

SCHEDULE – B

(See Clause 2.1)

Development of the Project Highway

1 Development of the Project Highway

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

2 Rehabilitation and augmentation

Rehabilitation and augmentation shall include four laning and strengthening of the Project Highway as described in Annex-I of this Schedule-B and in Schedule-C.

3 Specifications and Standards

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

Annex-I
(Schedule-B)

1 WIDENING OF THE EXISTING HIGHWAY

- 1.1.1 The Project Highway shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for plain/rolling terrain to the extent land is available.

1.2 WIDTH OF CARRIAGEWAY

- 1.2.1 Four-Laning with paved shoulders shall be undertaken. The paved carriageway shall be 7.0 m wide with 0.25 m median shy away in accordance with the typical cross sections given in para 2.11 of Annexure I of Schedule B.

Provided that in the built-up areas typical cross-section shall be as per TCS given in para 2.11 with full width of 8.75 m carriageway.

Sl. No.	Built-up stretch (Township)	Location (km to km)	Width (m)	Typical cross section as per TCS attached
1		17.300 to 20.500	8.75	Type VI
2		22.800 to 23.800	8.75	Type VI
3		34.400 to 35.200	8.75	Type VI

- 1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriage way and cross-sectional features shall conform to paragraph 1.2.1 above.

2 GEOMETRIC DESIGN AND GENERAL FEATURES

2.1 General

Geometric design and general features of the Project Highway shall be in accordance with Section 2 of the Manual IRC SP: 84-2014.

2.2 Design speed

The design speed shall be as per clause 2.2 of IRC:SP:84-2014.

2.3 Improvement of the existing road geometrics

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided.

Sl. No.	Stretch (from km to km)	Type of deficiency	Remarks
NIL			

2.4 Right of Way

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

2.5 Type of shoulders

- (a) In built-up sections, footpaths/fully paved shoulders shall be provided in the following stretches:

Sl. No.	Stretch (from km to km)	Fully paved shoulders/ footpaths	Reference to cross section
As per TCS			

- (b) In open country Paved Shoulders of 1.50 m width and Earthen shoulders for a width of 2.00 m will be provided.
- (c) Design and specifications of paved shoulders and granular material shall conform to the requirements specified in paragraphs 5.10 and 5.11 of the Manual.

2.6 Lateral and vertical clearances at underpasses

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.10 of the Manual.

2.6.2 Lateral clearance: The width of the opening at the underpasses shall be as follows:

Sl. No.	Location (chainage) (from km to km)	Span/opening (m)	Remarks
Nil			

2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateral and vertical clearances at 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:

Sl. No.	Location (chainage)(from km to km)	Span/opening (m)	Remarks
Nil			

2.8 Service roads

Service roads shall be constructed at the locations and for the lengths indicated below

Sl. No.	Location of service road		Right hand side (RHS)/ Left hand side (LHS)/ or Both sides	Length (km) of service road
	from km	to km		
1	17.300	20.500	Both	6.4
2	22.800	23.800	Both	2.0
3	34.400	35.200	Both	1.6

2.9 Grade separated structures

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

S. No.	Location of structure	Length (m)	Number and Length of spans (m)	Approach gradient	Remarks, if any
Nil					

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

S. No.	Location	Type of Structure	Cross Road at			Remarks, if any
			Existing	Raised Level	Lowered Level	
Not Applicable						

2.10 Cattle and pedestrian underpass /overpass

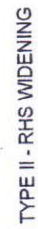
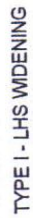
Cattle and pedestrian underpass /overpass shall be constructed as follows:

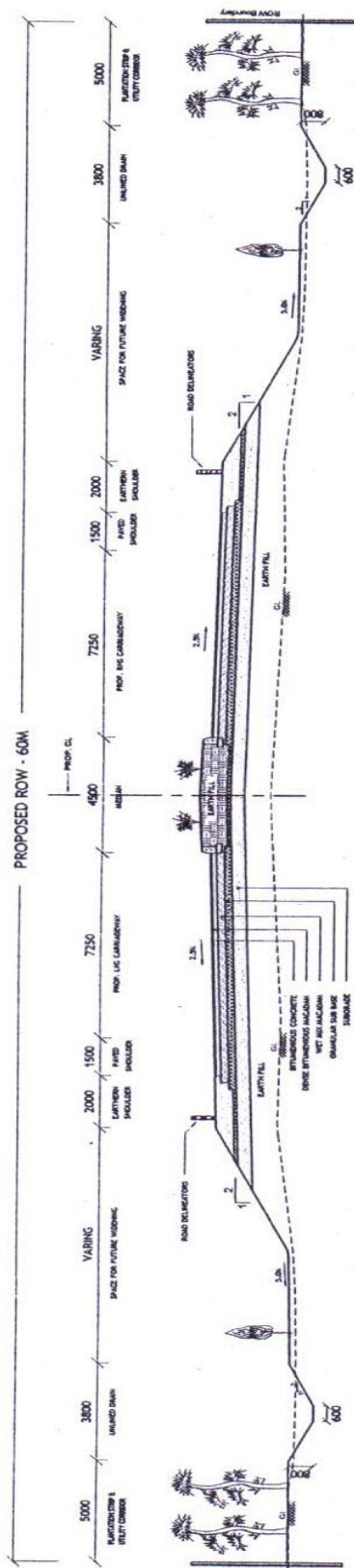
Sl. No.	Location	Type of crossing
Nil		

2.11 Typical Cross-Sections of the Project Highway

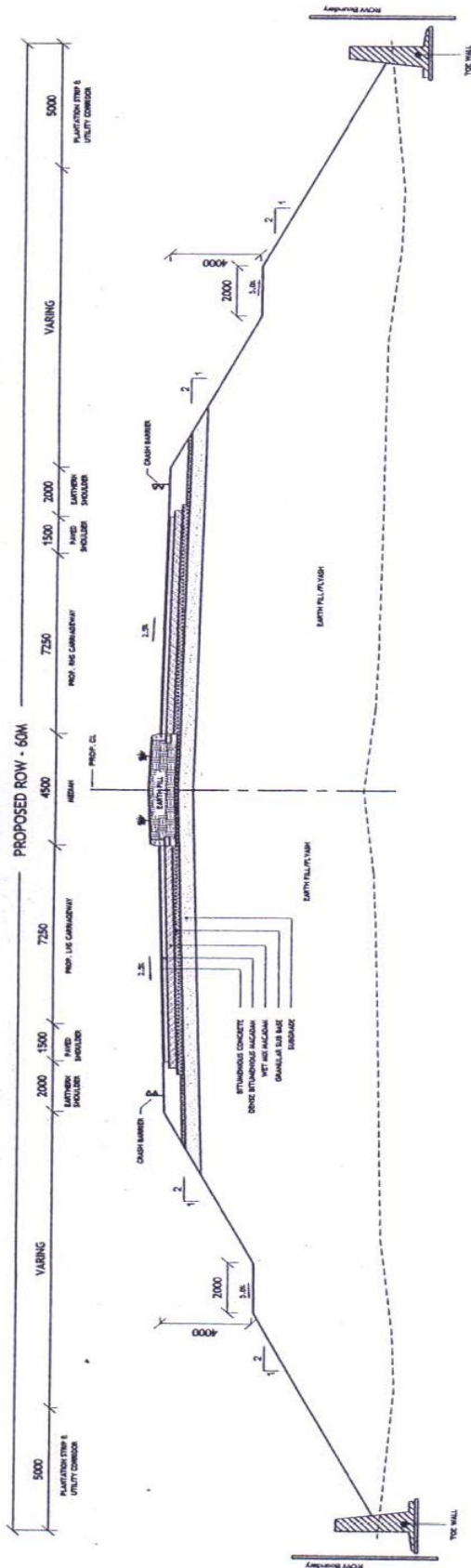
S. No.	Design Length (in km)	TCS type	TCS Description
1	1.100	Type VI	LHS widening with service road at built-up areas
2	0.400	Type VI	RHS widening with service road at built-up areas
3	1.700	Type VI	LHS widening with service road at built-up areas
4	2.300	Type III	New alignment
5	1.000	Type VI	LHS widening with service road at built-up areas
6	0.700	Type II	RHS widening
7	1.600	Type III&IV	New alignment
8	7.100	Type III	New alignment
9	0.800	Type III	New alignment
10	0.600	Type III	New alignment
11	0.200	Type II	RHS widening

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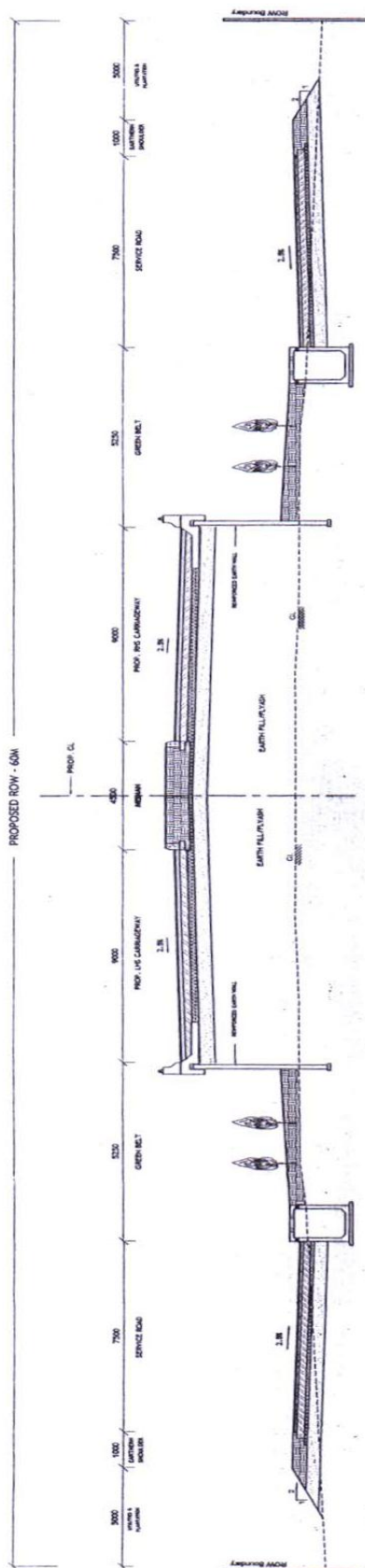




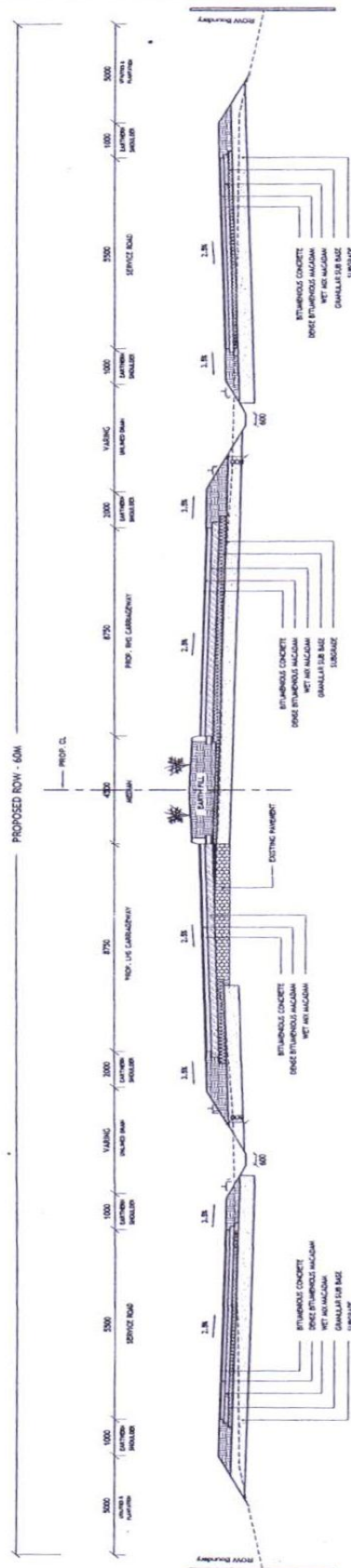
TYPE III - NEW ALIGNMENT



TYPE IV - TYP. CS AT APPROACHES OF BRIDGE AND AT EMBANKMENT LOCATIONS



TYPE V - UNDERPASS APPROACHES WITH 60M ROW



TYPE VI - LHS/RHS WIDENING WITH SERVICE ROAD AT BUILT-UP AREAS (ROW - 60M)

3 INTERSECTIONS AND GRADE SEPARATORS

All inter sections and grade separators shall be as per Section 3 of the Manual. Existing inter sections which are deficient shall be improved to the prescribed standards.

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

(a) At-Grade Intersections

Major Intersections / junctions

S. No.	Location of intersection (km)	Type of intersection	Other features
1	Dolabari, 17.865	Y	LHS
2	Napam, 23.840	Y	LHS
3	Jamuguri, 34.930	T	BS
4	Jamuguri, 35.795	Y	RHS

Minor Intersections / junctions:

S. No.	Location of intersection (km)	Type of intersection	Other features
1	18.450	T	LHS
2	20.200	T	LHS
3	21.615	T	RHS
4	22.070	T	RHS
5	22.850	T	LHS
6	24.600	T	LHS

(b) Grade Separated Intersection With/ Without Ramps

S. No.	Location	Salient features	Minimum length of viaduct to be provided	Road to be Carried over/ under the structures
.			NIL	

4 ROAD EMBANKMENT AND CUT SECTION

4.1 Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/cuttings shall conform to the Specifications and Standards given in Section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

4.2 Raising of the existing road

The existing road shall be raised in the following sections:

Sl. No.	Section		Length	Extent of raising (Avg.) in m [Top of finished road level]
	from km	to km		
1	17.300	17.500	200.00	0.744
2	17.500	17.860	360.00	6.635
3	17.860	18.200	340.00	7.321
4	18.200	18.750	550.00	1.514
5	18.750	20.200	1450.00	1.268
6	20.200	21.350	1150.00	2.451
7	21.350	21.780	430.00	8.868
8	21.780	21.970	190.00	8.417
9	21.970	22.050	80.00	4.681
10	22.050	23.350	1300.00	2.002
11	23.350	24.450	1100.00	1.698
12	24.450	25.600	1150.00	2.197

13	25.600	26.100	500.00	10.151
14	26.100	29.700	3600.00	21.599
15	29.700	31.392	1692.00	3.747
16	31.392	32.815	1423.00	3.543
17	32.815	34.500	1685.00	3.340
18	34.500	34.946	446.00	6.612
19	34.946	35.200	254.00	7.936
20	35.200	35.750	550.00	7.936
21	35.750	36.110	360.00	1.958

5 PAVEMENT DESIGN

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

5.2 Type of pavement

The pavement shall be Flexible pavement.

5.3 Design requirements

5.3.1 Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

5.3.2 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 75.5 million standard axles.

5.4 Reconstruction of stretches

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

S. No.	From Chainage	To Chainage	Length (m)
1	17.300	23.850	6500

6 ROADSIDE DRAINAGE

Drainage system including surface and subsurface drains for the Project Highway shall be provided as per Section 6 of the Manual.

7 DESIGN OF STRUCTURES

7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with Section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and structures shall be as follows:

Sl. No.	Bridge at km	Width of carriageway and cross-sectional features
1	21.710	8.50 m with 1.50 m wide footpath and crash barrier
2	21.935	8.50 m with 1.50 m wide footpath and crash barrier
3	26.110	8.50 m with 1.50 m wide footpath and crash barrier
4	31.365	8.50 m with 1.50 m wide footpath and crash barrier
5	32.800	8.50 m with 1.50 m wide footpath and crash barrier

S.No.	Fly over at km	Width of carriageway and cross-sectional features
1	17.860	8.50 m with 1.50 m wide footpath and crash barrier
2	34.930	8.50 m with 1.50 m wide footpath and crash barrier

7.1.3 The following structures shall be provided with footpath:

Sl. No.	Location at km	Remarks
All New Bridges/ bridges proposed to be widened shall have provisions for footpath		

7.1.4 All bridges shall be high-level bridges.

7.1.5 The following structures shall be designed to carry utility services specified in table below:

Sl. No.	Bridge at km	Utility service to be carried	Remarks
All New Bridges shall have provisions for utility services to be carried over			

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 7 of the Manual.

7.2 Culverts:

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

7.2.2 Reconstruction of existing culverts:

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

Sl. No.	Culvert location	Span/Opening (m)	Remarks, if any
1	18.342	1/3.0/4.0	Box Culvert
2	19.410	1/3.0/3.0	Box Culvert
3	19.725	1/3.0/3.0	Box Culvert
4	19.875	1/2.0/2.0	Box Culvert

7.2.3 Widening of existing culverts

All existing culverts which are not to be reconstructed shall be widened to the 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.

Sl. No.	Culvert location	Type, span, height and width of existing culvert (m)	Repairs to be carried out [specify]
Nil			

7.2.4 Additional new culverts shall be constructed as per particulars given in the table below:

S. No.	Culvert location	Span/opening (m)	Remarks
1	18.840	1/2.0/3.0	Box Culvert
2	20.290	1/2.0/2.0	Box Culvert
3	20.505	1/2.0/3.0	Box Culvert
4	20.810	1/3.0/4.0	Box Culvert
5	21.310	1/3.0/4.0	Box Culvert
6	22.300	1/2.0/3.0	Box Culvert

S. No.	Culvert location	Span/opening (m)	Remarks
7	22.600	1/2.0/2.0	Box Culvert
8	22.950	1/2.0/2.0	Box Culvert
9	23.300	1/2.0/2.0	Box Culvert
10	23.670	1/2.0/2.0	Box Culvert
11	24.090	1/2.0/3.0	Box Culvert
12	24.510	1/2.0/3.0	Box Culvert
13	24.820	1/2.0/3.0	Box Culvert
14	25.240	1/2.0/3.0	Box Culvert
15	25.680	1/2.0/2.0	Box Culvert
16	25.980	1/2.0/2.0	Box Culvert
17	27.706	1/2.0/2.0	Box Culvert
18	27.945	1/3.0/4.0	Box Culvert
19	28.395	1/2.0/2.0	Box Culvert
20	29.595	1/3.0/4.0	Box Culvert
21	30.016	1/2.0/3.0	Box Culvert
22	30.395	1/3.0/4.0	Box Culvert
23	30.745	1/3.0/4.0	Box Culvert
24	31.030	1/2.0/2.0	Box Culvert
25	31.846	1/3.0/4.0	Box Culvert
26	32.195	1/2.0/2.0	Box Culvert
27	32.505	1/2.0/2.0	Box Culvert
28	33.096	1/3.0/4.0	Box Culvert
29	33.425	1/3.0/4.0	Box Culvert
30	33.745	1/3.0/4.0	Box Culvert
31	34.085	1/3.0/4.0	Box Culvert
32	34.935	1/3.0/4.0	Box Culvert
33	34.555	1/3.0/4.0	Box Culvert
34	35.233	1/2.0/2.0	Box Culvert
35	35.532	1/2.0/2.0	Box Culvert
36	35.760	1/3.0/4.0	Box Culvert

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

Sl. No.	Location at km	Type of repair required
Nil		

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

7.3 Bridges

7.3.1 Existing bridges to be re-constructed/widened

(i) The existing bridges at the following locations shall be re-constructed as new Structures:

Sl. No.	Bridge location (km)	Salient details of existing bridge	Adequacy or otherwise of the existing waterway, vertical clearance, etc.	Remarks
Nil				

- (ii) The following narrow bridges shall be widened

Sl. No.	Location (km)	Existing Width (m)	Extent of widening (m)	Cross-section at deck level for widening
NIL				

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.

Sl. No	Location (km)	Total length (m)	Remarks
1	21+710	3x35	Major
2	21+947	1x24	Minor
3	26+100	25x48	Major
4	31+365	1x27	Minor
5	32+805	1x10	Minor

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

Sl. No.	Location at km	Remarks
Nil		

7.3.4 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

Sl. No.	Location at km	Remarks
Nil		

7.3.5 Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.20 of the Manual

7.3.6 Structures in marine environment

Not Applicable.

7.4. Rail-road bridges

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-bridges (road over rail) shall be provided at the following level crossings, as per GAD drawings attached:

Sl. No.	Location of Level crossing (chainage km)	Length of bridge (m)
NIL		

7.4.3 Road under-bridges:

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

Sl. No.	Location of Level crossing (chainage km)	Number and length of span(m)
NIL		

7.5 Grade separated structures

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

7.6 Repairs and strengthening of bridges and structures

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

A. Bridges

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

B. ROB / RUB

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

C. Overpasses/ Underpasses and other structures

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

7.7 List of Major Bridges and Structures

The following is the list of the Major Bridges and Structures:

Sl. No.	Location (Km)	Type	Length (m)
1	17.860	Fly over	2x16.00
2	21.710	Major Bridge	105.00
3	26.100	Major Bridge	1200.00
4	34.930	Fly over	2x16.00

7.8 Protection work-

Protection work for the project Highway shall be provided as detailed below:-

- 7.8.1 **Details of Retaining Wall-** Retaining wall wherever required shall be provided as per site requirement.

7.8.2 **Details of Toe Wall-** Toe wall wherever required shall be provided as per site requirement.

7.8.3 **River Training Works:** - This shall include construction of Flood Embankment, Guide Bund, Channel Closing Dyke etc. along with slope protection, launching apron etc. as per design and drawings. Design and drawing of River Training/ Protection Work attached at Annex-II of Schedule B are indicative and minimum. However, Contractor has to design these work according to latest codal provisions.

Description	Quantity
Guide Bund	
Total Length	5464 m
Thickness of pitching	0.9 m on river side, 0.45 m on country side
Thickness of Filter Media	0.3 m
Thickness of Apron	1.2 m
Width of Apron	31 m for curved part, 21 m for straight part
EMBANKMENT	
Total Length	17618 m
Thickness of Pitching	0.9 m on river side, turfing on country side
Thickness of Filter Media	0.3 m
Thickness of Apron	1.2 m
Width of Apron	12 m
CHANNEL CLOSING DYKE	
Total Length	1000 m
Thickness of Pitching	1.35 m on riverside, 0.9 m on countryside
Thickness of Filter Media	0.3 m
Thickness of Apron	2 m
Width of Apron	39 m

Note: - 1. The location and vent size of all the culverts proposed for irrigation purposes shall be decided in consultation with irrigation authority & Authority Engineer. Any change in vent size shall not attract change of scope.

2. Width of culvert shall be reconciled as per cross section at that location.

8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.

8.2 Specifications of the reflective sheeting shall be as per Section 9 of Manual IRC: SP: 84–2014.

Retro reflective sheeting should be of high intensity grade with encapsulated lens or with micro prismatic retro reflective element in accordance with ASTM standard D 4956-04.

9 ROADSIDE FURNITURE

9.1 Road side furniture shall be provided in accordance with the provisions of Section 9 of the Manual.

9.2 Overhead traffic signs: location and size

Overhead Signs shall be provided in accordance with the provisions of the Manual.

10 COMPULSORY AFFORESTATION

Compulsory/ Compensatory afforestation to be carried out at locations as directed by the Authority.

11 HAZARDOUS LOCATIONS

Safety barrier/W-Beam Crash Barrier to be provided as per provision provided in manual recommended in Schedule D.

12 SPECIAL REQUIREMENTS FOR HILL ROADS

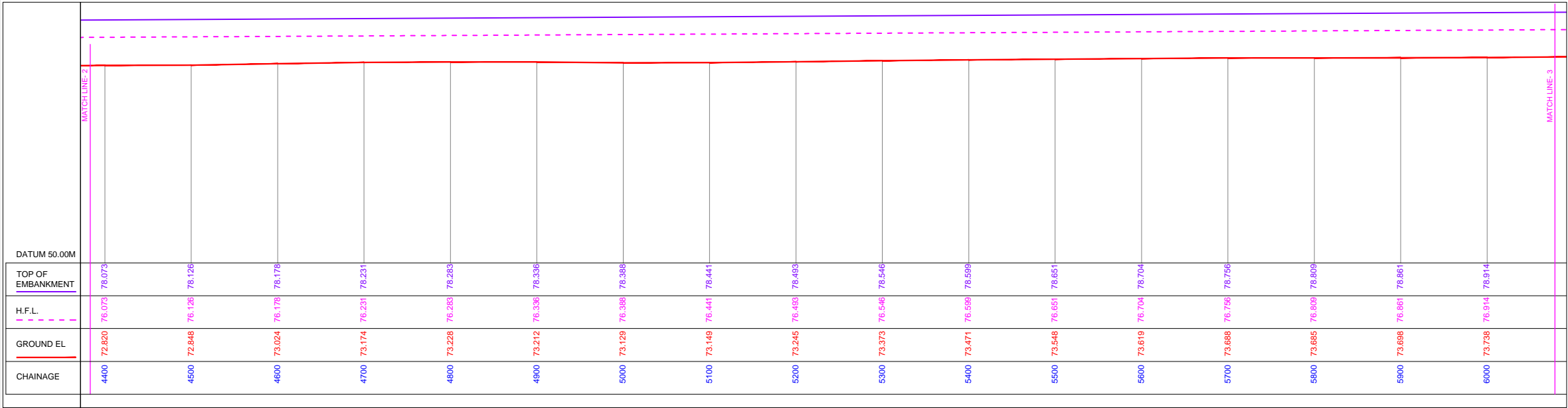
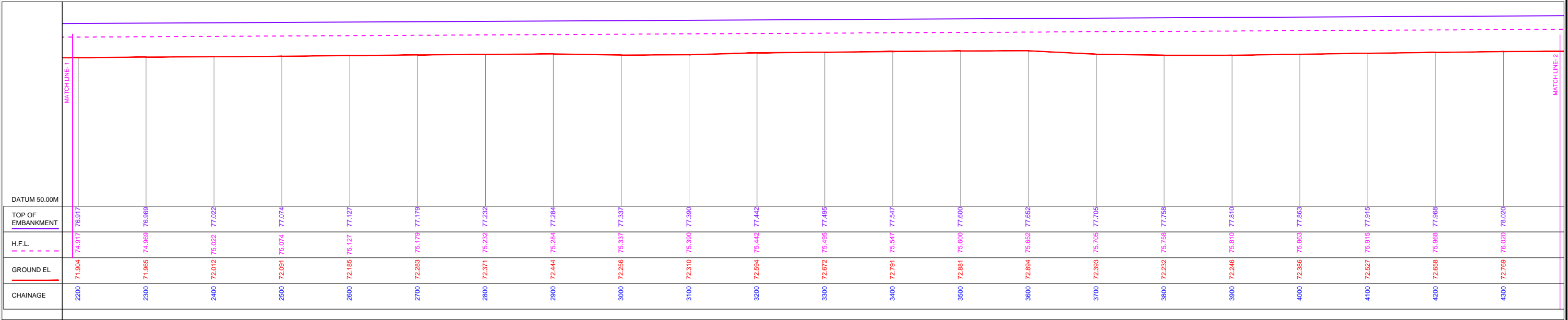
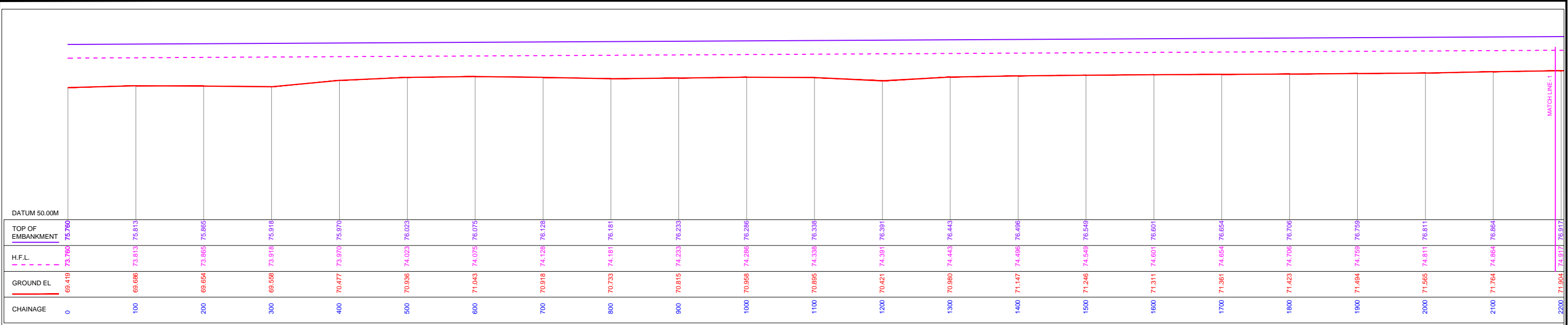
Special requirements for hill roads shall be as per Section 13 of the Manual.

13 CHANGE OF SCOPE

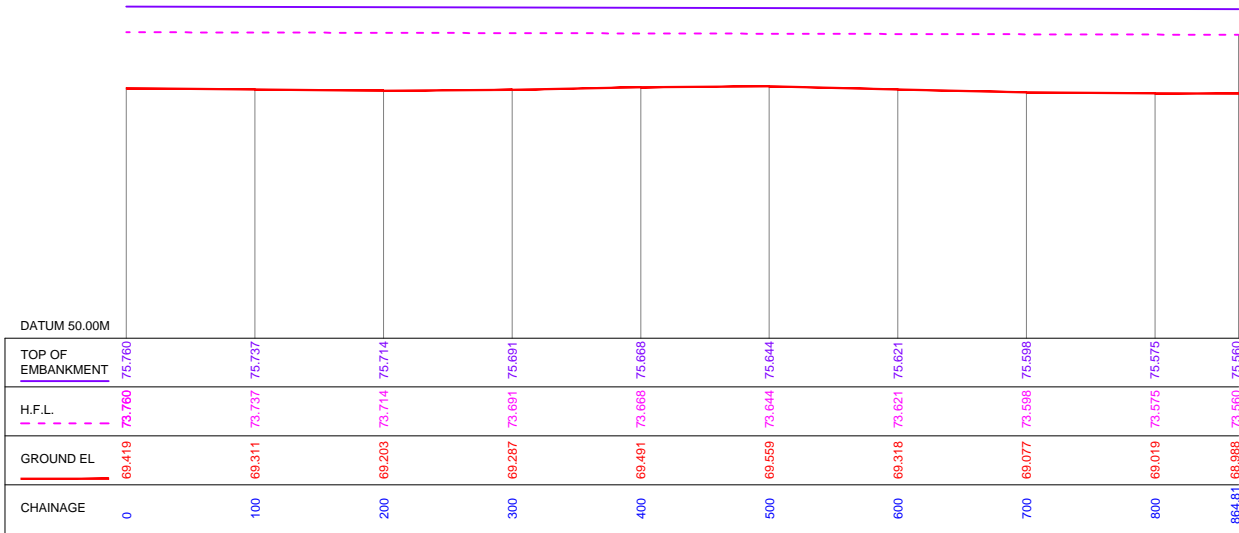
The length of Structures and bridges specified here in above shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified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



**Annex-II
(Schedule-B)**

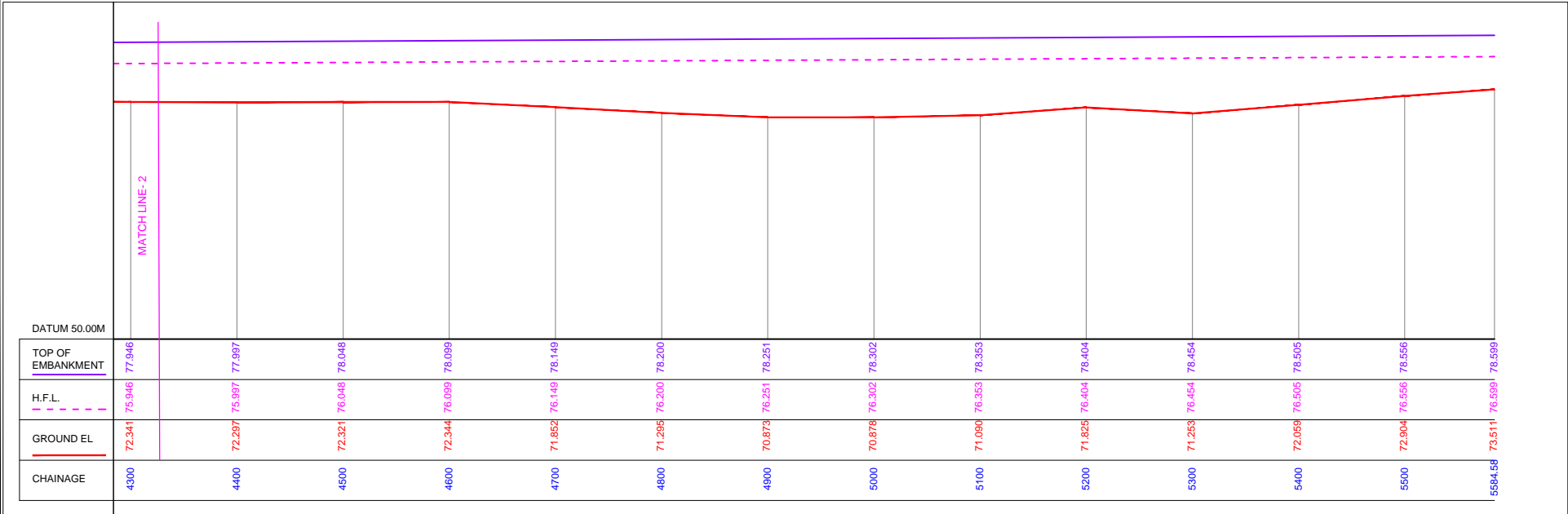
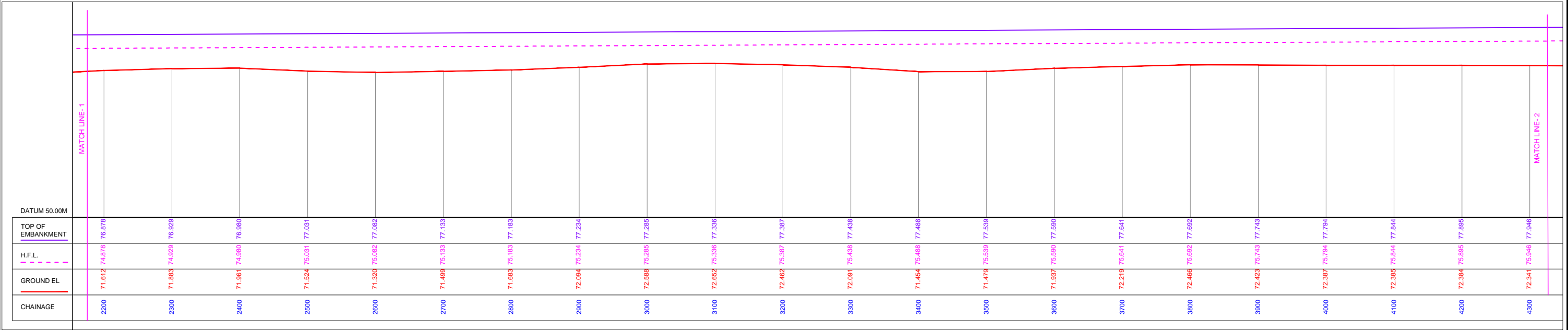
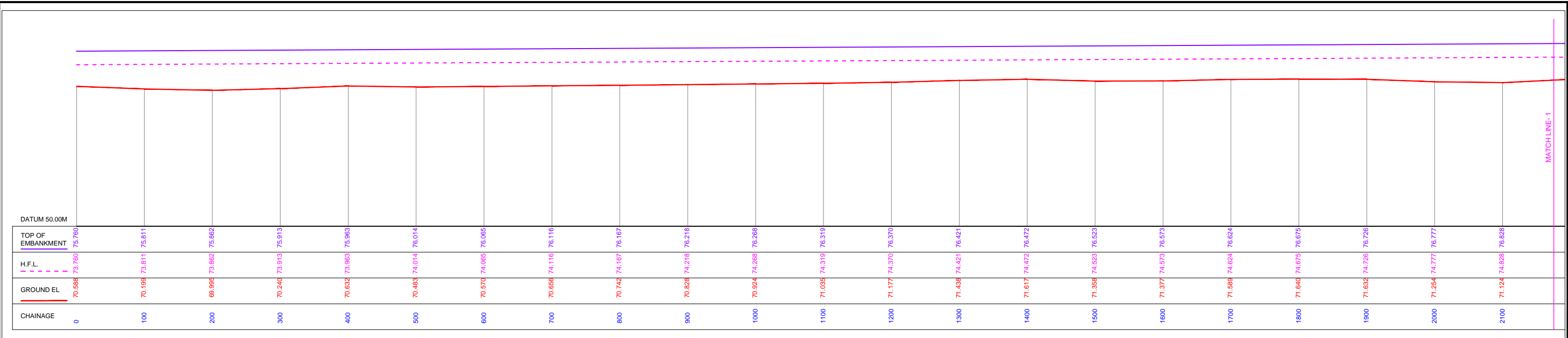
Drawings for River Training/ Protection Work





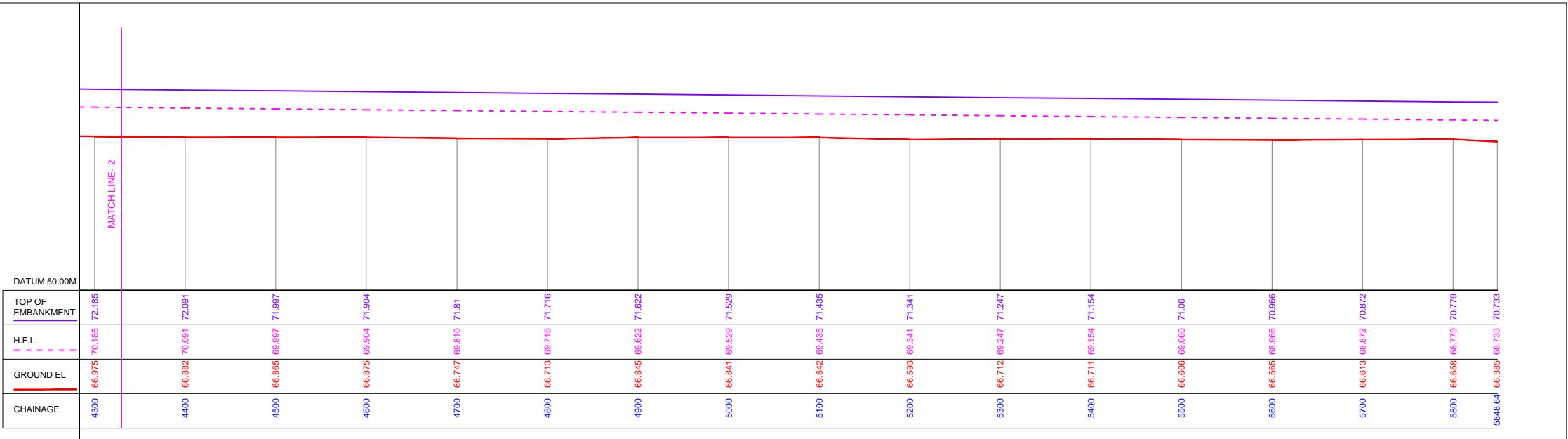
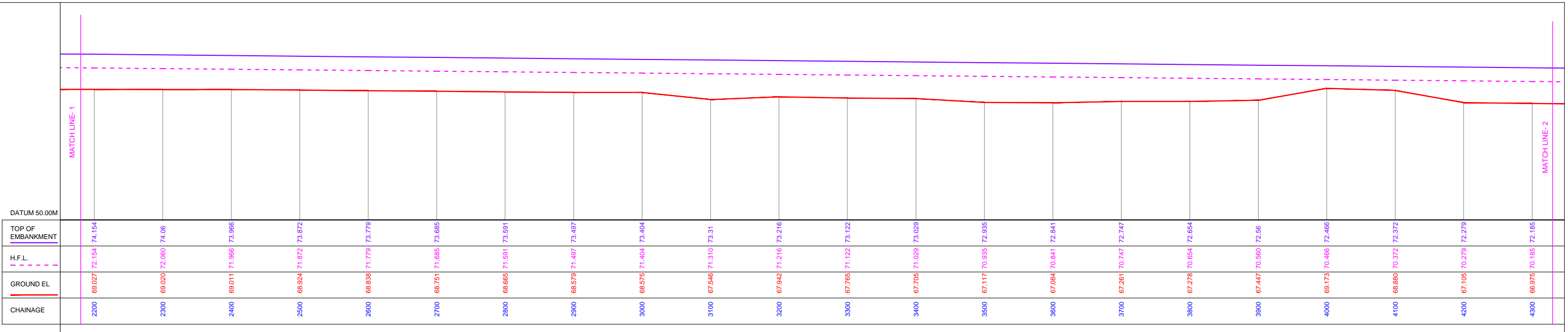
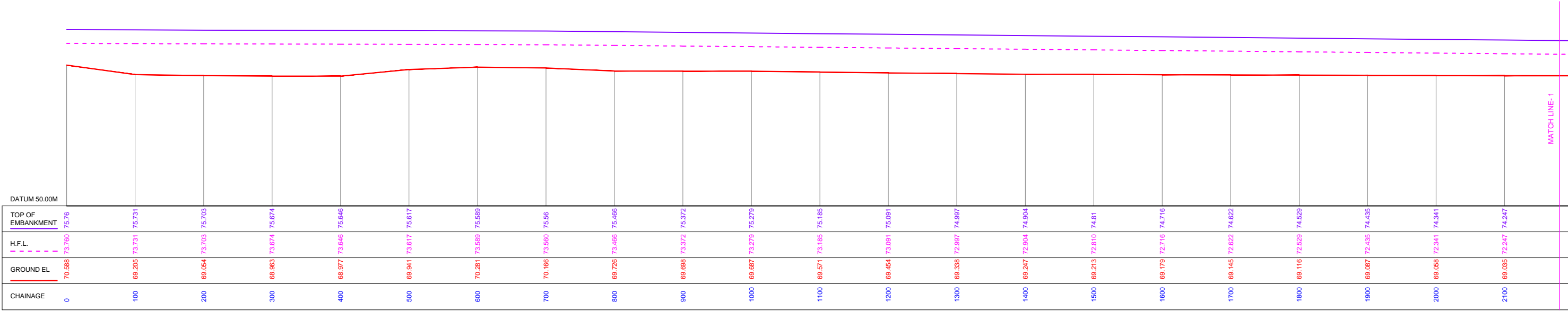
0	DEC. 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sarhau,Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email: xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		L-SECTION OF PROPOSED EMBANKMENT LEFT BANK (U/S)			
DEC. 2016		SCALE	SIZE	DWG. NO.	REV.
		NTS	A3	001	0





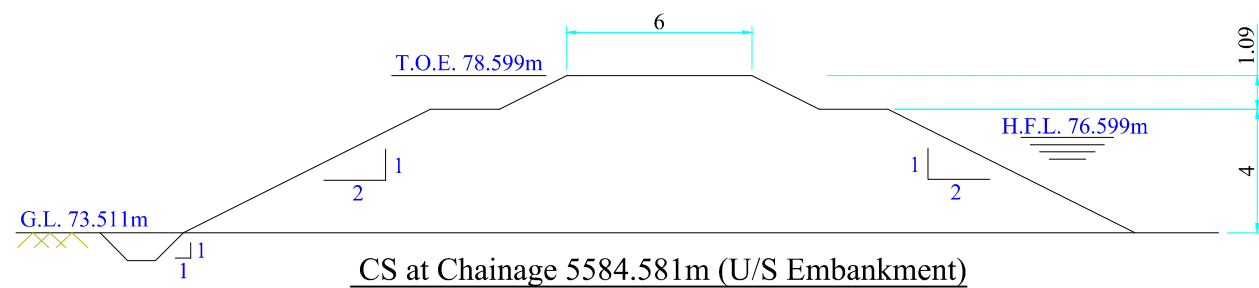
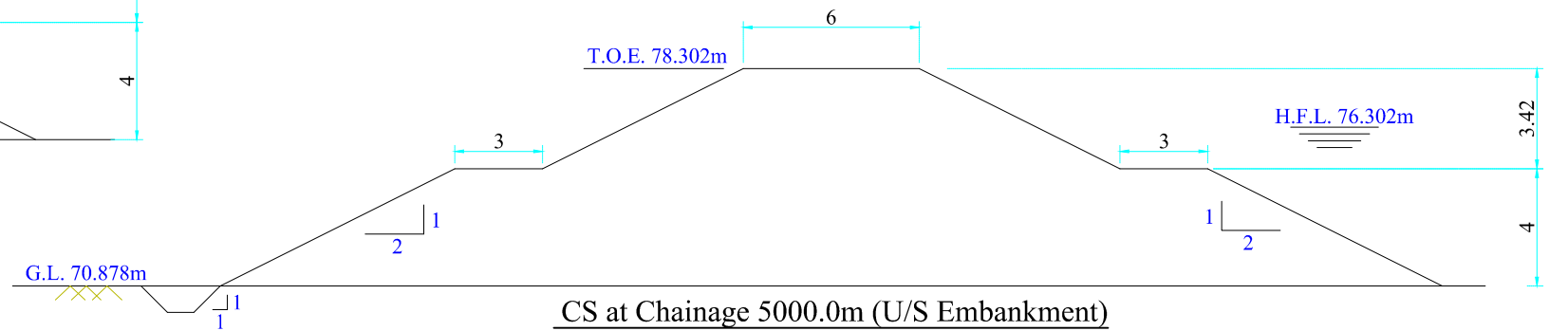
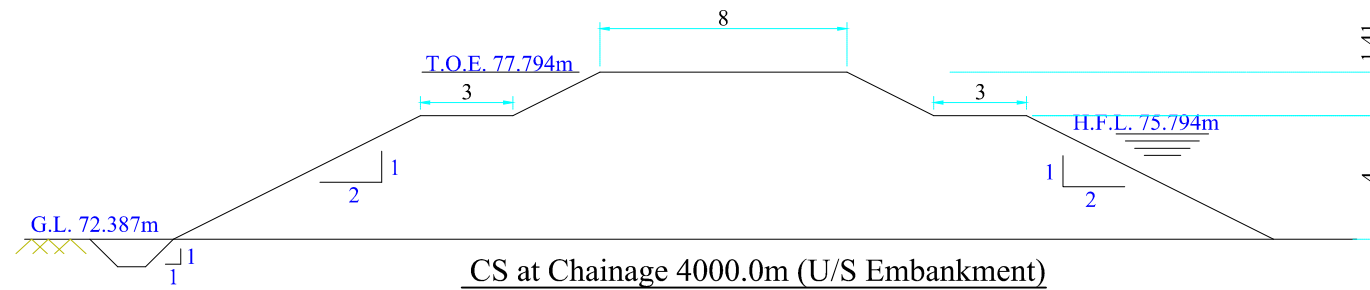
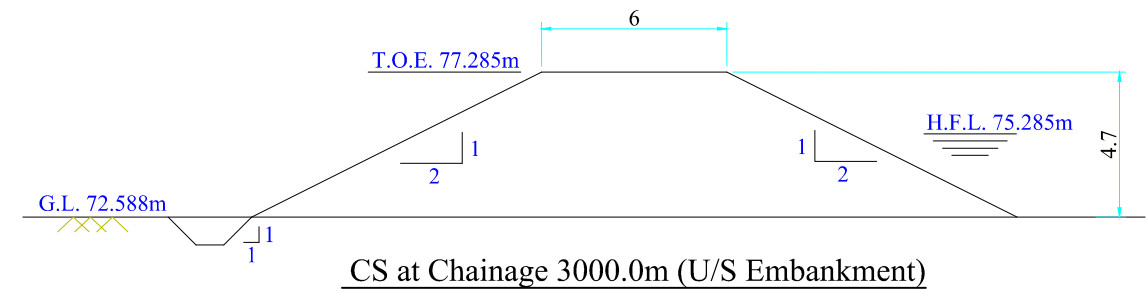
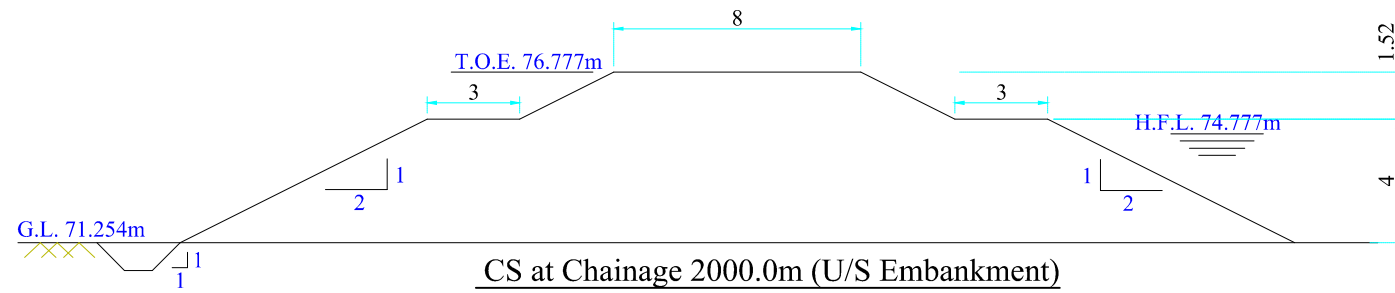
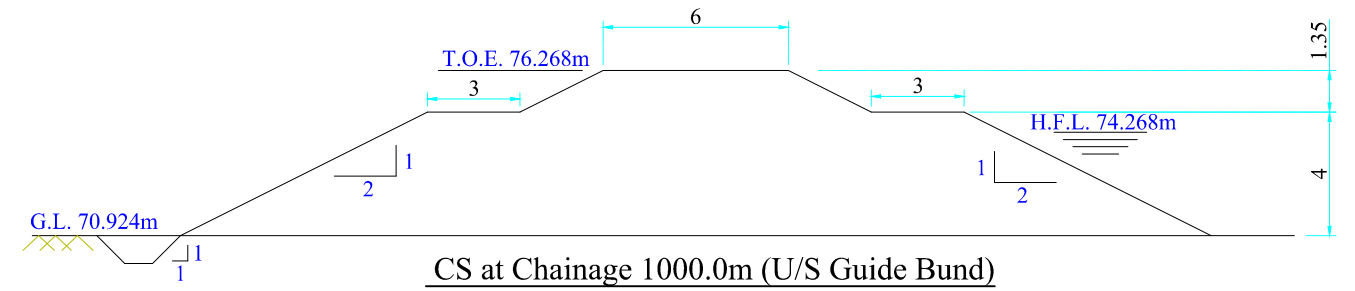
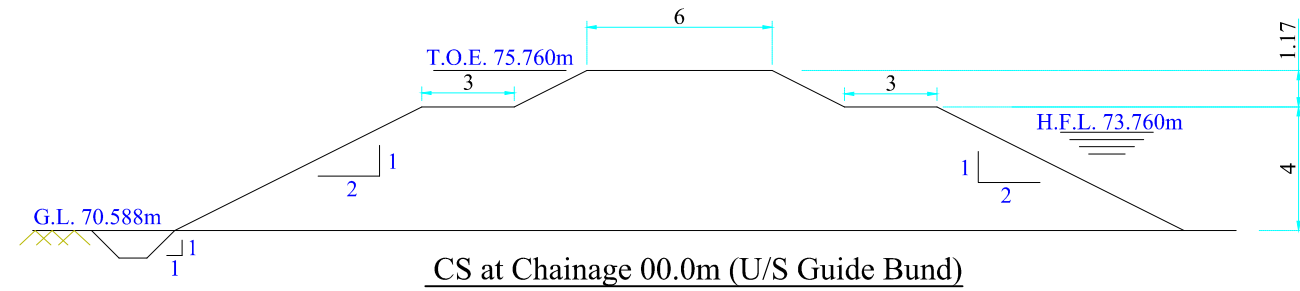
0	DEC. 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
	CLIENT: National Highways and Infrastructure Development Corporation Limited				
	CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sahaul Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in				
PROJECT	4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.				
DRAWING TITLE	L-SECTION OF PROPOSED EMBANKMENT LEFT BANK (D/S)				
DEC. 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	003	0	





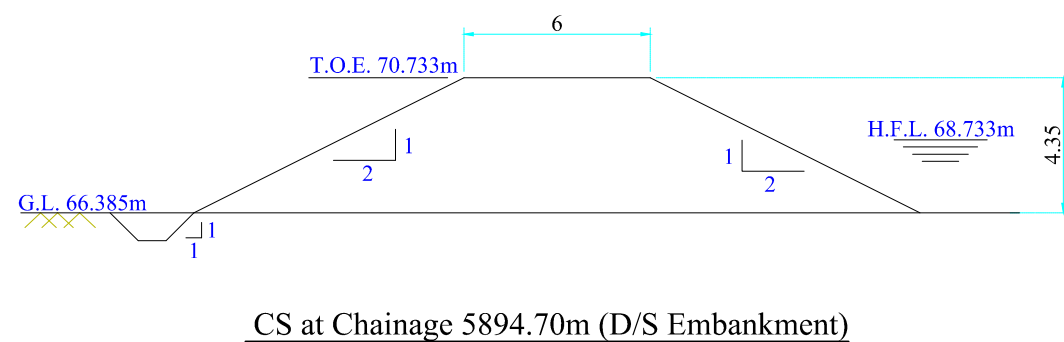
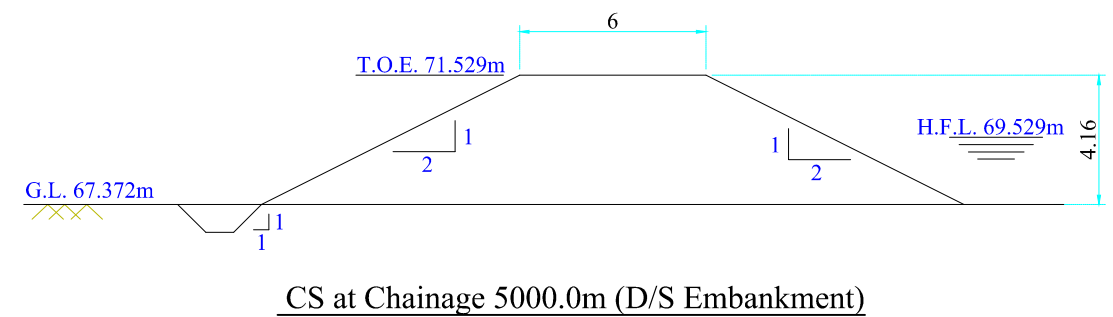
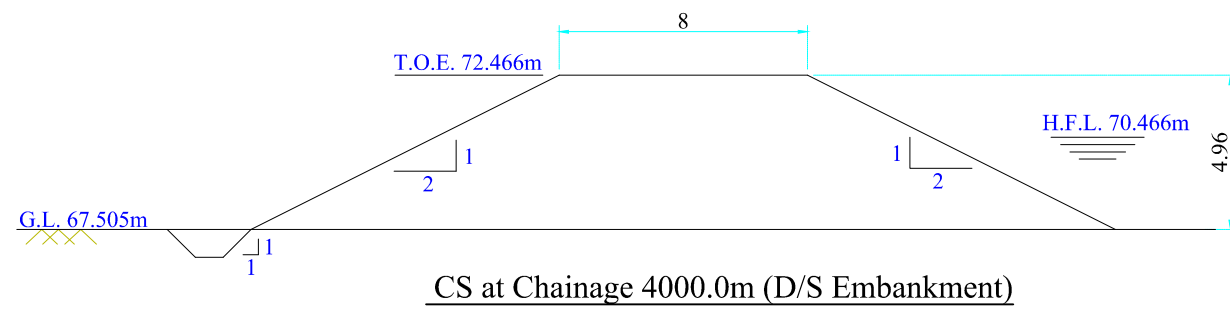
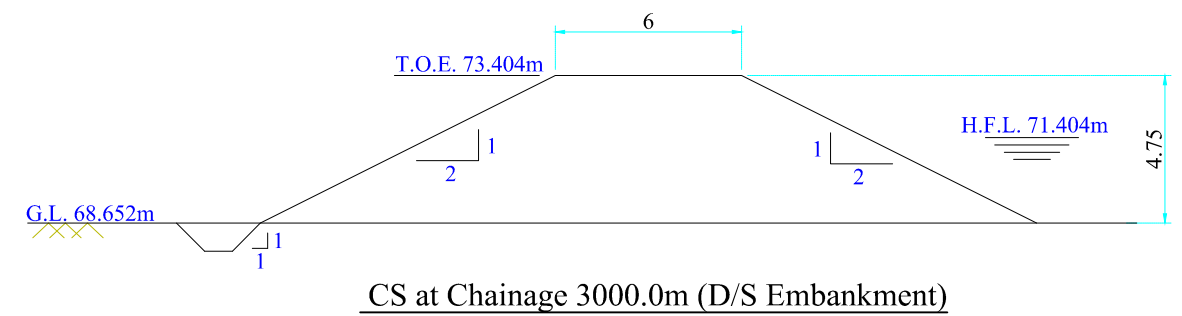
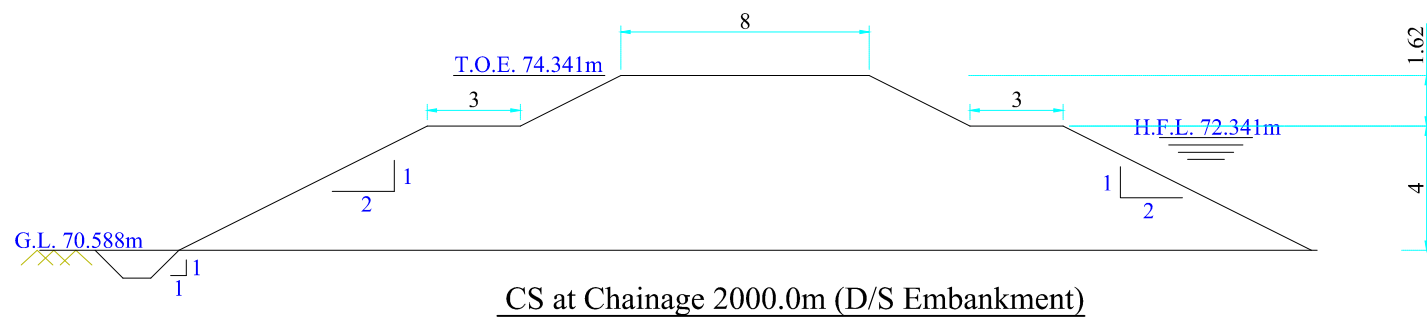
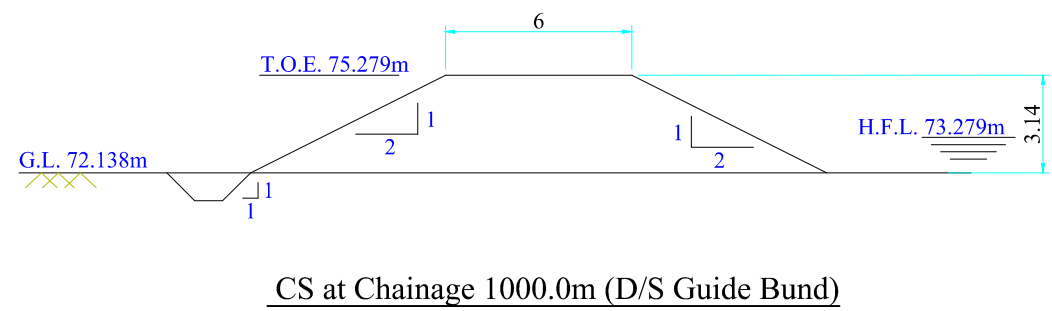
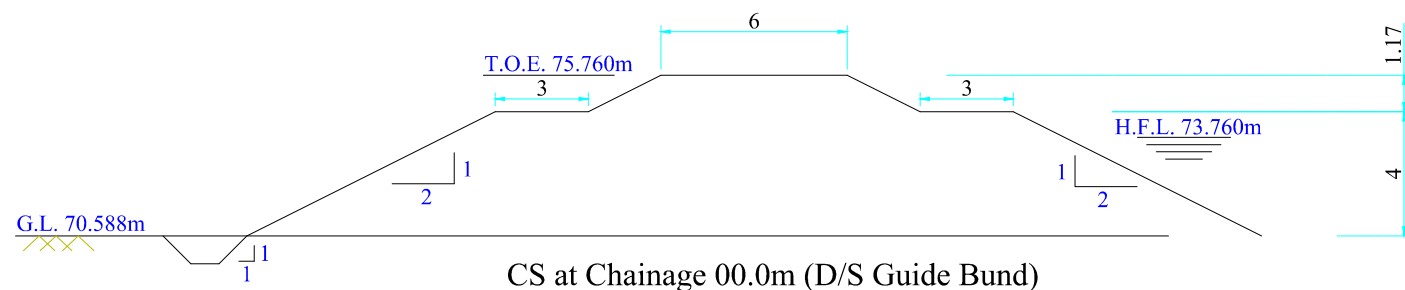
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sarhaul,Gurgaon 122001(Haryana) Ph: 0124-4386659,Fax:0124-4241962 www.xplorer.in, Email: xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		L-SECTION OF PROPOSED EMBANKMENT RIGHT BANK (U/S)			
DEC. 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	004	0	



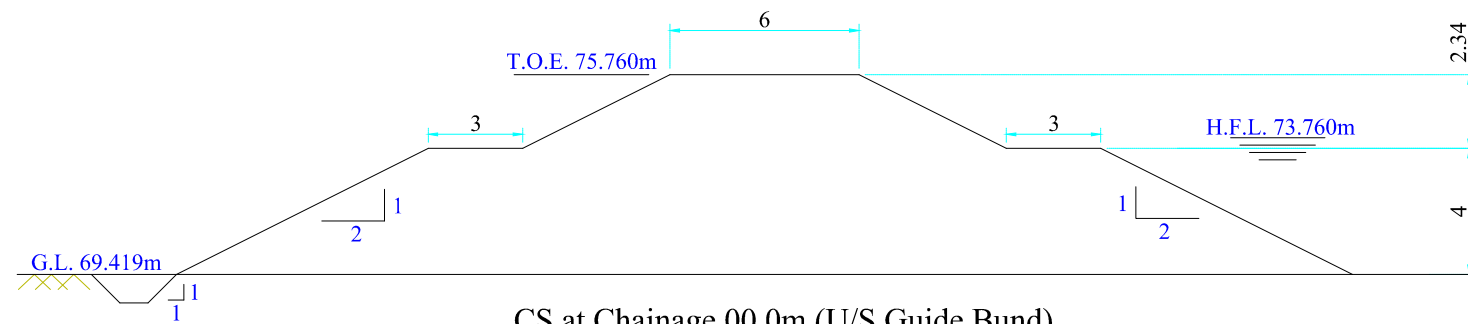
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sahrai, Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		L-SECTION OF PROPOSED EMBANKMENT RIGHT BANK (D/S)			
DEC. 2016		SCALE	SIZE	DWG. NO.	REV.
		NTS	A3	005	0



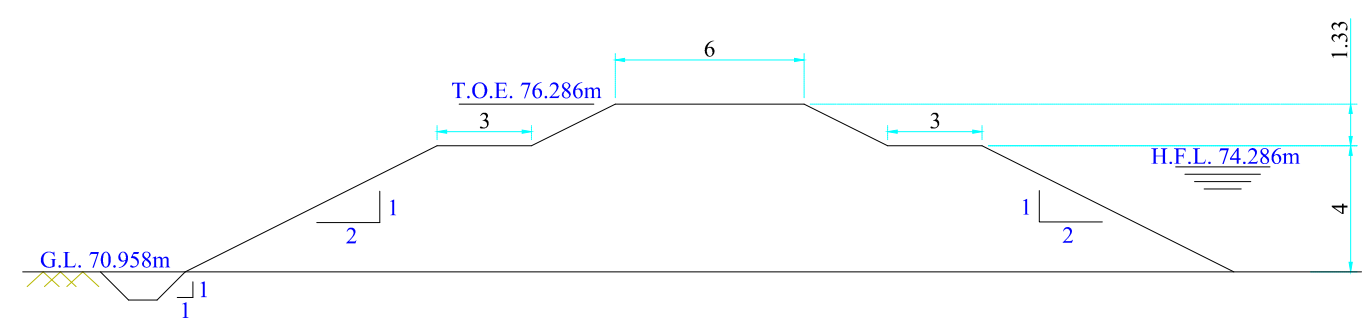
0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
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PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A), 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		U/S TYPICAL CROSS SECTIONS (RIGHT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	001	0	



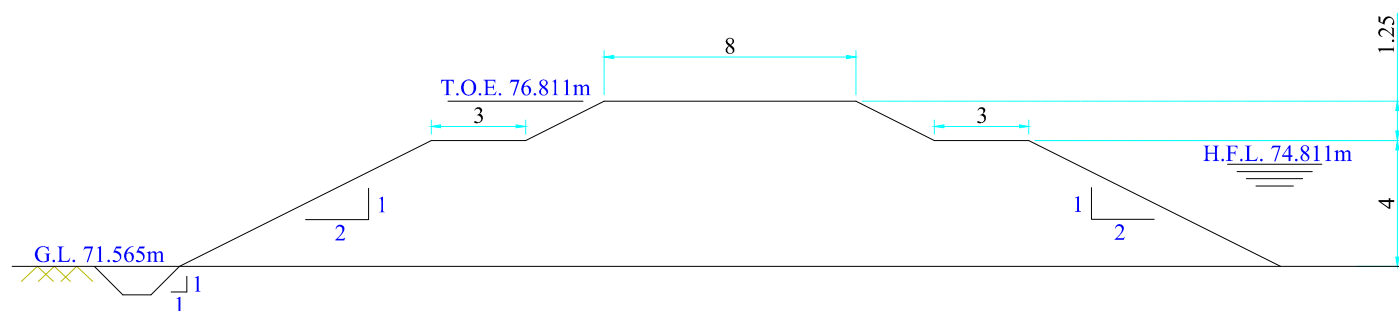
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp. HIPA Sarhaui, Gurgaon-122001 (Haryana) Ph: 0124-4388659, Fax: 0124-4241952 www.xplorer.in, Email: xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		D/S TYPICAL CROSS SECTIONS (RIGHT BANK)			
DEC, 2016		SCALE NTS	SIZE A3	DWG. NO. 002	REV. 0



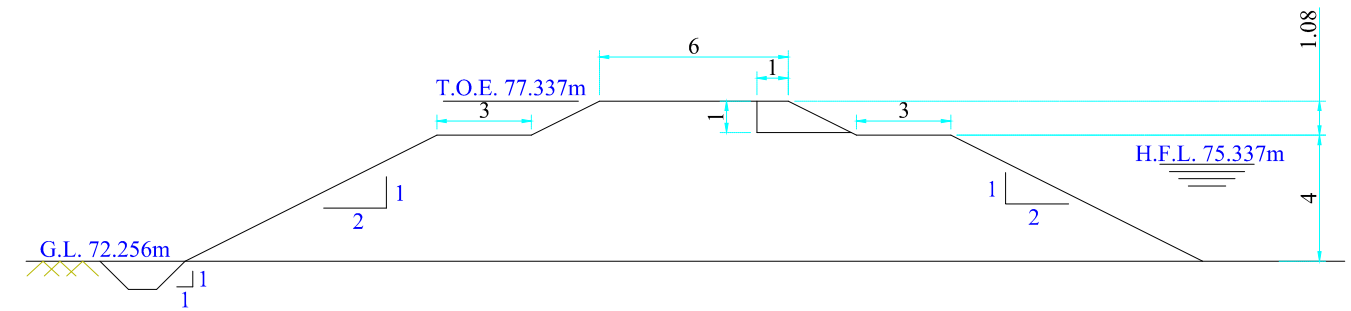
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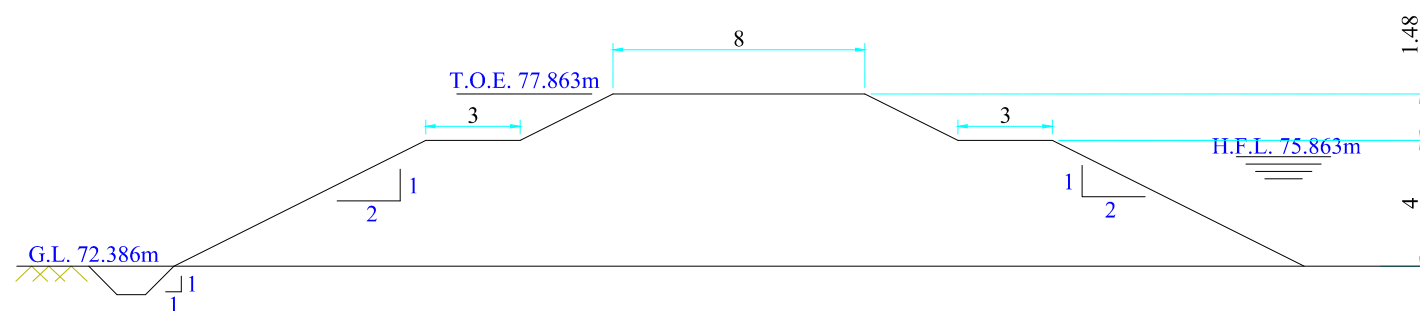
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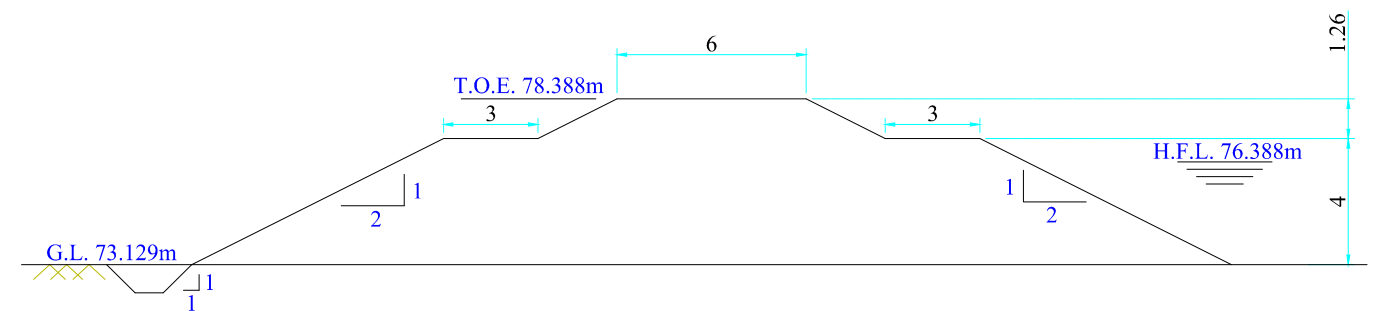
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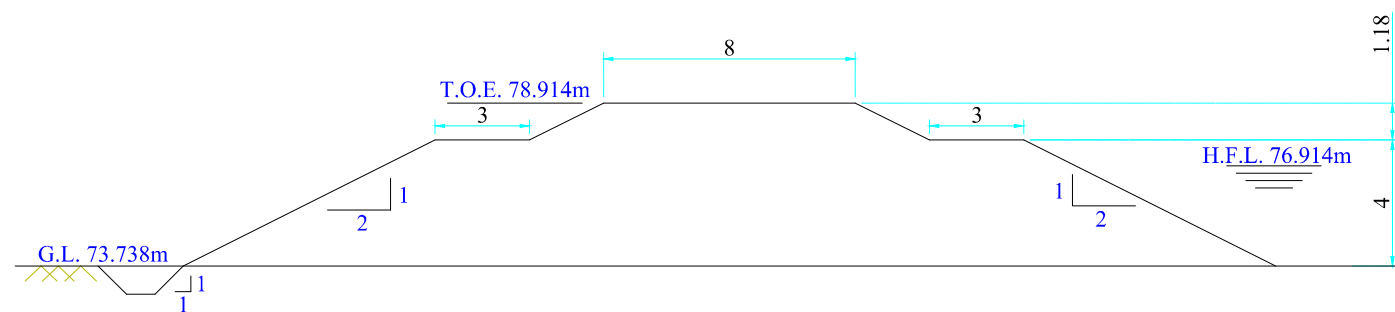
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CS at Chainage 4000.0m

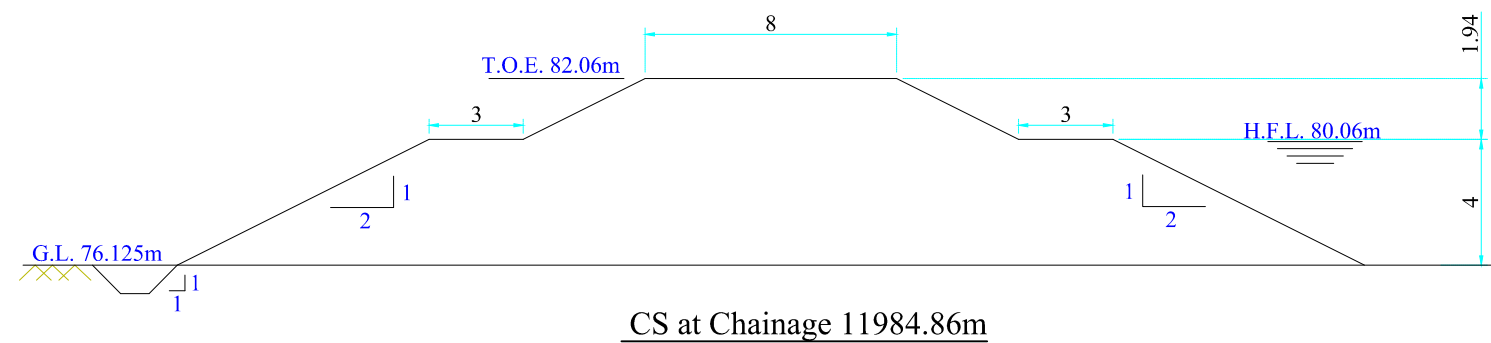
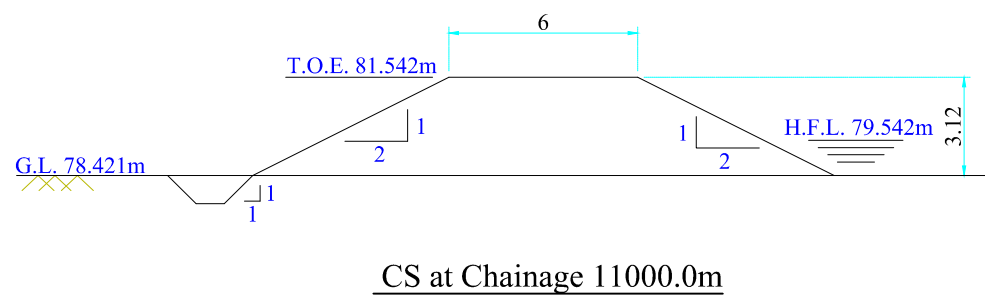
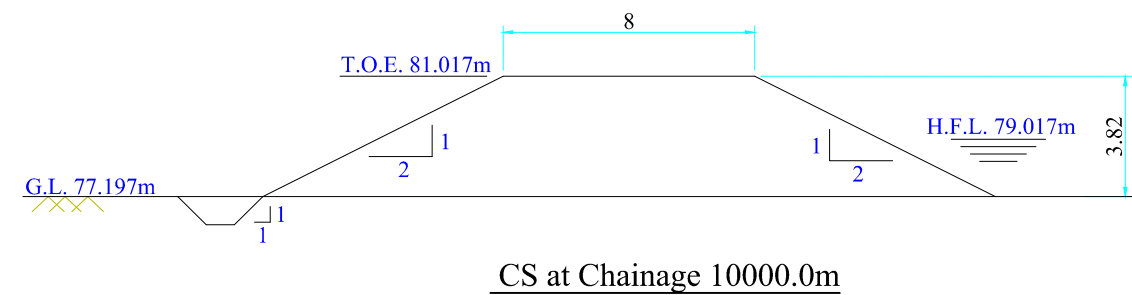
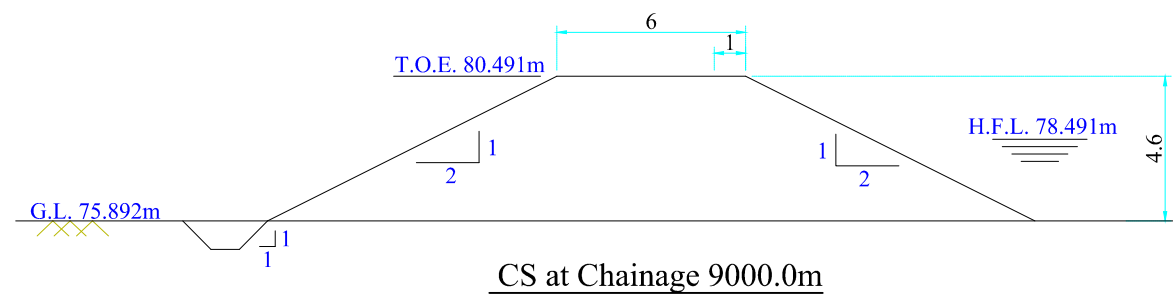
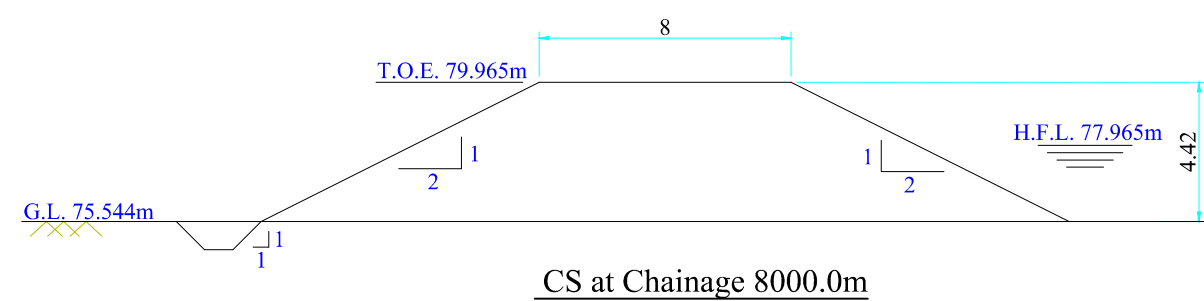
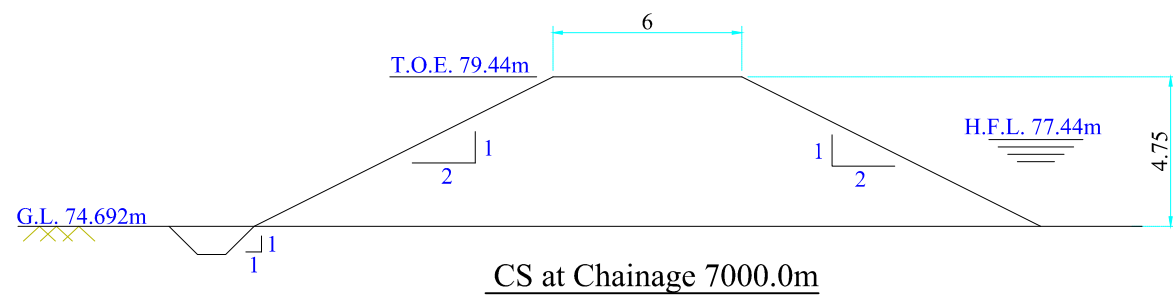




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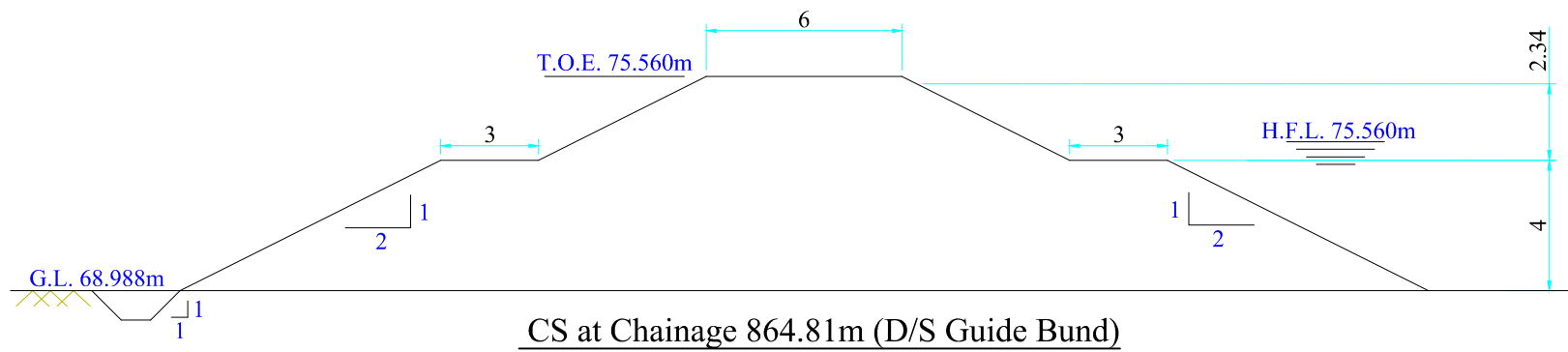
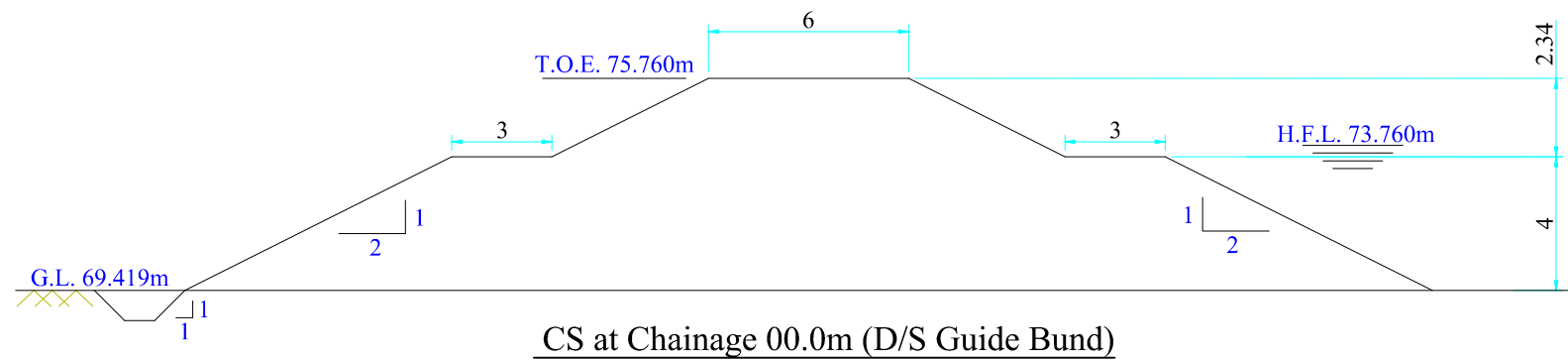




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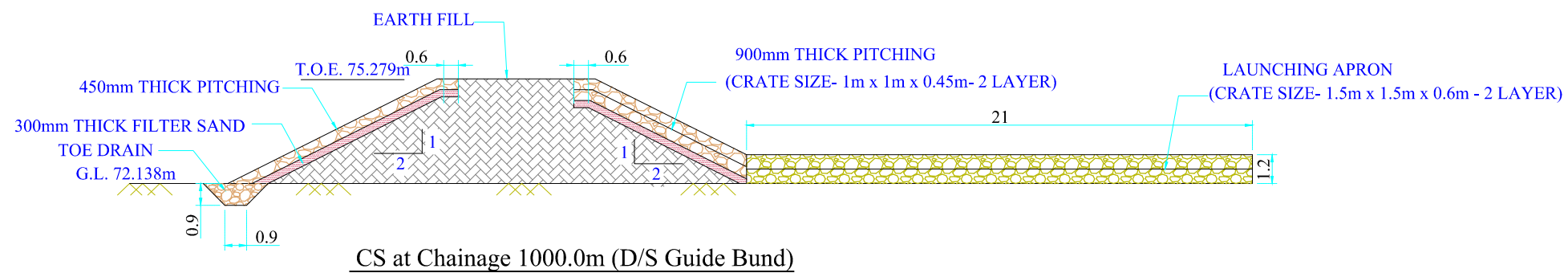
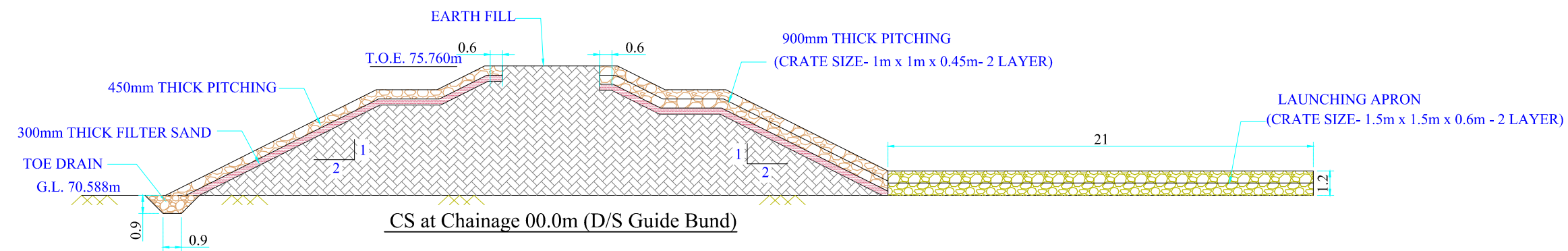
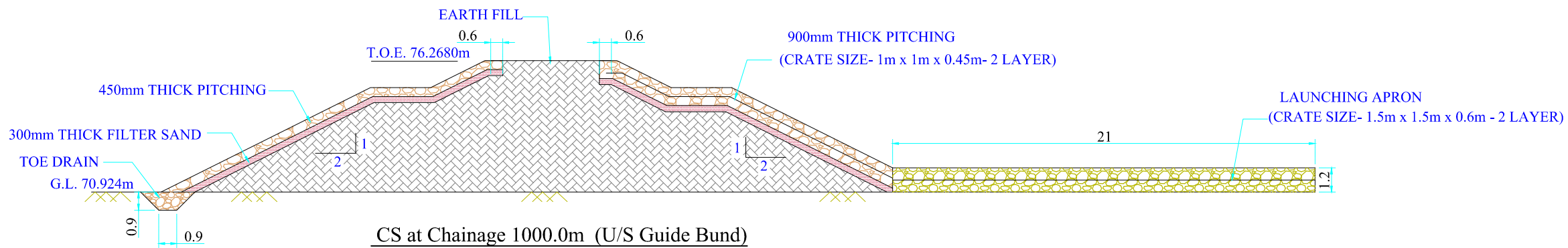
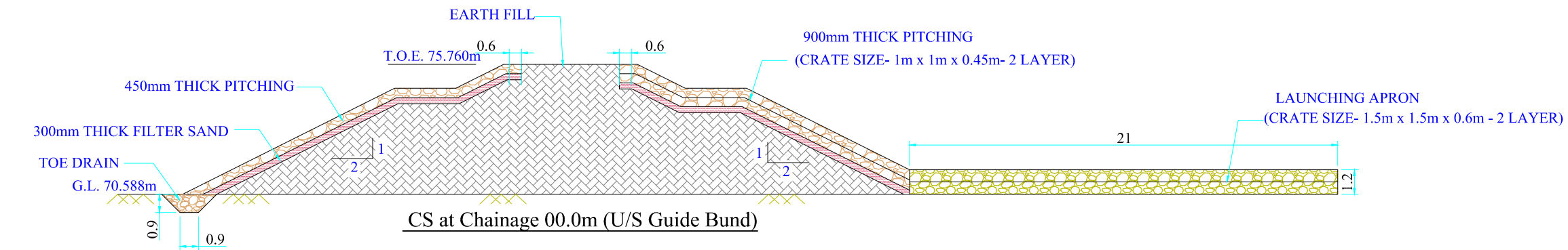
0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp. HIPA Sarhau, Gurgaon-122001 (Haryana) Ph: 0124-4388659, Fax: 0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		U/S TYPICAL CROSS SECTIONS (LEFT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	003	0	



0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sahau, Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
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DRAWING TITLE		U/S TYPICAL CROSS SECTIONS (LEFT BANK)			
DEC, 2016		SCALE NTS	SIZE A3	DWG. NO. 004	REV. 0





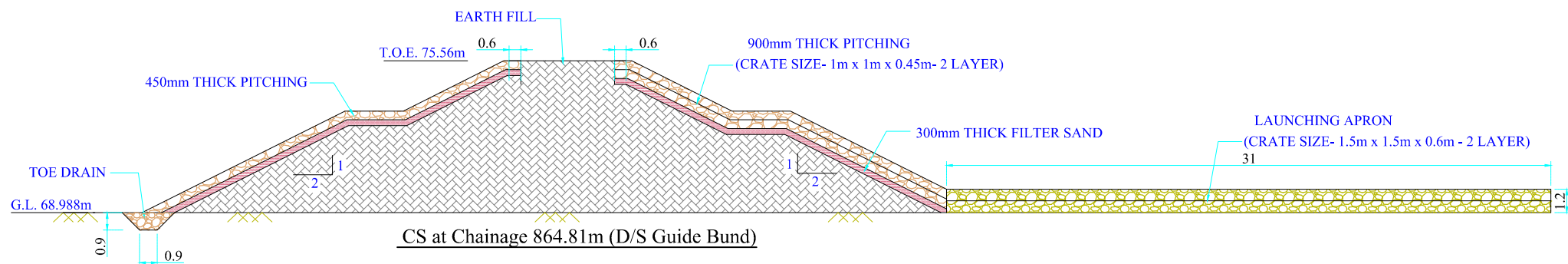
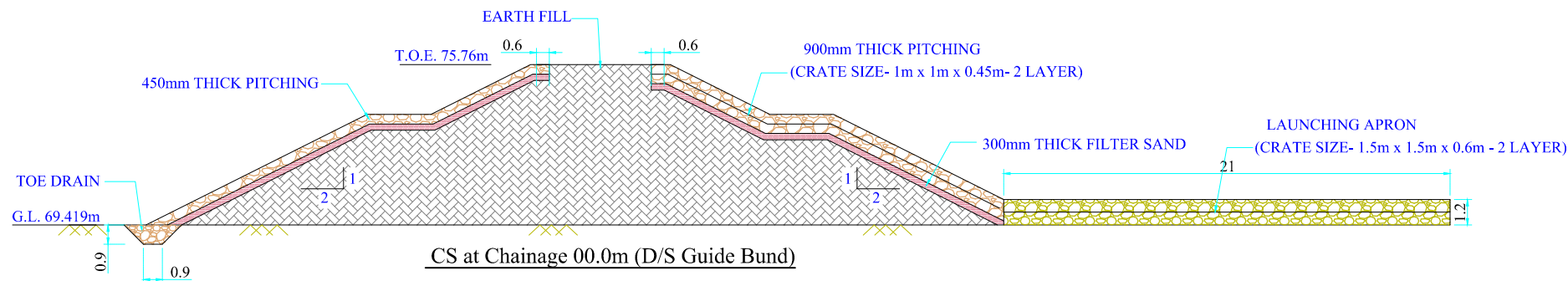
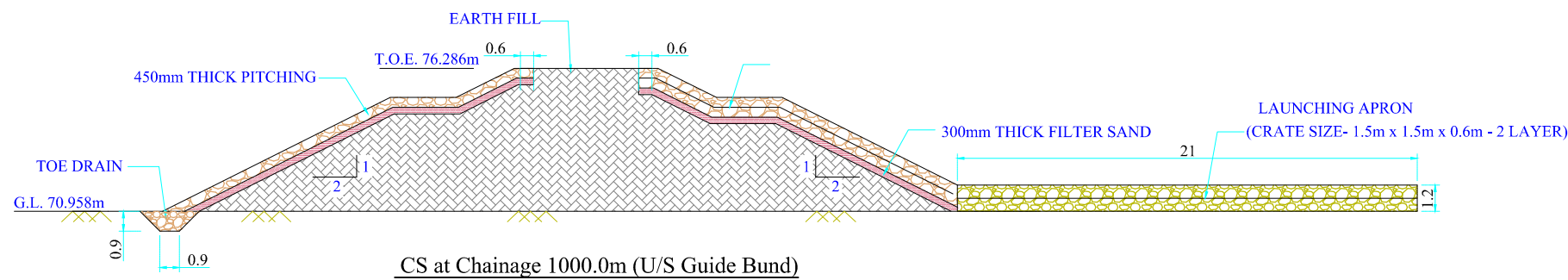
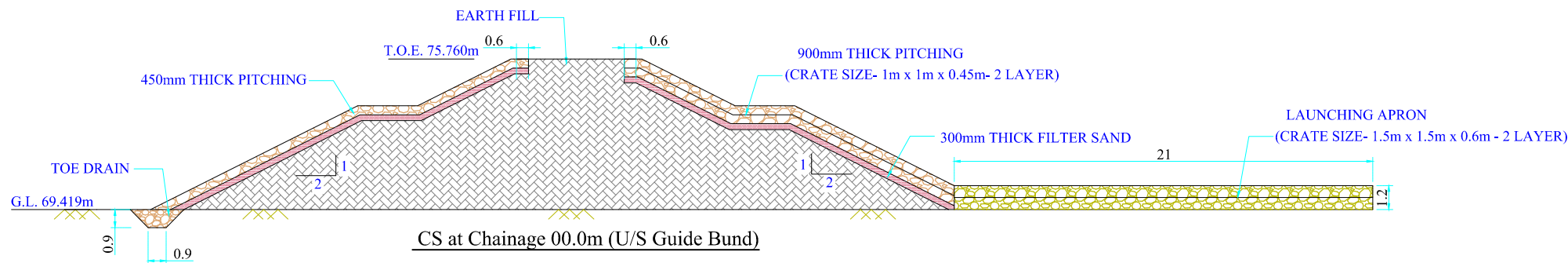
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		<u>CLIENT:</u> National Highways and Infrastructure Development Corporation Limited			
		<u>CONSULTANT:</u> Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp. HIPA Sarhau, Gurgaon 122001 (Haryana) Ph: 0124-4388659, Fax: 0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
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<u>DRAWING TITLE</u>		D/S TYPICAL CROSS SECTIONS (LEFT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	005	0	



NOTES:



1. THICKNESS OF PITCHING ON RIVER SIDE 0.9m
2. SIZE OF WIRECRATE-1m x 1m x 0.45m- 2 LAYER.
3. THICKNESS OF PITCHING ON COUNTRY SIDE 0.45M.
4. THICKNESS OF FILTER SAND-0.3M.
5. SIZE OF LAUNCHING APRON-31m x 1.2m.
6. SIZE OF WIRECRATE-1.5m x 1.5m x 0.6m- 2 LAYER.

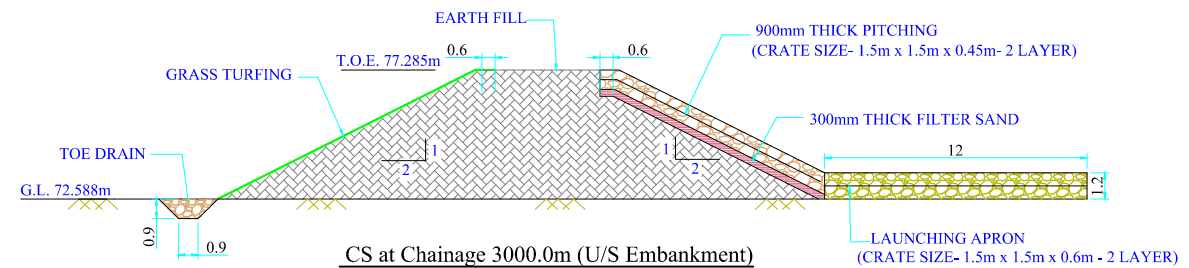
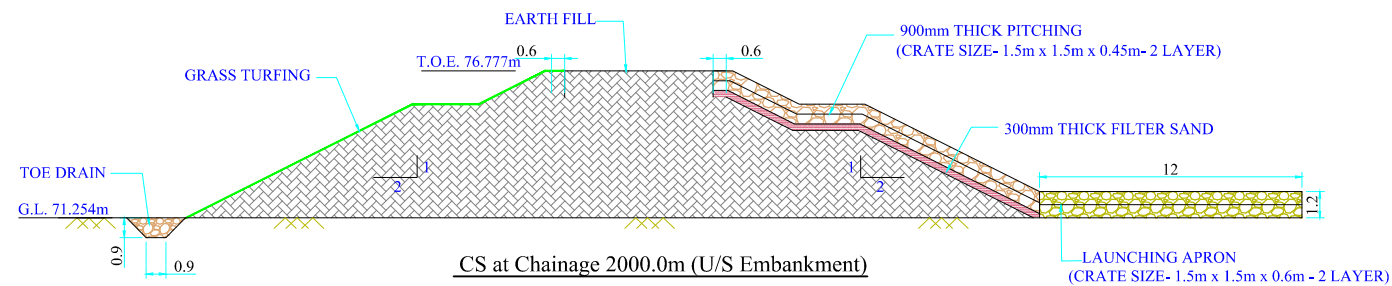
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
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DRAWING TITLE		TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON GUIDE BUND (RIGHT BANK)			
DEC, 2016	SCALE NTS	SIZE A3	DWG. NO. 006	REV. 0	



NOTES:

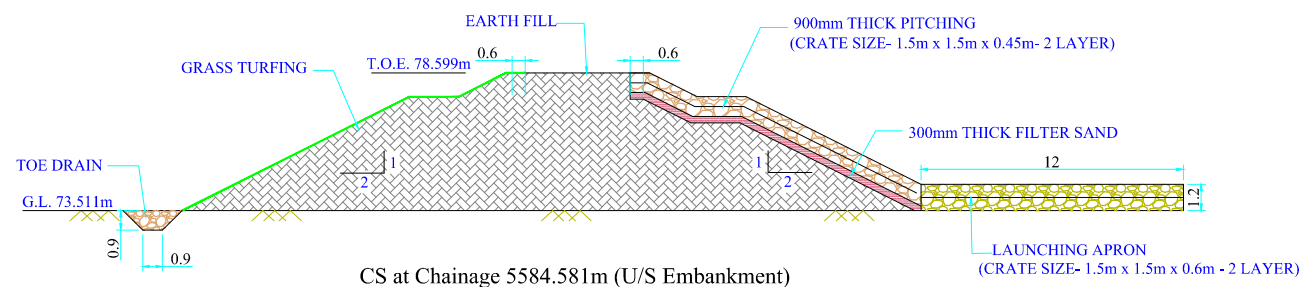
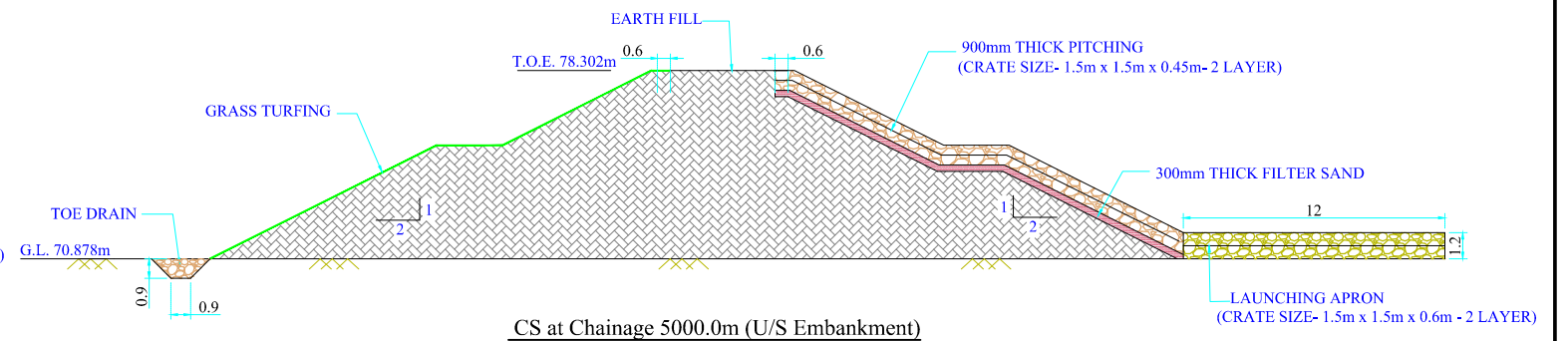
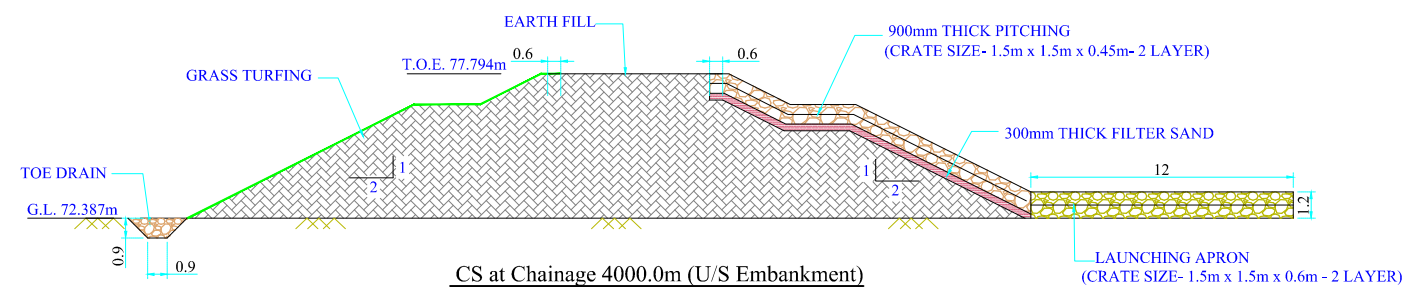
1. THICKNESS OF PITCHING ON RIVER SIDE 0.9m
2. SIZE OF WIRECRATE-1m x 1m x 0.45m- 2 LAYER.
3. THICKNESS OF PITCHING ON COUNTRY SIDE 0.45M.
4. THICKNESS OF FILTER SAND-0.3M.
5. SIZE OF LAUNCHING APRON-31m x 1.2m.
6. SIZE OF WIRECRATE-1.5m x 1.5m x 0.6m- 2 LAYER.



0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		<u>CLIENT:</u> National Highways and Infrastructure Development Corporation Limited			
		<u>CONSULTANT:</u> Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp.HIPA Sarhau, Gurgaon 122001 (Haryana) Ph: 0124-4388659, Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
<u>PROJECT</u>		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
<u>DRAWING TITLE</u>		TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON GUIDE BUND (LEFT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	007	0	

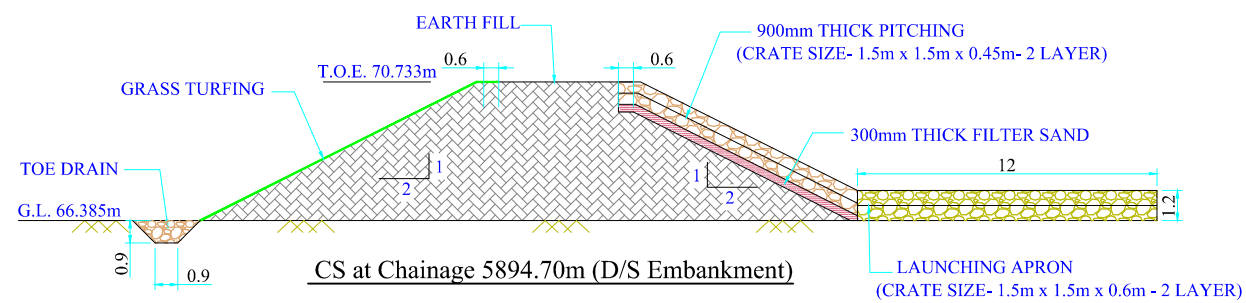
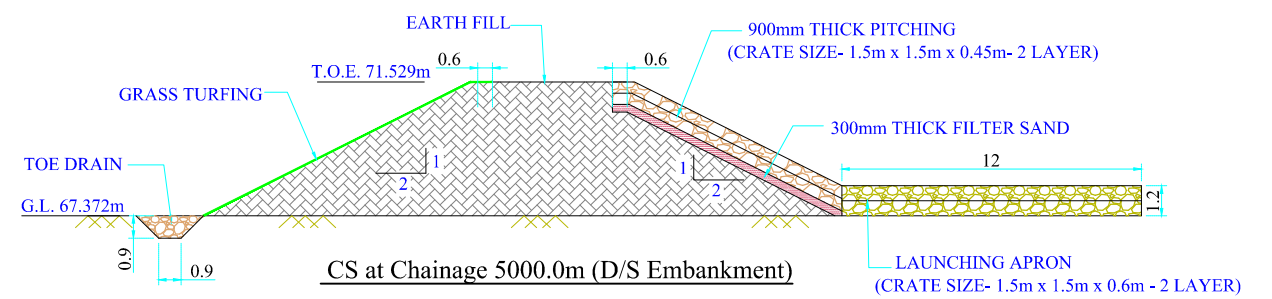
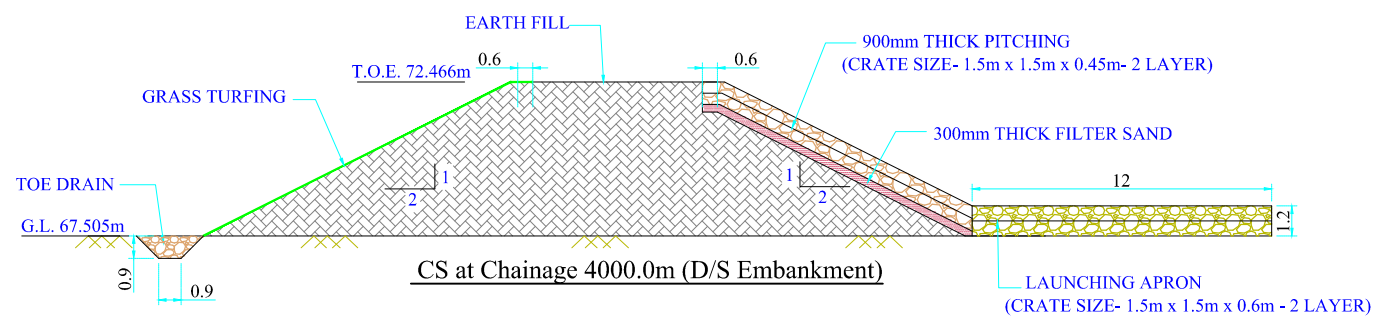
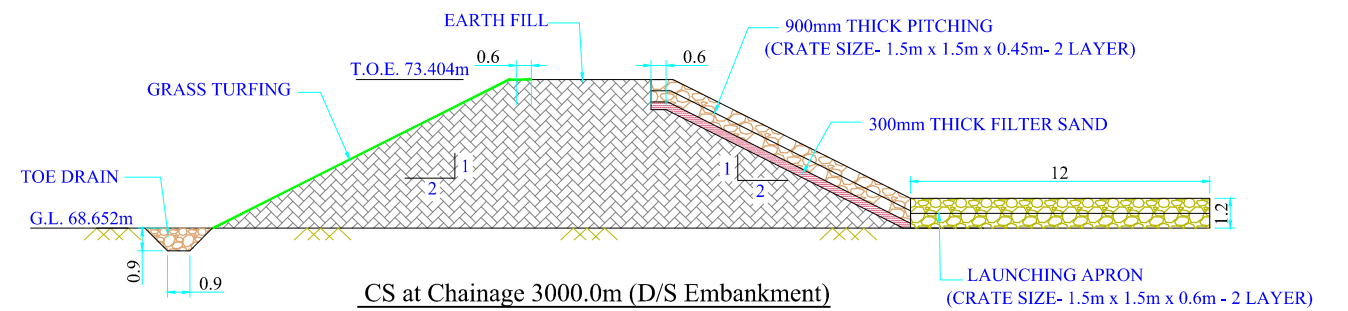
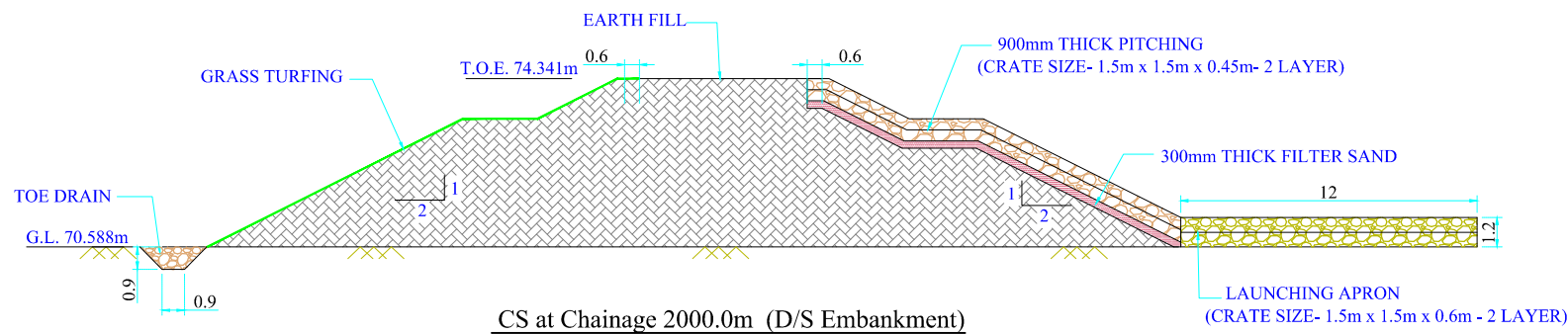


NOTES:

- 1.THICKNESS OF PITCHING 0.9m
- 2.SIZE OF WIRECRATE-1.5m x 1.5m x 0.45m- 2 LAYER
- 3.THICKNESS OF FILTER SAND-0.3M
- 4.SIZE OF LAUNCHING APRON-31m x 1.2m
- 5.SIZE OF WIRECRATE-1.5m x 1.5m x 0.6m- 2 LAYER
- 6.TURFING ON COUNTRY SIDE.





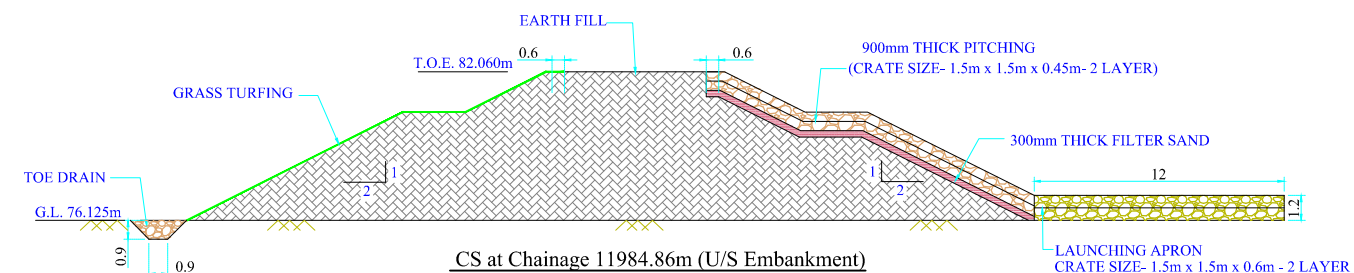
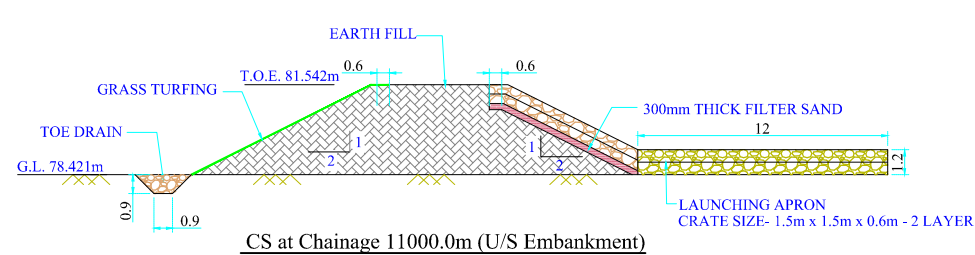
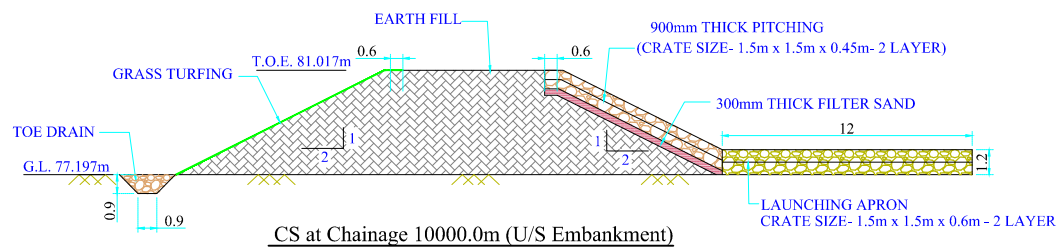
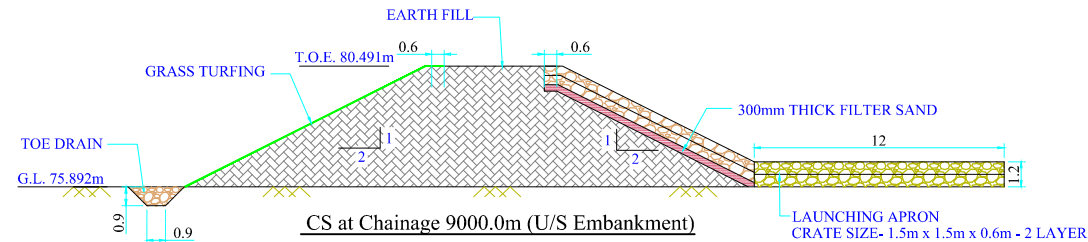
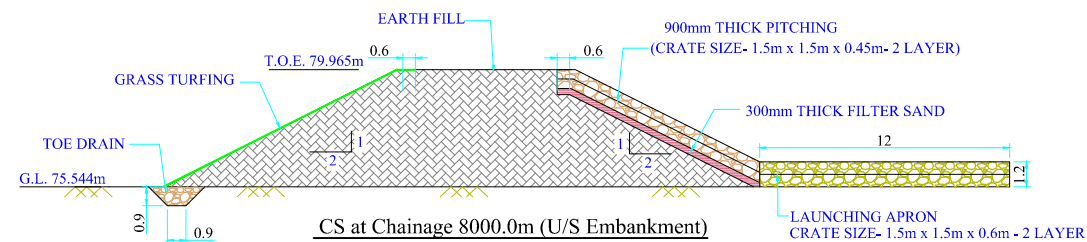
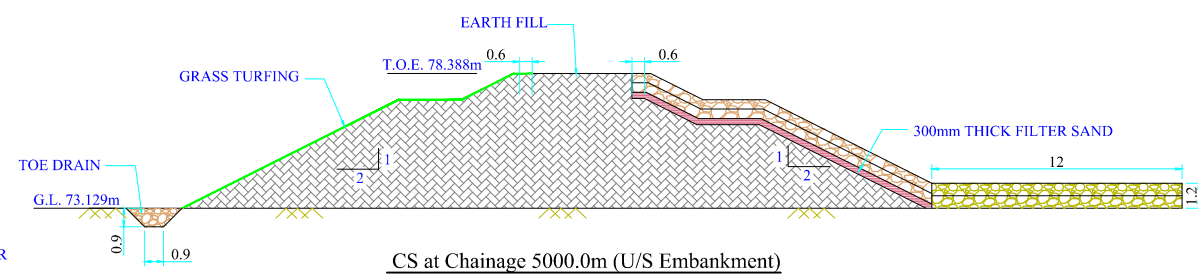
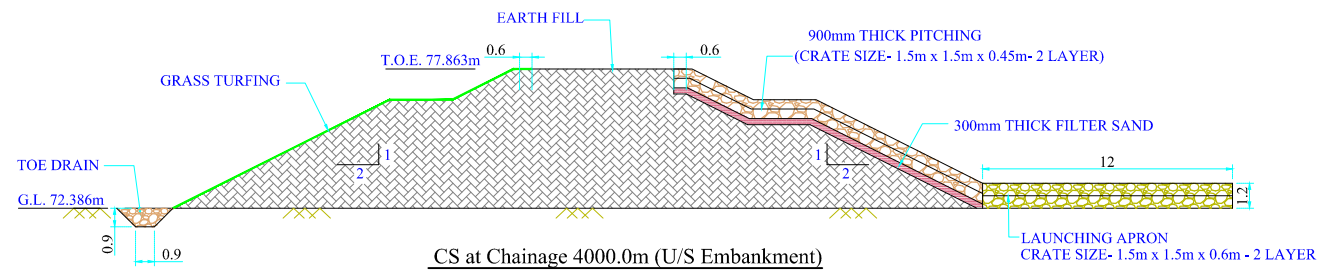
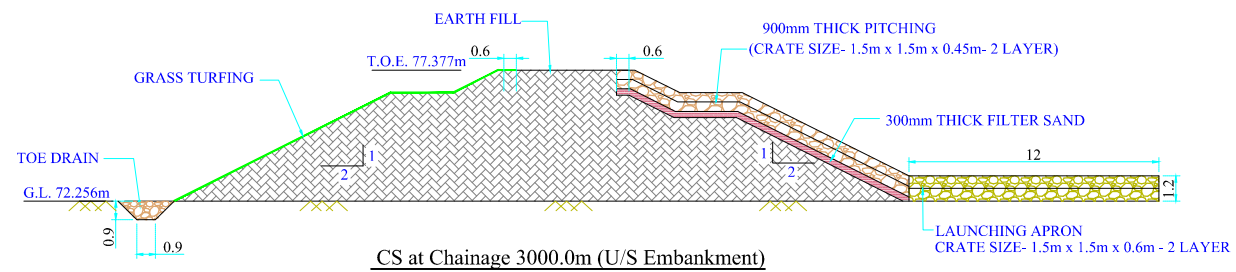
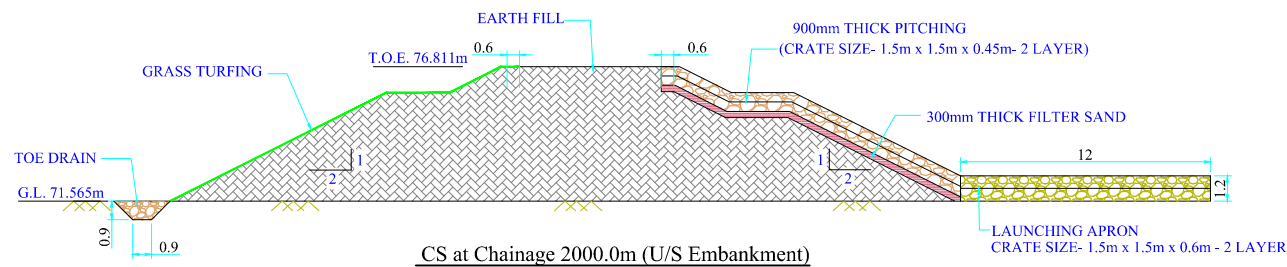
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REV.	DATE	REVISIONS	DRN	CHKD	APPD
		<u>CLIENT:</u> National Highways and Infrastructure Development Corporation Limited			
		<u>CONSULTANT:</u> Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sarhau,Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
<u>PROJECT</u>		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
<u>DRAWING TITLE</u> TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON EMBANKMENT (U/S RIGHT BANK)					
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	008	0	



NOTES:

- 1.THICKNESS OF PITCHING 0.9m
- 2.SIZE OF WIRECRATE-1.5m x 1.5m x 0.45m- 2 LAYER
- 3.THICKNESS OF FILTER SAND-0.3M
- 4.SIZE OF LAUNCHING APRON-31m x 1.2m
- 5.SIZE OF WIRECRATE-1.5m x 1.5m x 0.6m - 2 LAYER
- 6.TURFING ON COUNTRY SIDE.

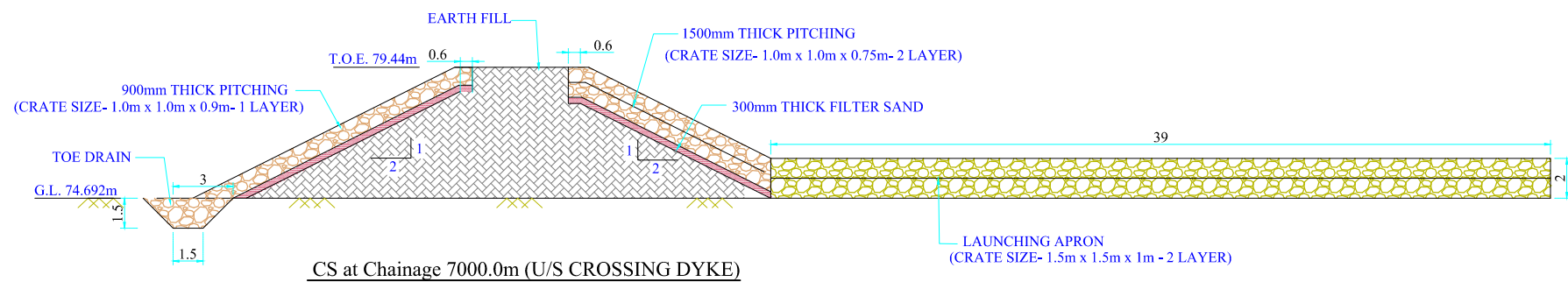
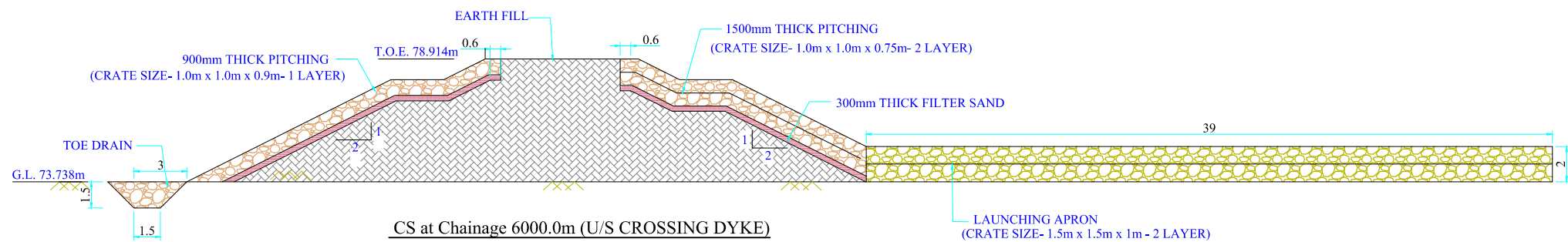
0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT:	National Highways and Infrastructure Development Corporation Limited		
		CONSULTANT:	Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp HIPA Sarhau, Gurgaon 122001 (Haryana) Ph: 0124-4388659, Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in		
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON EMBANKMENT (D/S RIGHT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	009	0	





NOTES:

1. THICKNESS OF PITCHING 0.9m
2. SIZE OF WIRECRATE-1.5m x 1.5m x 0.45m- 2 LAYER
3. THICKNESS OF FILTER SAND-0.3m
4. SIZE OF LAUNCHING APRON-31m x 1.2m
5. SIZE OF WIRECRATE-1.5m x 1.5m x 0.6m- 2 LAYER
6. TURFING ON COUNTRY SIDE.

0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03, First Floor, Sector-18, Opp. HIPA Sarhau, Gurgaon-122001 (Haryana) Ph: 0124-4388659, Fax: 0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Lining from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON EMBANKMENT (U/S LEFT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	010	0	



- NOTES:
- 1.THICKNESS OF PITCHING ON RIVER SIDE 1.5m
 - 2.SIZE OF WIRECRATE-1.0m x 1.0m x 0.75m- 2 LAYER
 - 3.THICKNESS OF PITCHING ON COUNTRY SIDE 0.9m
 - 4.SIZE OF WIRECRATE-1m x 1m x 0.9m- 1 LAYER
 - 5.THICKNESS OF FILTER SAND-0.3M
 - 4.SIZE OF LAUNCHING APRON-39m x 2m
 - 5.SIZE OF WIRECRATE-1.5m x 1.5m x 1m- 2 LAYER

0	DECEMBER, 2016	ISSUED FOR APPROVAL	DM	SK	R.N.SEN
REV.	DATE	REVISIONS	DRN	CHKD	APPD
		CLIENT: National Highways and Infrastructure Development Corporation Limited			
		CONSULTANT: Xplorer Consultancy Services Pvt. Ltd. Plot No.03,First Floor, Sector-18,Opp.HIPA Sahaul Gurgaon 122001(Haryana) Ph: 0124-4388659,Fax:0124-4241962 www.xplorer.in, Email- xplorer@xplorer.in			
PROJECT		4 Lane Capital Connectivity to Itanagar in Arunachal Pradesh under SARD NE Work (Phase A). 4- Laning from KM 17.300 (Dolabari Road Junction on NH-37A) to KM 36.110 (Jamagurihat Road Junction: KM 182.00 of NH-52) in Sonipur District in the State of Assam.			
DRAWING TITLE		TYPICAL CROSS SECTION WITH PITCHING AND LAUNCHING APRON CROSSING DYKE (U/S LEFT BANK)			
DEC, 2016	SCALE	SIZE	DWG. NO.	REV.	
	NTS	A3	011	0	