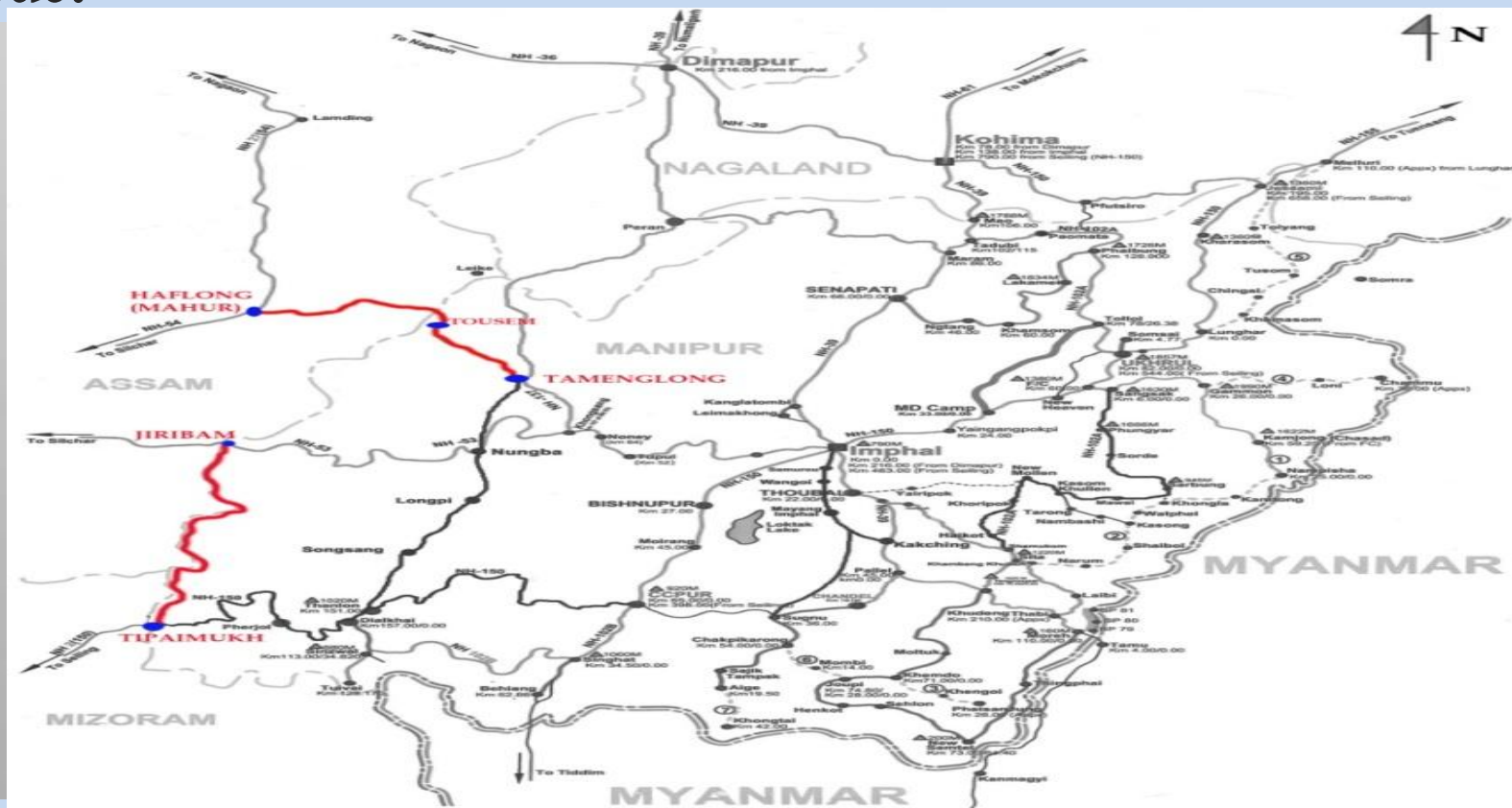


# NATIONAL HIGHWAY INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

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.



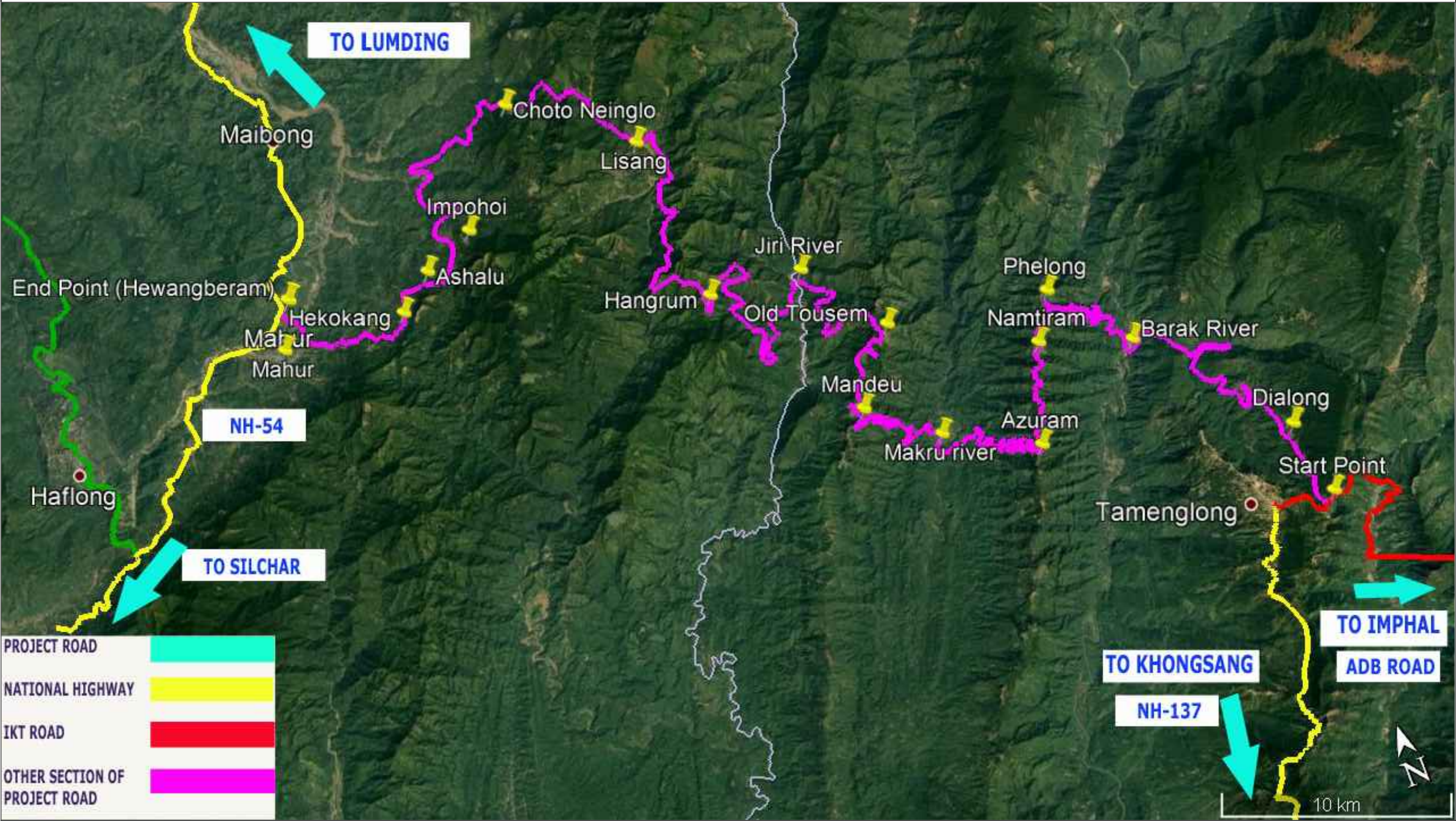
## DRAFT DETAILED PROJECT REPORT VOL-VII DRAWING VOLUME PKG-2A - DIALONG-OLD TAMENGLONG SECTION (FROM KM 10+000 TO KM 21+900) LENGTH-11.9KM

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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,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfraprojects@gmail.com">lninfraprojects@gmail.com</a> |  |  |  |            |              |              |                                                                                                                                                                                                              |               |

## **2. HORIZONTAL ALIGNMENT REPORT**

# HORIZONTAL ALIGNMENT REPORT

| Curve No. | HIP Chainage | Intersection Point X (m) | Intersection Point Y (m) | Transition Curve Start Chainage (m) | Circular Curve Start Chainage (m) | Circular Curve End Chainage (m) | Transition Curve End Chainage (m) | Radius of circular Curve (m) | Transition Curve Length (m) | Length of circular curve (m) | Apex Height (m) | Ts (m) | Chord BEARING (d) | Hand of Arc | Speed (Km/h) | Super Elevation | Extra Widening |     | Remarks |
|-----------|--------------|--------------------------|--------------------------|-------------------------------------|-----------------------------------|---------------------------------|-----------------------------------|------------------------------|-----------------------------|------------------------------|-----------------|--------|-------------------|-------------|--------------|-----------------|----------------|-----|---------|
|           |              |                          |                          |                                     |                                   |                                 |                                   |                              |                             |                              |                 |        |                   |             |              |                 | LHS            | RHS |         |
| 1         | 10059.268    | 550864.147               | 2768627.648              | 10019.259                           | 10049.259                         | 10069.210                       | 10099.210                         | 100                          | 30                          | 19.95                        | 0.5             | 10.008 | 299 31 55.740     | Left        | 40           | 7.00%           | NIL            | NIL | Hilly   |
| 2         | 10180.426    | 550748.511               | 2768663.610              | 10134.578                           | 10149.578                         | 10210.792                       | 10225.792                         | 200                          | 15                          | 61.214                       | 2.365           | 30.848 | 296 08 21.335     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 3         | 10332.834    | 550619.178               | 2768732.341              | 10282.099                           | 10317.099                         | 10343.764                       | 10378.764                         | 20                           | 35                          | 26.665                       | 5.448           | 15.736 | 218 43 37.880     | Left        | 25           | 7.00%           | 1.5            | NIL | Hilly   |
| 4         | 10512.593    | 550739.372               | 2768601.505              |                                     | 10475.487                         | 10549.324                       |                                   | 300                          |                             | 73.837                       | 2.286           | 37.106 | 123 20 50.403     | Left        | 40           | NR              | 0.6            | NIL | Hilly   |
| 5         | 10690.307    | 550898.172               | 2768520.947              | 10630.422                           | 10645.422                         | 10733.728                       | 10748.728                         | 200                          | 15                          | 88.306                       | 4.975           | 44.884 | 131 05 37.953     | Right       | 40           | 3.00%           | NIL            | 0.6 | Hilly   |
| 6         | 10819.095    | 550972.742               | 2768414.179              |                                     | 10769.747                         | 10867.566                       |                                   | 300                          |                             | 97.819                       | 4.032           | 49.347 | 136 33 01.096     | Left        | 40           | 3.60%           | 0.6            | NIL | Hilly   |
| 7         | 10983.062    | 551084.248               | 2768302.120              | 10932.227                           | 10967.227                         | 10994.014                       | 11029.014                         | 20                           | 35                          | 26.787                       | 5.509           | 15.835 | 215 42 45.903     | Right       | 25           | 7.00%           | NIL            | 1.5 | Hilly   |
| 8         | 11152.930    | 550934.315               | 2768377.692              |                                     | 11098.269                         | 11207.158                       |                                   | 500                          |                             | 108.889                      | 2.979           | 54.661 | 310 27 18.448     | Right       | 50           | NR              | NIL            | 0   | Hilly   |
| 9         | 11288.536    | 550835.785               | 2768470.795              | 11229.103                           | 11259.103                         | 11315.198                       | 11345.198                         | 75                           | 30                          | 56.095                       | 5.568           | 29.433 | 283 48 29.381     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 10        | 11428.320    | 550697.893               | 2768437.732              | 11388.166                           | 11418.166                         | 11438.202                       | 11468.202                         | 50                           | 30                          | 20.036                       | 1.021           | 10.154 | 279 35 26.641     | Right       | 30           | 7.00%           | NIL            | 1.2 | Hilly   |
| 11        | 11539.599    | 550604.479               | 2768497.313              | 11502.503                           | 11532.503                         | 11546.601                       | 11576.601                         | 50                           | 30                          | 14.098                       | 0.501           | 7.096  | 282 59 33.434     | Left        | 30           | 7.00%           | 1.2            | NIL | Hilly   |
| 12        | 11641.758    | 550503.428               | 2768485.432              | 11597.661                           | 11627.661                         | 11655.531                       | 11685.531                         | 75                           | 30                          | 27.87                        | 1.313           | 14.097 | 279 49 50.306     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 13        | 11737.717    | 550420.259               | 2768533.220              | 11691.513                           | 11706.513                         | 11768.423                       | 11783.423                         | 200                          | 15                          | 61.91                        | 2.42            | 31.205 | 312 57 06.428     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 14        | 12047.757    | 550217.658               | 2768761.563              | 11969.252                           | 11999.252                         | 12060.265                       | 12090.265                         | 30                           | 30                          | 61.013                       | 27.033          | 48.505 | 237 03 24.758     | Left        | 30           | 7.00%           | 1.5            | NIL | Hilly   |
| 15        | 12236.915    | 550301.987               | 2768558.060              |                                     | 12205.876                         | 12267.733                       |                                   | 300                          |                             | 61.857                       | 1.601           | 31.038 | 144 14 18.600     | Left        | 40           | NR              | 0.6            | NIL | Hilly   |
| 16        | 12333.340    | 550366.239               | 2768485.865              |                                     | 12294.457                         | 12372.067                       |                                   | 500                          |                             | 77.61                        | 1.51            | 38.883 | 133 53 05.642     | Left        | 50           | NR              | 0              | NIL | Hilly   |
| 17        | 12738.933    | 550654.530               | 2768209.123              | 12655.361                           | 12685.361                         | 12748.980                       | 12778.980                         | 30                           | 30                          | 63.619                       | 31.4            | 53.572 | 218 50 15.730     | Right       | 30           | 7.00%           | NIL            | 1.5 | Hilly   |
| 18        | 13114.082    | 550312.477               | 2768439.699              |                                     | 13063.191                         | 13164.623                       |                                   | 500                          |                             | 101.432                      | 2.583           | 50.891 | 314 02 55.768     | Right       | 50           | NR              | NIL            | 0   | Hilly   |
| 19        | 13446.135    | 550092.942               | 2768688.100              | 13400.175                           | 13430.175                         | 13461.074                       | 13491.074                         | 50                           | 30                          | 30.899                       | 2.486           | 15.961 | 284 58 04.737     | Left        | 30           | 7.00%           | 1.2            | NIL | Hilly   |
| 20        | 13637.423    | 549908.459               | 2768639.123              | 13586.630                           | 13616.630                         | 13656.040                       | 13686.040                         | 50                           | 30                          | 39.41                        | 4.151           | 20.793 | 289 50 40.495     | Right       | 30           | 7.00%           | NIL            | 1.2 | Hilly   |
| 21        | 13926.793    | 549758.222               | 2768887.127              | 13881.802                           | 13911.802                         | 13941.394                       | 13971.394                         | 75                           | 30                          | 29.592                       | 1.484           | 14.991 | 352 22 33.871     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 22        | 14046.023    | 549777.545               | 2769004.731              | 13990.387                           | 14020.387                         | 14069.792                       | 14099.792                         | 75                           | 30                          | 49.405                       | 4.26            | 25.636 | 344 48 29.057     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 23        | 14173.606    | 549689.169               | 2769098.499              | 14128.727                           | 14148.727                         | 14198.036                       | 14218.036                         | 150                          | 20                          | 49.309                       | 2.049           | 24.879 | 301 14 26.092     | Left        | 40           | 4.70%           | 0.6            | NIL | Hilly   |
| 24        | 14373.694    | 549503.309               | 2769172.093              | 14301.159                           | 14331.159                         | 14408.545                       | 14438.545                         | 75                           | 30                          | 77.386                       | 11.222          | 42.535 | 329 01 18.453     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 25        | 14615.614    | 549513.539               | 2769414.428              | 14564.894                           | 14599.894                         | 14626.540                       | 14656.540                         | 20                           | 35                          | 26.646                       | 5.439           | 15.72  | 281 44 17.781     | Left        | 25           | 7.00%           | 1.5            | NIL | Hilly   |
| 26        | 14781.236    | 549451.916               | 2769262.536              | 14738.735                           | 14758.735                         | 14803.000                       | 14823.000                         | 100                          | 20                          | 44.265                       | 2.5             | 22.501 | 211 50 49.711     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 27        | 15054.949    | 549259.127               | 2769070.189              | 14961.498                           | 14991.498                         | 15081.839                       | 15111.839                         | 50                           | 30                          | 90.341                       | 30.784          | 63.451 | 161 18 26.596     | Left        | 30           | 7.00%           | NIL            | NIL | Hilly   |
| 28        | 15386.578    | 549620.983               | 2769018.618              | 15291.546                           | 15321.546                         | 15428.696                       | 15458.696                         | 75                           | 30                          | 107.15                       | 24.268          | 65.031 | 144 44 39.264     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 29        | 15634.619    | 549568.316               | 2768754.047              | 15550.786                           | 15580.786                         | 15674.169                       | 15704.169                         | 75                           | 30                          | 93.383                       | 17.32           | 53.832 | 150 00 10.154     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 30        | 15779.677    | 549718.833               | 2768703.283              | 15717.370                           | 15737.370                         | 15819.841                       | 15839.841                         | 150                          | 20                          | 82.471                       | 5.852           | 42.307 | 122 26 40.943     | Right       | 40           | 4.70%           | NIL            | 0.6 | Hilly   |
| 31        | 15959.508    | 549831.941               | 2768560.895              | 15902.918                           | 15917.918                         | 15999.929                       | 16014.929                         | 200                          | 15                          | 82.011                       | 4.279           | 41.59  | 155 54 39.876     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 32        | 16126.321    | 549860.871               | 2768395.499              | 16048.496                           | 16063.496                         | 16185.242                       | 16200.242                         | 200                          | 15                          | 121.745                      | 9.635           | 62.825 | 189 23 39.154     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 33        | 16335.289    | 549744.956               | 2768225.819              | 16284.571                           | 16319.571                         | 16346.214                       | 16381.214                         | 20                           | 35                          | 26.644                       | 5.437           | 15.718 | 297 16 45.745     | Right       | 25           | 7.00%           | NIL            | 1.5 | Hilly   |
| 34        | 16553.062    | 549814.682               | 2768429.998              | 16448.943                           | 16463.943                         | 16631.617                       | 16646.617                         | 200                          | 15                          | 167.675                      | 18.957          | 89.12  | 359 24 39.534     | Left        | 40           | 3.60%           | 0.6            | NIL | Hilly   |
| 35        | 16755.777    | 549710.944               | 2768615.125              | 16671.289                           | 16701.289                         | 16795.533                       | 16825.533                         | 75                           | 30                          | 94.243                       | 17.703          | 54.487 | 285 47 14.194     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 36        | 16992.531    | 549489.433               | 2768497.827              | 16942.644                           | 16962.644                         | 17020.727                       | 17040.727                         | 100                          | 20                          | 58.082                       | 4.37            | 29.886 | 260 41 55.624     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 37        | 17210.656    | 549281.058               | 2768563.011              | 17089.867                           | 17119.867                         | 17251.919                       | 17281.919                         | 75                           | 30                          | 132.053                      | 42.761          | 90.79  | 344 58 02.735     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 38        | 17335.362    | 549390.593               | 2768697.875              | 17286.980                           | 17306.980                         | 17362.290                       | 17382.290                         | 100                          | 20                          | 55.31                        | 3.95            | 28.382 | 25 17 32.077      | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 39        | 17476.615    | 549392.611               | 2768839.597              | 17402.923                           | 17432.923                         | 17512.047                       | 17542.047                         | 75                           | 30                          | 79.123                       | 11.798          | 43.691 | 322 02 08.041     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 40        | 17653.648    | 549212.842               | 2768880.861              | 17579.886                           | 17594.886                         | 17709.193                       | 17724.193                         | 200                          | 15                          | 114.307                      | 8.454           | 58.762 | 261 49 54.138     | Left        | 40           | 3.60%           | 0.6            | NIL | Hilly   |
| 41        | 17919.035    | 548968.773               | 2768769.245              | 17830.442                           | 17850.442                         | 17970.686                       | 17990.686                         | 100                          | 20                          | 120.244                      | 21.264          | 68.593 | 283 29 12.089     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 42        | 18129.214    | 548830.753               | 2768949.106              | 18072.293                           | 18092.293                         | 18164.696                       | 18184.696                         | 150                          | 20                          | 72.402                       | 4.477           | 36.921 | 341 18 40.068     | Right       | 40           | 4.70%           | NIL            | 0.6 | Hilly   |
| 43        | 18267.628    | 548830.830               | 2769088.420              | 18219.917                           | 18249.917                         | 18314.702                       | 18344.702                         | 75                           | 30                          | 34.785                       | 2.063           | 17.711 | 23 42 16.653      | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 44        | 18490.945    | 548994.423               | 2769240.773              |                                     | 18425.946                         | 18555.659                       |                                   | 800                          |                             | 129.714                      | 2.636           | 64.999 | 43 48 19.882      | Left        | 50           | NR              | 0              | NIL | Hilly   |
| 45        | 18741.279    | 549126.995               | 2769447.538              | 18663.585                           | 18693.585                         | 18754.144                       | 18784.144                         | 30                           | 30                          | 60.559                       | 26.345          | 47.694 | 312 40 57.649     | Left        | 30           | 7.00%           | 1.5            | NIL | Hilly   |
| 46        | 18856.335    | 549004.330               | 2769368.409              |                                     | 18820.595                         | 18892.225                       |                                   | 300                          |                             | 72.13                        | 2.181           | 36.24  | 233 05 34.016     | Right       | 40           | NR              | NIL            | 0.6 | Hilly   |
| 47        | 19181.576    | 548718.801               | 2769226.946              | 19132.638                           | 19167.638                         | 19191.983                       | 19226.983                         | 20                           | 35                          | 24.345                       | 4.377           | 13.938 | 324 59 10.996     | Right       | 25           | 7.00%           | NIL            | 1.5 | Hilly   |
| 48        | 19304.259    | 548796.572               | 2769318.805              |                                     | 19263.768                         | 19344.682                       |                                   | 800                          |                             | 80.914                       | 1.024           | 40.492 | 47 05 40.350      | Left        | 50           | NR              | 0              | NIL | Hilly   |
| 49        | 19412.022    | 548851.715               | 2769404.916              | 19362.909                           | 19397.909                         | 19422.490                       | 19457.490                         | 20                           | 35                          | 24.581                       | 4.478           | 14.113 | 318 51 14.412     | Left        | 25           | 7.00%           | 1.5            | NIL | Hilly   |
| 50        | 19554.549    | 548728.161               | 2769339.021              |                                     | 19552.704                         | 19556.394                       |                                   | 800                          |                             | 3.69                         | 0.002           | 1.845  | 233 38 35.261     | Right       | 50           | NR              | NIL            | 0   | Hilly   |

**HORIZONTAL ALIGNMENT REPORT**

| Curve No. | HIP Chainage | Intersection Point X (m) | Intersection Point Y (m) | Transition Curve Start Chainage (m) | Circular Curve Start Chainage (m) | Circular Curve End Chainage (m) | Transition Curve End Chainage (m) | Radius of circular Curve (m) | Transition Curve Length (m) | Length of circular curve (m) | Apex Height (m) | Ts (m) | Chord BEARING (d) | Hand of Arc | Speed (Km/h) | Super Elevation | Extra Widening |     | Remarks |
|-----------|--------------|--------------------------|--------------------------|-------------------------------------|-----------------------------------|---------------------------------|-----------------------------------|------------------------------|-----------------------------|------------------------------|-----------------|--------|-------------------|-------------|--------------|-----------------|----------------|-----|---------|
|           |              |                          |                          |                                     |                                   |                                 |                                   |                              |                             |                              |                 |        |                   |             |              |                 | LHS            | RHS |         |
| 51        | 19768.742    | 548555.980               | 2769211.640              | 19731.852                           | 19746.852                         | 19790.458                       | 19805.458                         | 200                          | 15                          | 43.606                       | 1.194           | 21.89  | 225 22 49.855     | Left        | 40           | 3.60%           | 0.6            | NIL | Hilly   |
| 52        | 20037.346    | 548379.236               | 2769011.848              | 19949.841                           | 19979.841                         | 20065.351                       | 20095.351                         | 50                           | 30                          | 85.509                       | 26.202          | 57.505 | 283 10 04.098     | Right       | 30           | 7.00%           | NIL            | 1.2 | Hilly   |
| 53        | 20347.852    | 548297.293               | 2769339.517              |                                     | 20314.160                         | 20381.262                       |                                   | 300                          |                             | 67.102                       | 1.886           | 33.692 | 342 56 31.334     | Left        | 40           | NR              | 0.6            | NIL | Hilly   |
| 54        | 20504.108    | 548236.372               | 2769483.692              | 20453.353                           | 20468.353                         | 20539.115                       | 20554.115                         | 200                          | 15                          | 70.762                       | 3.171           | 35.755 | 348 49 07.441     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 55        | 20752.269    | 548217.748               | 2769724.744              | 20701.543                           | 20736.543                         | 20763.196                       | 20798.196                         | 20                           | 35                          | 26.653                       | 5.442           | 15.726 | 272 47 31.535     | Left        | 25           | 7.00%           | 1.5            | NIL | Hilly   |
| 56        | 20998.599    | 548177.104               | 2769484.288              |                                     | 20937.351                         | 21059.240                       |                                   | 500                          |                             | 121.889                      | 3.737           | 61.248 | 177 29 50.034     | Left        | 50           | NR              | 0              | NIL | Hilly   |
| 57        | 21221.033    | 548211.616               | 2769263.963              | 21150.406                           | 21165.406                         | 21273.917                       | 21288.917                         | 200                          | 15                          | 108.511                      | 7.592           | 55.627 | 188 12 18.616     | Right       | 40           | 3.60%           | NIL            | 0.6 | Hilly   |
| 58        | 21486.028    | 548099.945               | 2769020.780              | 21437.836                           | 21457.836                         | 21512.793                       | 21532.793                         | 100                          | 20                          | 54.957                       | 3.898           | 28.192 | 184 25 23.844     | Left        | 40           | 7.00%           | 0.9            | NIL | Hilly   |
| 59        | 21686.978    | 548151.872               | 2768825.398              | 21631.957                           | 21651.957                         | 21719.328                       | 21739.328                         | 100                          | 20                          | 67.371                       | 5.955           | 35.02  | 187 58 46.671     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |
| 60        | 21826.470    | 548074.536               | 2768706.584              | 21770.193                           | 21790.193                         | 21859.794                       | 21879.794                         | 100                          | 20                          | 69.601                       | 6.377           | 36.277 | 238 40 42.194     | Right       | 40           | 7.00%           | NIL            | 0.9 | Hilly   |

### **3. VERTICAL ALIGNMENT REPORT**

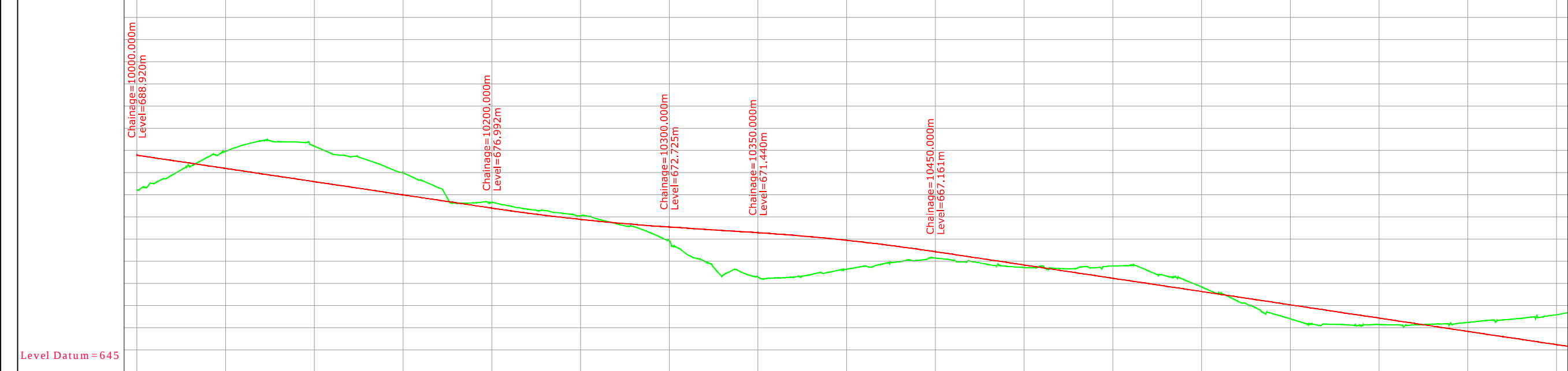
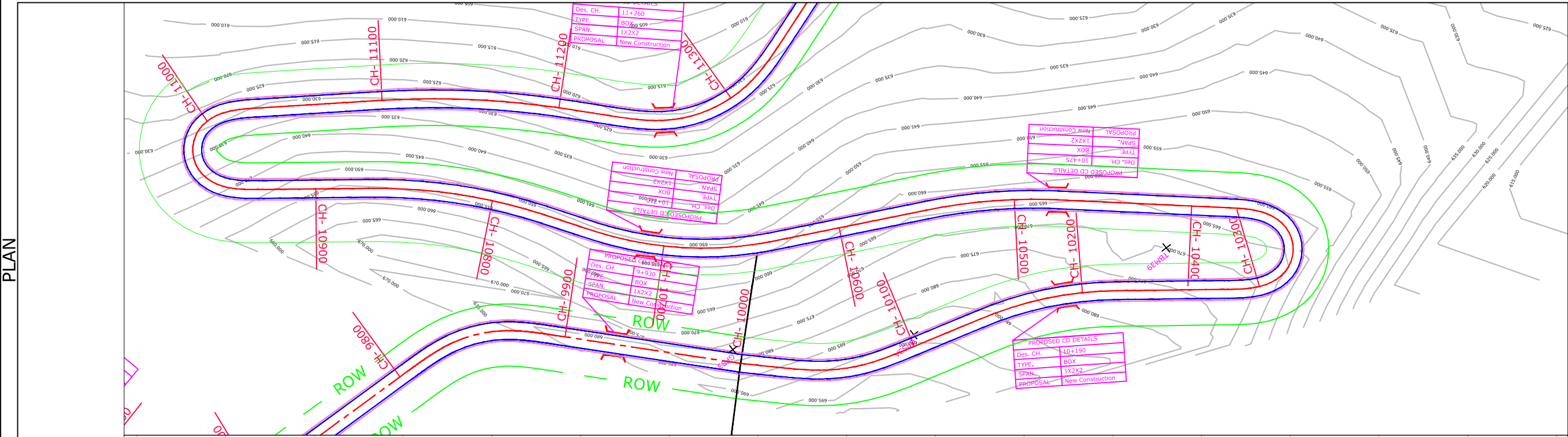
**VERTICAL ALIGNMENT REPORT**

| Sl No. | VIP Chainage | VIP level | Grade In (%) | Grade Out (%) | Grade Change (%) | Design Speed as per ISD (Km/h) | Profile Curve Length (m) | Profile Curve Type | K Value | PVC Chainage | PVC Level (m) | PVT Chainage | PVT Level (m) | High/Low Point Chainage | High/Low Point Level (m) | Remarks |
|--------|--------------|-----------|--------------|---------------|------------------|--------------------------------|--------------------------|--------------------|---------|--------------|---------------|--------------|---------------|-------------------------|--------------------------|---------|
| 1      | 10000.000    |           |              | 5.573%        |                  |                                |                          |                    |         |              |               |              |               |                         |                          |         |
| 2      | 10250.000    | 674.01    | 5.573%       | -2.570%       | 8.143%           | 40                             | 100                      | Hog                | 12.280  | 10200.000    | 671.224       | 10300.000    | 672.725       | 10268.439               | 673.131                  | Hilly   |
| 3      | 10400.000    | 670.155   | -2.570%      | -5.989%       | 3.419%           | 65                             | 100                      | Hog                | 29.248  | 10350.000    | 671.440       | 10450.000    | 667.161       | -                       | -                        | Hilly   |
| 4      | 10900.000    | 640.21    | -5.989%      | -2.561%       | 3.428%           | 65                             | 100                      | Sag                | 29.169  | 10850.000    | 643.205       | 10950.000    | 638.930       | -                       | -                        | Hilly   |
| 5      | 11050.000    | 636.369   | -2.561%      | -5.962%       | 3.401%           | 65                             | 100                      | Hog                | 29.404  | 11000.000    | 637.649       | 11100.000    | 633.388       | -                       | -                        | Hilly   |
| 6      | 11950.000    | 582.715   | -5.962%      | -2.547%       | 3.415%           | 65                             | 100                      | Sag                | 29.284  | 11900.000    | 585.696       | 12000.000    | 581.442       | -                       | -                        | Hilly   |
| 7      | 12100.000    | 578.895   | -2.547%      | -5.527%       | 2.980%           | 65                             | 100                      | Hog                | 33.554  | 12050.000    | 580.168       | 12150.000    | 576.132       | -                       | -                        | Hilly   |
| 8      | 12650.000    | 548.497   | -5.527%      | -2.532%       | 2.995%           | 65                             | 100                      | Sag                | 33.390  | 12600.000    | 551.260       | 12700.000    | 547.231       | -                       | -                        | Hilly   |
| 9      | 12800.000    | 544.699   | -2.532%      | -5.528%       | 2.996%           | 65                             | 100                      | Hog                | 33.379  | 12750.000    | 545.965       | 12850.000    | 541.935       | -                       | -                        | Hilly   |
| 10     | 13427.703    | 510       | -5.528%      | 0.000%        | 5.528%           | 65                             | 100                      | Sag                | 18.090  | 13377.703    | 512.764       | 13477.703    | 510.000       | 13477.703               | 510.000                  | Hilly   |
| 11     | 13689.892    | 510       | 0.000%       | 4.989%        | 4.989%           | 65                             | 100                      | Sag                | 20.045  | 13639.892    | 510.000       | 13739.892    | 512.494       | 13639.892               | 510.000                  | Hilly   |
| 12     | 14550.000    | 552.908   | 4.989%       | 2.541%        | 2.447%           | 65                             | 100                      | Hog                | 40.861  | 14500.000    | 550.414       | 14600.000    | 554.179       | -                       | -                        | Hilly   |
| 13     | 14700.000    | 556.72    | 2.541%       | 4.974%        | 2.433%           | 65                             | 75                       | Sag                | 30.830  | 14662.500    | 555.767       | 14737.500    | 558.585       | -                       | -                        | Hilly   |
| 14     | 16200.000    | 631.331   | 4.974%       | 2.515%        | 2.459%           | 65                             | 75                       | Hog                | 30.504  | 16162.500    | 629.466       | 16237.500    | 632.274       | -                       | -                        | Hilly   |
| 15     | 16350.000    | 635.104   | 2.515%       | 5.956%        | 3.441%           | 65                             | 75                       | Sag                | 21.798  | 16312.500    | 634.161       | 16387.500    | 637.338       | -                       | -                        | Hilly   |
| 16     | 16767.125    | 659.948   | 5.956%       | 0.273%        | 5.683%           | 50                             | 100                      | Hog                | 17.595  | 16717.125    | 656.970       | 16817.125    | 660.084       | -                       | -                        | Hilly   |
| 17     | 16940.290    | 660.42    | 0.273%       | 4.201%        | 3.928%           | 65                             | 100                      | Sag                | 25.457  | 16890.290    | 660.284       | 16990.290    | 662.520       | -                       | -                        | Hilly   |
| 18     | 17505.000    | 684.142   | 4.201%       | 1.443%        | 2.757%           | 65                             | 100                      | Hog                | 36.266  | 17455.000    | 682.042       | 17555.000    | 684.864       | -                       | -                        | Hilly   |
| 19     | 17863.953    | 689.323   | 1.443%       | 5.990%        | 4.547%           | 80                             | 200                      | Sag                | 43.985  | 17763.953    | 687.880       | 17963.953    | 695.313       | -                       | -                        | Hilly   |
| 20     | 18650.000    | 736.41    | 5.990%       | 2.487%        | 3.504%           | 65                             | 100                      | Hog                | 28.541  | 18600.000    | 733.415       | 18700.000    | 737.653       | -                       | -                        | Hilly   |
| 21     | 18800.000    | 740.14    | 2.487%       | 4.215%        | 1.728%           | 80                             | 100                      | Sag                | 57.862  | 18750.000    | 738.897       | 18850.000    | 742.247       | -                       | -                        | Hilly   |
| 22     | 19350.000    | 763.322   | 4.215%       | 2.525%        | 1.690%           | 65                             | 75                       | Hog                | 44.372  | 19312.500    | 761.741       | 19387.500    | 764.269       | -                       | -                        | Hilly   |
| 23     | 19500.000    | 767.109   | 2.525%       | 3.372%        | 0.847%           | 80                             | 75                       | Sag                | 88.521  | 19462.500    | 766.162       | 19537.500    | 768.373       | -                       | -                        | Hilly   |
| 24     | 19841.437    | 778.622   | 3.372%       | -5.545%       | 8.917%           | 50                             | 300                      | Hog                | 33.645  | 19691.437    | 773.564       | 19991.437    | 770.305       | 19804.886               | 775.477                  | Hilly   |
| 25     | 20650.000    | 733.790   | -5.545%      | -2.541%       | 3.003%           | 80                             | 100                      | Sag                | 33.297  | 20600.000    | 736.562       | 20700.000    | 732.519       | -                       | -                        | Hilly   |
| 26     | 20800.000    | 729.978   | -2.541%      | -5.554%       | 3.013%           | 65                             | 100                      | Hog                | 33.193  | 20750.000    | 731.249       | 20850.000    | 727.201       | -                       | -                        | Hilly   |
| 27     | 21700.000    | 679.992   | -5.554%      | -5.957%       | 0.403%           | 80                             | 75                       | Hog                | 186.275 | 21662.500    | 682.075       | 21737.500    | 677.758       | -                       | -                        | Hilly   |

## **4. PLAN & PROFILE**

PLAN

PROFILE



|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | 681.060<br>682.618<br>684.463<br>686.366<br>688.479<br>689.813<br>691.219<br>692.153<br>691.991<br>691.894<br>690.968<br>689.233<br>688.580<br>687.831<br>686.366<br>684.988<br>683.314<br>681.592<br>678.068<br>678.169<br>678.221<br>677.501<br>676.767<br>676.433<br>675.787<br>675.232<br>674.493<br>673.480<br>672.819<br>671.318<br>669.623<br>666.556<br>665.001<br>661.677<br>662.669<br>9.981<br>9.924<br>9.463<br>8.515<br>7.610<br>6.531<br>5.370<br>4.442<br>3.369<br>2.546<br>1.436<br>1.358<br>0.959<br>1.102<br>0.897<br>0.584<br>-0.371<br>-0.381<br>-1.101<br>-1.763<br>-2.796<br>-3.484<br>-2.869<br>-2.338<br>-2.099<br>-1.046<br>-0.260<br>0.894<br>1.779<br>2.573<br>3.134<br>3.820<br>3.142<br>2.677<br>2.288<br>1.434<br>0.931<br>0.331<br>-0.447<br>-1.051<br>-2.028<br>-3.032<br>-3.776<br>-4.710<br>-5.524<br>-6.733                                                                                                                                                                                                                                            |
| LEVEL DIFF.    | 7.860<br>5.706<br>3.264<br>0.765<br>-1.944<br>-3.875<br>-5.877<br>-7.408<br>-7.842<br>-8.341<br>-8.011<br>-6.874<br>-6.817<br>-6.663<br>-5.795<br>-5.014<br>-3.936<br>-2.810<br>0.117<br>-0.580<br>-1.228<br>-1.089<br>-0.899<br>-1.077<br>-0.909<br>-0.797<br>-0.468<br>0.170<br>0.488<br>1.682<br>3.102<br>5.913<br>7.210<br>10.278<br>9.029<br>9.981<br>9.924<br>9.463<br>8.515<br>7.610<br>6.531<br>5.370<br>4.442<br>3.369<br>2.546<br>1.436<br>1.358<br>0.959<br>1.102<br>0.897<br>0.584<br>-0.371<br>-0.381<br>-1.101<br>-1.763<br>-2.796<br>-3.484<br>-2.869<br>-2.338<br>-2.099<br>-1.046<br>-0.260<br>0.894<br>1.779<br>2.573<br>3.134<br>3.820<br>3.142<br>2.677<br>2.288<br>1.434<br>0.931<br>0.331<br>-0.447<br>-1.051<br>-2.028<br>-3.032<br>-3.776<br>-4.710<br>-5.524<br>-6.733                                                                                                                                                                                                                                                                                           |
| Horizontal     | 19.26m<br>30m<br>R=100<br>L=19.95<br>30m<br>35.37m<br>15m<br>R=200.000m<br>L=61.214m<br>15m<br>L=56.307m<br>35m<br>R=20m<br>L=26.665<br>35m<br>L=96.723m<br>R=-300.000m<br>L=73.837m<br>L=81.098m<br>15m<br>R=200.000m<br>L=88.306m<br>15m<br>21.02m<br>R=L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Vertical       | L=200.000m<br>G=-5.964<br>L=100.000m<br>K=12.280<br>L=50.000m<br>G=-2.570<br>K=29.248<br>L=100.000m<br>L=400.000m<br>G=-5.989                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Superelevation | 2.500%<br>7.000%<br>2.500%<br>3.600%<br>2.500%<br>7.000%<br>2.500%<br>3.600%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Chainage       | 10000.000<br>10010.000<br>10020.000<br>10030.000<br>10040.000<br>10050.000<br>10060.000<br>10070.000<br>10080.000<br>10090.000<br>10100.000<br>10110.000<br>10120.000<br>10130.000<br>10140.000<br>10150.000<br>10160.000<br>10170.000<br>10180.000<br>10190.000<br>10200.000<br>10210.000<br>10220.000<br>10230.000<br>10240.000<br>10250.000<br>10260.000<br>10270.000<br>10280.000<br>10290.000<br>10300.000<br>10310.000<br>10320.000<br>10330.000<br>10340.000<br>10350.000<br>10360.000<br>10370.000<br>10380.000<br>10390.000<br>10400.000<br>10410.000<br>10420.000<br>10430.000<br>10440.000<br>10450.000<br>10460.000<br>10470.000<br>10480.000<br>10490.000<br>10500.000<br>10510.000<br>10520.000<br>10530.000<br>10540.000<br>10550.000<br>10560.000<br>10570.000<br>10580.000<br>10590.000<br>10600.000<br>10610.000<br>10620.000<br>10630.000<br>10640.000<br>10650.000<br>10660.000<br>10670.000<br>10680.000<br>10690.000<br>10700.000<br>10710.000<br>10720.000<br>10730.000<br>10740.000<br>10750.000<br>10760.000<br>10770.000<br>10780.000<br>10790.000<br>10800.000 |

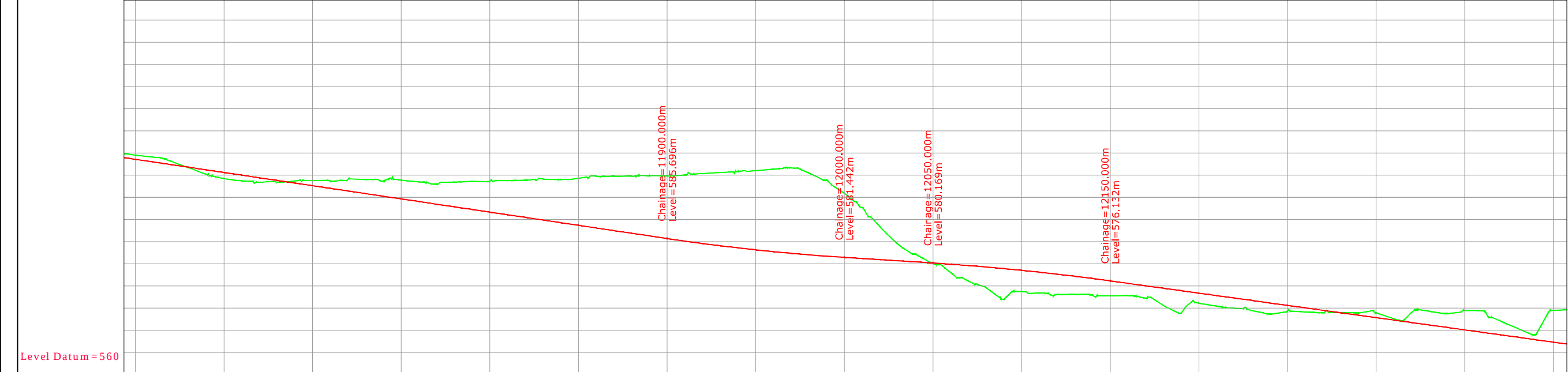
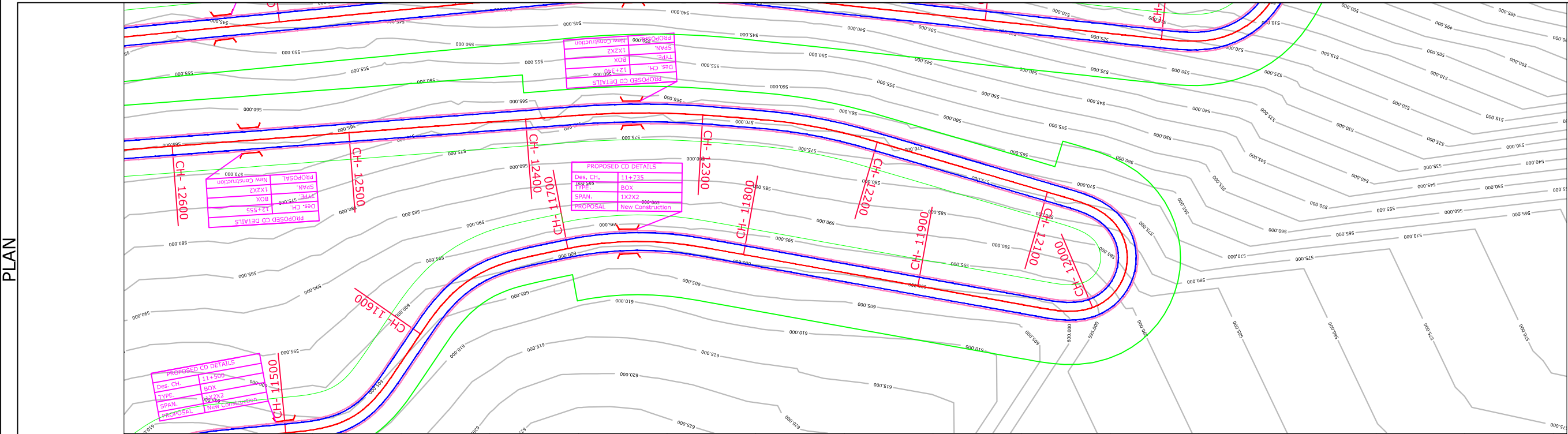
| Legend                    |  |
|---------------------------|--|
| Building                  |  |
| Shop Gate                 |  |
| Hut                       |  |
| Water Tank                |  |
| Well                      |  |
| Temple                    |  |
| TBM.                      |  |
| Electric Pole             |  |
| Telephone Pole            |  |
| Ht line 11& 33 kva        |  |
| Nala                      |  |
| Drain                     |  |
| Sign Board                |  |
| RYL SP                    |  |
| Tree Gamla                |  |
| Bambu                     |  |
| Culvert                   |  |
| Bridge                    |  |
| Pond                      |  |
| Handpump                  |  |
| Tranfarmer                |  |
| 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              |  |

|                                                                                            |  |                                                                                             |  |            |              |              |                                                                                                                                                                                                            |  |                                           |  |
|--------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------|--|
| -: CONSULTANTS :-                                                                          |  | -: CLIENT :-                                                                                |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        |  | -:PLAN & PROFILE:-                        |  |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD.                                                      |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)                   |  | 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. |  | FROM DES. CH 10+000 - 10+800              |  |
| 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 |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |



PLAN

PROFILE



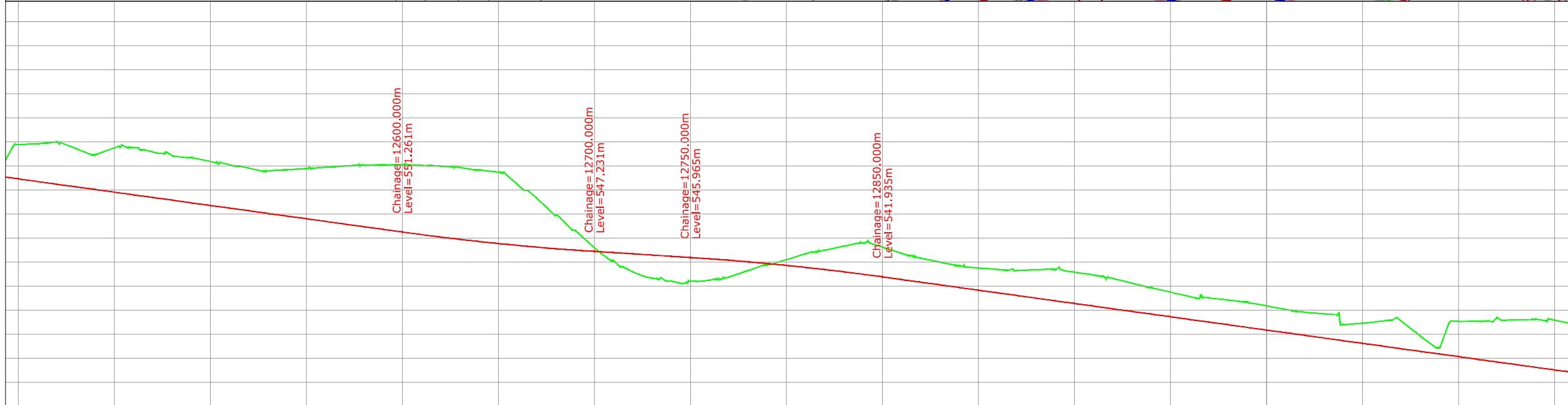
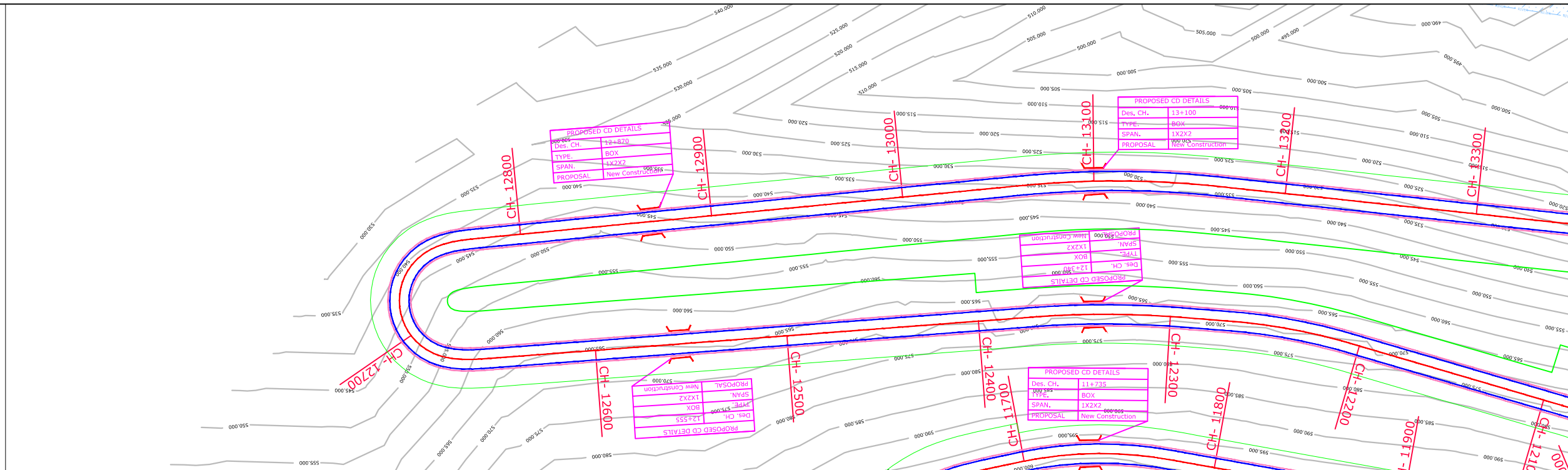
|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | 604.534<br>604.065<br>603.127<br>601.691<br>600.174<br>599.235<br>598.718<br>598.411<br>598.401<br>598.686<br>598.783<br>598.686<br>599.046<br>599.013<br>598.673<br>598.855<br>598.473<br>597.948<br>598.439<br>598.581<br>598.614<br>598.766<br>598.842<br>599.123<br>599.309<br>599.763<br>599.769<br>599.777<br>599.884<br>599.821<br>600.034<br>600.369<br>600.584<br>600.814<br>601.009<br>601.337<br>601.619<br>600.484<br>598.859<br>595.865<br>592.707<br>588.381<br>584.503<br>582.177<br>580.061<br>577.988<br>576.055<br>574.586<br>571.985<br>573.723<br>573.406<br>573.067<br>573.089<br>572.950<br>572.790<br>572.800<br>572.236<br>570.574<br>568.850<br>571.108<br>570.428<br>569.945<br>569.449<br>568.696<br>569.338<br>569.091<br>568.935<br>568.964<br>568.921<br>568.931<br>567.576<br>568.992<br>569.261<br>568.762<br>569.462<br>569.395<br>567.083<br>565.371<br>563.987<br>569.460                                                                                                                                                                              |
| LEVEL DIFF.    | -0.953<br>-1.081<br>-0.739<br>0.101<br>1.022<br>1.365<br>1.286<br>0.997<br>0.411<br>-0.470<br>-1.163<br>-1.663<br>-2.619<br>-3.182<br>-3.439<br>-4.217<br>-4.431<br>-4.501<br>-5.589<br>-6.327<br>-6.956<br>-7.705<br>-8.377<br>-9.253<br>-10.632<br>-11.682<br>-12.284<br>-12.889<br>-13.591<br>-14.125<br>-14.917<br>-15.797<br>-16.522<br>-17.230<br>-17.867<br>-18.603<br>-19.260<br>-18.465<br>-17.145<br>-14.423<br>-11.519<br>-7.449<br>-3.824<br>-1.753<br>0.107<br>1.912<br>3.545<br>4.684<br>6.926<br>4.799<br>4.698<br>4.588<br>4.089<br>3.720<br>3.343<br>2.779<br>2.791<br>3.900<br>5.072<br>2.260<br>2.388<br>2.319<br>2.261<br>2.461<br>1.267<br>0.962<br>0.564<br>-0.017<br>-0.527<br>-1.089<br>-0.288<br>-2.255<br>-3.078<br>-3.131<br>-4.383<br>-4.869<br>-3.110<br>-1.951<br>-1.119<br>-7.145                                                                                                                                                                                                                                                                          |
| Horizontal     | 30m<br>R=75m<br>L=27.87m<br>30m<br>5.985m<br>R=200.000m<br>L=61.910m<br>15m<br>L=185.829m<br>30m<br>R=-30.000m<br>L=61.013m<br>30m<br>L=115.611m<br>R=-300.000m<br>L=61.857m<br>26.72m<br>R=-500.000m<br>L=77.610m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Vertical       | L=800.000m<br>G=-5.961<br>K= 29.284<br>L=100.000m<br>L=50.000m<br>G=-2.547<br>K=33.554<br>L=100.000m<br>L=450.000m<br>G=-5.527                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Superelevation | 7.000%<br>2.500%<br>3.600%<br>7.000%<br>7.000%<br>7.000%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Chainage       | 11600.000<br>11610.000<br>11620.000<br>11630.000<br>11640.000<br>11650.000<br>11660.000<br>11670.000<br>11680.000<br>11690.000<br>11700.000<br>11710.000<br>11720.000<br>11730.000<br>11740.000<br>11750.000<br>11760.000<br>11770.000<br>11780.000<br>11790.000<br>11800.000<br>11810.000<br>11820.000<br>11830.000<br>11840.000<br>11850.000<br>11860.000<br>11870.000<br>11880.000<br>11890.000<br>11900.000<br>11910.000<br>11920.000<br>11930.000<br>11940.000<br>11950.000<br>11960.000<br>11970.000<br>11980.000<br>11990.000<br>12000.000<br>12010.000<br>12020.000<br>12030.000<br>12040.000<br>12050.000<br>12060.000<br>12070.000<br>12080.000<br>12090.000<br>12100.000<br>12110.000<br>12120.000<br>12130.000<br>12140.000<br>12150.000<br>12160.000<br>12170.000<br>12180.000<br>12190.000<br>12200.000<br>12210.000<br>12220.000<br>12230.000<br>12240.000<br>12250.000<br>12260.000<br>12270.000<br>12280.000<br>12290.000<br>12300.000<br>12310.000<br>12320.000<br>12330.000<br>12340.000<br>12350.000<br>12360.000<br>12370.000<br>12380.000<br>12390.000<br>12400.000 |

| 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                       |  |
| Kms RB                    |  |
| IL BL                     |  |
| TOWER                     |  |
| PETROL PUMP               |  |
| Public Tap                |  |
| Proposed ROW              |  |

| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                      |  | -: CLIENT :-                                                                                                                                                                |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        |  | -:PLAN & PROFILE:-                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------|--|
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfra@gmail.com">lninfra@gmail.com</a> |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  | <b>3</b>   |              |              | 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 11+600 - 12+400<br><br><b>DIALONG - OLD TAMENGLONG<br/>SECTION PKG - 2A</b> |  |

## PLAN

## PROFILE



|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | 569.460<br>569.633<br>570.045<br>568.603<br>567.335<br>568.761<br>568.806<br>567.921<br>567.182<br>566.727<br>565.926<br>565.242<br>564.554<br>564.000<br>564.205<br>564.454<br>564.717<br>564.989<br>565.219<br>565.232<br>565.246<br>565.119<br>564.960<br>564.691<br>564.144<br>563.694<br>561.117<br>558.255<br>554.750<br>551.591<br>547.986<br>545.274<br>542.967<br>541.647<br>541.080<br>541.057<br>541.255<br>541.900<br>543.247<br>544.361<br>545.511<br>546.733<br>547.493<br>548.327<br>548.981<br>548.125<br>546.826<br>545.841<br>544.999<br>544.260<br>543.782<br>543.474<br>543.228<br>543.400<br>543.498<br>542.907<br>542.323<br>541.611<br>540.610<br>539.720<br>538.759<br>537.836<br>537.563<br>537.115<br>536.682<br>535.905<br>535.172<br>534.588<br>534.225<br>532.014<br>532.286<br>532.721<br>532.801<br>529.661<br>527.189<br>527.682<br>532.683<br>533.402<br>532.988<br>533.102<br>532.940                                                                                                                                                                   |
| LEVEL DIFF.    | -7.145<br>-7.870<br>-8.836<br>-7.946<br>-7.232<br>-9.210<br>-9.808<br>-9.476<br>-9.289<br>-9.387<br>-9.139<br>-9.006<br>-8.872<br>-8.870<br>-9.627<br>-10.430<br>-11.246<br>-12.070<br>-12.852<br>-13.418<br>-13.986<br>-14.396<br>-14.745<br>-14.954<br>-14.854<br>-14.823<br>-12.633<br>-10.129<br>-6.952<br>-4.091<br>-0.754<br>1.704<br>3.757<br>4.824<br>5.139<br>4.907<br>4.441<br>3.499<br>1.823<br>0.351<br>-1.187<br>-2.826<br>-4.035<br>-5.346<br>-6.509<br>-6.191<br>-5.444<br>-5.011<br>-4.723<br>-4.537<br>-4.611<br>-4.855<br>-5.162<br>-5.887<br>-6.538<br>-6.500<br>-6.469<br>-6.309<br>-5.861<br>-5.525<br>-5.117<br>-4.745<br>-5.025<br>-5.130<br>-5.251<br>-5.025<br>-4.845<br>-4.815<br>-5.004<br>-3.346<br>-4.170<br>-5.158<br>-5.792<br>-3.204<br>-1.285<br>-7.330<br>-7.885<br>-9.157<br>-9.295<br>-9.963<br>-10.352                                                                                                                                                                                                                                               |
| Horizontal     | L=283.294m<br><br>30m<br>R=30.000m<br>L=63.619m<br>30m<br>L=284.212m<br>R=500.000m<br>L=101.432m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Vertical       | L=450.000m<br>G=-5.527<br>L=100.000m<br>K=33.390<br>L=50.000m<br>G=-2.532<br>K=33.379<br>L=100.000m<br>L=527.703m<br>G=-5.528                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Superelevation | 7.000%<br>Q=2.500<br>7.000%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Chainage       | 12400.000<br>12410.000<br>12420.000<br>12430.000<br>12440.000<br>12450.000<br>12460.000<br>12470.000<br>12480.000<br>12490.000<br>12500.000<br>12510.000<br>12520.000<br>12530.000<br>12540.000<br>12550.000<br>12560.000<br>12570.000<br>12580.000<br>12590.000<br>12600.000<br>12610.000<br>12620.000<br>12630.000<br>12640.000<br>12650.000<br>12660.000<br>12670.000<br>12680.000<br>12690.000<br>12700.000<br>12710.000<br>12720.000<br>12730.000<br>12740.000<br>12750.000<br>12760.000<br>12770.000<br>12780.000<br>12790.000<br>12800.000<br>12810.000<br>12820.000<br>12830.000<br>12840.000<br>12850.000<br>12860.000<br>12870.000<br>12880.000<br>12890.000<br>12900.000<br>12910.000<br>12920.000<br>12930.000<br>12940.000<br>12950.000<br>12960.000<br>12970.000<br>12980.000<br>12990.000<br>13000.000<br>13010.000<br>13020.000<br>13030.000<br>13040.000<br>13050.000<br>13060.000<br>13070.000<br>13080.000<br>13090.000<br>13100.000<br>13110.000<br>13120.000<br>13130.000<br>13140.000<br>13150.000<br>13160.000<br>13170.000<br>13180.000<br>13190.000<br>13200.000 |

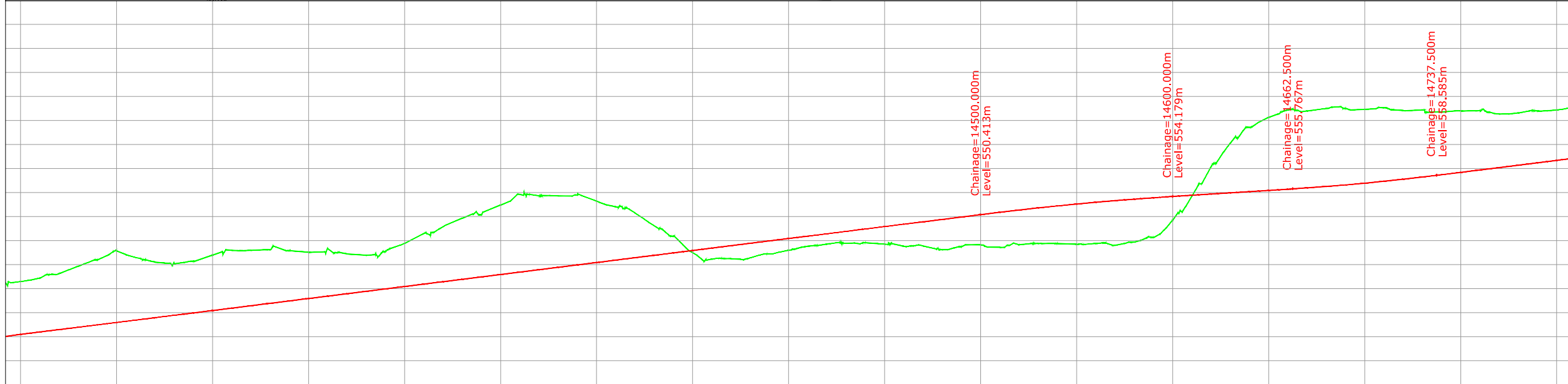
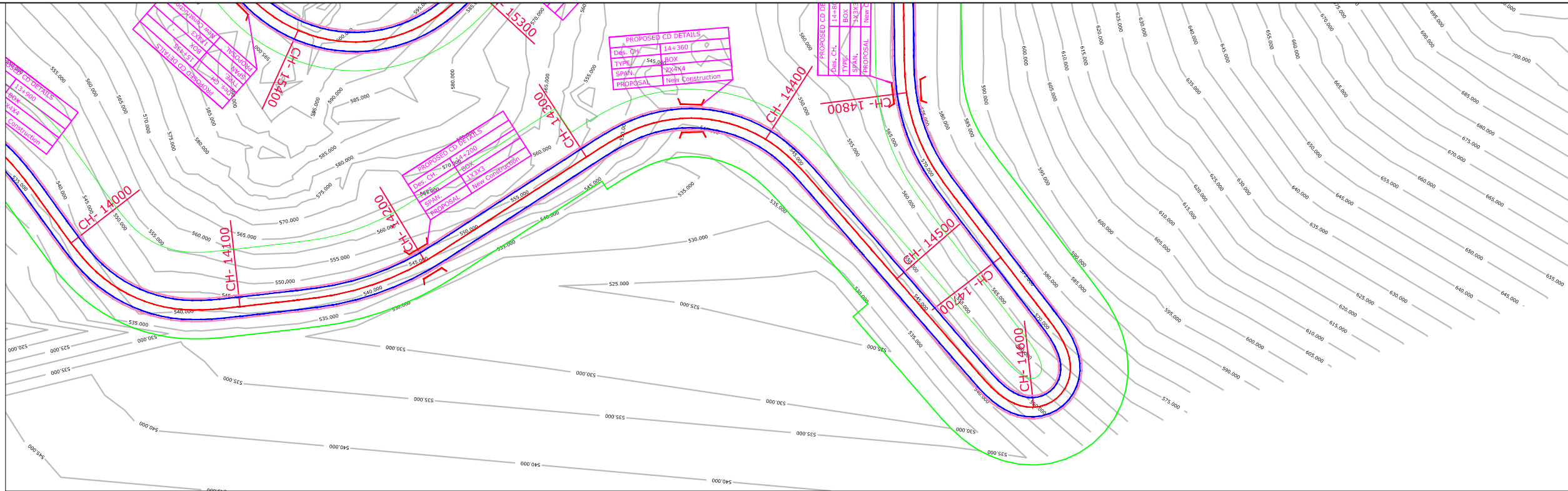
| Legend                    |                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------|
| Building                  |    |
| Shop Gate                 |    |
| 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                       |  |
| Kms RB                    |  |
| IL BL                     |  |
| TOWER                     |  |
| PETROL PUMP               |  |
| Public Tap                |  |
| Proposed ROW              |  |

|                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                      |  |            |              |              |                                                                                                                                                                                                                     |                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                                      |  | -: CLIENT :-                                                                                                                                                                         |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                                 | -:PLAN & PROFILE:-                                                                               |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfraprojects@gmail.com">lninfraprojects@gmail.com</a> |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>         DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  | 4          |              |              | Consultancy Services for Preparation of Feasibility Study<br>and Detailed Project Report For Two lane With Paved<br>Shoulders of Tamenglong - Dialong - Old Tamenglong<br>Road In The State of Manipur on EPC Mode. | FROM DES. CH 12+400 - 13+200<br><br><b>DIALONG - OLD TAMEGLONG<br/>         SECTION PKG - 2A</b> |



PLAN

PROFILE



|           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |  |        |  |        |  | 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| 14000.000 | 14010.000 | 14020.000 | 14030.000 | 14040.000 | 14050.000 | 14060.000 | 14070.000 | 14080.000 | 14090.000 | 14100.000 | 14110.000 | 14120.000 | 14130.000 | 14140.000 | 14150.000 | 14160.000 | 14170.000 | 14180.000 | 14190.000 | 14200.000 | 14210.000 | 14220.000 | 14230.000 | 14240.000 | 14250.000 | 14260.000 | 14270.000 | 14280.000 | 14290.000 | 14300.000 | 14310.000 | 14320.000 | 14330.000 | 14340.000 | 14350.000 | 14360.000 | 14370.000 | 14380.000 | 14390.000 | 14400.000 | 14410.000 | 14420.000 | 14430.000 | 14440.000 | 14450.000 | 14460.000 | 14470.000 | 14480.000 | 14490.000 | 14500.000 | 14510.000 | 14520.000 | 14530.000 | 14540.000 | 14550.000 | 14560.000 | 14570.000 | 14580.000 | 14590.000 | 14600.000 | 14610.000 | 14620.000 | 14630.000 | 14640.000 | 14650.000 | 14660.000 | 14670.000 | 14680.000 | 14690.000 | 14700.000 | 14710.000 | 14720.000 | 14730.000 | 14740.000 | 14750.000 | 14760.000 | 14770.000 | 14780.000 | 14790.000 | 14800.000 |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |        |  |      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| 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |           | 7.000%    |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000% |  | 7.000 |  |

| 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                       |  |
| Kms RB                    |  |
| IL BL                     |  |
| TOWER                     |  |
| PETROL PUMP               |  |
| Public Tap                |  |
| Proposed ROW              |  |

-: 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](mailto:lninfra@projects@gmail.com)

-: CLIENT :-

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



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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.

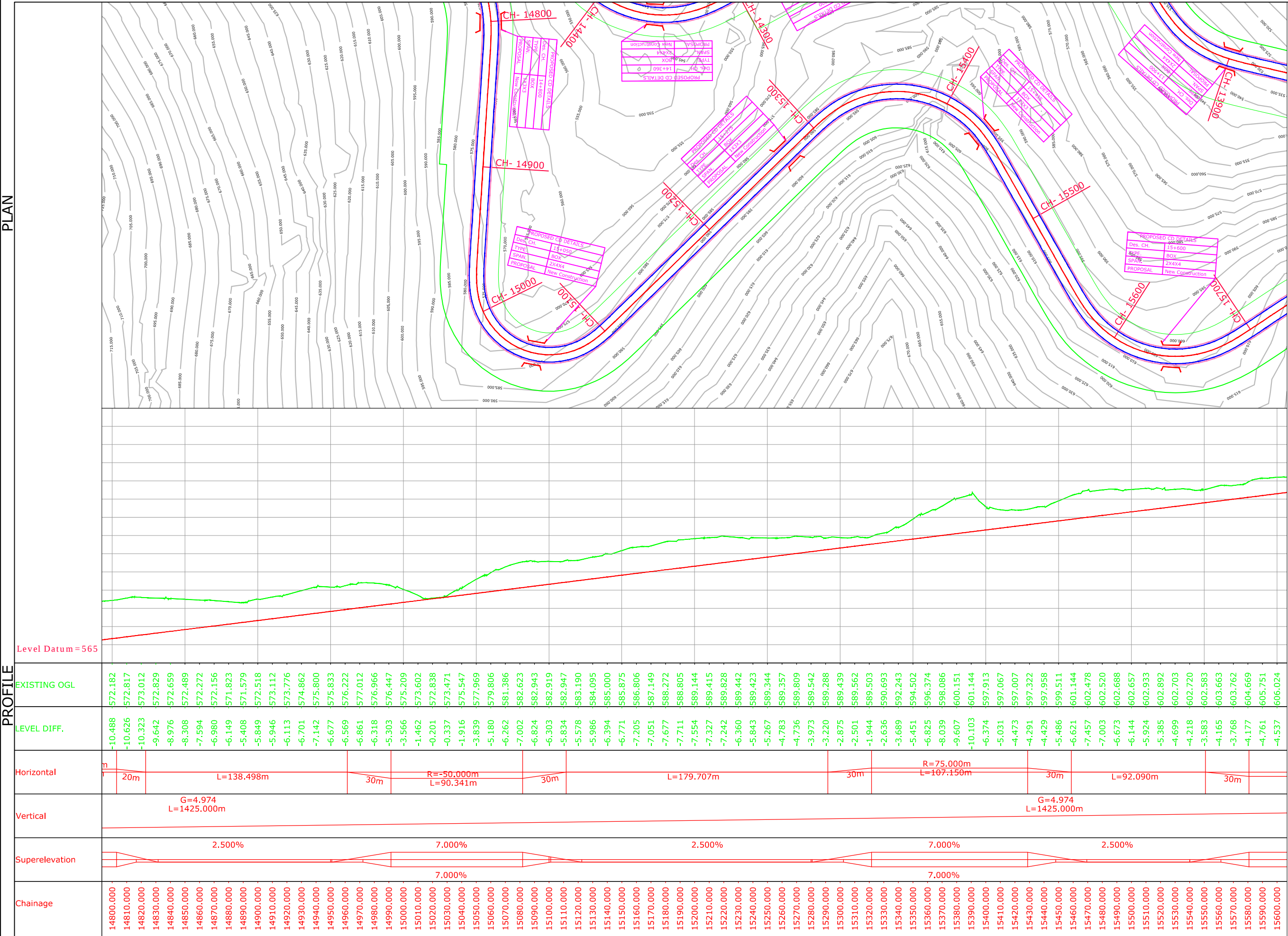
-:PLAN & PROFILE:-

FROM DES. CH 14+000 - 14+800

**DIALONG - OLD TAMENGLONG  
SECTION PKG - 2A**

PLAN

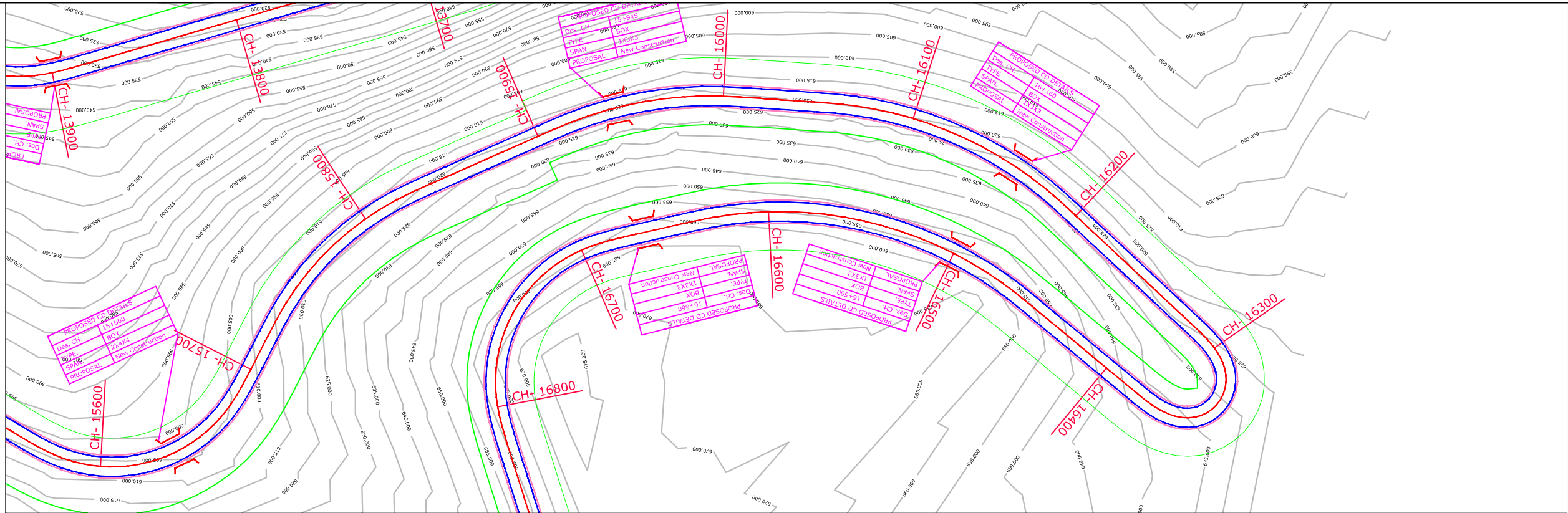
PROFILE



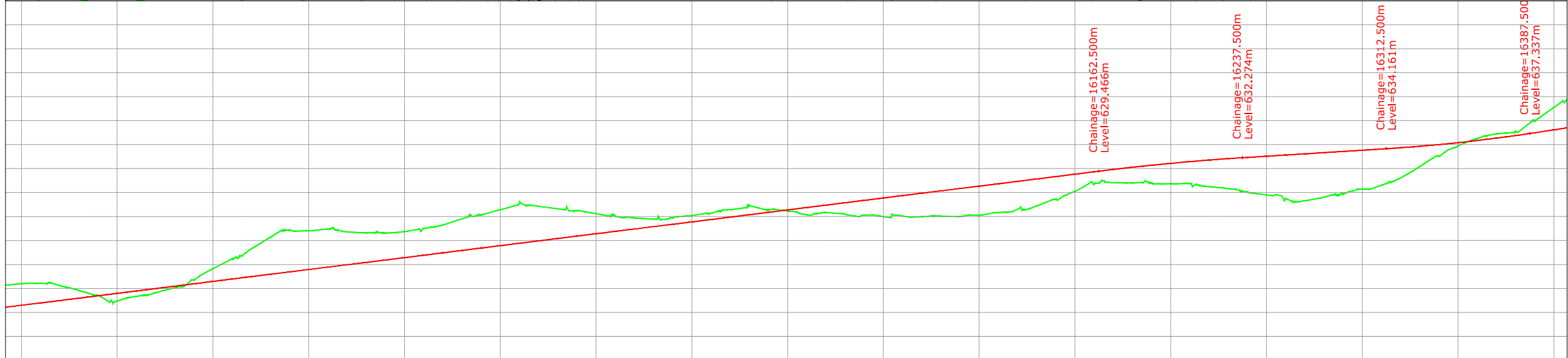
| Legend                    |  |
|---------------------------|--|
| Building                  |  |
| Shop Gate                 |  |
| Hut                       |  |
| Water Tank                |  |
| Well                      |  |
| Temple                    |  |
| TBM.                      |  |
| Electric Pole             |  |
| Telephone Pole            |  |
| Ht line 11& 33 kva        |  |
| Nala                      |  |
| Drain                     |  |
| Sign Board RYL SP         |  |
| Tree Gamla                |  |
| Bambu                     |  |
| Culvert                   |  |
| Bridge                    |  |
| Pond                      |  |
| Handpump                  |  |
| 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                       |  |
| 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.                                                      |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)          |  | 7          |              |              | 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 14+800 - 15+600              |  |
| 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@gmail.com |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |

PLAN



PROFILE



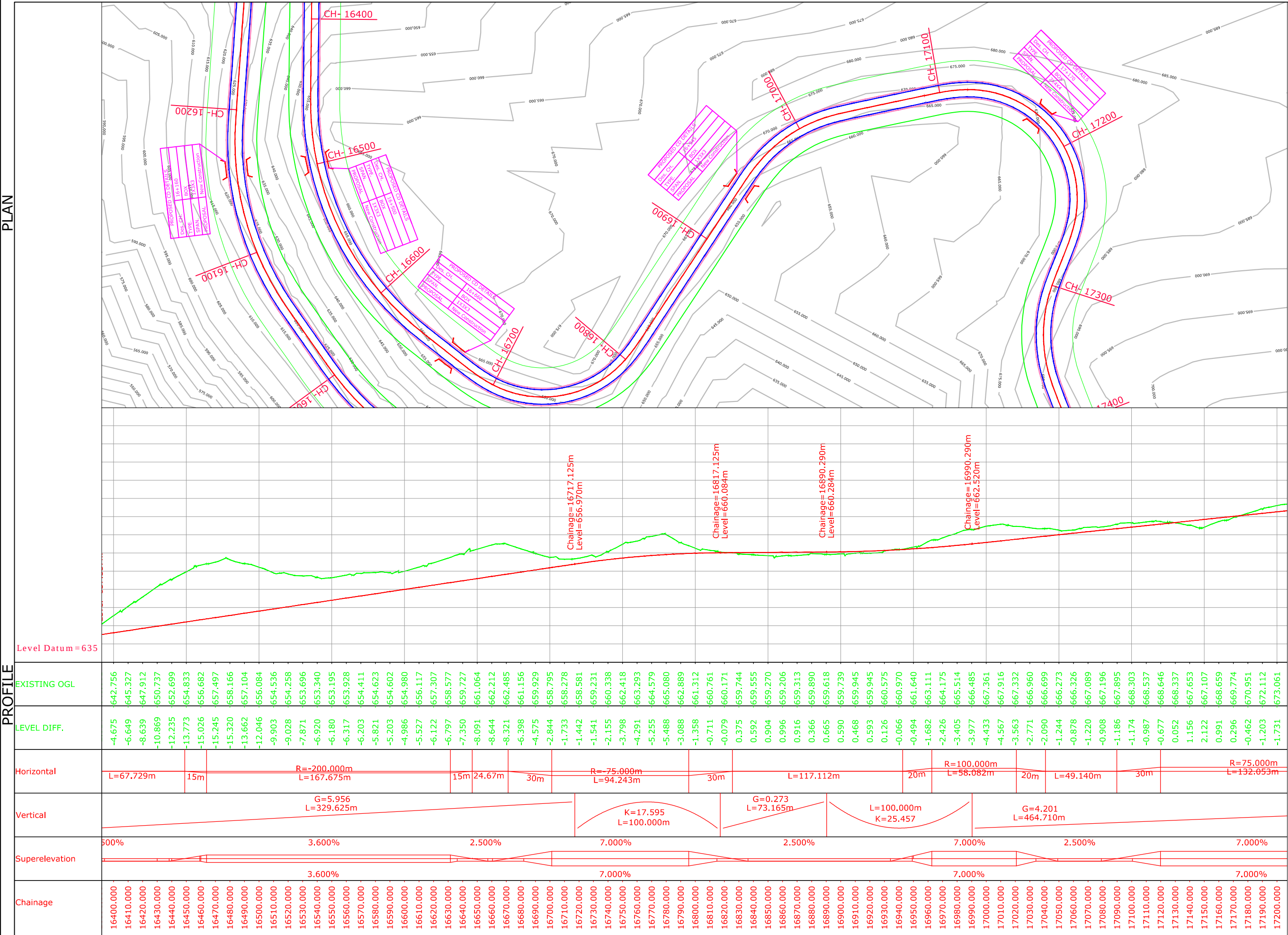
|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | 606.024<br>606.102<br>605.602<br>604.596<br>603.560<br>602.393<br>603.336<br>604.094<br>605.123<br>606.773<br>609.127<br>611.168<br>613.254<br>615.666<br>617.158<br>617.017<br>617.386<br>616.786<br>616.587<br>616.548<br>616.847<br>617.476<br>618.238<br>619.497<br>620.343<br>621.432<br>622.889<br>622.155<br>621.613<br>621.217<br>620.591<br>620.099<br>619.714<br>619.466<br>619.735<br>620.200<br>620.685<br>621.434<br>622.274<br>621.371<br>621.125<br>620.367<br>620.845<br>620.479<br>620.292<br>619.979<br>620.152<br>619.982<br>620.090<br>619.994<br>620.252<br>620.850<br>621.519<br>622.222<br>623.585<br>625.261<br>626.806<br>627.062<br>626.998<br>627.000<br>626.851<br>626.890<br>626.246<br>625.839<br>625.151<br>624.522<br>623.697<br>623.312<br>624.064<br>624.762<br>625.725<br>626.521<br>628.063<br>630.423<br>632.642<br>634.731<br>636.310<br>637.244<br>637.789<br>640.001<br>642.756                                                                                                                                                                   |
| LEVEL DIFF.    | -4.537<br>-4.118<br>-3.121<br>-1.617<br>-0.084<br>1.580<br>1.135<br>0.875<br>0.343<br>-0.809<br>-2.666<br>-4.209<br>-5.799<br>-7.713<br>-8.707<br>-8.069<br>-7.941<br>-6.844<br>-6.147<br>-5.611<br>-5.413<br>-5.543<br>-5.808<br>-6.571<br>-6.919<br>-7.511<br>-8.470<br>-7.238<br>-6.200<br>-5.306<br>-4.182<br>-3.192<br>-2.311<br>-1.565<br>-1.337<br>-1.304<br>-1.292<br>-1.544<br>-1.886<br>-0.486<br>0.257<br>1.514<br>1.533<br>2.396<br>3.080<br>3.891<br>4.216<br>4.883<br>5.272<br>5.865<br>6.105<br>6.004<br>5.833<br>5.627<br>4.761<br>3.583<br>2.536<br>2.767<br>3.288<br>3.710<br>4.249<br>4.569<br>5.537<br>6.238<br>7.187<br>8.066<br>9.143<br>9.779<br>9.279<br>8.832<br>8.122<br>7.577<br>6.299<br>4.249<br>2.383<br>0.696<br>-0.437<br>-0.879<br>-0.885<br>-2.514<br>-4.675                                                                                                                                                                                                                                                                                            |
| Horizontal     | R=75.000m<br>L=93.383m<br>30m<br>13.2m<br>20m<br>R=150.000m<br>L=82.471m<br>20m<br>L=63.077m<br>15m<br>R=200.000m<br>L=82.011m<br>15m<br>33.37m<br>15m<br>R=200.000m<br>L=121.745m<br>15m<br>L=84.329m<br>35m<br>R=20m<br>L=26.644m<br>35m<br>L=6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Vertical       | G=4.974<br>L=1425.000m<br>K=30.504<br>L=75.000m<br>G=2.515<br>L=75.000m<br>L=75.000m<br>K=21.798                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Superelevation | 7.000%<br>2.500%<br>4.700%<br>2.500%<br>3.600%<br>2.500%<br>3.600%<br>2.500%<br>2.500%<br>7.000%<br>2.500%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Chainage       | 15600.000<br>15610.000<br>15620.000<br>15630.000<br>15640.000<br>15650.000<br>15660.000<br>15670.000<br>15680.000<br>15690.000<br>15700.000<br>15710.000<br>15720.000<br>15730.000<br>15740.000<br>15750.000<br>15760.000<br>15770.000<br>15780.000<br>15790.000<br>15800.000<br>15810.000<br>15820.000<br>15830.000<br>15840.000<br>15850.000<br>15860.000<br>15870.000<br>15880.000<br>15890.000<br>15900.000<br>15910.000<br>15920.000<br>15930.000<br>15940.000<br>15950.000<br>15960.000<br>15970.000<br>15980.000<br>15990.000<br>16000.000<br>16010.000<br>16020.000<br>16030.000<br>16040.000<br>16050.000<br>16060.000<br>16070.000<br>16080.000<br>16090.000<br>16100.000<br>16110.000<br>16120.000<br>16130.000<br>16140.000<br>16150.000<br>16160.000<br>16170.000<br>16180.000<br>16190.000<br>16200.000<br>16210.000<br>16220.000<br>16230.000<br>16240.000<br>16250.000<br>16260.000<br>16270.000<br>16280.000<br>16290.000<br>16300.000<br>16310.000<br>16320.000<br>16330.000<br>16340.000<br>16350.000<br>16360.000<br>16370.000<br>16380.000<br>16390.000<br>16400.000 |

| Legend                    |  |
|---------------------------|--|
| Building                  |  |
| Shop Gate                 |  |
| Hut                       |  |
| Water Tank                |  |
| Well                      |  |
| Temple                    |  |
| TBM.                      |  |
| Electric Pole             |  |
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| Ht line 11& 33 kva        |  |
| Nala                      |  |
| Drain                     |  |
| Sign Board                |  |
| RYL SP                    |  |
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| 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                       |  |
| Kms RB                    |  |
| IL BL                     |  |
| TOWER                     |  |
| PETROL PUMP               |  |
| Public Tap                |  |
| Proposed ROW              |  |

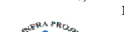
|                                                                                            |  |                                                                                             |  |            |              |              |                                                                                                                                                                                                            |  |                                           |  |
|--------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------|--|
| -: CONSULTANTS :-                                                                          |  | -: CLIENT :-                                                                                |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        |  | -:PLAN & PROFILE:-                        |  |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD.                                                      |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)                   |  | 8          |              |              | 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 15+600 - 16+400              |  |
| 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 |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |

PLAN

PROFILE

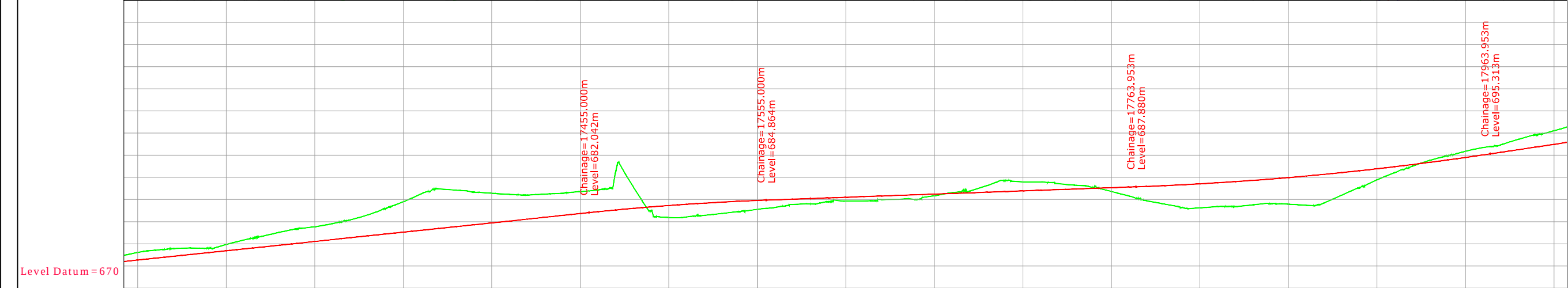
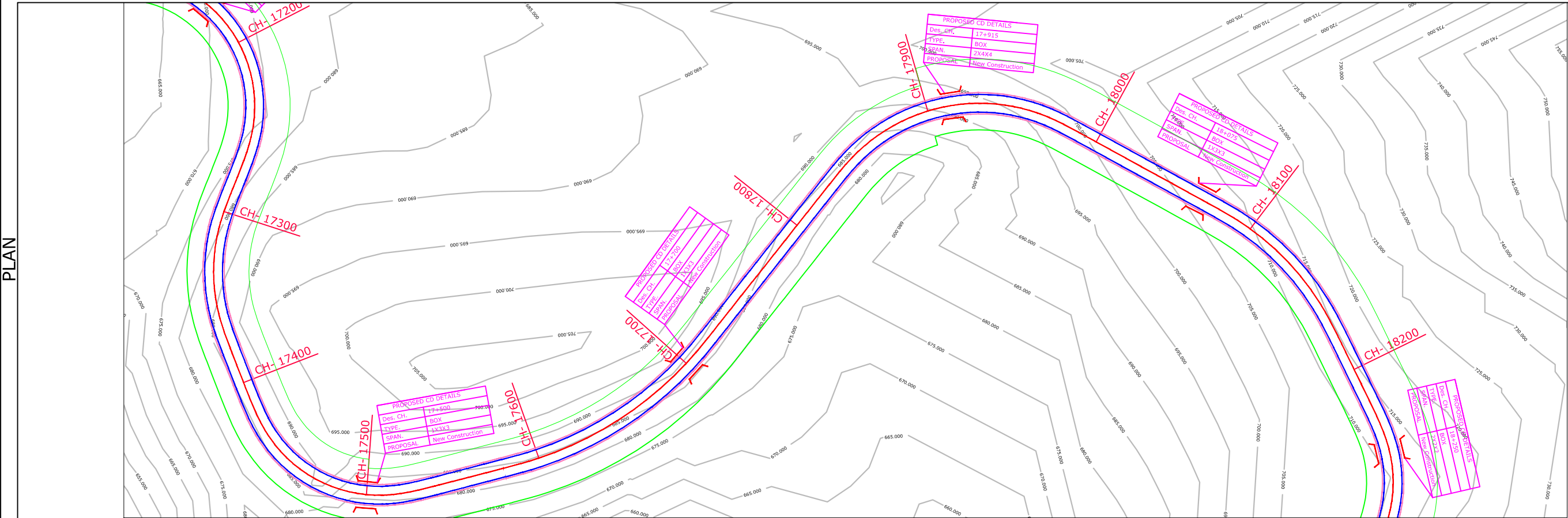


| Legend                    |  |
|---------------------------|--|
| Building                  |  |
| Shop Gate                 |  |
| Hut                       |  |
| Water Tank                |  |
| Well                      |  |
| Temple                    |  |
| TBM.                      |  |
| Electric Pole             |  |
| Telephone Pole            |  |
| Ht line 11& 33 kva        |  |
| Nala                      |  |
| Drain                     |  |
| Sign Board RYL SP         |  |
| Tree Gamla Bambu          |  |
| Culvert                   |  |
| Bridge                    |  |
| Pond                      |  |
| Handpump                  |  |
| 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                       |  |
| 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.                                                                                                                                                                                                                                                                                                                                                             |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)                                                                                                    |  | 9          |              |              | 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 16+400 - 17+200              |  |
| <div><div><div>L.N. MALVIYA INFRA PROJECTS PVT. LTD.<br/>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br/>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br/>Tel./Fax : 0755-4295421,<br/>Mob.: 09826452711, 09977004686<br/>E-mail : <a href="mailto:lninfra@gmail.com">lninfra@gmail.com</a></div></div></div> |  | <div><div><div>NHIDCL<br/>BUILDING INFRASTRUCTURE • BUILDING THE NATION</div></div></div> |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |

PLAN

PROFILE



|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | -1.731<br>-1.811<br>-1.763<br>-1.453<br>-1.005<br>-1.410<br>-2.019<br>-2.403<br>-2.891<br>-3.221<br>-3.319<br>-3.590<br>-4.035<br>-4.739<br>-5.701<br>-6.857<br>-8.211<br>-8.946<br>-8.220<br>-7.362<br>-6.701<br>-6.025<br>-5.451<br>-5.233<br>-4.993<br>-4.980<br>-4.930<br>-8.700<br>-4.830<br>0.890<br>2.719<br>2.862<br>2.766<br>2.555<br>2.357<br>2.011<br>1.725<br>1.183<br>1.214<br>0.849<br>0.862<br>0.967<br>0.803<br>0.899<br>1.091<br>0.393<br>-0.173<br>-0.390<br>-1.502<br>-2.469<br>-2.021<br>-1.847<br>-1.346<br>-0.838<br>-0.210<br>0.860<br>2.035<br>3.246<br>4.156<br>5.122<br>5.432<br>5.379<br>5.671<br>5.513<br>5.572<br>6.008<br>6.585<br>6.484<br>5.107<br>3.912<br>2.496<br>1.335<br>0.362<br>-0.462<br>-0.915<br>-1.405<br>-1.665<br>-1.689<br>-2.350<br>-2.704<br>-3.071                                                                                                                                                                                                                                                                                       |
| LEVEL DIFF.    | 0m<br>3m<br>30m<br>20m<br>R=-100.000m<br>L=55.310m<br>20m<br>20.63m<br>30m<br>R=-75.000m<br>L=79.123m<br>30m<br>L=37.840m<br>15m<br>R=-200.000m<br>L=114.307m<br>15m<br>L=106.248m<br>20m<br>R=100.000m<br>L=120.244m<br>20m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Horizontal     | G=4.201<br>L=464.710m<br>K=36.266<br>L=100.000m<br>G=1.443<br>L=208.953m<br>L=200.000m<br>K=43.985<br>G=5.990<br>L=636.047m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Vertical       | 2.500%<br>7.000%<br>2.500%<br>7.000%<br>2.500%<br>3.600%<br>2.500%<br>7.000%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Superelevation | 7.000%<br>7.000%<br>3.600%<br>7.000%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Chainage       | 17200.000<br>17210.000<br>17220.000<br>17230.000<br>17240.000<br>17250.000<br>17260.000<br>17270.000<br>17280.000<br>17290.000<br>17300.000<br>17310.000<br>17320.000<br>17330.000<br>17340.000<br>17350.000<br>17360.000<br>17370.000<br>17380.000<br>17390.000<br>17400.000<br>17410.000<br>17420.000<br>17430.000<br>17440.000<br>17450.000<br>17460.000<br>17470.000<br>17480.000<br>17490.000<br>17500.000<br>17510.000<br>17520.000<br>17530.000<br>17540.000<br>17550.000<br>17560.000<br>17570.000<br>17580.000<br>17590.000<br>17600.000<br>17610.000<br>17620.000<br>17630.000<br>17640.000<br>17650.000<br>17660.000<br>17670.000<br>17680.000<br>17690.000<br>17700.000<br>17710.000<br>17720.000<br>17730.000<br>17740.000<br>17750.000<br>17760.000<br>17770.000<br>17780.000<br>17790.000<br>17800.000<br>17810.000<br>17820.000<br>17830.000<br>17840.000<br>17850.000<br>17860.000<br>17870.000<br>17880.000<br>17890.000<br>17900.000<br>17910.000<br>17920.000<br>17930.000<br>17940.000<br>17950.000<br>17960.000<br>17970.000<br>17980.000<br>17990.000<br>18000.000 |

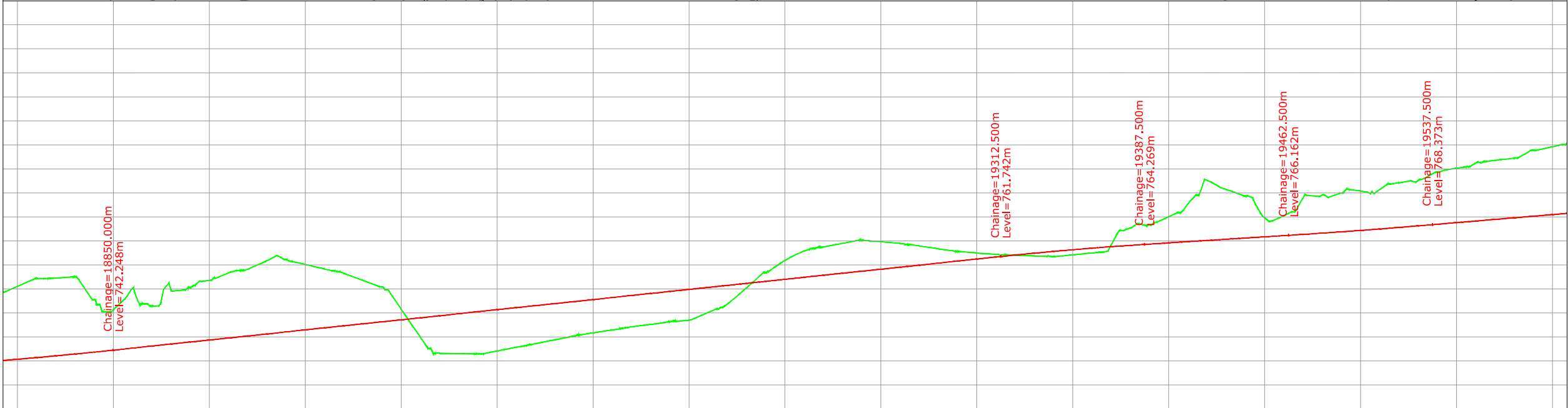
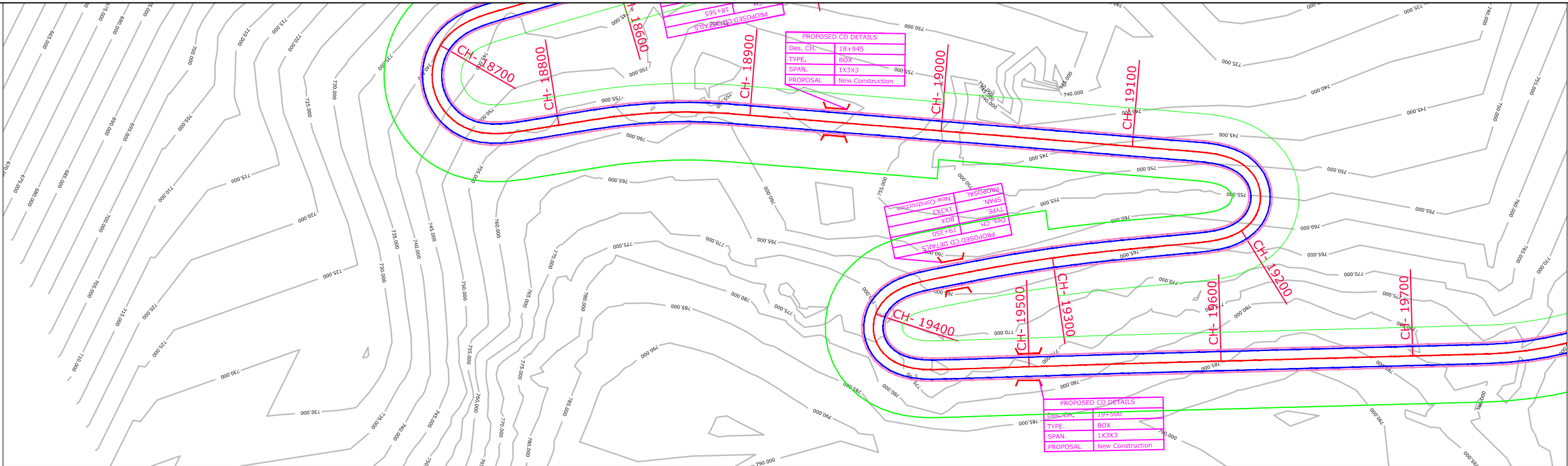
| Legend                    |  |
|---------------------------|--|
| Building                  |  |
| Shop Gate                 |  |
| Hut                       |  |
| Water Tank                |  |
| Well                      |  |
| Temple                    |  |
| TBM.                      |  |
| Electric 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                       |  |
| 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.                                                      |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL) |  | 10         |              |              | 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 17+200 - 18+000              |  |
| T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.) |  |                                                                           |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |
| Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@gmail.com         |  |                                                                           |  |            |              |              |                                                                                                                                                                                                            |  |                                           |  |



PLAN

PROFILE



| EXISTING OGL   | 755.537<br>757.175<br>757.250<br>757.533<br>752.749<br>750.643<br>755.120<br>751.433<br>754.770<br>755.320<br>756.779<br>758.332<br>759.127<br>760.876<br>761.130<br>760.089<br>759.149<br>758.282<br>756.778<br>755.414<br>750.769<br>744.931<br>741.615<br>741.516<br>741.485<br>742.070<br>742.843<br>743.607<br>744.390<br>745.162<br>745.845<br>746.445<br>747.093<br>747.594<br>748.156<br>748.479<br>750.092<br>751.858<br>755.234<br>758.410<br>760.940<br>762.882<br>763.721<br>764.493<br>765.136<br>764.828<br>764.484<br>763.953<br>763.344<br>762.820<br>762.492<br>762.179<br>762.004<br>761.846<br>761.719<br>762.088<br>762.492<br>764.118<br>767.686<br>768.373<br>770.019<br>772.687<br>777.625<br>775.721<br>774.332<br>769.835<br>770.231<br>773.931<br>774.520<br>774.955<br>775.381<br>775.703<br>777.107<br>777.612<br>779.313<br>780.124<br>781.215<br>781.769<br>782.224<br>783.871<br>784.609                                                                                                                                                                   |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LEVEL DIFF.    | -15.180<br>-16.476<br>-16.189<br>-16.094<br>-10.914<br>-8.396<br>-12.450<br>-8.343<br>-11.257<br>-11.386<br>-12.423<br>-13.556<br>-13.929<br>-15.256<br>-15.089<br>-13.627<br>-12.266<br>-10.977<br>-9.052<br>-7.266<br>-2.200<br>4.060<br>7.797<br>8.318<br>8.770<br>8.607<br>8.256<br>7.914<br>7.552<br>7.202<br>6.939<br>6.762<br>6.534<br>6.455<br>6.315<br>6.413<br>5.222<br>3.878<br>0.923<br>-1.831<br>-3.941<br>-5.460<br>-5.878<br>-6.229<br>-6.451<br>-5.720<br>-4.955<br>-4.003<br>-2.972<br>-2.027<br>-1.278<br>-0.543<br>0.048<br>0.598<br>1.096<br>1.076<br>0.997<br>-0.326<br>-3.612<br>-4.042<br>-5.434<br>-7.850<br>-12.535<br>-10.380<br>-8.738<br>-3.988<br>-4.132<br>-7.576<br>-7.900<br>-8.056<br>-8.193<br>-8.215<br>-9.307<br>-9.489<br>-10.855<br>-11.329<br>-12.083<br>-12.300<br>-12.417<br>-13.728<br>-14.129                                                                                                                                                                                                                                                  |
| Horizontal     | 35.95m<br>R=300.000m<br>L=72.130m<br>L=240.413m<br>35m<br>R=20m<br>L=24.345m<br>35m<br>L=36.785m<br>R=-800.000m<br>L=80.914m<br>18.23m<br>35m<br>R=20m<br>L=24.581m<br>35m<br>L=95.214m<br>R=800m<br>L=3.69m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Vertical       | L=100.000m<br>K=57.862<br>G=4.215<br>L=462.500m<br>K=44.372<br>L=75.000m<br>G=2.524<br>L=75.000m<br>L=75.000m<br>K=88.521<br>G=3.372<br>L=153.937m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Superelevation | 2.500%<br>7.000%<br>2.500%<br>7.000%<br>2.500%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Chainage       | 18800.000<br>18810.000<br>18820.000<br>18830.000<br>18840.000<br>18850.000<br>18860.000<br>18870.000<br>18880.000<br>18890.000<br>18900.000<br>18910.000<br>18920.000<br>18930.000<br>18940.000<br>18950.000<br>18960.000<br>18970.000<br>18980.000<br>18990.000<br>19000.000<br>19010.000<br>19020.000<br>19030.000<br>19040.000<br>19050.000<br>19060.000<br>19070.000<br>19080.000<br>19090.000<br>19100.000<br>19110.000<br>19120.000<br>19130.000<br>19140.000<br>19150.000<br>19160.000<br>19170.000<br>19180.000<br>19190.000<br>19200.000<br>19210.000<br>19220.000<br>19230.000<br>19240.000<br>19250.000<br>19260.000<br>19270.000<br>19280.000<br>19290.000<br>19300.000<br>19310.000<br>19320.000<br>19330.000<br>19340.000<br>19350.000<br>19360.000<br>19370.000<br>19380.000<br>19390.000<br>19400.000<br>19410.000<br>19420.000<br>19430.000<br>19440.000<br>19450.000<br>19460.000<br>19470.000<br>19480.000<br>19490.000<br>19500.000<br>19510.000<br>19520.000<br>19530.000<br>19540.000<br>19550.000<br>19560.000<br>19570.000<br>19580.000<br>19590.000<br>19600.000 |

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                       |  |
| Kms RB                    |  |
| IL BL                     |  |
| TOWER                     |  |
| PETROL PUMP               |  |
| Public Tap                |  |
| Proposed ROW              |  |

:- 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](mailto:lninfra@projects@gmail.com)

:- CLIENT :-

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



DRG. NO. :

**12**

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:-

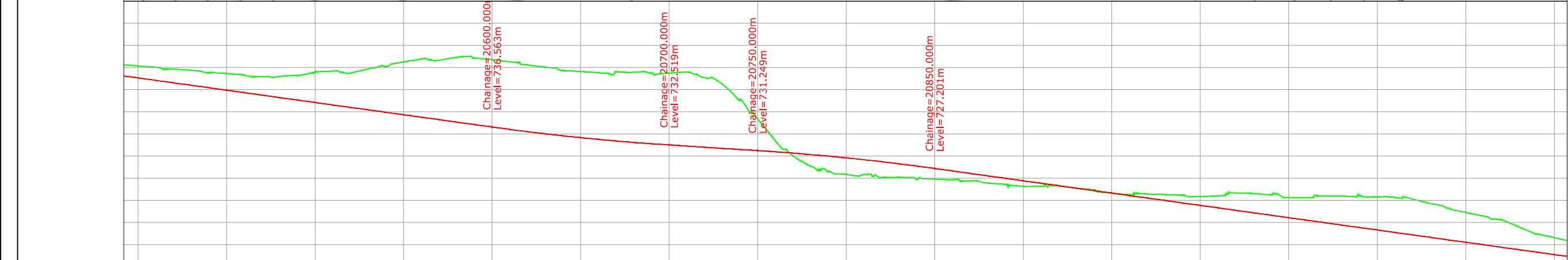
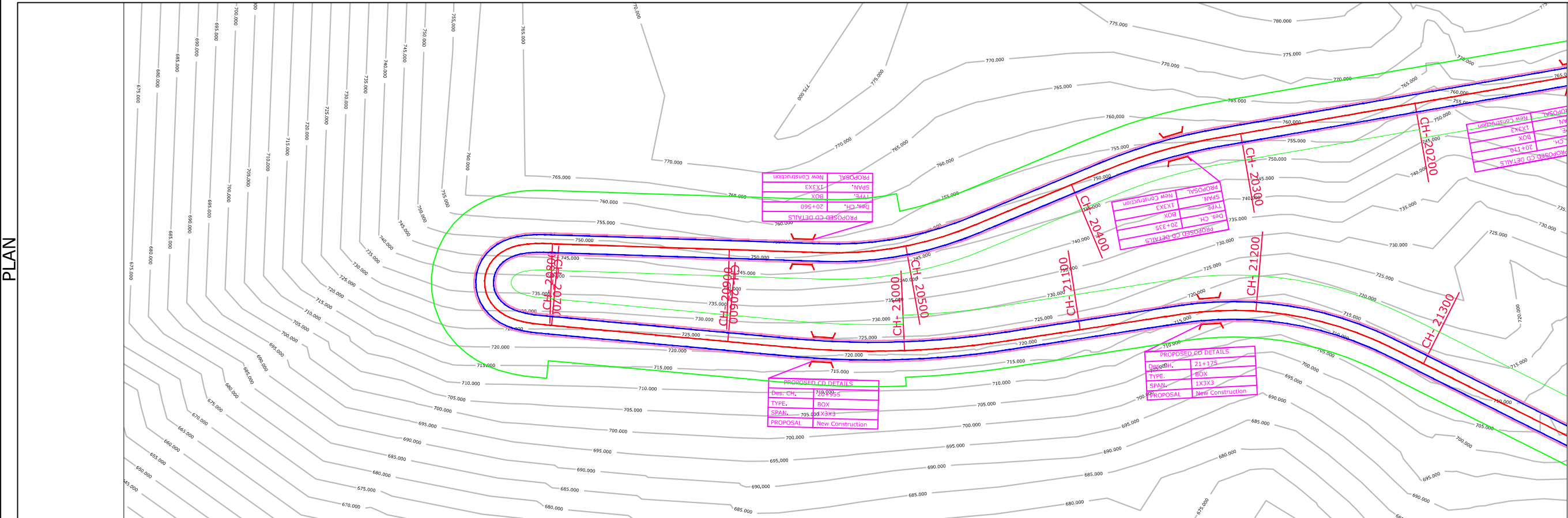
FROM DES. CH 18+800 - 19+600

**DIALONG - OLD TAMENGLONG  
SECTION PKG - 2A**



PLAN

PROFILE



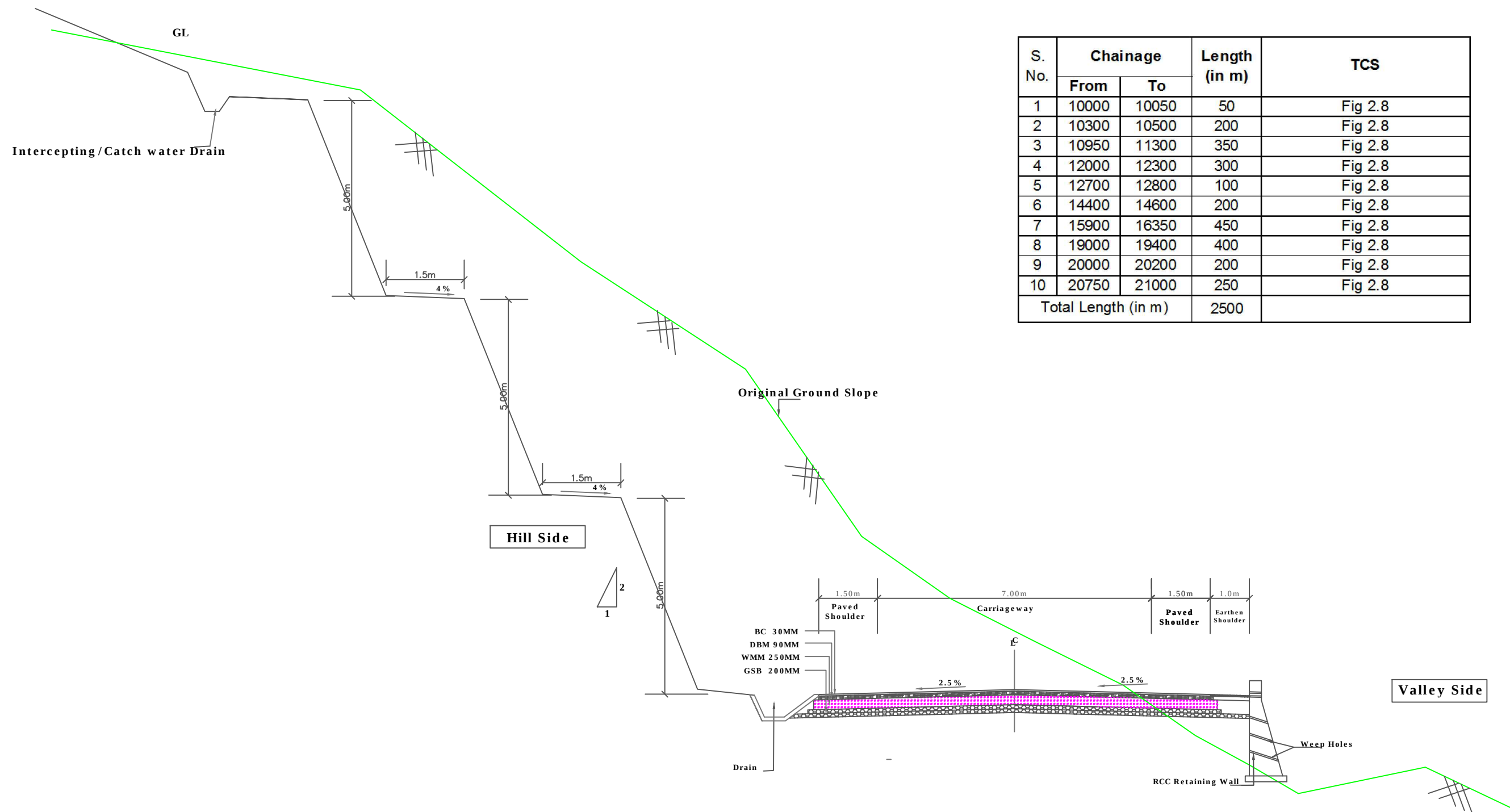
|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING OGL   | 750.381<br>750.056<br>749.642<br>749.369<br>748.781<br>748.621<br>748.265<br>747.945<br>747.949<br>748.191<br>748.938<br>749.179<br>748.730<br>749.667<br>750.198<br>751.246<br>751.914<br>751.639<br>752.281<br>752.138<br>751.738<br>751.309<br>750.566<br>750.085<br>749.342<br>749.092<br>748.824<br>749.064<br>748.931<br>748.753<br>748.746<br>748.976<br>747.720<br>746.276<br>742.708<br>738.398<br>733.446<br>730.047<br>727.689<br>726.528<br>725.873<br>725.831<br>725.176<br>725.198<br>724.781<br>724.802<br>724.670<br>724.393<br>723.901<br>723.625<br>723.164<br>723.165<br>723.226<br>722.807<br>722.415<br>721.624<br>721.282<br>721.464<br>721.308<br>721.162<br>720.859<br>721.004<br>721.677<br>721.555<br>721.230<br>721.230<br>720.613<br>720.622<br>720.994<br>720.980<br>721.052<br>720.794<br>720.655<br>720.311<br>719.306<br>718.264<br>717.264<br>716.445<br>715.600<br>714.000<br>712.426<br>711.582                                                                                                                                                        |
| LEVEL DIFF.    | -2.729<br>-2.959<br>-3.099<br>-3.381<br>-3.347<br>-3.742<br>-3.940<br>-4.174<br>-4.733<br>-5.530<br>-6.831<br>-7.627<br>-7.732<br>-9.223<br>-10.309<br>-11.912<br>-13.134<br>-13.414<br>-14.610<br>-15.021<br>-15.176<br>-15.285<br>-15.053<br>-15.051<br>-14.758<br>-14.927<br>-15.047<br>-15.647<br>-15.844<br>-15.965<br>-16.227<br>-16.710<br>-15.708<br>-14.519<br>-11.206<br>-7.150<br>-2.467<br>0.633<br>2.662<br>3.462<br>3.729<br>3.350<br>3.556<br>3.054<br>2.960<br>2.399<br>1.976<br>1.696<br>1.634<br>1.354<br>1.260<br>0.703<br>0.086<br>-0.050<br>-0.212<br>-0.022<br>-0.190<br>-0.929<br>-1.327<br>-1.736<br>-1.990<br>-2.690<br>-3.918<br>-4.351<br>-4.582<br>-4.521<br>-5.084<br>-6.012<br>-6.554<br>-7.181<br>-7.478<br>-7.894<br>-8.105<br>-7.657<br>-6.170<br>-6.726<br>-6.462<br>-6.171<br>-5.127<br>-4.108<br>-3.821                                                                                                                                                                                                                                               |
| Horizontal     | L=72.090m<br>15m<br>R=200.000m<br>L=70.762m<br>15m<br>L=147.428m<br>35m<br>R=20m<br>L=26.653m<br>35m<br>L=139.155m<br>R=-500.000m<br>L=121.889m<br>L=91.166m<br>15m<br>R=100.000m<br>L=100.000m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Vertical       | L=608.563m<br>G=-5.545<br>L=100.000m<br>K=33.297<br>L=50.000m<br>G=-2.542<br>K=33.193<br>L=100.000m<br>L=812.500m<br>G=-5.554                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Superelevation | 3.600%<br>2.500%<br>7.000%<br>2.500%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Chainage       | 20400.000<br>20410.000<br>20420.000<br>20430.000<br>20440.000<br>20450.000<br>20460.000<br>20470.000<br>20480.000<br>20490.000<br>20500.000<br>20510.000<br>20520.000<br>20530.000<br>20540.000<br>20550.000<br>20560.000<br>20570.000<br>20580.000<br>20590.000<br>20600.000<br>20610.000<br>20620.000<br>20630.000<br>20640.000<br>20650.000<br>20660.000<br>20670.000<br>20680.000<br>20690.000<br>20700.000<br>20710.000<br>20720.000<br>20730.000<br>20740.000<br>20750.000<br>20760.000<br>20770.000<br>20780.000<br>20790.000<br>20800.000<br>20810.000<br>20820.000<br>20830.000<br>20840.000<br>20850.000<br>20860.000<br>20870.000<br>20880.000<br>20890.000<br>20900.000<br>20910.000<br>20920.000<br>20930.000<br>20940.000<br>20950.000<br>20960.000<br>20970.000<br>20980.000<br>20990.000<br>21000.000<br>21010.000<br>21020.000<br>21030.000<br>21040.000<br>21050.000<br>21060.000<br>21070.000<br>21080.000<br>21090.000<br>21100.000<br>21110.000<br>21120.000<br>21130.000<br>21140.000<br>21150.000<br>21160.000<br>21170.000<br>21180.000<br>21190.000<br>21200.000 |

| 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                       |  |
| 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.                                                      |  | NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)                   |  | 14         |              |              | 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 20+400 - 21+200              |  |
| 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 |  |            |              |              |                                                                                                                                                                                                            |  | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |
|                                                                                            |  |                                                                                             |  |            |              |              |                                                                                                                                                                                                            |  |                                           |  |

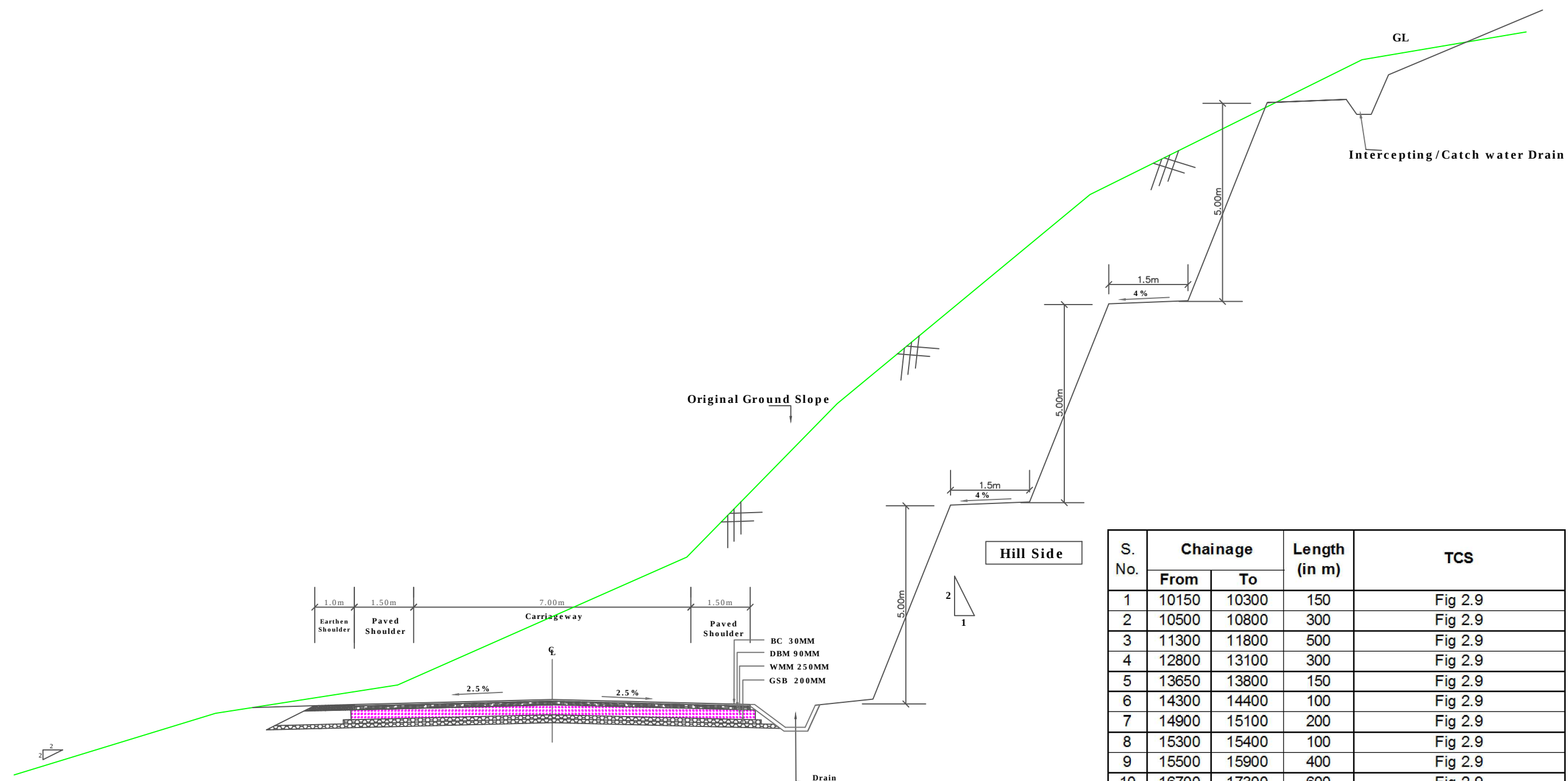


## **5. TYPICAL CROSS SECTIONS**



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

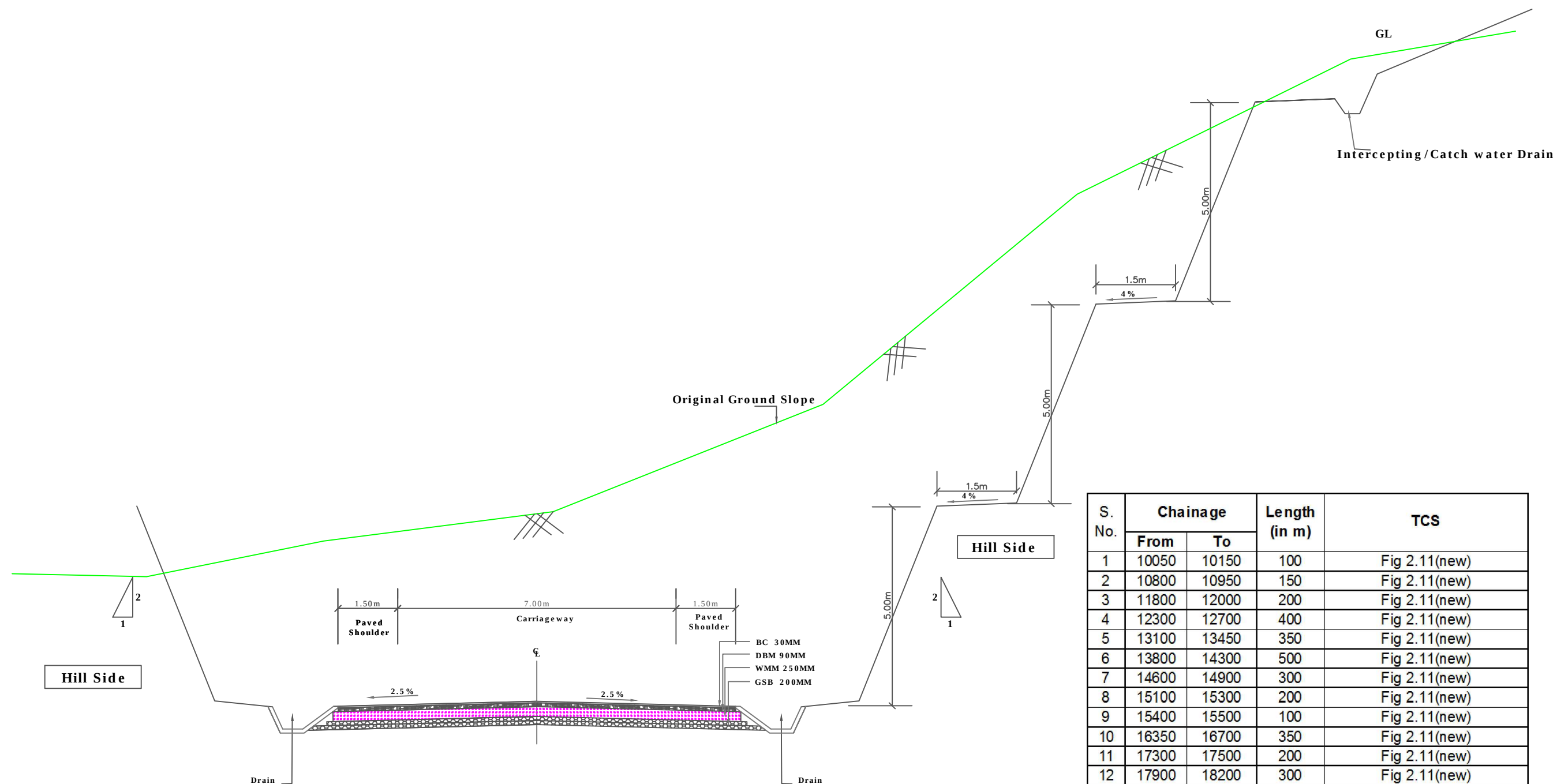
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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------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



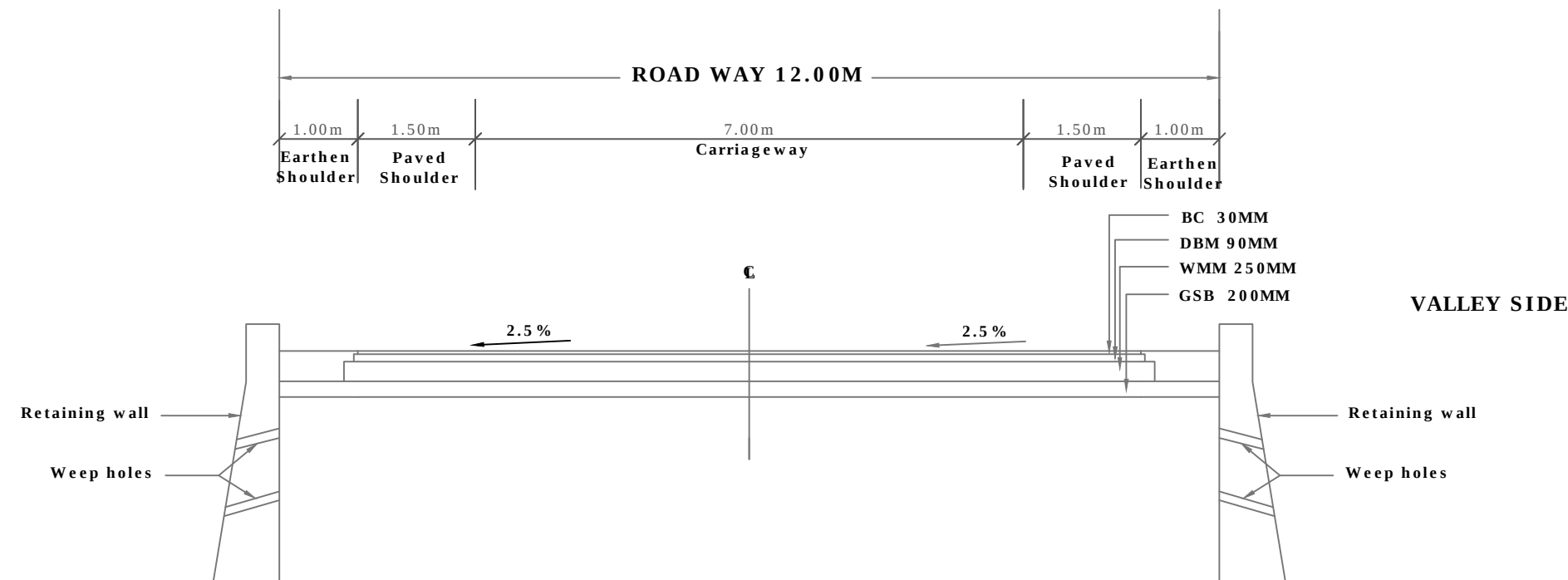
**Fig - 2.9**  
**Typical Cross Section**  
**2- lane Carriageway Without Retaining Wall**  
**(Open Country - Mountainous Terrain)**

| S. No.              | Chainage |       | Length (in m) | TCS     |
|---------------------|----------|-------|---------------|---------|
|                     | From     | To    |               |         |
| 1                   | 10150    | 10300 | 150           | Fig 2.9 |
| 2                   | 10500    | 10800 | 300           | Fig 2.9 |
| 3                   | 11300    | 11800 | 500           | Fig 2.9 |
| 4                   | 12800    | 13100 | 300           | Fig 2.9 |
| 5                   | 13650    | 13800 | 150           | Fig 2.9 |
| 6                   | 14300    | 14400 | 100           | Fig 2.9 |
| 7                   | 14900    | 15100 | 200           | Fig 2.9 |
| 8                   | 15300    | 15400 | 100           | Fig 2.9 |
| 9                   | 15500    | 15900 | 400           | Fig 2.9 |
| 10                  | 16700    | 17300 | 600           | Fig 2.9 |
| 11                  | 17500    | 17900 | 400           | Fig 2.9 |
| 12                  | 18200    | 18400 | 200           | Fig 2.9 |
| 13                  | 20200    | 20500 | 300           | Fig 2.9 |
| 14                  | 21500    | 21800 | 300           | Fig 2.9 |
| Total Length (in m) |          |       | 4000          |         |

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



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

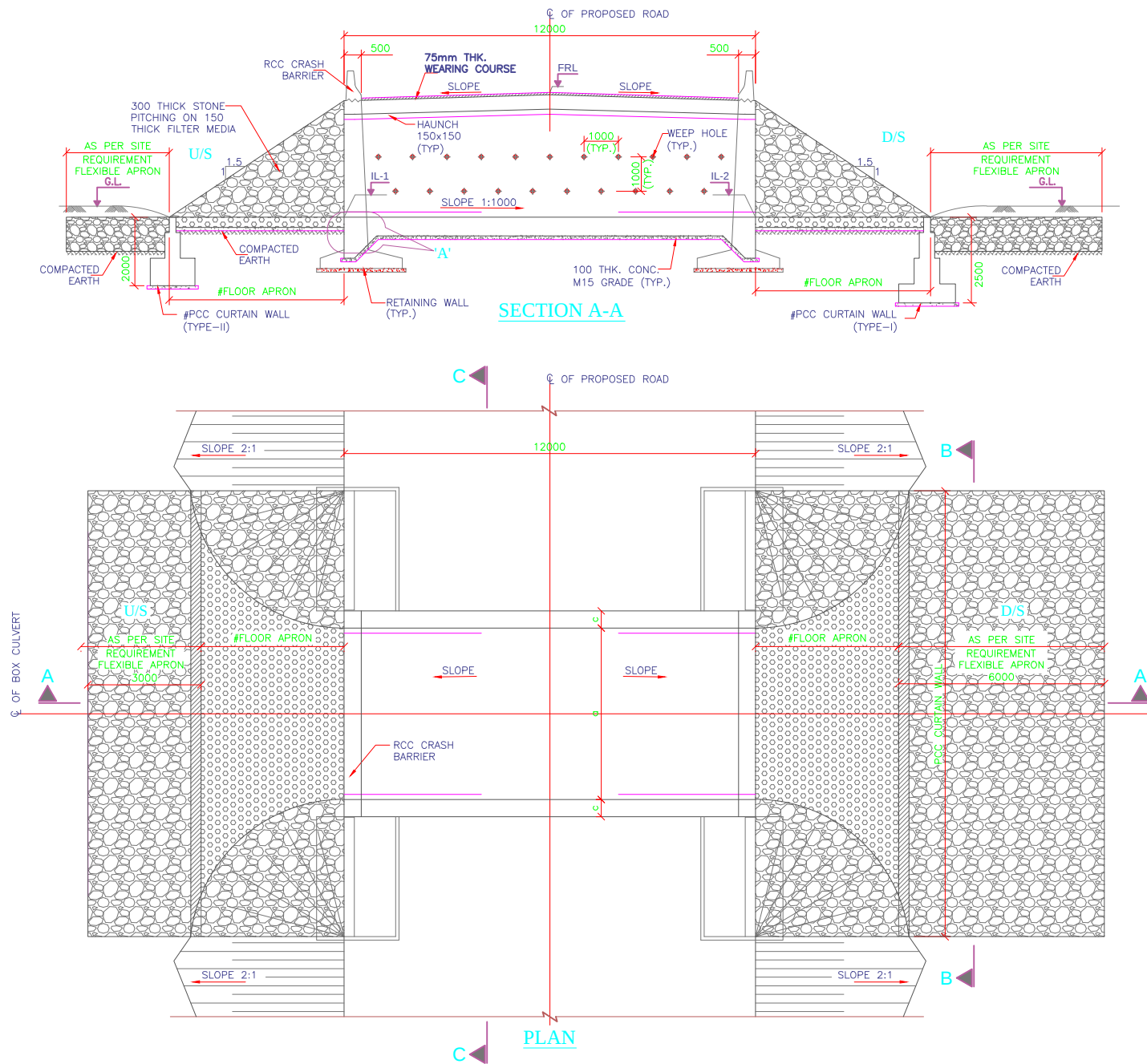


**Fig - 2.12 (new)**  
**Typical Cross Section (Hilly Terrain)**  
**2-lane carriageway (With Paved Shoulder)**  
**(With Retaining Wall on both Side)**

| S. No.              | Chainage |       | Length (in m) | TCS           |
|---------------------|----------|-------|---------------|---------------|
|                     | From     | To    |               |               |
| 1                   | 13450    | 13650 | 200           | Fig 2.12(new) |
| Total Length (in m) |          |       | 200           |               |

| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                                         |  | -: CLIENT :-                                                                                                                                                                 |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                                      | -:TYPICAL CROSS SECTIONS:- |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfra@projects@gmail.com">lninfra@projects@gmail.com</a> |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/> DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  |            |              |              | Consultancy Services for Preparation of<br>Feasibility Study and Detailed Project Report For<br>Two lane With Paved Shoulders of Tamenglong-<br>Tousem- Liasang- Haflong In The State of<br>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:-  
(i) RCC BOX..... M30  
(ii) RCC CRASH BARRIER..... M40  
(iii) RETAINING WALL..... M30  
(iv) 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  $\phi$  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        |

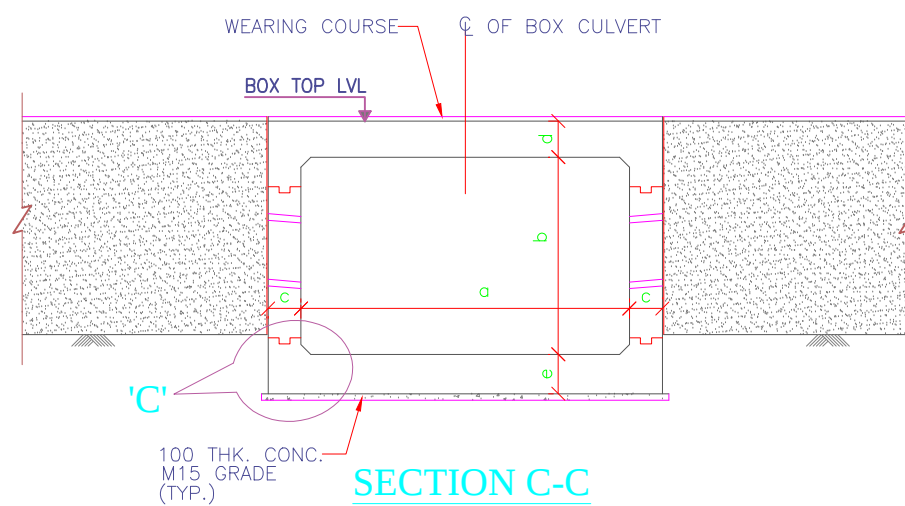
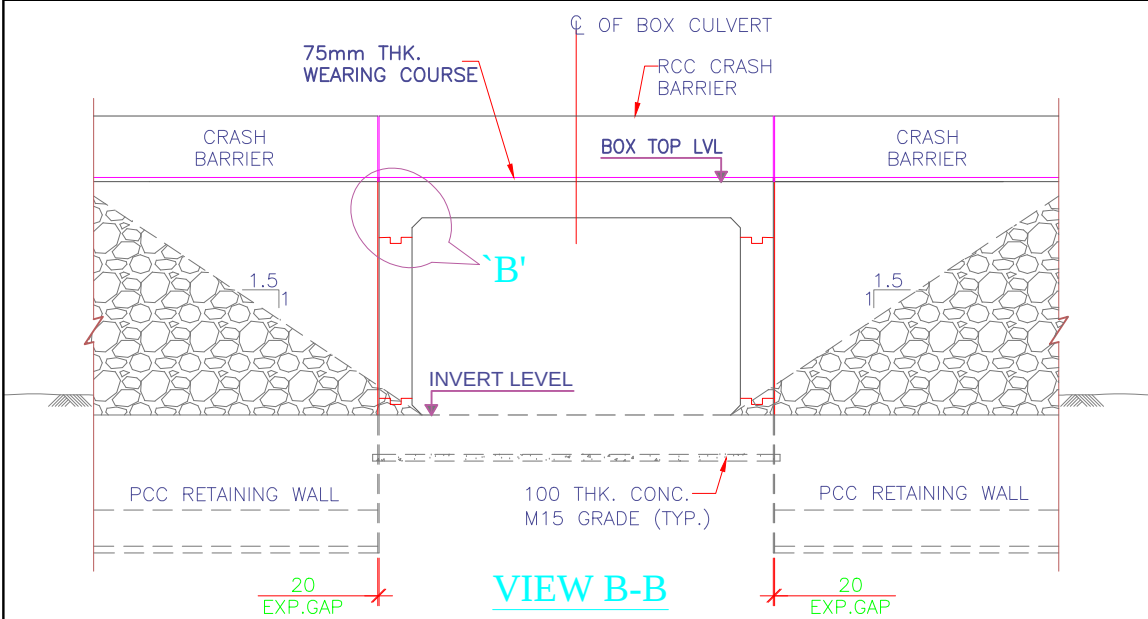
TABLE-1 SCHEDULE OF BOX CULVERT

| 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 |

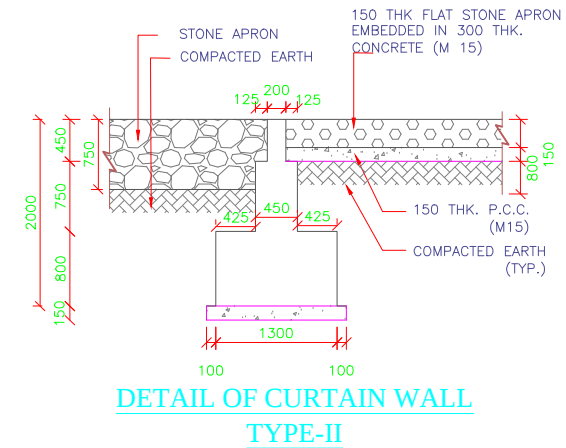
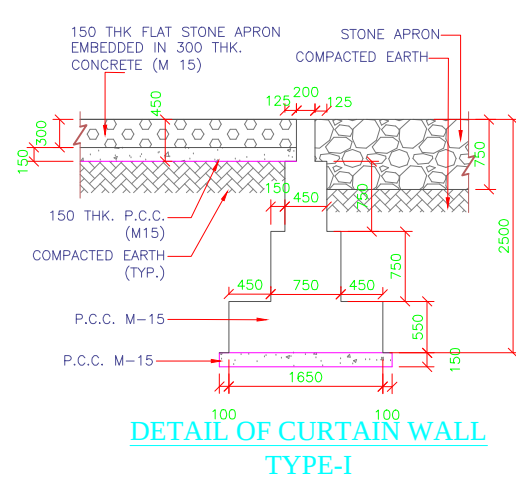
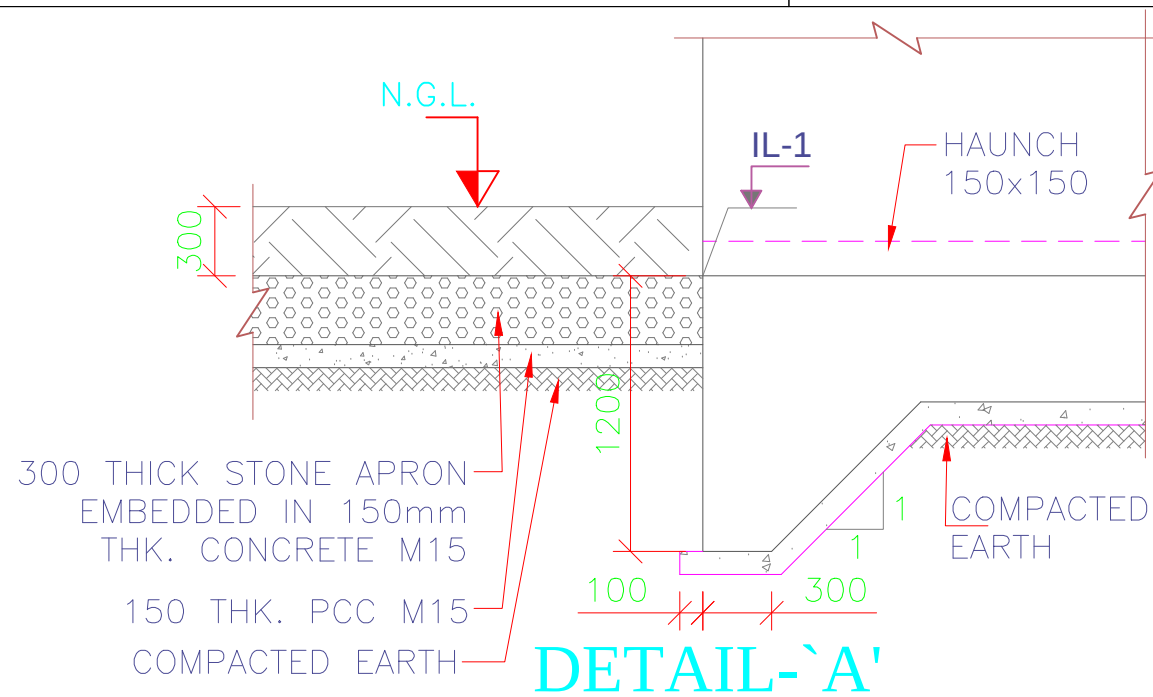
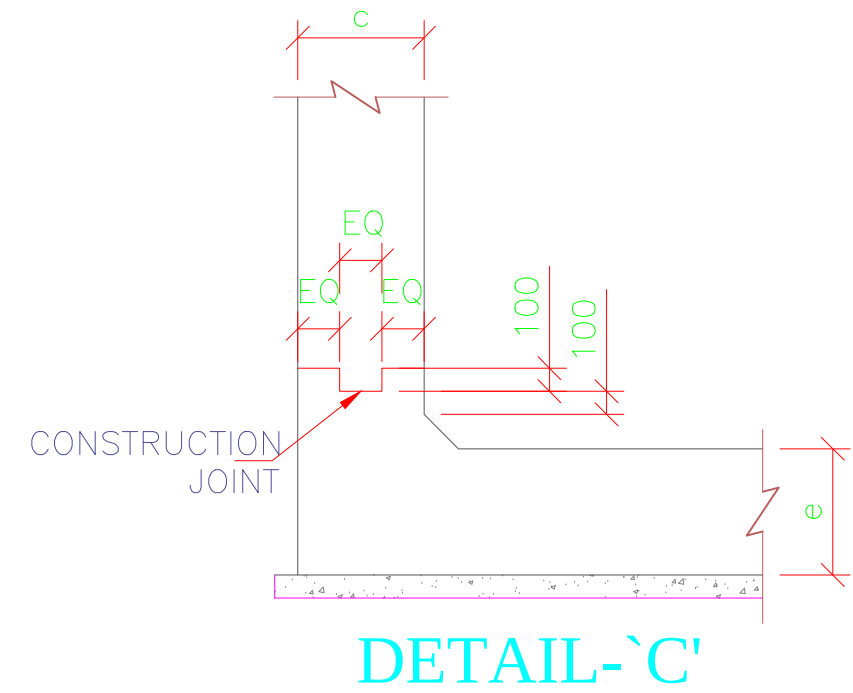
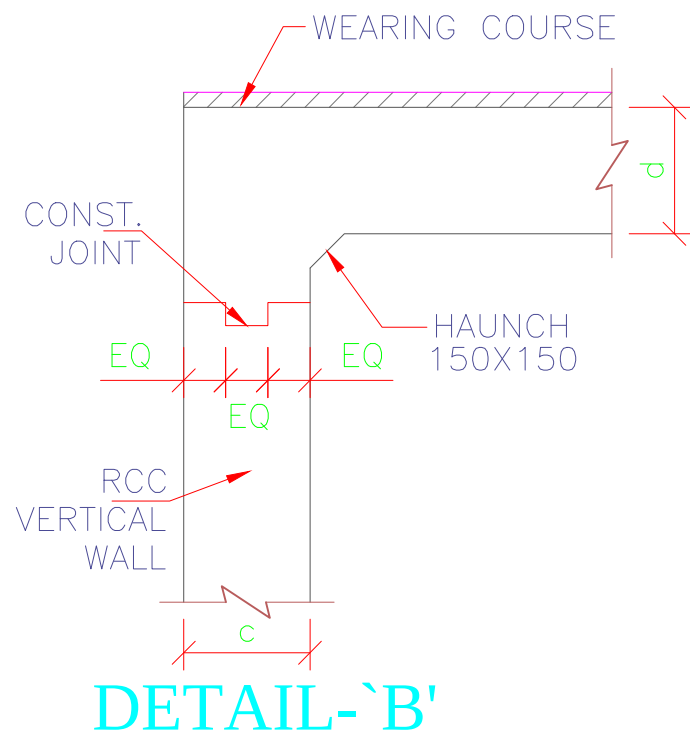
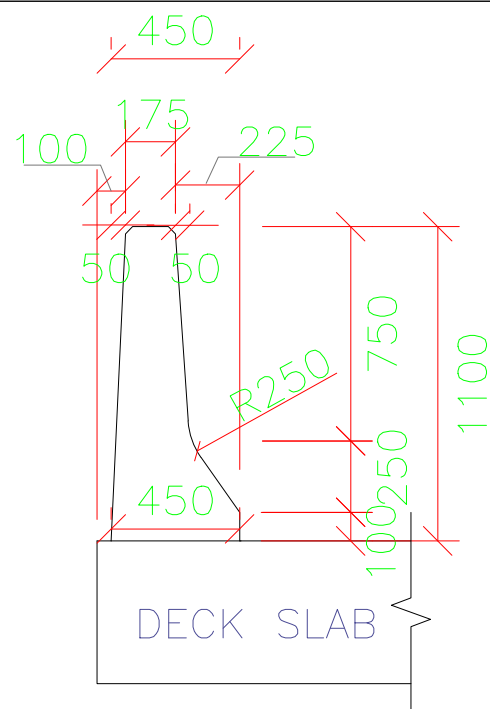
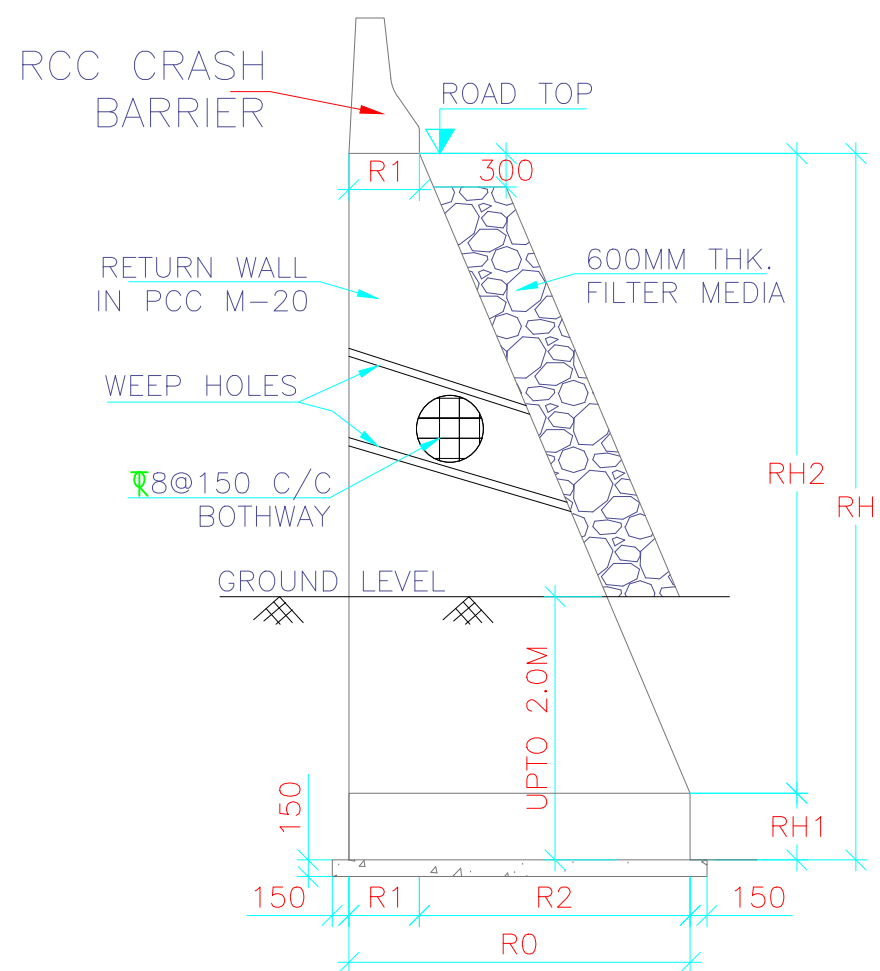
TABLE-2 DIMENSION DETAILS OF PCC RETURN WALL

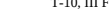
| S. No. | DIMENSION DETAILS(mm) |     |      |      |     |      |
|--------|-----------------------|-----|------|------|-----|------|
|        | R0                    | R1  | R2   | RH   | RH1 | RH2  |
| 1      | 3450                  | 500 | 2950 | 4300 | 600 | 3700 |

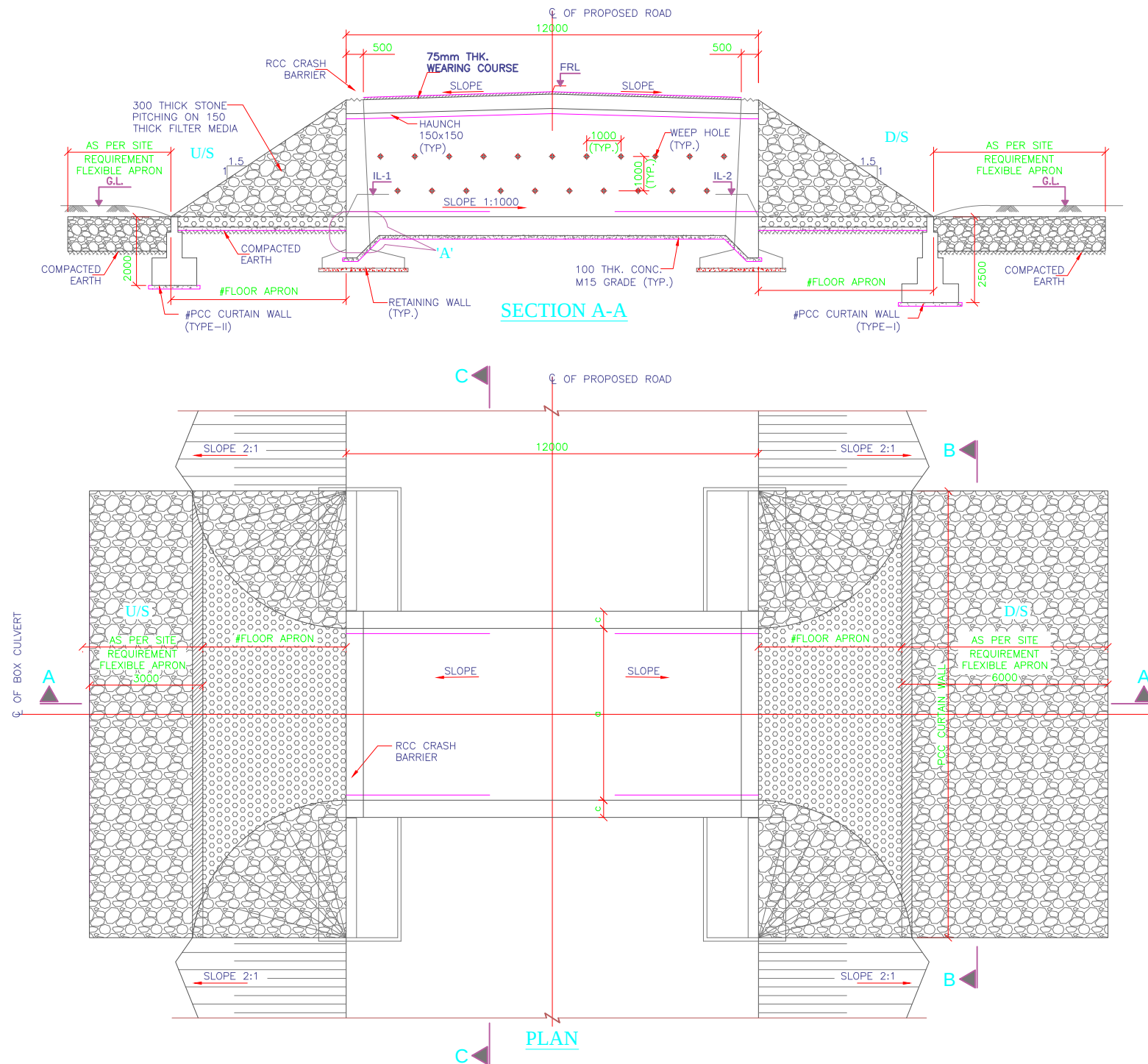
GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.  
10+190,10+475,+10+710,11+260,11+500,11+735,12+340,  
12+870,13+100,



|                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                          |  |            |              |              |                                                                                                                                                                                                            |                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                                        |  | -: CLIENT :-                                                                                                                                                                                                             |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        | -:General Arrangement Drawing:-                                   |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfra@projects@gmail.com">lninfra@projects@gmail.com</a> |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br><br>BUILDING INFRASTRUCTURE - BUILDING THE NATION |  |            |              |              | 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. | GAD Box-1X2X2<br><b>DIALONG - OLD TAMENGLONG SECTION PKG - 2A</b> |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                |  |                                  |                                    |                                    |                                                                                                                                                                                                                                                             |                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">-: CONSULTANTS :-</p> <p><b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b></p> <p>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br/>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)</p> <div>  <p>Tel./Fax : 0755-4295421,<br/>Mob.: 09826452711, 09977004686<br/>E-mail : <a href="mailto:lninfraprojects@gmail.com">lninfraprojects@gmail.com</a></p> </div> |  | <p align="center">-: CLIENT :-</p> <p align="center"><b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b></p> <div>  </div> |  | <p align="center">DRG. NO. :</p> | <p align="center">DESIGNED BY.</p> | <p align="center">APPROVED BY.</p> | <p align="center">-: PROJECT TITLE :-</p> <p>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.</p> | <p align="center">-:General Arrangement Drawing:-</p> <p align="center">BOX CULVERT Span-1No. 2X2</p> <p align="center"><b>DIALONG - OLD TAMEGLONG<br/>SECTION PKG - 2A</b></p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



## 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..... 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  $\phi$  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        |

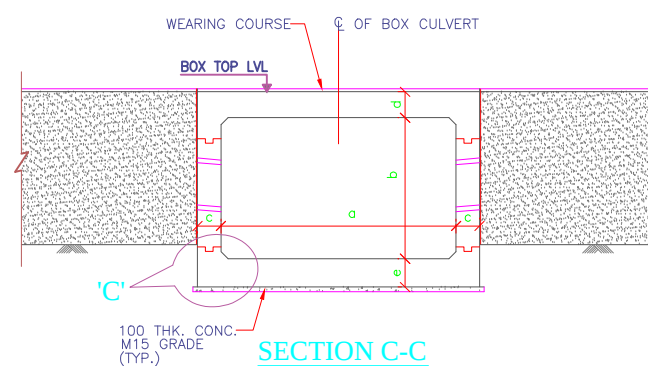
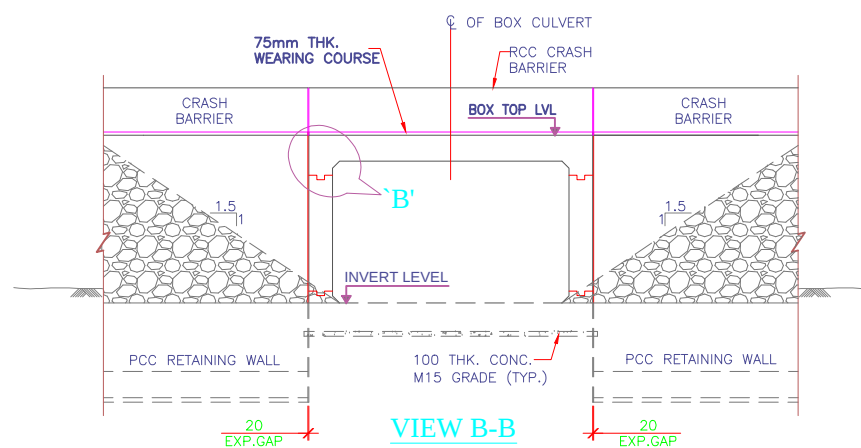


TABLE-1 SCHEDULE OF BOX CULVERT

| S. No. | DESIGN CH:<br>SCHEDULE | PROPOSAL            | DIRECTION<br>OF FLOW | SKEW<br>ANGLE | PROPOSED DETAILS |                          |      |     |     |     |
|--------|------------------------|---------------------|----------------------|---------------|------------------|--------------------------|------|-----|-----|-----|
|        |                        |                     |                      |               | TYPE             | DIMENSION DETAILS OF BOX |      |     |     |     |
|        |                        |                     |                      |               |                  | a                        | b    | c   | d   | e   |
| 1      |                        | NEW<br>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 : 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:-

BOX CULVERT Span-1No. 3X3

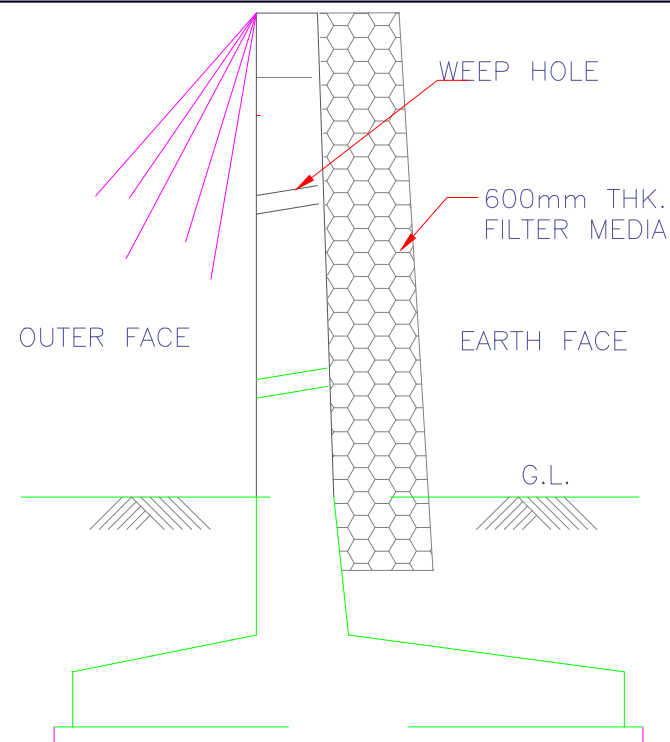
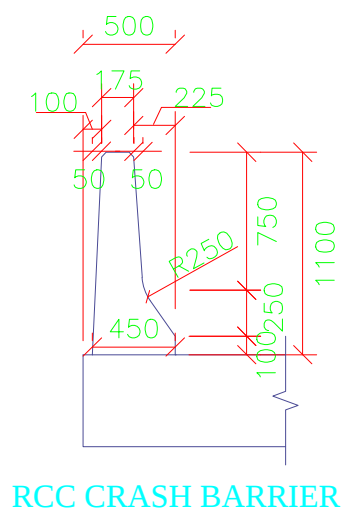
**DIALONG - OLD TAMENGLONG  
SECTION PKG - 2A**



GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.  
14+200,14+800,15+275,15+435,15+945,16+160,16+500,16+660,16+945,17+500,  
17+700,18+075,18+565,18+945,19+350,19+500,19+800,20+110,20+335,20+560,  
20+955,+21+175,21+850,

|                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                             |  |            |              |              |                                                                                                                                                                                                                     |                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                                       |  | -: CLIENT :-                                                                                                                                                                |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                                 | -:General Arrangement Drawing:-                                                      |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfra@projects@gmail.com">lninfra@projects@gmail.com</a> |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  |            |              |              | Consultancy Services for Preparation of Feasibility Study<br>and Detailed Project Report For Two lane With Paved<br>Shoulders of Tamenglong - Dialong - Old Tamenglong<br>Road In The State of Manipur on EPC Mode. | BOX CULVERT Span-1No. 3X3<br><br><b>DIALONG - OLD TAMEGLONG<br/>SECTION PKG - 2A</b> |

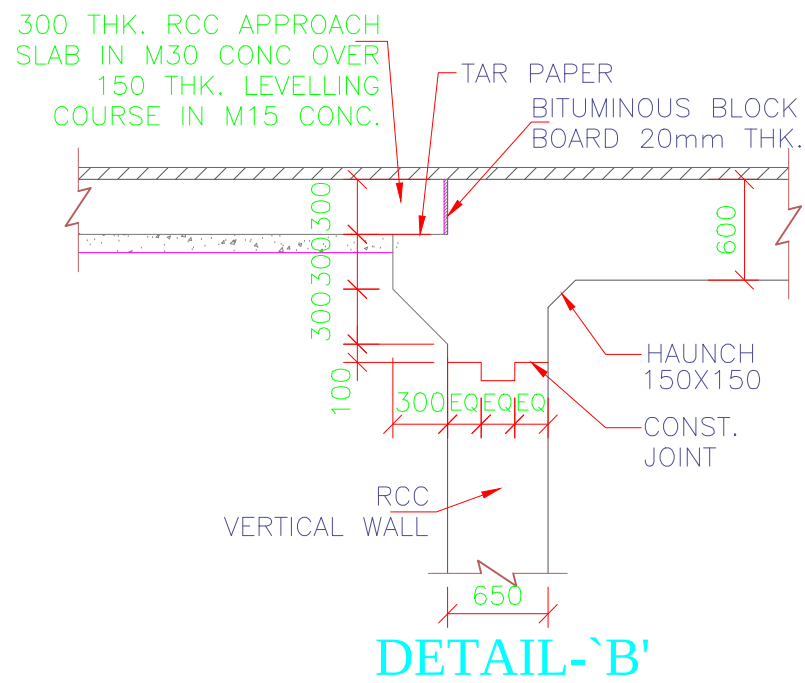
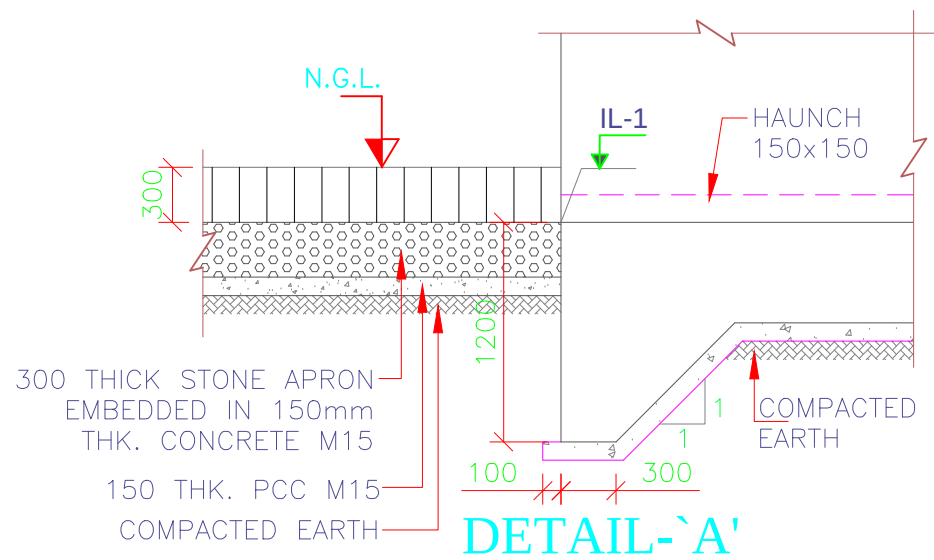




**DETAILS OF RETAINING WALL**

**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  $C = 0$ ,  $\phi = 30^\circ$ ,  $\gamma = 20\text{KN/CU.M}$
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  $(100/132-\phi)$ .



**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.**

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](mailto:lninfraprojects@gmail.com)

--: CLIENT :-

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



DRG. NO. :

DESIGNED BY.

APPROVED BY.

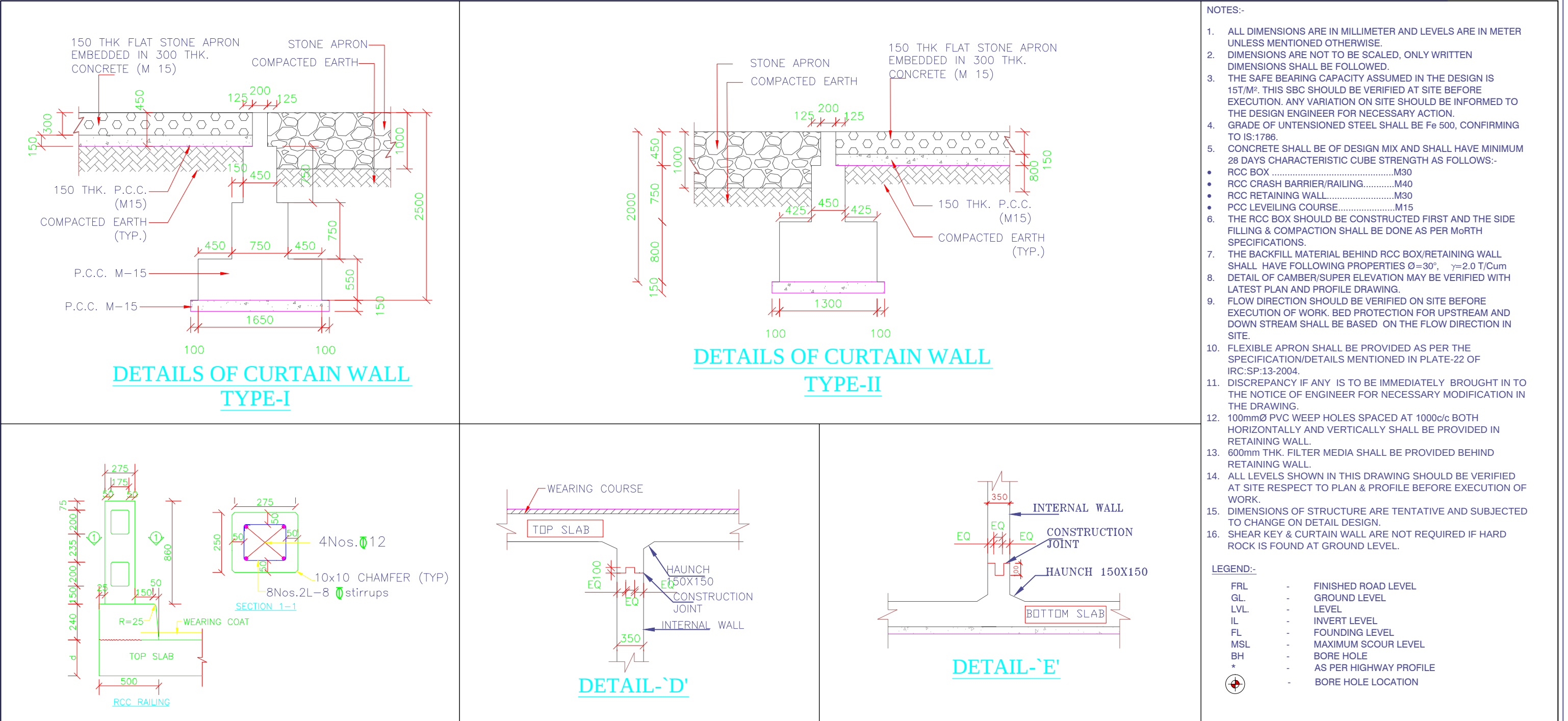
--: PROJECT TITLE :-

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:-

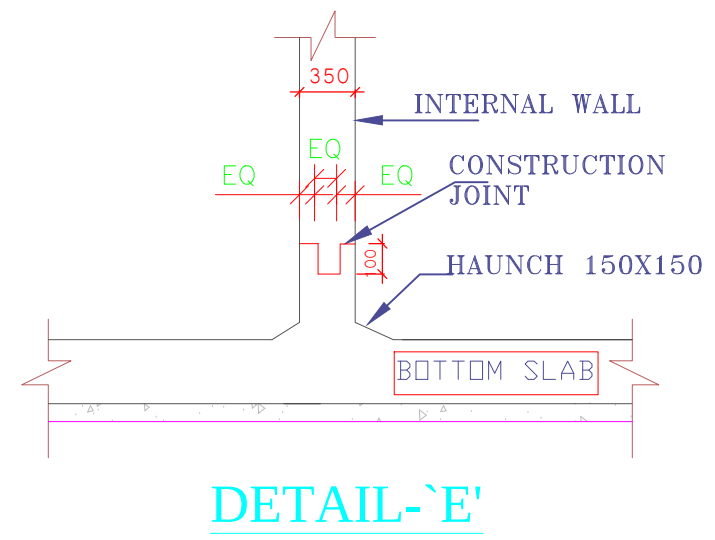
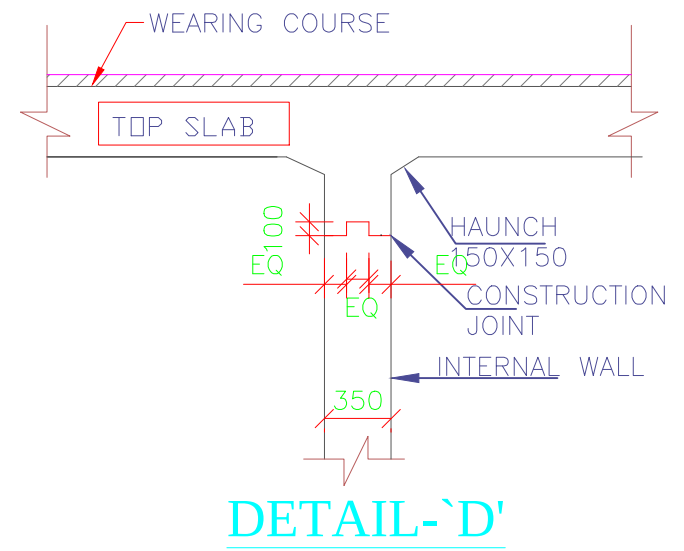
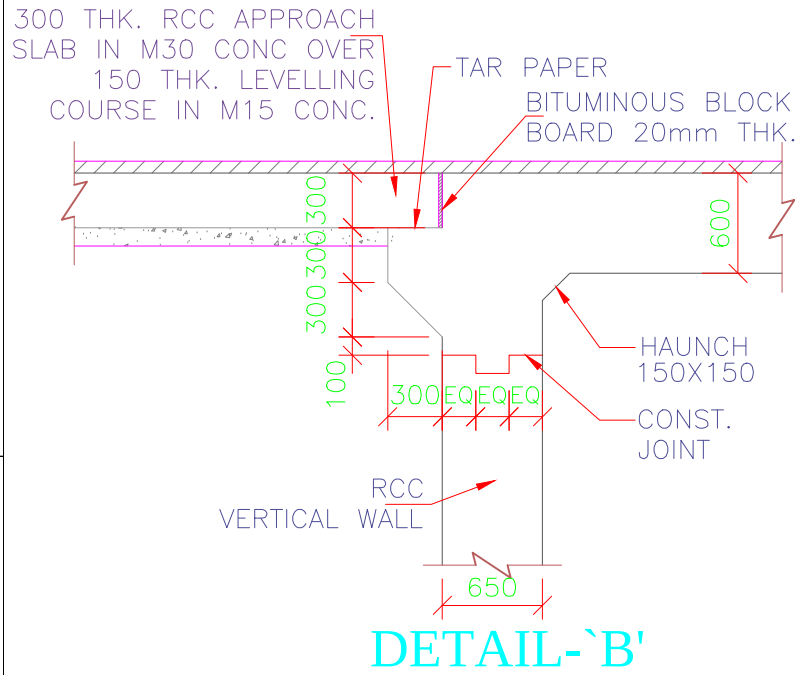
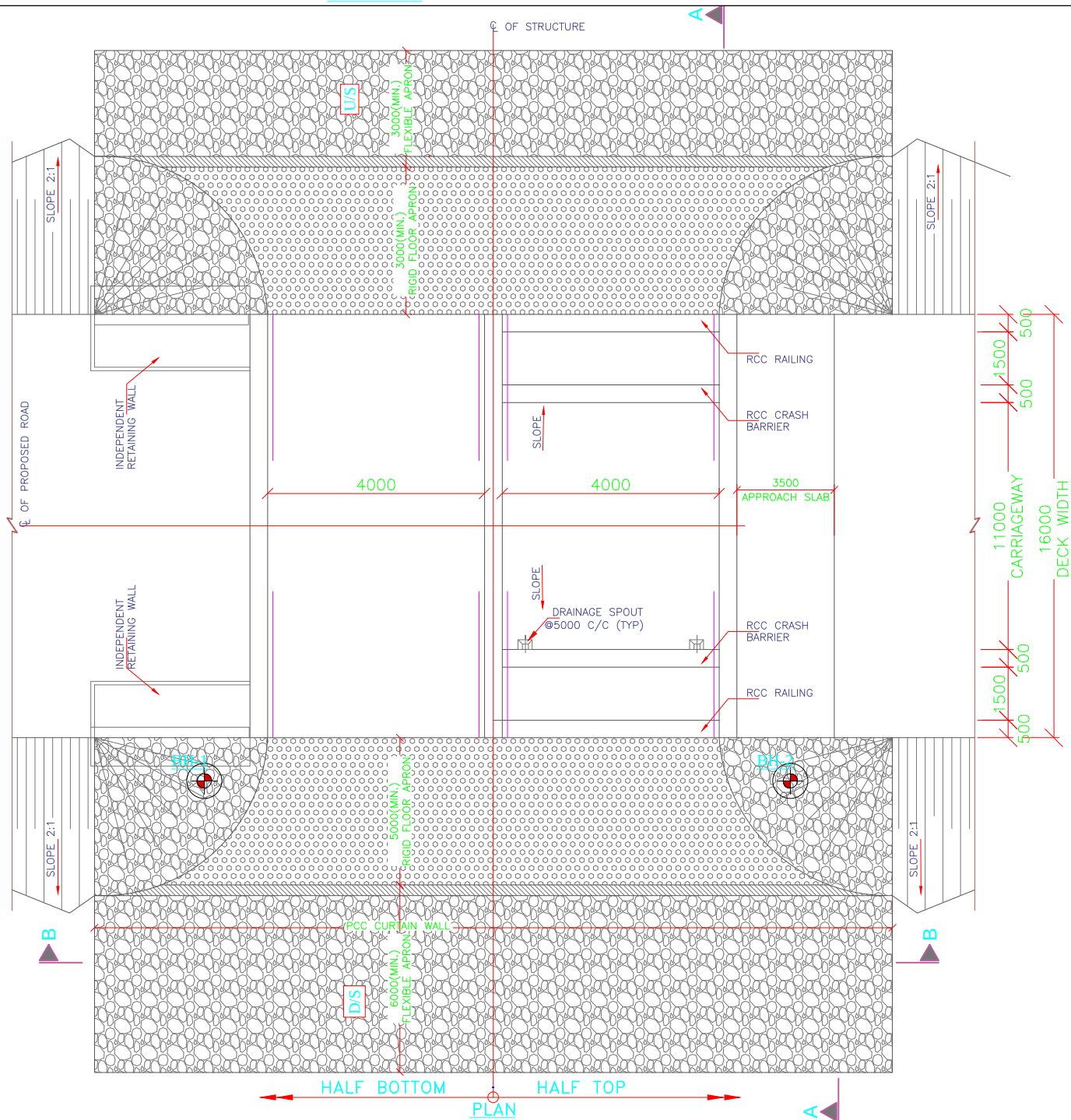
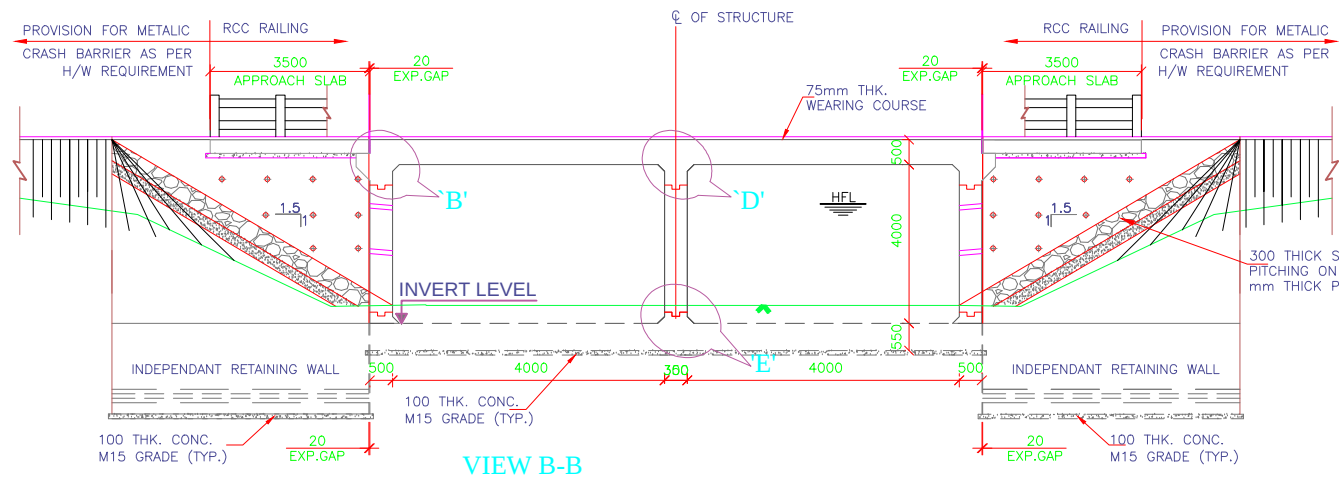
BOX CULVERT

**DIALONG - OLD TAMEGLONG  
SECTION PKG - 2A**



GENERAL ARRANGEMENT DRAWING FOR BOX CULVERT AT CH.  
12+555,18+250,21+680,

|                                                                                                       |  |                                                                              |  |            |              |              |                                                                                                                                                                                                            |                                              |
|-------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| -: CONSULTANTS :-                                                                                     |  | -: CLIENT :-                                                                 |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        | -:General Arrangement Drawing:-              |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD.                                                                 |  | NATIONAL HIGHWAYS INFRASTRUCTURE<br>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                                  |
| T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)         |  |                                                                              |  |            |              |              |                                                                                                                                                                                                            | DIALONG - OLD TAMENGLONG<br>SECTION PKG - 2A |
| <br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : lninfra@projects@gmail.com |  |                                                                              |  |            |              |              |                                                                                                                                                                                                            |                                              |

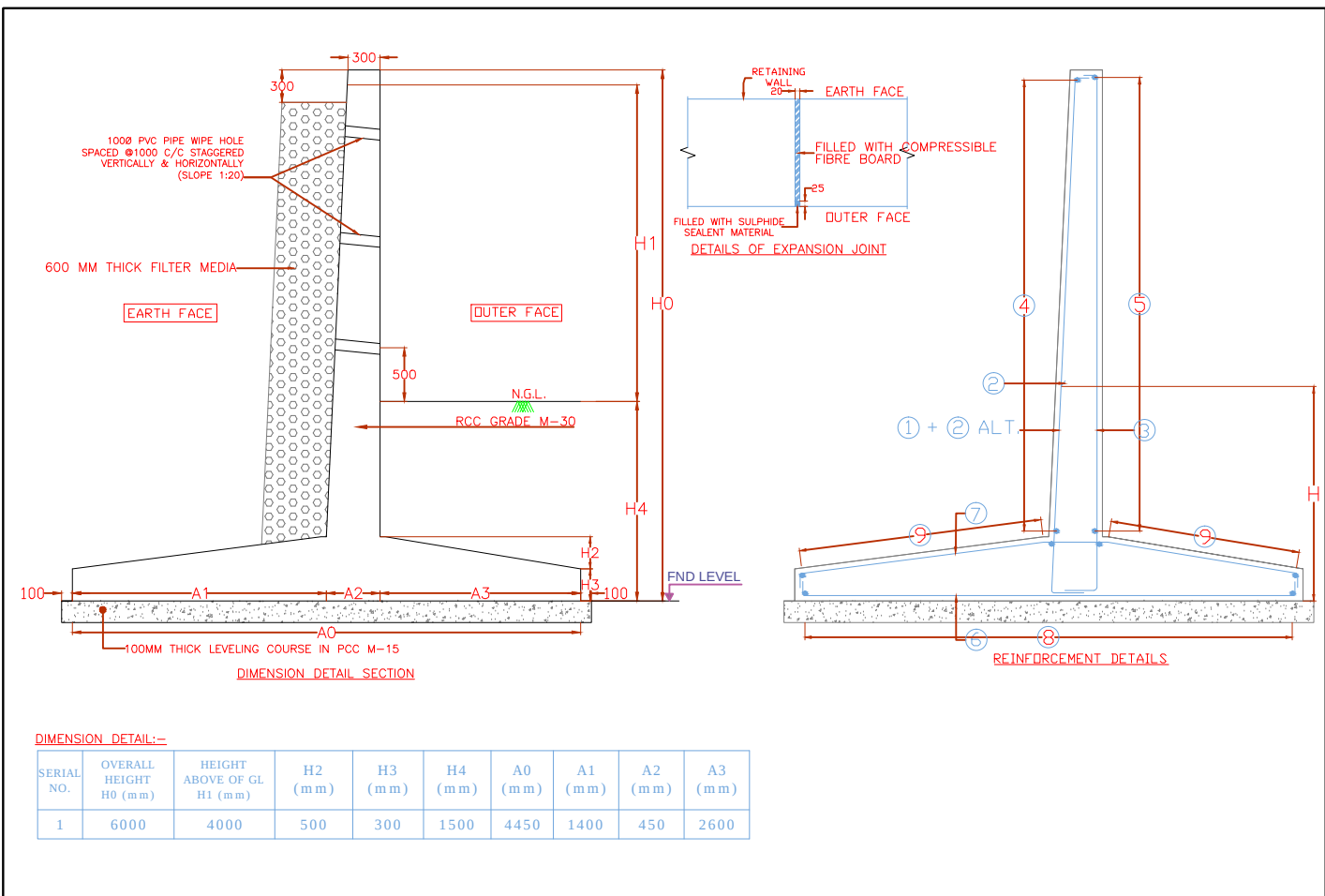


- NOTES:-**
- ALL DIMENSIONS ARE IN MILLIMETER AND LEVELS ARE IN METER UNLESS MENTIONED OTHERWISE.
  - DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
  - THE SAFE BEARING CAPACITY ASSUMED IN THE DESIGN IS 15T/M<sup>2</sup>. THIS SBC SHOULD BE VERIFIED AT SITE BEFORE EXECUTION. 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/RAILING.....M40
    - RCC 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 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.
  - 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 $\phi$  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 RESPECT TO PLAN & PROFILE BEFORE EXECUTION OF WORK.
  - DIMENSIONS OF STRUCTURE ARE TENTATIVE AND SUBJECTED TO CHANGE ON DETAIL DESIGN.
  - SHEAR KEY & CURTAIN WALL ARE NOT REQUIRED IF HARD ROCK IS FOUND AT GROUND LEVEL.

**LEGEND:-**

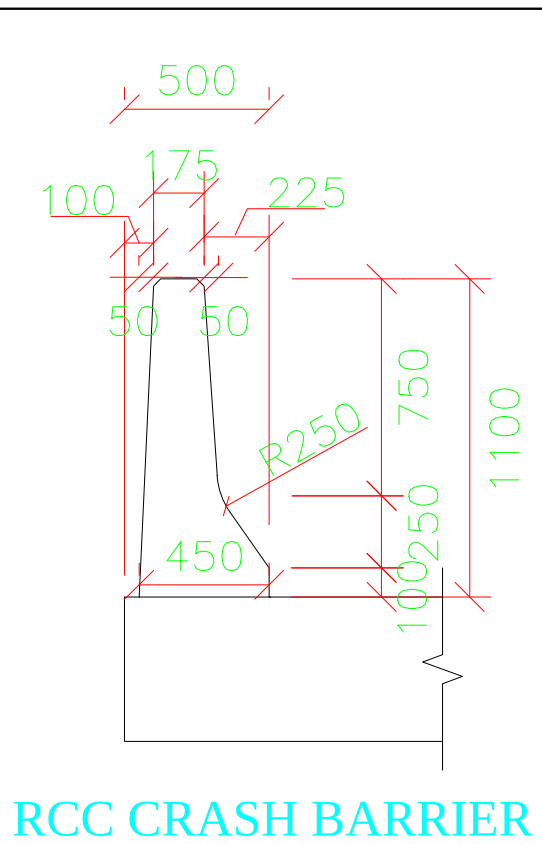
|     |   |                        |
|-----|---|------------------------|
| FRL | - | FINISHED ROAD LEVEL    |
| GL  | - | GROUND LEVEL           |
| LVL | - | LEVEL                  |
| IL  | - | INVERT LEVEL           |
| FL  | - | FOUNDING LEVEL         |
| MSL | - | MAXIMUM SCOUR LEVEL    |
| BH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

|                                                                                                                                                                                                                                                     |  |                                                                                      |  |            |              |              |                                                                                                                                                                                                            |                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| -: CONSULTANTS :-                                                                                                                                                                                                                                   |  | -: CLIENT :-                                                                         |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                        | -:General Arrangement Drawing:-                                                |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : lninfra@projects@gmail.com |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  |            |              |              | 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. X4X4<br><b>DIALONG - OLD TAMENGLONG SECTION PKG - 2A</b> |



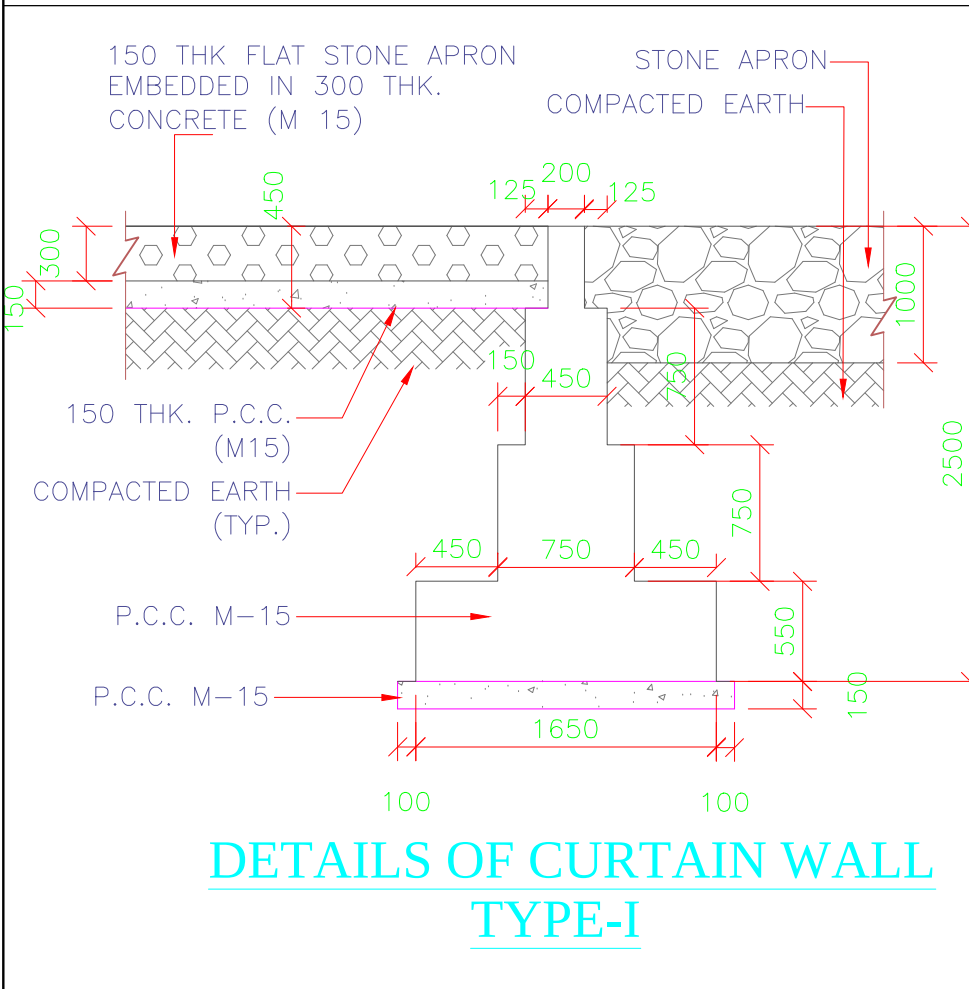
DIMENSION DETAIL:-

| 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    |

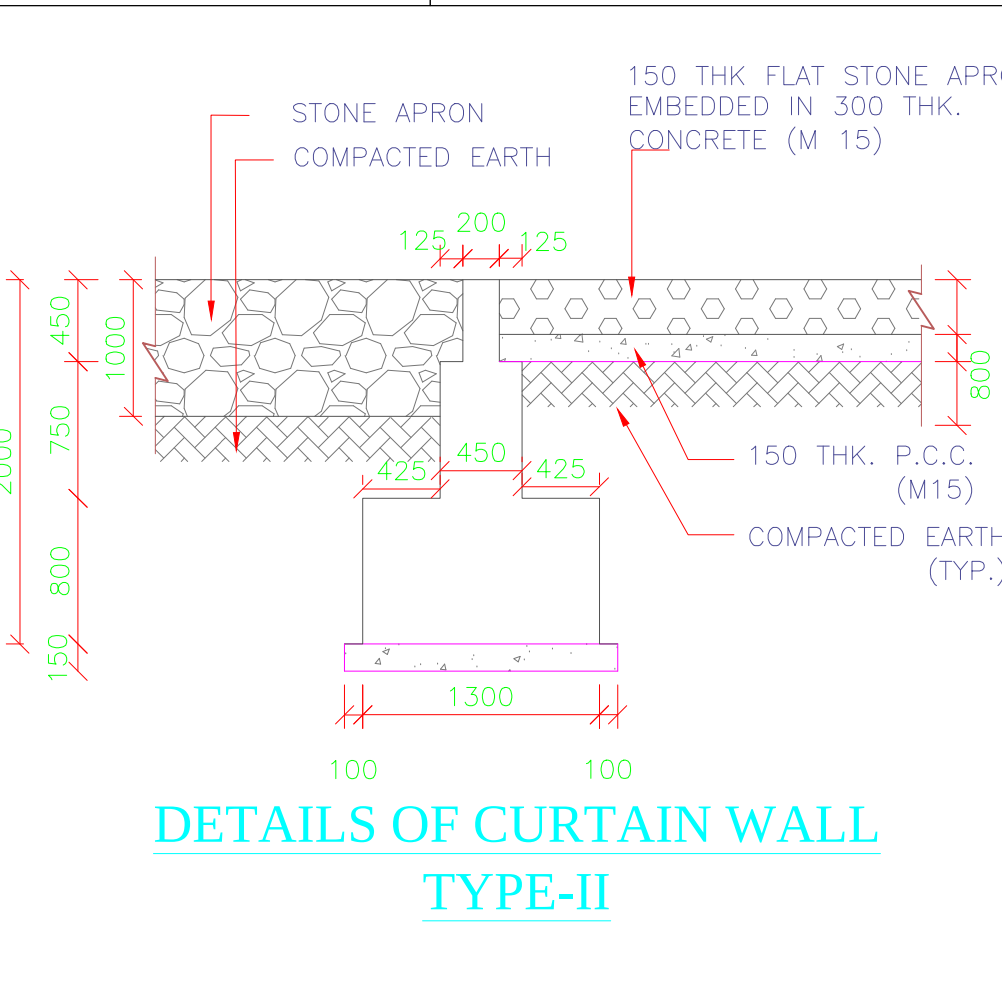


RCC CRASH BARRIER

- 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  $C = 0, \phi \Rightarrow 30^\circ, \gamma = 20\text{KN/CU.M}$
  - GRADE OF STEEL Fe 500 AS PER IS 1786.
  - CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.  
i) FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm  
ii) 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  $l_s = a_1.l_{bnet}$   
 $a_1 = 1.0$  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  $(100/132-\phi)$ .



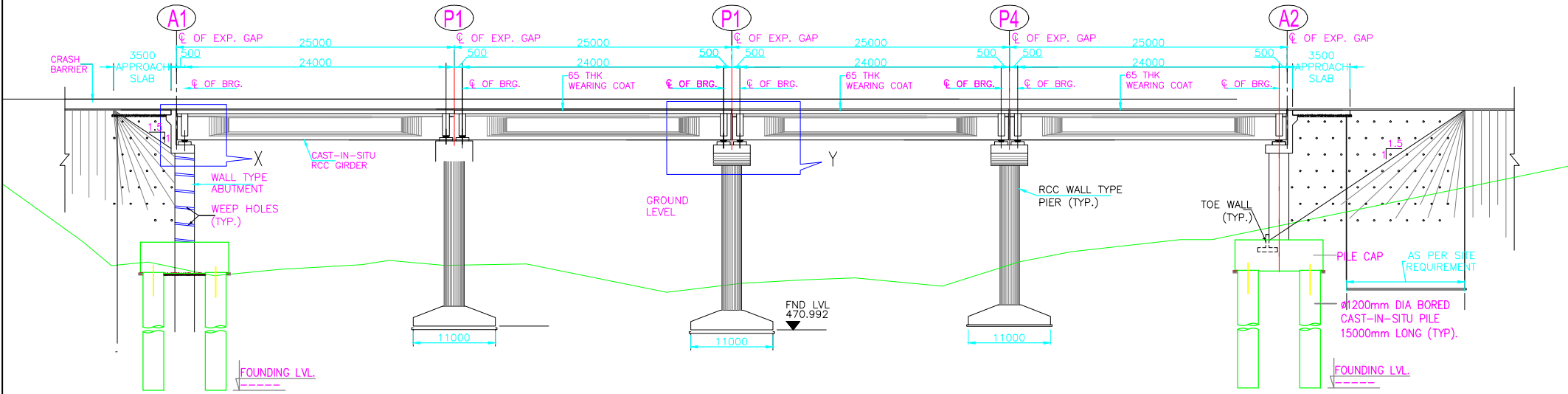
DETAILS OF CURTAIN WALL TYPE-I



DETAILS OF CURTAIN WALL TYPE-II

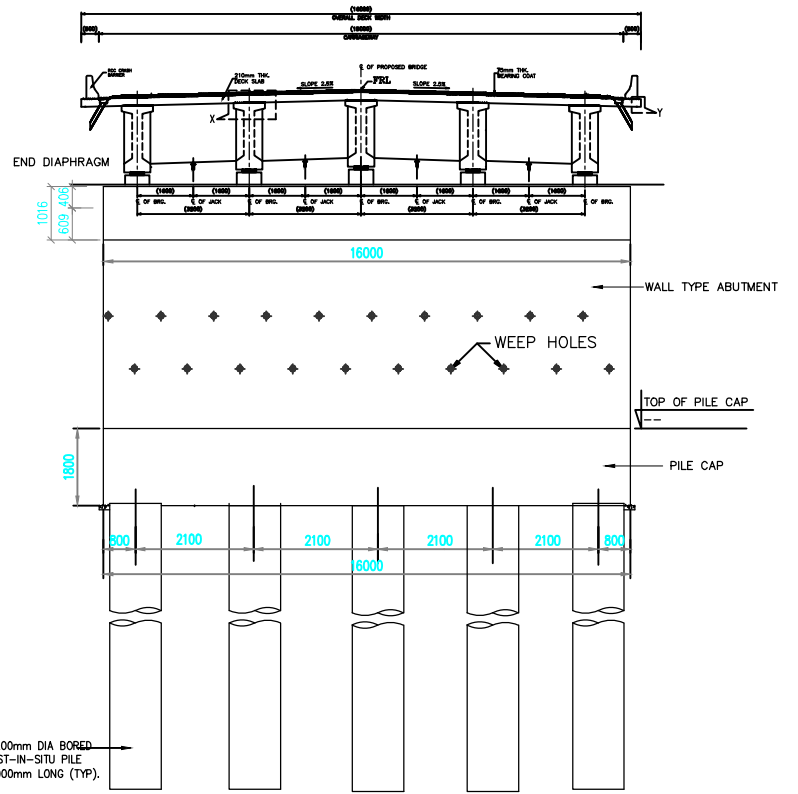
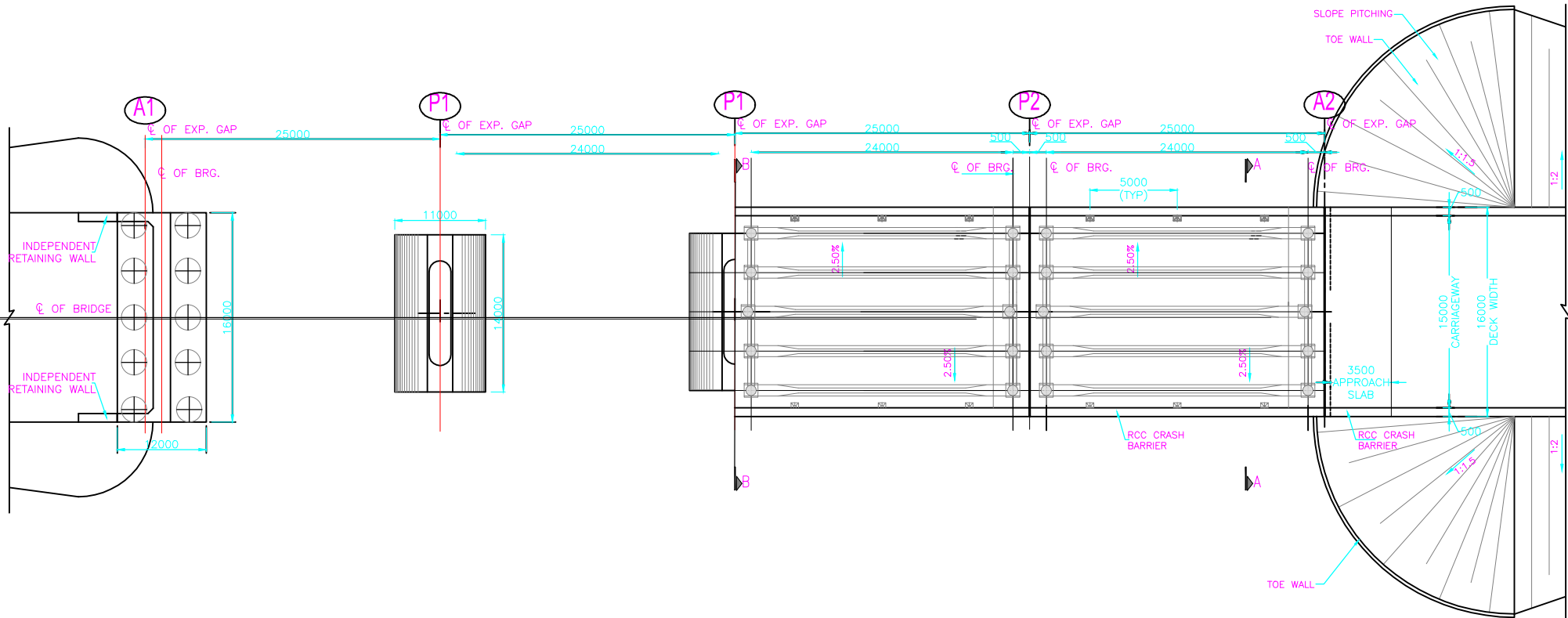
|                                                                                                                                                                                                                                            |                                                                              |            |              |              |                                                                                                                                                                                                                     |                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| :- CONSULTANTS :-                                                                                                                                                                                                                          | :- CLIENT :-                                                                 | DRG. NO. : | DESIGNED BY. | APPROVED BY. | :- PROJECT TITLE :-                                                                                                                                                                                                 | :-General Arrangement Drawing:-                                            |
| L.N. MALVIYA INFRA PROJECTS PVT. LTD.<br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : lninfraprojects@gmail.com | NATIONAL HIGHWAYS INFRASTRUCTURE<br>DEVELOPMENT CORPORATION LIMITED (NHIDCL) |            |              |              | Consultancy Services for Preparation of Feasibility Study<br>and Detailed Project Report For Two lane With Paved<br>Shoulders of Tamenglong - DIALONG - Old Tamenglong<br>Road In The State of Manipur on EPC Mode. | BOX CULVERT Span-2No. X4X4<br>DIALONG - OLD TAMENGLONG<br>SECTION PKG - 2A |



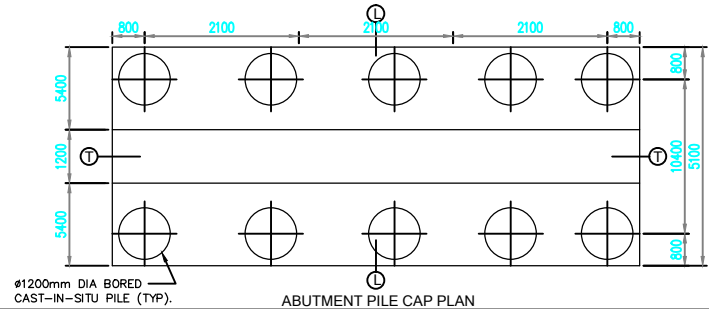


|                           |         |         |         |         |         |
|---------------------------|---------|---------|---------|---------|---------|
| PROPOSED ROAD LEVEL (m)   | 510.000 | 510.000 | 510.000 | 510.000 | 510.000 |
| EXISTING GROUND LEVEL (m) | 487.465 | 482.455 | 473.992 | 479.526 | 492.736 |
| CHAINAGE (m)              | 13+500  | 13+525  | 13+550  | 13+575  | 13+600  |

LONGITUDINAL ELEVATION



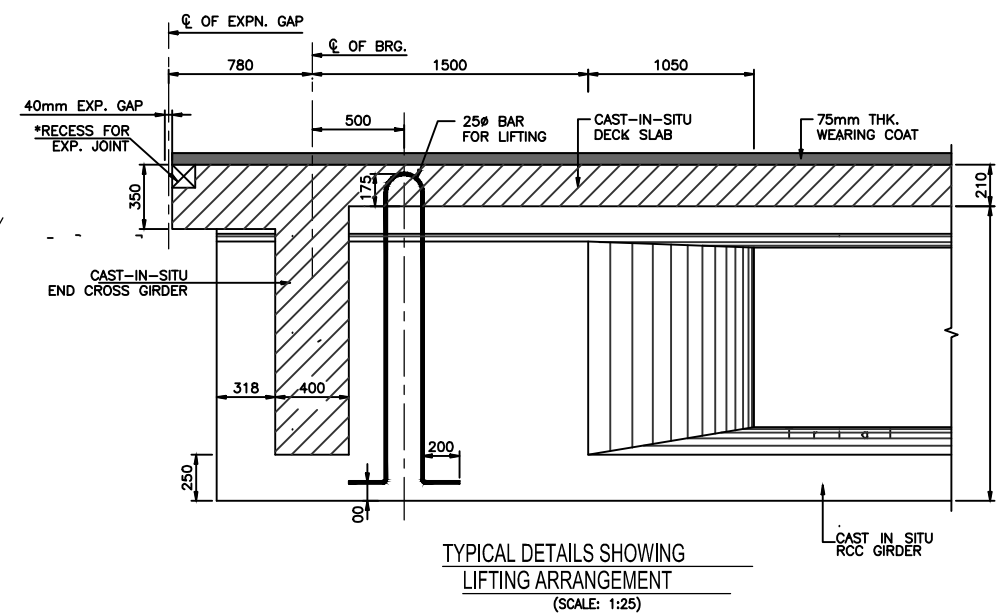
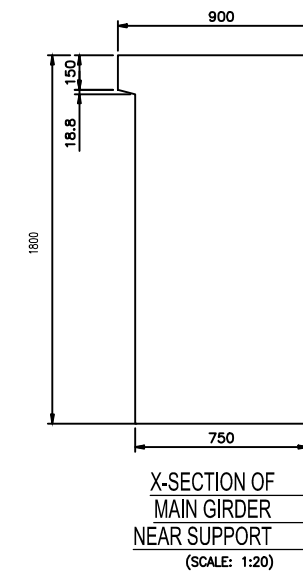
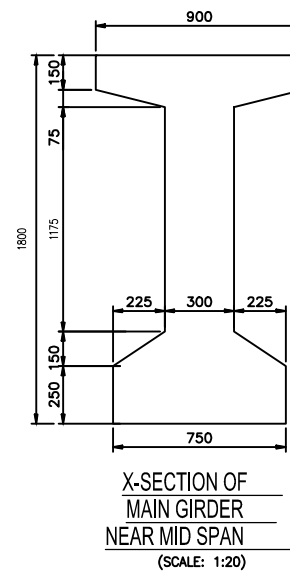
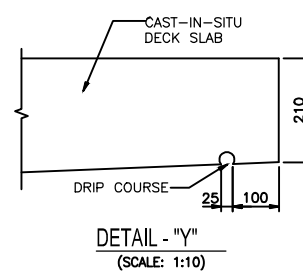
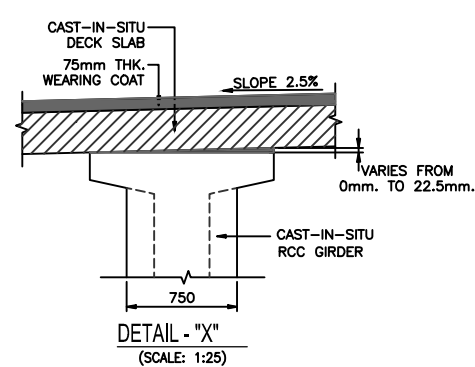
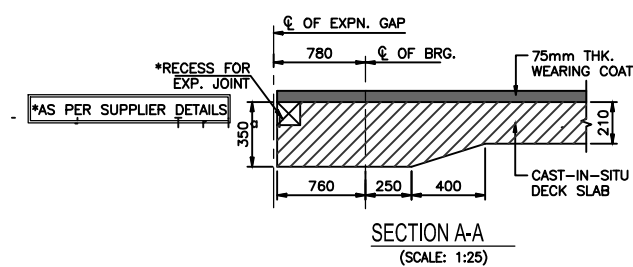
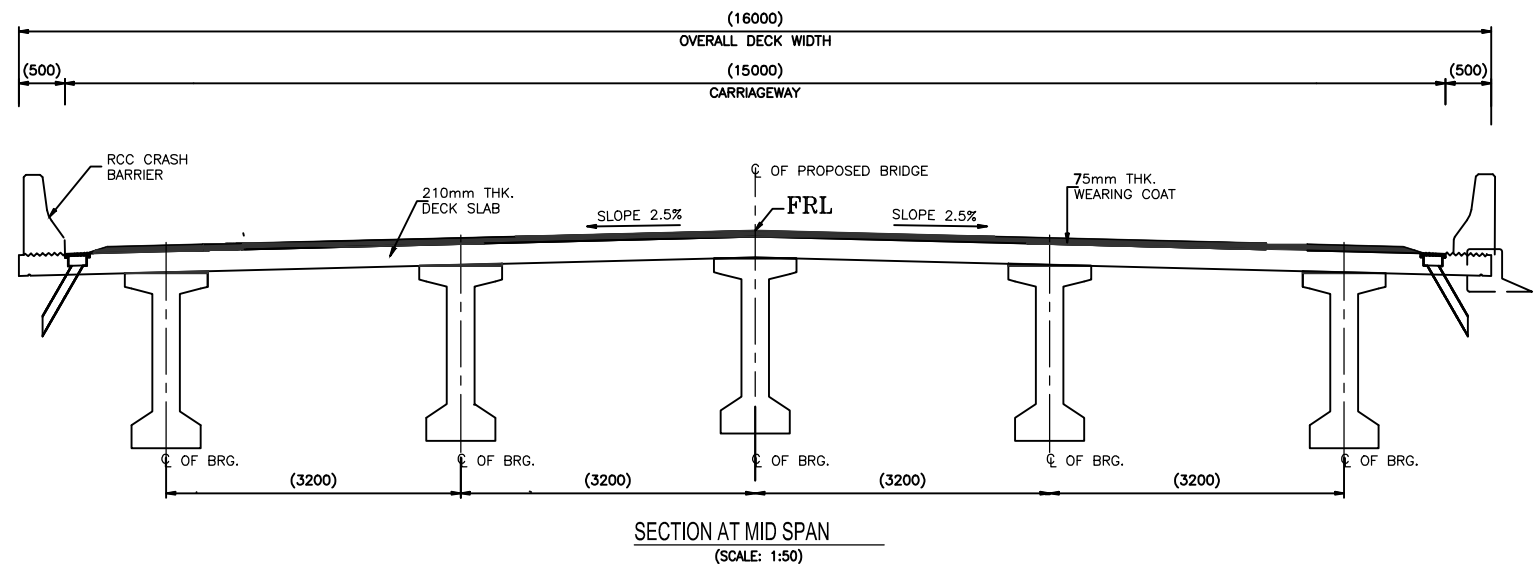
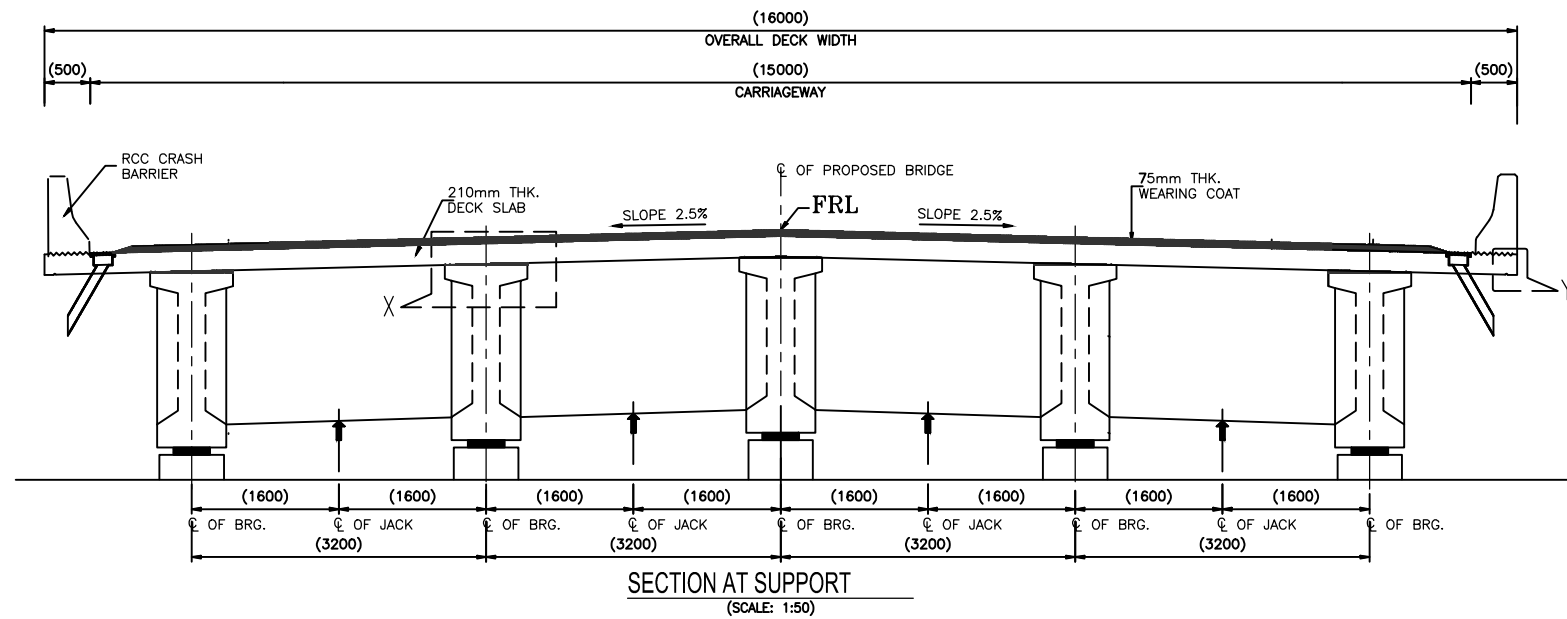
CROSS SECTION



NOTES:-

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE MENTIONED.
2. PROPOSED STRUCTURE IS DESIGNED FOR TWO LANE OF IRC 70R LOADING (WHEELED) OR FOUR LANE CLASS A WHICHEVER GOVERNS.
3. CONCRETE SHALL BE DESIGN MIX AND HAVE MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 35 MPa ON 150mm CUBES FOR PRECAST RCC GIRDER, DECK SLAB, END CROSS GIRDERS AND 40 MPa FOR CRASH BARRIERS.
4. THE LOCATION OF JACKS FOR LIFTING OF THE SUPERSTRUCTURE TO REPLACE BEARINGS ETC. IS SHOWN THUS & THIS SHALL BE DISTINCTLY ETCHED FOR EASY IDENTIFICATION ON THE END DIAPHRAGM AND ABUTMENT CAP.
5. THE REINFORCING STEEL SHALL BE OF TMT (GRADE FE 500D) BAR CONFORMING TO IS:1786.
6. CLEAR COVER TO OUTERMOST STEEL IS 50mm.
7. DURING THE LIFTING OPERATION OF SUPERSTRUCTURE ALL THE JACKS PLACED UNDER THE END DIAPHRAGM IN LINE WITH THE BEARINGS SHALL BE OPERATED SIMULTANEOUSLY USING SINGLE OPERATING CONSOLE, GROUPING THE PUMP AND CONTROL SYSTEM SO AS TO ENSURE THAT THE REACTIONS ON ALL THE JACKS ARE EQUAL AT ALL TIMES.
8. PRECAST GIRDERS SHALL BE CAST IN ONE CONCRETING OPERATION IN CASTING YARD WITHOUT ANY CONSTRUCTION JOINT.
9. TOP SURFACE OF THE GIRDERS ALONG WITH FACE OF PRECAST CROSS GIRDER SHALL BE HACKED TO REMOVE THE LAITANCE BEFORE ERECTION AT SITE.
10. ADEQUACY AND STRENGTH OF 25Ø BAR HOOK MAY BE CHECKED BEFORE LIFTING GIRDERS.

|                                                                                             |  |                                                                           |  |            |              |              |                                                                                                                                                                                                            |                                           |  |
|---------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|--|------------|--------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--|
| -: 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. | RCC T BEAM GIRDER 4x25 MJB                |  |
| T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO-1, M.P. NAGAR, ZONE-I, BHOPAL (M.P.)   |  |                                                                           |  |            |              |              |                                                                                                                                                                                                            | DIALONG - OLD TAMENGLONG SECTION PKG - 2A |  |
| Tel./Fax : 0755-4295421, Mob.: 09826452711, 09977004686 E-mail : lninfra@projects@gmail.com |  |                                                                           |  |            |              |              |                                                                                                                                                                                                            |                                           |  |



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

-: 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. :

DESIGNED BY.

APPROVED BY.

-: PROJECT TITLE :-

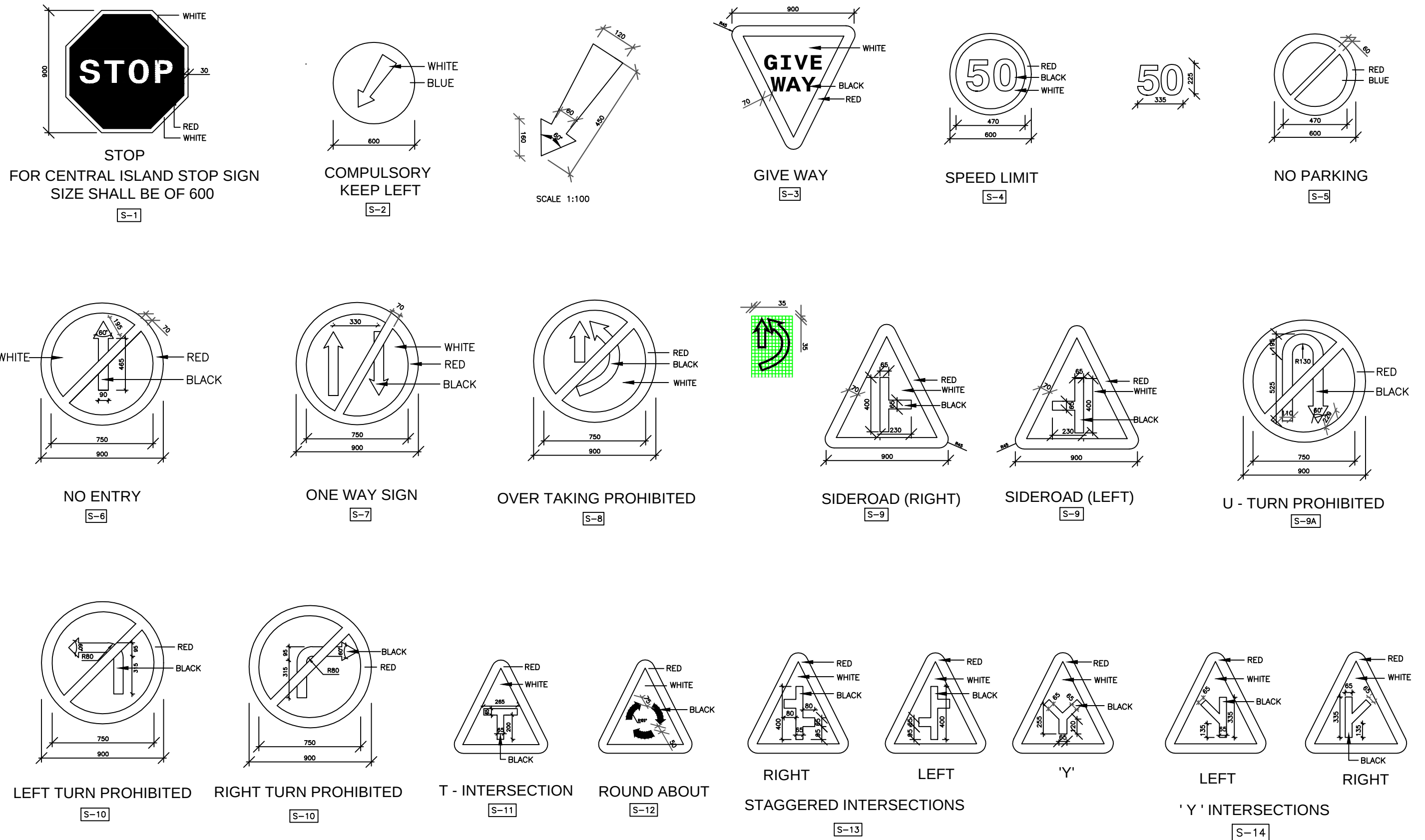
Consultancy Services for Preparation of Feasibility Study  
and Detailed Project Report For Two lane With Paved  
Shoulders of Tamenglong - Dimalong - Old Tamenglong  
Road In The State of Manipur on EPC Mode.

-:General Arrangement Drawing:-

RCC T BEAM GIRDER 4x25 MJB

DIALONG - OLD TAMENGLONG  
SECTION PKG - 2A

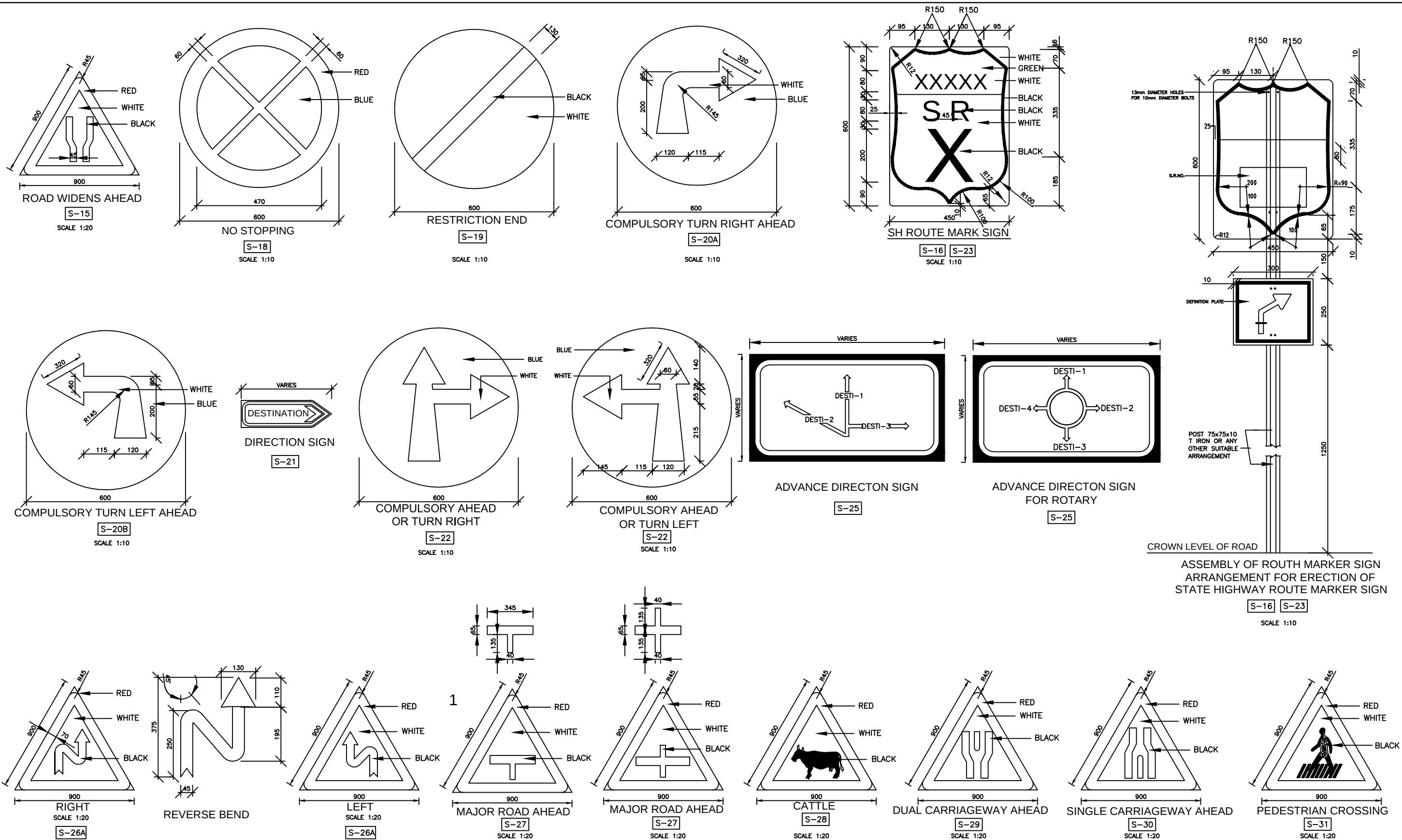
## **7. TRAFFIC SIGNS & MISC DRAWINGS**



**Notes :**

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

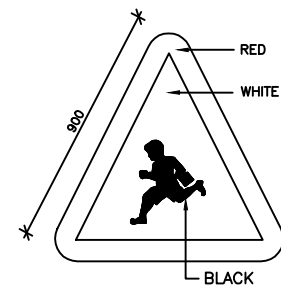
| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                         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



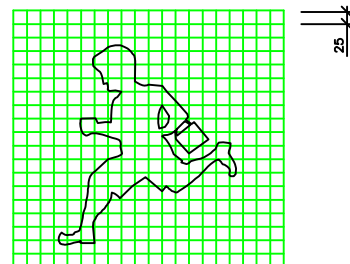
#### Notes :

- ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- RETROREFLECTORISED SHEETING SHALL BE CONFORMING TO ASTM D-4956-01, TYPE VIII OR TYPE IX.
- SIGNS SHALL BE ERECTED AS PER DRAWING NO. ADB/MPDCSP/C/M/TYP-06

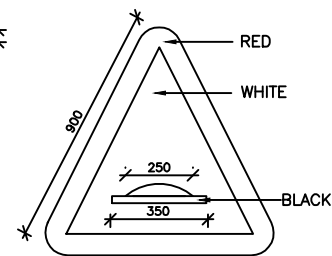
| CONSULTANTS :-                                                                                                                                                                                                                                     | CLIENT :-                                            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



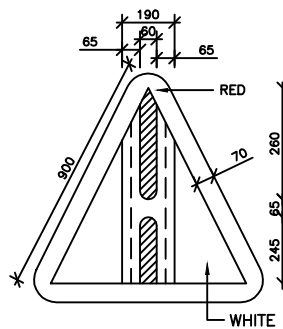
SCHOOL  
S-32



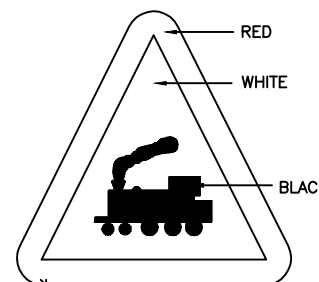
SCALE 1:10



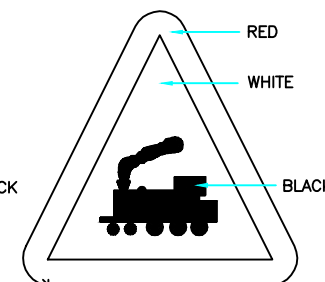
SPEED BUMP  
S-33



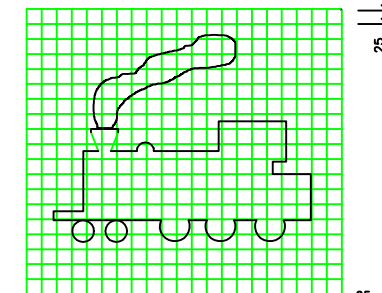
GAP IN MEDIAN  
S-34



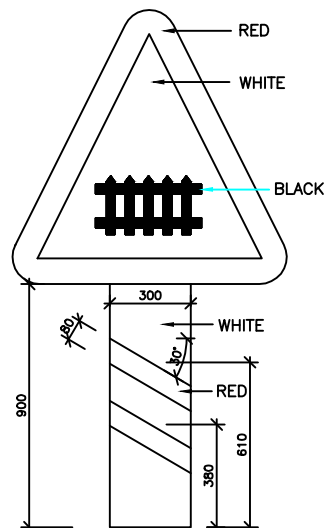
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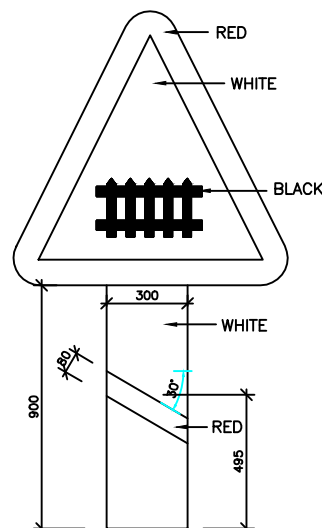
50-100 METRES



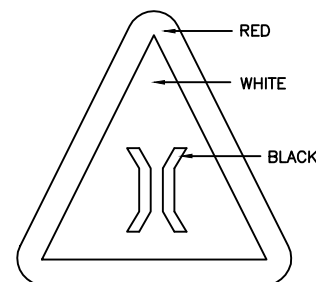
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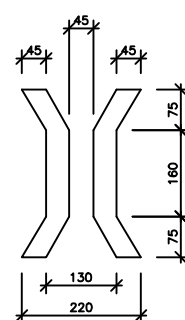
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GUARDED RAILWAY CROSSING



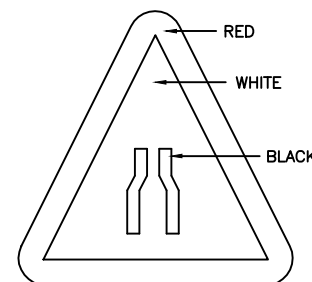
50-100 METRES



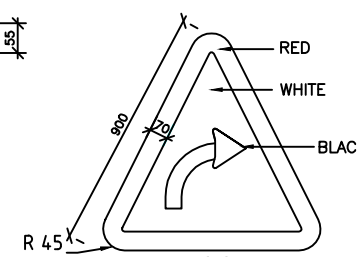
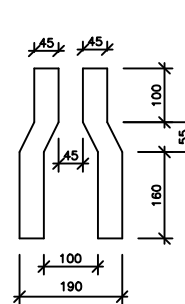
S-36



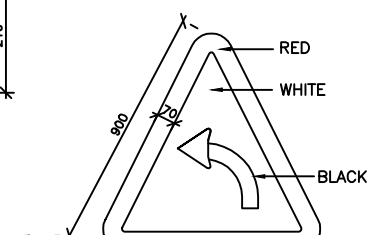
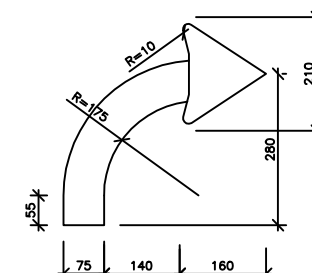
NARROW BRIDGE  
S-37



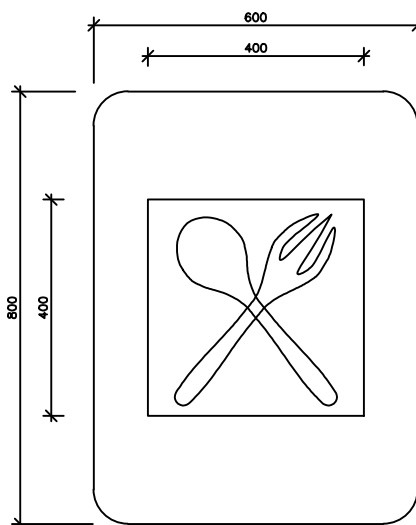
NARROW ROAD AHEAD  
S-38



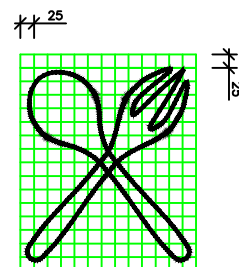
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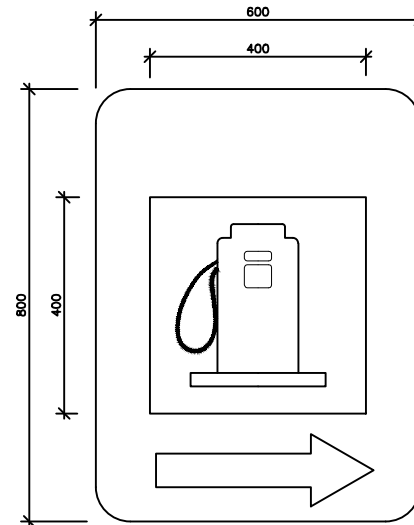
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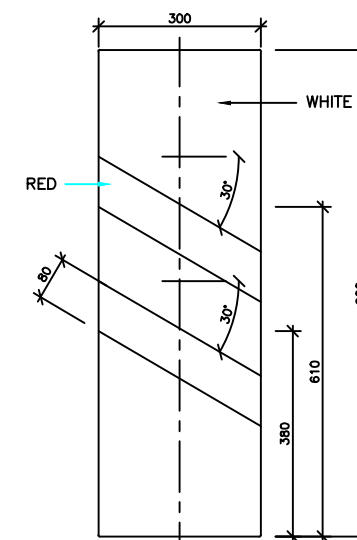
EATING PLACE



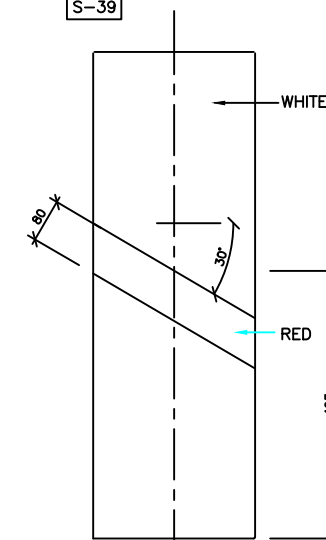
PETROL PUMP



S-41



HAZARD BOARDS



SCALE 1:20

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 :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

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

:- CLIENT :-

NATIONAL HIGHWAYS INFRASTRUCTURE  
DEVELOPMENT CORPORATION LIMITED (NHIDCL)



DRG. NO. :

3

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.

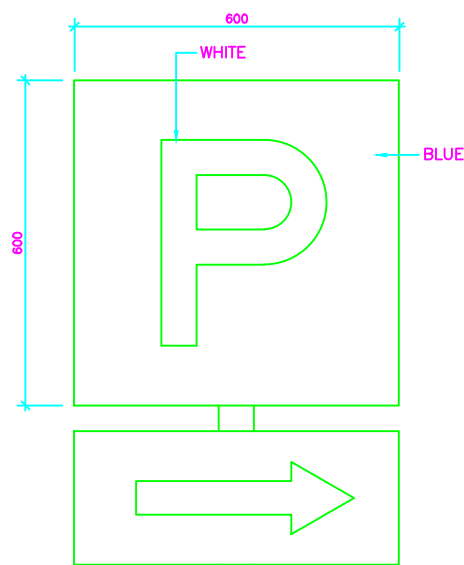
:- TRAFFIC SIGN :-

DIALONG - OLD TAMENGLONG  
PKG-2



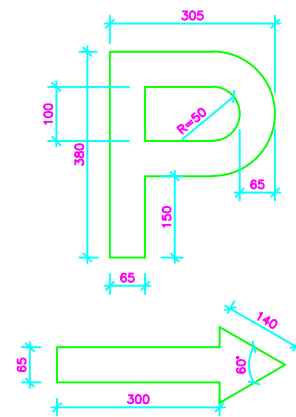
DESTINATION SIGN

S-43



PARKING

S-44



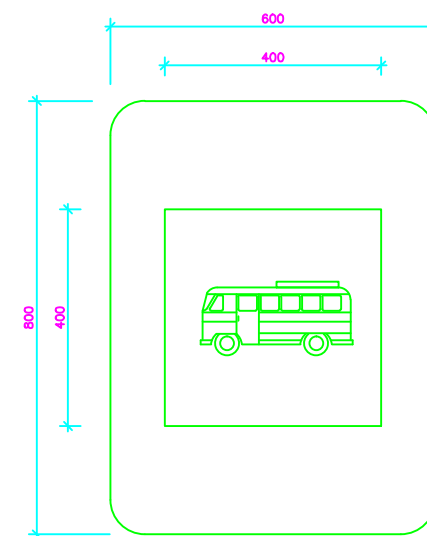
LEFT

RIGHT

OBJECT HAZARD MARKERS

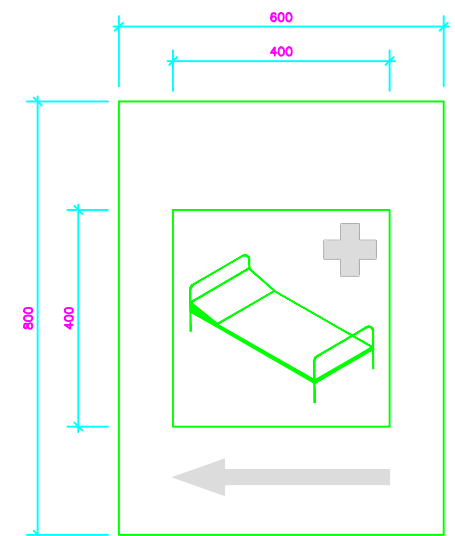
S-45

SCALE 1:20



BUS STOP

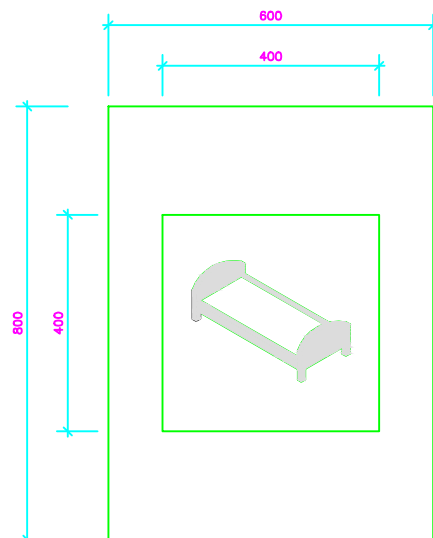
S-46



HOSPITAL SIGN

S-47

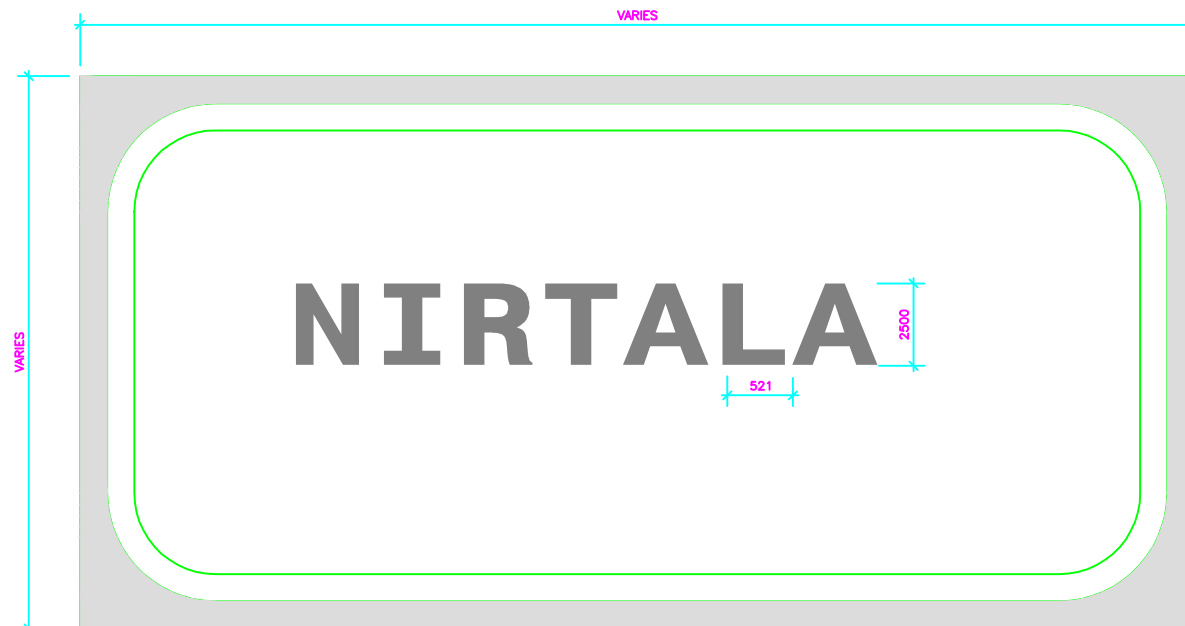
SCALE 1:10



RESTING PLACE SIGN

S-48

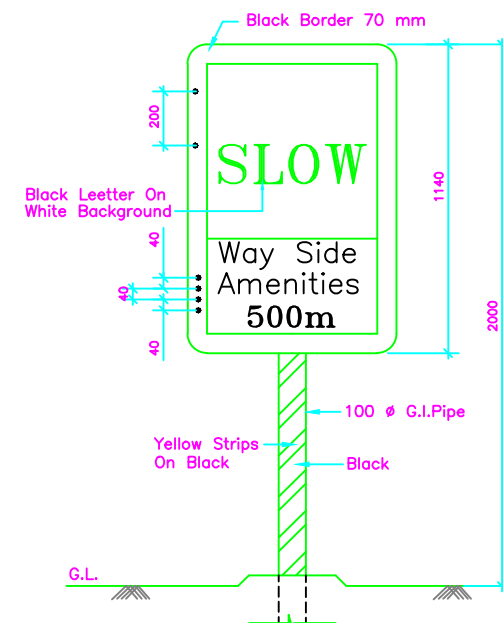
SCALE 1:10



PLACE IDENTIFICATION SIGN

S-49

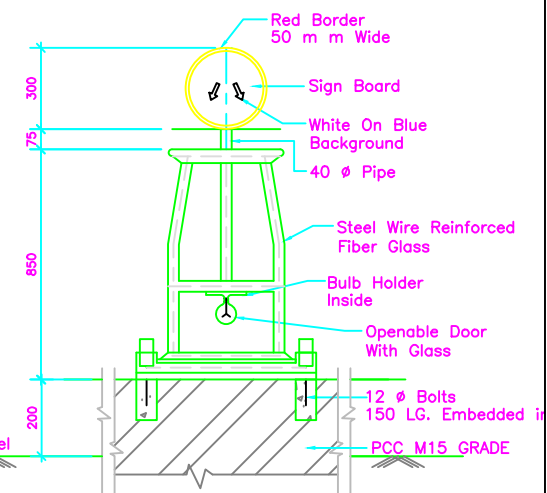
SCALE 1:10



ROAD SIGN TO BE PLACED AT 500M AHEAD

S-50

SCALE 1:20



TYPICAL DETAILS OF BOLLARD

S-51

SCALE 1:20

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
4. HAZARD MARKERS SHALL BE PRESSED INTO GROUND.
5. LOCAL LANGUAGE INSTEAD OF HINDI SHALL BE USED IF THE LOCAL LANGUAGE IS OTHER THAN HINDI

:- CONSULTANTS :-

L.N. MALVIYA INFRA PROJECTS PVT. LTD.

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E-mail : lninfra@projects@gmail.com

:- CLIENT :-

NATIONAL HIGHWAYS INFRASTRUCTURE  
DEVELOPMENT CORPORATION LIMITED (NHIDCL)

DRG. NO. :  
4

DESIGNED BY.

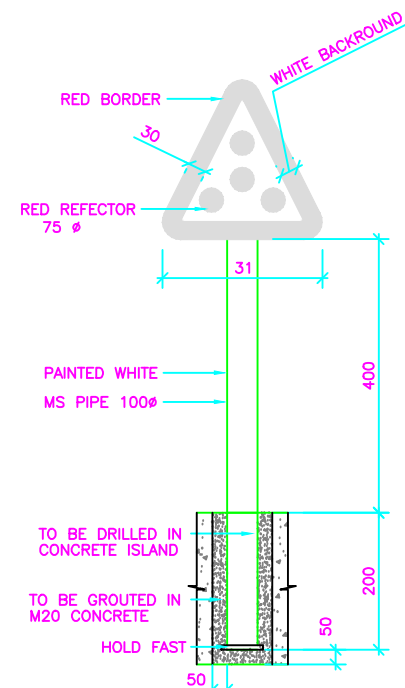
APPROVED BY.

:- 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.

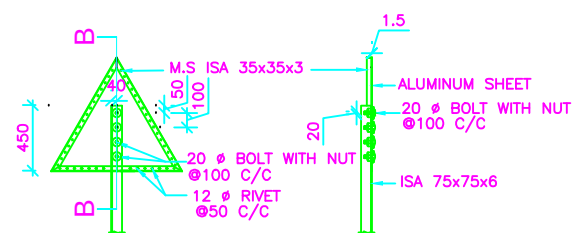
:-TRAFFIC SIGNS:-

DIALONG - OLD TAMENGLONG  
PKG-2



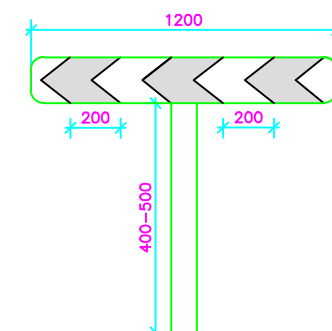
OBJECT MARKER

TA-1



DETAIL - X

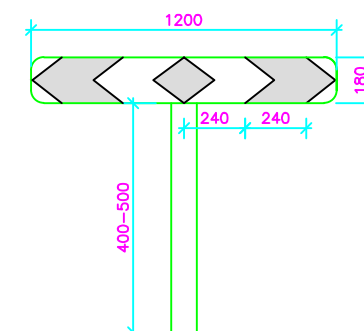
SECTION B-B



ONE-WAY HAZARD MARKER

TA-2

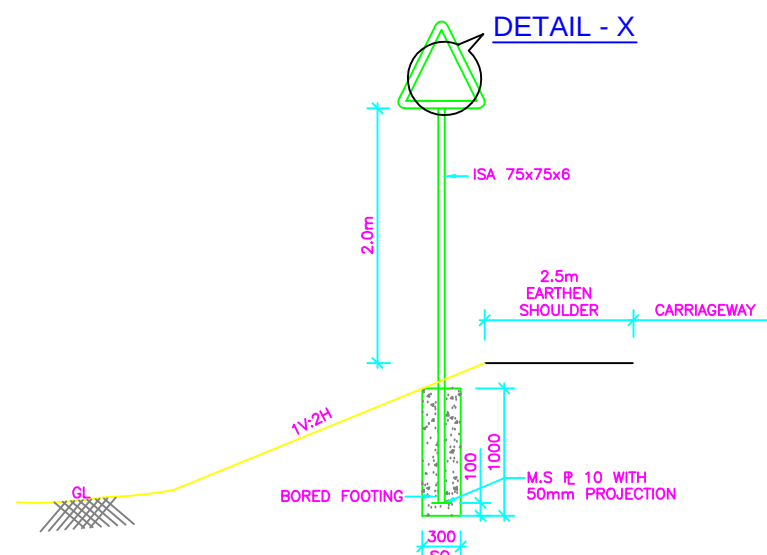
SCALE 1:20



TWO-WAY HAZARD MARKER

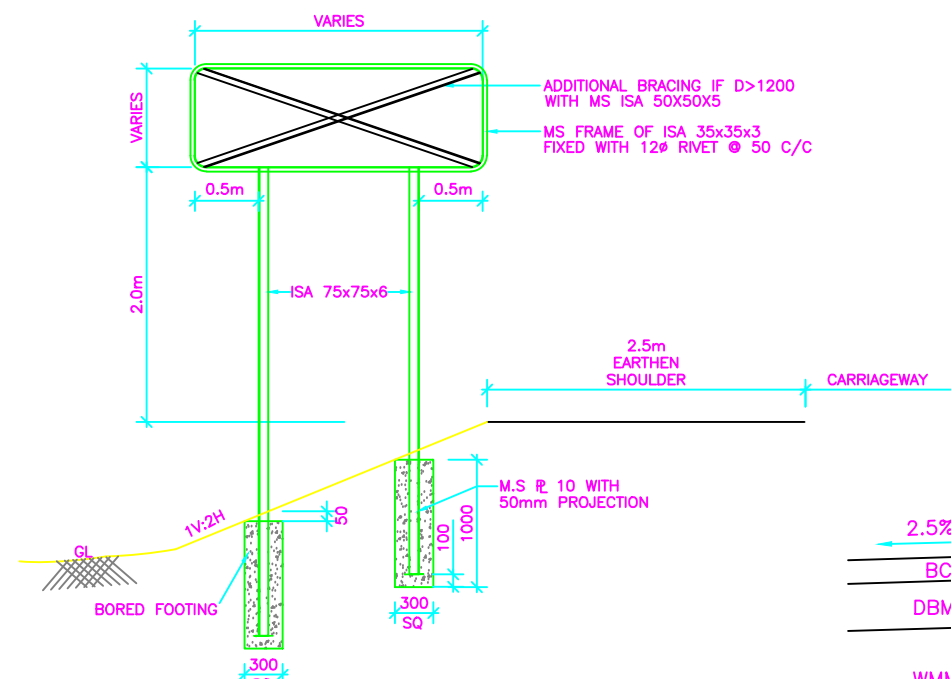
TA-3

SCALE 1:20



SINGLE LEAF SIGN

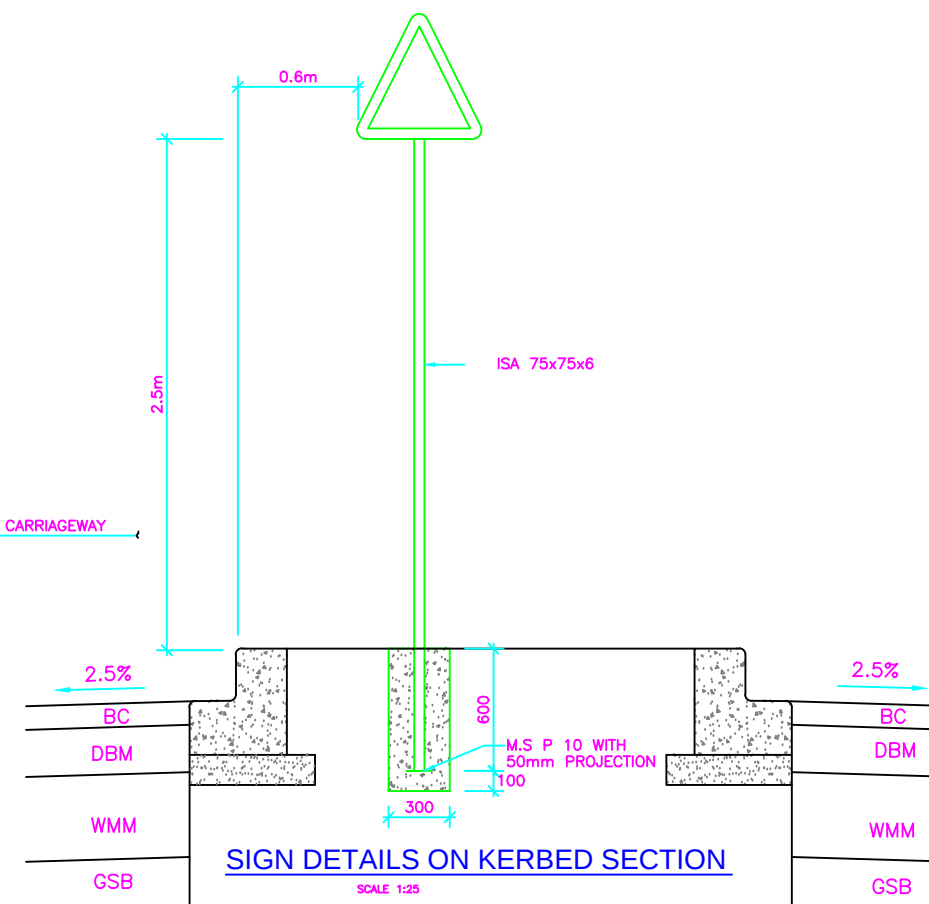
SCALE 1:40



DOUBLE LEAF SIGN

(WITH BORED FOOTING)

SCALE 1:40



SIGN DETAILS ON KERBED SECTION

SCALE 1:25

# Notes :

- ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- RETROREFLECTORISED SHEETING SHALL BE CONFORMING TO ASTM D-4956-01, TYPE VIII OR TYPE IX.
- THE SHEETING SHALL BE SECURELY BOLTED TO THE POST, THE REMAINING PORTION OF THE BOLT AFTER TIGHTENING THE NUT SHALL BE HAMMERED TO FORM RIVETING.
- IN CASE OF ROAD SIGNS, IRON POST SHALL BE PAINTED WITH ONE COAT OF EPOXY PRIMER AND TWO COATS OF EPOXY FINISH PAINT HAVING BLACK AND WHITE BANDS OF 250MM WIDTH.
- OBJECT MARKER SHALL BE SETBACK BY 500MM FROM THE FACE OF THE KERB. IT SHALL BE DRILLED INTO CONCRETE KERBS UPTO 600 MM DEPTH.
- ALL FOUNDATIONS SHALL BE IN M15 GRADE CEMENT CONCRETE.
- HAZARD MARKERS SHALL BE PRESSED INTO GROUND.
- BACK SIDE OF SIGN BOARD SHALL BE PAINTED WITH TWO COATS OF GRAY EPOXY PAINT.
- ALUMINUM SHEET SHALL BE 2mm THICK.
- ALL BLACK NUTS & BOLTS SHALL CONFORM TO IS:1353-1992
- RETRO REFLECTIVE SHEETING OF HIGH INTENSITY GRADE ENCAPSULATED TYPE SHALL BE AFFIXED TO ALUMINIUM SHEET BY PERSURE SENSITIVE ADHESIVE.
- STEEL SECTION SHALL CONFORM TO IS:1977-1996 & SHALL BE SUITABLY PAINTED.

-- 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. :

5

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.

--TRAFFIC SIGNS--

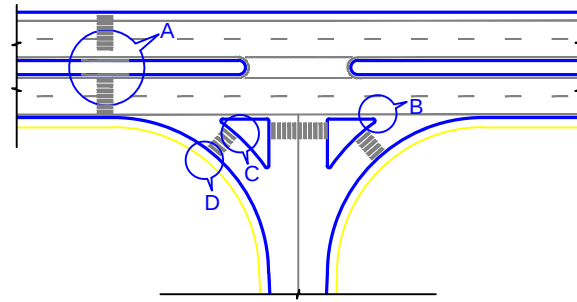
DIALONG - OLD TAMENGLONG  
PKG-2

**DIALONG - OLD TAMENGLONG**  
**PKG-2**



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 :-                                                                                                                                                                                       | GUARDED RAIL :-                                    |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob. : 99826452711, 99977004686<br>E-mail : <a href="mailto:lninfraprojects@gmail.com">lninfraprojects@gmail.com</a> |                | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>         DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> | 7          |              |              | CConsultancy Services for Preparation of<br>Feasibility Study and Detailed Project Report For<br>Two lane With Paved Shoulders of Tamenglong<br>- Haflong Road In The State of Manipur on EPC<br>Mode. | <b>DIALONG - OLD TAMENGLONG<br/>         PKG-2</b> |



PLAN OF TYPICAL INTERSECTION ON MULTI-LANE CARRIAGEWAY

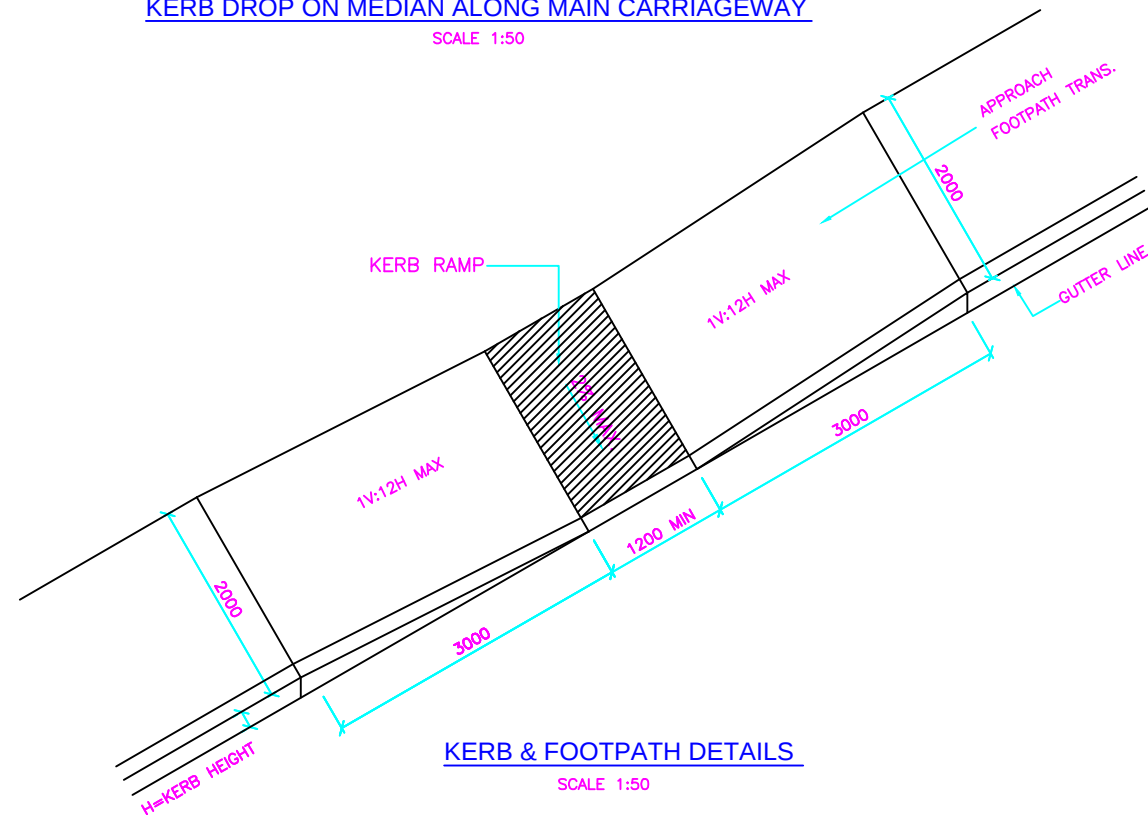
N.T.S.



DETAIL A

KERB DROP ON MEDIAN ALONG MAIN CARRIAGEWAY

SCALE 1:50

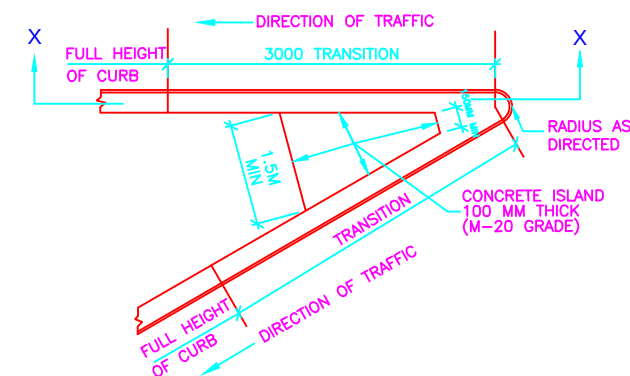


KERB & FOOTPATH DETAILS

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

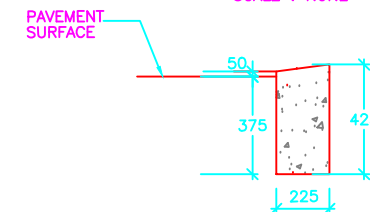


SECTION X-X

DETAIL B

KERB TRANSITION ON ISLANDS

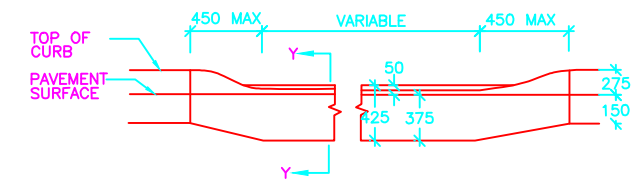
SCALE : NONE



DETAIL C

METHOD OF DEPRESSING CURBS ON ISLANDS

N.T.S.

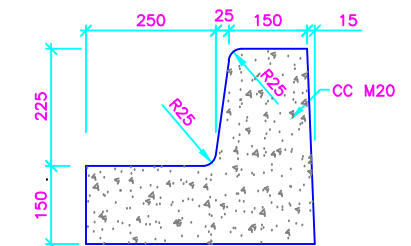


SECTION Y-Y

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 :-

NATIONAL HIGHWAYS INFRASTRUCTURE  
DEVELOPMENT CORPORATION LIMITED (NHIDCL)



DRG. NO. :

8

DESIGNED BY.

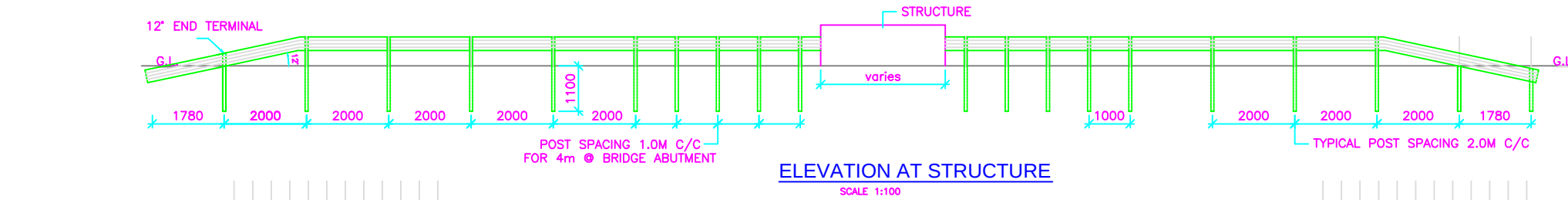
APPROVED BY.

-: PROJECT TITLE :-

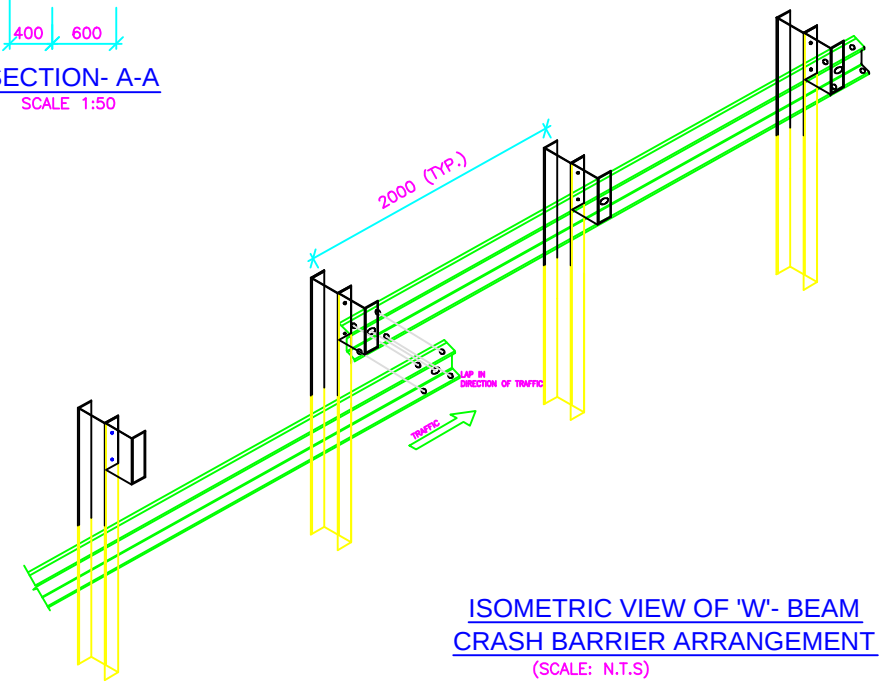
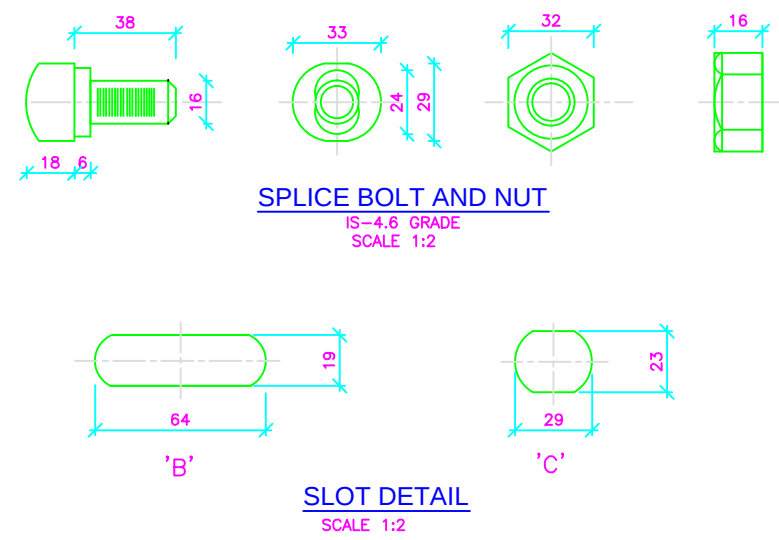
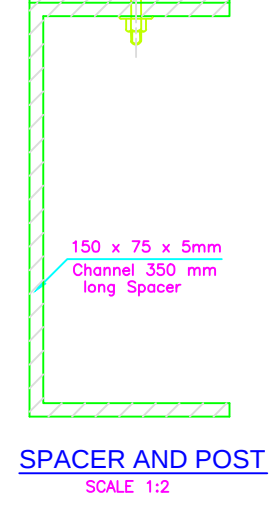
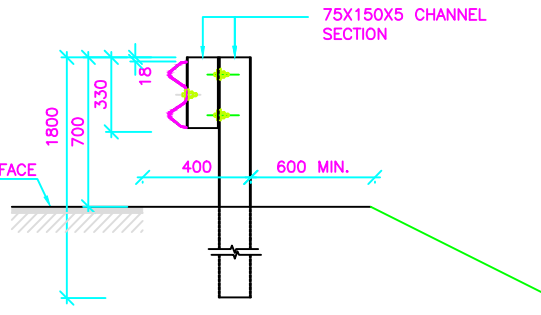
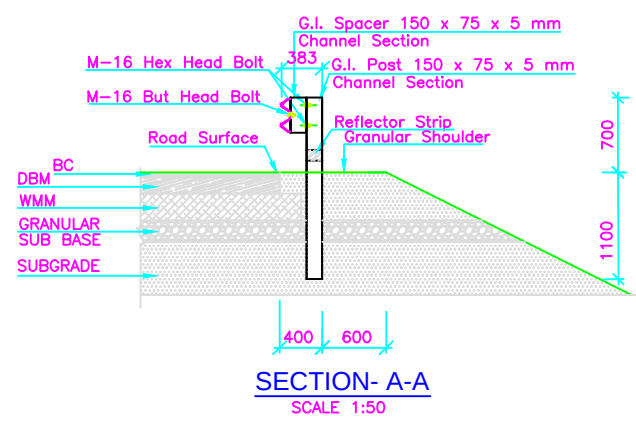
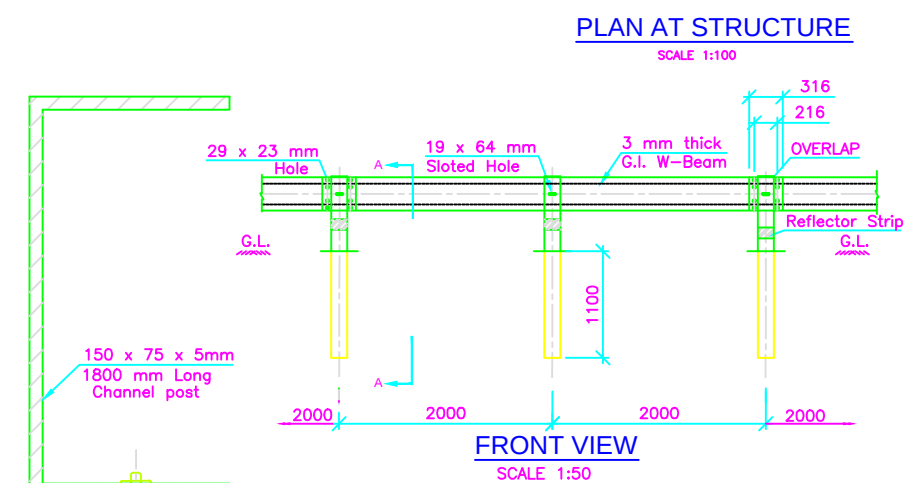
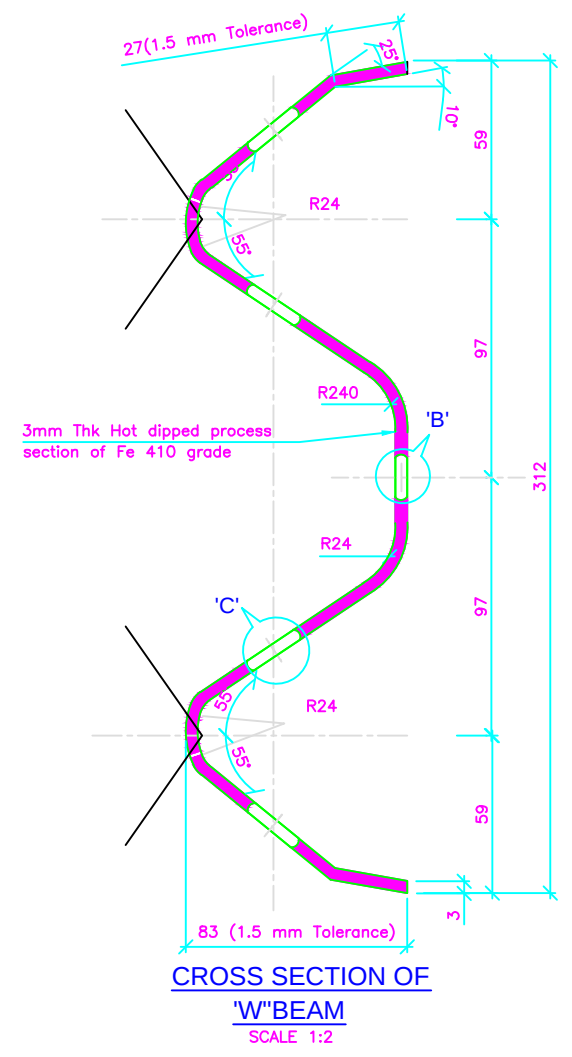
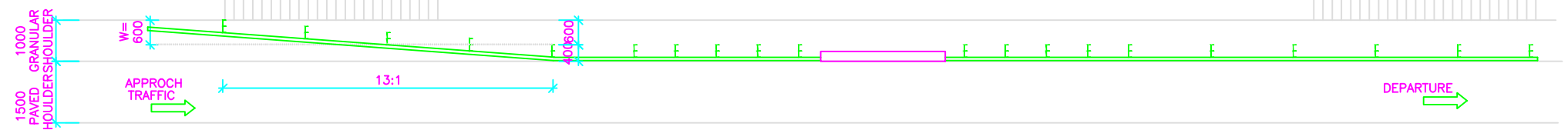
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Feasibility Study and Detailed Project Report For  
Two lane With Paved Shoulders of Tamenglong  
- Haflong Road In The State of Manipur on EPC  
Mode.

-:KERB & ISLANDS:-

DIALONG - OLD TAMENGLONG  
PKG-2

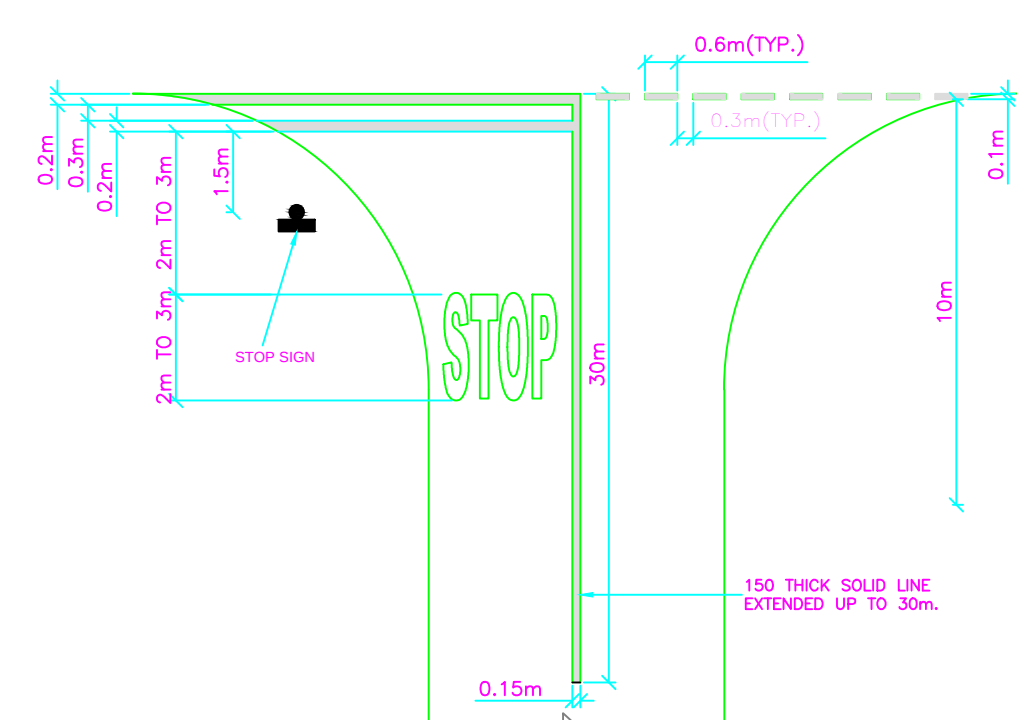


| SUGGESTED FLARE RATES FOR END TREATMENTS |            |
|------------------------------------------|------------|
| DESIGN SPEED (km/hr)                     | SEMI RIGID |
| 100                                      | 13:1       |
| 80                                       | 11:1       |
| 65      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



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

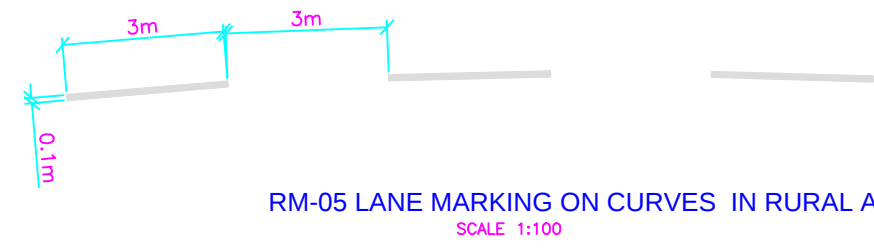
| :- CONSULTANTS :-                                                                                                                                                                                                                                  |  | :- CLIENT :-                                                                         |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | :- PROJECT TITLE :-                                                                                                                                                                                    |  | :-MB CRASH BARRIER:-                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|------------|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------|
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : lninfra@projects@gmail.com |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b> |  | 9          |              |              | CConsultancy Services for Preparation of<br>Feasibility Study and Detailed Project Report For<br>Two lane With Paved Shoulders of Tamenglong<br>- Haflong Road In The State of Manipur on EPC<br>Mode. |  | <b>DIALONG - OLD TAMENGLONG<br/>PKG-2</b> |



RM-01 STOP LINE  
SCALE 1:100



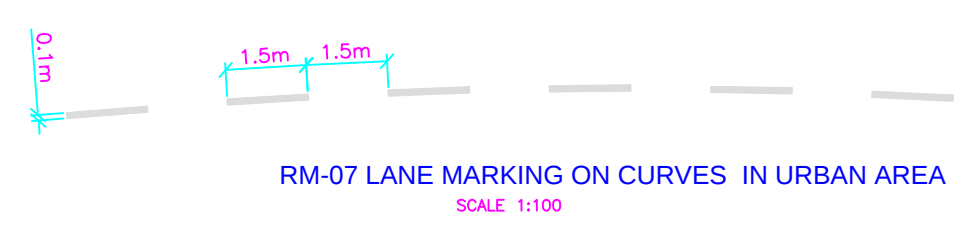
RM-04 LANE MARKING IN RURAL STRAIGHT REACHES  
SCALE 1:100



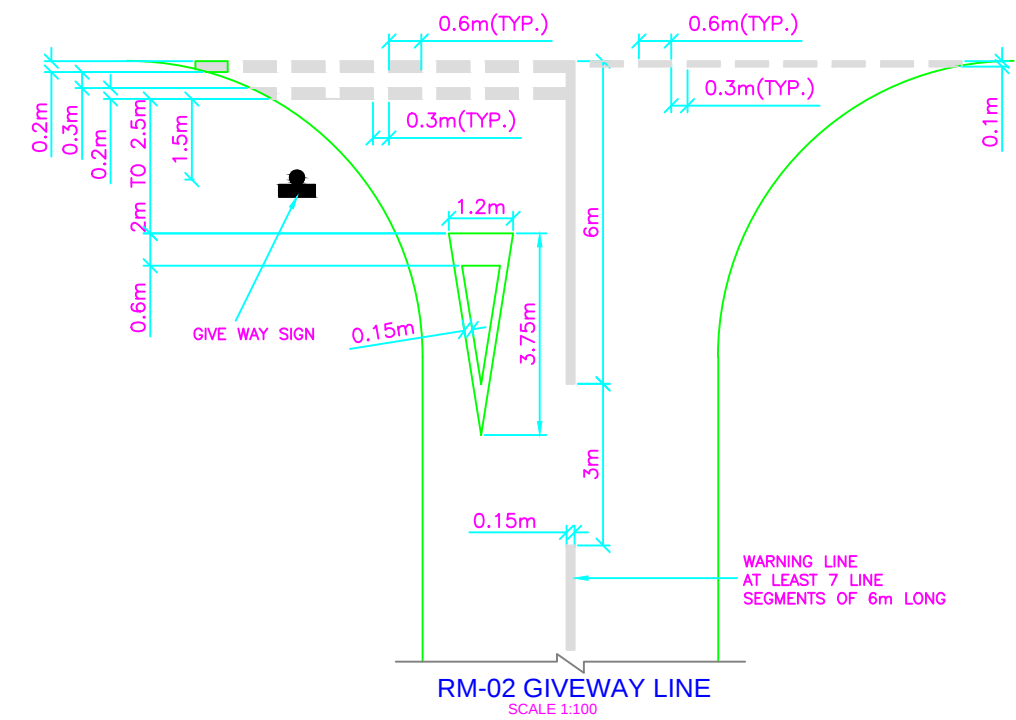
RM-05 LANE MARKING ON CURVES IN RURAL AREA  
SCALE 1:100



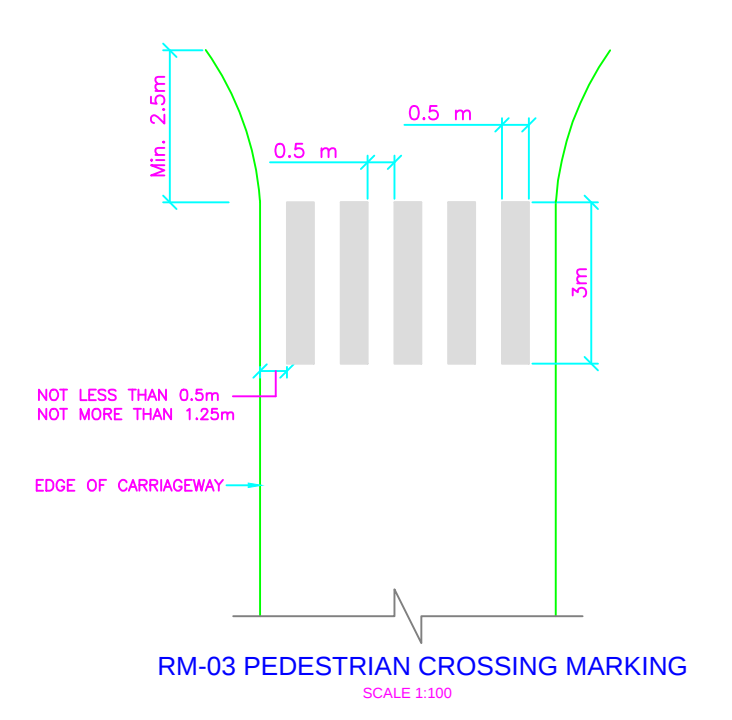
RM-06 LANE MARKING IN URBAN STRAIGHT REACHES  
SCALE 1:100



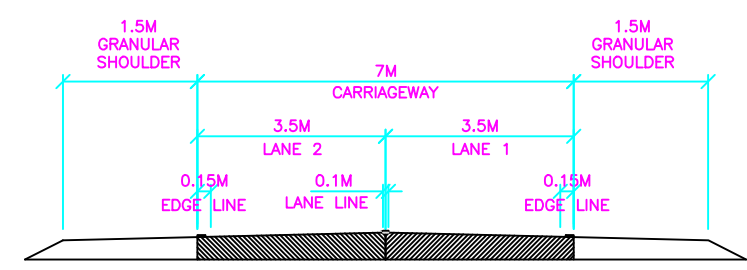
RM-07 LANE MARKING ON CURVES IN URBAN AREA  
SCALE 1:100



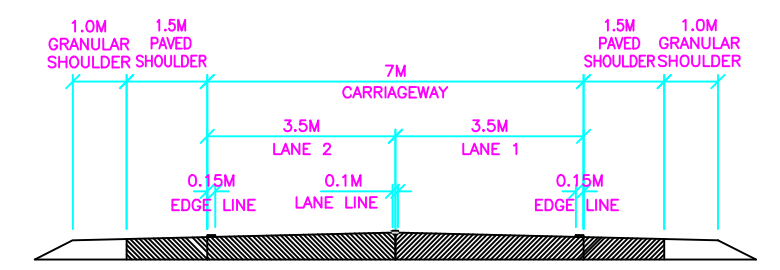
RM-02 GIVEWAY LINE  
SCALE 1:100



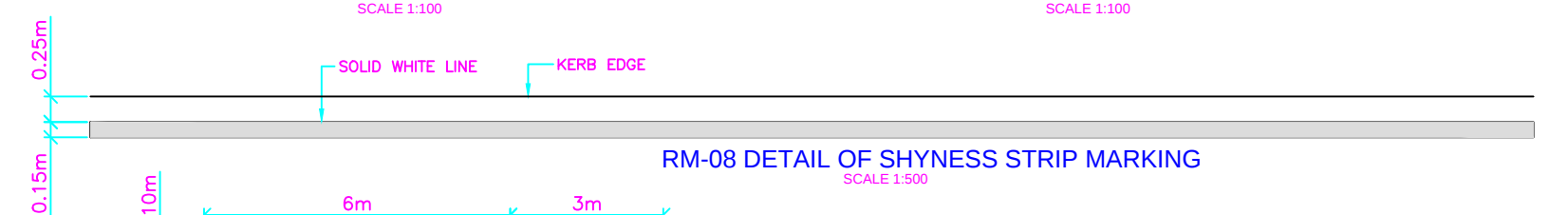
RM-03 PEDESTRIAN CROSSING MARKING  
SCALE 1:100



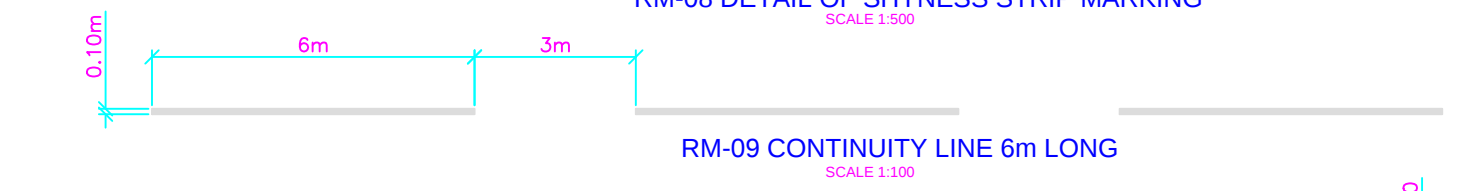
TYPICAL LAYOUT OF ROAD MARKING FOR TWO LANE  
SCALE 1:100



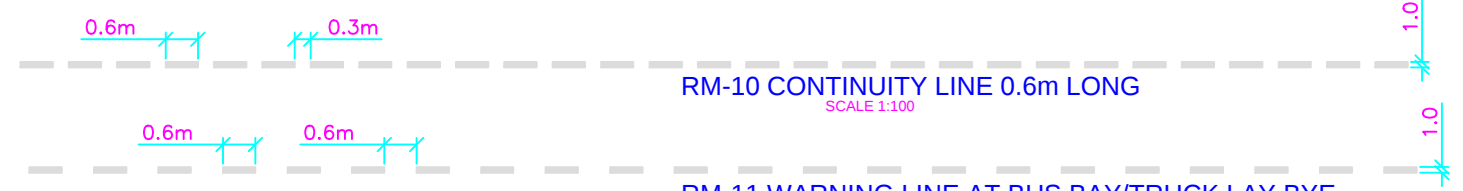
TYPICAL LAYOUT OF ROAD MARKING FOR TWO LANE WITH PSS  
SCALE 1:100



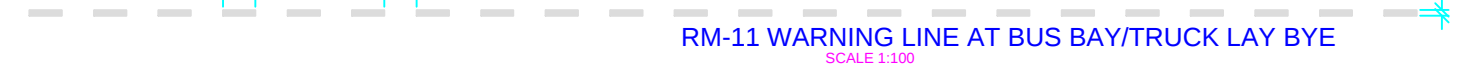
RM-08 DETAIL OF SHYNESS STRIP MARKING  
SCALE 1:500



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



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

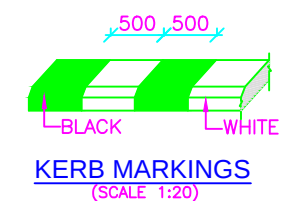
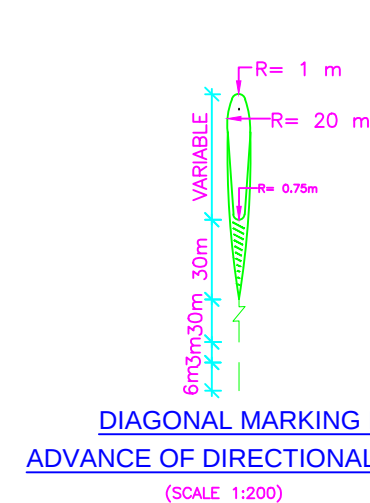
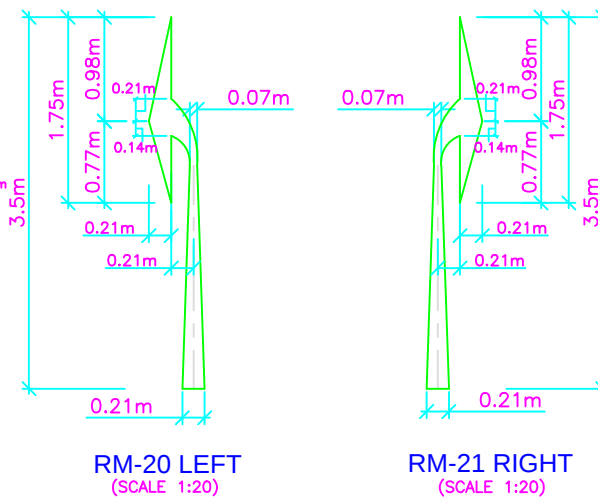
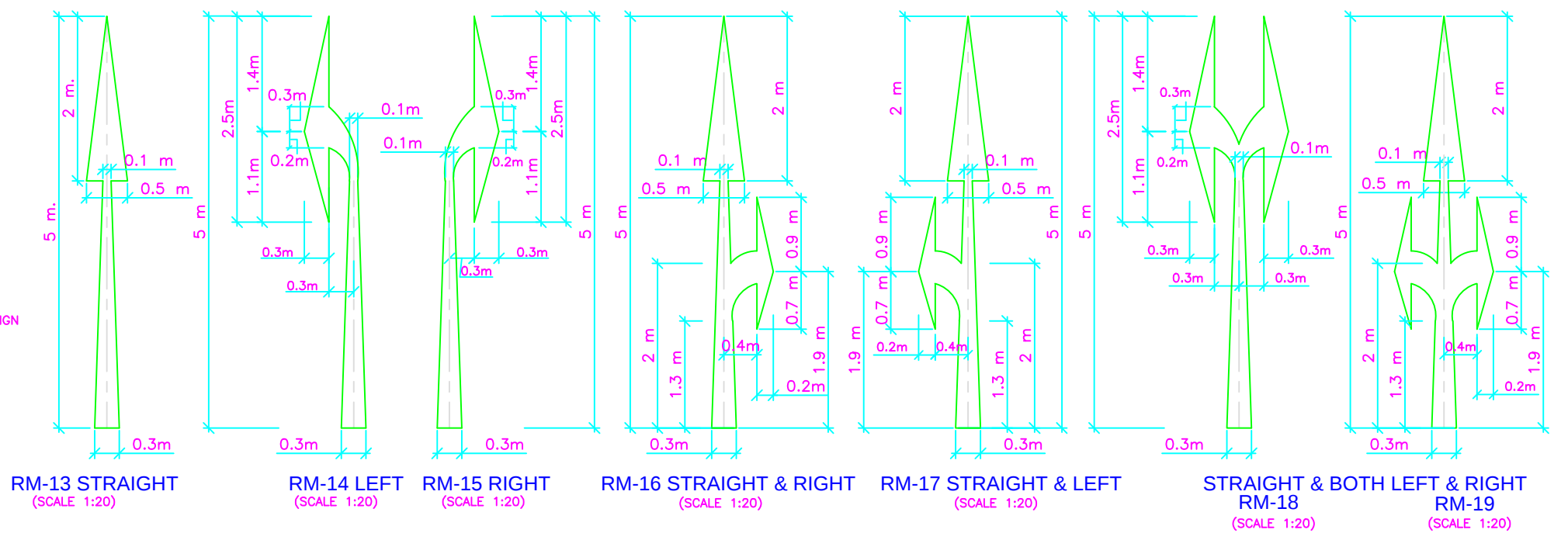
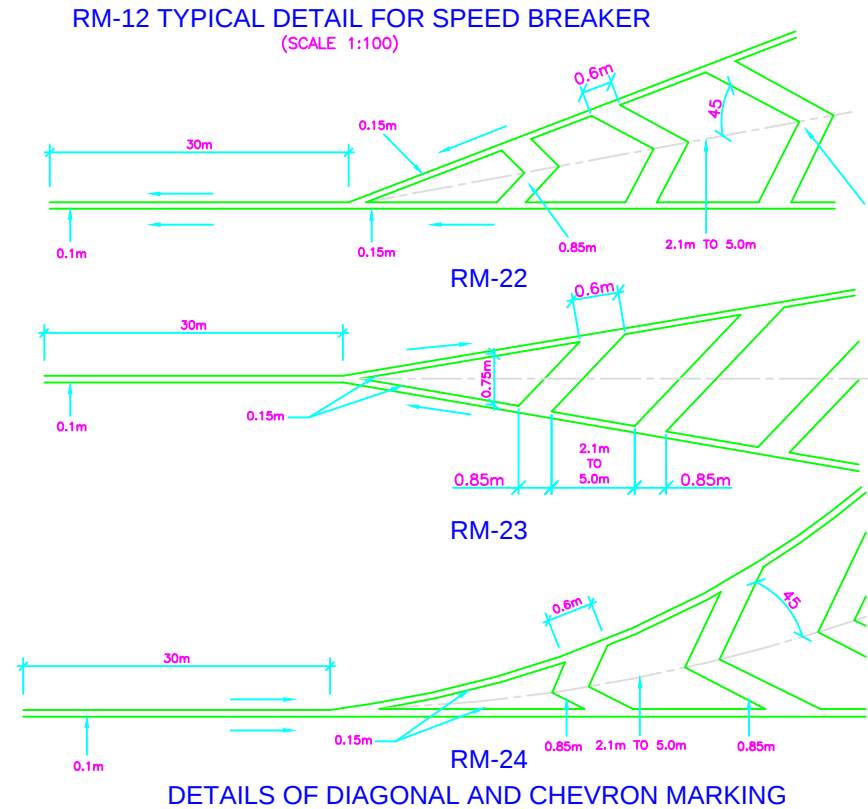
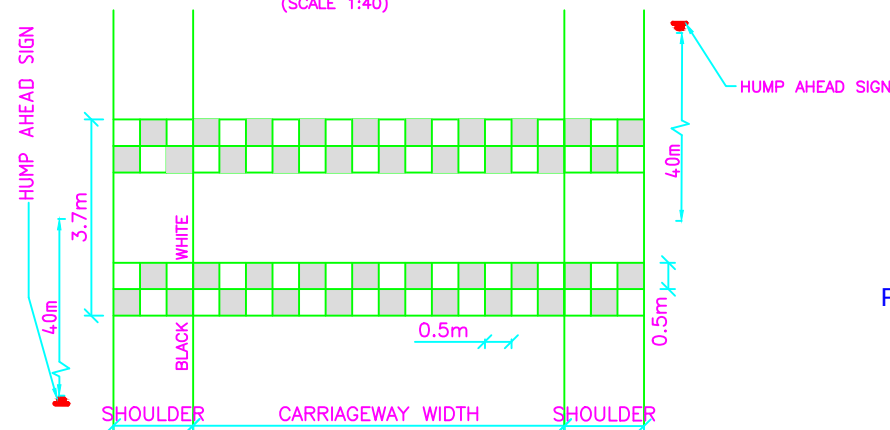
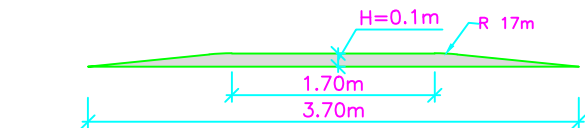
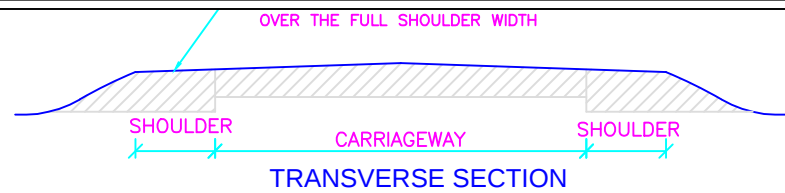


RM-11 WARNING LINE AT BUS BAY/TRUCK LAY BYE  
SCALE 1:100

### GENERAL NOTES :

- 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.

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



#### GENERAL NOTES :

- 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.

:- CONSULTANTS :-

**L.N. MALVIYA INFRA PROJECTS PVT. LTD.**

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Mob.: 09826452711, 09977004686  
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:- CLIENT :-

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



DRG. NO. :

**11**

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.

:-LANE MARKING:-

**DIALONG - OLD TAMENGLONG  
PKG-2**

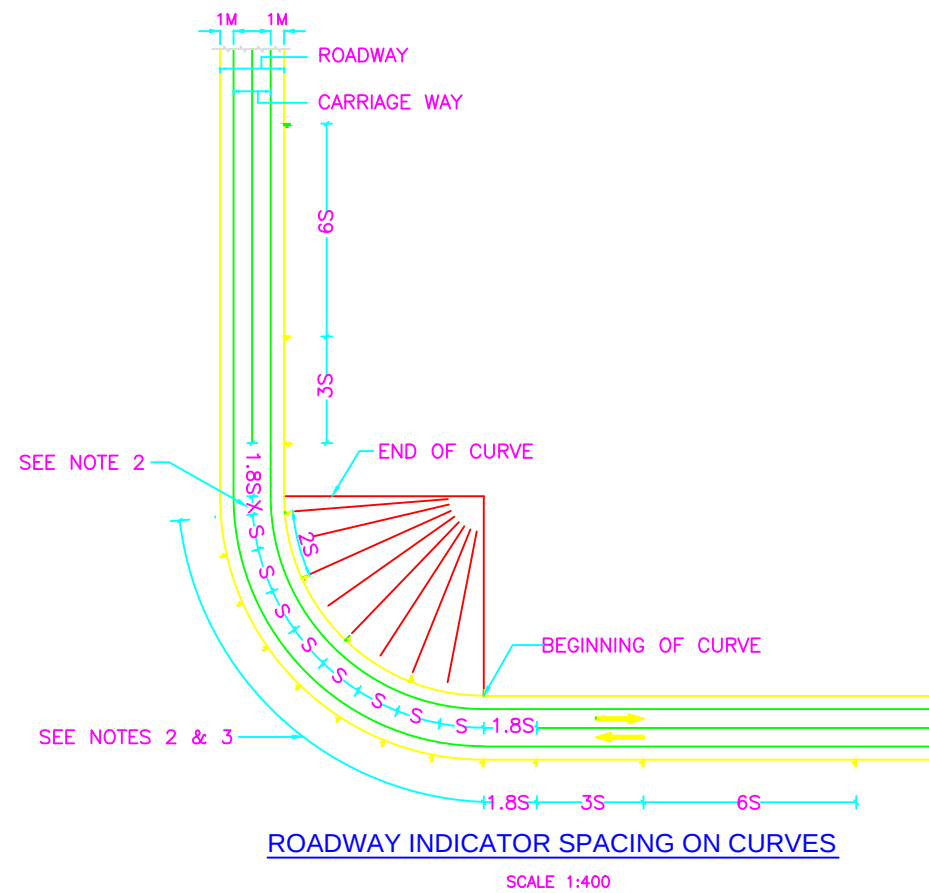
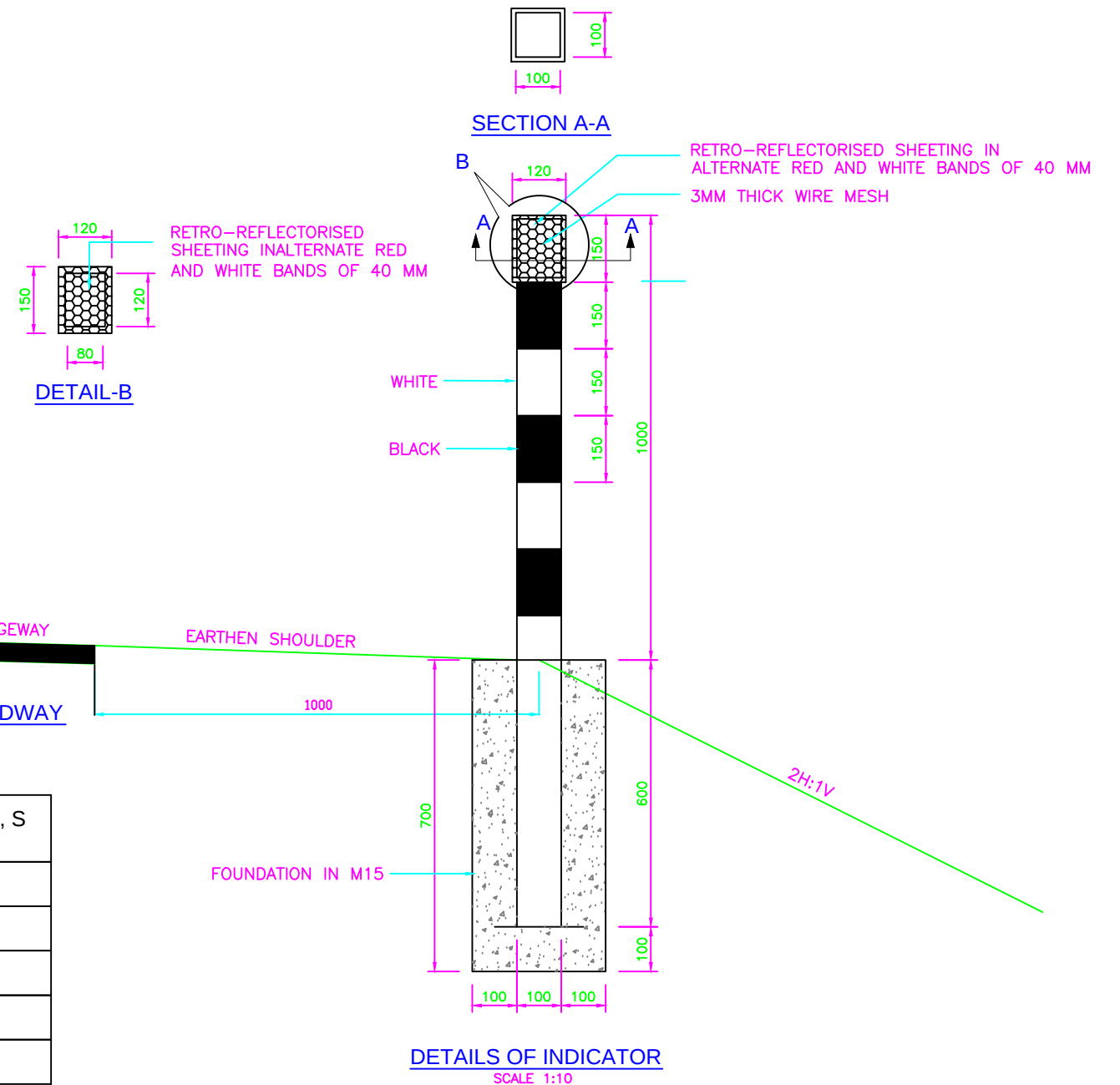


TABLE FOR RECOMMENDED SPACING FOR ROADWAY  
DELINEATORS ON HORIZONTAL CURVES

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



**Notes :**

- ALL THE DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- ADJUST DISTANCE 'X' SUITABLY SO THAT THE LAST ROADWAY DELINEATOR IS AT THE END OF THE CURVE.
- INSTALL ALL DELINEATORS PERPENDICULAR TO THE ONCOMING TRAFFIC.
- SEE TABLE FOR VALUE OF 'S' i.e. SPACING OF DELINEATORS ON THE CURVE.
- THE SPACING OF FIRST, SECOND & THIRD DELINEATORS ON THE APPROACHES SHALL BE 1.85S, 3S & 6S RESPECTIVELY BUT NOT EXCEEDING 50m.
- INDICATORS SHALL BE DIE CAST IN ALUMINUM, RESISTANT TO CORROSIVE EFFECT OF SILT AND GRIT, FITTED WITH LENS REFLECTORS.
- STEEL REINFORCEMENT SHALL BE OF HYSD Fe 415 GRADE.

-: CONSULTANTS :-

-: CLIENT :-

DRG. NO. :

DESIGNED BY.

APPROVED BY.

-: PROJECT TITLE :-

-: INDICATOR :-

**L.N. MALVIYA INFRA PROJECTS PVT. LTD.**

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E-mail : [lninfraprojects@gmail.com](mailto:lninfraprojects@gmail.com)

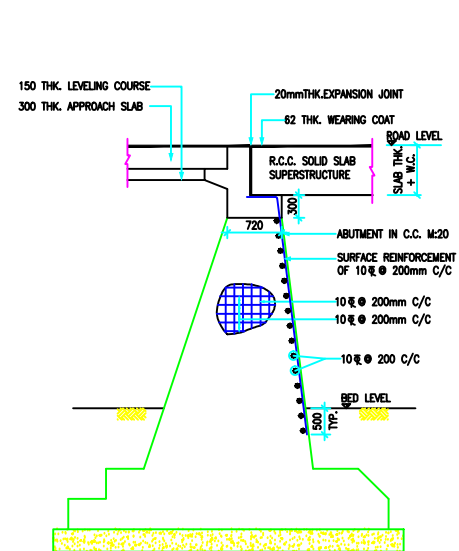
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DEVELOPMENT CORPORATION LIMITED (NHIDCL)**



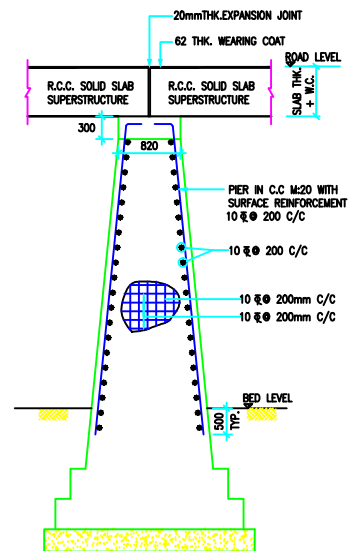
12

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.

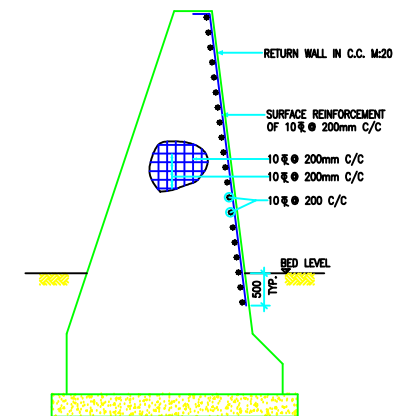
**DIALONG - OLD TAMENGLONG  
PKG-2**



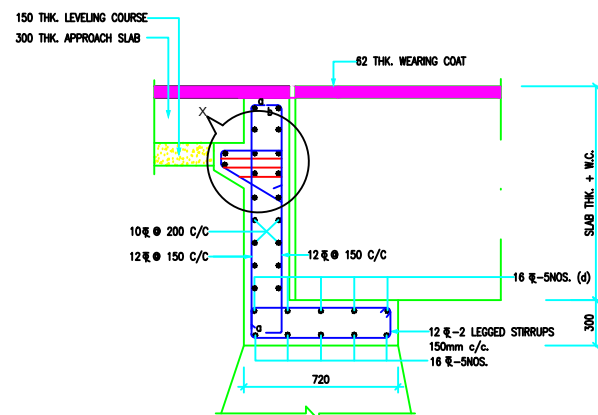
REINFORCEMENT DETAILS  
OF P.C.C. ABUTMENT



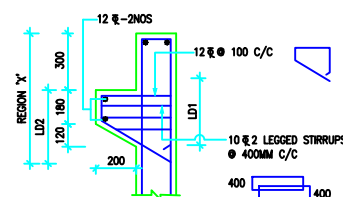
REINFORCEMENT DETAILS  
OF P.C.C. PIER



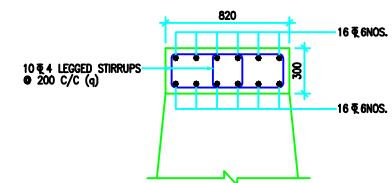
REINFORCEMENT DETAILS  
OF P.C.C. RETURN WALL



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

-: CONSULTANTS :-

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E-mail : [lninfraprojects@gmail.com](mailto:lninfraprojects@gmail.com)

-: CLIENT :-

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



DRG. NO. :

**13**

DESIGNED BY.

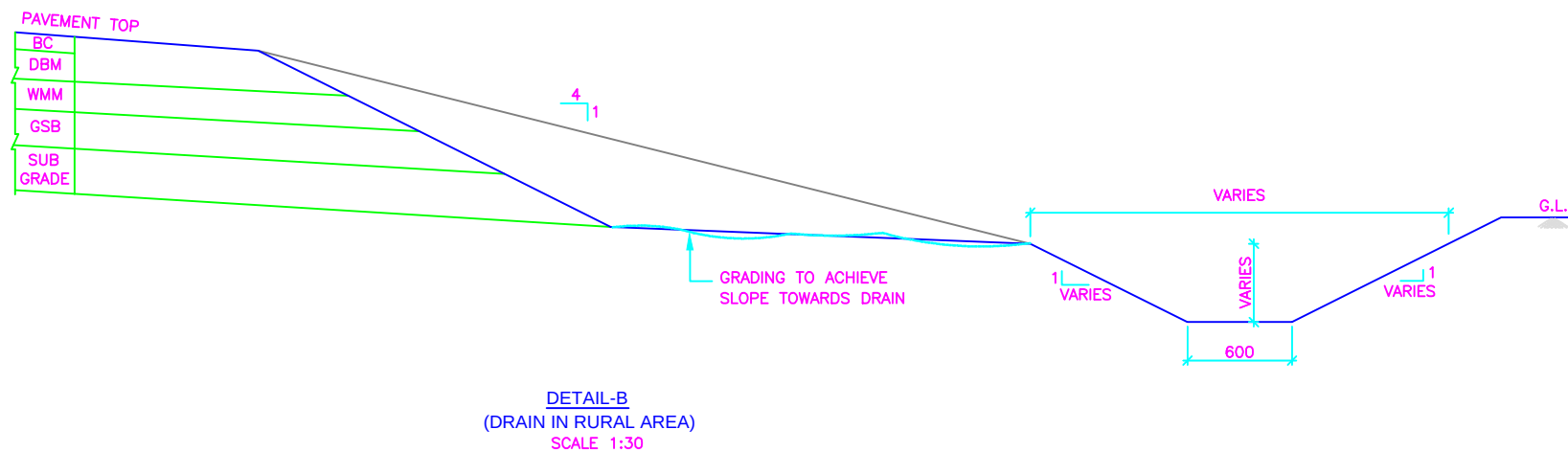
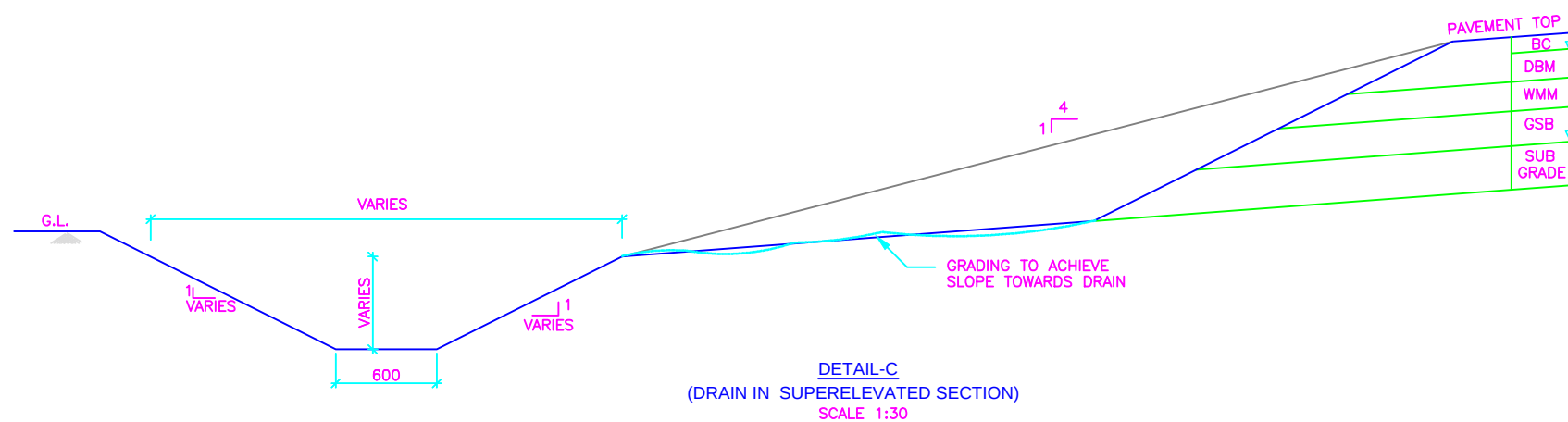
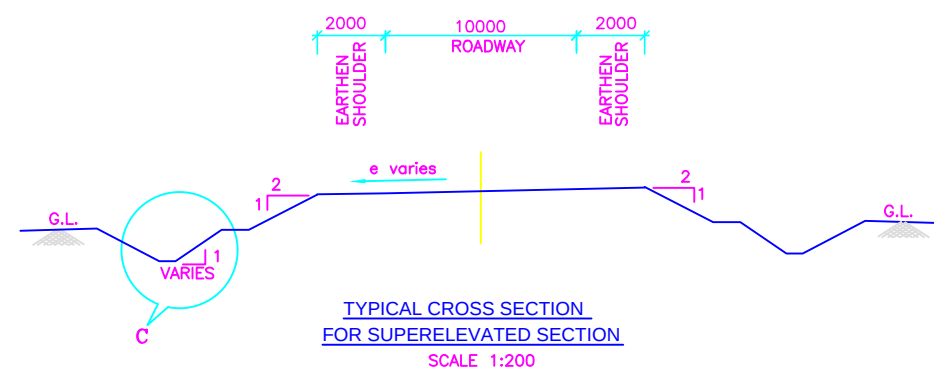
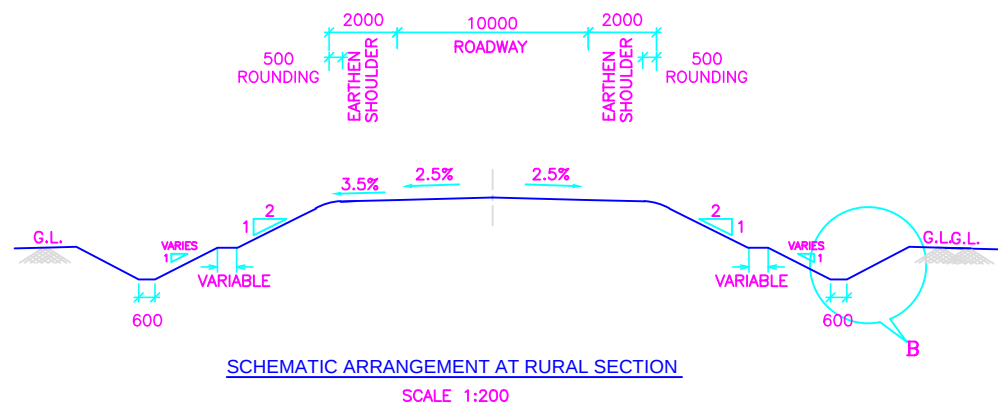
APPROVED BY.

-: 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.

-: Typ. Details Temperature Reinf. :-

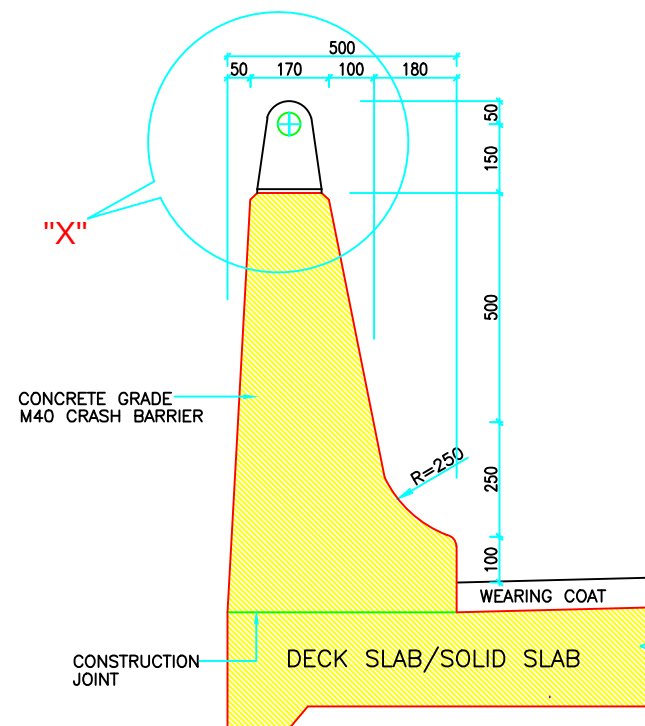
**DIALONG - OLD TAMENGLONG  
PKG-2**



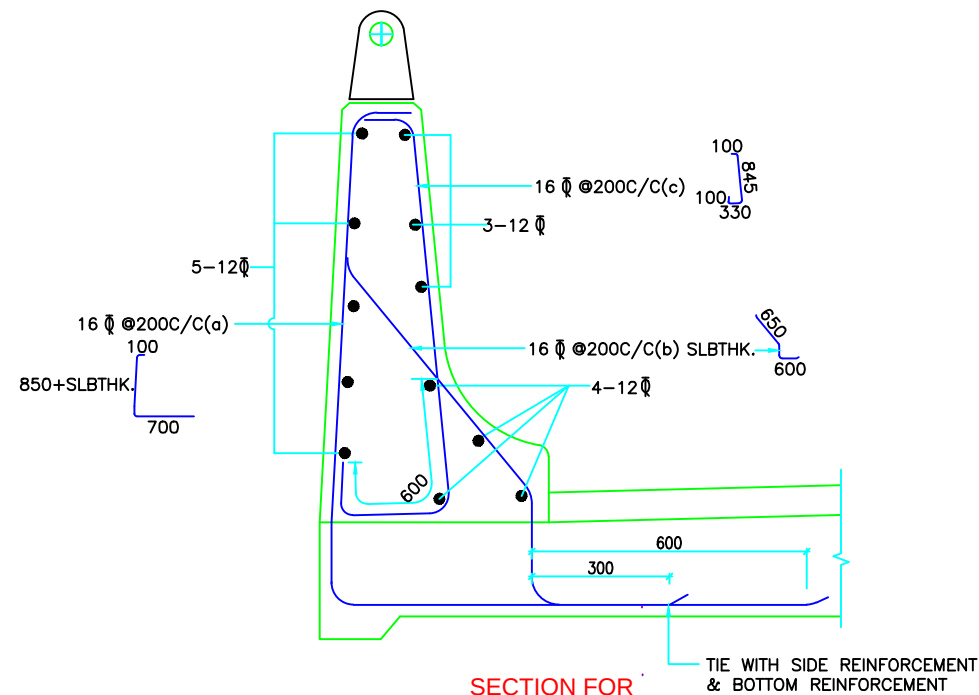
#### CONSTRUCTION NOTES :

- 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 :-                                                                                                                                                                                                                                                                                                                        |  | -: CLIENT :-                                                                                                                                                                |  | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                    | -: EARTHEN DRAIN DRAWING :-               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : lninfra@projects@gmail.com |  | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> |  | 14         |              |              | CConsultancy Services for Preparation of<br>Feasibility Study and Detailed Project Report For<br>Two lane With Paved Shoulders of Tamenglong<br>- Haflong Road In The State of Manipur on EPC<br>Mode. | <b>DIALONG - OLD TAMENGLONG<br/>PKG-2</b> |

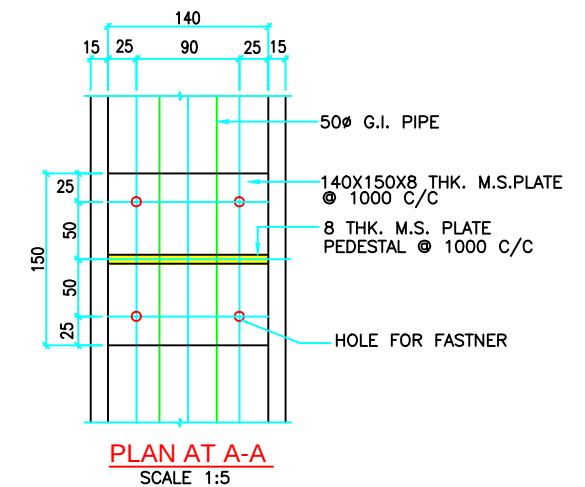


SECTION FOR  
CRASH BARRIER  
(DIMENSIONS ONLY)

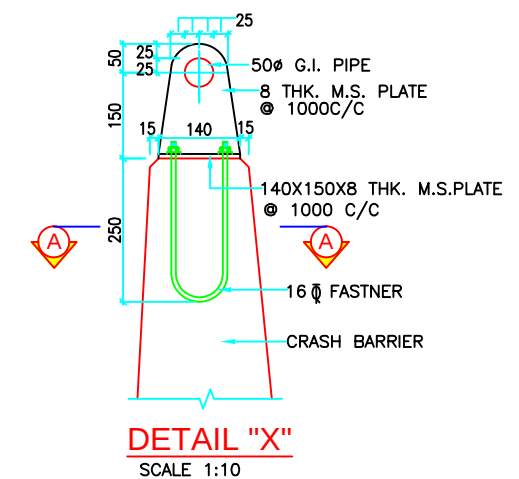


SECTION FOR  
CRASH BARRIER  
(REINFORCEMENT ONLY)

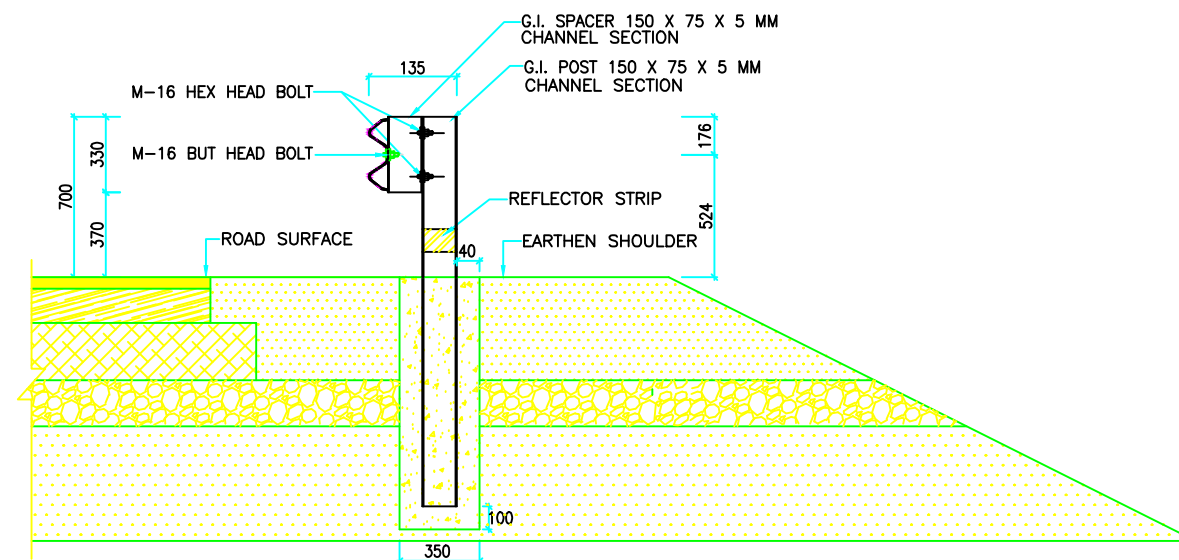
DETAILS OF CRASH BARRIER FOR DECK SLAB / RCC BOX  
SCALE 1:12.5



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 :-

**L.N. MALVIYA INFRA PROJECTS PVT. LTD.**

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M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



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Mob.: 09826452711, 09977004686  
E-mail : [lninfra@projects@gmail.com](mailto:lninfra@projects@gmail.com)

:- CLIENT :-

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



DRG. NO. :

**15**

DESIGNED BY.

APPROVED BY.

:- PROJECT TITLE :-

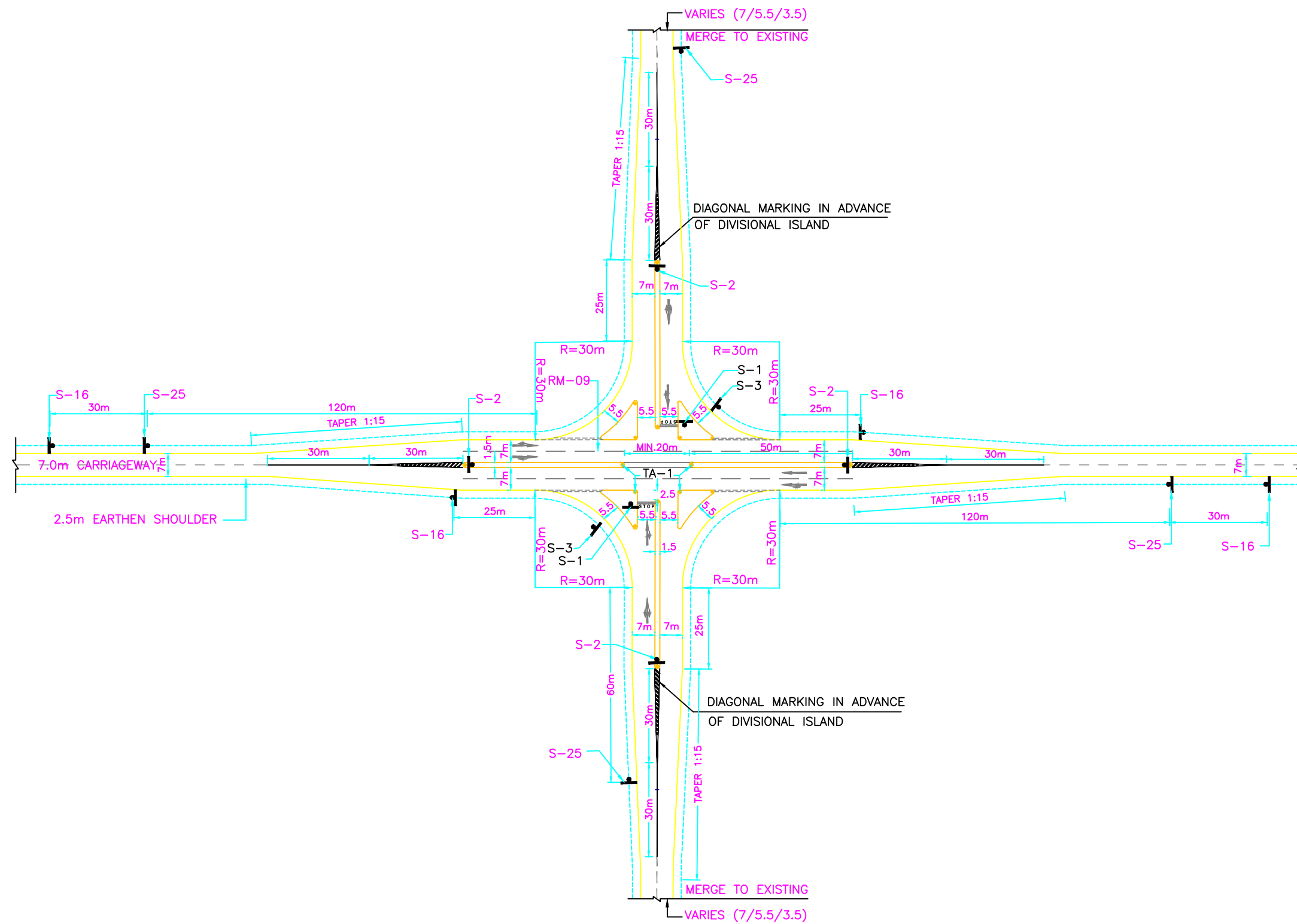
CConsultancy Services for Preparation of  
Feasibility Study and Detailed Project Report For  
Two lane With Paved Shoulders of Tamenglong  
- Haflong Road In The State of Manipur on EPC  
Mode.

:-RCC CRASH BARRIER:-

**DIALONG - OLD TAMENGLONG  
PKG-2**







TYPE - III

-: CONSULTANTS :-

-: CLIENT :-

DRG. NO. :

DESIGNED BY.

APPROVED BY.

-: PROJECT TITLE :-

-: Junction Improvemment 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.)



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

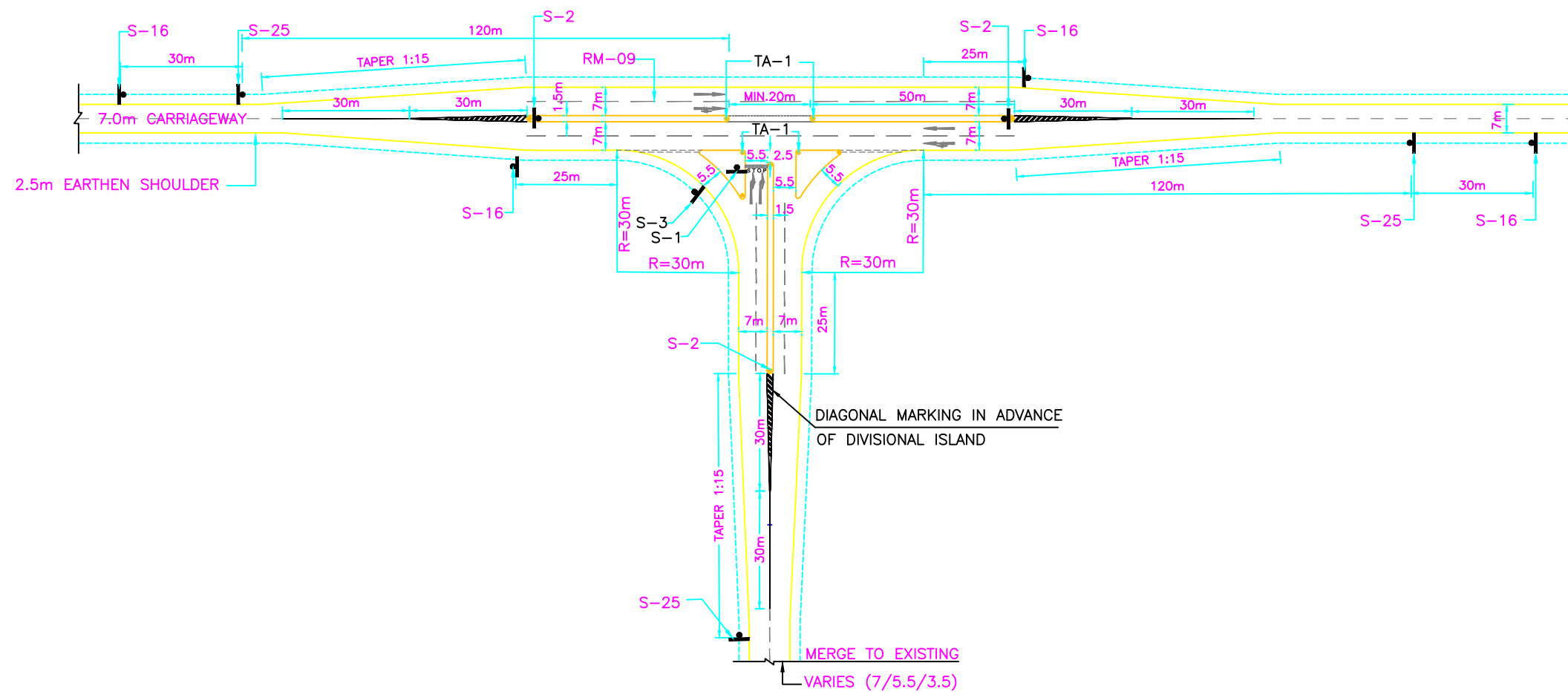


16(c)

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.

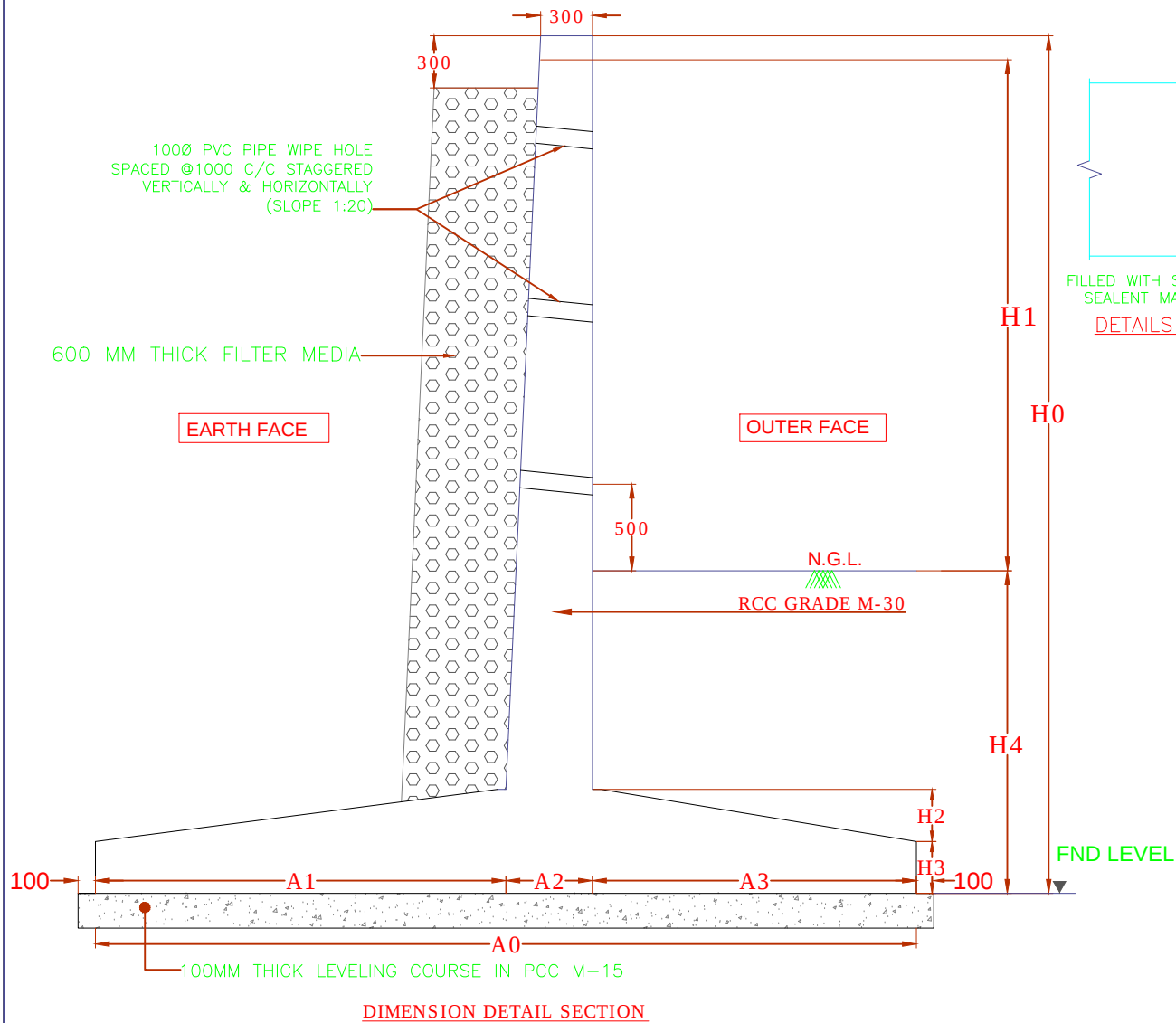
TYPICAL LAYOUT OF FOUR LEGGED  
CHANNELISED JUNCTION

**DIALONG - OLD TAMENGLONG  
PKG-2**



TYPE - IV

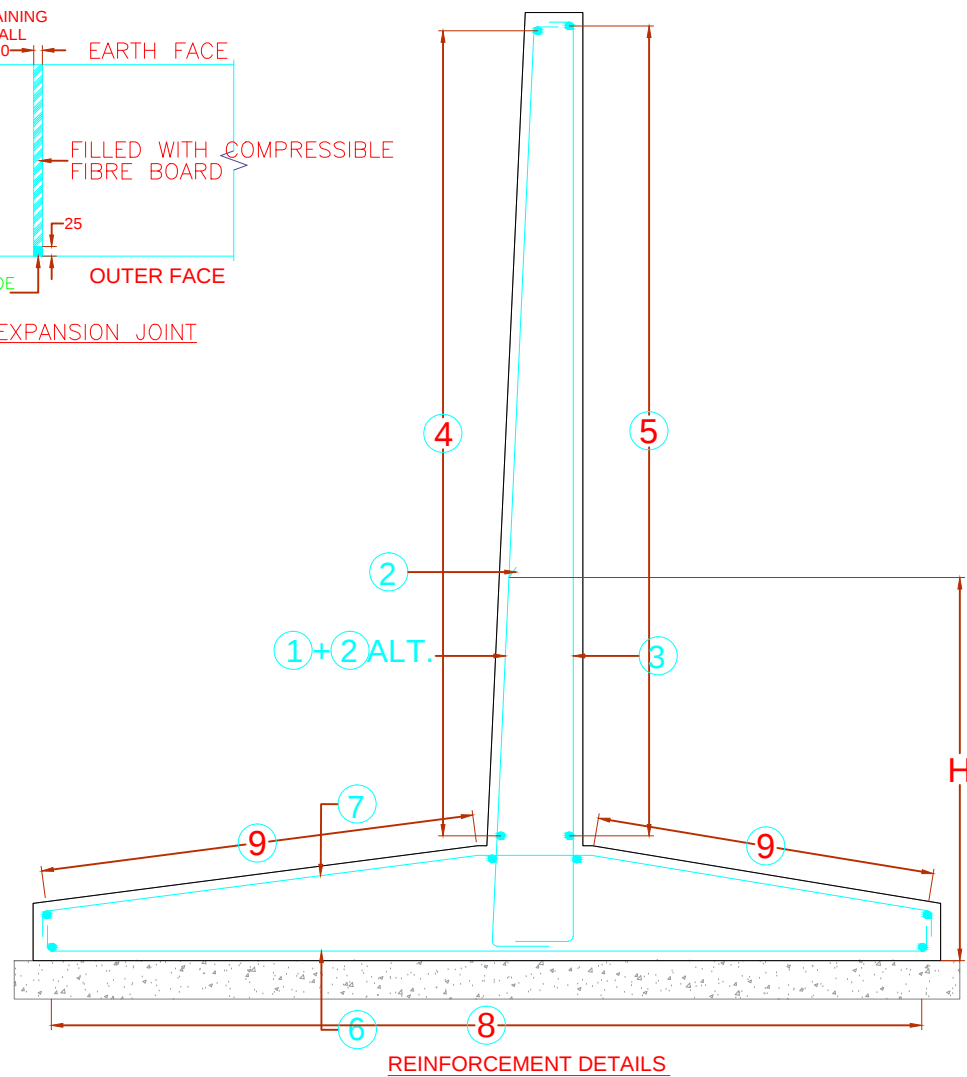
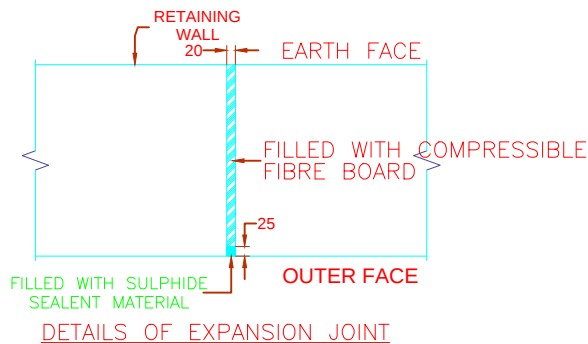
|                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                             |            |              |              |                                                                                                                                                                                                        |                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| -: CONSULTANTS :-                                                                                                                                                                                                                                                                                                                                                                      | -: CLIENT :-                                                                                                                                                                | DRG. NO. : | DESIGNED BY. | APPROVED BY. | -: PROJECT TITLE :-                                                                                                                                                                                    | -: Junction Improvemment Drawing:-                                                                      |
| <b>L.N. MALVIYA INFRA PROJECTS PVT. LTD.</b><br>T-10, III FLOOR, CITY CENTER, PRESS COMPLEX, PLOT NO.-1,<br>M.P. NAGAR, ZONE-I, BHOPAL (M.P.)<br><br>Tel./Fax : 0755-4295421,<br>Mob.: 09826452711, 09977004686<br>E-mail : <a href="mailto:lninfraprojects@gmail.com">lninfraprojects@gmail.com</a> | <b>NATIONAL HIGHWAYS INFRASTRUCTURE<br/>DEVELOPMENT CORPORATION LIMITED (NHIDCL)</b><br> | 16(d)      |              |              | CConsultancy Services for Preparation of<br>Feasibility Study and Detailed Project Report For<br>Two lane With Paved Shoulders of Tamenglong<br>- Haflong Road In The State of Manipur on EPC<br>Mode. | TYPICAL LAYOUT OF THREE LEGGED<br>CHANNELISED JUNCTION<br><br><b>DIALONG - OLD TAMENGLONG<br/>PKG-2</b> |



DIMENSION DETAIL SECTION

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    | 3650    | 1100    | 550     | 2000    |



REINFORCEMENT DETAILS

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.  
i) FOR STEM : OUTER FACE = 50mm AND EARTH FACE = 75mm  
ii) 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  $l_s = a_1.l_{bnet}$   
 $a_1 = 1.0$  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- $\phi$ ).

:- CONSULTANTS :-

**L.N. MALVIYA INFRA PROJECTS PVT. LTD.**

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M.P. NAGAR, ZONE-I, BHOPAL (M.P.)



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Mob.: 09826452711, 09977004686  
E-mail : [lninfraprojects@gmail.com](mailto:lninfraprojects@gmail.com)

:- CLIENT :-

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



DRG. NO. :

**17**

DESIGNED BY.

APPROVED BY.

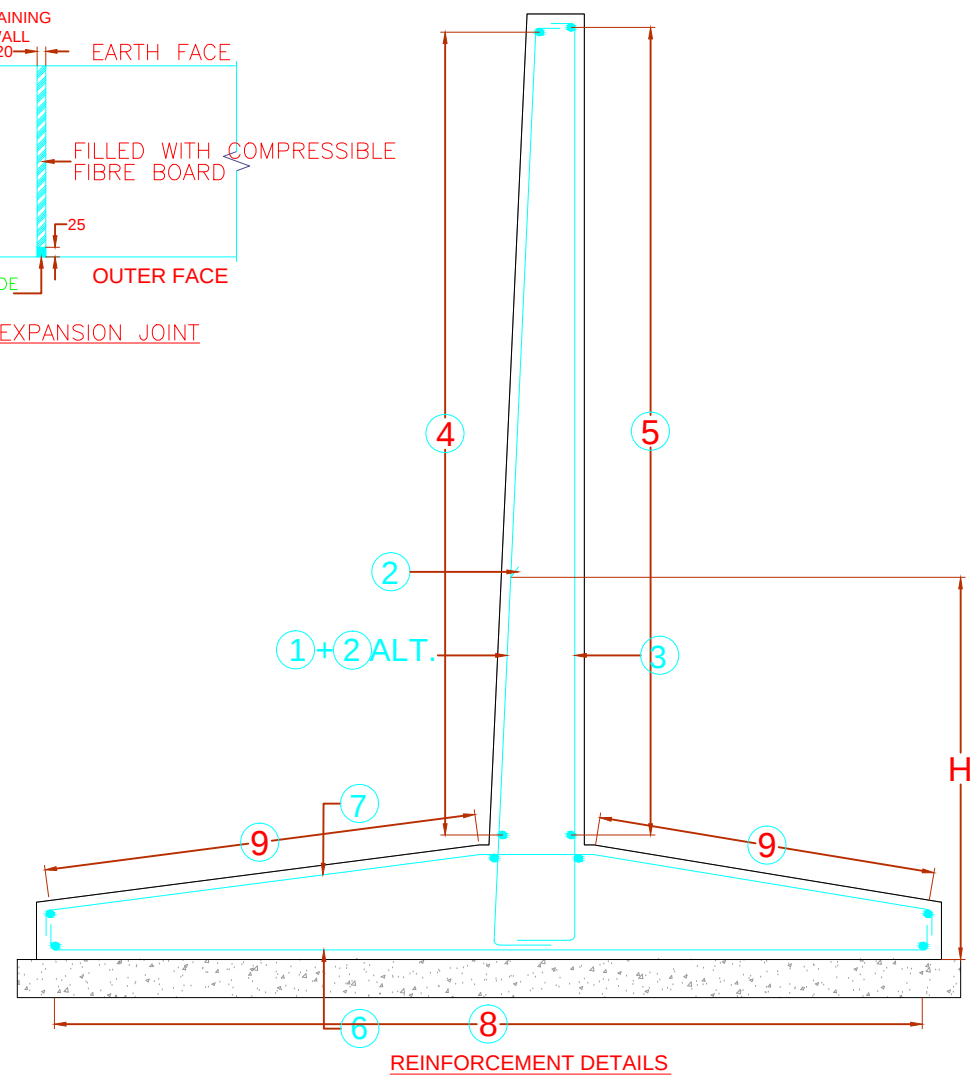
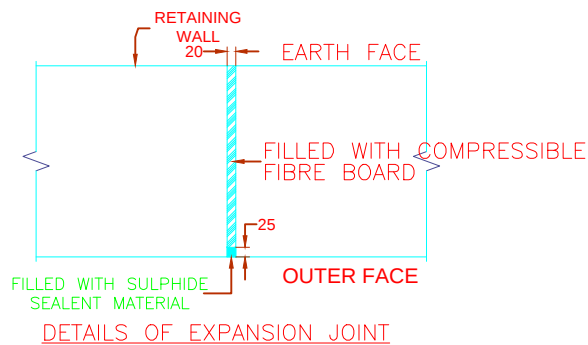
:- PROJECT TITLE :-

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

**DIALONG - OLD TAMENGLONG  
PKG-2**



1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS MENTIONED OTHERWISE.
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 $l_{bNET} = a \cdot l_b$  ( $a = 1.0$ )  
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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  $(100/132 - \phi)$ .

| 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    |