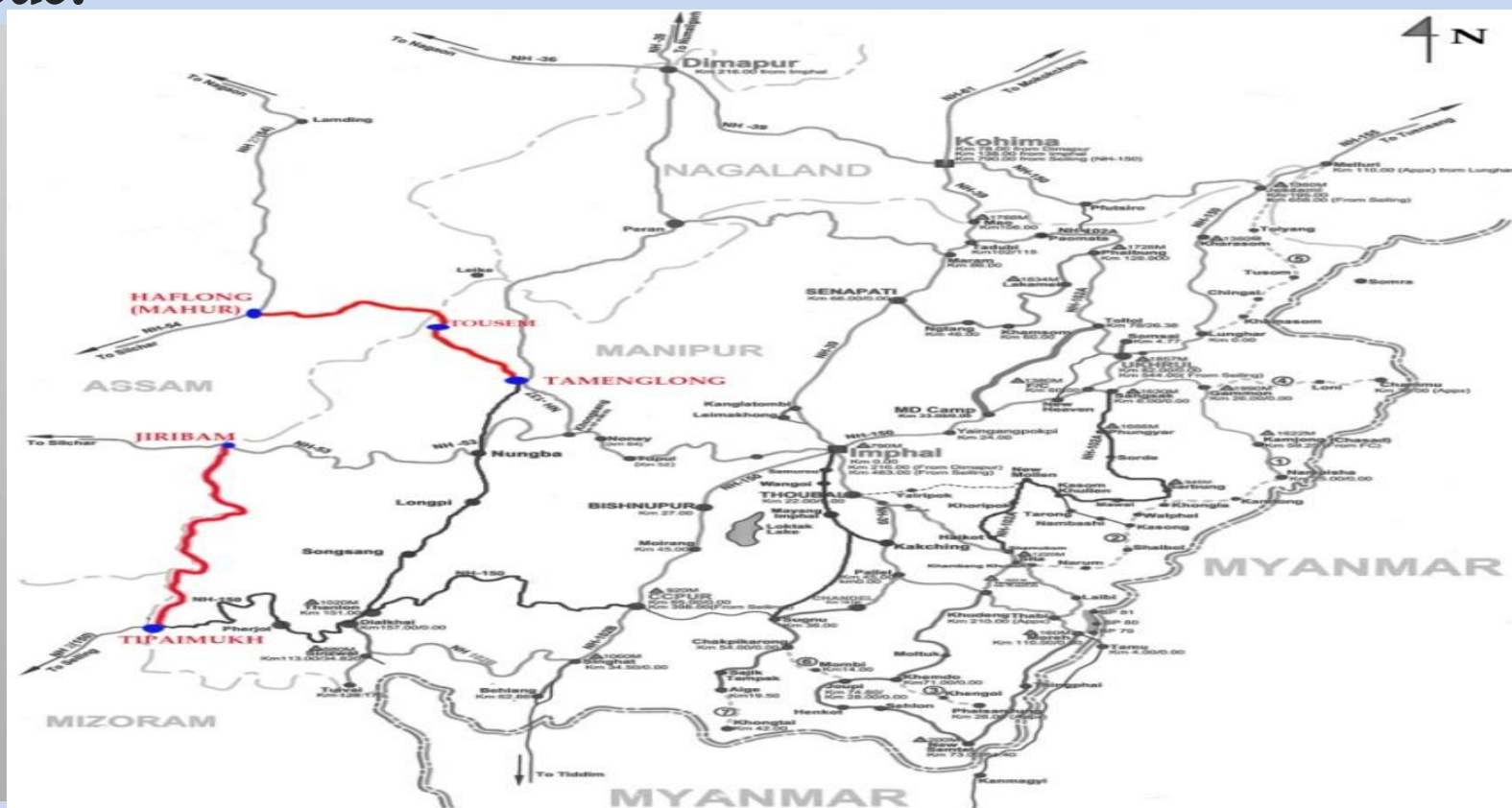


NATIONAL HIGHWAY INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

Consultancy Services for preparation of Feasibility Study and Detailed Project Report for Two Lane with Paved Shoulders of Tamenglong-Tousem-Liasang-Haflong Road in the State of Manipur and Assam on EPC mode.



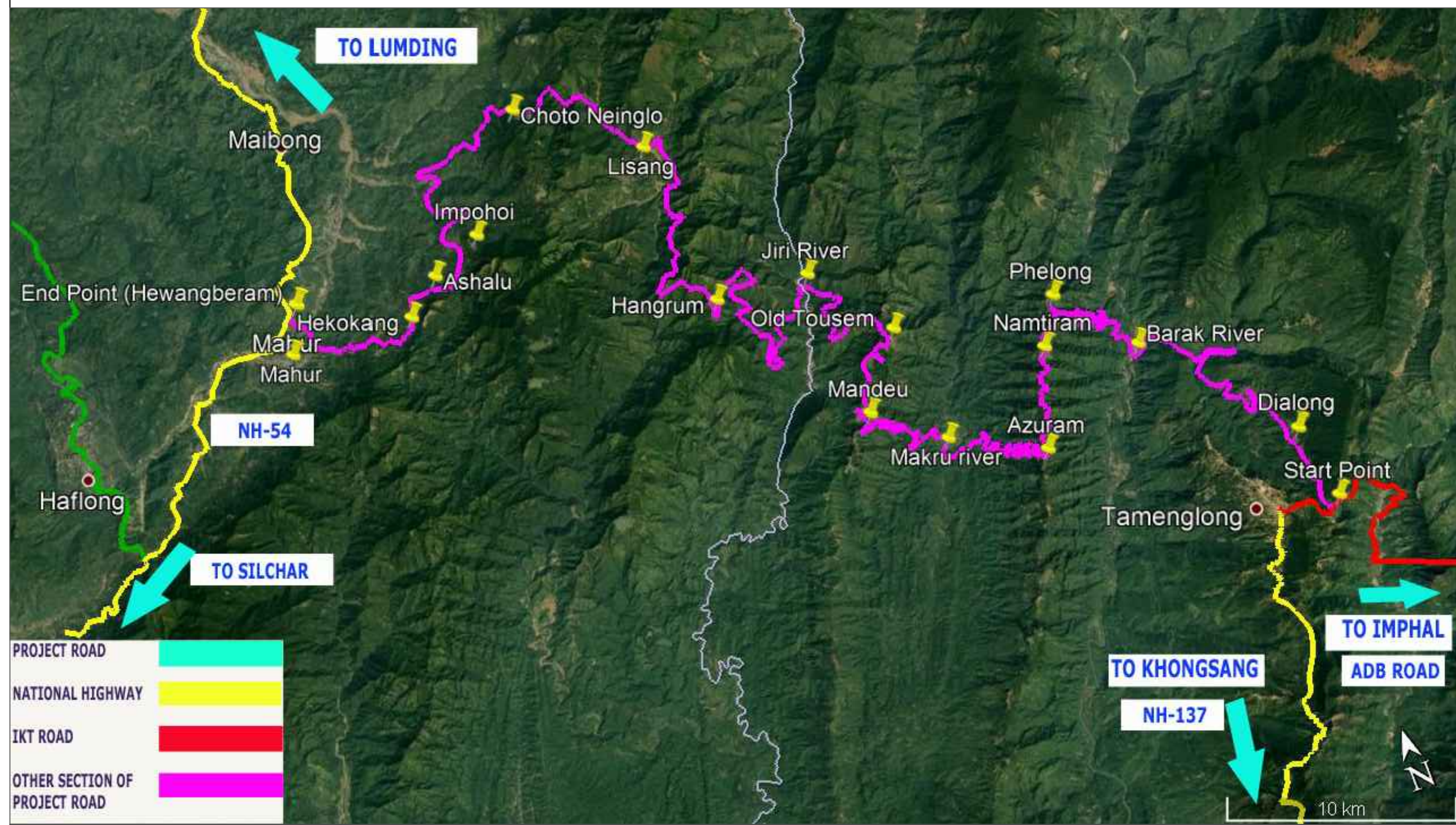
DRAFT DETAILED PROJECT REPORT VOL-VII DRAWING VOLUME PKG-1 - TAMENGLONG-DIALONG SECTION (FROM KM 0+000 TO KM 10+000) LENGTH-10.0KM

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1. INDEX MAP

INDEX MAP



-: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-:INDEX MAP:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD.		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)					Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong- Tousem- Liasang- Haflong In The State of Manipur & Assam on EPC Mode.	
T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)								
Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com								

2. HORIZONTAL ALIGNMENT REPORT

Horizontal Alignment Report

No.	Number	Type	Start Station	End Station	Length	Radius	A	Direction	Delta angle	Start Direction	End Direction	Incurve	Extra Widening	Design Speed (in km/h)
1	1	Line	00.000m	43.566m	43.566m			N35° 22' 45.58"W						
2.1	2	Spiral-Curve-Spiral	43.566m	73.566m	30.000m		47.434m		11.4592 (d)	N35° 22' 45.58"W	N46° 50' 18.55"W	Incurve		
2.2	2	Spiral-Curve-Spiral	73.566m	105.274m	31.708m	75			24.2229 (d)	N46° 50' 18.55"W	N71° 03' 40.87"W		0.9	40
2.3	2	Spiral-Curve-Spiral	105.274m	135.274m	30.000m		47.434m		11.4592 (d)	N71° 03' 40.87"W	N82° 31' 13.83"W	Outcurve		
3	3	Line	135.274m	183.957m	48.683m			N82° 31' 13.83"W						
4.1	4	Spiral-Curve-Spiral	183.957m	228.957m	45.000m		63.640m		14.3239 (d)	N82° 31' 13.83"W	N68° 11' 47.63"W	Incurve		
4.2	4	Spiral-Curve-Spiral	228.957m	249.703m	20.745m	90			13.2069 (d)	N68° 11' 47.63"W	N54° 59' 22.81"W		0.9	40
4.3	4	Spiral-Curve-Spiral	249.703m	294.703m	45.000m		63.640m		14.3239 (d)	N54° 59' 22.81"W	N40° 39' 56.61"W	Outcurve		
5	5	Line	294.703m	481.731m	187.028m			N40° 39' 56.61"W						
6.1	6	Spiral-Curve-Spiral	481.731m	501.731m	20.000m		44.721m		5.7296 (d)	N40° 39' 56.61"W	N34° 56' 10.13"W	Incurve		
6.2	6	Spiral-Curve-Spiral	501.731m	522.632m	20.901m	100			11.9756 (d)	N34° 56' 10.13"W	N22° 57' 37.93"W		0.9	40
6.3	6	Spiral-Curve-Spiral	522.632m	542.632m	20.000m		44.721m		5.7296 (d)	N22° 57' 37.93"W	N17° 13' 51.45"W	Outcurve		
7	7	Line	542.632m	663.346m	120.714m			N17° 13' 51.45"W						
8.1	8	Spiral-Curve-Spiral	663.346m	693.346m	30.000m		94.868m		2.8648 (d)	N17° 13' 51.45"W	N14° 21' 58.21"W	Incurve		
8.2	8	Spiral-Curve-Spiral	693.346m	843.301m	149.955m	300			28.6393 (d)	N14° 21' 58.21"W	N14° 16' 23.39"E		0.6	40
8.3	8	Spiral-Curve-Spiral	843.301m	873.301m	30.000m		94.868m		2.8648 (d)	N14° 16' 23.39"E	N17° 08' 16.63"E	Outcurve		
9	9	Line	873.301m	965.236m	91.935m			N17° 08' 16.63"E						
10.1	10	Spiral-Curve-Spiral	965.236m	985.236m	20.000m		77.460m		1.9099 (d)	N17° 08' 16.63"E	N15° 13' 41.14"E	Incurve		
10.2	10	Spiral-Curve-Spiral	985.236m	1003.448m	18.212m	300			3.4783 (d)	N15° 13' 41.14"E	N11° 44' 59.35"E		0.6	40
10.3	10	Spiral-Curve-Spiral	1003.448m	1023.448m	20.000m		77.460m		1.9099 (d)	N11° 44' 59.35"E	N9° 50' 23.86"E	Outcurve		
11	11	Line	1023.448m	1176.081m	152.633m			N9° 50' 23.86"E						
12.1	12	Spiral-Curve-Spiral	1176.081m	1206.081m	30.000m		47.434m		11.4592 (d)	N9° 50' 23.86"E	N21° 17' 56.82"E	Incurve		
12.2	12	Spiral-Curve-Spiral	1206.081m	1221.254m	15.173m	75			11.5914 (d)	N21° 17' 56.82"E	N32° 53' 25.95"E		0.9	40
12.3	12	Spiral-Curve-Spiral	1221.254m	1251.254m	30.000m		47.434m		11.4592 (d)	N32° 53' 25.95"E	N44° 20' 58.91"E	Outcurve		
13	13	Line	1251.254m	1331.567m	80.313m			N44° 20' 58.91"E						
14.1	14	Spiral-Curve-Spiral	1331.567m	1346.567m	15.000m		16.202m		24.5553 (d)	N44° 20' 58.91"E	N19° 47' 39.71"E	Incurve		
14.2	14	Spiral-Curve-Spiral	1346.567m	1385.084m	38.517m	17.5			126.1060 (d)	N19° 47' 39.71"E	S73° 41' 18.25"W		1.5	20
14.3	14	Spiral-Curve-Spiral	1385.084m	1400.084m	15.000m		16.202m		24.5553 (d)	S73° 41' 18.25"W	S49° 07' 59.05"W	Outcurve		
15	15	Line	1400.084m	1433.309m	33.225m			S49° 07' 59.05"W						
16.1	16	Spiral-Curve-Spiral	1433.309m	1453.309m	20.000m		70.711m		2.2918 (d)	S49° 07' 59.05"W	S46° 50' 28.46"W	Incurve		
16.2	16	Spiral-Curve-Spiral	1453.309m	1583.526m	130.217m	250			29.8436 (d)	S46° 50' 28.46"W	S16° 59' 51.58"W		0.6	40
16.3	16	Spiral-Curve-Spiral	1583.526m	1603.526m	20.000m		70.711m		2.2918 (d)	S16° 59' 51.58"W	S14° 42' 20.99"W	Outcurve		
17	17	Line	1603.526m	1704.954m	101.428m			S14° 42' 20.99"W						
18.1	18	Spiral-Curve-Spiral	1704.954m	1719.954m	15.000m		16.202m		24.5553 (d)	S14° 42' 20.99"W	S39° 15' 40.19"W	Incurve		
18.2	18	Spiral-Curve-Spiral	1719.954m	1759.122m	39.168m	17.5			128.2384 (d)	S39° 15' 40.19"W	N12° 30' 01.54"W		1.5	20
18.3	18	Spiral-Curve-Spiral	1759.122m	1774.122m	15.000m		16.202m		24.5553 (d)	N12° 30' 01.54"W	N12° 03' 17.66"E	Outcurve		
19	19	Line	1774.122m	1948.389m	174.267m			N12° 03' 17.66"E						
20.1	20	Spiral-Curve-Spiral	1948.389m	1968.389m	20.000m		54.772m		3.8197 (d)	N12° 03' 17.66"E	N15° 52' 28.65"E	Incurve		
20.2	20	Spiral-Curve-Spiral	1968.389m	1993.977m	25.588m	150			9.7738 (d)	N15° 52' 28.65"E	N25° 38' 54.17"E		0.6	40
20.3	20	Spiral-Curve-Spiral	1993.977m	2013.977m	20.000m		54.772m		3.8197 (d)	N25° 38' 54.17"E	N29° 28' 05.15"E	Outcurve		
21	21	Line	2013.977m	2075.782m	61.805m			N29° 28' 05.15"E						
22.1	22	Spiral-Curve-Spiral	2075.782m	2100.782m	25.000m		79.057m		2.8648 (d)	N29° 28' 05.15"E	N26° 36' 11.91"E	Incurve		
22.2	22	Spiral-Curve-Spiral	2100.782m	2368.165m	267.384m	250			61.2799 (d)	N26° 36' 11.91"E	N34° 40' 35.55"W		0.6	50
22.3	22	Spiral-Curve-Spiral	2368.165m	2393.165m	25.000m		79.057m		2.8648 (d)	N34° 40' 35.55"W	N37° 32' 28.79"W	Outcurve		

Horizontal Alignment Report

No.	Number	Type	Start Station	End Station	Length	Radius	A	Direction	Delta angle	Start Direction	End Direction	Incurve	Extra Widening	Design Speed (in km/h)
23	23	Line	2393.165m	2424.947m	31.781m			N37° 32' 28.79"W						
24	24	Line	2424.947m	2540.884m	115.937m			N34° 44' 01.04"W						
25.1	25	Spiral-Curve-Spiral	2540.884m	2570.884m	30.000m		67.082m		5.7296 (d)	N34° 44' 01.04"W	N29° 00' 14.56"W	Incurve		
25.2	25	Spiral-Curve-Spiral	2570.884m	2690.350m	119.467m	150			45.6330 (d)	N29° 00' 14.56"W	N16° 37' 44.21"E		0.6	50
25.3	25	Spiral-Curve-Spiral	2690.350m	2720.350m	30.000m		67.082m		5.7296 (d)	N16° 37' 44.21"E	N22° 21' 30.69"E	Outcurve		
26	26	Line	2720.350m	2812.358m	92.008m			N22° 21' 30.69"E						
27.1	27	Spiral-Curve-Spiral	2812.358m	2842.358m	30.000m		67.082m		5.7296 (d)	N22° 21' 30.69"E	N16° 37' 44.21"E	Incurve		
27.2	27	Spiral-Curve-Spiral	2842.358m	2873.676m	31.318m	150			11.9625 (d)	N16° 37' 44.21"E	N4° 39' 59.17"E		0.6	50
27.3	27	Spiral-Curve-Spiral	2873.676m	2903.676m	30.000m		67.082m		5.7296 (d)	N4° 39' 59.17"E	N1° 03' 47.31"W	Outcurve		
28	28	Line	2903.676m	3132.576m	228.900m			N1° 03' 47.31"W						
29.1	29	Spiral-Curve-Spiral	3132.576m	3162.576m	30.000m		67.082m		5.7296 (d)	N1° 03' 47.31"W	N4° 39' 59.17"E	Incurve		
29.2	29	Spiral-Curve-Spiral	3162.576m	3170.314m	7.738m	150			2.9557 (d)	N4° 39' 59.17"E	N7° 37' 19.71"E		0.6	50
29.3	29	Spiral-Curve-Spiral	3170.314m	3200.314m	30.000m		67.082m		5.7296 (d)	N7° 37' 19.71"E	N13° 21' 06.19"E	Outcurve		
30	30	Line	3200.314m	3229.942m	29.627m			N13° 21' 06.19"E						
31.1	31	Spiral-Curve-Spiral	3229.942m	3259.942m	30.000m		47.434m		11.4592 (d)	N13° 21' 06.19"E	N1° 53' 33.23"E	Incurve		
31.2	31	Spiral-Curve-Spiral	3259.942m	3303.479m	43.537m	75			33.2600 (d)	N1° 53' 33.23"E	N31° 22' 02.77"W		0.9	40
31.3	31	Spiral-Curve-Spiral	3303.479m	3333.479m	30.000m		47.434m		11.4592 (d)	N31° 22' 02.77"W	N42° 49' 35.73"W	Outcurve		
32	32	Line	3333.479m	3363.243m	29.764m			N42° 49' 35.73"W						
33.1	33	Spiral-Curve-Spiral	3363.243m	3388.243m	25.000m		54.772m		5.9683 (d)	N42° 49' 35.73"W	N36° 51' 29.81"W	Incurve		
33.2	33	Spiral-Curve-Spiral	3388.243m	3445.147m	56.904m	120			27.1696 (d)	N36° 51' 29.81"W	N9° 41' 19.43"W		0.6	40
33.3	33	Spiral-Curve-Spiral	3445.147m	3470.147m	25.000m		54.772m		5.9683 (d)	N9° 41' 19.43"W	N3° 43' 13.52"W	Outcurve		
34	34	Line	3470.147m	3711.524m	241.377m			N3° 43' 13.52"W						
35.1	35	Spiral-Curve-Spiral	3711.524m	3741.524m	30.000m		154.919m		1.0743 (d)	N3° 43' 13.52"W	N2° 38' 46.05"W	Incurve		
35.2	35	Spiral-Curve-Spiral	3741.524m	3764.105m	22.582m	800			1.6173 (d)	N2° 38' 46.05"W	N1° 01' 43.79"W		0	50
35.3	35	Spiral-Curve-Spiral	3764.105m	3794.105m	30.000m		154.919m		1.0743 (d)	N1° 01' 43.79"W	N0° 02' 43.67"E	Outcurve		
36	36	Line	3794.105m	3875.750m	81.645m			N0° 02' 43.67"E						
37.1	37	Spiral-Curve-Spiral	3875.750m	3905.750m	30.000m		122.474m		1.7189 (d)	N0° 02' 43.67"E	N1° 40' 24.27"W	Incurve		
37.2	37	Spiral-Curve-Spiral	3905.750m	4093.371m	187.620m	500			21.4997 (d)	N1° 40' 24.27"W	N23° 10' 23.12"W		0	50
37.3	37	Spiral-Curve-Spiral	4093.371m	4123.371m	30.000m		122.474m		1.7189 (d)	N23° 10' 23.12"W	N24° 53' 31.06"W	Outcurve		
38	38	Line	4123.371m	4298.410m	175.040m			N24° 53' 31.06"W						
39.1	39	Spiral-Curve-Spiral	4298.410m	4328.410m	30.000m		67.082m		5.7296 (d)	N24° 53' 31.06"W	N30° 37' 17.54"W	Incurve		
39.2	39	Spiral-Curve-Spiral	4328.410m	4403.894m	75.484m	150			28.8327 (d)	N30° 37' 17.54"W	N59° 27' 15.20"W		0.6	50
39.3	39	Spiral-Curve-Spiral	4403.894m	4433.894m	30.000m		67.082m		5.7296 (d)	N59° 27' 15.20"W	N65° 11' 01.68"W	Outcurve		
40	40	Line	4433.894m	4474.511m	40.617m			N65° 11' 01.68"W						
41.1	41	Spiral-Curve-Spiral	4474.511m	4504.511m	30.000m		47.434m		11.4592 (d)	N65° 11' 01.68"W	N53° 43' 28.72"W	Incurve		
41.2	41	Spiral-Curve-Spiral	4504.511m	4578.875m	74.365m	75			56.8104 (d)	N53° 43' 28.72"W	N3° 05' 08.77"E		0.9	40
41.3	41	Spiral-Curve-Spiral	4578.875m	4608.875m	30.000m		47.434m		11.4592 (d)	N3° 05' 08.77"E	N14° 32' 41.73"E	Outcurve		
42	42	Line	4608.875m	4792.654m	183.778m			N14° 32' 41.73"E						
43.1	43	Spiral-Curve-Spiral	4792.654m	4822.654m	30.000m		86.603m		3.4377 (d)	N14° 32' 41.73"E	N11° 06' 25.84"E	Incurve		
43.2	43	Spiral-Curve-Spiral	4822.654m	4841.112m	18.458m	250			4.2303 (d)	N11° 06' 25.84"E	N6° 52' 36.87"E		0.6	50
43.3	43	Spiral-Curve-Spiral	4841.112m	4871.112m	30.000m		86.603m		3.4377 (d)	N6° 52' 36.87"E	N3° 26' 20.98"E	Outcurve		
44	44	Line	4871.112m	5081.429m	210.318m			N3° 26' 20.98"E						
45.1	45	Spiral-Curve-Spiral	5081.429m	5126.429m	45.000m		82.158m		8.5944 (d)	N3° 26' 20.98"E	N5° 09' 18.74"W	Incurve		
45.2	45	Spiral-Curve-Spiral	5126.429m	5130.058m	3.628m	150			1.3859 (d)	N5° 09' 18.74"W	N6° 32' 27.89"W		0.6	50

Horizontal Alignment Report

No.	Number	Type	Start Station	End Station	Length	Radius	A	Direction	Delta angle	Start Direction	End Direction	Incurve	Extra Widening	Design Speed (in km/h)
45.3	45	Spiral-Curve-Spiral	5130.058m	5175.058m	45.000m		82.158m		8.5944 (d)	N6° 32' 27.89"W	N15° 08' 07.61"W	Outcurve		
46	46	Line	5175.058m	5578.706m	403.648m			N15° 08' 07.61"W						
47.1	47	Spiral-Curve-Spiral	5578.706m	5608.706m	30.000m		67.082m		5.7296 (d)	N15° 08' 07.61"W	N20° 51' 54.09"W	Incurve		
47.2	47	Spiral-Curve-Spiral	5608.706m	5652.444m	43.738m	150			16.7068 (d)	N20° 51' 54.09"W	N37° 34' 18.41"W		0.6	50
47.3	47	Spiral-Curve-Spiral	5652.444m	5682.444m	30.000m		67.082m		5.7296 (d)	N37° 34' 18.41"W	N43° 18' 04.89"W	Outcurve		
48	48	Line	5682.444m	5774.003m	91.559m			N43° 18' 04.89"W						
49.1	49	Spiral-Curve-Spiral	5774.003m	5804.003m	30.000m		67.082m		5.7296 (d)	N43° 18' 04.89"W	N37° 34' 18.41"W	Incurve		
49.2	49	Spiral-Curve-Spiral	5804.003m	5925.835m	121.832m	150			46.5364 (d)	N37° 34' 18.41"W	N8° 57' 52.58"E		0.6	50
49.3	49	Spiral-Curve-Spiral	5925.835m	5955.835m	30.000m		67.082m		5.7296 (d)	N8° 57' 52.58"E	N14° 41' 39.06"E	Outcurve		
50	50	Line	5955.835m	5998.978m	43.143m			N14° 41' 39.06"E						
51.1	51	Spiral-Curve-Spiral	5998.978m	6028.978m	30.000m		47.434m		11.4592 (d)	N14° 41' 39.06"E	N3° 14' 06.10"E	Incurve		
51.2	51	Spiral-Curve-Spiral	6028.978m	6077.557m	48.579m	75			37.1115 (d)	N3° 14' 06.10"E	N33° 52' 35.21"W		0.9	40
51.3	51	Spiral-Curve-Spiral	6077.557m	6107.557m	30.000m		47.434m		11.4592 (d)	N33° 52' 35.21"W	N45° 20' 08.17"W	Outcurve		
52	52	Line	6107.557m	6530.833m	423.276m			N45° 20' 08.17"W						
53.1	53	Spiral-Curve-Spiral	6530.833m	6560.833m	30.000m		47.434m		11.4592 (d)	N45° 20' 08.17"W	N33° 52' 35.21"W	Incurve		
53.2	53	Spiral-Curve-Spiral	6560.833m	6585.291m	24.458m	75			18.6849 (d)	N33° 52' 35.21"W	N15° 11' 29.71"W		0.9	40
53.3	53	Spiral-Curve-Spiral	6585.291m	6615.291m	30.000m		47.434m		11.4592 (d)	N15° 11' 29.71"W	N3° 43' 56.75"W	Outcurve		
54	54	Line	6615.291m	6885.556m	270.265m			N3° 43' 56.75"W						
55.1	55	Spiral-Curve-Spiral	6885.556m	6915.556m	30.000m		67.082m		5.7296 (d)	N3° 43' 56.75"W	N9° 27' 43.23"W	Incurve		
55.2	55	Spiral-Curve-Spiral	6915.556m	6935.569m	20.012m	150			7.6441 (d)	N9° 27' 43.23"W	N17° 06' 21.90"W		0.6	50
55.3	55	Spiral-Curve-Spiral	6935.569m	6965.569m	30.000m		67.082m		5.7296 (d)	N17° 06' 21.90"W	N22° 50' 08.38"W	Outcurve		
56	56	Line	6965.569m	7151.695m	186.127m			N22° 50' 08.38"W						
57.1	57	Spiral-Curve-Spiral	7151.695m	7181.695m	30.000m		67.082m		5.7296 (d)	N22° 50' 08.38"W	N28° 33' 54.86"W	Incurve		
57.2	57	Spiral-Curve-Spiral	7181.695m	7203.104m	21.409m	150			8.1776 (d)	N28° 33' 54.86"W	N36° 44' 34.14"W		0.6	50
57.3	57	Spiral-Curve-Spiral	7203.104m	7233.104m	30.000m		67.082m		5.7296 (d)	N36° 44' 34.14"W	N42° 28' 20.62"W	Outcurve		
58	58	Line	7233.104m	7267.299m	34.195m			N42° 28' 20.62"W						
59.1	59	Spiral-Curve-Spiral	7267.299m	7297.299m	30.000m		47.434m		11.4592 (d)	N42° 28' 20.62"W	N31° 00' 47.66"W	Incurve		
59.2	59	Spiral-Curve-Spiral	7297.299m	7304.499m	7.200m	75			5.5008 (d)	N31° 00' 47.66"W	N25° 30' 44.87"W		0.9	40
59.3	59	Spiral-Curve-Spiral	7304.499m	7334.499m	30.000m		47.434m		11.4592 (d)	N25° 30' 44.87"W	N14° 03' 11.91"W	Outcurve		
60	60	Line	7334.499m	7392.958m	58.459m			N14° 03' 11.91"W						
61.1	61	Spiral-Curve-Spiral	7392.958m	7417.958m	25.000m		43.301m		9.5493 (d)	N14° 03' 11.91"W	N23° 36' 09.38"W	Incurve		
61.2	61	Spiral-Curve-Spiral	7417.958m	7428.917m	10.960m	75			8.3725 (d)	N23° 36' 09.38"W	N31° 58' 30.36"W		0.9	30
61.3	61	Spiral-Curve-Spiral	7428.917m	7453.917m	25.000m		43.301m		9.5493 (d)	N31° 58' 30.36"W	N41° 31' 27.83"W	Outcurve		
62	62	Line	7453.917m	7481.071m	27.154m			N41° 31' 27.83"W						
63.1	63	Spiral-Curve-Spiral	7481.071m	7511.071m	30.000m		30.000m		28.6479 (d)	N41° 31' 27.83"W	N70° 10' 20.23"W	Incurve		
63.2	63	Spiral-Curve-Spiral	7511.071m	7568.711m	57.640m	30			110.0836 (d)	N70° 10' 20.23"W	S0° 15' 21.19"E		1.5	30
63.3	63	Spiral-Curve-Spiral	7568.711m	7598.711m	30.000m		30.000m		28.6479 (d)	S0° 15' 21.19"E	S28° 54' 13.60"E	Outcurve		
64	64	Line	7598.711m	7636.481m	37.770m			S28° 54' 13.60"E						
65.1	65	Spiral-Curve-Spiral	7636.481m	7656.481m	20.000m		38.730m		7.6394 (d)	S28° 54' 13.60"E	S21° 15' 51.62"E	Incurve		
65.2	65	Spiral-Curve-Spiral	7656.481m	7698.894m	42.414m	75			32.4017 (d)	S21° 15' 51.62"E	S11° 08' 14.50"W		0.9	30
65.3	65	Spiral-Curve-Spiral	7698.894m	7718.894m	20.000m		38.730m		7.6394 (d)	S11° 08' 14.50"W	S18° 46' 36.47"W	Outcurve		
66	66	Line	7718.894m	7748.758m	29.863m			S18° 46' 36.47"W						
67.1	67	Spiral-Curve-Spiral	7748.758m	7778.758m	30.000m		47.434m		11.4592 (d)	S18° 46' 36.47"W	S7° 19' 03.51"W	Incurve		
67.2	67	Spiral-Curve-Spiral	7778.758m	7811.529m	32.771m	75			25.0355 (d)	S7° 19' 03.51"W	S17° 43' 04.25"E		0.9	40

Horizontal Alignment Report

No.	Number	Type	Start Station	End Station	Length	Radius	A	Direction	Delta angle	Start Direction	End Direction	Incurve	Extra Widening	Design Speed (in km/h)
67.3	67	Spiral-Curve-Spiral	7811.529m	7841.529m	30.000m		47.434m		11.4592 (d)	S17° 43' 04.25"E	S29° 10' 37.21"E	Outcurve		
68	68	Line	7841.529m	7944.928m	103.399m			S29° 10' 37.21"E						
69.1	69	Spiral-Curve-Spiral	7944.928m	7974.928m	30.000m		94.868m		2.8648 (d)	S29° 10' 37.21"E	S26° 18' 43.97"E	Incurve		
69.2	69	Spiral-Curve-Spiral	7974.928m	8190.787m	215.860m	300			41.2261 (d)	S26° 18' 43.97"E	S14° 54' 50.15"W		0.6	40
69.3	69	Spiral-Curve-Spiral	8190.787m	8220.787m	30.000m		94.868m		2.8648 (d)	S14° 54' 50.15"W	S17° 46' 43.39"W	Outcurve		
70	70	Line	8220.787m	8426.963m	206.176m			S17° 46' 43.39"W						
71.1	71	Spiral-Curve-Spiral	8426.963m	8456.963m	30.000m		47.434m		11.4592 (d)	S17° 46' 43.39"W	S6° 19' 10.43"W	Incurve		
71.2	71	Spiral-Curve-Spiral	8456.963m	8477.174m	20.211m	75			15.4403 (d)	S6° 19' 10.43"W	S9° 07' 14.75"E		0.9	40
71.3	71	Spiral-Curve-Spiral	8477.174m	8507.174m	30.000m		47.434m		11.4592 (d)	S9° 07' 14.75"E	S20° 34' 47.71"E	Outcurve		
72	72	Line	8507.174m	8533.095m	25.920m			S20° 34' 47.71"E						
73.1	73	Spiral-Curve-Spiral	8533.095m	8563.095m	30.000m		30.000m		28.6479 (d)	S20° 34' 47.71"E	S8° 04' 04.70"W	Incurve		
73.2	73	Spiral-Curve-Spiral	8563.095m	8611.399m	48.304m	30			92.2540 (d)	S8° 04' 04.70"W	N79° 40' 40.80"W		1.5	30
73.3	73	Spiral-Curve-Spiral	8611.399m	8641.399m	30.000m		30.000m		28.6479 (d)	N79° 40' 40.80"W	N51° 01' 48.40"W	Outcurve		
74	74	Line	8641.399m	8694.153m	52.754m			N51° 01' 48.40"W						
75.1	75	Spiral-Curve-Spiral	8694.153m	8724.153m	30.000m		67.082m		5.7296 (d)	N51° 01' 48.40"W	N56° 45' 34.88"W	Incurve		
75.2	75	Spiral-Curve-Spiral	8724.153m	8743.721m	19.568m	150			7.4744 (d)	N56° 45' 34.88"W	N64° 14' 02.63"W		0.6	40
75.3	75	Spiral-Curve-Spiral	8743.721m	8773.721m	30.000m		67.082m		5.7296 (d)	N64° 14' 02.63"W	N69° 57' 49.11"W	Outcurve		
76	76	Line	8773.721m	8806.680m	32.959m			N69° 57' 49.11"W						
77.1	77	Spiral-Curve-Spiral	8806.680m	8836.680m	30.000m		67.082m		5.7296 (d)	N69° 57' 49.11"W	N64° 14' 02.63"W	Incurve		
77.2	77	Spiral-Curve-Spiral	8836.680m	8927.083m	90.403m	150			34.5315 (d)	N64° 14' 02.63"W	N29° 42' 09.30"W		0.6	40
77.3	77	Spiral-Curve-Spiral	8927.083m	8957.083m	30.000m		67.082m		5.7296 (d)	N29° 42' 09.30"W	N23° 58' 22.82"W	Outcurve		
78	78	Line	8957.083m	8977.101m	20.018m			N23° 58' 22.82"W						
79.1	79	Spiral-Curve-Spiral	8977.101m	9007.101m	30.000m		47.434m		11.4592 (d)	N23° 58' 22.82"W	N12° 30' 49.86"W	Incurve		
79.2	79	Spiral-Curve-Spiral	9007.101m	9062.809m	55.708m	75			42.5576 (d)	N12° 30' 49.86"W	N30° 02' 37.42"E		0.9	40
79.3	79	Spiral-Curve-Spiral	9062.809m	9092.809m	30.000m		47.434m		11.4592 (d)	N30° 02' 37.42"E	N41° 30' 10.38"E	Outcurve		
80	80	Line	9092.809m	9177.999m	85.190m			N41° 30' 10.38"E						
81.1	81	Spiral-Curve-Spiral	9177.999m	9207.999m	30.000m		47.434m		11.4592 (d)	N41° 30' 10.38"E	N30° 02' 37.42"E	Incurve		
81.2	81	Spiral-Curve-Spiral	9207.999m	9291.137m	83.138m	75			63.5130 (d)	N30° 02' 37.42"E	N33° 28' 09.24"W		0.9	40
81.3	81	Spiral-Curve-Spiral	9291.137m	9321.137m	30.000m		47.434m		11.4592 (d)	N33° 28' 09.24"W	N44° 55' 42.20"W	Outcurve		
82	82	Line	9321.137m	9455.055m	133.918m			N44° 55' 42.20"W						
83.1	83	Spiral-Curve-Spiral	9455.055m	9485.055m	30.000m		47.434m		11.4592 (d)	N44° 55' 42.20"W	N33° 28' 09.24"W	Incurve		
83.2	83	Spiral-Curve-Spiral	9485.055m	9497.759m	12.703m	75			9.7046 (d)	N33° 28' 09.24"W	N23° 45' 52.81"W		0.9	40
83.3	83	Spiral-Curve-Spiral	9497.759m	9527.759m	30.000m		47.434m		11.4592 (d)	N23° 45' 52.81"W	N12° 18' 19.85"W	Outcurve		
84	84	Line	9527.759m	9590.044m	62.286m			N12° 18' 19.85"W						
85.1	85	Spiral-Curve-Spiral	9590.044m	9620.044m	30.000m		47.434m		11.4592 (d)	N12° 18' 19.85"W	N23° 45' 52.81"W	Incurve		
85.2	85	Spiral-Curve-Spiral	9620.044m	9689.684m	69.640m	75			53.2011 (d)	N23° 45' 52.81"W	N76° 57' 56.78"W		0.9	40
85.3	85	Spiral-Curve-Spiral	9689.684m	9719.684m	30.000m		47.434m		11.4592 (d)	N76° 57' 56.78"W	N88° 25' 29.74"W	Outcurve		
86	86	Line	9719.684m	9805.263m	85.579m			N88° 25' 29.74"W						
87.1	87	Spiral-Curve-Spiral	9805.263m	9835.263m	30.000m		47.434m		11.4592 (d)	N88° 25' 29.74"W	N76° 57' 56.78"W	Incurve		
87.2	87	Spiral-Curve-Spiral	9835.263m	9863.856m	28.593m	75			21.8435 (d)	N76° 57' 56.78"W	N55° 07' 20.25"W		0.9	40
87.3	87	Spiral-Curve-Spiral	9863.856m	9893.856m	30.000m		47.434m		11.4592 (d)	N55° 07' 20.25"W	N43° 39' 47.29"W	Outcurve		
88	88	Line	9893.856	10000	106.144			N43° 39' 47.29"W						

3. VERTICAL ALIGNMENT REPORT

VERTICAL ALIGNMENT REPORT									
No.	PVI Station	PVI Elevation	Grade In	Grade Out	A (Grade Change)	Profile Curve Type	Profile Curve Length	K Value	Curve Radius
1	00.077m	1182.968m		-6.00%					
2	1310.705m	1104.314m	-6.00%	-2.50%	3.50%	Sag	100.000m	28.561	2856.149m
3	1762.207m	1093.027m	-2.50%	-4.88%	2.38%	Crest	100.000m	41.989	4198.874m
4	2874.348m	1038.737m	-4.88%	-4.46%	0.42%	Sag	200.000m	472.977	47297.718m
5	5265.798m	932.108m	-4.46%	-5.14%	0.68%	Crest	200.000m	294.944	29494.420m
6	10901.978m	642.587m	-5.14%	-4.68%	0.45%	Sag	100.000m	220.373	22037.281m

4. PLAN & PROFILE

Legend

Building	
Shop Gate	
Hut	
Water Tank Well	
Temple	
TBM.	
Electric Pole	
Telephone Pole	
Ht line 11& 33 kva	
Nala	
Drain	
Sign Board RYL SP	
Tree Gamla Bambu	
Culvert	
Bridge	
Pond	
Handpump	
Transformer	
Traverse Station	
Ground Level	
OFC	
Welcome Board	
River Canal	
Boundry Wall	
Existing BT Center Line	
Existing Road Carriageway	
Proposed Center Line	
Proposed CARRIGE WAY	
Proposed Shoulder	
Hms	
Kms RB	
IL BL	
TOWER	
PETROL PUMP	
Public Tap	
Proposed ROW	



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1000

CLIENT :-

DESIGNED BY.

-: PROJECT TITLE :-

-:PLAN & PROFILE:-

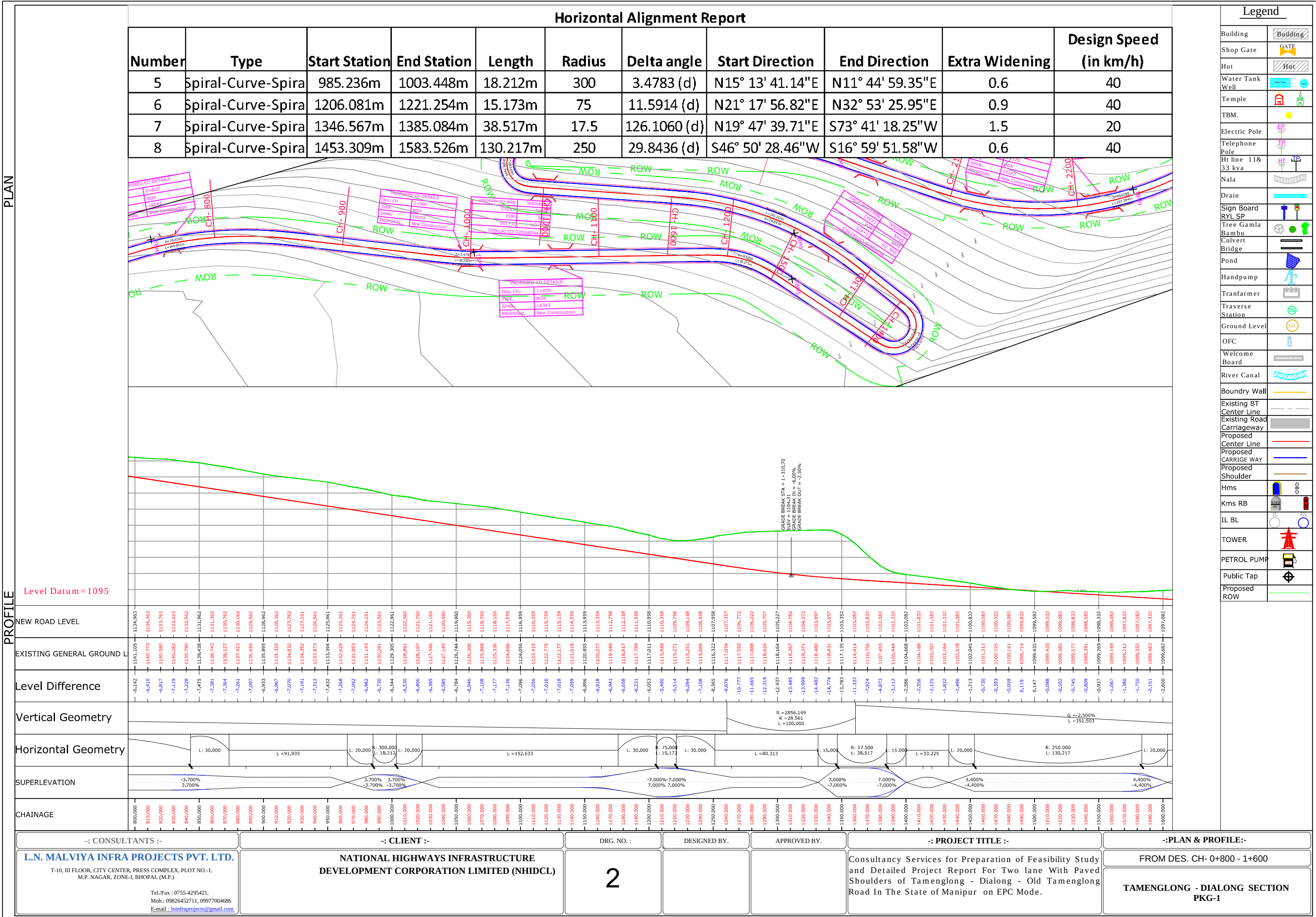
**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.

FROM DES. CH- 0+000 - 0+800

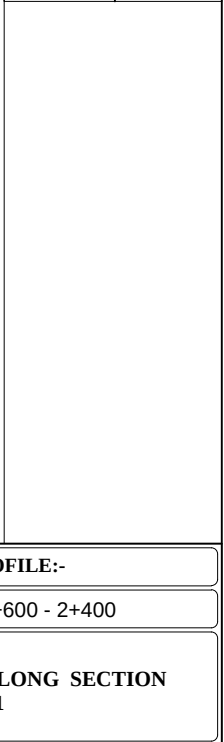
TAMENGLONG - DIALONG SECTION
PKG-1

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Legend

Building	
Shop Gate	
Hut	
Water Tank Well	 
Temple	
TBM.	
Electric Pole	
Telephone Pole	
Ht line 11kV & 33 kva	 
Nala	
Drain	
Sign Board RYL SP	
Tree Gamla Bambu	
Culvert	
Bridge	
Pond	
Handpump	
Transformer	
Traverse Station	
Ground Level	
OFC	
Welcome Board	
River Canal	
Boundry Wall	
Existing BT Center Line	
Existing Road Carriageway	
Proposed Center Line	
Proposed CARRIGE WAY	
Proposed Shoulder	
Hms	
Kms RB	
IL BL	
TOWER	
PETROL PUMP	
Public Tap	
Proposed ROW	



-: CLIENT :-

-: PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.

-:PLAN & PROFILE:-

FROM DES. CH- 1+600 - 2+400

TAMENGLONG - DIALONG SECTION
PKG-1

**NATIONAL HIGHWAYS INFRASTRUCTURE
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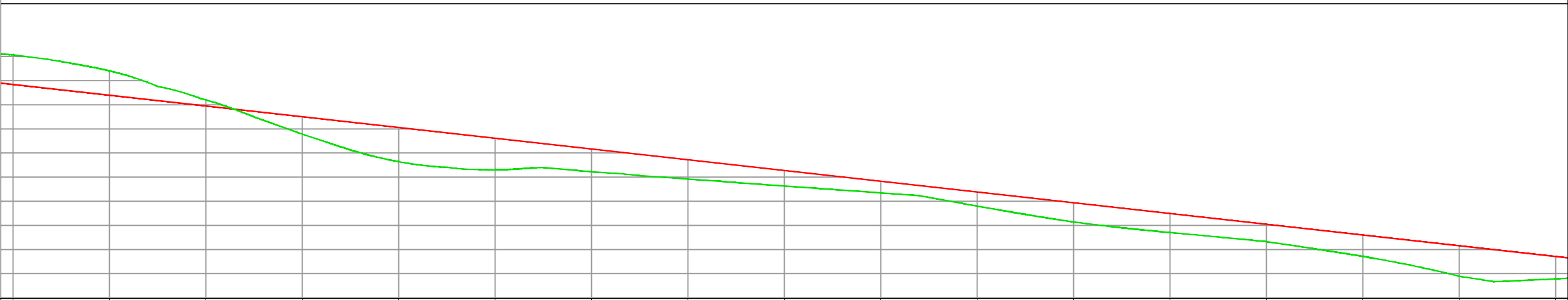
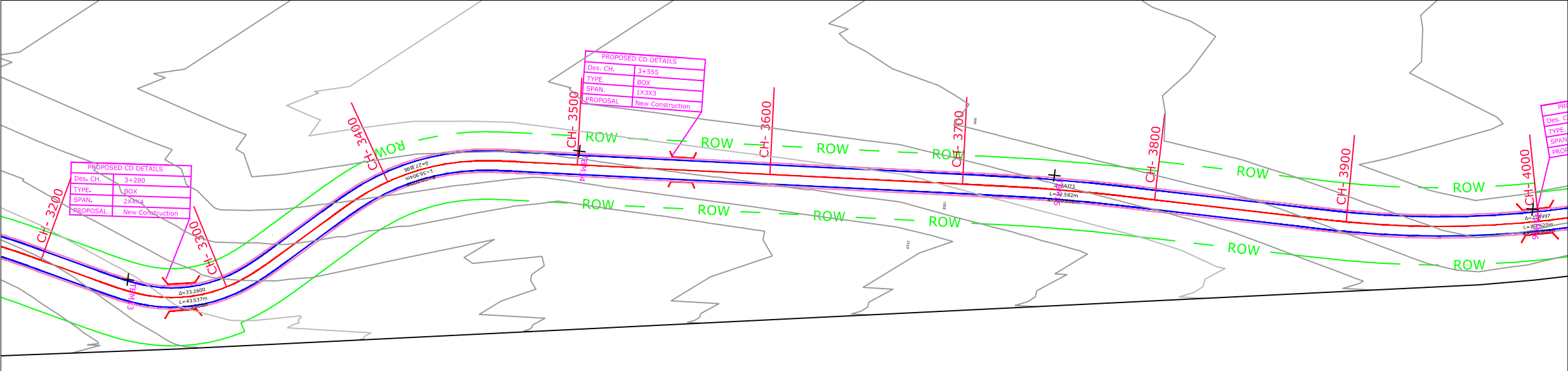
3

PLAN

PROFILE

Horizontal Alignment Report

Number	Type	Start Station	End Station	Length	Radius	Delta angle	Start Direction	End Direction	Extra Widening	Design Speed (in km/h)
15	Spiral-Curve-Spira	3259.942m	3303.479m	43.537m	75	33.2600 (d)	N1° 53' 33.23"E	N31° 22' 02.77"W	0.9	40
16	Spiral-Curve-Spira	3388.243m	3445.147m	56.904m	120	27.1696 (d)	N36° 51' 29.81"W	N9° 41' 19.43"W	0.6	40
17	Spiral-Curve-Spira	3741.524m	3764.105m	22.582m	800	1.6173 (d)	N2° 38' 46.05"W	N1° 01' 43.79"W	0	50
18	Spiral-Curve-Spira	3905.750m	4093.371m	187.620m	500	21.4997 (d)	N1° 40' 24.27"W	N23° 10' 23.12"W	0	50



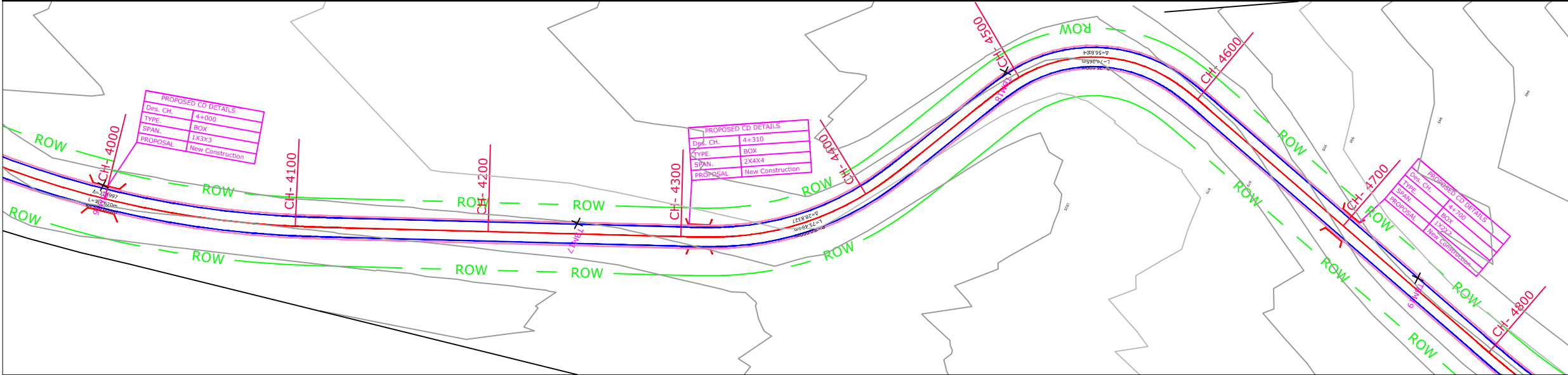
NEW ROAD LEVEL	1024.217	1023.350	1023.829	1023.771	1023.325	1022.879	1022.433	1021.987	1021.542	1021.096	1020.650	1020.204	1019.758	1019.312	1018.866	1018.420	1017.975	1017.529	1017.083	1016.637	1016.191	1015.745	1015.299	1014.853	1014.408	1013.962	1013.516	1013.070	1012.624	1012.178	1011.732	1011.286	1010.841	1010.395	1009.949	1009.503	1009.057	1008.611	1008.165	1007.719	1007.274	1006.828	1006.382	1005.936	1005.490	1005.044	1004.598	1004.152	1003.707	1003.261	1002.815	1002.369	1001.923	1001.477	1001.031	1000.585	1000.140	999.694	999.248	998.802	998.356	997.910	997.464	997.018	996.573	996.127	995.681	995.235	994.789	994.343	993.897	993.451	993.006	992.560	992.114	991.668	991.222	990.776	990.330	989.885	989.439	988.993	988.547																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
EXISTING GENERAL GROUND L	1024.217	1023.350	1023.829	1023.771	1023.325	1022.879	1022.433	1021.987	1021.542	1021.096	1020.650	1020.204	1019.758	1019.312	1018.866	1018.420	1017.975	1017.529	1017.083	1016.637	1016.191	1015.745	1015.299	1014.853	1014.408	1013.962	1013.516	1013.070	1012.624	1012.178	1011.732	1011.286	1010.841	1010.395	1009.949	1009.503	1009.057	1008.611	1008.165	1007.719	1007.274	1006.828	1006.382	1005.936	1005.490	1005.044	1004.598	1004.152	1003.707	1003.261	1002.815	1002.369	1001.923	1001.477	1001.031	1000.585	1000.140	999.694	999.248	998.802	998.356	997.910	997.464	997.018	996.573	996.127	995.681	995.235	994.789	994.343	993.897	993.451	993.006	992.560	992.114	991.668	991.222	990.776	990.330	989.885	989.439	988.993	988.547																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Level Difference	-6.134	-6.058	-5.969	-5.928	-5.849	-5.769	-5.689	-5.609	-5.529	-5.449	-5.369	-5.289	-5.209	-5.129	-5.049	-4.969	-4.889	-4.809	-4.729	-4.649	-4.569	-4.489	-4.409	-4.329	-4.249	-4.169	-4.089	-4.009	-3.929	-3.849	-3.769	-3.689	-3.609	-3.529	-3.449	-3.369	-3.289	-3.209	-3.129	-3.049	-2.969	-2.889	-2.809	-2.729	-2.649	-2.569	-2.489	-2.409	-2.329	-2.249	-2.169	-2.089	-2.009	-1.929	-1.849	-1.769	-1.689	-1.609	-1.529	-1.449	-1.369	-1.289	-1.209	-1.129	-1.049	-1.000	-0.950	-0.900	-0.850	-0.800	-0.750	-0.700	-0.650	-0.600	-0.550	-0.500	-0.450	-0.400	-0.350	-0.300	-0.250	-0.200	-0.150	-0.100	-0.050	0.000	0.050	0.100	0.150	0.200	0.250	0.300	0.350	0.400	0.450	0.500	0.550	0.600	0.650	0.700	0.750	0.800	0.850	0.900	0.950	1.000	1.050	1.100	1.150	1.200	1.250	1.300	1.350	1.400	1.450	1.500	1.550	1.600	1.650	1.700	1.750	1.800	1.850	1.900	1.950	2.000	2.050	2.100	2.150	2.200	2.250	2.300	2.350	2.400	2.450	2.500	2.550	2.600	2.650	2.700	2.750	2.800	2.850	2.900	2.950	3.000	3.050	3.100	3.150	3.200	3.250	3.300	3.350	3.400	3.450	3.500	3.550	3.600	3.650	3.700	3.750	3.800	3.850	3.900	3.950	4.000	4.050	4.100	4.150	4.200	4.250	4.300	4.350	4.400	4.450	4.500	4.550	4.600	4.650	4.700	4.750	4.800	4.850	4.900	4.950	5.000	5.050	5.100	5.150	5.200	5.250	5.300	5.350	5.400	5.450	5.500	5.550	5.600	5.650	5.700	5.750	5.800	5.850	5.900	5.950	6.000	6.050	6.100	6.150	6.200	6.250	6.300	6.350	6.400	6.450	6.500	6.550	6.600	6.650	6.700	6.750	6.800	6.850	6.900	6.950	7.000	7.050	7.100	7.150	7.200	7.250	7.300	7.350	7.400	7.450	7.500	7.550	7.600	7.650	7.700	7.750	7.800	7.850	7.900	7.950	8.000	8.050	8.100	8.150	8.200	8.250	8.300	8.350	8.400	8.450	8.500	8.550	8.600	8.650	8.700	8.750	8.800	8.850	8.900	8.950	9.000	9.050	9.100	9.150	9.200	9.250	9.300	9.350	9.400	9.450	9.500	9.550	9.600	9.650	9.700	9.750	9.800	9.850	9.900	9.950	10.000	10.050	10.100	10.150	10.200	10.250	10.300	10.350	10.400	10.450	10.500	10.550	10.600	10.650	10.700	10.750	10.800	10.850	10.900	10.950	11.000	11.050	11.100	11.150	11.200	11.250	11.300	11.350	11.400	11.450	11.500	11.550	11.600	11.650	11.700	11.750	11.800	11.850	11.900	11.950	12.000	12.050	12.100	12.150	12.200	12.250	12.300	12.350	12.400	12.450	12.500	12.550	12.600	12.650	12.700	12.750	12.800	12.850	12.900	12.950	13.000	13.050	13.100	13.150	13.200	13.250	13.300	13.350	13.400	13.450	13.500	13.550	13.600	13.650	13.700	13.750	13.800	13.850	13.900	13.950	14.000	14.050	14.100	14.150	14.200	14.250	14.300	14.350	14.400	14.450	14.500	14.550	14.600	14.650	14.700	14.750	14.800	14.850	14.900	14.950	15.000	15.050	15.100	15.150	15.200	15.250	15.300	15.350	15.400	15.450	15.500	15.550	15.600	15.650	15.700	15.750	15.800	15.850	15.900	15.950	16.000	16.050	16.100	16.150	16.200	16.250	16.300	16.350	16.400	16.450	16.500	16.550	16.600	16.650	16.700	16.750	16.800	16.850	16.900	16.950	17.000	17.050	17.100	17.150	17.200	17.250	17.300	17.350	17.400	17.450	17.500	17.550	17.600	17.650	17.700	17.750	17.800	17.850	17.900	17.950	18.000	18.050	18.100	18.150	18.200	18.250	18.300	18.350	18.400	18.450	18.500	18.550	18.600	18.650	18.700	18.750	18.800	18.850	18.900	18.950	19.000	19.050	19.100	19.150	19.200	19.250	19.300	19.350	19.400	19.450	19.500	19.550	19.600	19.650	19.700	19.750	19.800	19.850	19.900	19.950	20.000	20.050	20.100	20.150	20.200	20.250	20.300	20.350	20.400	20.450	20.500	20.550	20.600	20.650	20.700	20.750	20.800	20.850	20.900	20.950	21.000	21.050	21.100	21.150	21.200	21.250	21.300	21.350	21.400	21.450	21.500	21.550	21.600	21.650	21.700	21.750	21.800	21.850	21.900	21.950	22.000	22.050	22.100	22.150	22.200	22.250	22.300	22.350	22.400	22.450	22.500	22.550	22.600	22.650	22.700	22.750	22.800	22.850	22.900	22.950	23.000	23.050	23.100	23.150	23.200	23.250	23.300	23.350	23.400	23.450	23.500	23.550	23.600	23.650	23.700	23.750	23.800	23.850	23.900	23.950	24.000	24.050	24.100	24.150	24.200	24.250	24.300	24.350	24.400	24.450	24.500	24.550	24.600	24.650	24.700	24.750	24.800	24.850	24.900	24.950	25.000	25.050	25.100	25.150	25.200	25.250	25.300	25.350	25.400	25.450	25.500	25.550	25.600	25.650	25.700	25.750	25.800	25.850	25.900	25.950	26.000	26.050	26.100	26.150	26.200	26.250	26.300	26.350	26.400	26.450	26.500	26.550	26.600	26.650	26.700	26.750	26.800	26.850	26.900	26.950	27.000	27.050	27.100	27.150	27.200	27.250	27.300	27.350	27.400	27.450	27.500	27.550	27.600	27.650	27.700	27.750	27.800	27.850	27.900	27.950	28.000	28.050	28.100	28.150	28.200	28.250	28.300	28.350	28.400	28.450	28.500	28.550	28.600	28.650	28.700	28.750	28.800	28.850	28.900	28.950	29.000	29.050	29.100	29.150	29.200	29.250	29.300	29.350	29.400	29.450	29.500	29.550	29.600	29.650	29.700	29.750	29.800	29.850	29.900	29.950	30.000	30.050	30.100	30.150	30.200	30.250	30.300	30.350	30.400	30.450	30.500	30.550	30.600	30.650	30.700	30.750	30.800	30.850	30.900	30.950	31.000	31.050	31.100	31.150	31.200	31.250	31.300	31.350	31.400	31.450	31.500	31.550	31.600	31.650	31.700	31.750	31.800	31.850	31.900	31.950	32.000	32.050	32.100	32.150	32.200	32.250	32.300	32.350	32.400	32.450	32.500	32.550	32.600	32.650	32.700	32.750	32.800	32.850	32.900	32.950	33.000	33.050	33.100	33.150	33.200	33.250	33.300	33.350	33.400	33.450	33.500	33.550	33.600	33.650	33.700	33.750	33.800	33.850	33.900	33.950	34.000	34.050	34.100	34.150	34.200	34.250	34.300	34.350	34.400	34.450	34.500	34.550	34.600	34.650	34.700	34.750	34.800	34.850	34.900	34.950	35.000	35.050	35.100	35.150	35.200	35.250	35.300	35.350	35.400	35.450	35.500	35.550	35.600	35.650	35.700	35.750	35.800	35.850	35.900	35.950	36.000	36.050	36.100	36.150	36.200	36.250	36.300	36.350	36.400	36.450	36.500	36.550	36.600	36.650	36.700	36.750	36.800	36.850	36.900	36.950	37.000	37.050	37.100	37.150	37.200	37.250	37.300	37.350	37.400	37.450	37.500	37.550	37.600	37.650	37.700	37.750	37.800	37.850	37.900	37.950	38.000	38.050	38.100	38.150	38.200	38.250	38.300	38.350	38.400	38.450	38.500

PLAN

PROFILE

Horizontal Alignment Report

Number	Type	Start Station	End Station	Length	Radius	Delta angle	Start Direction	End Direction	Extra Widening	Design Speed (in km/h)
19	Spiral-Curve-Spira	4328.410m	4403.894m	75.484m	150	28.8327 (d)	N30° 37' 17.54"W	N59° 27' 15.20"W	0.6	50
20	Spiral-Curve-Spira	4504.511m	4578.875m	74.365m	75	56.8104 (d)	N53° 43' 28.72"W	N3° 05' 08.77"E	0.9	40



NEW ROAD LEVEL		988.547	988.101	987.655	987.209	986.763	986.318	985.872	985.426	984.980	984.534	984.088	983.642	983.196	982.751	982.305	981.859	981.413	980.967	980.521	980.075	979.629	979.184	978.738	978.292	977.846	977.400	976.954	976.508	976.062	975.617	975.171	974.725	974.279	973.833	973.387	972.941	972.495	972.050	971.604	971.158	970.712	970.266	969.820	969.374	968.928	968.483	968.037	967.591	967.145	966.699	966.253	965.807	965.361	964.916	964.470	964.024	963.578	963.132	962.686	962.240	961.794	961.349	960.903	960.457	960.011	959.565	959.119	958.673	958.227	957.782	957.336	956.890	956.444	955.998	955.552	955.106	954.660	954.215	953.769	953.323	952.877																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
EXISTING GENERAL GROUND		983.907	984.098	984.272	984.441	984.610	984.776	984.943	985.109	985.275	985.441	985.607	985.773	985.939	986.105	986.271	986.437	986.603	986.769	986.935	987.101	987.267	987.433	987.599	987.765	987.931	988.097	988.263	988.429	988.595	988.761	988.927	989.093	989.259	989.425	989.591	989.757	989.923	990.089	990.255	990.421	990.587	990.753	990.919	991.085	991.251	991.417	991.583	991.749	991.915	992.081	992.247	992.413	992.579	992.745	992.911	993.077	993.243	993.409	993.575	993.741	993.907	994.073	994.239	994.405	994.571	994.737	994.903	995.069	995.235	995.401	995.567	995.733	995.899	996.065	996.231	996.397	996.563	996.729	996.895	997.061	997.227	997.393	997.559	997.725	997.891	998.057	998.223	998.389	998.555	998.721	998.887	999.053	999.219	999.385	999.551	999.717	999.883	1000.049	1000.215	1000.381	1000.547	1000.713	1000.879	1001.045	1001.211	1001.377	1001.543	1001.709	1001.875	1002.041	1002.207	1002.373	1002.539	1002.705	1002.871	1003.037	1003.203	1003.369	1003.535	1003.701	1003.867	1004.033	1004.199	1004.365	1004.531	1004.697	1004.863	1005.029	1005.195	1005.361	1005.527	1005.693	1005.859	1006.025	1006.191	1006.357	1006.523	1006.689	1006.855	1007.021	1007.187	1007.353	1007.519	1007.685	1007.851	1008.017	1008.183	1008.349	1008.515	1008.681	1008.847	1009.013	1009.179	1009.345	1009.511	1009.677	1009.843	1009.999	1010.165	1010.331	1010.497	1010.663	1010.829	1010.995	1011.161	1011.327	1011.493	1011.659	1011.825	1011.991	1012.157	1012.323	1012.489	1012.655	1012.821	1012.987	1013.153	1013.319	1013.485	1013.651	1013.817	1013.983	1014.149	1014.315	1014.481	1014.647	1014.813	1014.979	1015.145	1015.311	1015.477	1015.643	1015.809	1015.975	1016.141	1016.307	1016.473	1016.639	1016.805	1016.971	1017.137	1017.303	1017.469	1017.635	1017.801	1017.967	1018.133	1018.299	1018.465	1018.631	1018.797	1018.963	1019.129	1019.295	1019.461	1019.627	1019.793	1019.959	1020.125	1020.291	1020.457	1020.623	1020.789	1020.955	1021.121	1021.287	1021.453	1021.619	1021.785	1021.951	1022.117	1022.283	1022.449	1022.615	1022.781	1022.947	1023.113	1023.279	1023.445	1023.611	1023.777	1023.943	1024.109	1024.275	1024.441	1024.607	1024.773	1024.939	1025.105	1025.271	1025.437	1025.603	1025.769	1025.935	1026.101	1026.267	1026.433	1026.599	1026.765	1026.931	1027.097	1027.263	1027.429	1027.595	1027.761	1027.927	1028.093	1028.259	1028.425	1028.591	1028.757	1028.923	1029.089	1029.255	1029.421	1029.587	1029.753	1029.919	1030.085	1030.251	1030.417	1030.583	1030.749	1030.915	1031.081	1031.247	1031.413	1031.579	1031.745	1031.911	1032.077	1032.243	1032.409	1032.575	1032.741	1032.907	1033.073	1033.239	1033.405	1033.571	1033.737	1033.903	1034.069	1034.235	1034.401	1034.567	1034.733	1034.899	1035.065	1035.231	1035.397	1035.563	1035.729	1035.895	1036.061	1036.227	1036.393	1036.559	1036.725	1036.891	1037.057	1037.223	1037.389	1037.555	1037.721	1037.887	1038.053	1038.219	1038.385	1038.551	1038.717	1038.883	1039.049	1039.215	1039.381	1039.547	1039.713	1039.879	1040.045	1040.211	1040.377	1040.543	1040.709	1040.875	1041.041	1041.207	1041.373	1041.539	1041.705	1041.871	1042.037	1042.203	1042.369	1042.535	1042.701	1042.867	1043.033	1043.199	1043.365	1043.531	1043.697	1043.863	1044.029	1044.195	1044.361	1044.527	1044.693	1044.859	1045.025	1045.191	1045.357	1045.523	1045.689	1045.855	1046.021	1046.187	1046.353	1046.519	1046.685	1046.851	1047.017	1047.183	1047.349	1047.515	1047.681	1047.847	1048.013	1048.179	1048.345	1048.511	1048.677	1048.843	1049.009	1049.175	1049.341	1049.507	1049.673	1049.839	1050.005	1050.171	1050.337	1050.503	1050.669	1050.835	1050.999	1051.165	1051.331	1051.497	1051.663	1051.829	1051.995	1052.161	1052.327	1052.493	1052.659	1052.825	1052.991	1053.157	1053.323	1053.489	1053.655	1053.821	1053.987	1054.153	1054.319	1054.485	1054.651	1054.817	1054.983	1055.149	1055.315	1055.481	1055.647	1055.813	1055.979	1056.145	1056.311	1056.477	1056.643	1056.809	1056.975	1057.141	1057.307	1057.473	1057.639	1057.805	1057.971	1058.137	1058.303	1058.469	1058.635	1058.801	1058.967	1059.133	1059.299	1059.465	1059.631	1059.797	1059.963	1060.129	1060.295	1060.461	1060.627	1060.793	1060.959	1061.125	1061.291	1061.457	1061.623	1061.789	1061.955	1062.121	1062.287	1062.453	1062.619	1062.785	1062.951	1063.117	1063.283	1063.449	1063.615	1063.781	1063.947	1064.113	1064.279	1064.445	1064.611	1064.777	1064.943	1065.109	1065.275	1065.441	1065.607	1065.773	1065.939	1066.105	1066.271	1066.437	1066.603	1066.769	1066.935	1067.101	1067.267	1067.433	1067.599	1067.765	1067.931	1068.097	1068.263	1068.429	1068.595	1068.761	1068.927	1069.093	1069.259	1069.425	1069.591	1069.757	1069.923	1070.089	1070.255	1070.421	1070.587	1070.753	1070.919	1071.085	1071.251	1071.417	1071.583	1071.749	1071.915	1072.081	1072.247	1072.413	1072.579	1072.745	1072.911	1073.077	1073.243	1073.409	1073.575	1073.741	1073.907	1074.073	1074.239	1074.405	1074.571	1074.737	1074.903	1075.069	1075.235	1075.401	1075.567	1075.733	1075.899	1076.065	1076.231	1076.397	1076.563	1076.729	1076.895	1077.061	1077.227	1077.393	1077.559	1077.725	1077.891	1078.057	1078.223	1078.389	1078.555	1078.721	1078.887	1079.053	1079.219	1079.385	1079.551	1079.717	1079.883	1080.049	1080.215	1080.381	1080.547	1080.713	1080.879	1081.045	1081.211	1081.377	1081.543	1081.709	1081.875	1082.041	1082.207	1082.373	1082.539	1082.705	1082.871	1083.037	1083.203	1083.369	1083.535	1083.701	1083.867	1084.033	1084.199	1084.365	1084.531	1084.697	1084.863	1085.029	1085.195	1085.361	1085.527	1085.693	1085.859	1086.025	1086.191	1086.357	1086.523	1086.689	1086.855	1087.021	1087.187	1087.353	1087.519	1087.685	1087.851	1088.017	1088.183	1088.349	1088.515	1088.681	1088.847	1089.013	1089.179	1089.345	1089.511	1089.677	1089.843	1089.999	1090.165	1090.331	1090.497	1090.663	1090.829	1090.995	1091.161	1091.327	1091.493	1091.659	1091.825	1091.991	1092.157	1092.323	1092.489	1092.655	1092.821	1092.987	1093.153	1093.319	1093.485	1093.651	1093.817	1093.983	1094.149	1094.315	1094.481	1094.647	1094.813	1094.979	1095.145	1095.311	1095.477	1095.643	1095.809	1095.975	1096.141	1096.307	1096.473	1096.639	1096.805	1096.971	1097.137	1097.303	1097.469	1097.635	1097.801	1097.967	1098.133	1098.299	1098.465	1098.631	1098.797	1098.963	1099.129	1099.295	1099.461	1099.627	1099.793	1099.959	1100.125	1100.291	1100.457	1100.623	1100.789	1100.955	1101.121	1101.287	1101.453	1101.619	1101.785	1101.951	1102.117	1102.283	1102.449	1102.615	1102.781	1102.947	1103.113	1103.279	1103.445	1103.611	1103.777	1103.943	1104.109	1104.275	1104.441	1104.607	1104.773	1104.939	1105.105	1105.271	1105.437	1105.603	1105.769	1105.935	1106.101	1106.267	1106.433	1106.599	1106.765	1106.931	1107.097	1107.263	1107.429	1107.595	1107.761	1107.927	1108.093	1108.259	1108.425	1108.591	1108.757	1108.923	1109.089	1109.255	1109.421	1109.587	1109.753	1109.919	1110.085	1110.251	1110.417	1110.583	1110.749	1110.915	1111.081	1111.247	1111.413	1111.579	1111.745	1111.911	1112.077	1112.243	1112.409	1112.575	1112.741	1112.907	1113.073	1113.239	1113.405	1113.571	1113.737	1113.903	1114.069	1114.235	1114.401	1114.567	1114.733	1114.899	1115.065	1115.231	1115.397	1115.563	1115.729	1115.895	1116.061	1116.227	1116.393	1116.559	1116.725	1116.891	1117.057	1117.223	1117.389	1117.555	1117.721	1117.887	1118.053	1118.219	1118.385	1118.551	1118.717	1118.883	1119.049	1119.215	1119.381	1119.547	1119.713	1119.879	1120.045	1120.211	1120.377	1120.543	1120.709	1120.875	1121.041	1121.207	1121.373	1121.539	1121.705	1121.871	1122.037	1122.203	1122.369	1122.535	1122.701	1122.867	1123.033	112

Legend

Building	
Shop Gate	
Hut	
Water Tank Well	 
Temple	
TBM.	
Electric Pole	
Telephone Pole	
Ht line 11& 33 kva	 
Nala	
Drain	
Sign Board RYL SP	
Tree Gamla	
Bambu	
Culvert	
Bridge	
Pond	
Handpump	
Tranformer	
Traverse Station	
Ground Level	
OFC	
Welcome Board	
River Canal	
Boundry Wall	
Existing BT Center Line	
Existing Road Carriageway	
Proposed Center Line	
Proposed CARRIGE WAY	
Proposed Shoulder	
Hms	0 0
Kms RB	
IL BL	
TOWER	
PETROL PUMP	
Public Tap	
Proposed ROW	



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-:PLAN & PROFILE:-

FROM DES. CH- 4+800 - 5+600

TAMENGLONG - DIALONG SECTION
PKG-1

PLAN

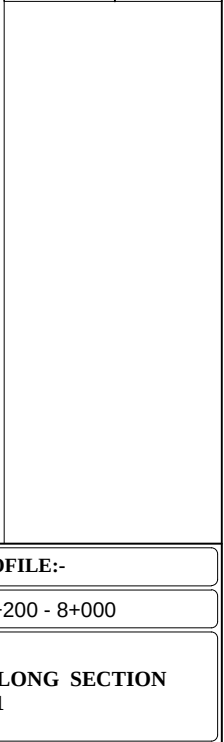
PROFILE

Legend	
Building	
Shop Gate	
Hut	
Water Tank Well	
Temple	
TBM.	
Electric Pole	
Telephone Pole	
Ht line 11& 33 kva	
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Legend

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Proposed Center Line	
Proposed CARRIGE WAY	
Proposed Shoulder	
Hms	
Kms RB	
IL BL	
TOWER	
PETROL PUMP	
Public Tap	
Proposed ROW	



Level Difference

-: CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com	-: CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)	DRG. NO. : 10	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.	-:PLAN & PROFILE:- FROM DES. CH- 7+200 - 8+000 TAMENGLONG - DIALONG SECTION PKG-1
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PLAN

PROFILE

-:PLAN & PROFILE:-

FROM DES. CH- 8+000 - 8+800

Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfraprojects@gmail.com

PLAN

PROFILE

[illegible]

Legend	
Building	
Shop Gate	
Hut	
Water Tank Well	 
Temple	 
TBM.	
Electric Pole	
Telephone Pole	
Ht line 11& 33 kva	 
Nala	
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Proposed Shoulder	
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Kms RB	
IL BL	
TOWER	
PETROL PUMP	
Public Tap	
Proposed ROW	

-: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-:PLAN & PROFILE:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)		13			Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - DIALONG - Old Tamenglong Road In The State of Manipur on EPC Mode.	FROM DES. CH- 9+600 - 10+000 TAMENGLONG - DIALONG SECTION PKG-1

5. TYPICAL CROSS SECTIONS

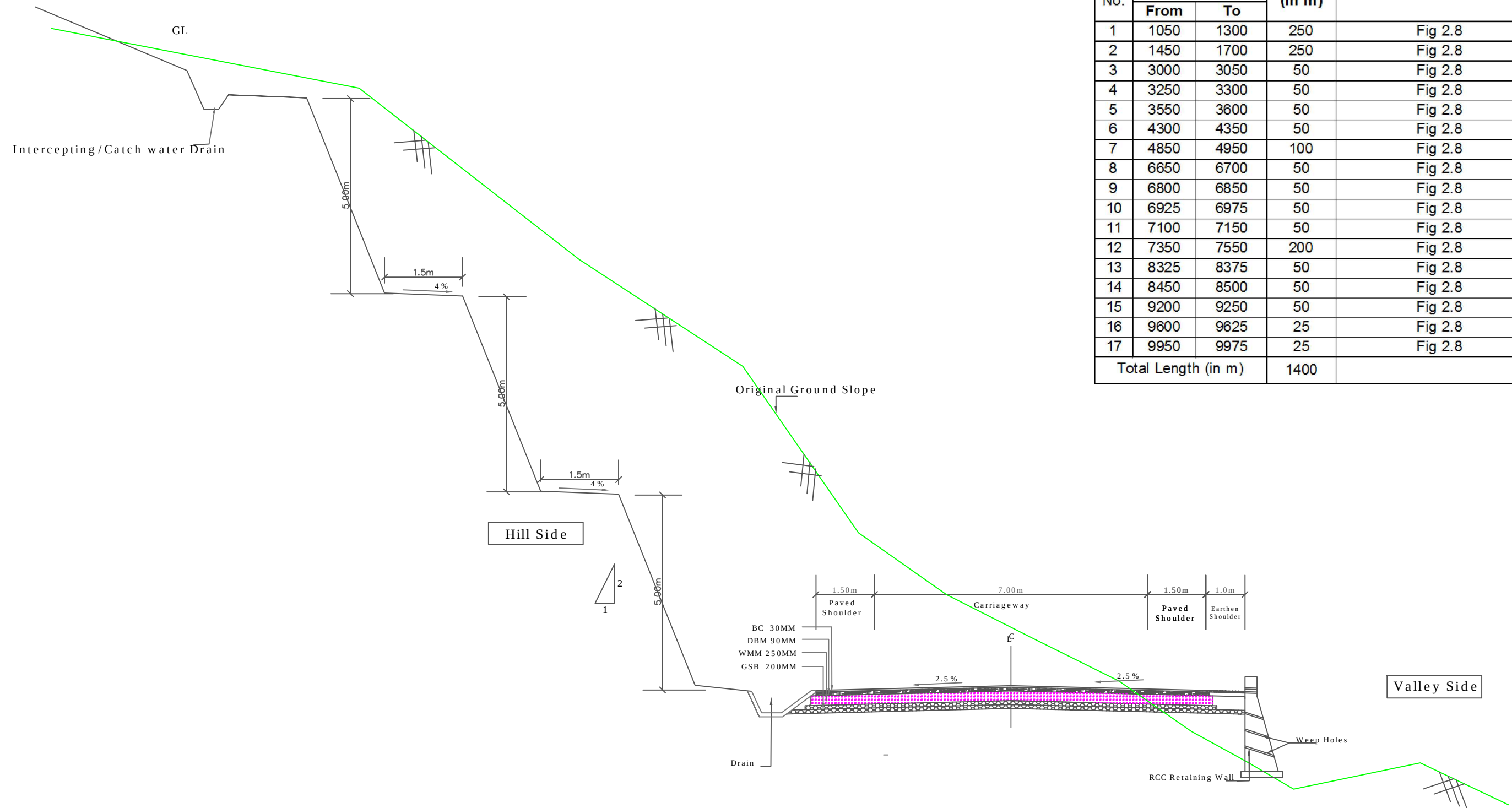


Fig - 2.8
Typical Cross Section
2- lane Carriageway With One Side Retaining Wall
(Open Country - Mountainous Terrain)

CONSULTANTS :-	CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	PROJECT TITLE :-	TYPICAL CROSS SECTIONS:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel/Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@lninfra.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 				Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong- Tousem- Liasang- Haflong In The State of Manipur & Assam on EPC Mode.	

S. No.	Chainage		Length (in m)	TCS
	From	To		
1	0	1050	1050	Fig 2.9
2	1300	1450	150	Fig 2.9
3	1700	2100	400	Fig 2.9
4	2450	3000	550	Fig 2.9
5	3050	3200	150	Fig 2.9
6	3500	3550	50	Fig 2.9
7	3600	3900	300	Fig 2.9
8	4500	4750	250	Fig 2.9
9	4950	5400	450	Fig 2.9
10	5550	5650	100	Fig 2.9
11	5850	6150	300	Fig 2.9
12	6250	6450	200	Fig 2.9
13	6975	7100	125	Fig 2.9
14	7550	7750	200	Fig 2.9
15	8000	8200	200	Fig 2.9
16	8700	8750	50	Fig 2.9
17	8850	8950	100	Fig 2.9
18	9100	9200	100	Fig 2.9
19	9400	9600	200	Fig 2.9
20	9750	9950	200	Fig 2.9
Total Length (in m)			5125	

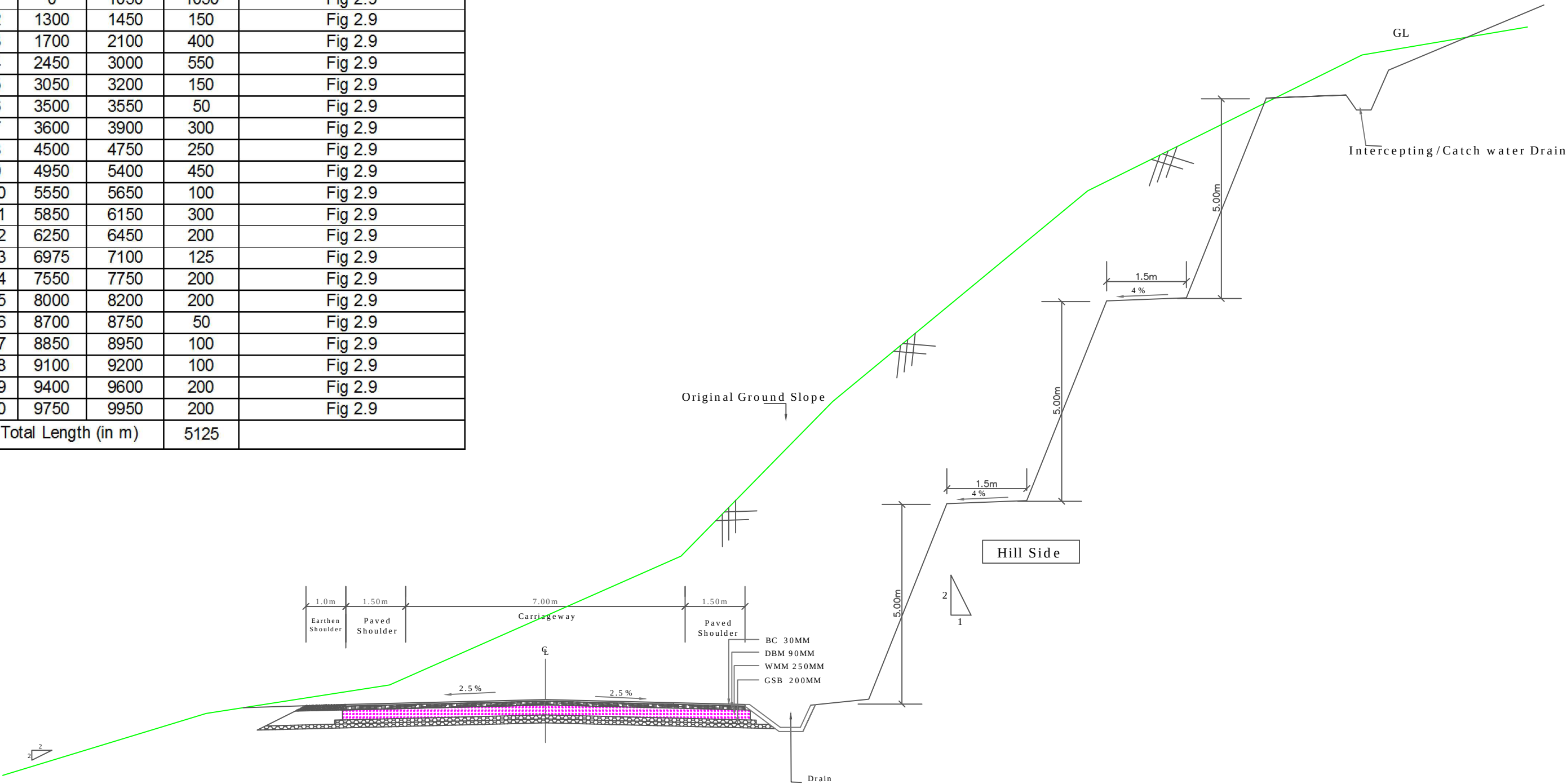


Fig - 2.9
Typical Cross Section
2- lane Carriageway Without Retaining Wall
(Open Country - Mountainous Terrain)

:- CONSULTANTS :-	:- CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	:- PROJECT TITLE :-	:-TYPICAL CROSS SECTIONS:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel/Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 				Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong- Tousem- Liasang- Haflong In The State of Manipur & Assam on EPC Mode.	

S. No.	Chainage		Length (in m)	TCS
	From	To		
1	3200	3250	50	Fig 2.11(new)
2	3300	3350	50	Fig 2.11(new)
3	4050	4300	250	Fig 2.11(new)
4	4350	4500	150	Fig 2.11(new)
5	4750	4850	100	Fig 2.11(new)
6	5400	5550	150	Fig 2.11(new)
7	5650	5850	200	Fig 2.11(new)
8	6450	6650	200	Fig 2.11(new)
9	6700	6800	100	Fig 2.11(new)
10	6850	6925	75	Fig 2.11(new)
11	7150	7350	200	Fig 2.11(new)
12	7750	8000	250	Fig 2.11(new)
13	8200	8325	125	Fig 2.11(new)
14	8375	8450	75	Fig 2.11(new)
15	8500	8600	100	Fig 2.11(new)
16	8950	9100	150	Fig 2.11(new)
17	9250	9400	150	Fig 2.11(new)
18	9625	9750	125	Fig 2.11(new)
19	9975	10000	25	Fig 2.11(new)
Total Length (in m)			2525	

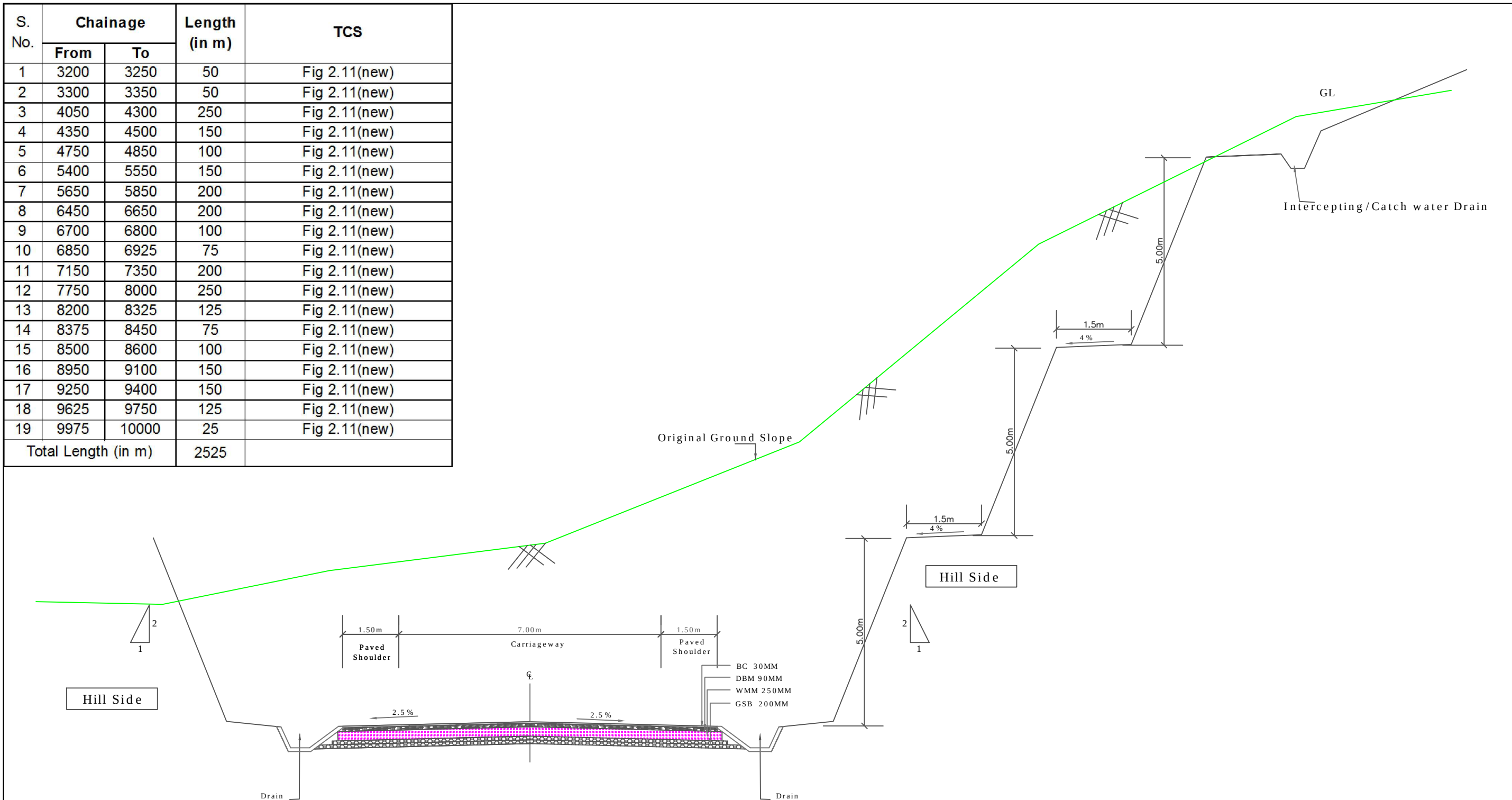


Fig - 2.11(new)
(Hilly Terrain) Typical Cross Section
2- lane Carriageway With Paved Shoulders
(Through Cut) Hill Section

-: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-:TYPICAL CROSS SECTIONS:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)					Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong- Tousem- Liasang- Haflong In The State of Manipur & Assam on EPC Mode.	
 Tel/Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com		 NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)						

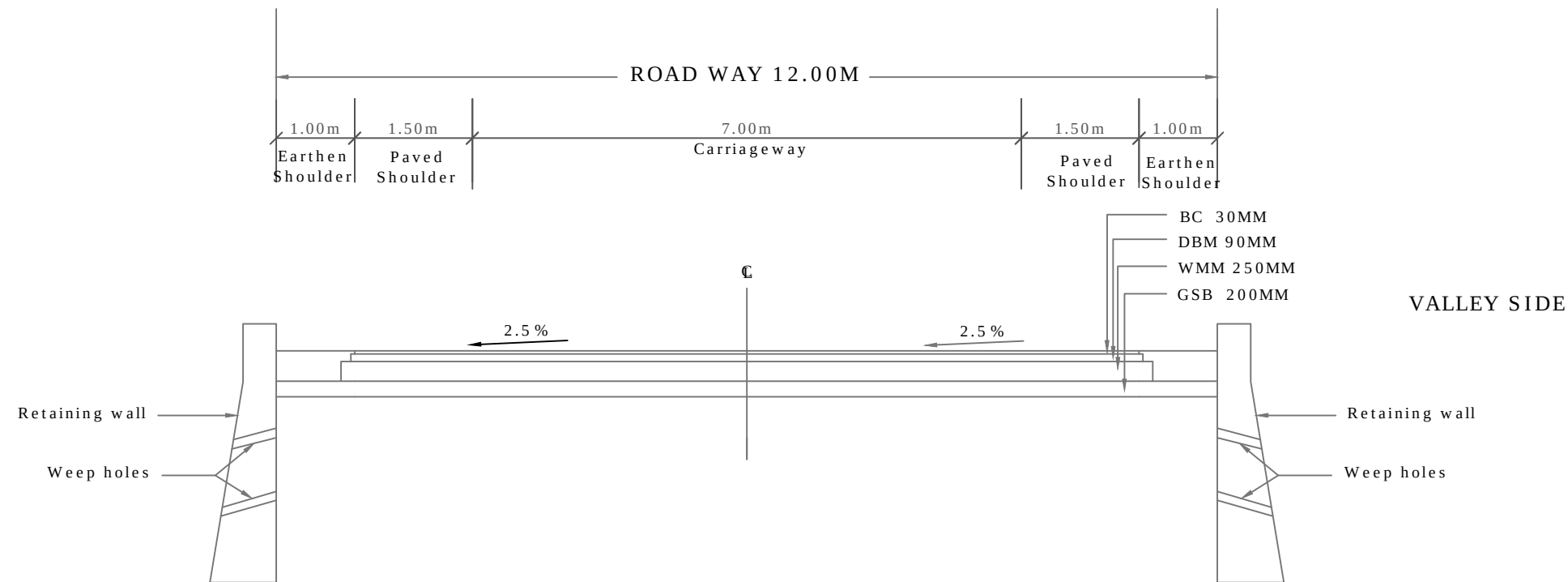
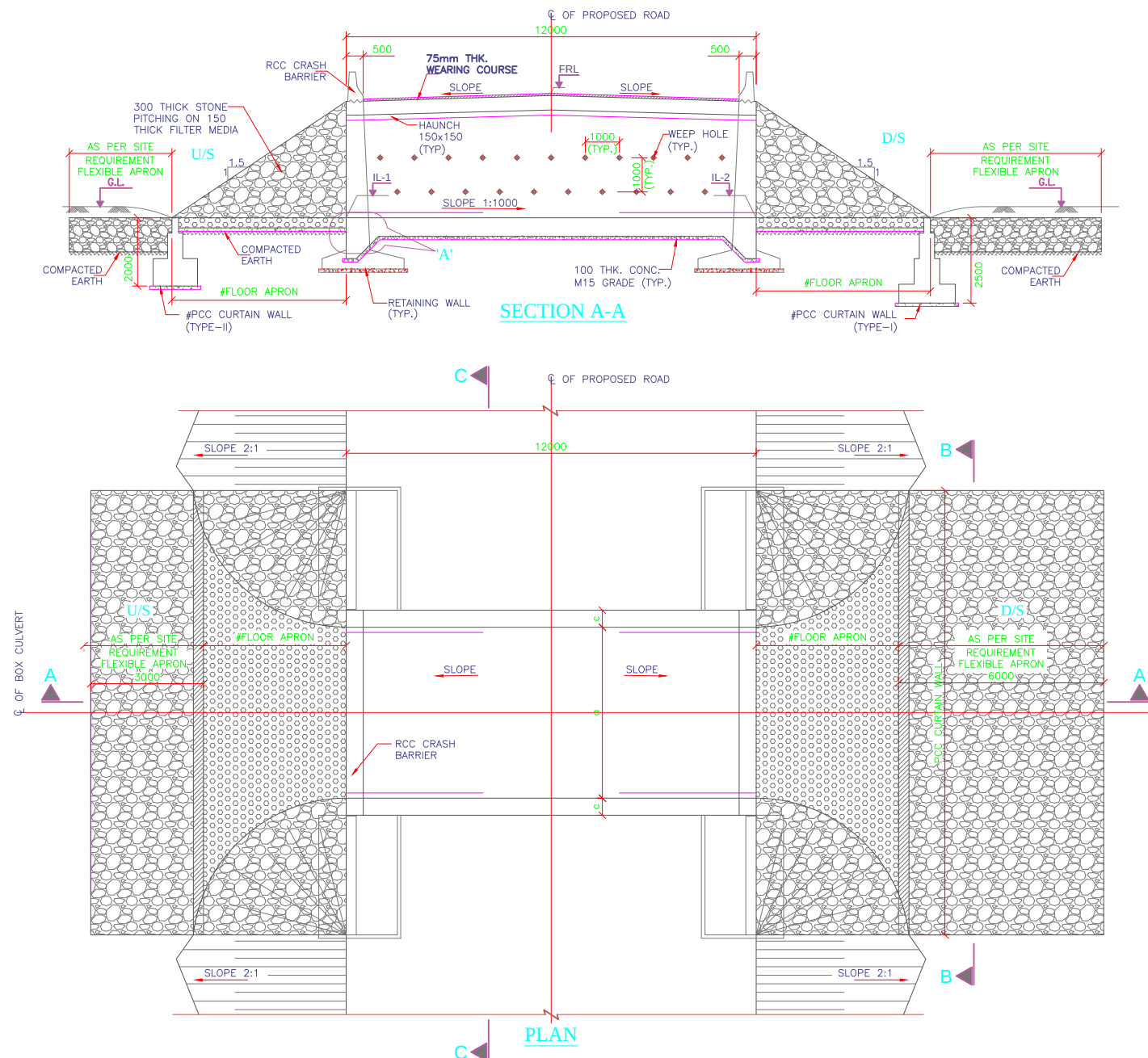


Fig - 2.12 (new)
 Typical Cross Section (Hilly Terrain)
 2- lane carriageway (With Paved Shoulder)
 (With Retaining Wall on both Side)

S. No.	Chainage		Length (in m)	TCS
	From	To		
1	2100	2450	350	Fig 2.12 (new)
2	3350	3500	150	Fig 2.12 (new)
3	3900	4050	150	Fig 2.12 (new)
4	6150	6250	100	Fig 2.12 (new)
5	8600	8700	100	Fig 2.12 (new)
6	8750	8850	100	Fig 2.12 (new)
Total Length (in m)			950	

:- CONSULTANTS :-	:- CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	:- PROJECT TITLE :-	:-TYPICAL CROSS SECTIONS:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel/Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 				Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong- Tousem- Liasang- Haflong In The State of Manipur & Assam on EPC Mode.	

6. GAD's OF STRUCTURES



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
- DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS 10T/M^2 . THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
- GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
- CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - RCC BOX..... M30
 - RCC CRASH BARRIER..... M40
 - RETAINING WALL..... M30
 - PCC LEVELING COURSE.... M15
- THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
- THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ$, $\gamma=2.0\text{ T/Cum}$
- DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
- FLOW DIRECTION SHOWN IN THE DRAWING IS INDICATIVE ONLY. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
- FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
- DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
- 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
- 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
- ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE WITH RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
GL	-	GROUND LEVEL
LVL	-	LEVEL
IL	-	INVERT LEVEL

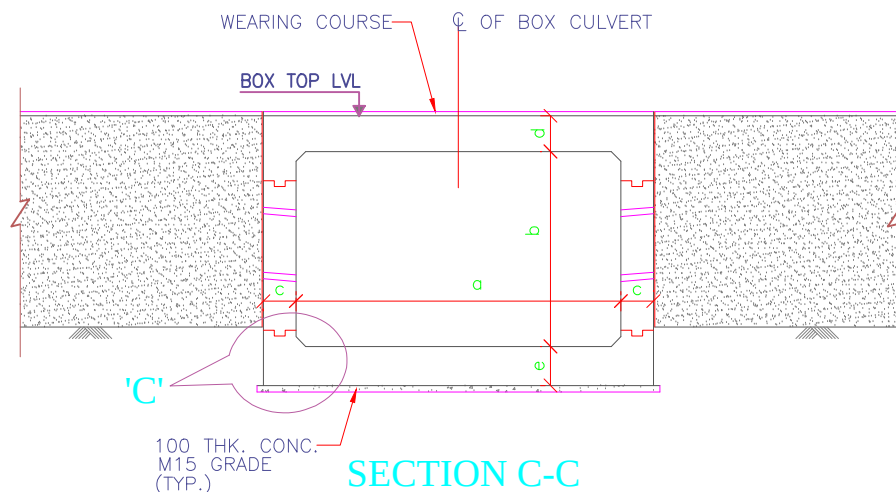
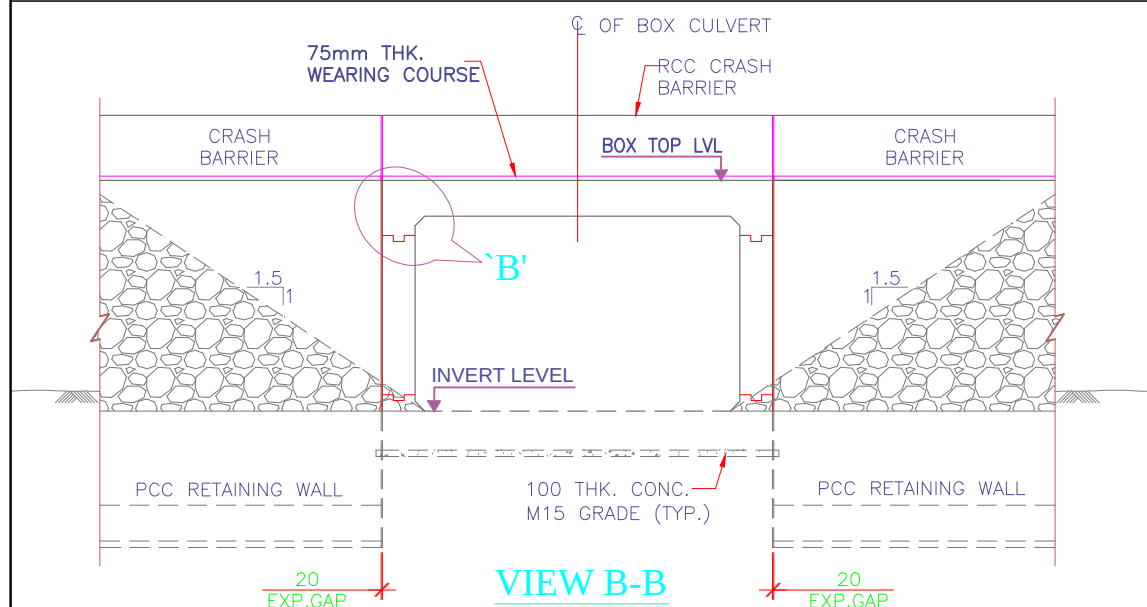
TABLE-1 SCHEDULE OF BOX CULVERT

S.No	DESIGN CH: SCHEDULE	PROPOSAL	DIRECTION OF FLOW	SKEW ANGLE	PROPOSED DETAILS					
					TYPE	DIMENSION DETAILS OF BOX				
						a	b	c	d	e
1		NEW CONSTRUCTION	R TO L	0°	BOX	2000	2000	300	300	325

TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

S. No.	DIMENSION DETAILS(mm)					
	R0	R1	R2	RH	RH1	RH2
1	3450	500	2950	4300	600	3700

GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.
0+415,0+500,0+765,4+700,4+900,5+155,5+500,5+650,5+930,
6+150,6+525,8+700,8+900,9+930,



:- CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004696
E-mail : lninfra@projects@gmail.com

:- CLIENT :-

**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



DRG. NO. :

DESIGNED BY.

APPROVED BY.

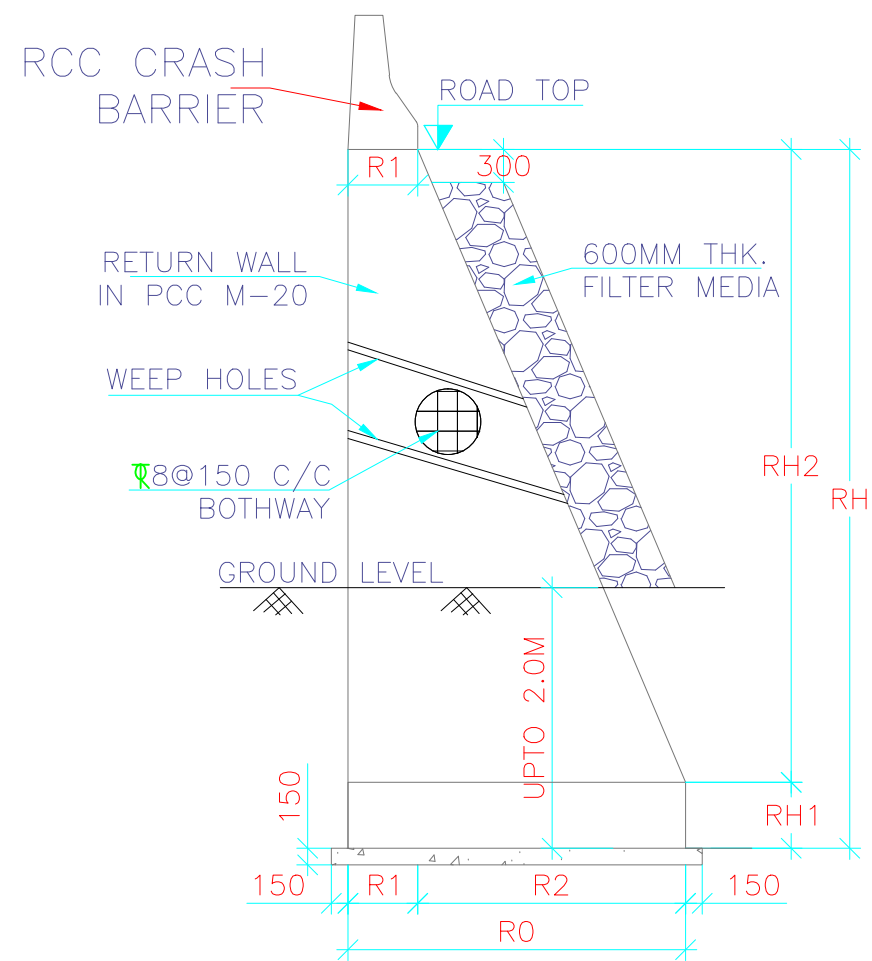
:- PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study
and Detailed Project Report For Two lane With Paved
Shoulders of Tamenglong - Dialong - Old Tamenglong
Road In The State of Manipur on EPC Mode.

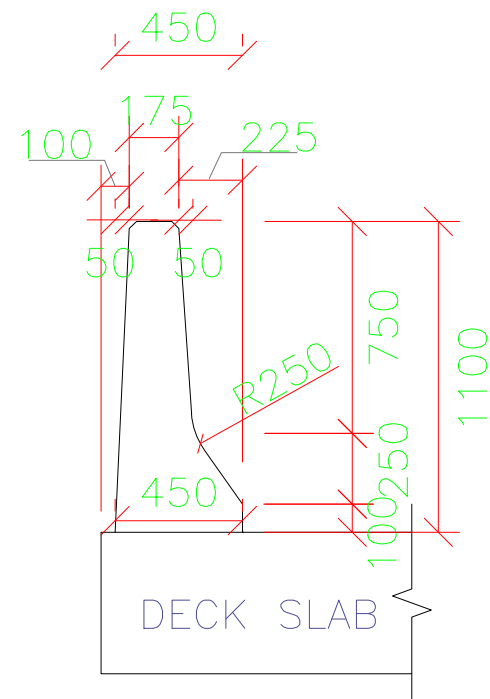
:-General Arrangement Drawing:-

GAD Box-1X2X2

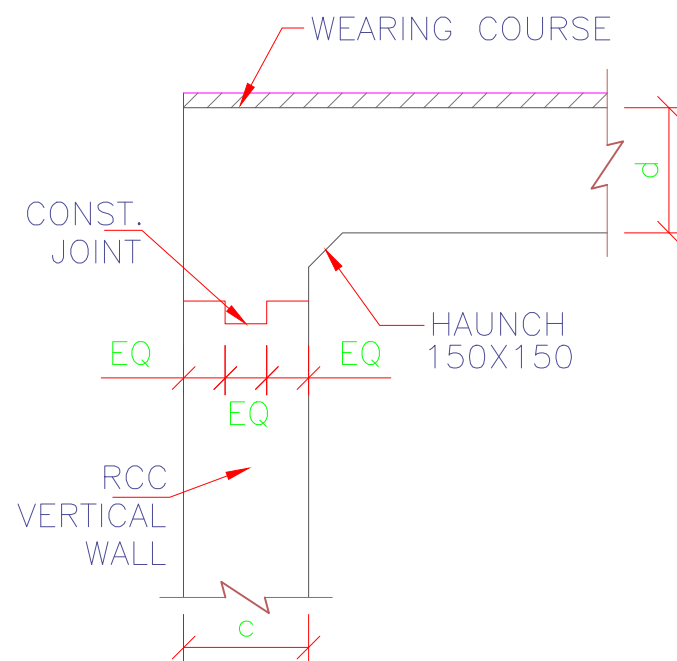
**TAMENGLONG - DIALONG SECTION
PKG-1**



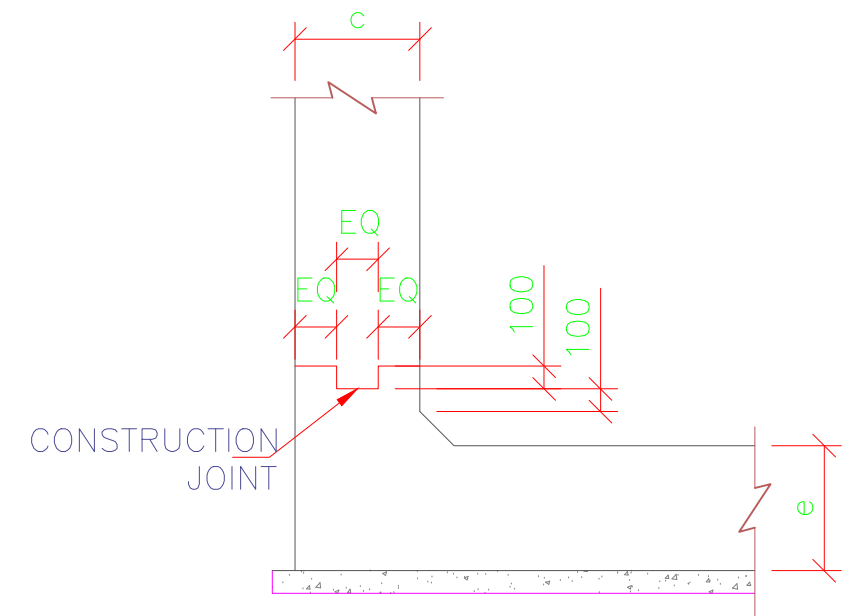
DETAIL OF PCC RETAINING WALL



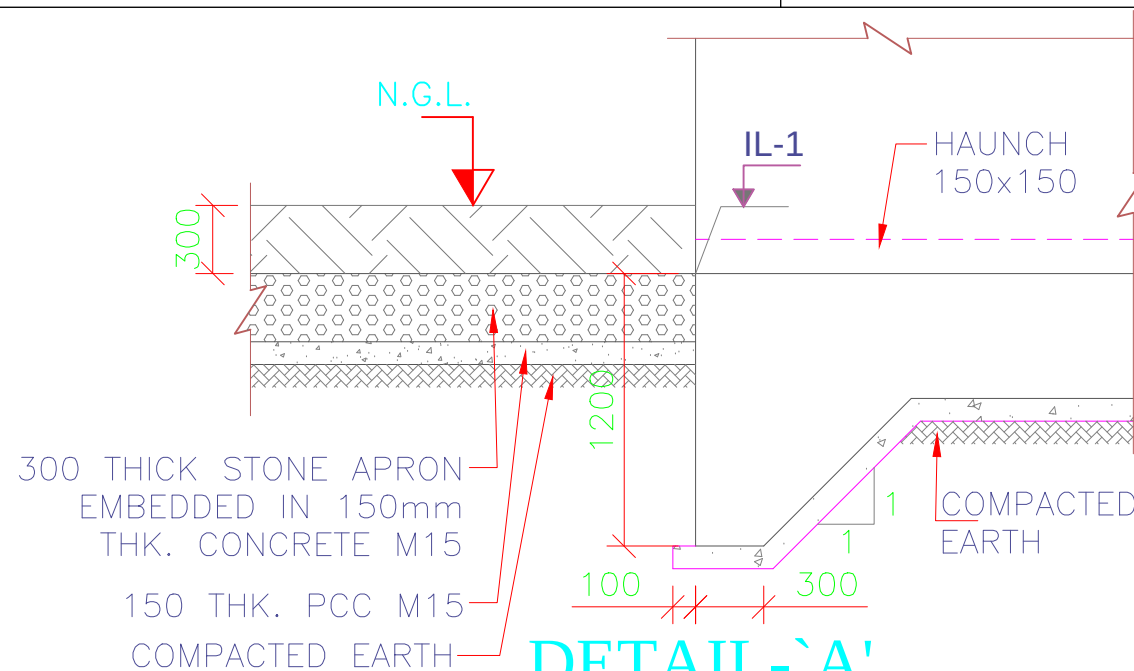
CRASH BARRIER DIMENSIONS



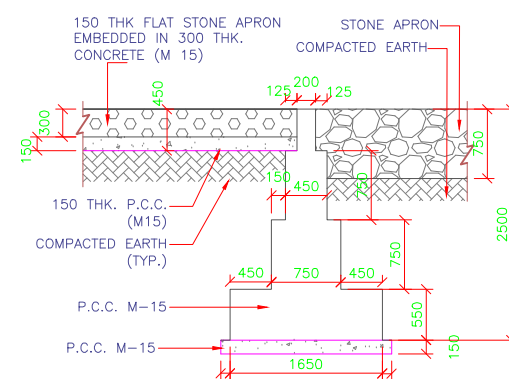
DETAIL-'B'



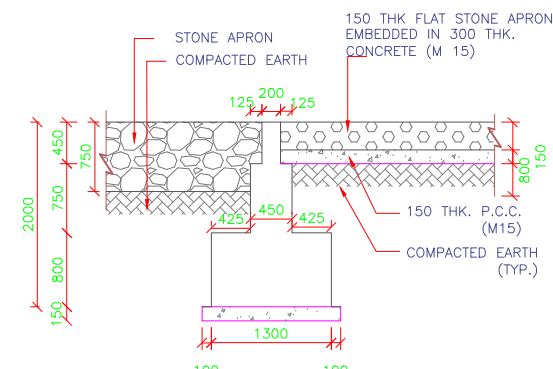
DETAIL-'C'



DETAIL-'A'



DETAIL OF CURTAIN WALL TYPE-I



DETAIL OF CURTAIN WALL TYPE-II

-: CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004696
E-mail : lninfra@gmail.com

-: CLIENT :-

**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



DRG. NO. :

DESIGNED BY.

APPROVED BY.

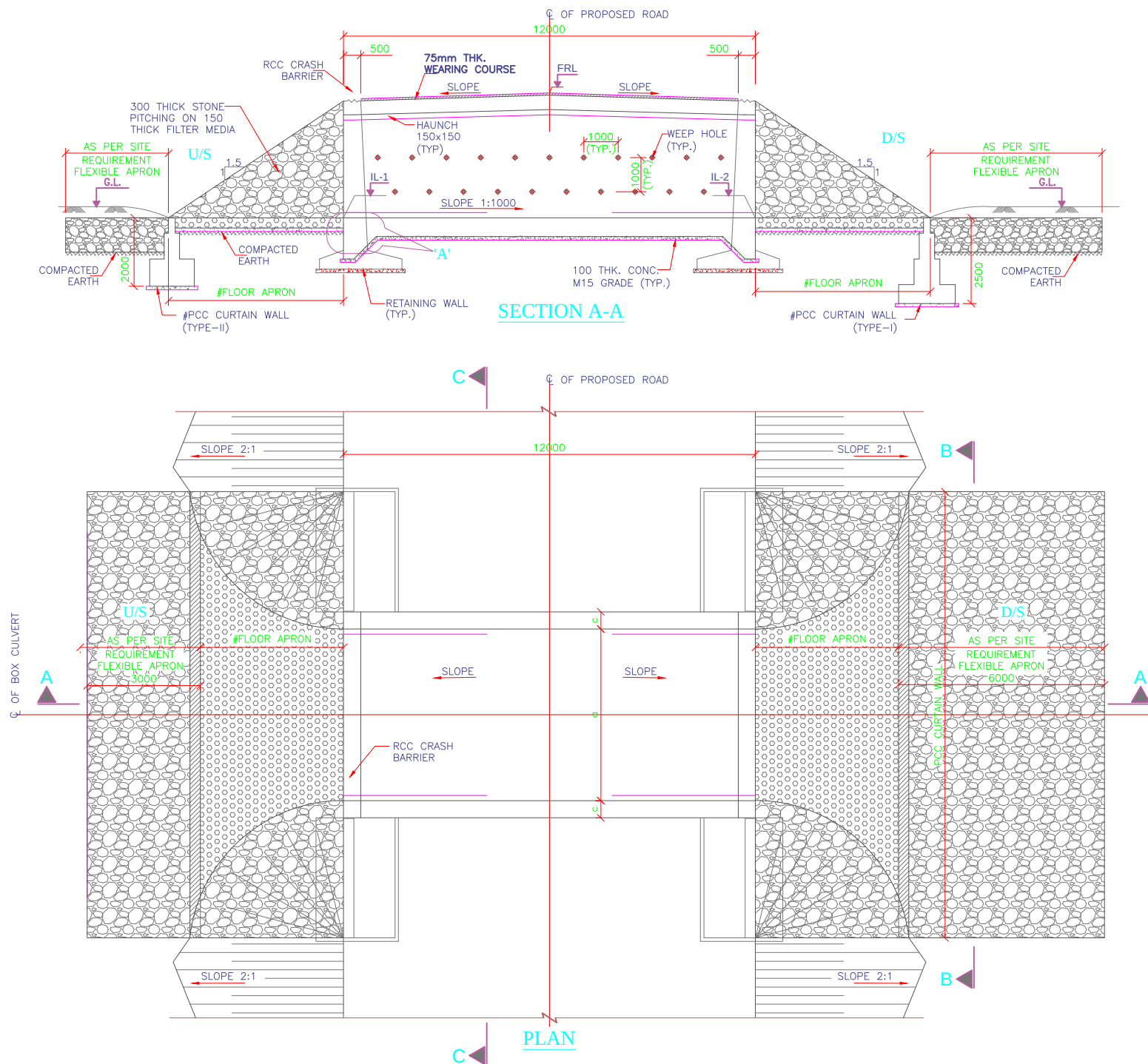
-: PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study
and Detailed Project Report For Two lane With Paved
Shoulders of Tamenglong - Dialong - Old Tamenglong
Road In The State of Manipur on EPC Mode.

-:General Arrangement Drawing:-

BOX CULVERT Span-1No. 2X2

**TAMENGLONG - DIALONG SECTION
PKG-1**



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
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- THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS $10T/M^2$. THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. ANY VARIATION ON SITE SHOULD BE INFORMED TO THE DESIGN ENGINEER FOR NECESSARY ACTION.
- GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
- CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - RCC BOX..... M25
 - RCC CRASH BARRIER..... M40
 - RETAINING WALL..... M30
 - PCC LEVELING COURSE.... M15
- THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
- THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ$, $\gamma=2.0$ T/Cum
- DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
- FLOW DIRECTION SHOWN IN THE DRAWING IS INDICATIVE ONLY. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
- FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
- DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
- 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
- 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
- ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE WITH RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.

LEGEND:-

FRL	-	FINISHED ROAD LEVEL
GL.	-	GROUND LEVEL
LVL.	-	LEVEL
IL	-	INVERT LEVEL

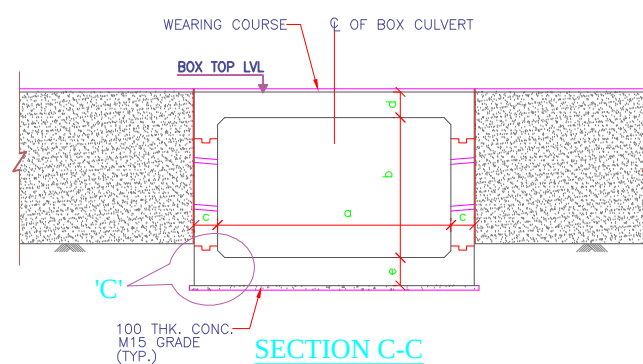
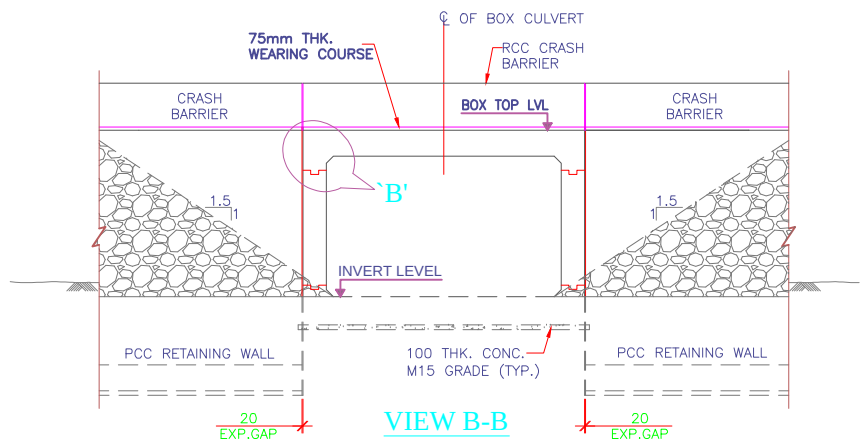


TABLE-1 SCHEDULE OF BOX CULVERT

S. No.	DESIGN CH: SCHEDULE	PROPOSAL	DIRECTION OF FLOW	SKEW ANGLE	PROPOSED DETAILS					
					TYPE	DIMENSION DETAILS OF BOX				
						a	b	c	d	e
1		NEW CONSTRUCTION	R TO L	0°	BOX	3000	3000	420	420	420

TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

S. No.	DIMENSION DETAILS(mm)					
	R0	R1	R2	RH	RH1	RH2
1	4450	500	3950	5170	600	4570

-: CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfraprojects@gmail.com

-: CLIENT :-

**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



DRG. NO. :

DESIGNED BY.

APPROVED BY.

-: PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.

-:General Arrangement Drawing:-

BOX CULVERT Span-1No. 3X3

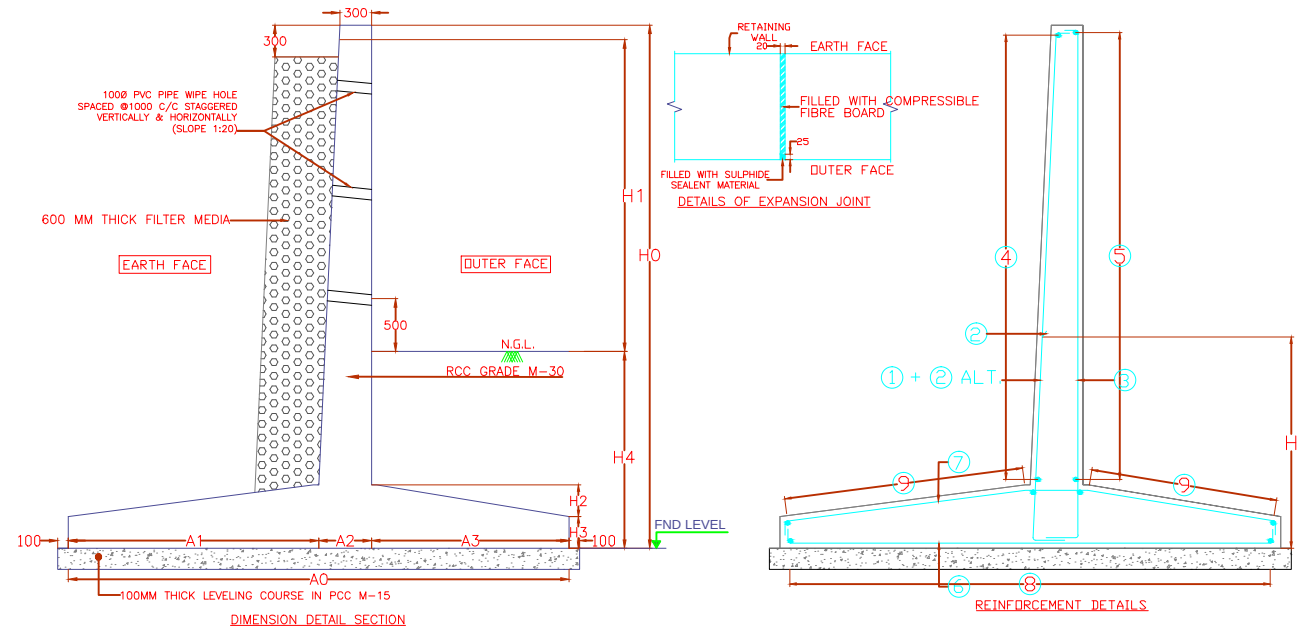
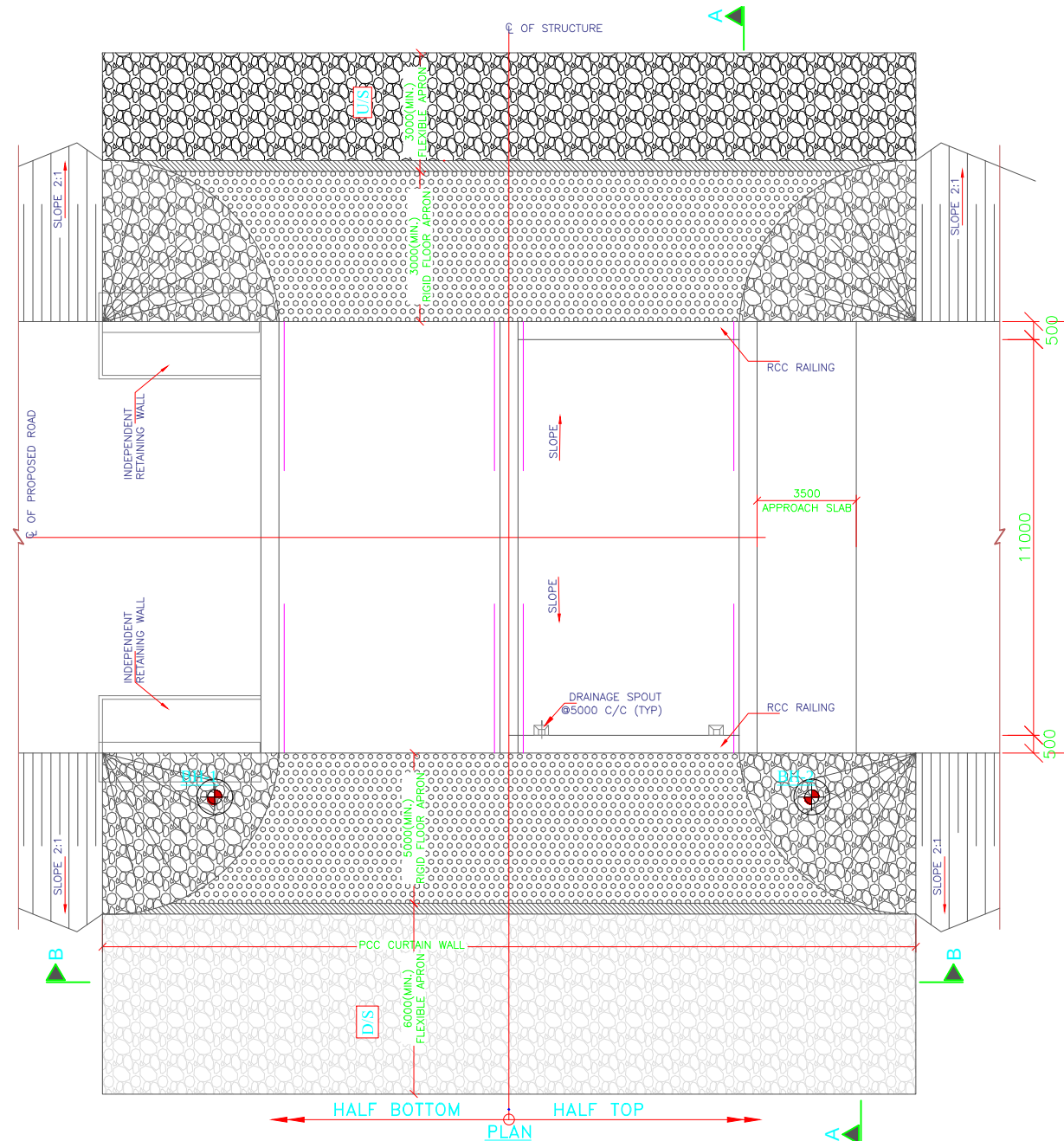
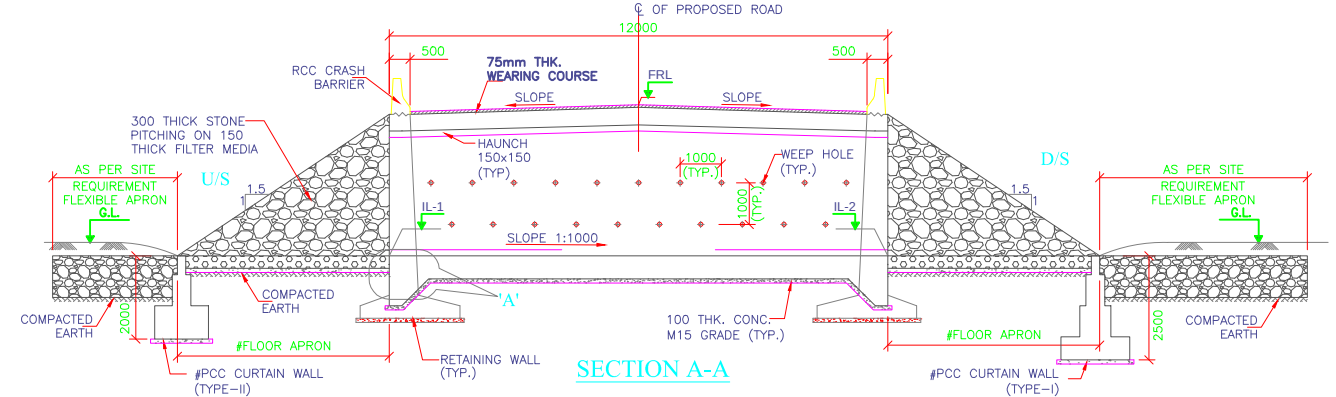
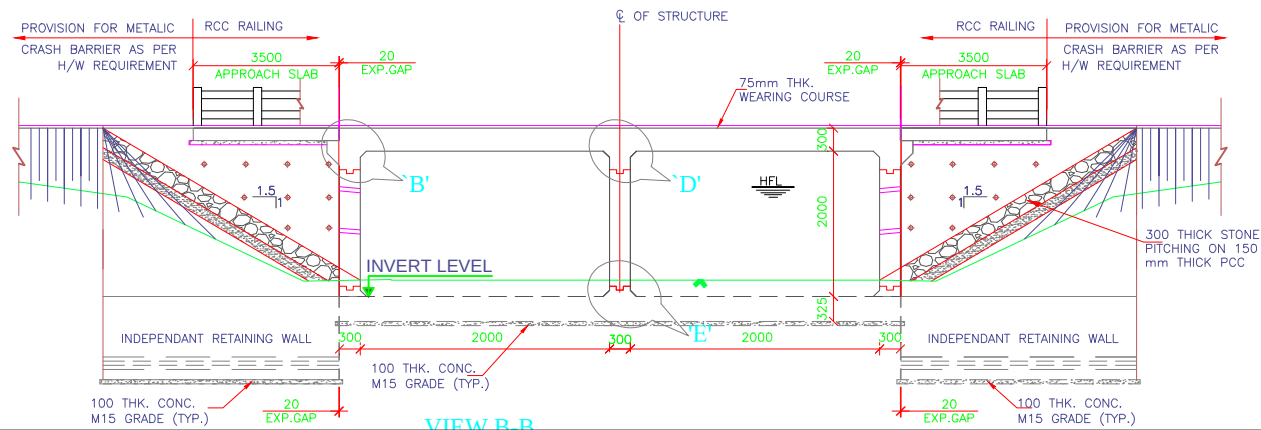
**TAMENGLONG - DIALONG SECTION
PKG-1**



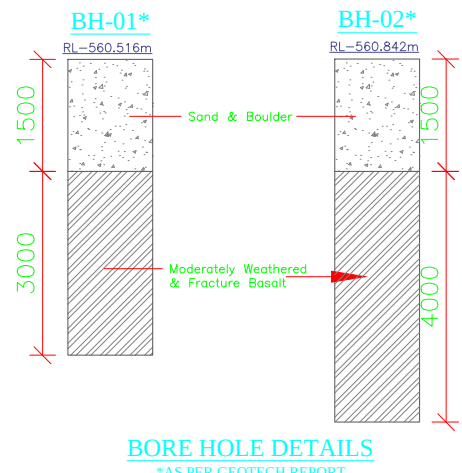
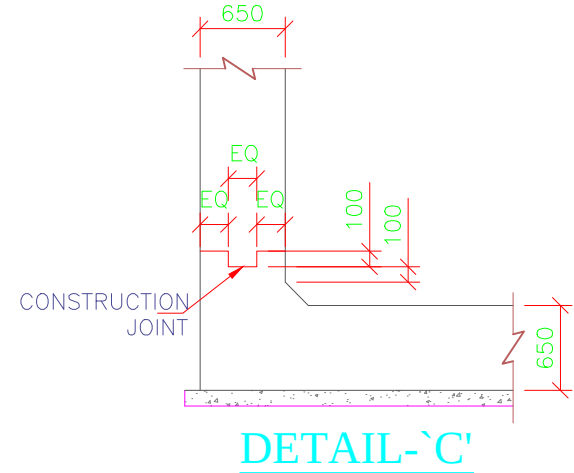
Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.

TAMENGLONG - DIALONG SECTION
PKG-1

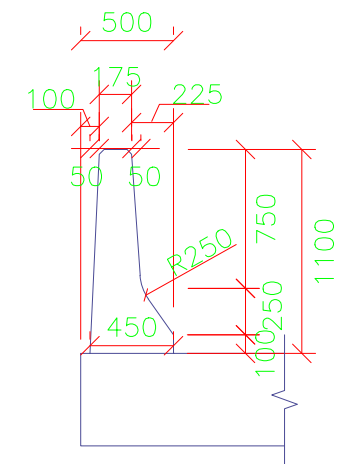
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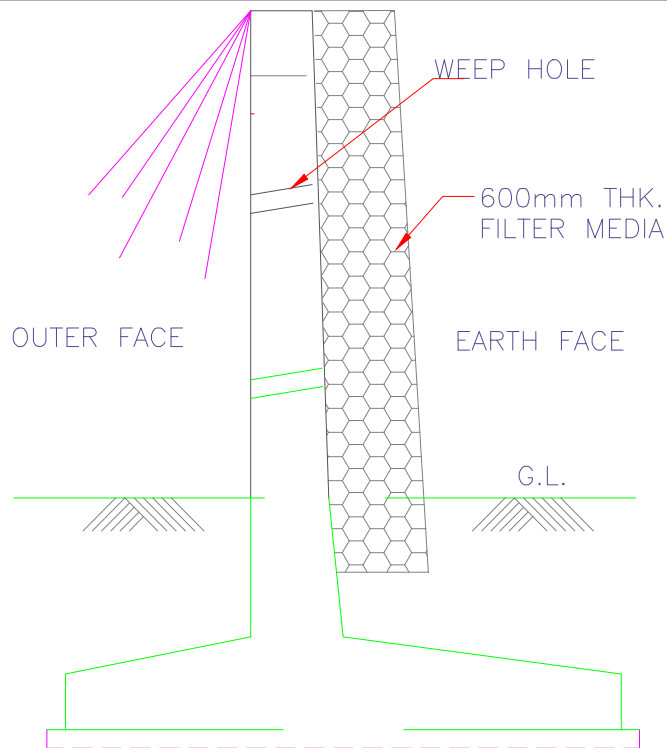
SERIAL NO.	OVERALL HEIGHT H0 (mm)	HEIGHT ABOVE OF GL H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	A0 (mm)	A1 (mm)	A2 (mm)	A3 (mm)
1	5000	3000	500	300	1500	4050	1200	450	2400



-: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-		-:General Arrangement Drawing:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD.		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)					Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.		BOX CULVERT Span-2No. 2X2
T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1, M.P. NAGAR, ZONE-4, BHOPAL (M.P.)									TAMENGLONG - DIALONG SECTION PKG-1
Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@lninfra.com									



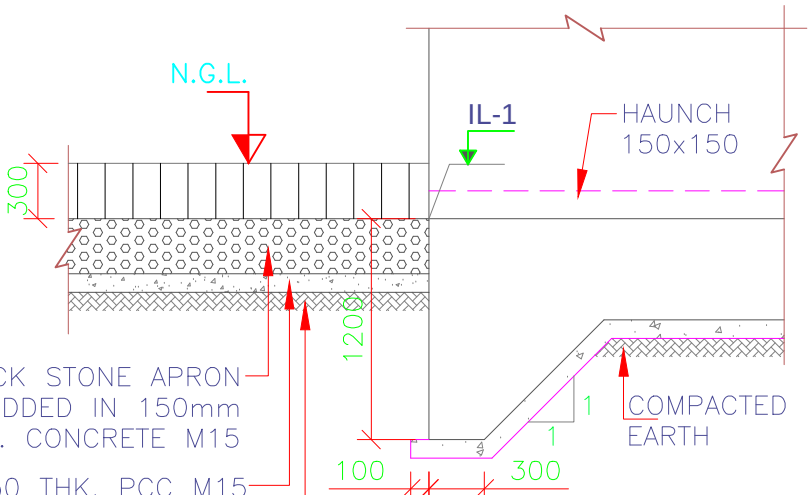
RCC CRASH BARRIER



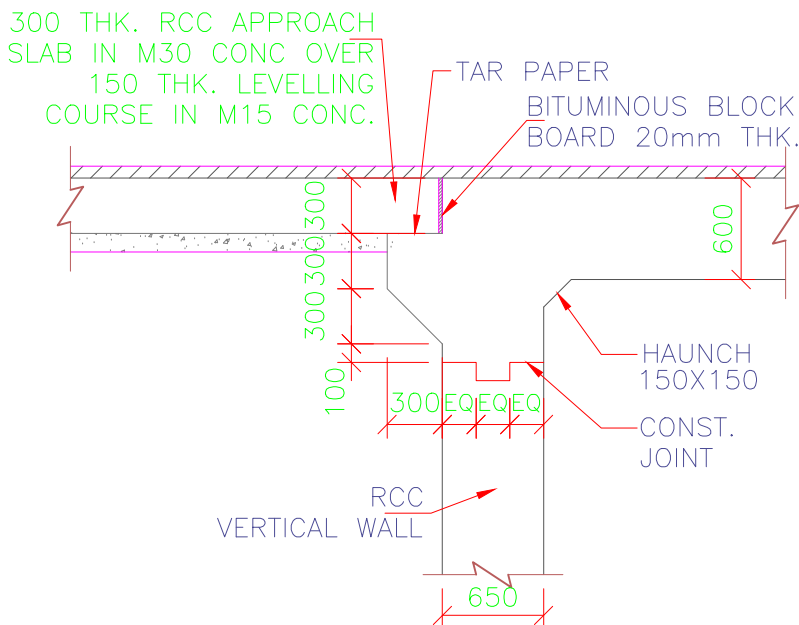
DETAILS OF RETAINING WALL

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS,UNLESS MENTIONED OTHERWISE.
2. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING .ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
3. LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALL SHALL CONFIRM TO APPENDIX - 6 IRC-78-2014
4. WEEP HOLES OF DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLE STAGGERED SPACING NOT EXCEEDING 1M IN BOTH DIRECTION FOR RETAINING WALL.
5. GRADE FOR CONCRETE FOR RETAINING WALL IS M-30.
6. BACKFILL GRANULAR SOIL MATERIAL BEHIND WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC:78-2014. THE PROPERTIES ARE $C = 0$, $\phi \Rightarrow 30^\circ$, $\gamma = 20\text{KN/CU.M}$
7. GRADE OF STEEL Fe 500 AS PER IS 1786.
8. CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.
i) FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm
ii) FOR BASE SLAB 75mm
9. EARTH FILL ON BOTH SIDES OF RETAINING WALL SHALL BE DONE SIMULTANEOUSLY.
10. SAND FILLING OF MIN. 300mm WILL BE DONE BELOW FOUNDATION WHEREVER CLAYEY SOIL IS PRESENT.
11. DRAWING IS VALID FOR HORIZONTAL EARTH FACE ONLY.
12. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE .IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOWS WITH MAXIMUM ALLOWABLE LAPPING
(p) OF 50% ONLY
(IRC :112:2011),(CLAUSE:15.2.5.12)
LAP LENGTH $l_s = a_1.l_{bnet}$
 $a_1 = 1.0$ FOR $p\% \leq 25\%$
 $a_1 = 1.5$ FOR $25\% \leq p\% \leq 33\%$
 $a_1 = 1.4$ FOR $33\% \leq p\% \leq 50\%$
(IRC: 112=2011) (CLAUSE:15.2.3.3)
DEVELOPMENT LENGTH (l_{bnet})
 $l_{bNET} = a.l_b$ ($a = 1.0$)
 $l_b = k\phi$
 $k = 40$ FOR M30(Fe500)
 $k = 36$ FOR M35(Fe500)
 $k = 34$ FOR M40(Fe500)
FOR UNFAVORABLE BOND CONDITION THE l_b SHOULD BE MULTIPLIED BY FACTOR OF 1.43 FOR $\phi > 32\text{mm}$ l_b ,SHOULD BE INCREASED BY MULTIPLYING FACTOR $(100/132-\phi)$.



DETAIL-A



DETAIL-B

TABLE-1 SCHEDULE OF BOX CULVERT

S. No.	DESIGN CH: SCHEDULE	DESIGN CH: AS PER HIGHWAY	PROPOSAL	DIRECTION OF FLOW	SKEW ANGLE	PROPOSED DETAILS						
						TYPE	DIMENSION DETAILS OF BOX					
							a	b	c	d	e	f
1			NEW CONSTRUCTION	R TO L	0°	BOX	2000	2000	300	300	325	300

TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

S. No.	DIMENSION DETAILS(mm)					
	R0	R1	R2	RH	RH1	RH2
1	3450	500	2950	4300	600	3700

:- CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

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Mob.: 09826452711, 09977004686
E-mail : lninfraprojects@gmail.com

:- CLIENT :-

NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)



DRG. NO. :

DESIGNED BY.

APPROVED BY.

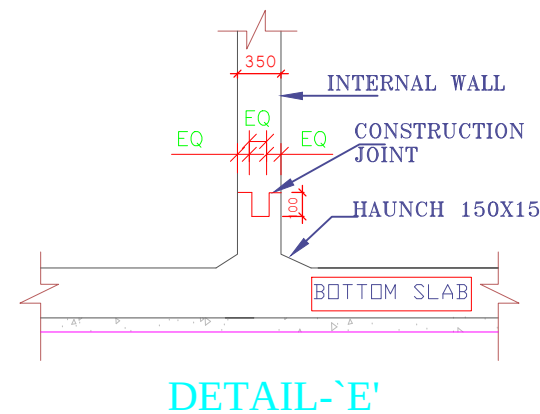
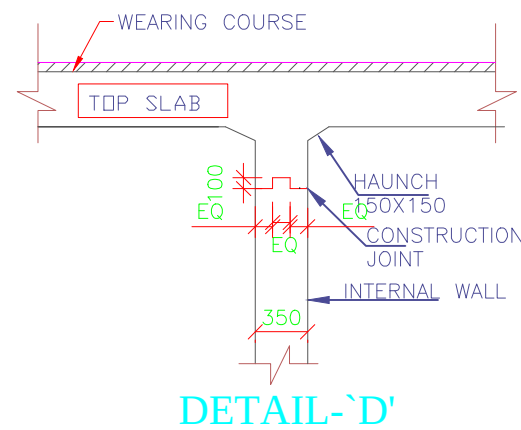
:- PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.

:-General Arrangement Drawing:-

BOX CULVERT

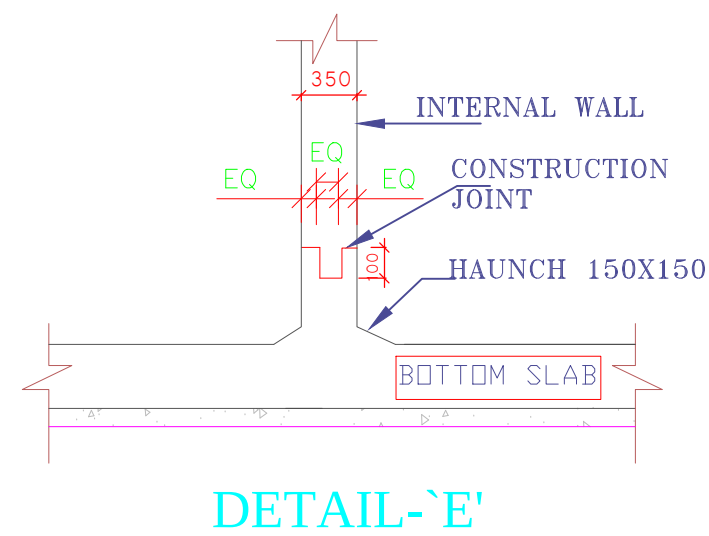
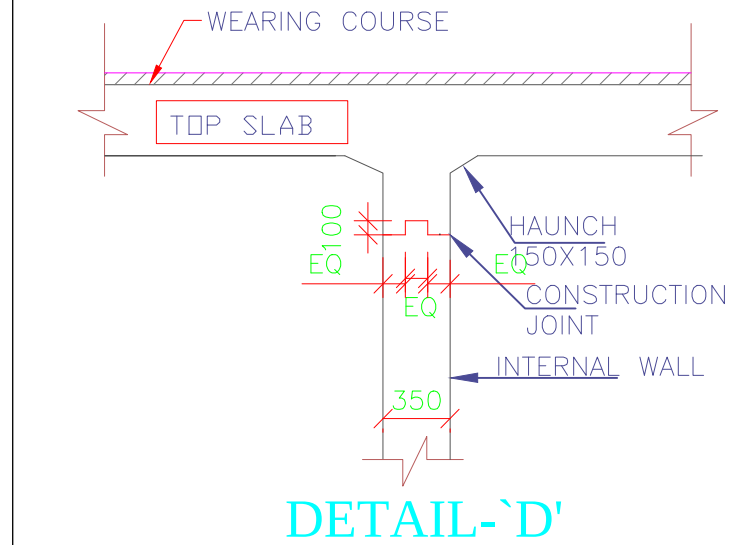
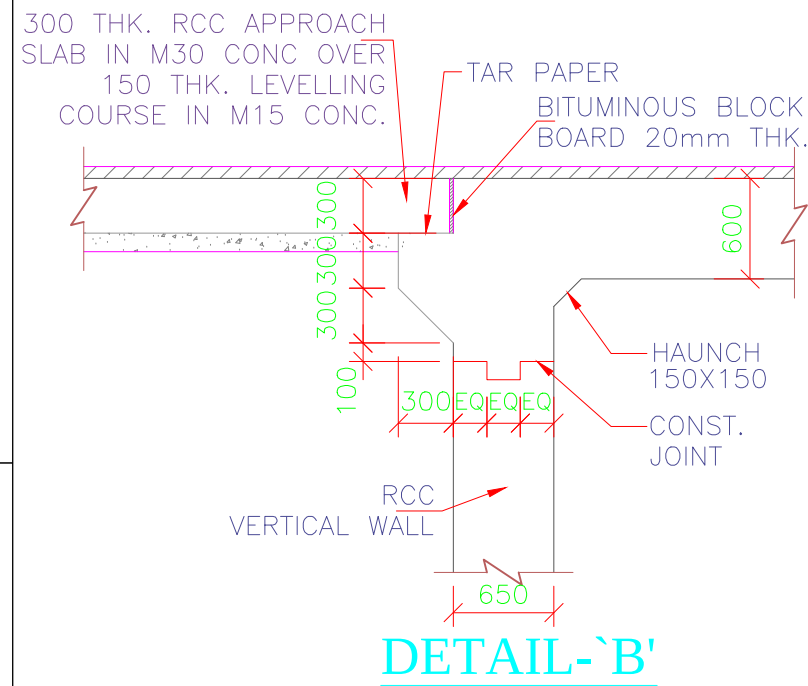
TAMENGLONG - DIALONG SECTION
PKG-1



- | | | |
|---|---|------------------------|
| FRL | - | FINISHED ROAD LEVEL |
| GL | - | GROUND LEVEL |
| LVL | - | LEVEL |
| IL | - | INVERT LEVEL |
| FL | - | FOUNDING LEVEL |
| MSL | - | MAXIMUM SCOUR LEVEL |
| BH | - | BORE HOLE |
| * | - | AS PER HIGHWAY PROFILE |
|  | - | BORE HOLE LOCATION |

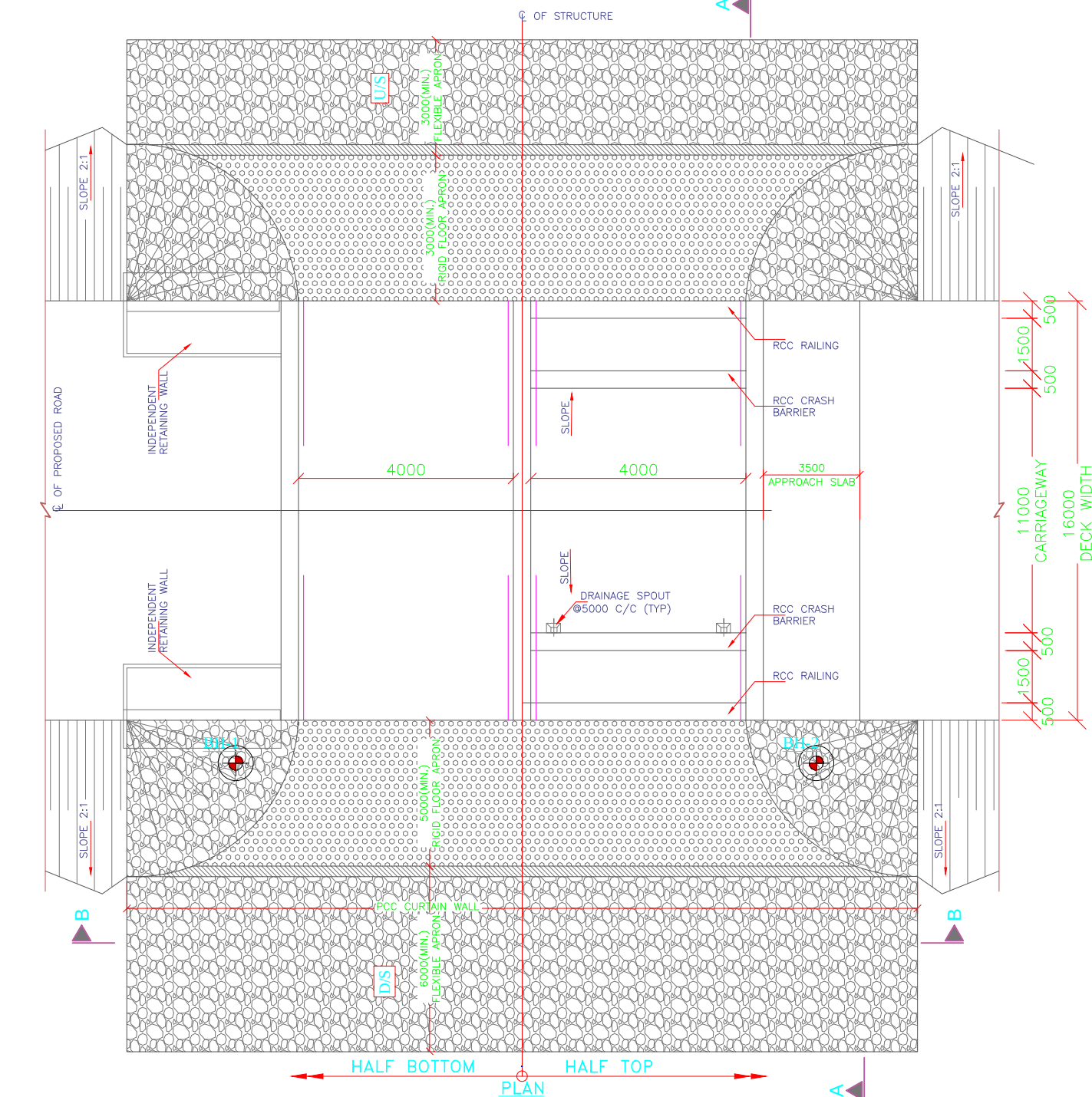
GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.
1+000,

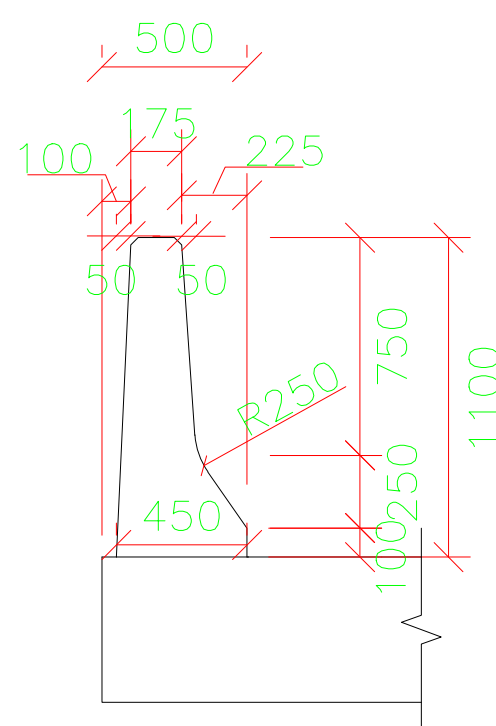
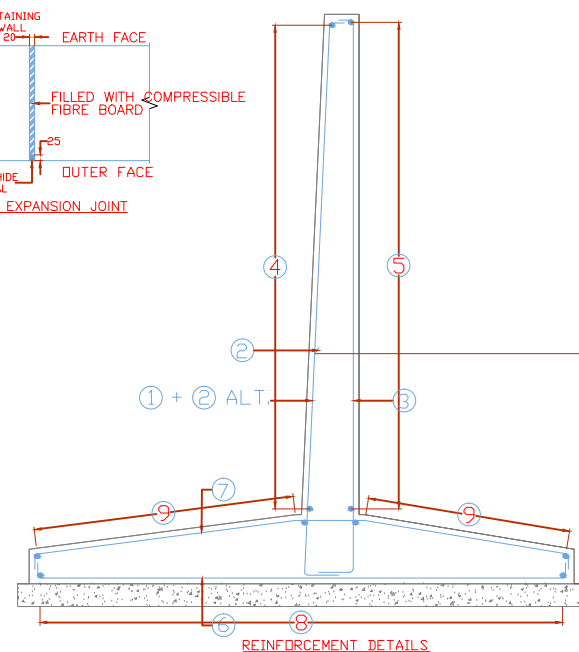
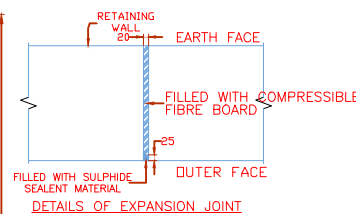
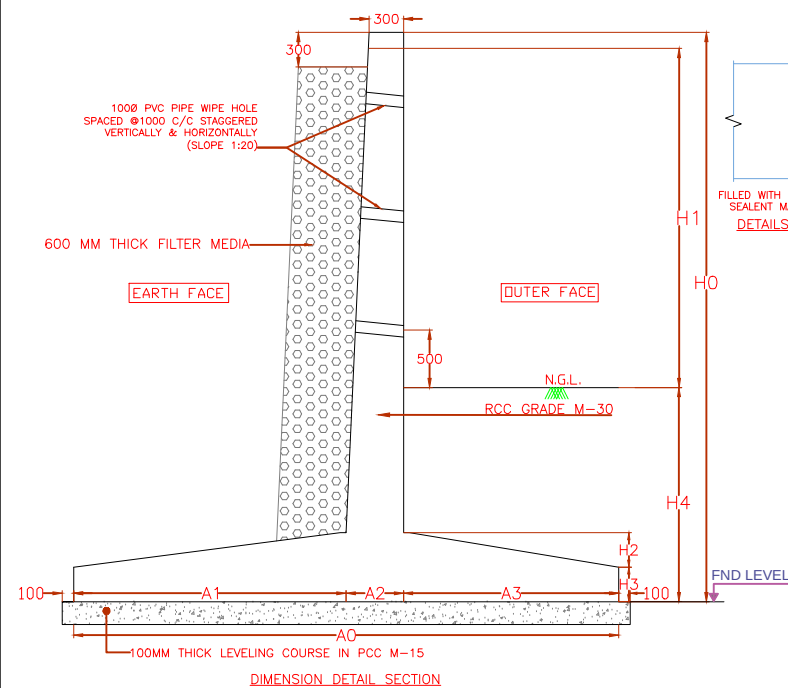
-: CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com	-: CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 	DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Dialong - Old Tamenglong Road In The State of Manipur on EPC Mode.	-:General Arrangement Drawing:- BOX CULVERT TAMENGLONG - DIALONG SECTION PKG-1
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4. GRADE OF UNTENSIONED STEEL SHALL BE Fe 500, CONFIRMING TO IS:1786.
5. CONCRETE SHALL BE OF DESIGN MIX AND SHALL HAVE MINIMUM 28 DAYS CHARACTERISTIC CUBE STRENGTH AS FOLLOWS:-
 - RCC BOXM30
 - RCC CRASH BARRIER/RAILING.....M40
 - RCC RETAINING WALL.....M30
 - PCC LEVELING COURSE.....M15
6. THE RCC BOX SHOULD BE CONSTRUCTED FIRST AND THE SIDE FILLING & COMPACTION SHALL BE DONE AS PER MoRTH SPECIFICATIONS.
7. THE BACKFILL MATERIAL BEHIND RCC BOX/RETAINING WALL SHALL HAVE FOLLOWING PROPERTIES $\phi=30^\circ$, $\gamma=2.0$ T/Cum
8. DETAIL OF CAMBER/SUPER ELEVATION MAY BE VERIFIED WITH LATEST PLAN AND PROFILE DRAWING.
9. FLOW DIRECTION SHOULD BE VERIFIED ON SITE BEFORE EXECUTION OF WORK. BED PROTECTION FOR UPSTREAM AND DOWN STREAM SHALL BE BASED ON THE FLOW DIRECTION IN SITE.
10. FLEXIBLE APRON SHALL BE PROVIDED AS PER THE SPECIFICATION/DETAILS MENTIONED IN PLATE-22 OF IRC:SP:13-2004.
11. DISCREPANCY IF ANY IS TO BE IMMEDIATELY BROUGHT IN TO THE NOTICE OF ENGINEER FOR NECESSARY MODIFICATION IN THE DRAWING.
12. 100mm ϕ PVC WEEP HOLES SPACED AT 1000c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN RETAINING WALL.
13. 600mm THK. FILTER MEDIA SHALL BE PROVIDED BEHIND RETAINING WALL.
14. ALL LEVELS SHOWN IN THIS DRAWING SHOULD BE VERIFIED AT SITE RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.
15. DIMENSIONS OF STRUCTURE ARE TENTATIVE AND SUBJECTED TO CHANGE ON DETAIL DESIGN.
16. SHEAR KEY & CURTAIN WALL ARE NOT REQUIRED IF HARD ROCK IS FOUND AT GROUND LEVEL.

FRL	-	FINISHED ROAD LEVEL
GL.	-	GROUND LEVEL
LVL.	-	LEVEL
IL	-	INVERT LEVEL
FL	-	FOUNDING LEVEL
MSL	-	MAXIMUM SCOUR LEVEL
BH	-	BORE HOLE
*	-	AS PER HIGHWAY PROFILE
	-	BORE HOLE LOCATION

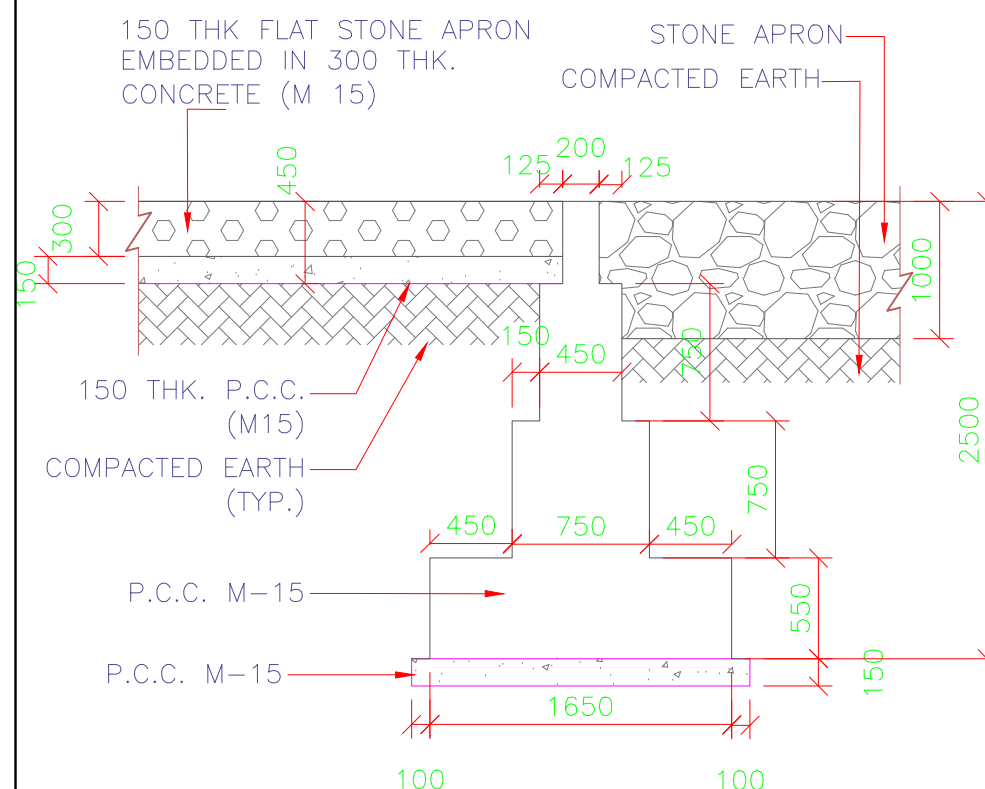




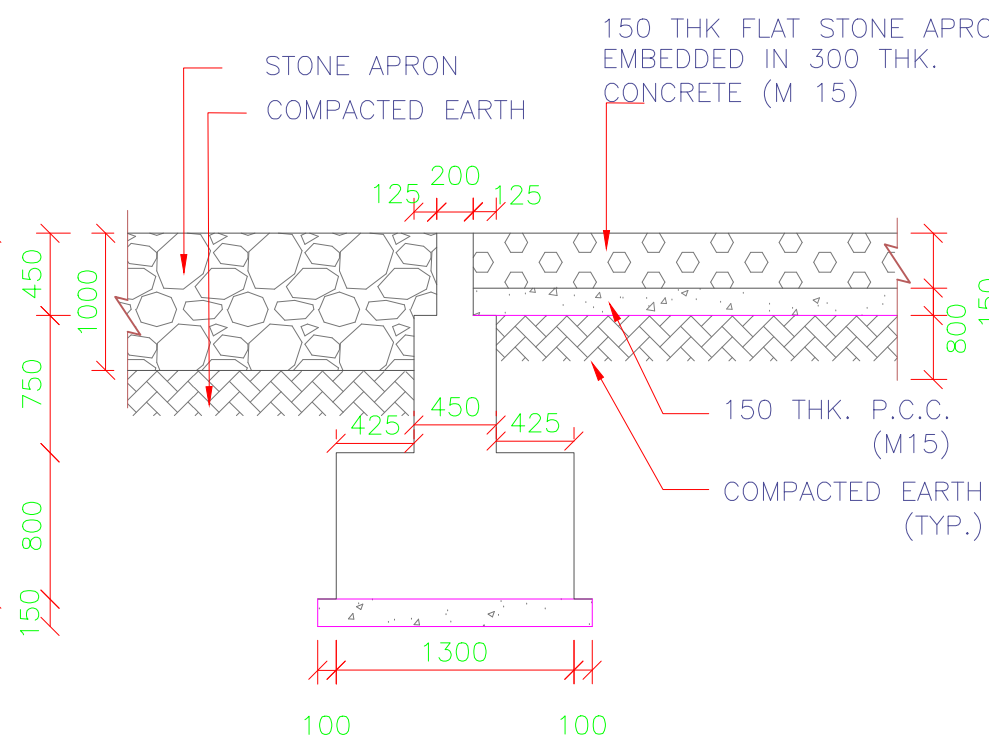
RCC CRASH BARRIER

DIMENSION DETAIL:-

SERIAL NO.	OVERALL HEIGHT H0 (mm)	HEIGHT ABOVE OF GL H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	A0 (mm)	A1 (mm)	A2 (mm)	A3 (mm)
1	6000	4000	500	300	1500	4450	1400	450	2600



DETAILS OF CURTAIN WALL TYPE-I



DETAILS OF CURTAIN WALL TYPE-II

NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS MENTIONED OTHERWISE.
- NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING .ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
- LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALL SHALL CONFIRM TO APPENDIX - 6 IRC-78-2014
- WEEP HOLES OF DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLE STAGGERED SPACING NOT EXCEEDING 1M IN BOTH DIRECTION FOR RETAINING WALL.
- GRADE FOR CONCRETE FOR RETAINING WALL IS M-30.
- BACKFILL GRANULAR SOIL MATERIAL BEHIND WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC:78-2014. THE PROPERTIES ARE $C = 0$, $\phi = 30^\circ$, $\gamma = 20\text{KN/CU.M}$
- GRADE OF STEEL Fe 500 AS PER IS 1786.
- CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.
 - FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm
 - FOR BASE SLAB 75mm
- EARTH FILL ON BOTH SIDES OF RETAINING WALL SHALL BE DONE SIMULTANEOUSLY.
- SAND FILLING OF MIN. 300mm WILL BE DONE BELOW FOUNDATION WHEREVER CLAYEY SOIL IS PRESENT.
- DRAWING IS VALID FOR HORIZONTAL EARTH FACE ONLY.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE .IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOWS WITH MAXIMUM ALLOWABLE LAPPING

(p) OF 50% ONLY

(IRC :112:2011),(CLAUSE:15.2.5.12)

LAP LENGTH $l_s = a_1 \cdot l_{bnet}$

$a_1 = 1.0$ FOR $p\% \leq 25\%$

$a_1 = 1.5$ FOR $25\% \leq p\% \leq 33\%$

$a_1 = 1.4$ FOR $33\% \leq p\% \leq 50\%$

(IRC: 112=2011) (CLAUSE:15.2.3.3)

DEVELOPMENT LENGTH (l_{bnet})

$l_{bNET} = a \cdot l_b$ ($a = 1.0$)

$l_b = k\phi$

$k = 40$ FOR M30(Fe500)

$k = 36$ FOR M35(Fe500)

$k = 34$ FOR M40(Fe500)

FOR UNFAVORABLE BOND CONDITION THE l_b SHOULD BE MULTIPLIED BY FACTOR OF 1.43 FOR $\phi > 32\text{mm}$ l_b , SHOULD BE INCREASED BY MULTIPLYING FACTOR $(100/132-\phi)$.

:- CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfraprojects@gmail.com

:- CLIENT :-

**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



DRG. NO. :

DESIGNED BY.

APPROVED BY.

:- PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study
and Detailed Project Report For Two lane With Paved
Shoulders of Tamenglong - Dialong - Old Tamenglong
Road In The State of Manipur on EPC Mode.

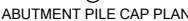
:-General Arrangement Drawing:-

BOX CULVERT Span-2No. X4X4

**TAMENGLONG - DIALONG SECTION
PKG-1**

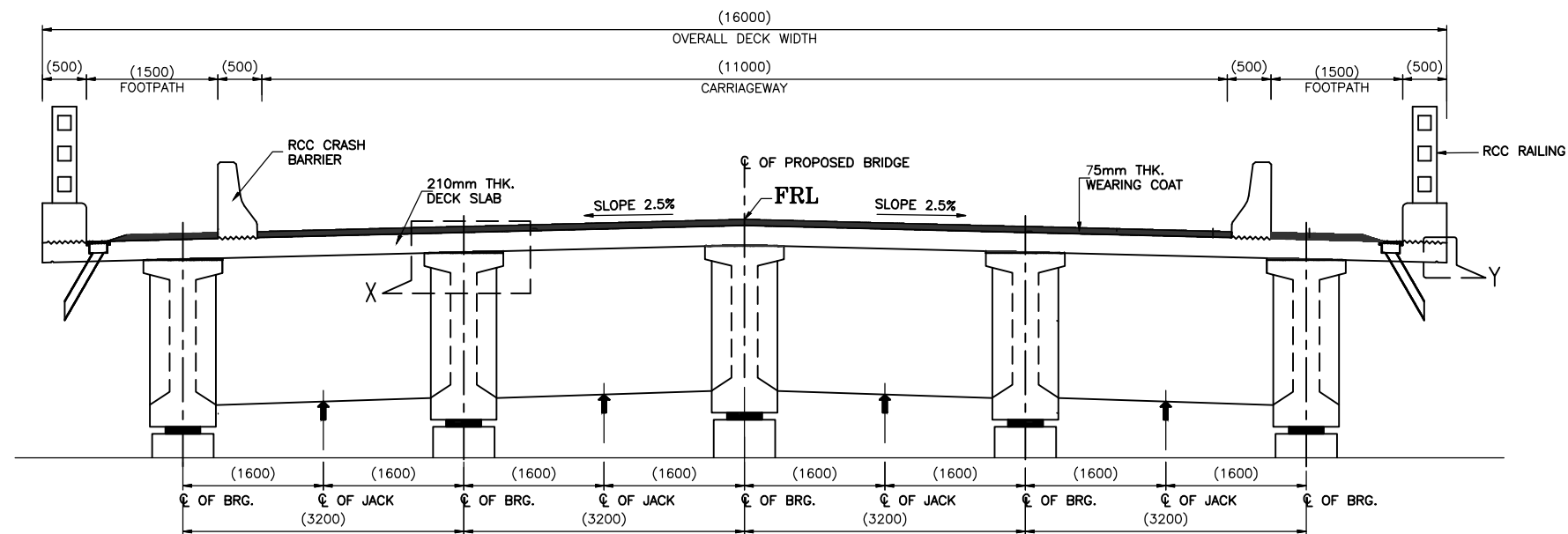


FINISHED ROAD LEVEL (m)	1090.209	1089.718	1089.227
G.L. / B.L. (m)	1076.980	1068.460	1075.808
PILE CAP BOTTOM LEVEL/ FOUNDING LEVEL			
CHAINAGE (m)	2+210	2+220	2+230

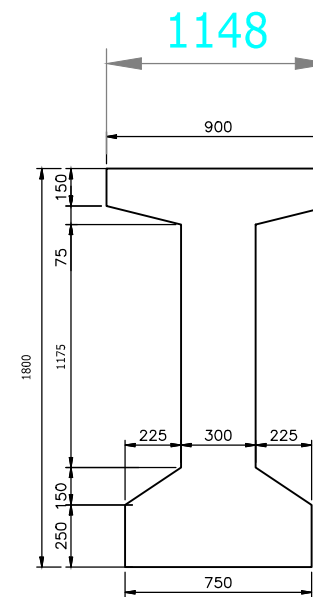


1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE MENTIONED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. DRAWING SHALL NOT BE SCALED.
2. THIS DRG. SHALL BE READ IN CONJUNCTION WITH OTHER DRGS.
3. GRADE OF CONCRETE:-
 - i). FOR R.C.C GIRDER - M35
 - ii). FOR R.C.C DECK - M35
 - iii). FOR PIER & ABUTMENT - M30
 - iv). FOR PILE & PILE CAP - M30

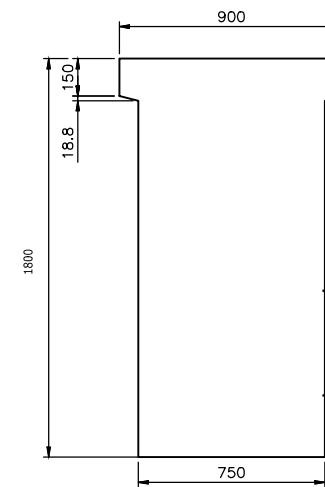
-: CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com	-: CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 	DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :- Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong Haflong Road In The State of Manipur on EPC Mode.	-:General Arrangement Drawing:- BRIDGE AT- 2+220 (1X25MNB) TAMENGLONG - DIALONG SECTION PKG-1
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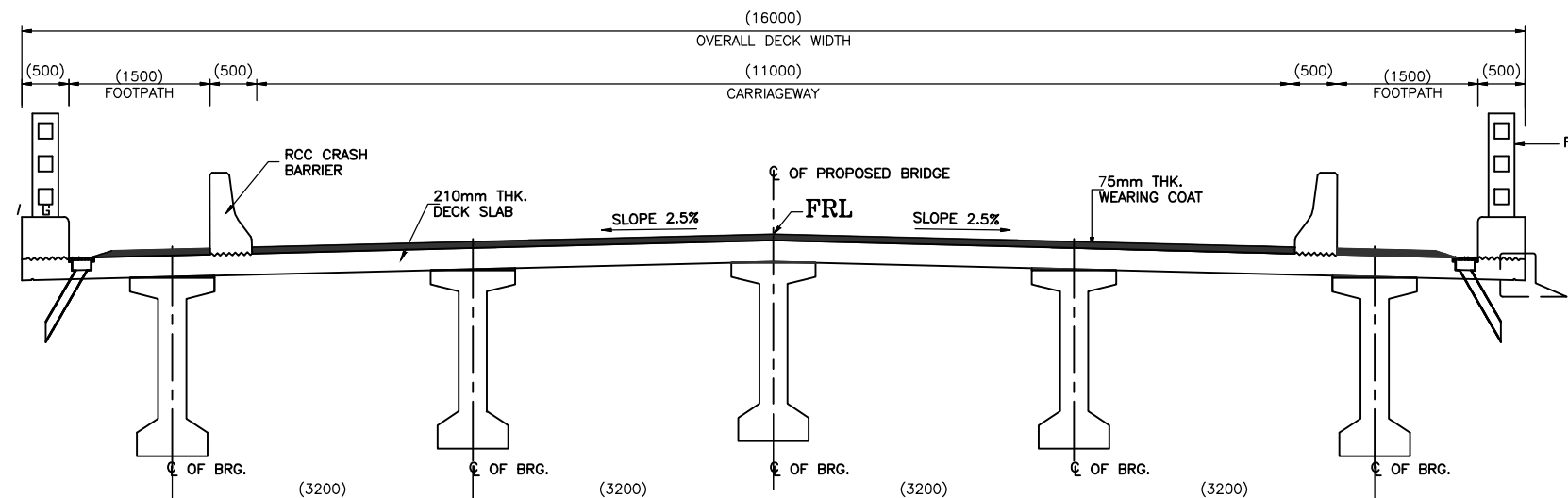
SECTION AT SUPPORT
(SCALE: 1:50)



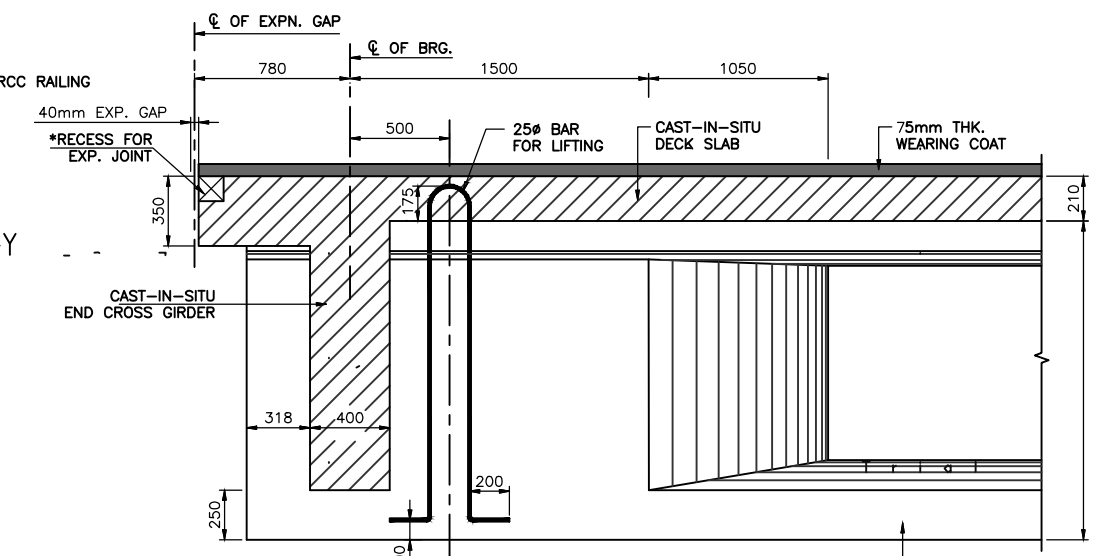
X-SECTION OF
MAIN GIRDER
NEAR MID SPAN
(SCALE: 1:20)



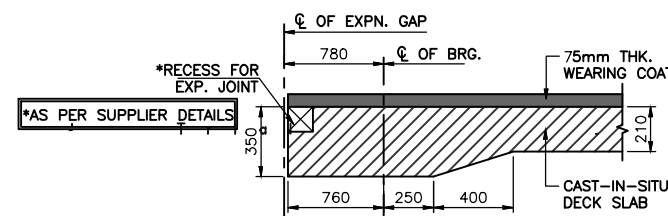
X-SECTION OF
MAIN GIRDER
NEAR SUPPORT
(SCALE: 1:20)



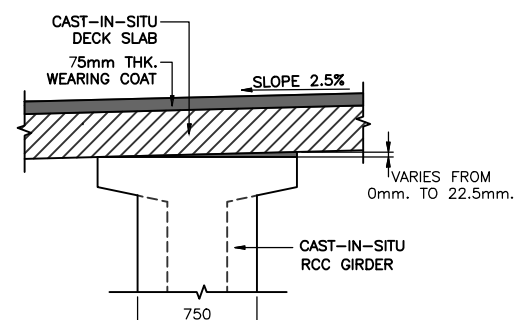
SECTION AT MID SPAN
(SCALE: 1:50)



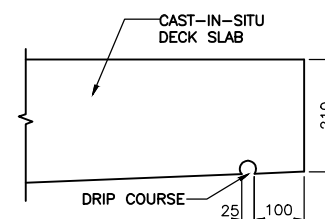
TYPICAL DETAILS SHOWING
LIFTING ARRANGEMENT
(SCALE: 1:25)



SECTION A-A
(SCALE: 1:25)



DETAIL - "X"
(SCALE: 1:25)



DETAIL - "Y"
(SCALE: 1:10)

GRADE OF CONCRETE FOR PRECAST RCC
GIRDER DECK SLAB & END DIAPHRAGM=M40

:- CONSULTANTS :-

:- CLIENT :-

DRG. NO. :

DESIGNED BY.

APPROVED BY.

:- PROJECT TITLE :-

:-General Arrangement Drawing:-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1,
M.P. NAGAR, ZONE-4, BHOPAL (M.P.)



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Mob. : 09826452711, 09977004686
E-mail : lninfra@rediffmail.com

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DEVELOPMENT CORPORATION LIMITED (NHIDCL)

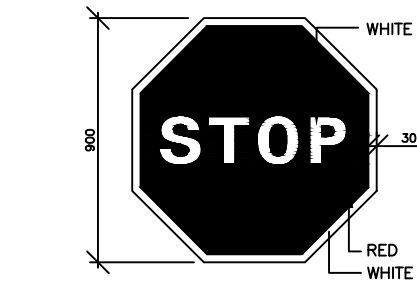


Consultancy Services for Preparation of Feasibility Study
and Detailed Project Report For Two lane With Paved
Shoulders of Tamenglong Haflong Road In The State of
Manipur on EPC Mode.

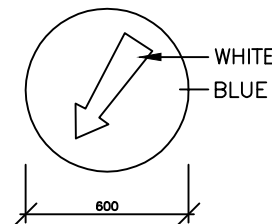
SUPERSTRUCTURE DETAIL

TAMENGLONG - DIALONG SECTION
PKG-1

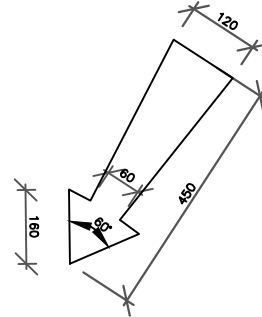
7. TRAFFIC SIGNS & MISC DRAWINGS



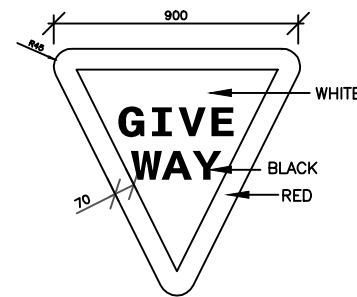
STOP
FOR CENTRAL ISLAND STOP SIGN
SIZE SHALL BE OF 600
[S-1]



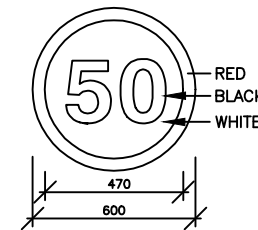
COMPULSORY
KEEP LEFT
[S-2]



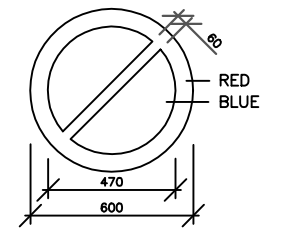
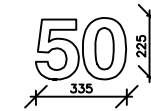
SCALE 1:100



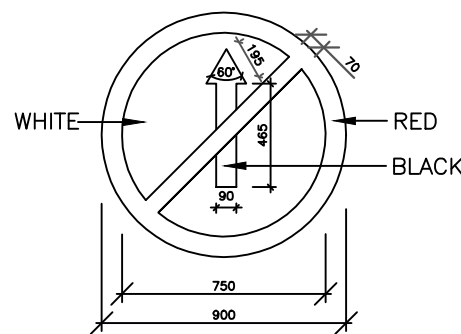
GIVE WAY
[S-3]



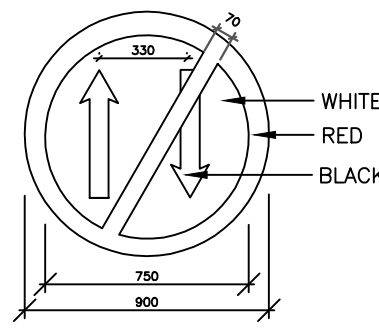
SPEED LIMIT
[S-4]



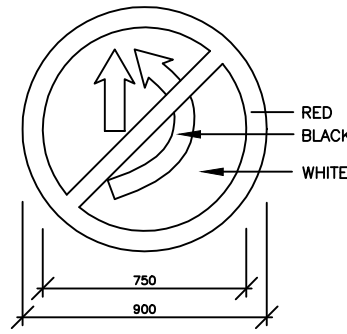
NO PARKING
[S-5]



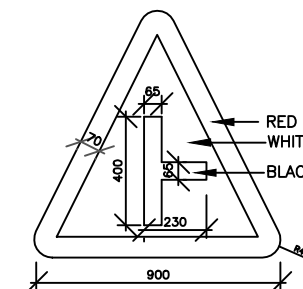
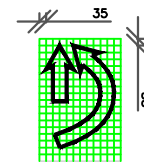
NO ENTRY
[S-6]



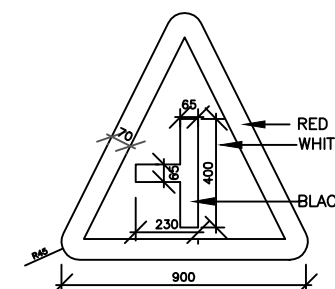
ONE WAY SIGN
[S-7]



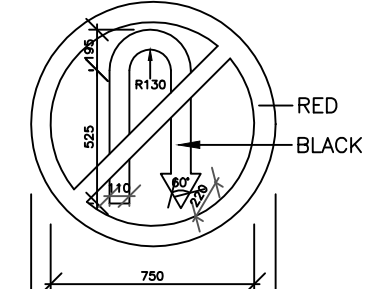
OVER TAKING PROHIBITED
[S-8]



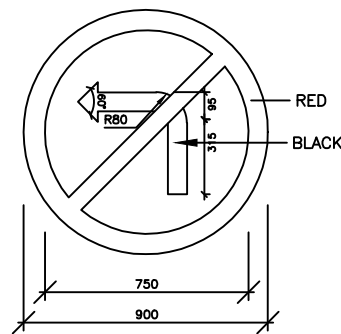
SIDEROAD (RIGHT)
[S-9]



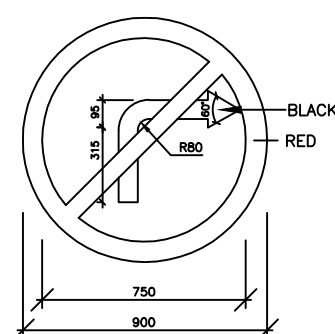
SIDEROAD (LEFT)
[S-9]



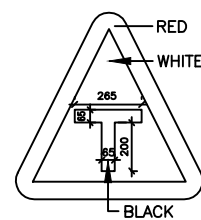
U - TURN PROHIBITED
[S-9A]



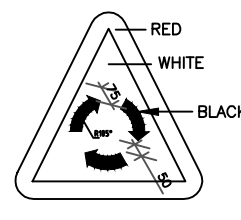
LEFT TURN PROHIBITED
[S-10]



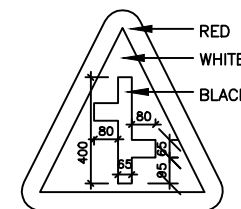
RIGHT TURN PROHIBITED
[S-10]



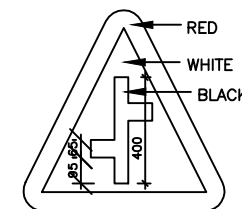
T - INTERSECTION
[S-11]



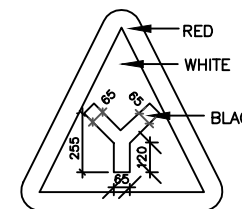
ROUND ABOUT
[S-12]



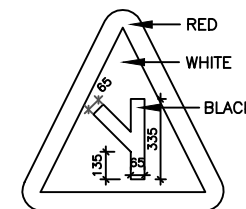
RIGHT



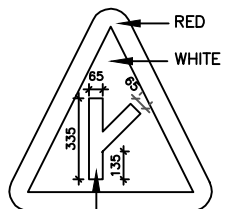
LEFT



'Y'



LEFT



RIGHT

STAGGERED INTERSECTIONS

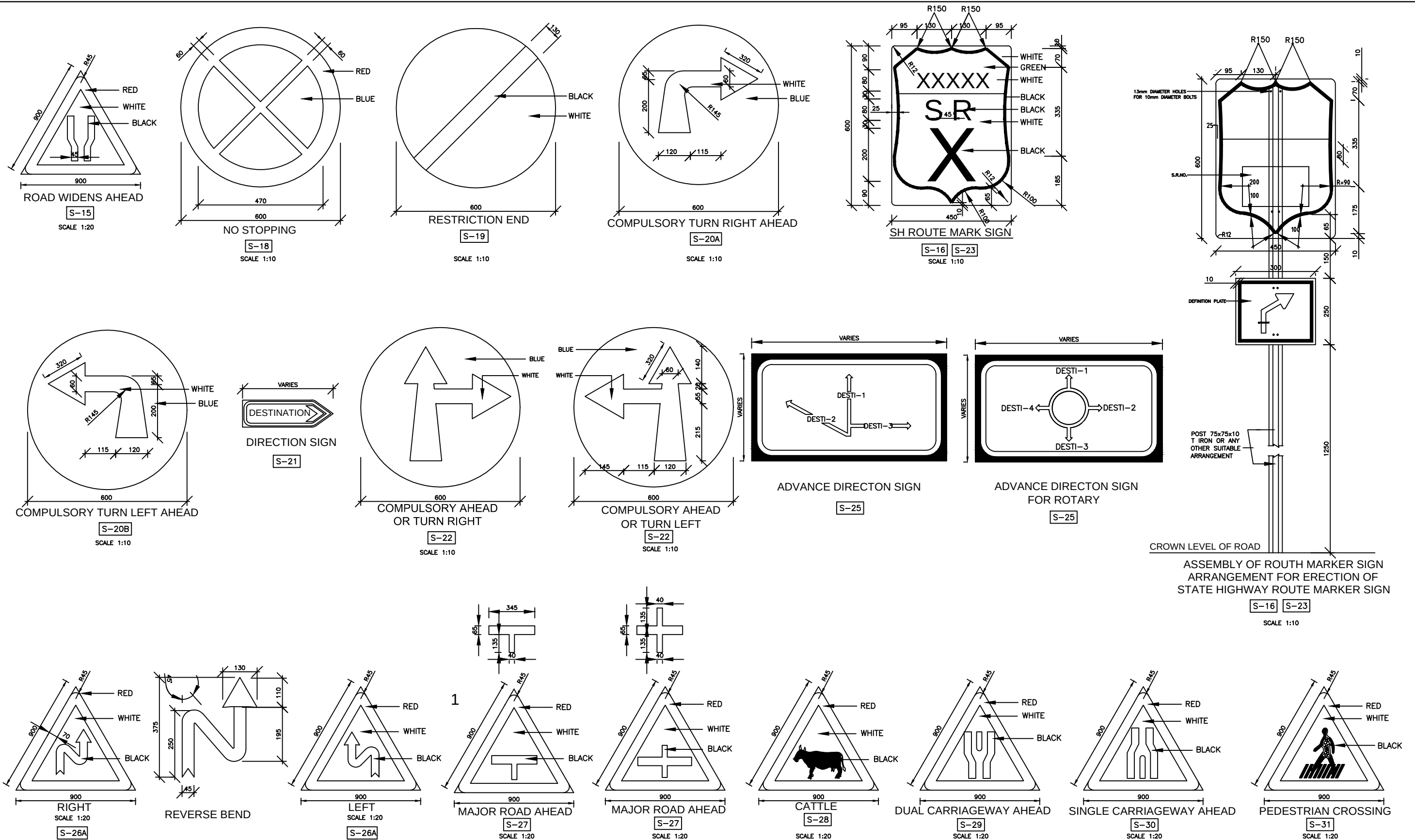
'Y' INTERSECTIONS

Notes :

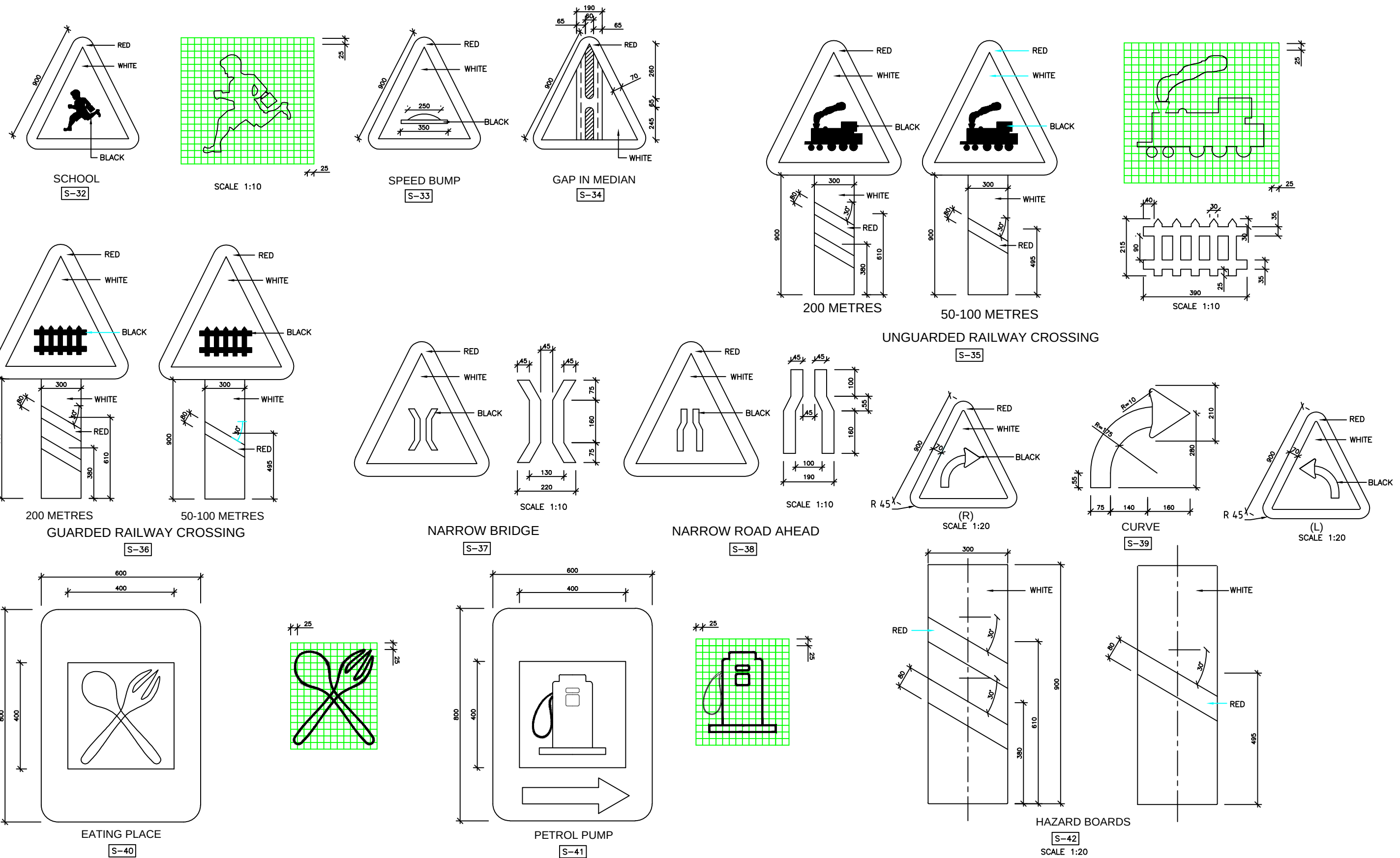
1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. RETROREFLECTORISED SHEETING SHALL BE CONFORMING TO ASTM D-4956-01, TYPE VIII OR TYPE IX.

3. SIGNS SHALL BE ERECTED AS PER DRAWING NO. ADB/MPDCSP/PH-II/P-ALL/05

-- CONSULTANTS --		-- CLIENT --		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-- PROJECT TITLE --	--TRAFFIC SIGNS--
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)		1			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1



-- CONSULTANTS --		-- CLIENT --		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-- PROJECT TITLE --	--TRAFFIC SIGNS--
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)		2			Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1

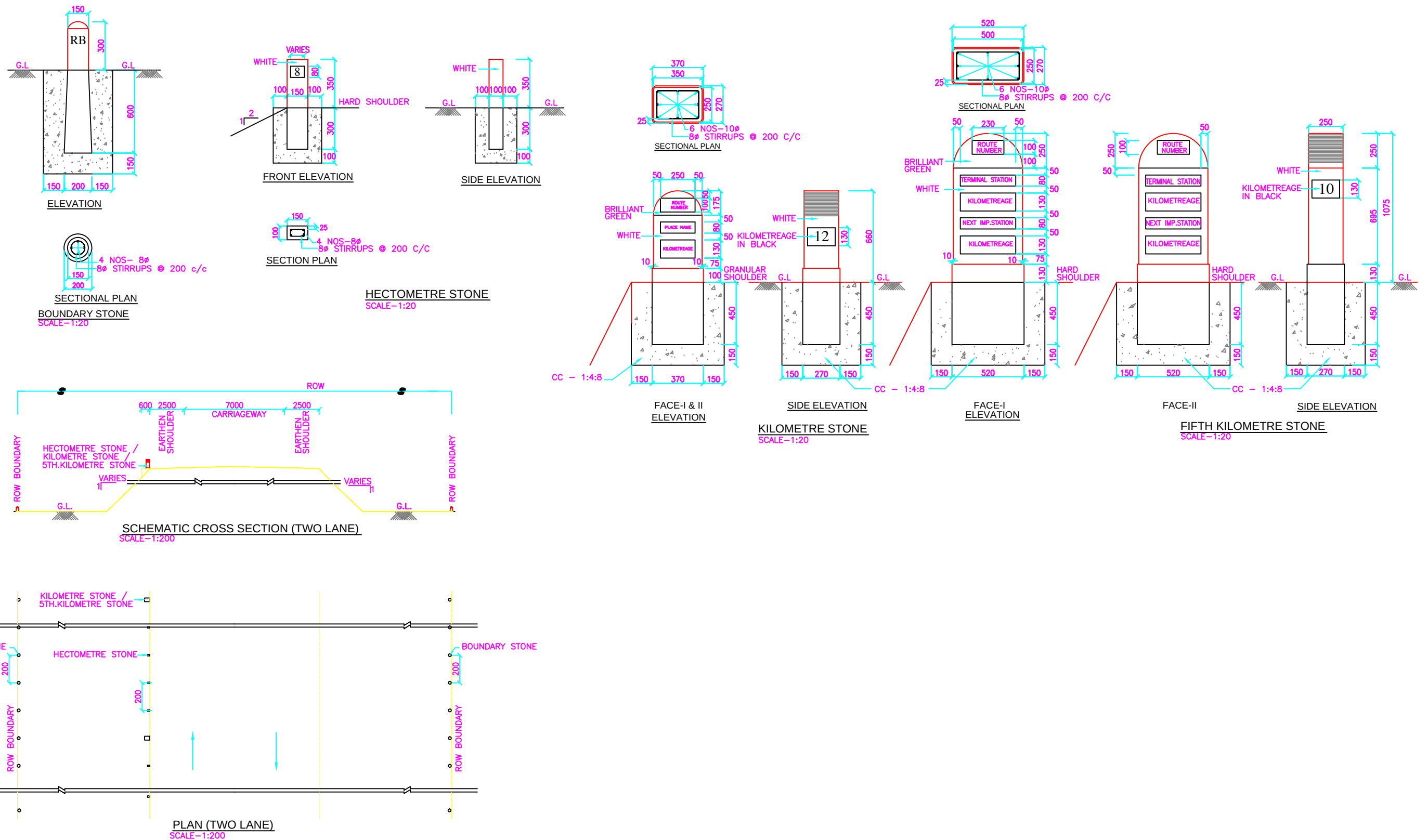


- Notes :**
1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
 2. RETROREFLECTORISED SHEETING SHALL BE CONFORMING TO ASTM D-4956-01, TYPE VIII OR TYPE IX.
 3. SIGNS SHALL BE ERECTED AS PER DRAWING NO. ADB/MPDCSP/PH-II/P-ALL/05

CONSULTANTS :-	CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	PROJECT TITLE :-	TRAFFIC SIGN :-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob. : 09826452711, 09977004686 E-mail : lninfraprojects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)	3			Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1



-: CONSULTANTS :-	-: CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-:TRAFFIC SIGNS:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 99826452711, 09977004686 E-mail : lninfraprojects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 	4			Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1



GENERAL NOTES :

- 1). ALL DIMENSIONS ARE IN MM, UNLESS OTHERWISE MENTIONED.
- 2). KILOMETRE STONE / HECTOMETRE STONE / FIFTH KILOMETRE STONE SHALL BE CONSTRUCTED IN RCC M:20 GRADE.
- 3). FOUNDATION OF KILOMETRE STONE / HECTOMETRE STONE / FIFTH KILOMETRE STONE SHALL BE IN PCC M:15 GRADE.
- 4). THE DISTANCE STONES SHALL BE PROVIDED ON LEFT SIDE OF THE ROAD AS SHOWN INDEPENDENT OF DIRECTION OF TRAFFIC FLOW.
- 5). ALL NUMERALS SHALL BE PAINTED BLACK.

- 6). SIZE OF LETTERS AND NUMERALS SHALL BE AS PER IRC: 8-1980.
- 7). STEEL REINFORCEMENT SHALL BE MILD STEEL Fe. 250.
- 8). NO PAINTING SHALL BE CARRIED OUT ON BOUNDARY STONES.
- 9). HECTOMETRE STONE SHALL BE PAINTED WHITE.
- 10). KILOMETRE STONE AND FIFTH KILOMETRE STONE SHALL BE PAINTED AS SHOWN.

:- CONSULTANTS :-

:- CLIENT :-

DRG. NO. :

DESIGNED BY.

APPROVED BY.

:- PROJECT TITLE :-

:- DISTANCE STONES :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfra@projects@gmail.com

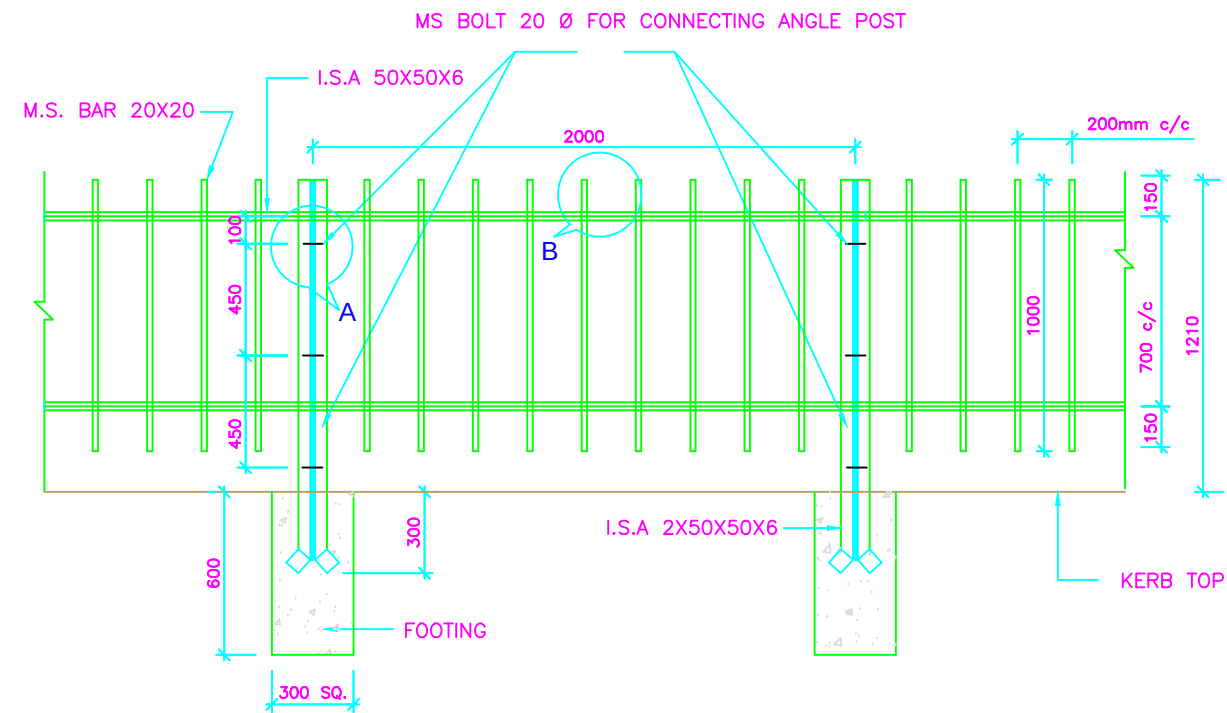
**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



6

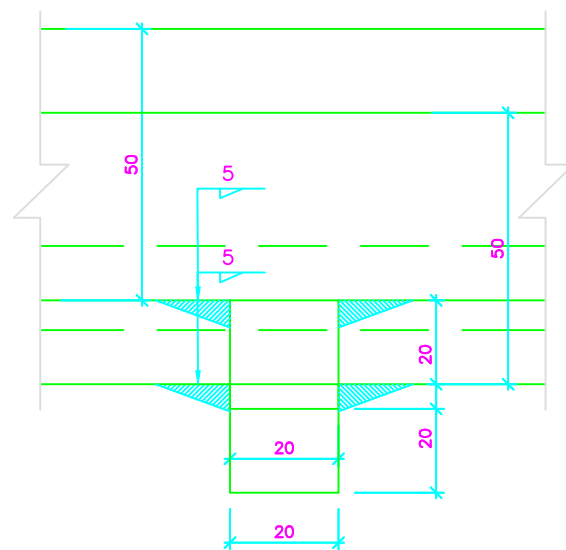
CConsultancy Services for Preparation of
Feasibility Study and Detailed Project Report For
Two lane With Paved Shoulders of Tamenglong
- Haflong Road In The State of Manipur on EPC
Mode.

**TAMENGLONG - DIALONG SECTION
PKG-1**



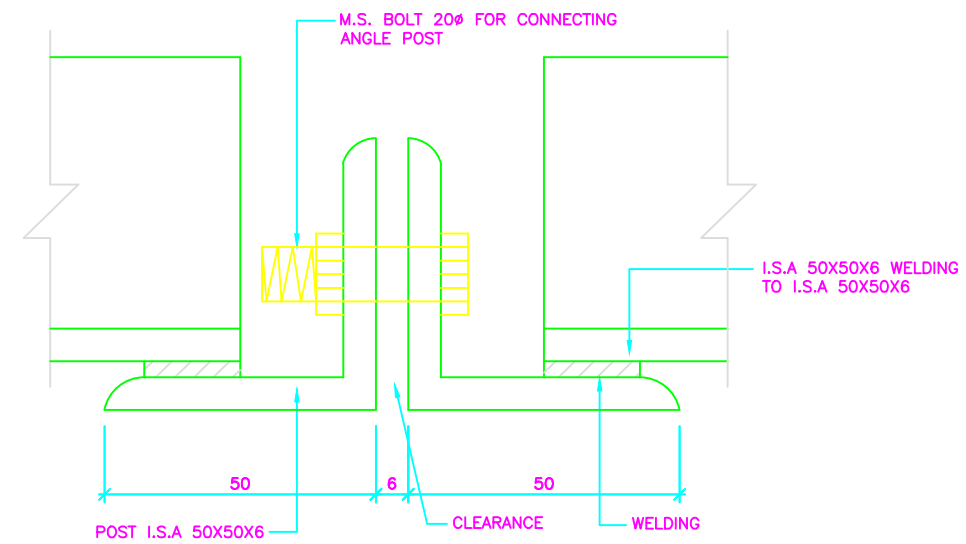
PEDASTRIAN GUARD RAIL

(SCALE 1:20)



DETAIL - B

(SCALE 1:1)

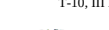


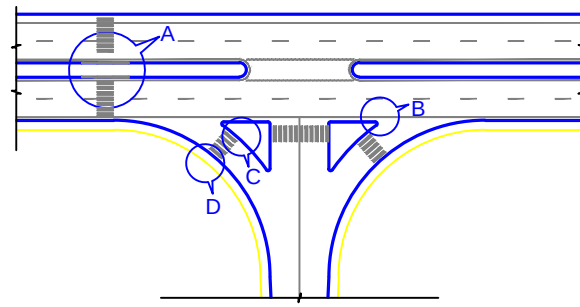
DETAIL - A

(SCALE 1:1)

NOTE:-

1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. FOOTING SHALL BE IN PLAN CEMENT CONCRETE OF M15 GRADE.
3. HIGH STRENGTH BOLT SHALL CONFORM TO IS:4000-1992
4. 5mm WELD SHALL BE MADE WITH SINGLE PASS.
5. WELDING SHALL BE DONE BY ARC WELDING.
6. ELECTRODE USED SHALL CONFORM TO RELEVANT IS SPECIFICATIONS. & THE CHEMICAL COMPOSITION OF ELECTRODE & THE MS BAR SHOULD MATCH.
7. SLAG SHALL BE REMOVED BEFORE MEASURING THE DIMENSIONS OF FILLET WELD.
8. STRUCTURAL STEEL SHALL CONFORM TO IS: 1977-1996
9. SHADE OF ANTI CORROSIVE PAINT SHALL BE DECIDED BY ENGINEER-IN-CHARGE.
10. POST ENDS IN CONCRETE FOOTING SHALL BE BENDED TO SERVE THE PURPOSE OF HOLD FAST.

CLIENT :- -: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-: GUARED RAIL :-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 		7			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1



PLAN OF TYPICAL INTERSECTION ON MULTI-LANE CARRIAGEWAY

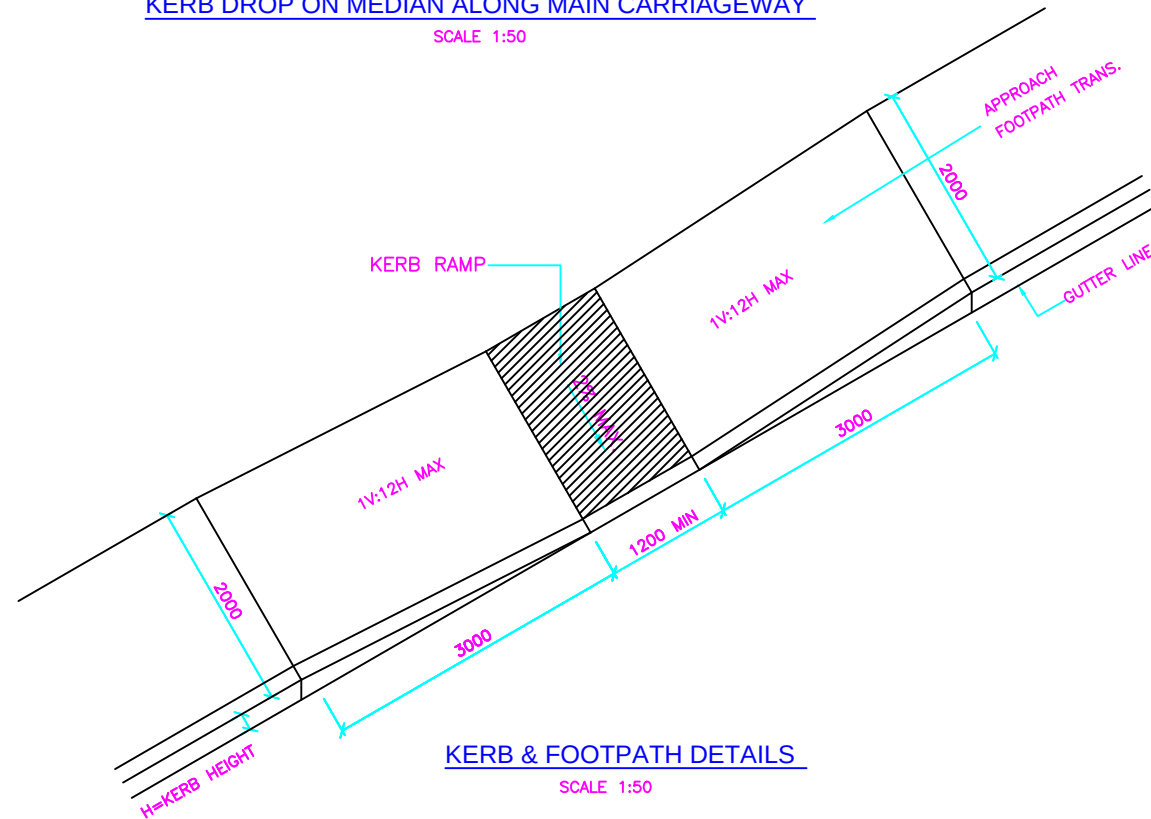
N.T.S.



DETAIL A

KERB DROP ON MEDIAN ALONG MAIN CARRIAGEWAY

SCALE 1:50

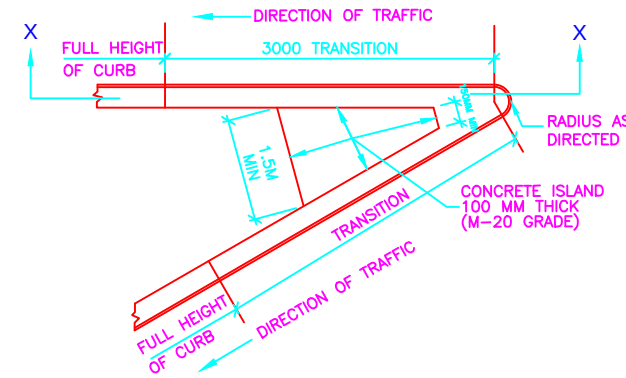


KERB & FOOTPATH DETAILS

SCALE 1:50

NOTES:

1. THIS DETAIL SHALL BE USED ONLY WHEN THE POSTED SPEED LIMIT DOES NOT EXCEED 60km/hr OR THE TERMINAL IS BEYOND THE CLEAR ZONE

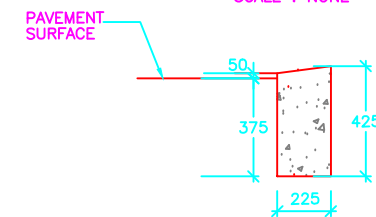


SECTION X-X

DETAIL B

KERB TRANSITION ON ISLANDS

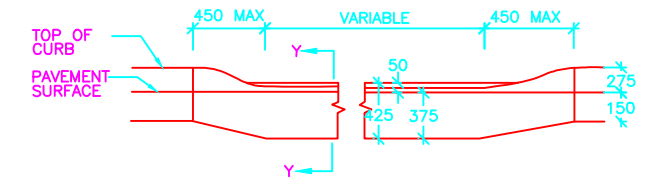
SCALE : NONE



DETAIL C

METHOD OF DEPRESSING CURBS ON ISLANDS

N.T.S.

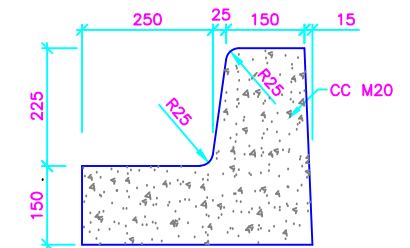


SECTION Y-Y

DETAIL C

METHOD OF DEPRESSING CURBS ON ISLANDS

SCALE : NONE



KERB DETAILS

SCALE : 1:10

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. CONCRETE GRADE SHALL BE M-20 UNLESS OTHERWISE SPECIFIED.

-: CONSULTANTS :-

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-: CLIENT :-

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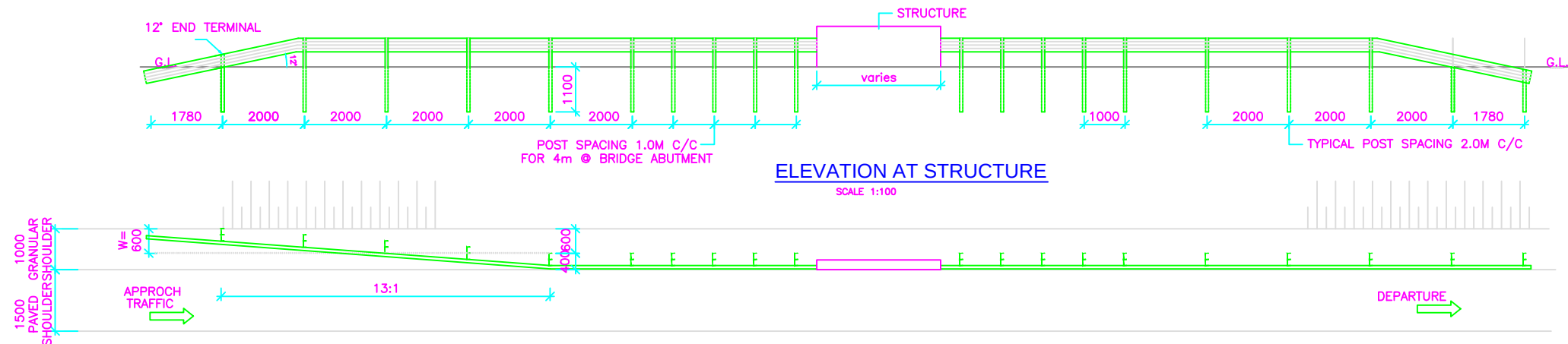
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-: PROJECT TITLE :-

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- Haflong Road In The State of Manipur on EPC
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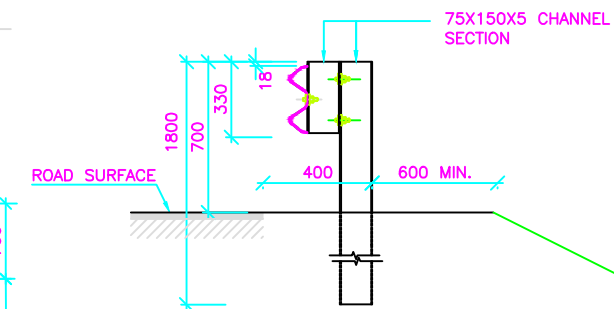
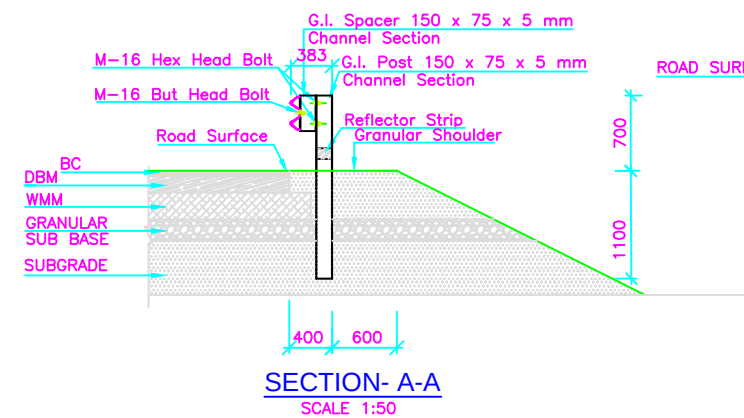
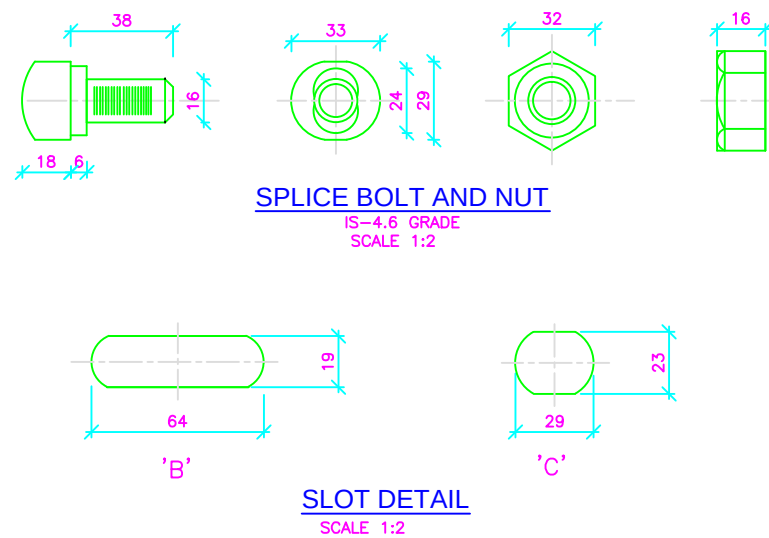
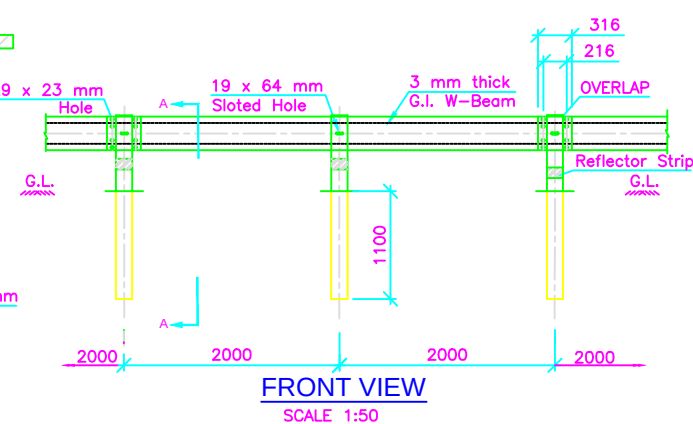
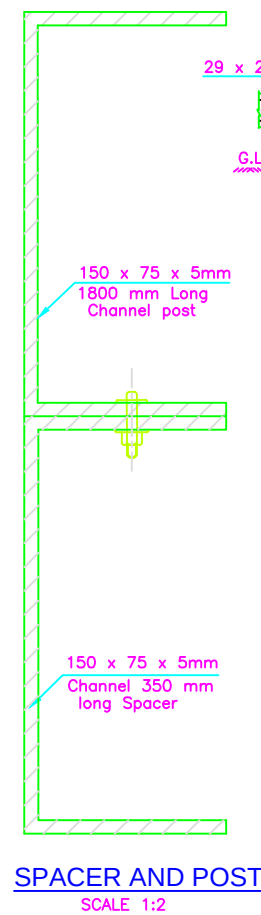
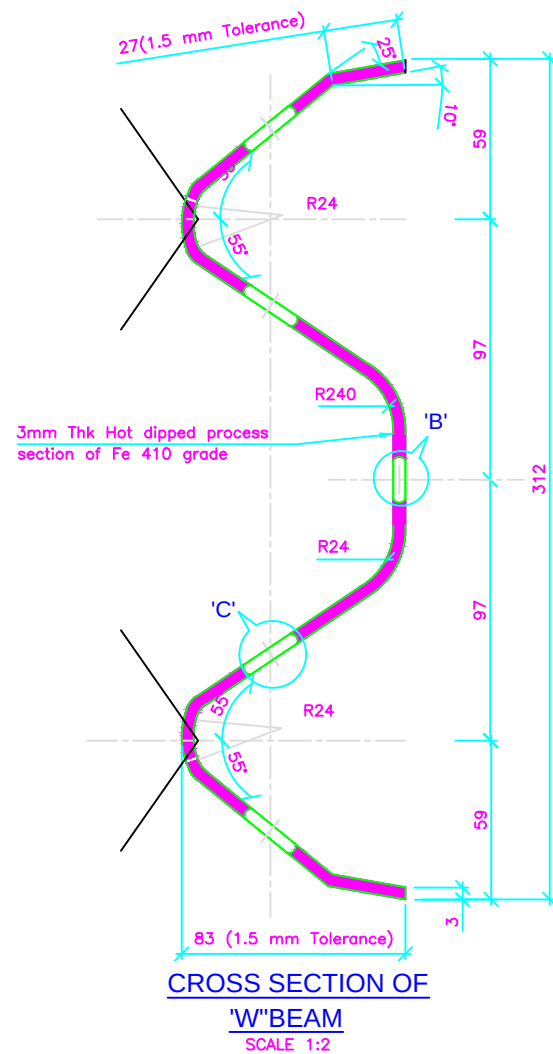
-:KERB & ISLANDS:-

TAMENGLONG - DIALONG SECTION
PKG-1

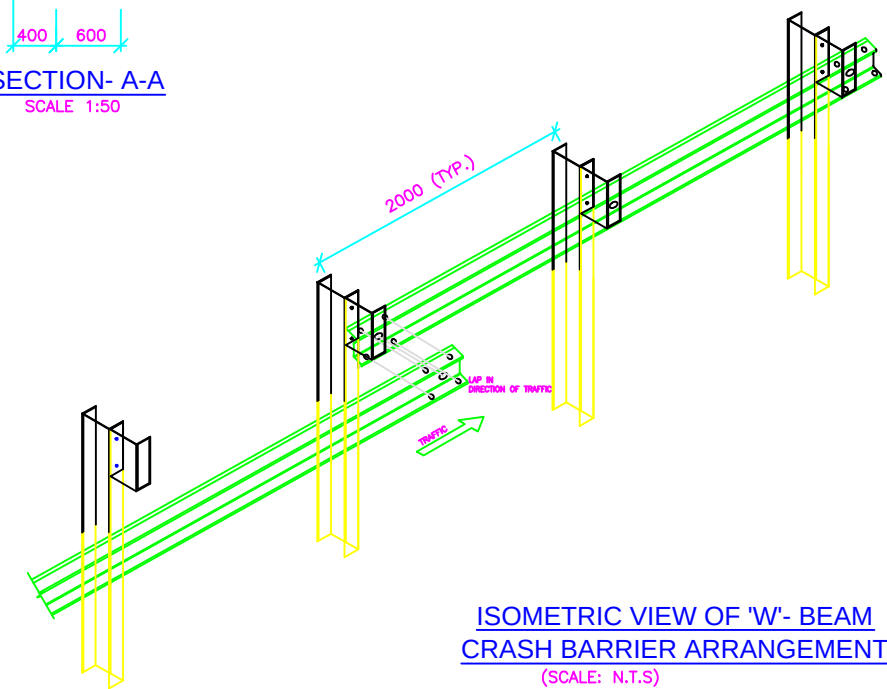


SUGGESTED FLARE RATES FOR END TREATMENTS	
DESIGN SPEED (km/hr)	SEMI RIGID
100	13:1
80	11:1
65	9:1
50	7:1

PLAN AT STRUCTURE
SCALE 1:100



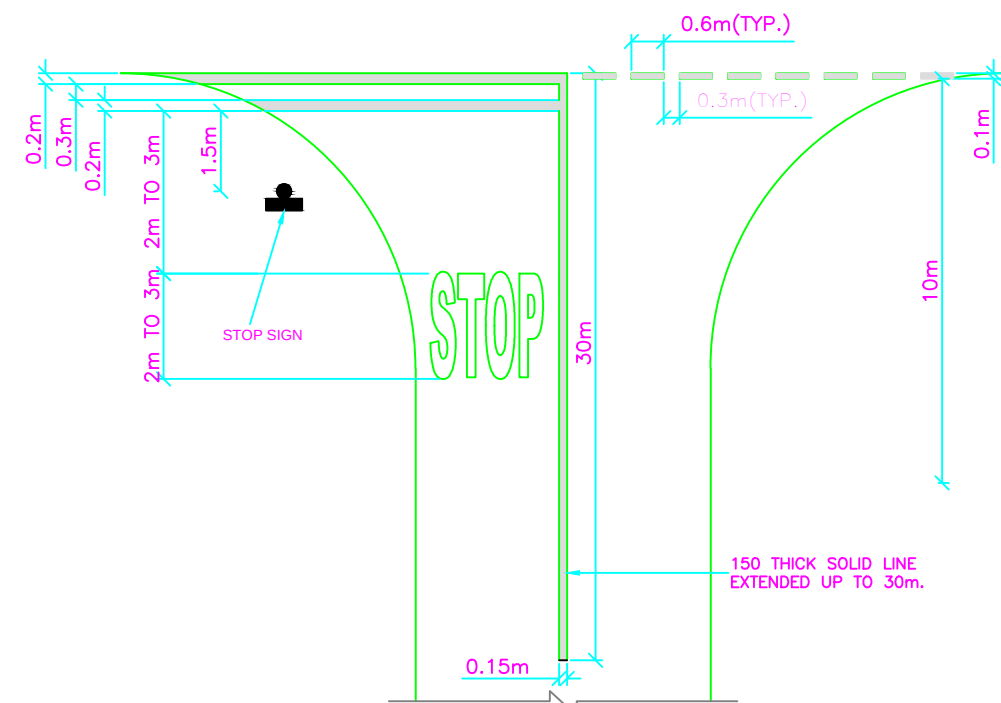
TYPICAL DETAILS OF "W" BEAM SECTION



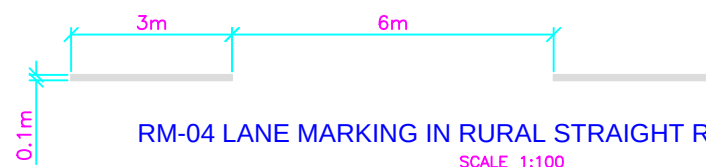
Notes :

- ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- CORRUGATED METAL BEAM SHALL BE 3MM THICK.
- W-BEAM SHALL BE COLD ROLL FORMED SECTION.
- ALL RAW MATERIAL SHALL CONFORM TO IS 5986 (Gr.Fe 410:ST-42) HOT DIP GALVANISED TO 550 gm/Sqm.
- SPACERS SHALL BE AS PER IS :2062-1992
- EVERY CHANNEL POST SHALL BE 2M C/C APART EXCEPT STRUCTURE LOCATIONS.
- THE ENDS OF FASTNERS ARE TO BE FLARED BY PNEUMATIC OPERATION TO ENSURE THAT THE BOLTS ARE NOT REMOVABLE

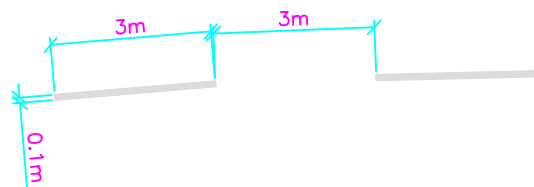
-: CONSULTANTS :-		-: CLIENT :-		DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-:MB CRASH BARRIER:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)		9			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1



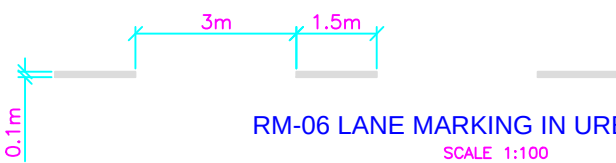
RM-01 STOP LINE
SCALE 1:100



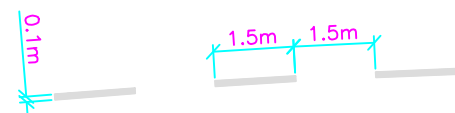
RM-04 LANE MARKING IN RURAL STRAIGHT REACHES
SCALE 1:100



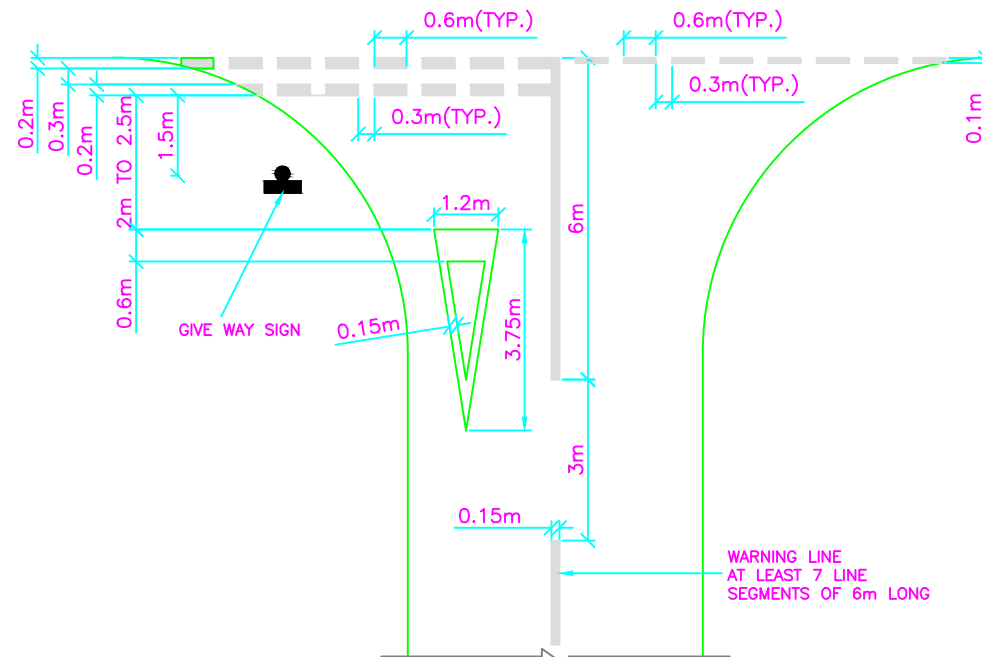
RM-05 LANE MARKING ON CURVES IN RURAL AREA
SCALE 1:100



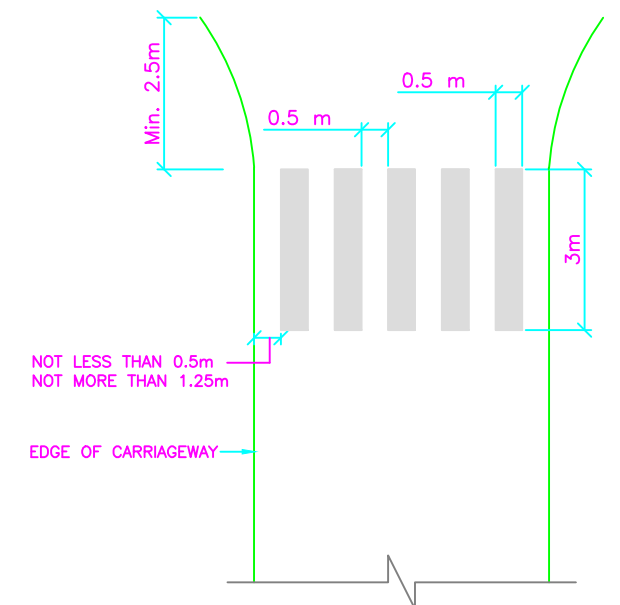
RM-06 LANE MARKING IN URBAN STRAIGHT REACHES
SCALE 1:100



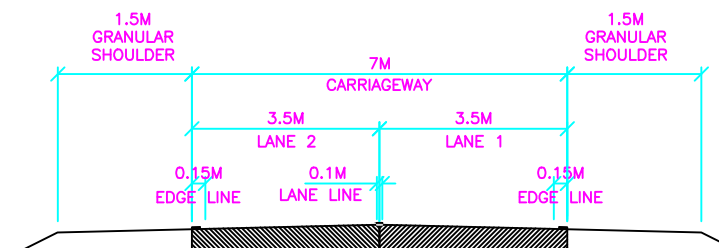
RM-07 LANE MARKING ON CURVES IN URBAN AREA
SCALE 1:100



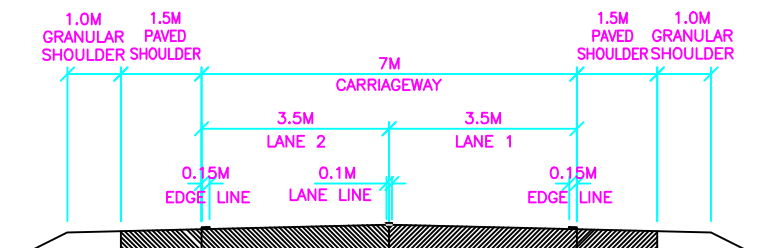
RM-02 GIVEWAY LINE
SCALE 1:100



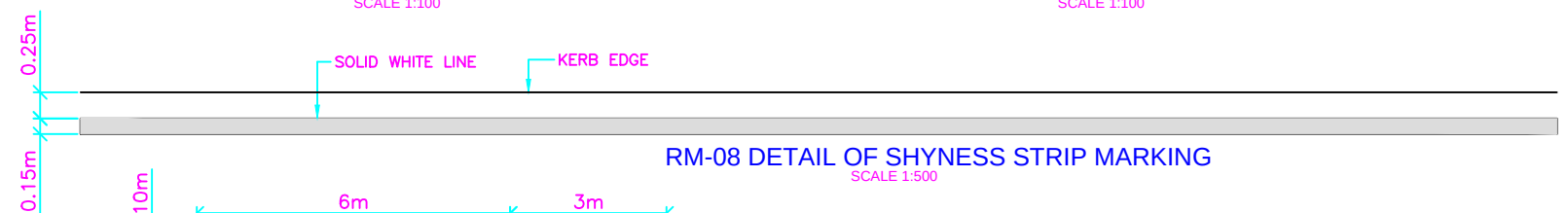
RM-03 PEDESTRIAN CROSSING MARKING
SCALE 1:100



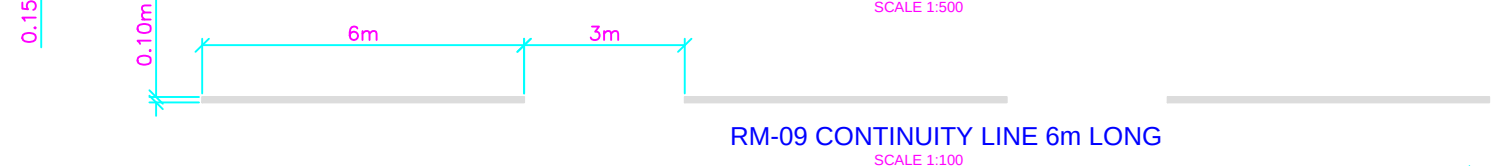
TYPICAL LAYOUT OF ROAD MARKING FOR TWO LANE
SCALE 1:100



TYPICAL LAYOUT OF ROAD MARKING FOR TWO LANE WITH PSS
SCALE 1:100



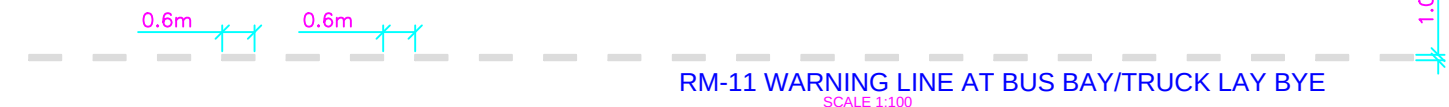
RM-08 DETAIL OF SHYNESS STRIP MARKING
SCALE 1:500



RM-09 CONTINUITY LINE 6m LONG
SCALE 1:100



RM-10 CONTINUITY LINE 0.6m LONG
SCALE 1:100



RM-11 WARNING LINE AT BUS BAY/TRUCK LAY BYE
SCALE 1:100

GENERAL NOTES :

1. ROAD MARKING SHALL BE OF HOT APPLIED THERMOPLASTIC MATERIALS WITH GLASS REFLECTORISING BEADS OF TYPE 2 AS PER CLAUSES OF SECTION 803 OF MOSRTH SPECIFICATIONS.

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:- CLIENT :-

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10

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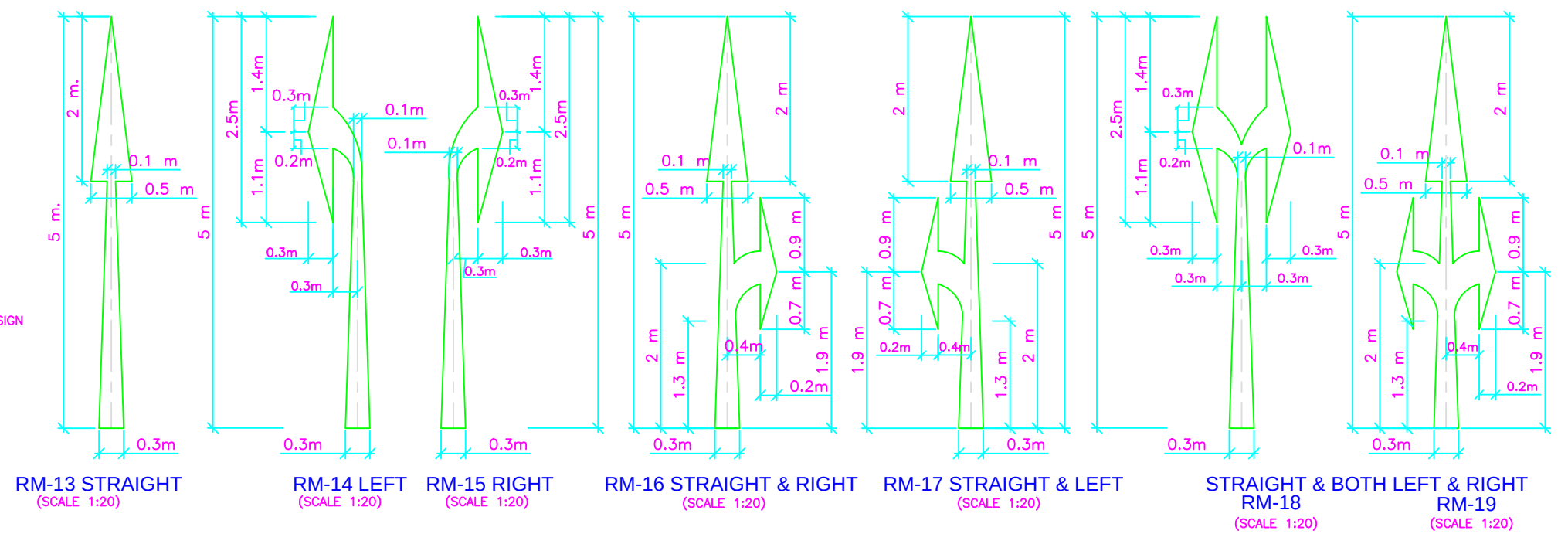
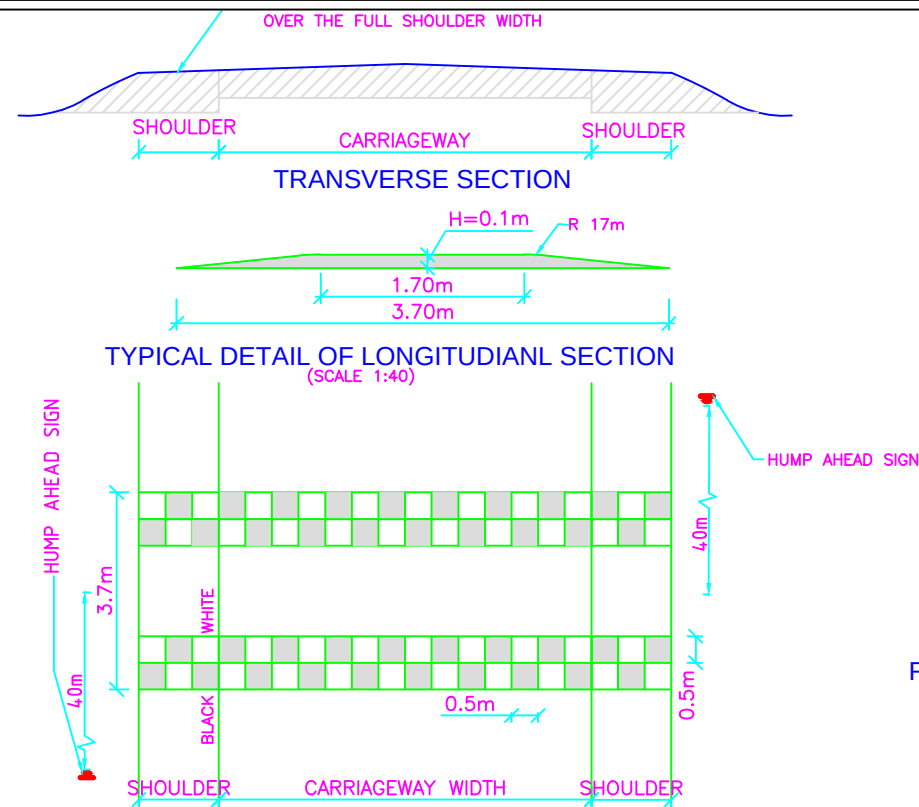
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- Haflong Road In The State of Manipur on EPC
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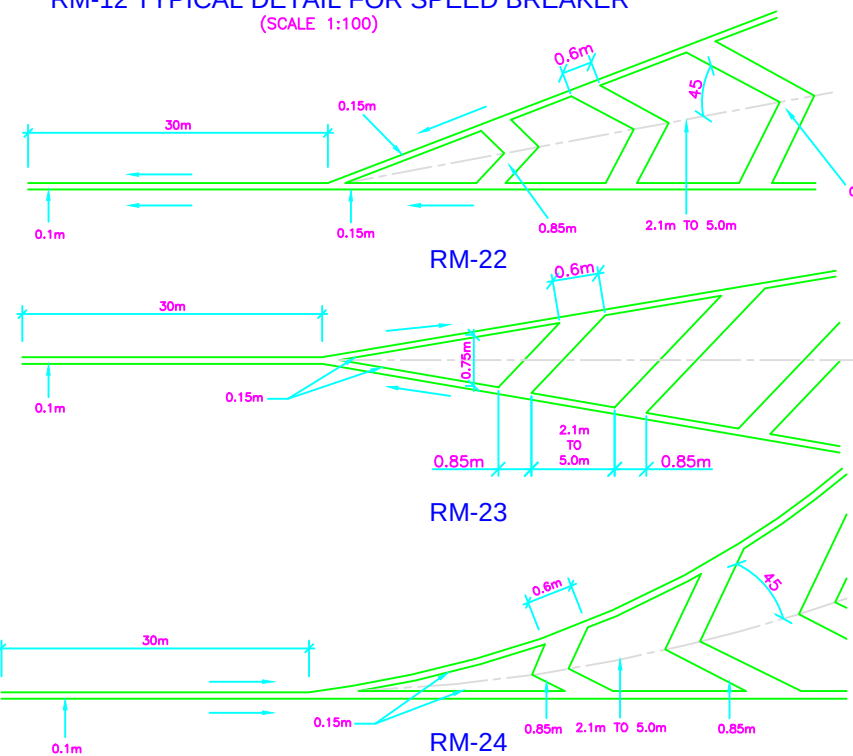
:-LANE MARKING:-

**TAMENGLONG - DIALONG SECTION
PKG-1**

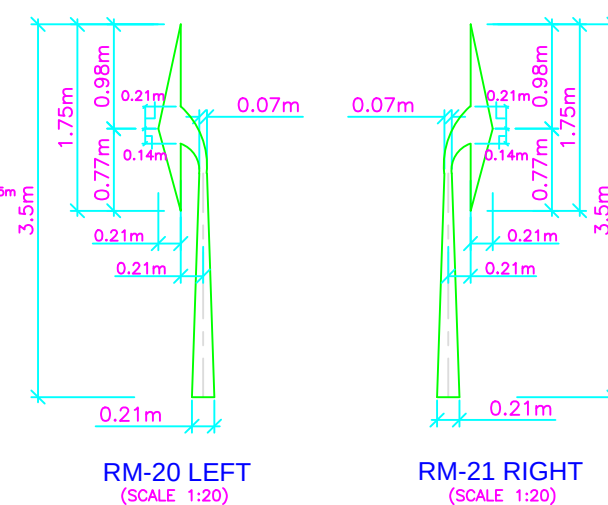


ARROW MARKING FOR ROUTE DIRECTION

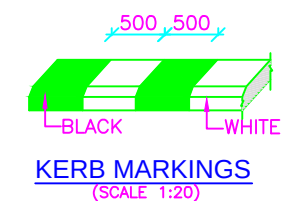
RM-12 TYPICAL DETAIL FOR SPEED BREAKER (SCALE 1:100)



DETAILS OF DIAGONAL AND CHEVRON MARKING



DIAGONAL MARKING IN ADVANCE OF DIRECTIONAL ISLAND (SCALE 1:200)



GENERAL NOTES :

1. ROAD MARKING SHALL BE OF HOT APPLIED THERMOPLASTIC MATERIALS WITH GLASS REFLECTORISING BEADS OF TYPE 2 AS PER CLAUSES OF SECTION 803 OF MOSRTH SPECIFICATIONS.

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L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com		NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 		11			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1

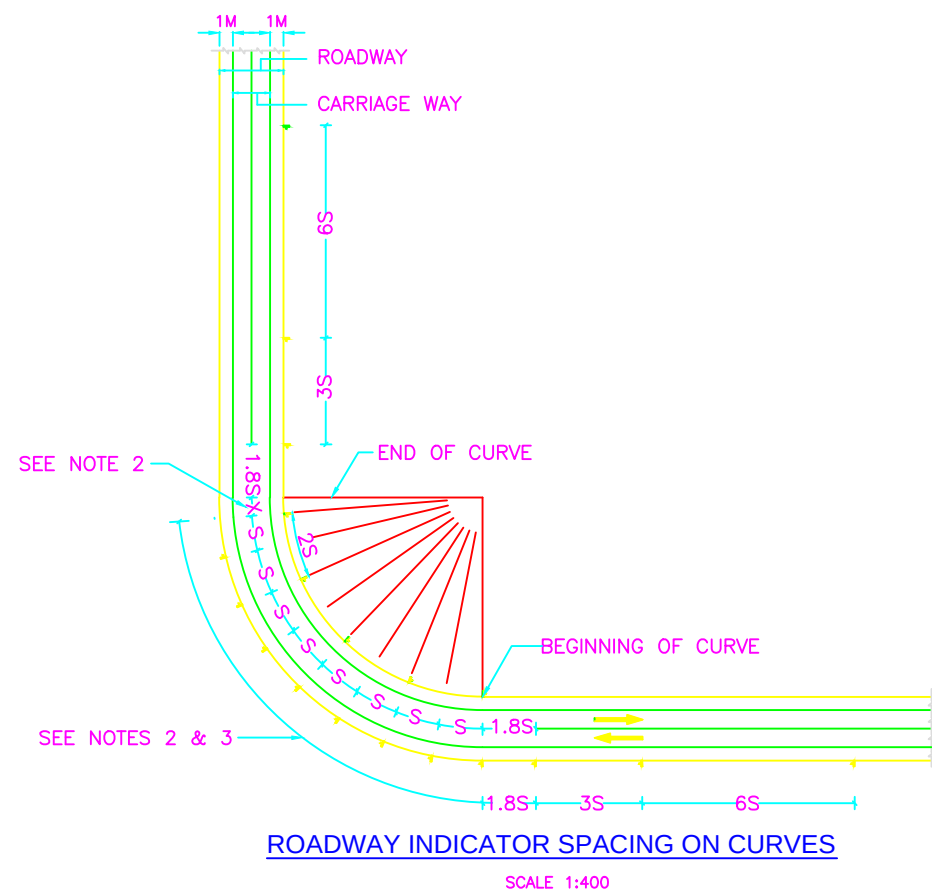
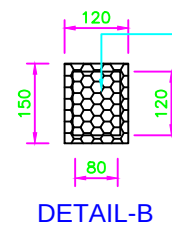
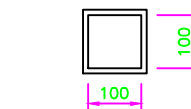


TABLE FOR RECOMMENDED SPACING FOR ROADWAY
DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (METERS)	SPACING ON CURVE, S (METERS)
300	25
400	30
500	35
600	38
700	42
800	45
900	48
1000	50



RETRO-REFLECTORISED
SHEETING IN ALTERNATE RED
AND WHITE BANDS OF 40 MM



SECTION A-A

RETRO-REFLECTORISED SHEETING IN
ALTERNATE RED AND WHITE BANDS OF 40 MM
3MM THICK WIRE MESH

WHITE
BLACK

CARRIAGEWAY

EARTHEN SHOULDER

1000

FOUNDATION IN M15

700

600

100

100 100 100

DETAILS OF INDICATOR

SCALE 1:10

2H:1V

Notes :

1. ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
2. ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
3. INSTALL ALL DELINEATORS PERPENDICULAR TO THE ONCOMING TRAFFIC.
4. SEE TABLE FOR VALUE OF 'S' i.e. SPACING OF DELINEATORS ON THE CURVE.
5. THE SPACING OF FIRST, SECOND & THIRD DELINEATORS ON THE APPROACHES SHALL BE 1.85S, 3S & 6S RESPECTIVELY BUT NOT EXCEEDING 50m.

6. INDICATORS SHALL BE DIE CAST IN ALUMINUM, RESISTANT TO CORROSIVE EFFECT OF SILT AND GRIT, FITTED WITH LENS REFLECTORS.
7. STEEL REINFORCEMENT SHALL BE OF HYSD Fe 415 GRADE.

-: CONSULTANTS :-

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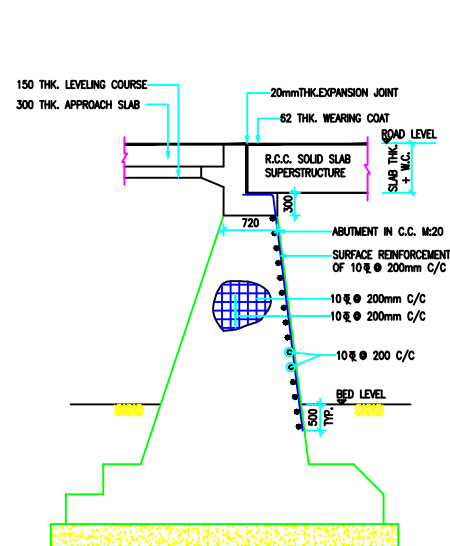
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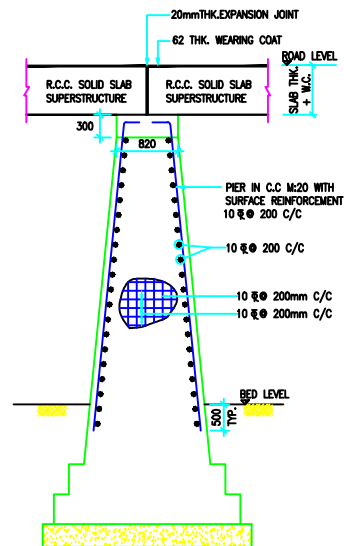
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Mode.

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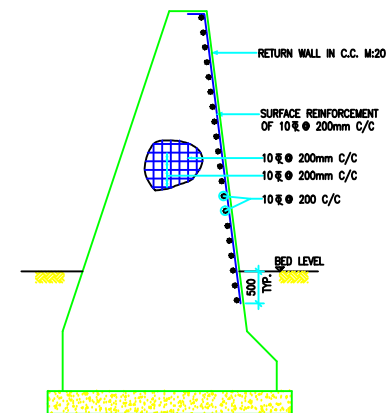
TAMENGLONG - DIALONG SECTION
PKG-1



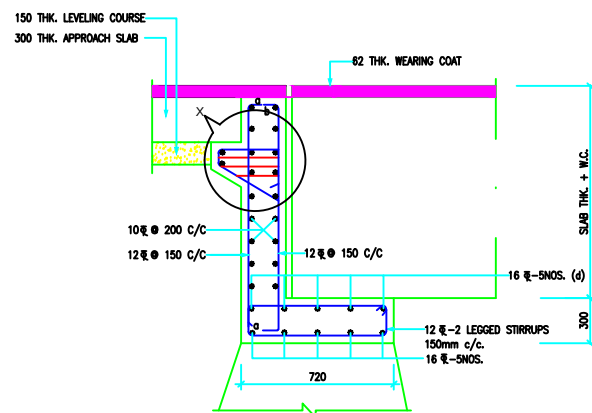
REINFORCEMENT DETAILS
OF P.C.C. ABUTMENT



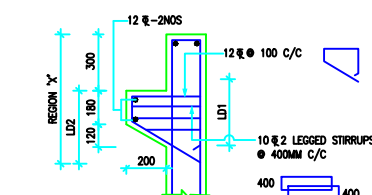
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OF P.C.C. PIER



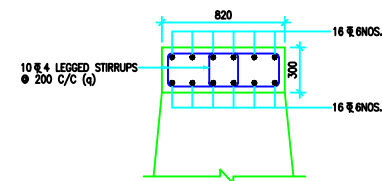
REINFORCEMENT DETAILS
OF P.C.C. RETURN WALL



REINFORCEMENT DETAIL OF
ABUTMENT CAP & DIRT WALL
FOR P.C.C. ABUTMENT



DETAILS AT 'X'
LD1 = BOND LENGTH FOR BRACKET REINFORCEMENT
LD2 = BOND LENGTH FOR BALLAST WALL REINFORCEMENT



REINFORCEMENT
DETAIL OF PIER CAP

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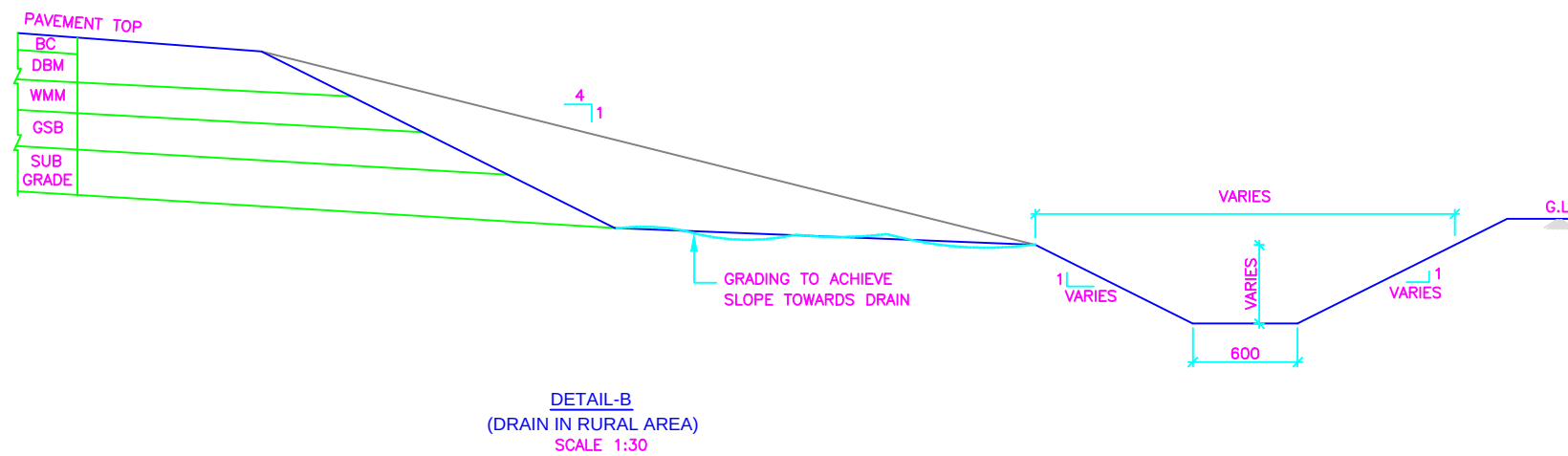
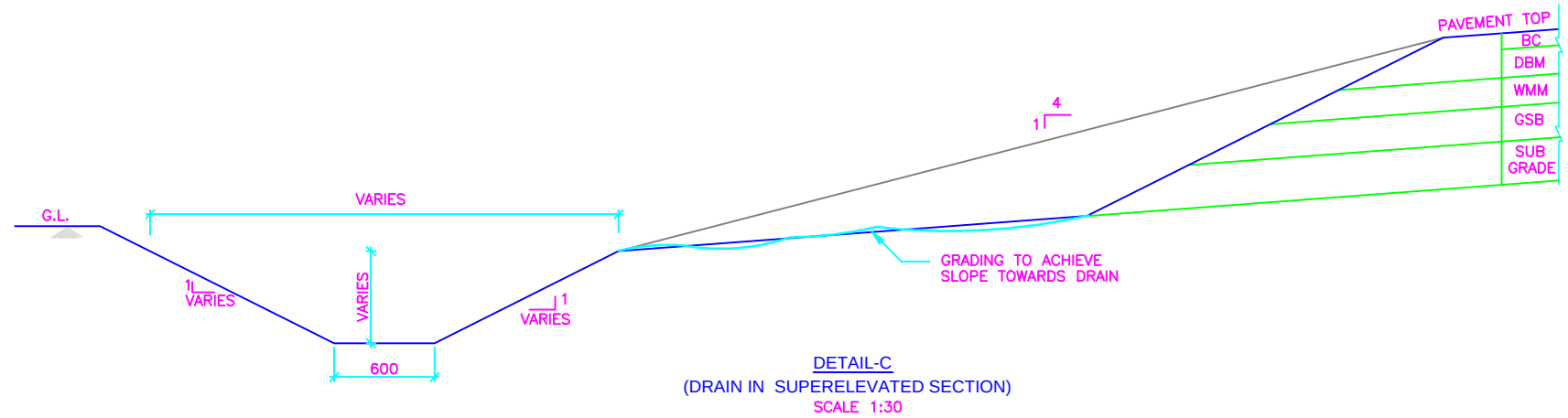
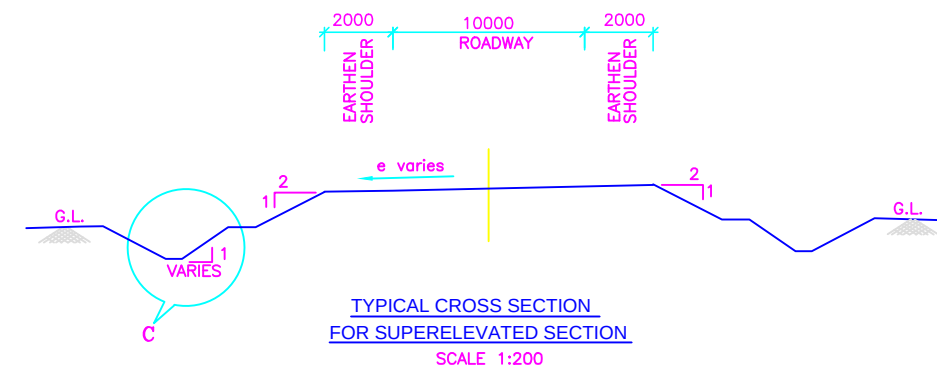
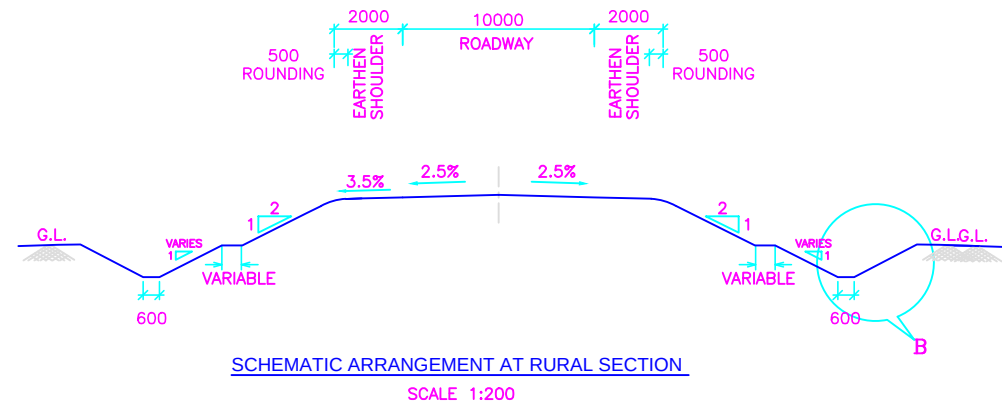
APPROVED BY.

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- Haflong Road In The State of Manipur on EPC
Mode.

-: Typ. Details Temperature Reinf. :-

**TAMENGLONG - DIALONG SECTION
PKG-1**



CONSTRUCTION NOTES :

- 1). MEDIAN CUTS SHALL BE PROVIDED AT 15M C/C.
- 2). FOUNDATION OF LINED DRAIN SHALL BE CAST IN PCC OF CONCRETE GRADE M15.
- 3). BASE AND SIDE WALLS OF LINED DRAIN AND CATCH PIT SHALL BE CAST IN M20 GRADE.
- 4). CATCHPIT TO BE PROVIDED AT DESIGNATED LOCATION OF OUTFALL.
- 5). SITE SPECIFIC ADJUSTMENTS TO BE MADE IN HILLY TERRAINS. CONCRETE LINED DRAIN SHOULD BE PROVIDED IN PLACE OF EARTHEN DRAIN

--: CONSULTANTS :-

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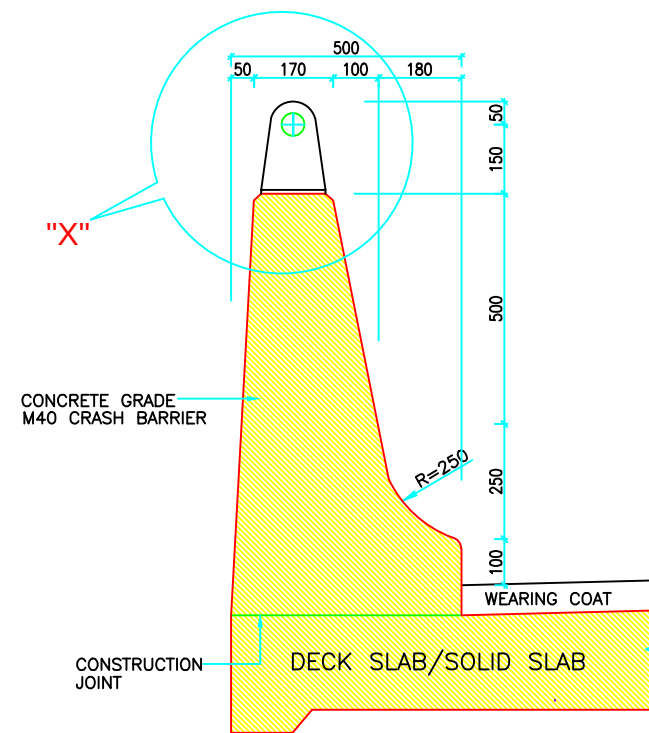
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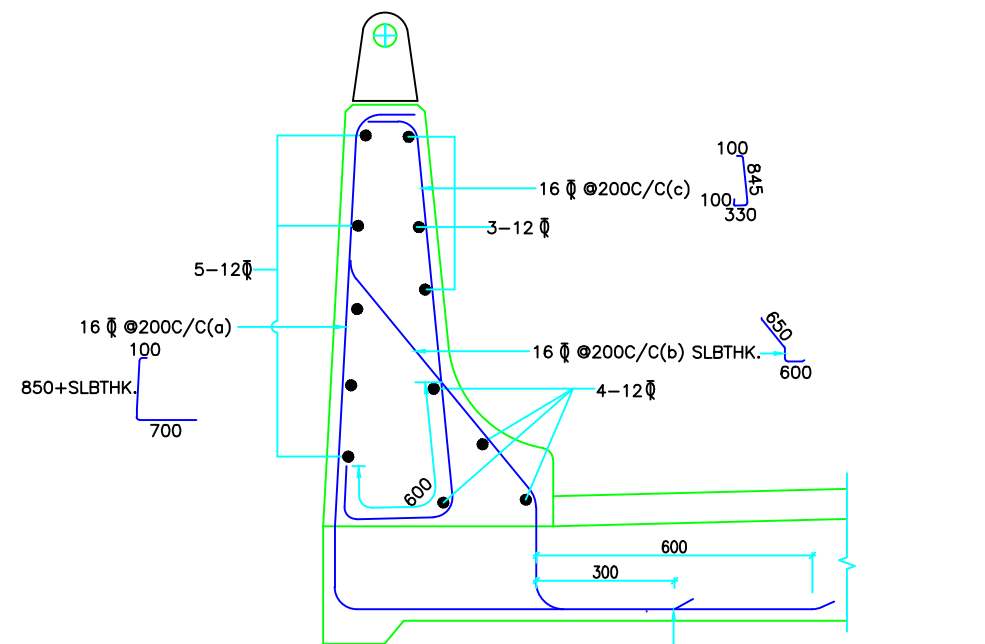
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Feasibility Study and Detailed Project Report For
Two lane With Paved Shoulders of Tamenglong
- Haflong Road In The State of Manipur on EPC
Mode.

--: EARTHEN DRAIN DRAWING :-

**TAMENGLONG - DIALONG SECTION
PKG-1**

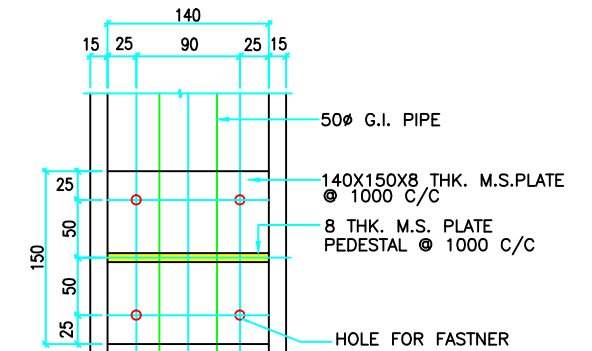


SECTION FOR
CRASH BARRIER
(DIMENSIONS ONLY)

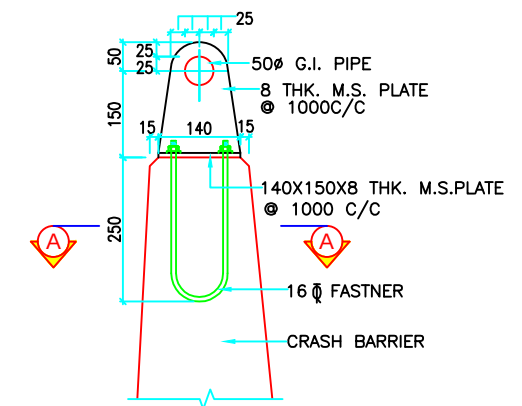


SECTION FOR
CRASH BARRIER
(REINFORCEMENT ONLY)

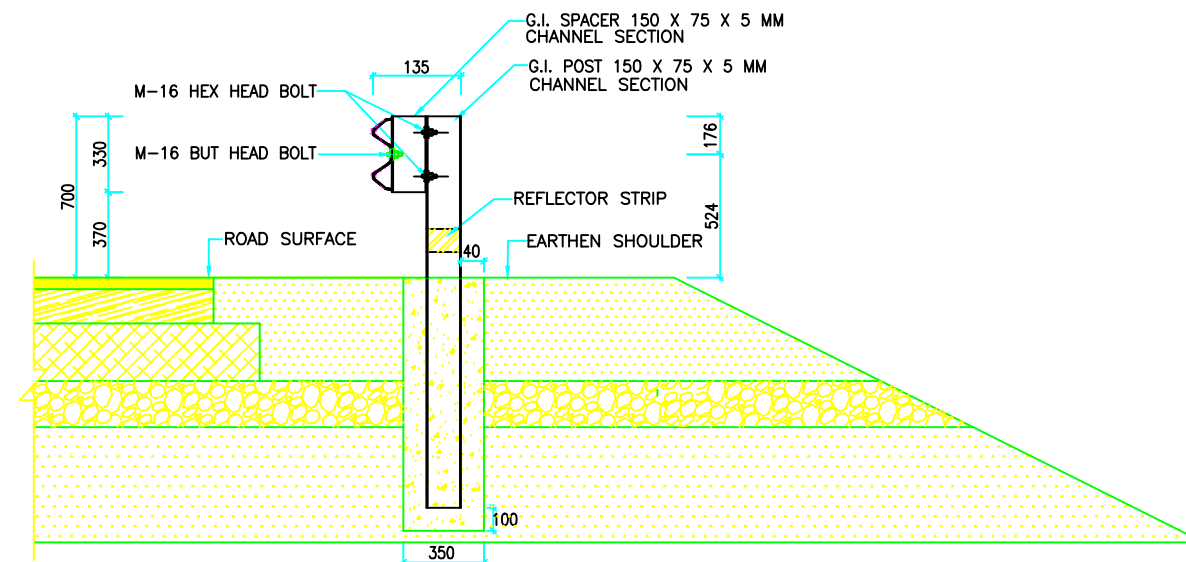
DETAILS OF CRASH BARRIER FOR DECK SLAB / RCC BOX
SCALE 1:12.5



PLAN AT A-A
SCALE 1:5

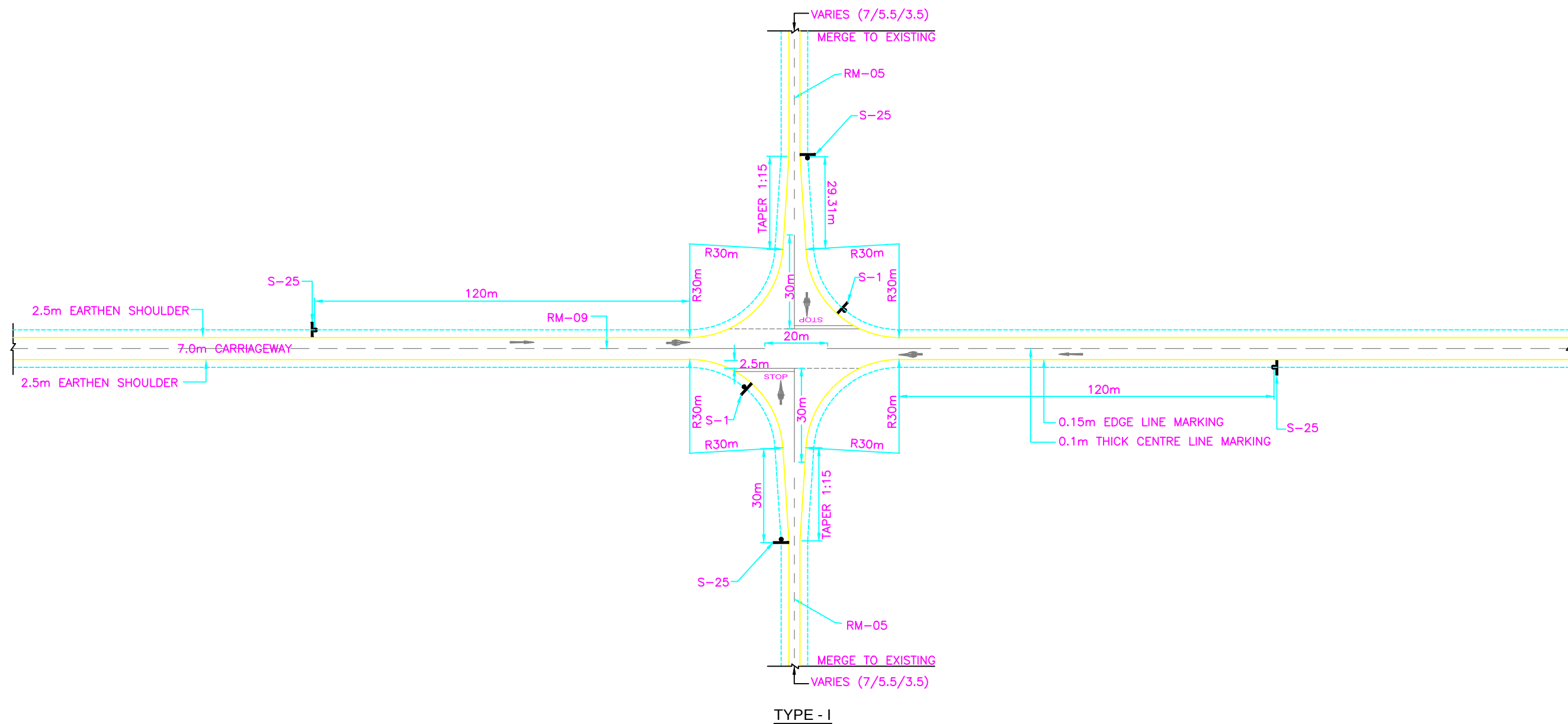


DETAIL "X"
SCALE 1:10

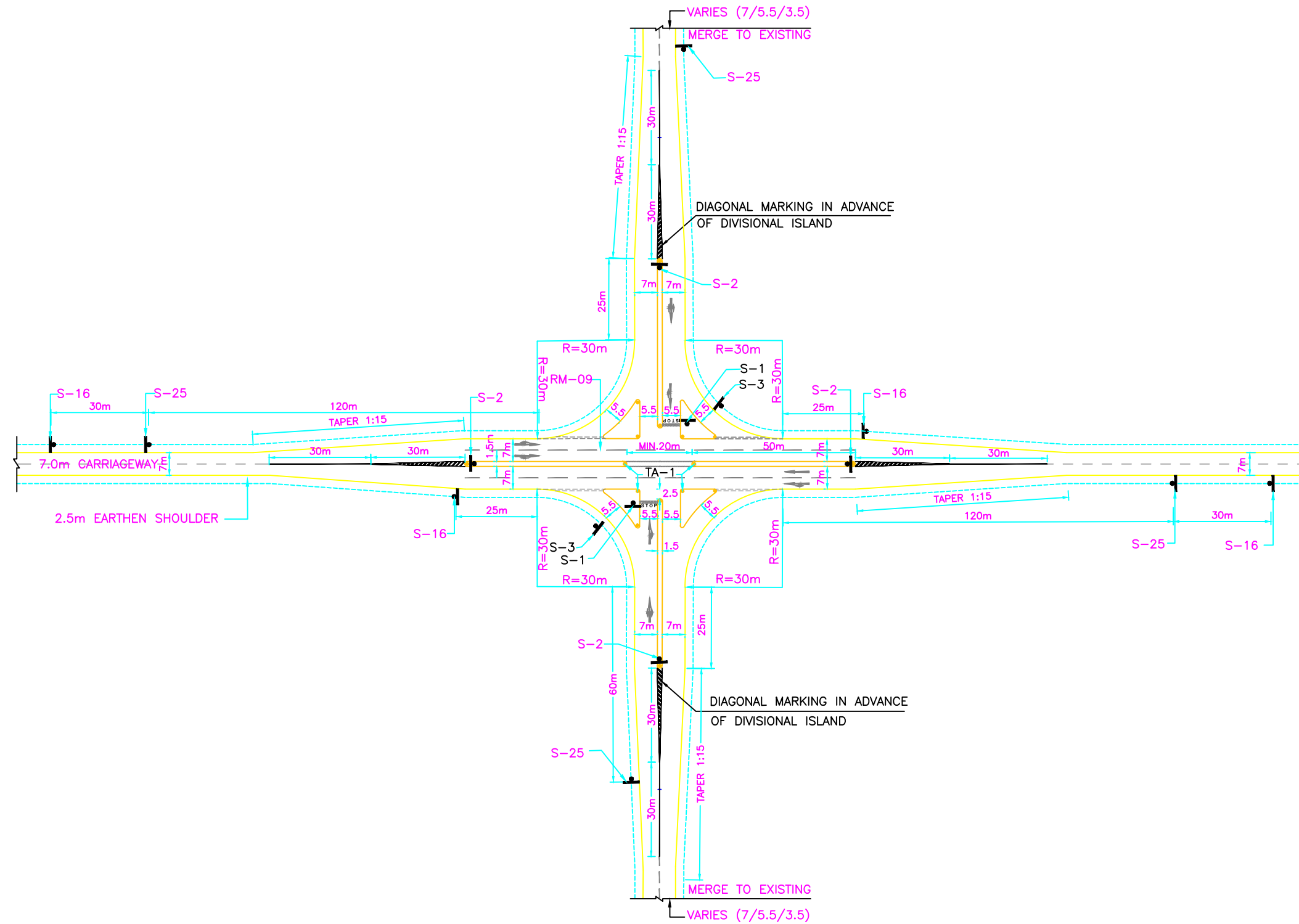


DETAILS OF CRASH BARRIER FOR DECK WITH EARTH CUSHION
SCALE 1:12.5

:- CONSULTANTS :-	:- CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	:- PROJECT TITLE :-	:-RCC CRASH BARRIER:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)	15			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1

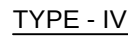


-: CONSULTANTS :-	-: CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	-: PROJECT TITLE :-	-: Junction Improvement Drawing:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 	16(a)			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TAMENGLONG - DIALONG SECTION PKG-1

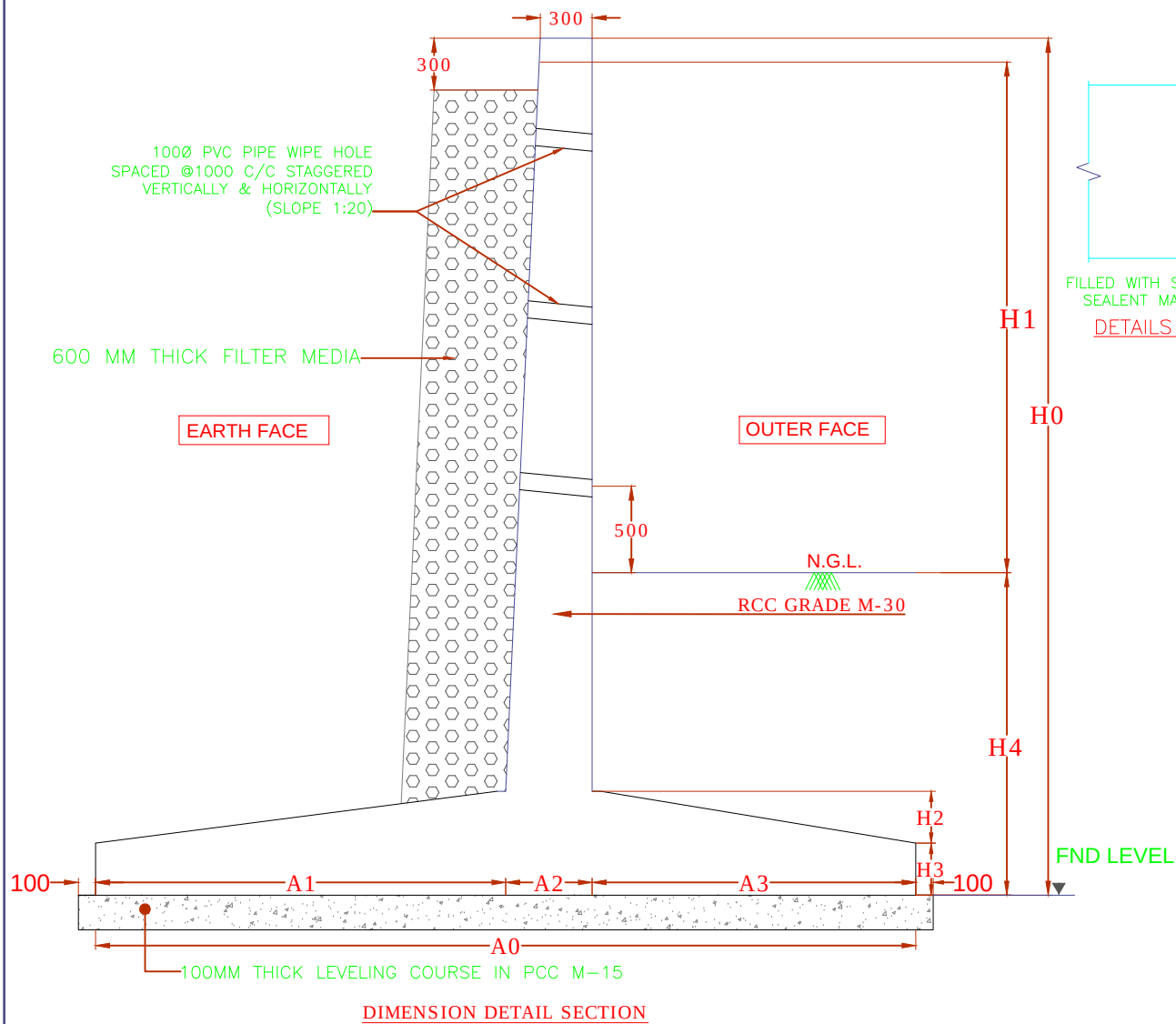


TYPE - III

:- CONSULTANTS :-	:- CLIENT :-	DRG. NO. :	DESIGNED BY.	APPROVED BY.	:- PROJECT TITLE :-	:- Junction Improvement Drawing:-
L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)	16(c)			CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	TYPICAL LAYOUT OF FOUR LEGGED CHANNELISED JUNCTION TAMENGLONG - DIALONG SECTION PKG-1

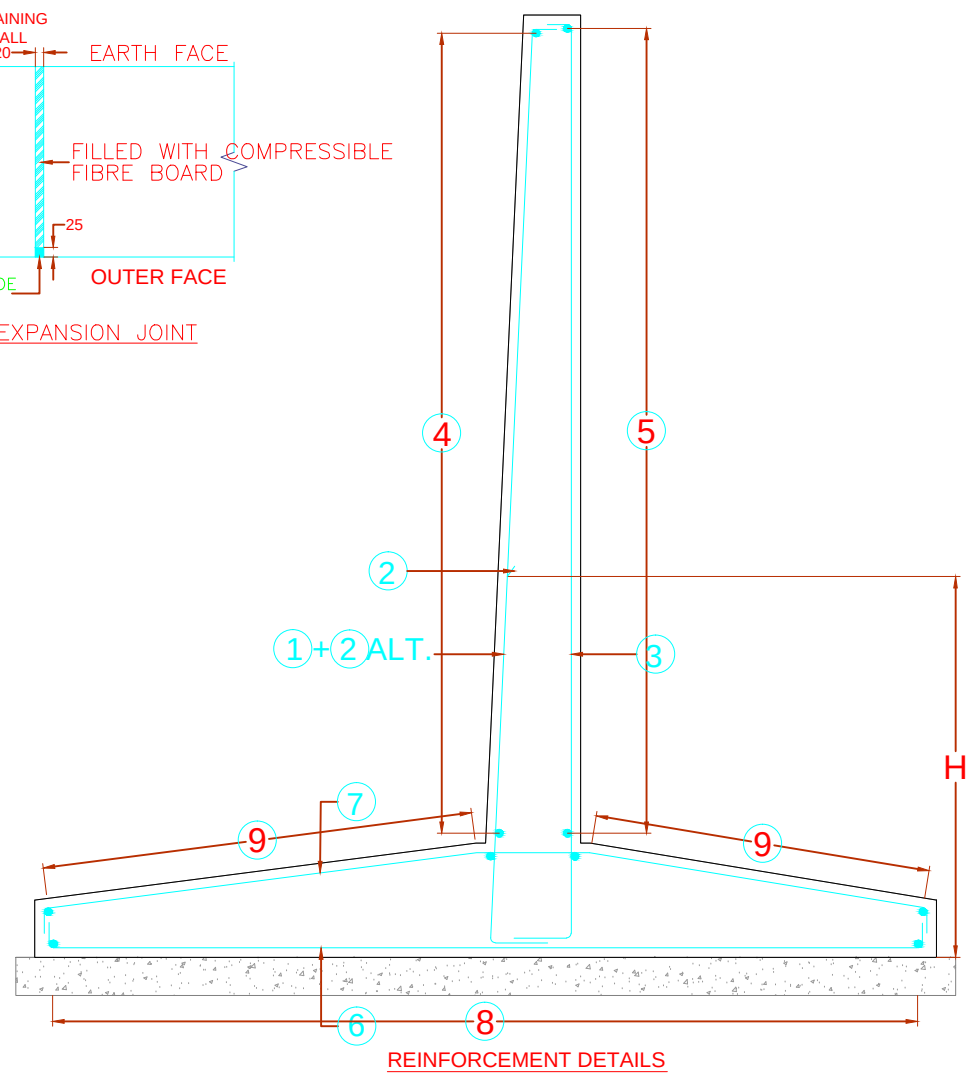
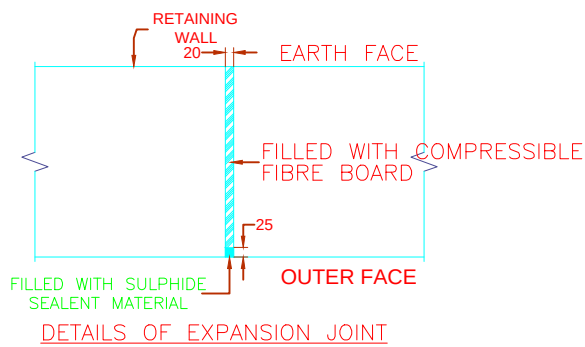


:- CONSULTANTS :- L.N. MALVIYA INFRA PROJECTS PVT. LTD. T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)  Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com	:- CLIENT :- NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) 	DRG. NO. : 16(d)	DESIGNED BY.	APPROVED BY.	:- PROJECT TITLE :- CConsultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.	:- Junction Improvement Drawing:- TYPICAL LAYOUT OF THREE LEGGED CHANNELISED JUNCTION TAMENGLONG - DIALONG SECTION PKG-1
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DIMENSION DETAIL:-

SERIAL NO.	OVERALL HEIGHT H0 (m m)	HEIGHT ABOVE OF GL H1 (m m)	H2 (m m)	H3 (m m)	H4 (m m)	A0 (m m)	A1 (m m)	A2 (m m)	A3 (m m)
1	5000	3000	500	300	2000	3650	1100	550	2000



NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS MENTIONED OTHERWISE.
- NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING .ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
- LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALL SHALL CONFIRM TO APPENDIX - 6 IRC-78-2014
- WEEP HOLES OF DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLE STAGGERED SPACING NOT EXCEEDING 1M IN BOTH DIRECTION FOR RETAINING WALL.
- GRADE FOR CONCRETE FOR RETAINING WALL IS M-30.
- BACKFILL GRANULAR SOIL MATERIAL BEHIND WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC:78-2014. THE PROPERTIES ARE $C = 0$, $\phi = 30^\circ$, $\gamma = 20\text{KN/CU.M}$
- GRADE OF STEEL Fe 500 AS PER IS 1786.
- CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.
 - FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm
 - FOR BASE SLAB 75mm
- EARTH FILL ON BOTH SIDES OF RETAINING WALL SHALL BE DONE SIMULTANEOUSLY.
- SAND FILLING OF MIN. 300mm WILL BE DONE BELOW FOUNDATION WHEREVER CLAYEY SOIL IS PRESENT.
- DRAWING IS VALID FOR HORIZONTAL EARTH FACE ONLY.
- LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE .IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOWS WITH MAXIMUM ALLOWABLE LAPPING

(p) OF 50% ONLY

(IRC :112:2011),(CLAUSE:15.2.5.12)

LAP LENGTH $l_s = \alpha_1 l_{bnet}$

$\alpha_1 = 1.0$ FOR $p\% \leq 25\%$

$\alpha_1 = 1.5$ FOR $25\% \leq p\% \leq 33\%$

$\alpha_1 = 1.4$ FOR $33\% \leq p\% \leq 50\%$

(IRC: 112=2011) (CLAUSE:15.2.3.3)

DEVELOPMENT LENGTH (l_{bnet})

$l_{bNET} = \alpha l_b$ ($\alpha = 1.0$)

$l_b = k\phi$

$k = 40$ FOR M30(Fe500)

$k = 36$ FOR M35(Fe500)

$k = 34$ FOR M40(Fe500)

FOR UNFAVORABLE BOND CONDITION THE l_b SHOULD BE MULTIPLIED BY FACTOR OF 1.43 FOR $\phi > 32\text{mm}$ l_b , SHOULD BE INCREASED BY MULTIPLYING FACTOR $(100/132-\phi)$.

:- CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,
M.P. NAGAR, ZONE-4, BHOPAL (M.P.)



Tel./Fax : 0755-4295421,
Mob.: 09826452711, 09977004686
E-mail : lninfraprojects@gmail.com

:- CLIENT :-

**NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



DRG. NO. :

17

DESIGNED BY.

APPROVED BY.

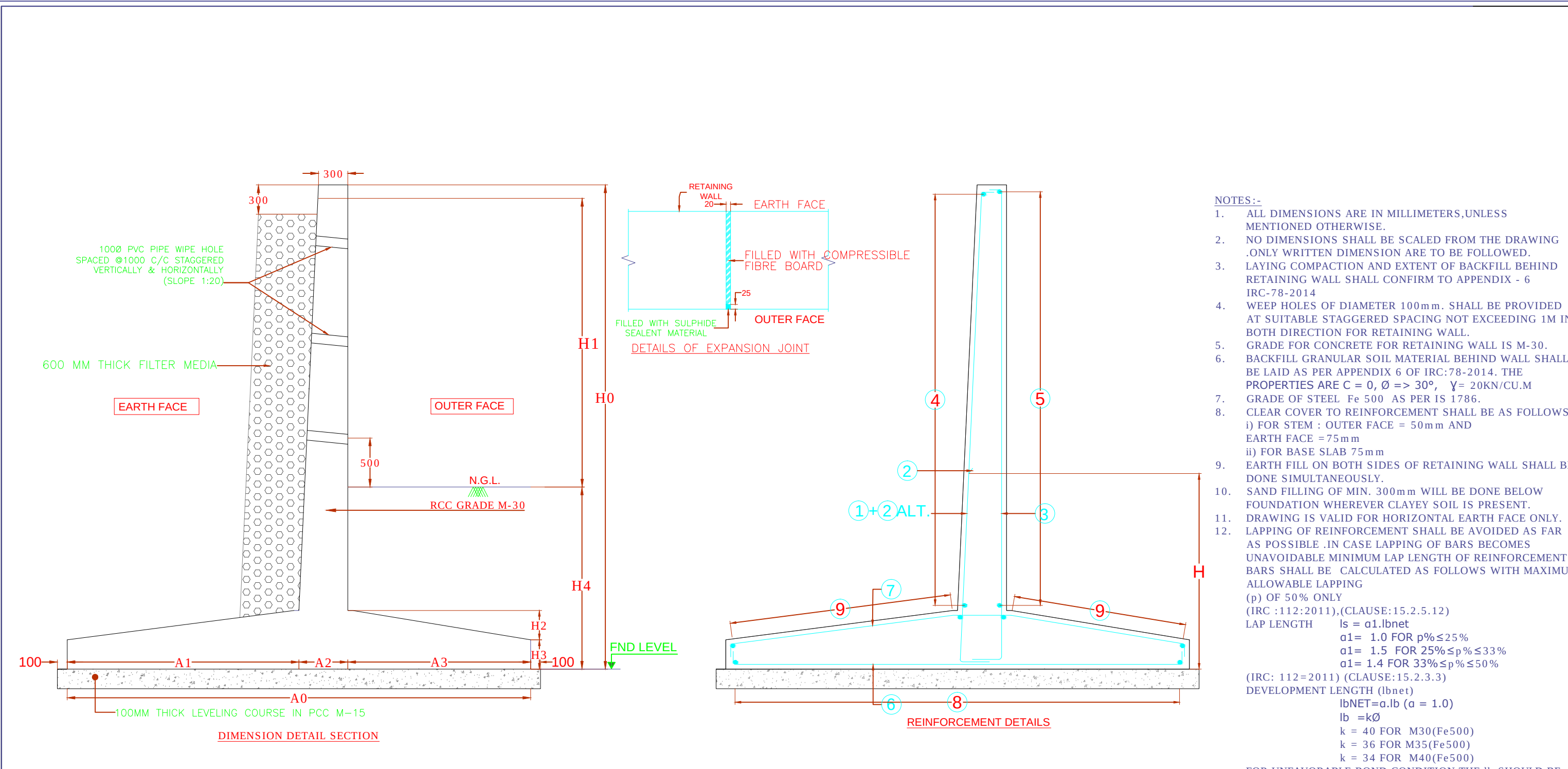
:- PROJECT TITLE :-

Consultancy Services for Preparation of Feasibility Study and Detailed Project Report For Two lane With Paved Shoulders of Tamenglong - Haflong Road In The State of Manipur on EPC Mode.

:-General Arrangement Drawing:-

GAD

**TAMENGLONG - DIALONG SECTION
PKG-1**



- NOTES:-
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 2. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWING .ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
 3. LAYING COMPACTION AND EXTENT OF BACKFILL BEHIND RETAINING WALL SHALL CONFIRM TO APPENDIX - 6 IRC-78-2014
 4. WEEP HOLES OF DIAMETER 100mm. SHALL BE PROVIDED AT SUITABLE STAGGERED SPACING NOT EXCEEDING 1M IN BOTH DIRECTION FOR RETAINING WALL.
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 6. BACKFILL GRANULAR SOIL MATERIAL BEHIND WALL SHALL BE LAID AS PER APPENDIX 6 OF IRC:78-2014. THE PROPERTIES ARE $C = 0, \phi \Rightarrow 30^\circ, \gamma = 20\text{KN/CU.M}$
 7. GRADE OF STEEL Fe 500 AS PER IS 1786.
 8. CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.
i) FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm
ii) FOR BASE SLAB 75mm
 9. EARTH FILL ON BOTH SIDES OF RETAINING WALL SHALL BE DONE SIMULTANEOUSLY.
 10. SAND FILLING OF MIN. 300mm WILL BE DONE BELOW FOUNDATION WHEREVER CLAYEY SOIL IS PRESENT.
 11. DRAWING IS VALID FOR HORIZONTAL EARTH FACE ONLY.
 12. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE .IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOWS WITH MAXIMUM ALLOWABLE LAPPING (p) OF 50% ONLY
(IRC :112:2011),(CLAUSE:15.2.5.12)
LAP LENGTH $l_s = a1.l_{bnet}$
 $a1= 1.0$ FOR $p\% \leq 25\%$
 $a1= 1.5$ FOR $25\% \leq p\% \leq 33\%$
 $a1= 1.4$ FOR $33\% \leq p\% \leq 50\%$
(IRC: 112=2011) (CLAUSE:15.2.3.3)
DEVELOPMENT LENGTH (l_{bnet})
 $l_{bNET}=a.l_b$ ($a = 1.0$)
 $l_b = k\phi$
 $k = 40$ FOR M30(Fe500)
 $k = 36$ FOR M35(Fe500)
 $k = 34$ FOR M40(Fe500)
FOR UNFAVORABLE BOND CONDITION THE l_b SHOULD BE MULTIPLIED BY FACTOR OF 1.43 FOR $\phi > 32\text{mm}$ l_b ,SHOULD BE INCREASED BY MULTIPLYING FACTOR (100/132- ϕ).

DIMENSION DETAIL:-

SERIAL NO.	OVERALL HEIGHT H0 (mm)	HEIGHT ABOVE OF GL H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	A0 (mm)	A1 (mm)	A2 (mm)	A3 (mm)
1	5000	3000	500	300	2000	3500	1200	500	1800