Border | | |
| 29 | Entry Ramp for Expressway | 12 | |
| 30 | Exit Ramp for Expressway | 12 | |
| 31 | Expressway Symbol | | |
| 32 | End of Expressway | | |
| 33 | Bus Stop | - | |
| 34 | Bus Lane | | |
| 35 | Contra Flow Bus Lane | | |
| 36 | Cycle Lane | | |
| 37 | Contra Flow Cycle Lane | | |
| 38 | Holiday Chalets | | |
| 39 | Emergency Exit | | |
| VII | Other Useful Information Signs | | |
| 1 | Signs For Persons with Disabilities | | |

| S. No. | Road Signs | Number | Remarks |
|---------------|---|---------------|----------------|
| 2 | International symbol of Accessibility | | |
| 3 | Parking Information | | |
| 4 | Parking Areas | | |
| 5 | Ramped Entrance to Subway/Over Bridge | | |
| 6 | Telephone Facilities | 6 | |
| 7 | Toilet Facilities | | |
| 8 | Way Finding | | |
| 9 | Parking Signs | | |
| 10 | Auto Rickshaw Parking | | |
| 11 | Cycle Parking | | |
| 12 | Cycle Rickshaw Parking | | |
| 13 | Scooter and Motorcycle Parking | | |
| 14 | Taxi Parking | | |
| 15 | Park and Ride | | |
| 16 | Parking Restrictions Signs for Traffic Management | | |
| 17 | Flood Gauge Sign | | |
| VIII | Route Maker Signs | | |
| 1 | State Highway Route Marker Sign | | |
| 2 | National Highway Route Marker Sign | | |
| 3 | Asian Highway Route Marker Sign | | |
| 4 | Expressway Route Marker Sign | 15 | |

2.3. Road Marking

Road Markings shall be Hot applied thermoplastic materials with reflectorized beads to achieve visibility confirming to clause 2.7.2 of IRC 35.

The cold applied plastics pavement markings shall be used for School Zone Markings, Audible Raised Profile Edge Lines and Block Markings (BM 01/02/03).

| S. No. | Item | Unit | | Remarks |
|---------------|----------------------|---------------------|---------------|----------------|
| | | Length/Area | Number | |
| 1 | Longitudinal Marking | - | | |
| 2 | Transverse Marking | | | |
| 3 | Hazard Marking | | | |
| 4 | Block Marking | | | |
| 5 | Arrow Marking | | 2302.65 | |
| 6 | Directional Marking | 20140m ² | | |

| S. No. | Item | Unit | | Remarks |
|--------|--|----------------------|--------|---------------|
| | | Length/Area | Number | |
| 7 | Facility Marking | | | |
| 8 | Center Line | 2573m ² | | |
| 9 | Traffic Lane Lines | - | - | |
| 10 | No Overtaking Lines | | | |
| 11 | Warning Lines | | | |
| 12 | Border or Edge Lines | 12430m ² | | |
| 13 | Longitudinal Markings for Undivided Roads | | | |
| 14 | Longitudinal Markings for Divided Roads | | | |
| 15 | Longitudinal Markings for Ramps/Slip Roads/One Way Streets | 864 m ² | | |
| 16 | Stop Line | 1439 sqm. | - | |
| 17 | Give Way Lines | | - | |
| 18 | Ghost Island | | | |
| 19 | Chevron Markings | 10070 m ² | | |
| 20 | Continuity Line | | | |
| 21 | Word Messages | | | |
| 22 | Lane Change | | | |
| 23 | Merging/Diverging Markings | | | |
| 24 | Hatch Markings | | | |
| 25 | Raised Profile Edge Lines | 288 m ² | | Rumble Strips |
| 26 | Lane Reduction/Narrowing Situations and Transitions (lane Balancing) | | | |
| 27 | Directional Arrows | 250 m ² | | |
| 28 | Mandatory Turn Arrows | | | |
| 29 | Guidance Arrows | | | |
| 30 | Deflection Arrows | | | |
| 31 | Bifurcation Arrows | | | |
| 32 | Arrows on Side Road Approaches | | | |
| 33 | Arrows on Main Road Approaches | | | |
| 34 | Word Messages | | | |
| 35 | Yellow Box Markings | | | |
| 36 | Diagonal Markings for ramps | 399 m ² | | |
| 37 | Marking for Speed Breakers | | | |
| 38 | Pedestrian Crossing | | | |

| S. No. | Item | Unit | | Remarks |
|--------|---|-----------------------|--------|---------|
| | | Length/Area | Number | |
| 39 | Markings when highway passes through settlement fig 9.4 of IRC SP 84/87 | | | |
| 40 | Transverse Bar Markings | | | |
| 41 | Bus bay Marking | | | |
| 42 | Truck Lay-by Markings | | | |
| 43 | Toll Plaza Marking | 715.35 m ² | - | |
| 44 | School Zone Markings | | | |
| 45 | Object Markings within Carriageway | | | |
| 46 | Objects Markings Adjacent to Carriageway | | | |
| 47 | i. Subway Piers, Abutments, Culverts Head Walls, Concrete Barrier | | | |
| 48 | ii. Electrical Poles | | | |
| 49 | iii. Guard Rails | | | |
| 50 | iv. Trees | | | |
| 51 | v. Kerbs | - | | |
| 52 | Directional Markings as per Annexure: A 6 of IRC:35-2015 | | | |
| 53 | Facility Markings as per Annexure A 6 of IRC:35-2015 | | | |

Note: The number & locations of the Road Marking mentioned above are minimum and shall be finalized in consultation with Independent Engineer/Authority, as per site requirement.

2.4. Road Delineators: The road delineators shall be provided in accordance with Schedule-D.

| S. No. | Item | Number/ Length (m) | Remarks |
|--------|---|--------------------|---|
| 1 | Roadway Indicators | - | On Curves & in Slip Road at underpass |
| 2 | Median Marker on Median/ RCC Barrier (Clause 4 of IRC 79 2019) | 5393 | |
| 3 | Object Markers | - | At Intersections, Grade Separators, Bridges & ROB locations |
| 4 | Road Delineators | 1152 | |

| S. No. | Item | Number/ Length (m) | Remarks |
|--------|---|--|--|
| 5 | Flexible Object Markers (Clause 6 of IRC 79 2019) i.On Metal Beam Barrier ii.On Toll Booth/Toll Island iii.On Entry/Exit of Tunnel iv.On Exit from Main carriageway | 53934 m (In median) & 37533 m (In sharp curve & Embankment) | On Thrie Beam Crash Barrier in Fig 2.2A on either side |
| 6 | Solar Blinkers on Median opening, on exit from main carriageway and traffic island of grade separated intersections. | - | |

Note: The number & locations of the Road Delineators/flexible object markers are minimum and shall be finalized in consultation with Independent Engineer/Authority, as per site requirement.

2.5. Reflective Pavement Markers & Solar Studs

The Prismatic Retro-Reflective type conforming to ASTM D-4280 Pavement Markers & Solar Power Studs on Highway shall be provided in accordance with Schedule –D.

| S.No. | Item | Number | Location | Remarks |
|-------------------------------|--|--------|---|---------|
| A– For 4 Lane Projects | | | | |
| 1 | White Colour one coloured face Road Studs | 4734 | Traffic lane line & center of carriageway | - |
| 2 | Red Colour one coloured face Road Studs | 4734 | Left hand edge of the carriageway, entry to bus bay, start of service road, chevron/diagonal markings on gorge | |
| 3 | Yellow / Amber Colour one coloured face Road Studs | 4734 | Median side edge line, zebra crossing | |
| 4 | Green Colour one coloured face Road Studs | - | Lay byes, left hand side of the carriageway in case of multi-lane divided carriageways, crossable continuous line like in acceleration/deceleration lanes involving lane changing | |

| S.No. | Item | Number | Location | Remarks |
|-------|---|--------|----------|---------|
| 5 | Solar Studs on Major/ Minor bridge, RoB, and all structures (Interchange /Flyover/ VUP) and Builtup areas, In storage lane of median opening and Exit/Entry from main carriageway | - | NIL | |

Note: The number & locations of Studs are minimum and shall be finalized in consultation with Independent Engineer/ Authority, as per site requirement.

2.6 Traffic Impact Attenuators: The Traffic Impact Attenuators shall be provided as per Schedule D.

2.6.1 Provide Impact Attenuators in Gore Areas

It shall be **self-restoring confirming to section 6 of IRC SP 84:2019** at the following locations.

| S. No. | Item | Chainage/Number | Remarks |
|--------|--|---|-------------------------|
| 1 | On flyover/grade separated structure at exit from main carriageway | Interchanges- At Ch. 134.780, 151.520 & 164.120 | As per site requirement |
| 2 | Any other location which Safety Hazard - Before Toll Plaza | On the Ramps at 3 Interchanges- At Ch. 134.780, 151.520 & 164.120 | As per site requirement |

2.6.2 Providing End Terminals

Provide End Terminals confirming to EN 1317 part-2 to Parapet Walls of Culverts, Structures ends for the safety of approaching traffic etc.

| S. No. | Item | Chainage / Number | Remarks |
|--------|------|-------------------|-----------------------------|
| | | | At all bridges as per Sch-B |

2.6.3. Boundary Wall and Border fencing (Clause No. 12.2 IRC-SP-84):

Boundary wall shall be provided along the entire length on either side (including transverse requirements at structure locations) as per the detail given below in accordance with IRC: SP:84/87, except at ingress and egress points. The boundary walls shall be of reinforced cement concrete as per figure enclosed as Annexure A.

At all CD structure locations, the boundary wall shall be discontinued by turning and joining it with the wing/return wall to allow crossing through these structures during dry seasons.

Additionally, the Concessionaire shall construct International Border fencing over a length of 827 m (as per Typical cross section TCS-13B & TCS-13C, attached as Annexure-II of Schedule-B), 1 three-storey Border Outpost (BOP) for 20–25 personnel near Shiv Mandir, 4 watch towers, CCTV surveillance along with lighting and fencing of the BSF road. The design of Fencing shall be finalized in consultation with BSF. The watch towers shall be equipped with amenities including washrooms, electricity, floodlights, camps, and monitoring systems, as required, in coordination with Border Security Force. All electrical and water supply utility shifting shall be carried out in coordination with Border Security Force.

3. Operation and Maintenance centers-

~~There shall be operation and maintenance center(s) as per Clause 12.15 of Schedule D, either near the toll plaza location or at any other location along the Project Highway, as identified by the Concessionaire. The minimum land for O & M center shall be 2000 sq.m and shall be acquired by the Concessionaire at his own cost and risk. Dedicated operation and maintenance center shall be provided in accordance to Schedule C.~~

4. Wayside Amenities / Service Areas/Rest Area

| S. No | Item | Design Chainage (Km) | Side | Remarks |
|-------|--------------------|----------------------|------|------------------|
| 1 | Way side amenities | - | BHS | One on each side |

The site needs to be levelled/graded/paved for the whole of way side amenities area and boundary wall of the height of 1.5m shall be constructed along the periphery of the area. The Site need to be connected to the Main Road by construction of a approach Service road for both entry & exit.

5. Truck lay-byes:

5.1. The truck lay-bye shall be provided at below given location and as per the design mentioned in Schedule-D.

| Sr. No. | Existing Chainage (Km) | Design Chainage (Km) | Side | Remarks |
|---------|------------------------|----------------------|------|---------|
| NIL | | | | |

5.2. Deleted

5.3. Truck Lay Bye Pavement

| Pavement Composition (Flexible/Rigid/ Paver Blocks) |
|---|
| NIL |

6. Bus shelter:

Provision of bus shelter on highways as per IRC 80 including paving of laybye, signs, markings, speed calming measures, drainage, lighting etc., in built-up areas, intersections of NH/SH/MDR and roads leading to large settlements is as follows:

6.1. Bus Shelters locations

Bus shelters shall be constructed at the following locations:

| Sr. No. | Chainage (Km) | SIDE |
|---------|------------------------------------|------|
| 1 | Interchange locations on each side | |

6.2. Kerb Side Bus Stop with Pedestrian shelter

Kerb Side Bus Stop with Pedestrian shelter shall be provided at the following locations.

| Sr. No. | Design (Existing) Chainage (Km) | | Pedestrian Shelter Length | Remark |
|---------|---------------------------------|-------|---------------------------|--------|
| | Left | Right | | |
| NIL | | | | |

6.3. Bus Bay Pavement

Flexible Pavement as per Clause-5 of Schedule-B.

7. Pedestrian Facilities

Pedestrian Facilities shall be provided in accordance with the Manual of Specifications and Standards as referred in Clause 9.8 of Schedule D and IRC

103 2022. This shall consist of footpath (sidewalks), pedestrian guard rails and pedestrian crossing.

The details are as mentioned below:

| S. No. | Pedestrian Facilities | Chainage | | Side | Remarks |
|--------|--|----------|----|------|---------|
| | | From | To | | |
| 1 | Pedestrian guardrails shall be 150 mm from Carriageway/Paved Shoulder i. Hazardous Locations on Straight Stretches ii. At Junctions/Intersections iii. Schools iv. Bus Stop/Railway Stations v. Overpass, Subway vi. Central Reserve | | | Nil | |
| 2 | Footpath paving including fixing pavers | | | Nil | |
| 3 | Pedestrian Crossing i. With Zebra Marking ii. With Tabletop Crossing iii. At Intersections iv. At Schools | | | Nil | |

8. Highway Lighting

The street light poles shall be 1 piece, continuous-tapered, Octagonal poles and shall be manufactured from one length of steel sheet, formed in continuous tapered tube, with one continuous arc-welded vertical seam. The minimum wall thickness for lighting poles shall not be less than 4 mm. The Bottom Diameter shall be minimum 175 mm. The Top Diameter shall be minimum 75 mm. The door on window of pole shall be antitheft. All electrical cable should be concealed. All electrical lighting fixers shall be LED. The fixtures shall be concealed except on poles. Lighting poles shall be fixed on outer side of steel/concrete barrier. **The lighting shall be providing at the following locations having an illumination of min. 40 lux at the extreme edge of Highway.** (Drawing Attached as Annexure A of Schedule C)

| S. No. | Lighting facilities | Chainage | | Side | Lighting Source: Electricity Board/ Generator/ Solar | |
|--------|--|---|---------|------|--|-------------------------------------|
| | | From | To | | | |
| 1 | High mast lighting of 25m height (In interchanges and Entry-Exit ramps) | <p>1. Interchanges- At Ch. 134.780, 151.520 & 164.120</p> <p>2. Ramp/Loop Entry-Exit- At Ch. 134.420 Entry, 135.120 Exit, 134.420 Entry, 135.300 Exit, 151.040 Entry, 151.910 Exit, 151.040 Entry, 151.910 Exit, 163.620 Entry, 29.580 Exit (Badarpur Bypass), 164.355 Entry 30.300 Exit (Badarpur Bypass), 30.090 Entry (Badarpur Bypass), 163.620 Exit, 164.355 Entry & 29.853 Exit (Badarpur Bypass).</p> <p>3. At Emergency Lay Bye location 2 nos.</p> | | | | Electricity Board/ Generator/ Solar |
| 2 | On Major/Minor Bridges, viaducts and Underpasses and its approaches (Both side Over hanged) for main carriageway and BSF Patrolling road | 134+000 | 134+065 | Both | Electricity Board/ Generator/ Solar | |
| | | 134+065 | 134+205 | Both | | |
| | | 134+205 | 134+240 | Both | | |
| | | 134+500 | 134+760 | Both | | |
| | | 134+760 | 134+794 | Both | | |
| | | 134+794 | 134+920 | Both | | |
| | | 134+960 | 135+135 | Both | | |
| | | 135+135 | 135+165 | Both | | |
| | | 135+165 | 135+200 | Both | | |
| | | 135+200 | 135+245 | Both | | |
| | | 135+245 | 135+257 | Both | | |
| | | 135+257 | 135+440 | Both | | |
| | | 136+440 | 136+450 | Both | | |
| | | 136+450 | 136+720 | Both | | |
| | | 136+720 | 136+740 | Both | | |
| | | 137+198 | 137+330 | Both | | |
| | | 137+515 | 137+525 | Both | | |
| | | 137+726 | 137+756 | Both | | |
| | | 137+910 | 138+015 | Both | | |
| | | 138+665 | 138+710 | Both | | |

| S. No. | Lighting facilities | Chainage | | Side | Lighting Source: Electricity Board/ Generator/ Solar |
|--------|---------------------|----------|---------|------|--|
| | | From | To | | |
| | | 138+815 | 138+880 | Both | |
| | | 138+926 | 139+150 | Both | |
| | | 139+258 | 139+370 | Both | |
| | | 139+582 | 139+640 | Both | |
| | | 139+750 | 139+914 | Both | |
| | | 140+500 | 140+700 | Both | |
| | | 140+700 | 140+755 | Both | |
| | | 140+755 | 140+765 | Both | |
| | | 140+765 | 140+820 | Both | |
| | | 141+410 | 141+440 | Both | |
| | | 141+515 | 141+535 | Both | |
| | | 142+050 | 142+560 | Both | |
| | | 142+980 | 143+100 | Both | |
| | | 143+710 | 143+740 | Both | |
| | | 144+070 | 144+478 | Both | |
| | | 146+280 | 146+342 | Both | |
| | | 146+342 | 146+349 | Both | |
| | | 146+349 | 146+420 | Both | |
| | | 147+000 | 147+149 | Both | |
| | | 147+149 | 147+156 | Both | |
| | | 147+156 | 147+178 | Both | |
| | | 147+178 | 147+252 | Both | |
| | | 147+252 | 147+317 | Both | |
| | | 147+317 | 147+324 | Both | |
| | | 147+324 | 147+500 | Both | |
| | | 148+480 | 148+517 | Both | |
| | | 148+517 | 148+527 | Both | |
| | | 148+527 | 148+640 | Both | |
| | | 148+986 | 148+994 | Both | |
| | | 148+994 | 149+044 | Both | |
| | | 149+044 | 149+056 | Both | |
| | | 149+056 | 149+160 | Both | |
| | | 149+977 | 149+987 | Both | |
| | | 150+202 | 150+209 | Both | |
| | | 150+565 | 150+575 | Both | |
| | | 150+935 | 150+945 | Both | |

| S. No. | Lighting facilities | Chainage | | Side | Lighting Source: Electricity Board/ Generator/ Solar |
|--------|---------------------|----------|---------|------|--|
| | | From | To | | |
| | | 151+024 | 151+036 | Both | |
| | | 151+245 | 151+255 | Both | |
| | | 151+495 | 151+529 | Both | |
| | | 151+915 | 151+925 | Both | |
| | | 153+174 | 153+186 | Both | |
| | | 153+340 | 153+385 | Both | |
| | | 153+484 | 153+491 | Both | |
| | | 154+443 | 154+477 | Both | |
| | | 154+917 | 154+924 | Both | |
| | | 155+310 | 155+330 | Both | |
| | | 155+800 | 155+820 | Both | |
| | | 156+492 | 156+499 | Both | |
| | | 156+955 | 157+045 | Both | |
| | | 157+505 | 157+515 | Both | |
| | | 157+680 | 157+690 | Both | |
| | | 157+995 | 158+005 | Both | |
| | | 158+199 | 158+211 | Both | |
| | | 158+372 | 158+379 | Both | |
| | | 159+773 | 159+798 | Both | |
| | | 159+917 | 159+924 | Both | |
| | | 160+189 | 160+201 | Both | |
| | | 161+095 | 161+105 | Both | |
| | | 161+505 | 161+585 | Both | |
| | | 161+952 | 161+968 | Both | |
| | | 163+715 | 164+355 | Both | |

| S. No. | Lighting facilities | Chainage | | Side | Lighting Source: Electricity Board/ Generator/ Solar |
|--------|---|-----------------------------------|----|------|--|
| | | From | To | | |
| 3 | Grade separated interchanges, underpasses pedestrian) overpasses: Lighting requirement shall be as per section 12 of the manual. The top and underside of the grade separated structures including service road/ slip road, interchange area at the ground level up to 50m beyond the point from where flaring of the main carriageway takes place shall be provided with lighting. Also, on all legs of at grade interchange/ crossings the lighting shall be provided 50m beyond the point of Centre on all legs. The minimum illumination shall be 40 Lux., at the extreme edge of the Highway | At Ch. 134.780, 151.520 & 164.120 | | | Electricity Board/ Generator/ Solar |

9. Rainwater Harvesting

A minimum 01 (One) Nos of Rainwater harvesting units per km length of the project stretch shall be provided as part of the scope of the project. Location shall be finalized by the Independent Engineer in consultation with the Authority. The Locations and design of stretch (i.e.) diameter/length of recharge shaft etc. shall be based on the rain fall intensity and geo-technical strata and based on enclosed drawing. The guidelines and norms issued by the Central Ground Board may also

be adopted while finalizing the location and design of rainwater harvesting units along with requirement given in IRC SP: 42 and IRC SP: 50.

| S.No. | Rain water Harvesting Type | Chainage | Side | Depth of Recharge Structure |
|----------|----------------------------|----------|------|-----------------------------|
| As Above | | | | |

10. Environmental Management Plan

The contractor shall ensure

10.1. Tree Plantation and Protection

The Contractor shall ensure the plantation of **1,50,000 (Three Lakh Fifty Thousand)** trees, each with a **tree guard**, at locations identified in coordination with the Authority or the Independent Engineer.

10.2. Sanitation and Environmental Management

The Concessionaire/Contractor shall:

- Provide adequate sanitation arrangements at the camp site;
- Implement effective dust suppression measures throughout the project area;
- Carry out solid waste management in accordance with relevant environmental guidelines and regulations.

10.3. Environmental Monitoring

The Concessionaire/Contractor shall:

- Monitor **Ambient Air Quality, Ambient Noise Levels, Surface Water Quality, and Soil Quality**;
- Engage a **NABL-accredited laboratory** for all environmental monitoring activities;
- Submit environmental monitoring reports to the Authority on a **quarterly basis**, during both the construction and maintenance periods.

11. Land Scaping and Tree Plantation

The Concessionaire shall plant trees and shrubs (as per green Highway Policy) of required numbers and types at the appropriate locations within Right of Way and in the land earmarked by the Authority for compensatory afforestation. The number of trees which are required to be planted by the Concessionaire as compensatory afforestation should be as per Forest Conservation Act of state government.

| Sl. No. | Types of Plantations | Location (Km) | Number of trees to be planted | Remarks |
|---------|----------------------|---|---|---|
| 1 | Shrubs | NIL | | |
| 2 | Land Scaping | O & M Centers, Vacant land parcels, land within loops of flyovers, Toll Plaza building and surroundings Vacant spaces below the flyovers | Landscaping plans will be submitted by the Concessionaire/Contractor which shall include ornamental trees, decorative statues and landscaping. | The number of Ornamental type plantations and other things shall be decided on the basis availability of land. |
| 3 | Plantations | Available open land within ROW towards edge of ROW & Land earmarked by authority for compensatory afforestation | 13200/- (Thirteen Thousand two hundred) Trees on both sides of project highway at the edge of ROW @10m c/c in Two Rows. 100000/- (One Lakh) trees for compensatory afforestation | Trees on both sides of project highway at the edge of ROW @10m c/c in Two Rows preferably local like mango, Neem, Sheesham, Babul, Peepal etc. shall be planted |

The Concessionaire shall maintain the trees and shrubs in good condition during concession period as per the concession agreement.

12. Advanced Traffic Management System (ATMS)

The Concessionaire is required to design, install, operate and maintain Advanced Traffic Management System (ATMS) as part of the project facilities. Advanced Traffic Management System shall be provided as per standards and specifications specified in the manual and as per NHA circular and shall be maintained throughout the contract period. (NHA Policy circular no.11.53/2023 dated 10.10.2023).

The ATMS components to be deployed shall inter alia include:

12.1. General

The ATMS Project shall broadly include the following sub-systems to be provided as per the standards & specifications mentioned in NHA policy circular technical (NHA Policy circular no.11.53/2023 dated 10.10.2023):

- 12.1.1. Video Surveillance System / Traffic Monitoring Camera System (TMCS)
- 12.1.2. Video Incident Detection and Enforcement System (VIDES)
- 12.1.3. Vehicle Actuated Speed Display System (VASD)
- 12.1.4. Fixed and Portable Variable Message Sign (VMS) System
- 12.1.5. Communication Network with OFC Backbone
- 12.1.6. Emergency Roadside Telephone System (ECB)
- 12.1.7. Emergency Call Box*
- 12.1.8. Mobile Radio Communication System*
- 12.1.9. ATMS Command & Control Center with ATMS Software.
- 12.1.10.** Power Supply for Field Equipment as well as for ATMS Command & Control Center.

The requirements stated herein shall be construed as minimum requirement and meeting the respective requirements individually shall not relieve the Concessionaire from the responsibility. The entire system should function efficiently as an integrated solution during the entire O&M period.

12.1.1. Video Surveillance System / Traffic Monitoring Camera System (TMCS)

- (i) The system monitors vehicular and other road related activity along the highway stretch through PTZ Camera mounted on Poles. Generally, the camera should be placed at a distance not greater than 1km so as to effectively monitor all the lanes of the entire stretch of Highway. In case certain stretches include regular curves, ramps etc. not allowing central line of sight, then additional TMCS camera shall be put to ensure effective surveillance of the entire stretch. The TMCS cameras should also be placed on the following Junctions below the Grade Separated Structure.
- (ii) The TMCS should also be provided at the following locations so as to monitor the traffic at the following locations:

12.1.2. Video Incident Detection and Enforcement System (VIDES)

The VIDES include Gantry Mounted ANPR Cameras, Overview Cameras and associated incident detection software system to effectively detect pre-defined actionable incidents which triggers enforcement and incident response system. The VIDES should also act as Automatic Traffic Counting and Classifying (ATCC) system. The VIDES should be provided at following locations:

| S. No | Location (Km) | Remarks | Availability of Full Gantry |
|--------------|----------------------|----------------|------------------------------------|
| 1 | 134+780 | BHS | No |
| 2 | 151+520 | BHS | No |
| 3 | 164+120 | BHS | No |

12.1.3. Vehicle Actuated Speed Display (VASD) System

The VASD system shall include gantry mounted Radar and Speed Display system for each lane to warn the road users of their speed. The system shall act as a Speed Calming Measure. VASD System should be provided at following locations along the Expressways:

| SI No | Location (Km) | Remarks | Availability of Full Gantry |
|--------------|----------------------|--------------------------------------|------------------------------------|
| 1 | 141+120 | BHS VASD on Butterfly type Gantry | No |
| 2 | 156+620 | BHS VASD on Butterfly type Gantry | No |

12.1.4. Fixed and Portable Variable Message Sign (VMS) System

The VMS shall provide road users advance information of road conditions ahead and shall be controlled from the local ATMS Control center. The VMS shall be installed at following locations:

12.1.4.1. Fixed VMS

12.1.4.1.1. Gantry (L Type)

| VMS - Full M' Type | | | | | |
|---------------------------|-----------------------|-----------------|-------------------|-----------------|----------------|
| Sr. no | Equipment name | Location | Side | Location | Remarks |
| 1 | VMS F+RSU | 136+320 | Shillong -Silchar | On VOP | |
| 2 | VMS F+RSU | 136+320 | Silchar-Shillong | On VOP | |

12.1.4.1.2 Cantilever (L Type)

| VMS - Full L' Type | | | | | |
|---------------------------|-----------------------|-----------------|-------------------|-----------------|----------------|
| Sr. no | Equipment name | Location | Side | Location | Remarks |
| 1 | VMS F+RSU | 153+620 | Shillong -Silchar | | |
| 2 | VMS F+RSU | 153+620 | Silchar-Shillong | | |

12.1.4.2. Portable VMS

The Concessionaire shall provide 02 (No.) Trolley Mounted Portable VMS.

12.1.5. Communication Network with OFC Backbone

The entire stretch shall be provided with a minimum of 24 Core OFC Backbone as per the standards & specifications. The short haul connections, like between field equipment to access points, access points to OFC backbone etc., shall be done with a minimum of 12 Core cable. The OFC shall be laid strictly as per the Standards and Specification.

12.1.6. Emergency Roadside Telephone System (ECB)

The existing emergency call box shall be provided as per NHA Policy circular no.11.53/2023 dated 10.10.2023.

12.1.7. ATMS Command and Control Center

The Concessionaire shall integrate ATMS with existing Control Centre and operate the ATMS Command and Control Center as per the Standards and Specification. The Concessionaire shall undertake any additional civil works, interior works, MEP works, for setting up the Command Center, including all additional related electrical, lighting, electrical connection, DG set, power backup, HVAC works, access control, building CCTV, PTZ cameras outside building, firefighting system, alarm, fire extinguishers, raised floor, housekeeping, building cleaning, maintenance, recurring charges including electricity bills, telephone bills, DG fuel, servicing, security.

12.1.1 Power Supply for ATMS Command & Control Center and Field Equipment

The Concessionaire shall ensure 24x7 supply for the ATMS Command and Control Centre and Field Equipment with supply power from Electricity Department as primary source supported by UPS renewable power (solar etc.) and DG Set of adequate capacity.

There shall be NO obligation of Authority with regard to providing power/ electricity supply/connections for testing commission, operation & maintenance of any component of the ATMS. Further, the following points are also to be observed by the ATMS Concessionaire:

- a. The Concessionaire shall perform all the necessary application procedures to the Power Company required for the power to be supplied to the Traffic Management Centre, Sub-Centre and the field equipment in their own name. All the expenses charged by Power Companies regarding such applications and execution of work shall be borne by the Concessionaire as part of the scope of this contract. Any damage to the highway during such execution of work shall have to be repaired by the ATMS Concessionaire to the pre-existing condition without any cost implications to Authority
- b. The Concessionaire shall make all necessary arrangements for the electricity needed for the execution of the Works and O&M period for the entire period of the Contract. In case electricity is not made available through electricity companies, alternate electricity arrangement such as through renewable energy/DG Set should be made by the Concessionaire. Under no circumstances Authority shall grant an extension of time for achieving the milestones if the Concessionaire is unable to make the electricity arrangement either for the execution of the work or for the O&M activities.
- c. The fixed charges, installation charges, recurring charges, electricity bill, DG set fuel, maintenance etc. for each field equipment, TMC, Control Centre, Sub-centre,

Concessionaire's site office, or any other facility being used by the Concessionaire under the scope of this Contract shall be in the scope of the Concessionaire only for the entire Contract period i.e., Design phase, procurement, installation, testing, trail-run, commissioning, operations, and maintenance period. The Authority shall not be responsible for any provision for power supply during implementation as well as operations and maintenance period.

12.1.9. Operation & Maintenance (O&M) of the entire ATMS Facility.

- a. The O&M period after the successful completion of works shall include Operation & Maintenance of the entire ATMS Facility as per the Service Level Agreement (SLA) with Qualified Manpower mentioned in Standards & Specifications including supply of adequate spares, parts, consumables and maintenance equipment required for the facility. The Concessionaire shall maintain required spare parts to maintain required service levels.
- b. The Concessionaire shall have sufficient infrastructure and capability to keep/store spares required for maintenances and will at all times during the contract period maintain sufficient inventory of spares and consumables for operating and maintaining the ATMS and to meet the Service Level requirements.
- c. Before the start of O&M Period, the Concessionaire shall deploy the O&M Personal mentioned at Appendix-C of Standards & Specification (NHAI Policy circular no. 11.53/2023 dated 10.10.2023) with prior approval of the Authority.

12.1.10. Maintenance Vehicle-The Concessionaire shall keep adequate numbers of dedicated vehicles (minimum 1 vehicle per 50km) to attend the maintenance requirement during the Operation & Maintenance period.

13. Highway Patrol Units

Highway Patrol units shall be established and operate at toll plaza location as per Schedule-D Clause 12.10, which shall continuously patrol the highway in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of patrol vehicle per 50 km or less shall be provided). The vehicle shall be brand new with fuel, driver, and insurance all inclusive for the entire contract period. Highway Patrol units shall be fitted with GPS and GSM based vehicle tracker system. Highway Patrol Vehicles shall be stationed on layby constructed on Project Highway @ every 20 km of each Toll Plaza.

14. Emergency medical services

The Contractor shall, at its own cost, construct a medical aid post at each toll plaza with a minimum size of 5 x 5 sq. m with a toilet (to be used for the patients of minimum size of 3 x3 sq. m) and hand it over to the Authority, no later than 30 (thirty) days prior to PCOD/COD. The Medical Aid Post(s) shall be deemed to be part of the project and shall vest in the Authority. Medical Aid Post shall be set up at Administrative Block with round-the-clock services for victims of accidents on the Project Highway.

One number Ambulance shall be provided in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of ambulances per 50 km or less shall be provided). The Ambulance shall be brand new with fuel, driver, medical staff and insurance all-inclusive for the entire contract period. Ambulance fitted with GPS and GSM based vehicle tracker system shall be provided to be integrated with the Video Incident Detection System with ATMS, as per Schedule - D, Clause 12. 11 (strictly as per details mentioned in Annex-I of Schedule D), along with all necessary manpower (including paramedical staff), medicines, equipment's etc. and shall be maintained in an effective manner throughout the contract period starting from the appointed date. Ambulance shall be stationed on lay by constructed on Project Highway@ every 20 km of each Toll Plaza.

15. Crane Service:

Crane Service shall be provided on project highway, as specified in the manual Clause 12. 1 One number crane shall be provided in a stretch not exceeding 50 km (if the stretch is more than 50 km additional 1 number of cranes per 50 km or less shall be provided). Crane having capacity of minimum 20T shall be made available. The crane shall be brand new with fuel, driver, and insurance all-inclusive for the entire contract period. Cranes shall be stationed on layby constructed on Project Highway@ every 20 km of each Toll Plaza.

16. Buildings for Traffic Aid Posts

Nil.

17. Building for Medical Aid Post

Nil.

18. Establishment of Fully Furnished office PMU-NHIDCL Badarpur at Badarpur by the Concessionaire

The Concessionaire shall be responsible for the establishment of one (01) fully furnished office for PMU–NHIDCL Badarpur at Badarpur, with an approximate built-up area of 400

sqm. The Authority shall provide the required land for construction of the said PMU office. The Concessionaire shall be responsible for providing all necessary infrastructure, furnishings, utilities, and facilities to ensure the office is fully functional. This shall include, but not be limited to, the following:

1. Civil & Interior Works

Office rooms, meeting room, record room, pantry, and toilets, Flooring, false ceiling, lighting fixtures, and internal partitions, Adequate ventilation and air-conditioning

2. Furniture & Fixtures

Office tables, chairs, and storage units for PMU staff, Conference table with chairs, workstations as required, Filing cabinets and document storage racks, Notice boards and display boards

3. Electrical & Power Supply

Internal electrification with sufficient power outlets, LED lighting fixtures, Power backup through inverter/UPS and/or DG set, Earthing and electrical safety measures

4. IT & Communication Internet connectivity (broadband/fiber), LAN wiring and network points, Telephone lines/intercom facility, Provision for printers, scanners, and other office equipment

5. Utilities & Services

Drinking water facility (water purifier/dispenser), Functional pantry with basic fittings, Adequate sanitation facilities, Housekeeping and routine maintenance

6. Safety & Security- Fire extinguishers and basic fire safety arrangements, First aid box, Secure doors, windows, and locking systems

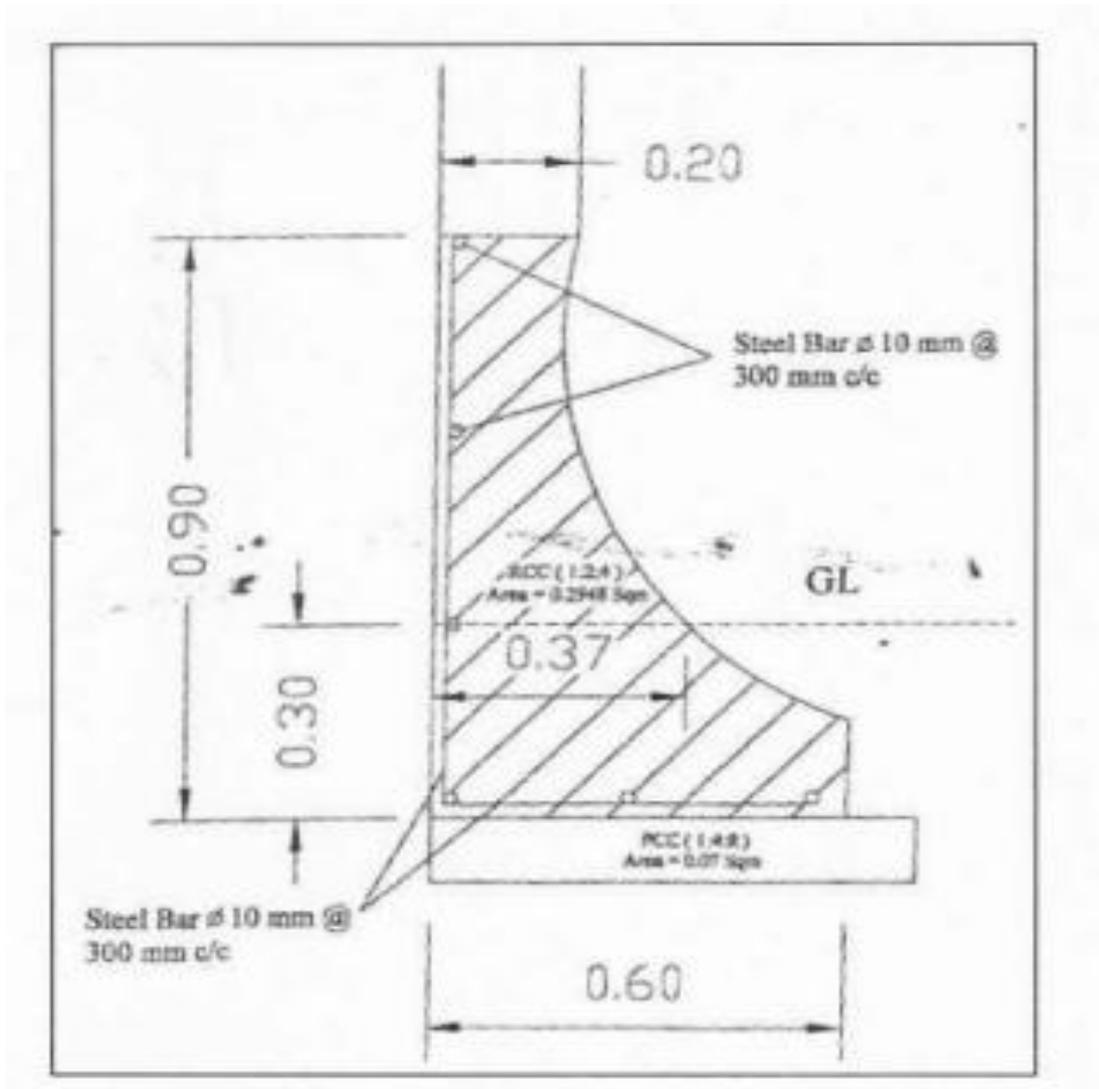
7. The construction of the Office Building shall commence from the Appointed Date/development period and shall be completed within 01 year. The Concessionaire shall handover the office premises to Authority after completion of construction.

8. The payment for the construction of said Office Building is not included in the Contract Price and shall be made from the Contingency head of the Project as per the actual requirement.

Annexure-A

Schedule C

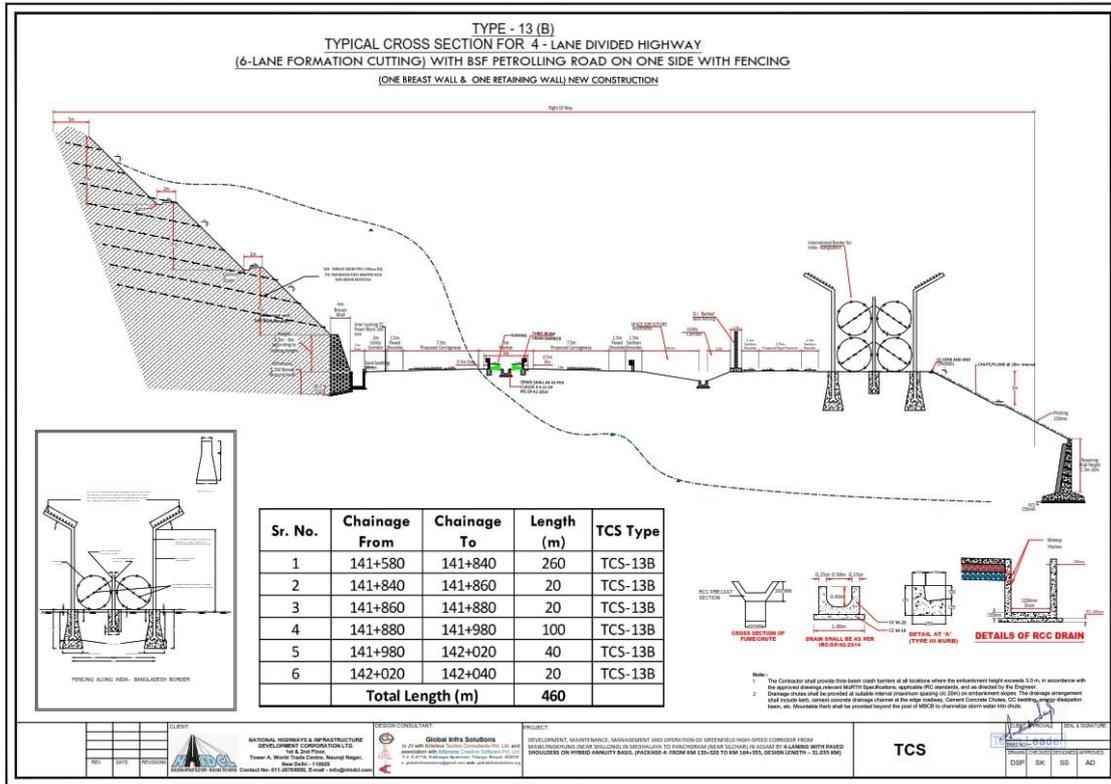
Typical Drawing for Boundary Wall



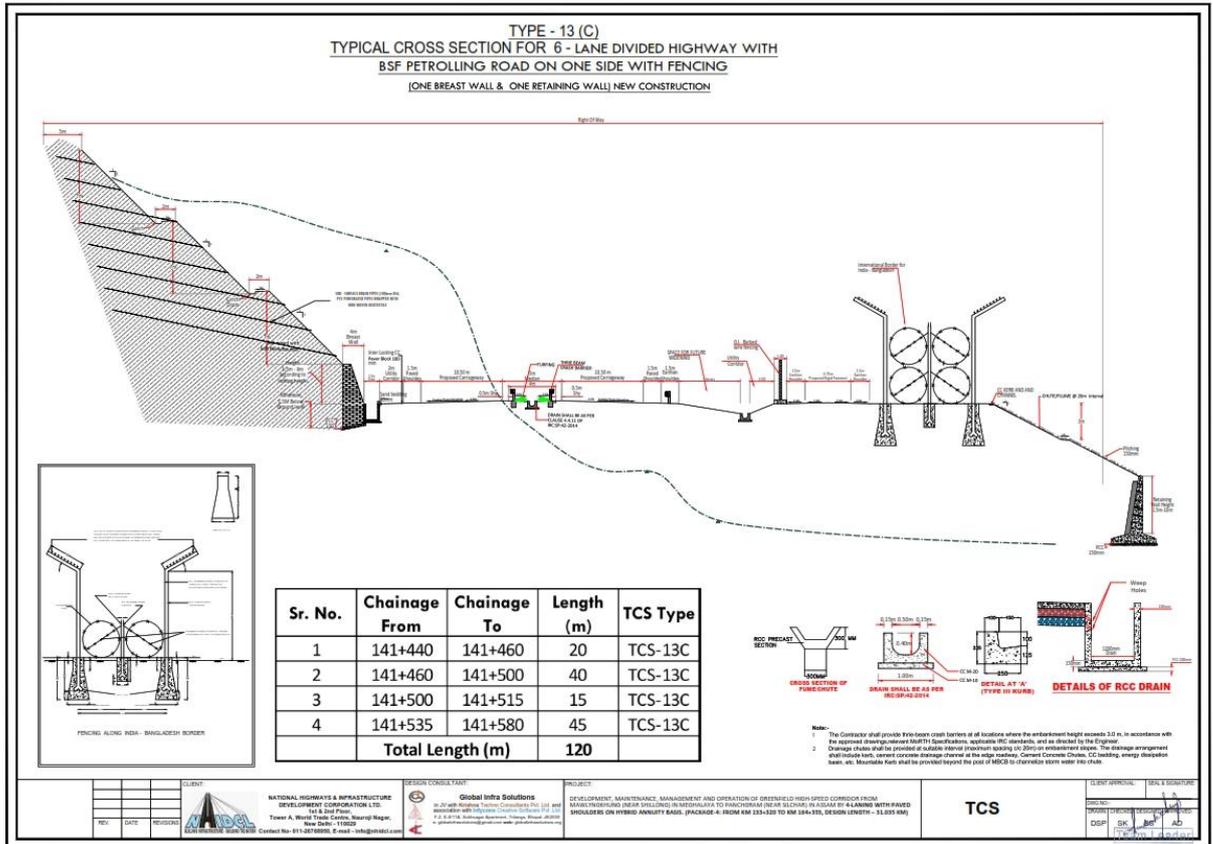
Street Light



Cross section for International Border Fencing



Development, Maintenance, Management & Operation of Greenfield High-Speed Corridor from Mawlyngkhung (near Shillong) in Meghalaya to Panchgram (near Silchar) in Assam by 4-Laning with Paved Shoulders on Hybrid Annuity Basis (Package-4: From Km 133+320 to Km 164+355, Design Length-31.035 Km)



SCHEDULE – D
(See Clause 2.1)

SPECIFICATIONS AND STANDARDS

1. Specification and Standards for the Project

The Concessionaire shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Four Lane Project Highway.

2. Design Standards

The project Highway including Project Facilities shall conform to design requirements set out in the following documents.

Manual of Specifications and Standards for Four laning of Highways through IRC SP: 84, referred to herein as the manual.

As regards to work of utility shifting, the relevant specifications, relevant rules, regulations and acts of Utility owning Department/Agencies shall be applicable.

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Annex - I
(Schedule-D)

SPECIFICATIONS AND STANDARDS

1. Manual of Specifications and Standards to apply

Four laning of the Project Highway shall conform to the 'Manual of Specifications and Standards for Four Laning of Highways' published as IRC: SP: 84 with all amendments and additions until date. (Referred to as "Manuals" in this Schedule) and MORTH Specifications for Road & Bridge Works (5th revision). Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Independent Engineer.

2. Deviations from the Specifications and Standards

2.1 Notwithstanding anything to the contrary contained in the aforesaid Manual, the following Specifications and Standards shall apply to the Four-Lane Project Highway, and for purposes of this Agreement, the aforesaid Manual shall deemed to be amended to the extent set forth below:

| S. No. | Clause as per Manual | Manual Provision | Modified Provision |
|---------------|-----------------------------|--|--|
| 1 | 2.2 | Design Speed as per Table 2.1 is 40-60 Kmph for Mountainous terrain | Ruling Design Speed is 80 Kmph |
| 2 | 6.2.2 of IRC-92-2017 | Desirable design speed for loops/ramps | As per IRC 92-2017 |
| 3 | 2.3 | A minimum Right of Way (ROW) of 45 m should be available for development of a 4-lane highway | As per manual. The proposed Right of Way (PROW) shall be as specified in Annex-II of Schedule-A. |
| 4 | 2.5 | Table 2.2 – Width of Median is 5m in Built Up and 7.0 m Depressed Median in Open country with isolated built-up area | Flushed & Depressed Median of Width 5.0m & 7.0m (with turfing on both side of the Median Drain). |

| S. No. | Clause as per Manual | Manual Provision | Modified Provision |
|---------------|-----------------------------|---|--|
| 5 | 2.6 | <ul style="list-style-type: none"> Built up area – 2.5m Paved Shoulders Approaches to grade separated structures – 2.5m Paved. | Width of Paved and Earthen Shoulders is as per TCS Drawing attached. |
| 6 | 2.17 | Typical cross-sections | The typical cross sections are not as per manual. |
| 7 | 6.2 | Surface Drains | RCC drain of 1.2 m width is provisioned along approaches of grade separated structures, extension of slip road, hillside cutting location and built-up sections. Unlined Side Drains are provided throughout the Project on either side except at approaches of Grade Separators, built up sections. |
| 8 | 12 | Project Facilities | The project facilities and building structures shall be provided in accordance with Schedule-C and Schedule D. |
| 9 | 12.2 | Road Boundary Wall/ Road Boundary stones walls shall be provided at the boundary on both sides of the right of way available under the control of the Authority, except at ingress and egress points. | Road Boundary wall is provisioned on both sides of the ROW as per Morth Circular RW/NH-24036/27/2010-PPP, Dated 04.02.20219. |
| 10 | Section 11 of Manual | Landscaping and Tree Plantation As per Section 11 of Manual | Specifications for plantations shall be followed as per IRC: SP:21 i.e. Guidelines on Landscaping and Tree Plantation and as per circular no. 7.4.7/2022 dated 12.07.2022, 7.4.8/2022 dated 06.10.2022 & 7.4.16/2024 dated 19.12.2024. |
| 11 | 9.7.1 | Roadside safety barriers | Thrie-beam metal crash barriers shall be provided in entire length on outer side earthen shoulder of each main |

| S. No. | Clause as per Manual | Manual Provision | Modified Provision |
|--------|----------------------|--------------------|---|
| | | | carriageway where the height is more than 3 m and approaches to bridges & underpasses but excluding stretches covered by bridges & underpasses where concrete barriers shall be provided. |
| 12 | Section 12 | Project Facilities | The project facilities and building structures shall be constructed in accordance to Annex I of Schedule-C. |

- 2.2 MoRT&H circular no. RW/NH-34066/09/2017 S&R dated 21.07.2020 (regarding use of manufactured aggregates) shall be applicable on the project.
- 2.3 The Concessionaire is permitted to use waste plastic as per IRC: 98 and Ministry's circulars dated 26.11.2019, 27.08.2019, 27.12.2016 & 09.11.2015 in consultation with IE.
- 2.4 As regards the work of Utility Shifting/relocation, the relevant specifications, rules, regulations and acts of Utility Owning Department/Agencies shall be applicable.
- 2.5 For specification for landscaping/tree plantation NHA policy circular no. 7.4.7/2022 dated 12.07.2022, 7.4.8/2022 dated 06.10.2022 & 7.4.16/2024 dated 19.12.2024 will be applicable.
- 2.6 Concessionaire is encouraged to do value engineering in line with MoRT&H circular dated 30.08.2022 & amendments thereof with prior approval from independent Engineer & Authority.

3. Adoption of Machine Guidance & Control System

The concessionaire/contractor shall, at its own cost and expense adopt Automated & Intelligent Machine aided Construction (AI-MC) for execution of the project in line with MoRTH circular No. RW/NH-33044/31/2024-S&R(P&B)(Computer No. 245397) dt. 23.06.2025.

SPECIFICATIONS AND STANDARDS FOR 3D DIGITAL MODELS AND 3D MACHINE GUIDANCE AND CONTROL SYSTEM

Machine Guidance & Control System (MGCS) is a technology that is applied to highway construction projects to provide construction efficiencies through enhanced location referencing. MGCS involves using construction equipment mounted with on-board

computers. Using a combination of 3D modelling data along with global navigation satellite system (GNSS) technology. MGCS assists agencies and contractors in finishing project in less time and with lower overall cost while providing higher quality and safety. Using MGCS, equipment have the potential to achieve designed grades on the first pass, reducing cost and taken compared with traditional staking.

Contractor/concessionaire should use 3D digital models and 3D Machine guidance and control systems for Motors Graders, Compactors and Pavers for productivity improvement and ensuring quality standards as per IRC specification. Further, contractor should generate measurable digital records that can be shared on a digital drive or can viewed in real time. The hardware and software used by the contractor should have following features and specifications:

A. Office Software for Preparing design data for Field System and Processing Results:

A contractor/concessionaire should use office software for preparing design data which will be able to generate 3D constructible models out of provided design that can be carried in construction grade survey instruments and 3D Machine control tools for construction purpose. The office software should be able to generate Triangulated Surface models, 3D linework and should have ability to overlay machine guidance as-built record and generate reports.

B. 3D Machine Control System for Motor Grader for Accurate grading to design.

A contractor/concessionaire should utilize motor grader controlled with GNSS Machine Control System in the construction of Subgrade & GSB Surface Grades. The requirement includes the finishing of final subgrade & GSB surface as per the IRC Specification Clause 902.

The contractor may use type of GNSS Machine Control system that result in achieving the finished grading requirements.

The 3D Machine guidance and control system should be able to control the depth of the motor grader blade in relation to the 3D model during the grading process. The 3D machine control systems should have dual mast GPS system for earthworks and GPS/Universal Robotic Total Station system for pavements/GSB. Sonic sensors and/or laser-based systems will not be acceptable. Swapping between GPS and Total Station should be achieved by changing the target and loading a configuration file on the machine control system box.

C. 3D Machine Control System for Pavers

A contractor/concessionaire should utilize Paving equipment controlled with Universal Robotics Total Station and Machine control system in the construction of roadway pavement. The requirement includes the finishing of final pavement surface as per the IRC Specification Clause 902.

Every Paver should be equipped with 3D Machine guidance and system for automatic control of elevation and slope of the screed in relation to the 3D model for accurate paving.

The 3D machine guidance system should be guided by a Universal Robotics Total Station. A sonic sensor can be used for joint matching to existing paved areas. The Universal Robotics Total Station needs to be a 1" Angular accuracy instrument, incorporate send synchronized corrections at 20Hz for accurate blade positioning and support multitrack technology via active prisms to avoid the wrong target being tracked in the field. The solution needs to support the ability to hot swap, or instantly transition to the next universal Robotics Total Station without stopping the paver.

D. Compaction Control System for Pass Counts and Temperature

The compaction control system on Compactor should allow operator to monitor the number of passes completed in real time for every layer of soil, GSB or asphalt to achieve a target pass count. In addition to this, the operator needs to be able to monitor the temperature of the asphalt during the compaction process. Pass counts for all layers and temperature values in asphalt layer must be stored to prove that targets have been met.

E. File transfer between field and office

Productivity monitoring software should have the ability to send design updates to the field and ensure all crews are working from the same design. It is also important that all field data be sent back to the office for later use in the validation process.

It is essential that surface elevation information recorded on machines along with compaction information like pass counts or temperature maps can be seen in the office.

F. Monitoring of Construction

During the construction period, the concessionaire/consultant shall furnish all the physical Process Data (All type Surface Grading Data, Compaction Data) obtained through Machine Control and Guidance System to Authority for monitoring of construction on daily bases.

4. Mandatory use of Precast Concrete Components

The concessionaire/contractor shall, use Precast Concrete Components in line with MoRTH circular No. RW/NH-33049/01/2020-S&R(B) (Computer No. 182692) dt. 24.06.2025.