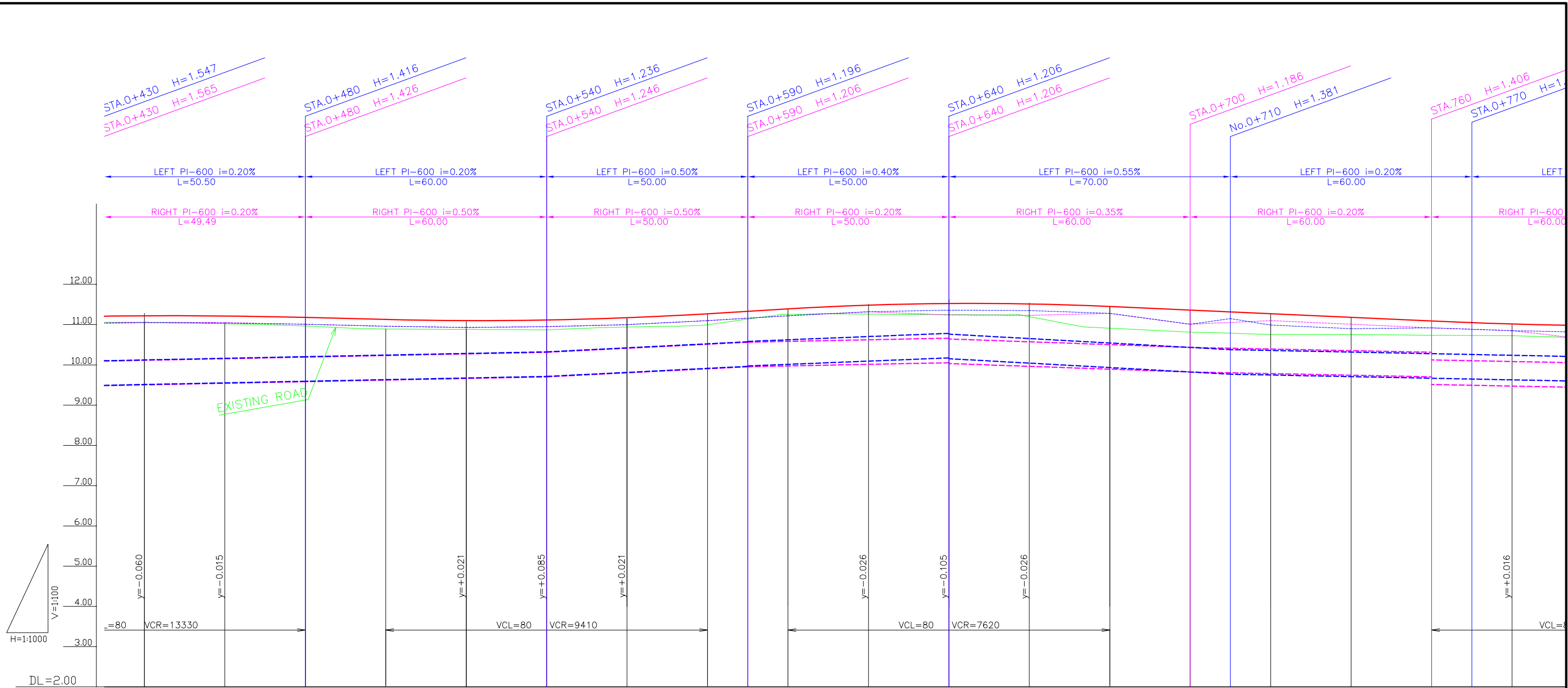
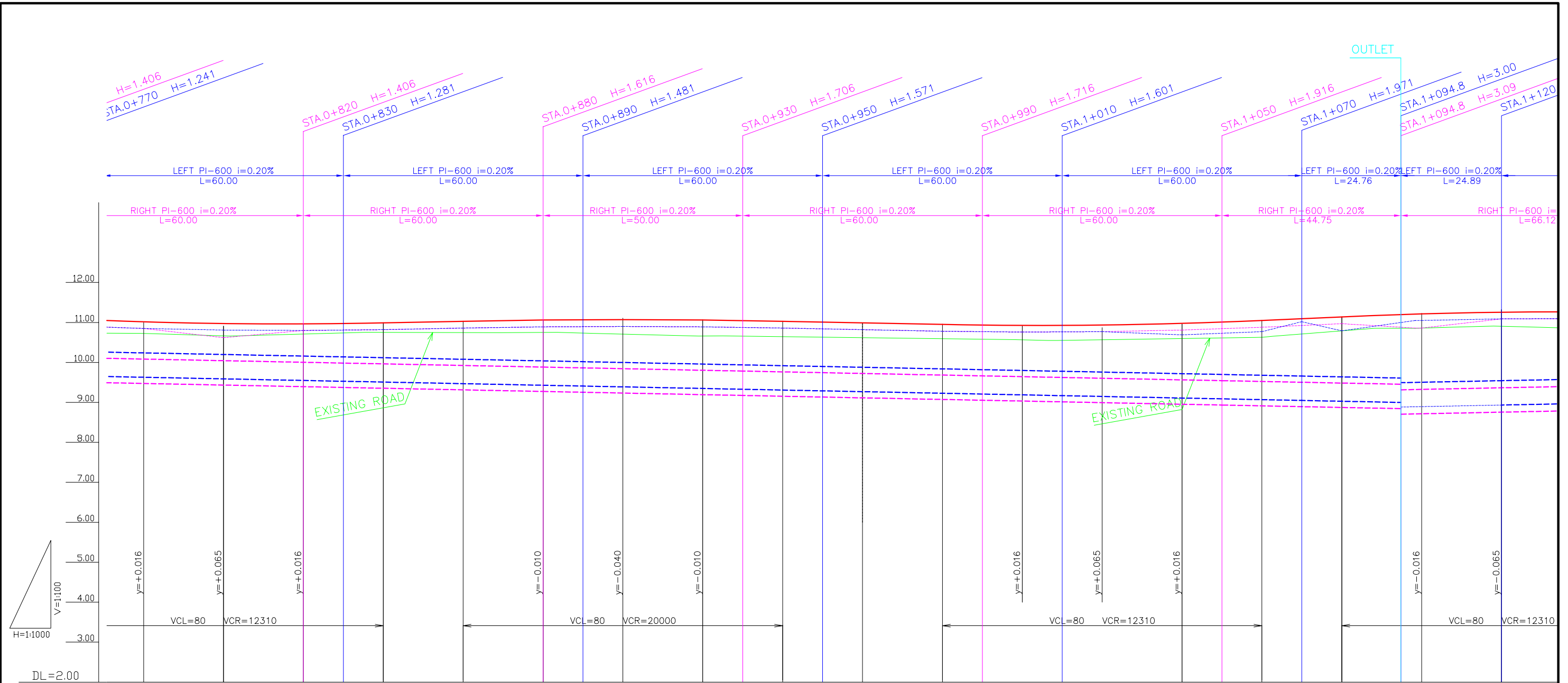


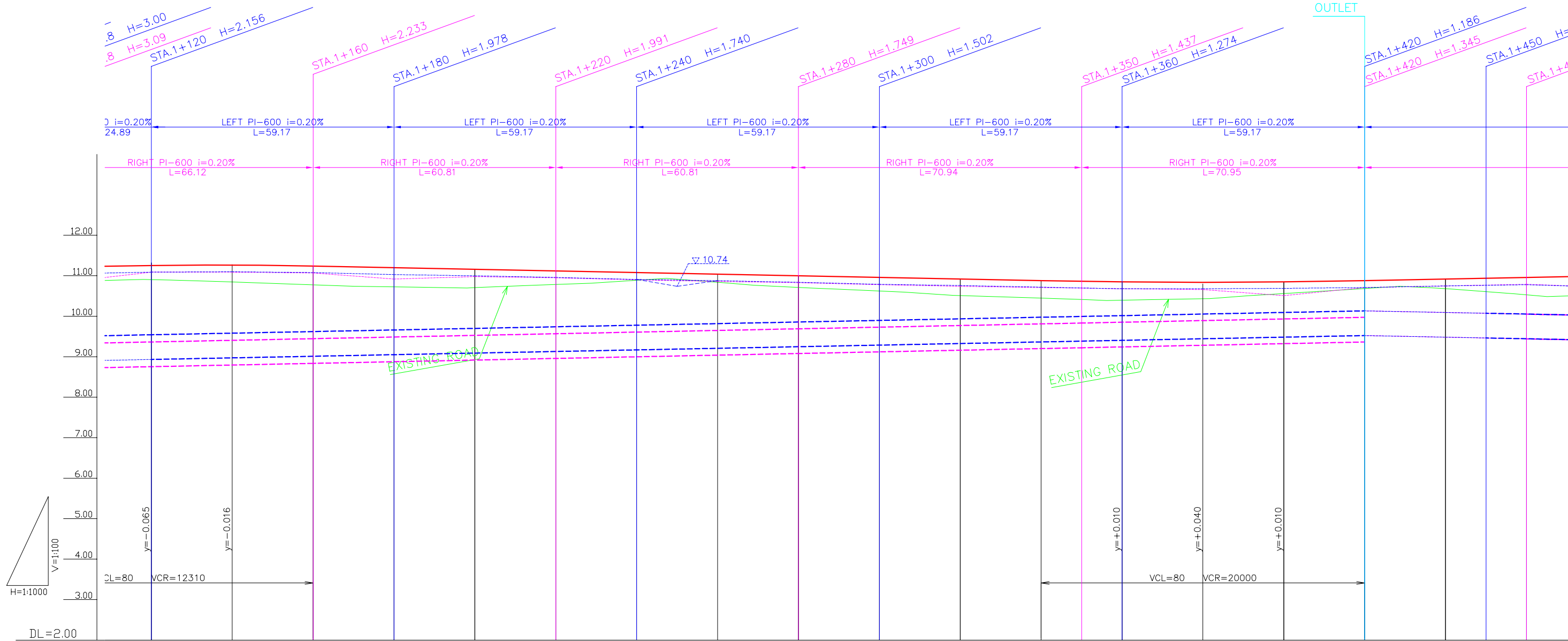
| VERTICAL ALIGNMENT | PAVEMENT HEIGHT | GROUND HEIGHT | STATION   | HORIZONTAL CURVATURE | SUPER-ELEVATION |
|--------------------|-----------------|---------------|-----------|----------------------|-----------------|
| 11.200             | 11.200          | 11.16         | STA.0+100 | R=∞<br>L=48.031      | NC=3.0%         |
|                    | 11.159          | 11.27         | +120      |                      |                 |
|                    | 11.118          | 11.22         | +140      |                      |                 |
|                    | 11.102          | 11.04         | BC-1-0    |                      |                 |
|                    | 11.077          | 11.12         | +160      |                      |                 |
|                    | 11.036          | 11.06         | +180      |                      |                 |
|                    | 10.995          | 10.97         | +200      |                      |                 |
|                    | 10.954          | 10.88         | +220      |                      |                 |
|                    | 10.913          | 10.66         | +240      |                      |                 |
|                    | 10.872          | 10.64         | +260      |                      |                 |
|                    | 10.845          | 10.72         | +280      |                      |                 |
|                    | 10.846          | 10.81         | +300      | L=313.096<br>R=800   |                 |
|                    | 10.874          | 10.84         | +320      |                      |                 |
|                    | 10.930          | 10.77         | +340      |                      |                 |
|                    | 11.000          | 10.86         | +360      |                      |                 |
|                    | 11.070          | 10.96         | +380      |                      |                 |
|                    | 11.140          | 11.05         | +400      |                      |                 |
|                    | 11.195          | 11.06         | +420      |                      |                 |
|                    | 11.220          | 11.06         | +440      |                      |                 |
|                    |                 |               |           |                      | NC=3.0%         |



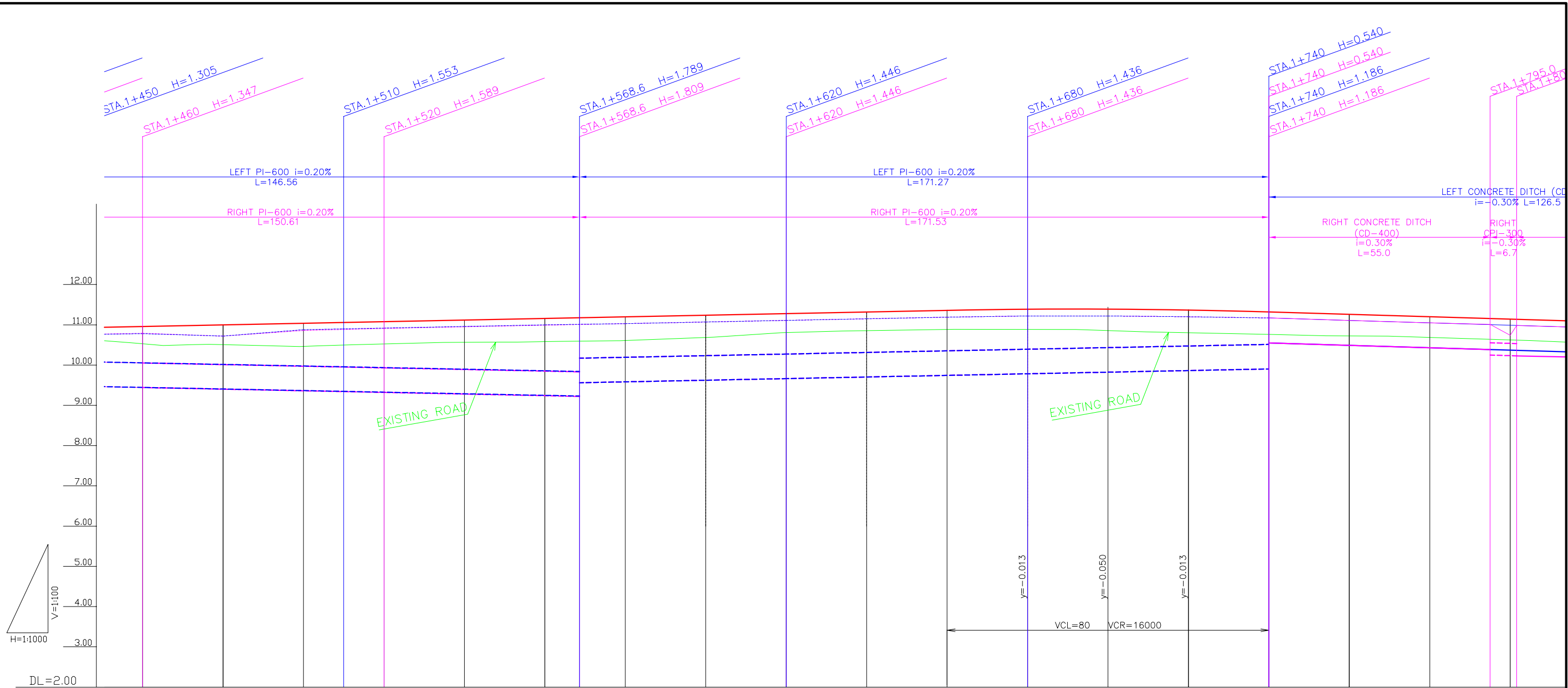
| VERTICAL ALIGNMENT             | PAVEMENT HEIGHT  | GROUND HEIGHT | STATION | HORIZONTAL CURVATURE          | SUPER-ELEVATION |
|--------------------------------|------------------|---------------|---------|-------------------------------|-----------------|
| 11.280                         | 11.220           | 11.06         | +440    | L=313.096<br>R=800            |                 |
| $i = -0.250\%$<br>$L = 100.00$ | 11.215<br>11.214 | 11.02         | +460    |                               |                 |
|                                | 11.180           | 10.96         | +480    |                               |                 |
|                                | 11.130           | 10.89         | +500    |                               |                 |
|                                | 11.101           | 10.88         | +520    |                               |                 |
|                                | 11.115           | 10.87         | +540    |                               |                 |
| $i = 0.600\%$<br>$L = 100.00$  | 11.171           | 10.94         | +560    |                               |                 |
|                                | 11.270           | 11.00         | +580    | $R = \infty$<br>$L = 633.638$ | NC=3.0%         |
|                                | 11.390           | 11.26         | +600    |                               |                 |
|                                | 11.484           | 11.26         | +620    |                               |                 |
|                                | 11.525           | 11.25         | +640    |                               |                 |
| $i = -0.450\%$<br>$L = 160.00$ | 11.514           | 11.20         | +660    |                               |                 |
|                                | 11.450           | 10.91         | +680    |                               | NC=3.0%         |
|                                | 11.360           | 10.82         | +700    |                               |                 |
|                                | 11.270           | 10.76         | +720    |                               |                 |
|                                | 11.180           | 10.75         | +740    |                               |                 |
|                                | 11.090           | 10.74         | +760    |                               |                 |
|                                | 11.016           | 10.73         | +780    |                               |                 |



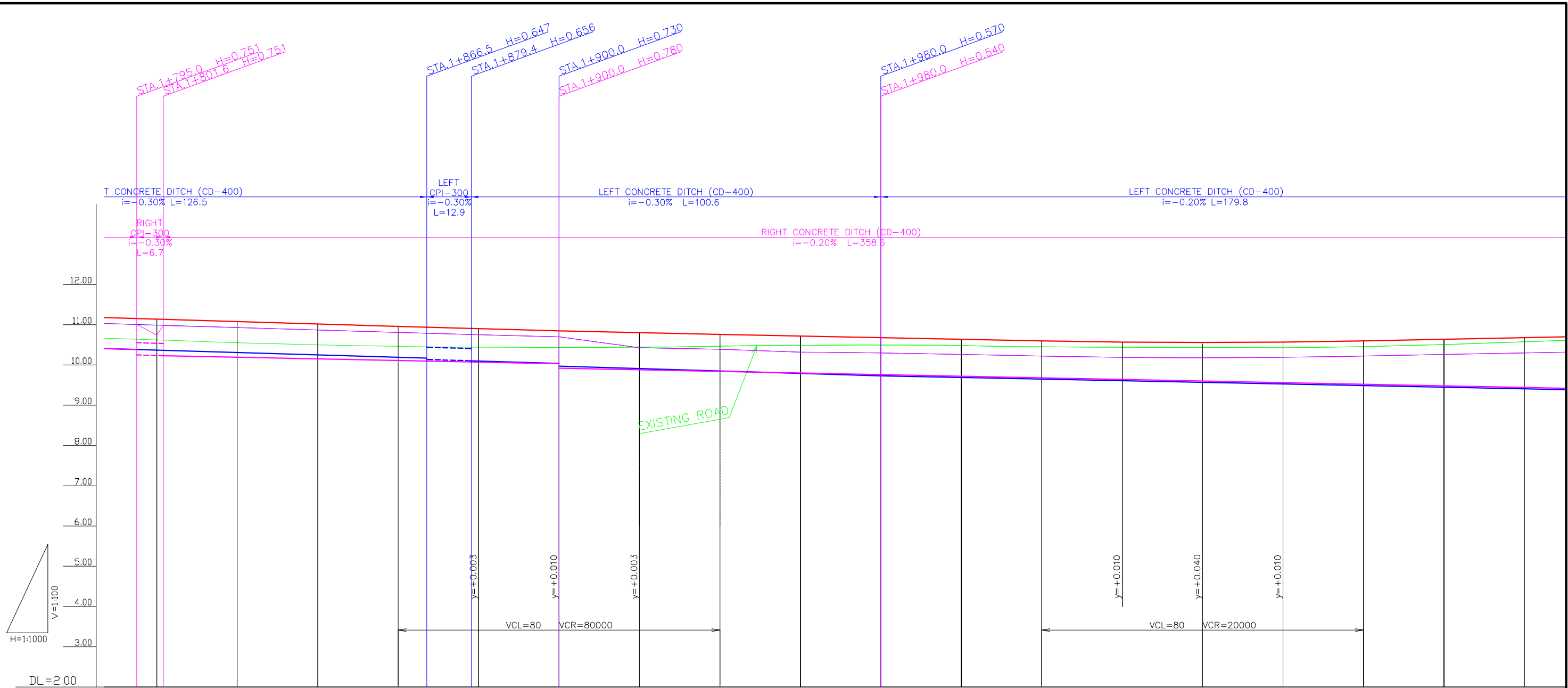
| VERTICAL ALIGNMENT | PAVEMENT HEIGHT | GROUND HEIGHT | STATION | HORIZONTAL CURVATURE | SUPER-ELEVATION |
|--------------------|-----------------|---------------|---------|----------------------|-----------------|
| 10.910             | 11.016          | 10.73         | +780    |                      |                 |
|                    | 10.975          | 10.66         | +800    |                      |                 |
|                    | 10.966          | 10.71         | +820    |                      |                 |
|                    | 10.990          | 10.75         | +840    |                      |                 |
|                    | 11.030          | 10.75         | +860    |                      |                 |
|                    | 11.060          | 10.75         | +880    |                      |                 |
|                    | 11.070          | 10.71         | +900    |                      |                 |
|                    | 11.060          | 10.66         | +920    |                      |                 |
|                    | 11.030          | 10.64         | +940    |                      |                 |
|                    | 10.990          | 10.62         | +960    |                      |                 |
|                    | 10.950          | 10.59         | +980    |                      |                 |
|                    | 10.926          | 10.57         | STA.1   |                      |                 |
|                    | 10.935          | 10.57         | +20     |                      |                 |
|                    | 10.976          | 10.60         | +40     |                      |                 |
|                    | 11.050          | 10.63         | +60     |                      |                 |
|                    | 11.140          | 10.79         | +80     |                      |                 |
|                    | 11.198          | 10.86         | BC-2-0  |                      |                 |
|                    | 11.214          | 10.86         | +100    |                      |                 |
|                    | 11.255          | 10.91         | +120    |                      |                 |



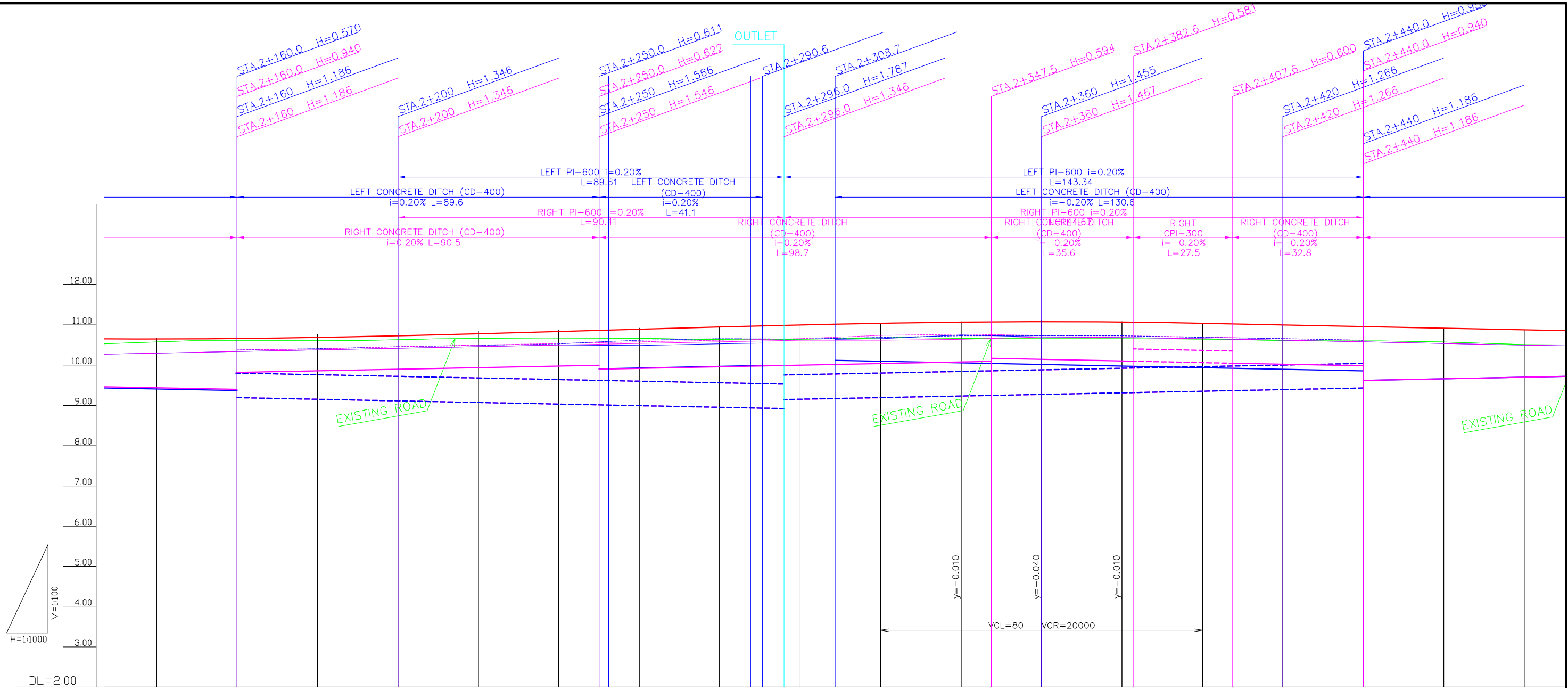
| VERTICAL ALIGNMENT | PAVEMENT HEIGHT | GROUND HEIGHT | STATION | HORIZONTAL CURVATURE | SUPER-ELEVATION |
|--------------------|-----------------|---------------|---------|----------------------|-----------------|
| 11.320             | 11.255          | 10.91         | +120    |                      |                 |
|                    | 11.264          | 10.85         | +140    |                      |                 |
|                    | 11.240          | 10.78         | +160    |                      |                 |
|                    | 11.200          | 10.73         | +180    |                      |                 |
|                    | 11.160          | 10.71         | +200    |                      |                 |
|                    | 11.120          | 10.78         | +220    |                      |                 |
|                    | 11.080          | 10.89         | +240    |                      |                 |
|                    | 11.040          | 10.84         | +260    |                      |                 |
|                    | 11.000          | 10.71         | +280    |                      |                 |
|                    | 10.960          | 10.63         | +300    |                      |                 |
|                    | 10.920          | 10.51         | +320    |                      |                 |
|                    | 10.880          | 10.45         | +340    |                      |                 |
|                    | 10.850          | 10.40         | +360    |                      |                 |
|                    | 10.840          | 10.43         | +380    |                      |                 |
|                    | 10.850          | 10.56         | +400    |                      |                 |
|                    | 10.880          | 10.69         | +420    |                      |                 |
|                    | 10.920          | 10.68         | +440    |                      |                 |
|                    | 10.960          | 10.53         | +460    |                      |                 |
|                    |                 |               |         | L=483.143<br>R=950   |                 |
|                    |                 |               |         |                      | NC=3.0%         |
|                    |                 |               |         |                      | NC=3.0%         |



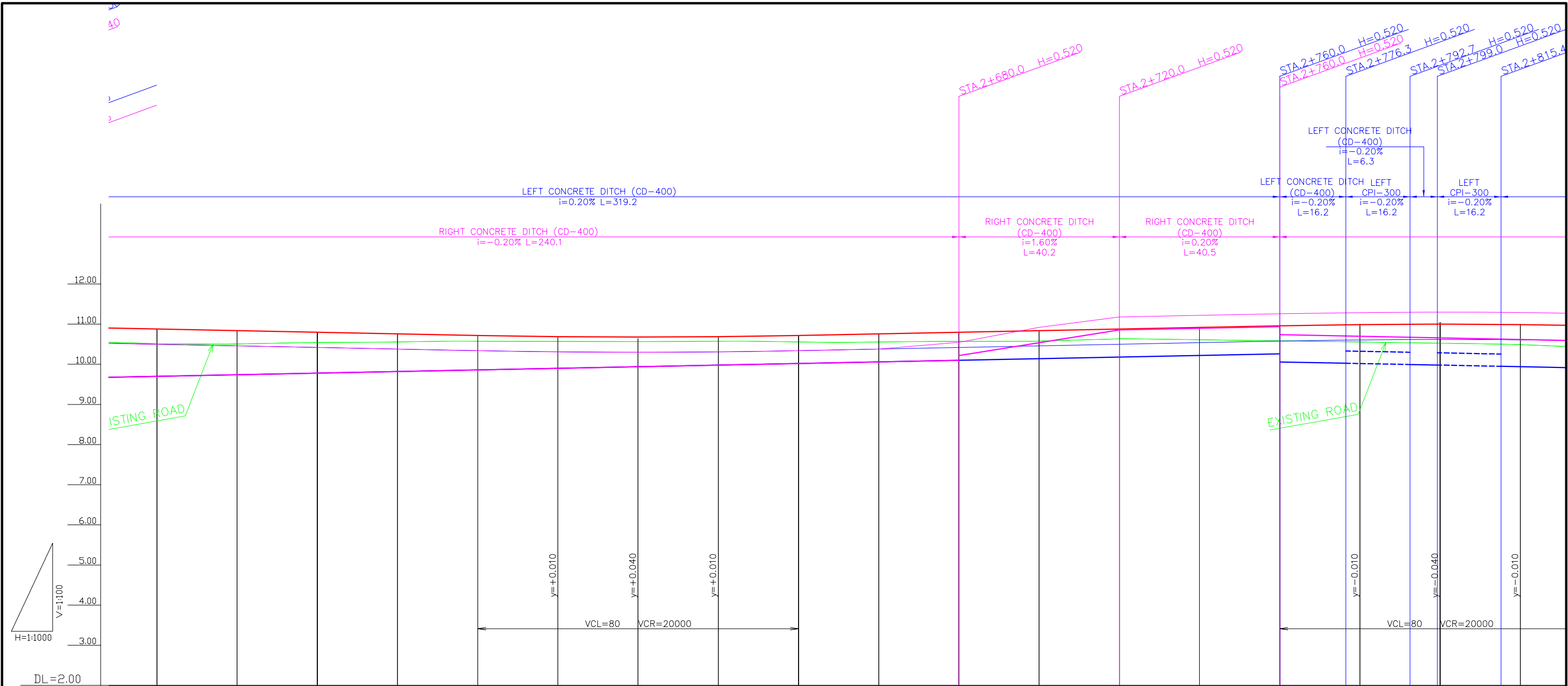
|                      |                           |        |        |        |        |        |                |        |        |        |        |        |        |        |        |        |        |                            |        |  |
|----------------------|---------------------------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------------------|--------|--|
| VERTICAL ALIGNMENT   | $i=0.200\%$<br>$L=320.00$ |        |        |        |        |        |                |        |        |        |        |        |        |        |        |        |        | $i=-0.300\%$<br>$L=200.00$ |        |  |
| PAVEMENT HEIGHT      | 10.960                    | 11.000 | 11.040 | 11.080 | 11.120 | 11.160 | 11.196         | 11.200 | 11.240 | 11.280 | 11.320 | 11.360 | 11.388 | 11.390 | 11.368 | 11.320 | 11.260 | 11.200                     | 11.140 |  |
| GROUND HEIGHT        | 10.53                     | 10.51  | 10.47  | 10.52  | 10.56  | 10.58  | 10.61          | 10.69  | 10.81  | 10.86  | 10.89  | 10.88  | 10.86  | 10.80  | 10.76  | 10.72  | 10.69  | 10.62                      |        |  |
| STATION              | +460                      | +480   | +500   | +520   | +540   | +560   | EC-2-0<br>+580 | +600   | +620   | +640   | +660   | +680   | +700   | +720   | +740   | +760   | +780   | +800                       |        |  |
| HORIZONTAL CURVATURE | $R=8$<br>$L=534.378$      |        |        |        |        |        |                |        |        |        |        |        |        |        |        |        |        |                            |        |  |
| SUPER-ELEVATION      | $NC=3.0\%$                |        |        |        |        |        |                |        |        |        |        |        |        |        |        |        |        |                            |        |  |



|                      |                    |        |        |        |                    |        |        |        |        |        |                  |        |        |        |        |        |        |        |        |  |
|----------------------|--------------------|--------|--------|--------|--------------------|--------|--------|--------|--------|--------|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| VERTICAL ALIGNMENT   | i=-0.300% L=200.00 |        | 10.840 |        | i=-0.200% L=160.00 |        | 10.520 |        |        |        |                  |        |        |        |        |        |        |        |        |  |
| PAVEMENT HEIGHT      | 11.140             | 11.080 | 11.020 | 10.960 | 10.903             | 10.850 | 10.803 | 10.760 | 10.720 | 10.680 | 10.640           | 10.600 | 10.570 | 10.560 | 10.570 | 10.600 | 10.625 | 10.640 | 10.680 |  |
| GROUND HEIGHT        | 10.62              | 10.55  | 10.50  | 10.46  | 10.44              | 10.43  | 10.44  | 10.47  | 10.49  | 10.49  | 10.48            | 10.45  | 10.44  | 10.43  | 10.43  | 10.46  | 10.51  | 10.640 | 10.58  |  |
| STATION              | +800               | +820   | +840   | +860   | +880               | +900   | +920   | +940   | +960   | +980   | STA.2            | +20    | +40    | +60    | +80    | +100   | BC-3-0 | +120   | +140   |  |
| HORIZONTAL CURVATURE |                    |        |        |        |                    |        |        |        |        |        | R=8<br>L=534.378 |        |        |        |        |        |        |        |        |  |
| SUPER-ELEVATION      | NC=3.0%            |        |        |        |                    |        |        |        |        |        | NC=3.0%          |        |        |        |        |        |        |        |        |  |

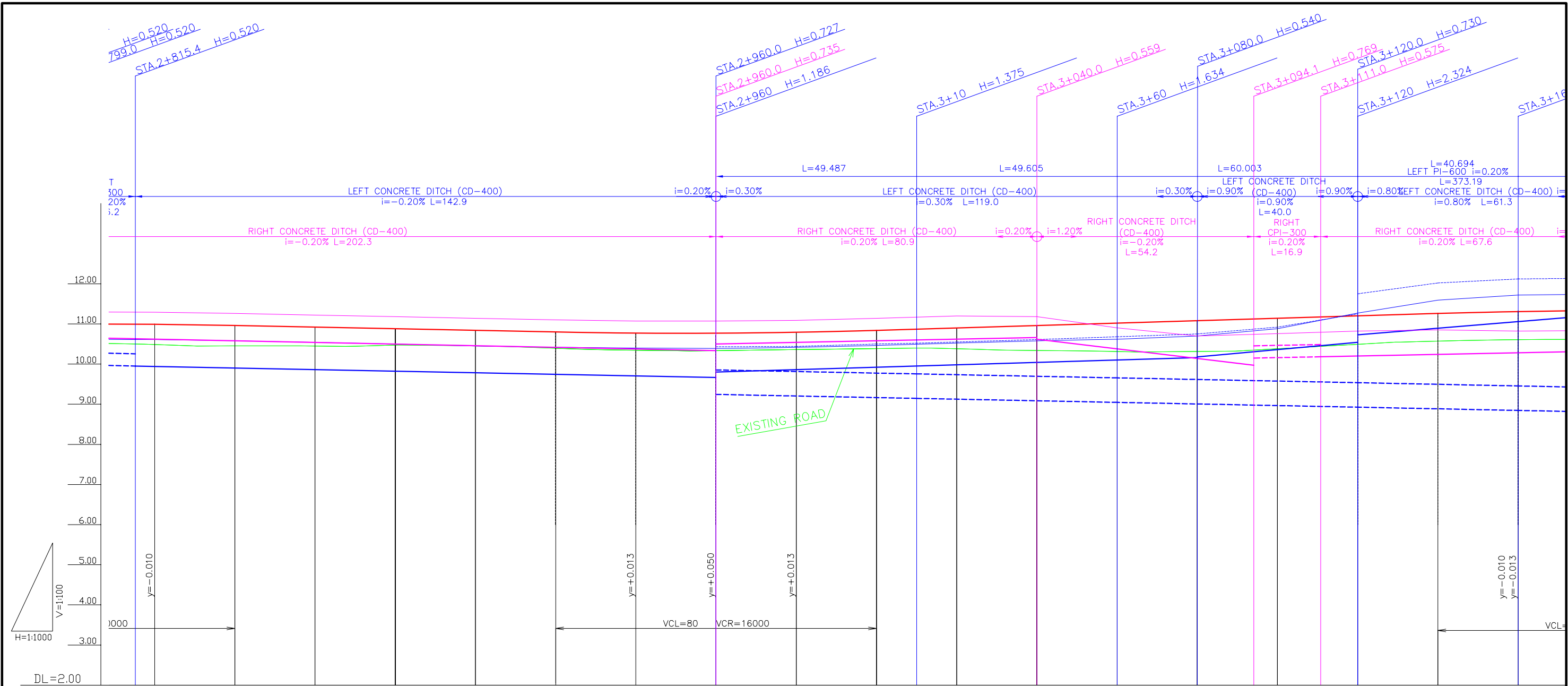


|                      |                           |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |                            |  |
|----------------------|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|----------------------------|--|
| VERTICAL ALIGNMENT   | $i=0.200\%$<br>$L=300.00$ |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        | $i=-0.200\%$<br>$L=240.00$ |  |
| PAVEMENT HEIGHT      | 10.680                    | 10.720 | 10.760 | 10.800 | 10.840 | 10.880 | 10.920 | 10.960 | 11.000 | 11.040 | 11.070 | 11.080 | 11.070 | 11.040 | 11.000 | 10.960 | 10.920         | 10.880 |                            |  |
| GROUND HEIGHT        | 10.58                     | 10.61  | 10.61  | 10.63  | 10.66  | 10.68  | 10.67  | 10.63  | 10.64  | 10.68  | 10.67  | 10.66  | 10.66  | 10.64  | 10.61  | 10.60  | 10.58          | 10.51  |                            |  |
| STATION              | +140                      | +160   | +180   | +200   | +220   | +240   | +260   | +280   | +300   | +320   | +340   | +360   | +380   | +400   | +420   | +440   | EC-3-0<br>+460 | +480   |                            |  |
| HORIZONTAL CURVATURE | $L=344.220$<br>$R=2200$   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |                            |  |
| SUPER-ELEVATION      | $NC=3.0\%$                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |                |        |                            |  |

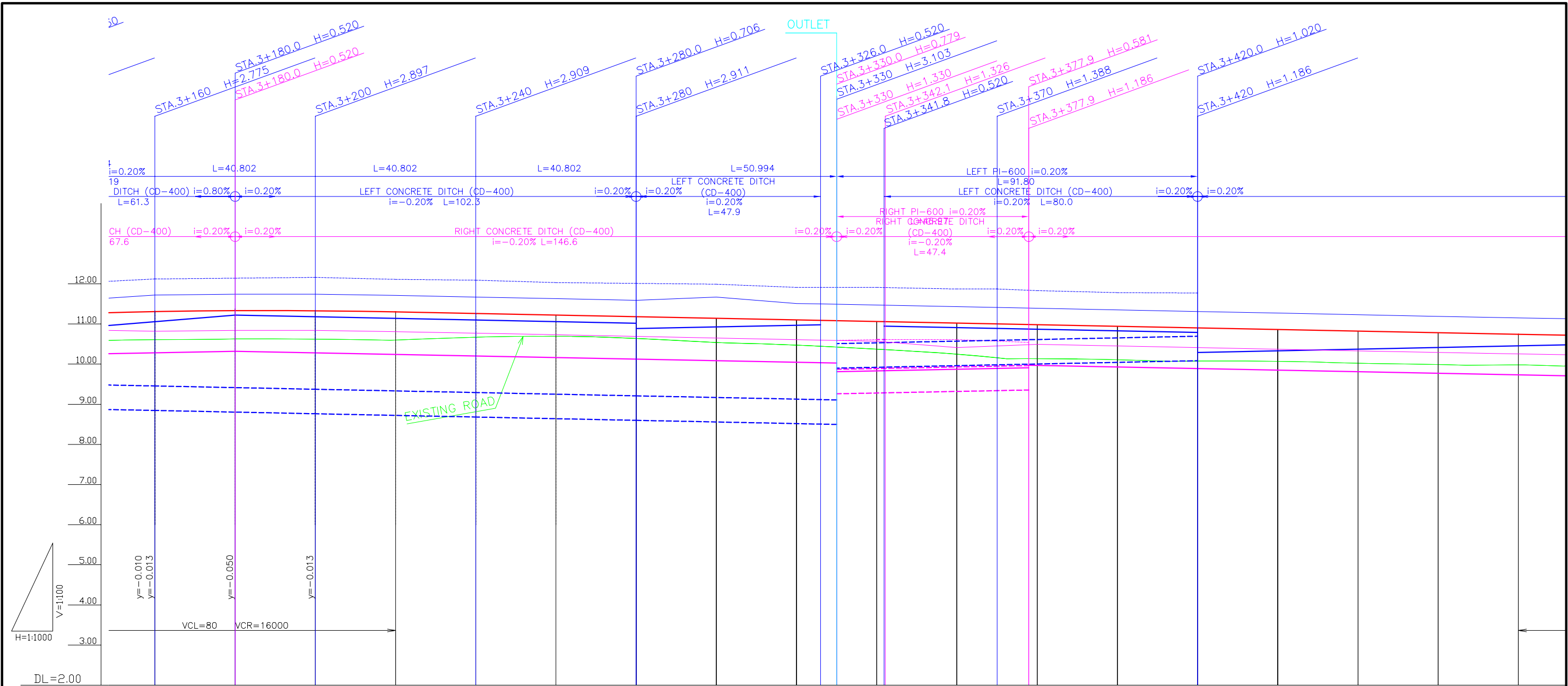


|                      |                           |        |        |        |                          |        |                      |        |        |        |        |                  |   |        |        |        |        |        |
|----------------------|---------------------------|--------|--------|--------|--------------------------|--------|----------------------|--------|--------|--------|--------|------------------|---|--------|--------|--------|--------|--------|
| VERTICAL ALIGNMENT   | i = -0.200%<br>L = 240.00 |        | 10.640 |        | i = 0.200%<br>L = 200.00 |        | 11.040               |        |        |        |        |                  |   |        |        |        |        |        |
| PAVEMENT HEIGHT      | 10.880                    | 10.840 | 10.800 | 10.760 | 10.720                   | 10.690 | 10.680               | 10.690 | 10.720 | 10.760 | 10.800 | 10.839<br>10.840 | 10.880  | 10.920 | 10.960 | 10.990 | 11.000 | 10.990 |
| GROUND HEIGHT        | 10.51                     | 10.51  | 10.54  | 10.56  | 10.58                    | 10.57  | 10.57                | 10.58  | 10.56  | 10.56  | 10.57  | 10.58            | 10.64   | 10.61  | 10.59  | 10.56  | 10.53  | 10.49  |
| STATION              | +480                      | +500   | +520   | +540   | +560                     | +580   | +600                 | +620   | +640   | +660   | +680   | BC-4-0<br>+700   | +720  | +740   | +760   | +780   | +800   | +820   |
| HORIZONTAL CURVATURE | R = ∞<br>L = 243.170      |        |        |        |                          |        | R = ∞<br>L = 243.170 |        |        |        |        |                  | L = 348.756<br>R = 1000   |        |        |        |        |        |
| SUPER-ELEVATION      | NC = 3.0%                 |        |        |        |                          |        | NC = 3.0%            |        |        |        |        |                  | 3.00%<br>3.00%<br>1.90%<br>3.00%<br>1.05%<br>3.00%<br>1.10%<br>3.00%<br>3.00% |        |        |        |        |        |

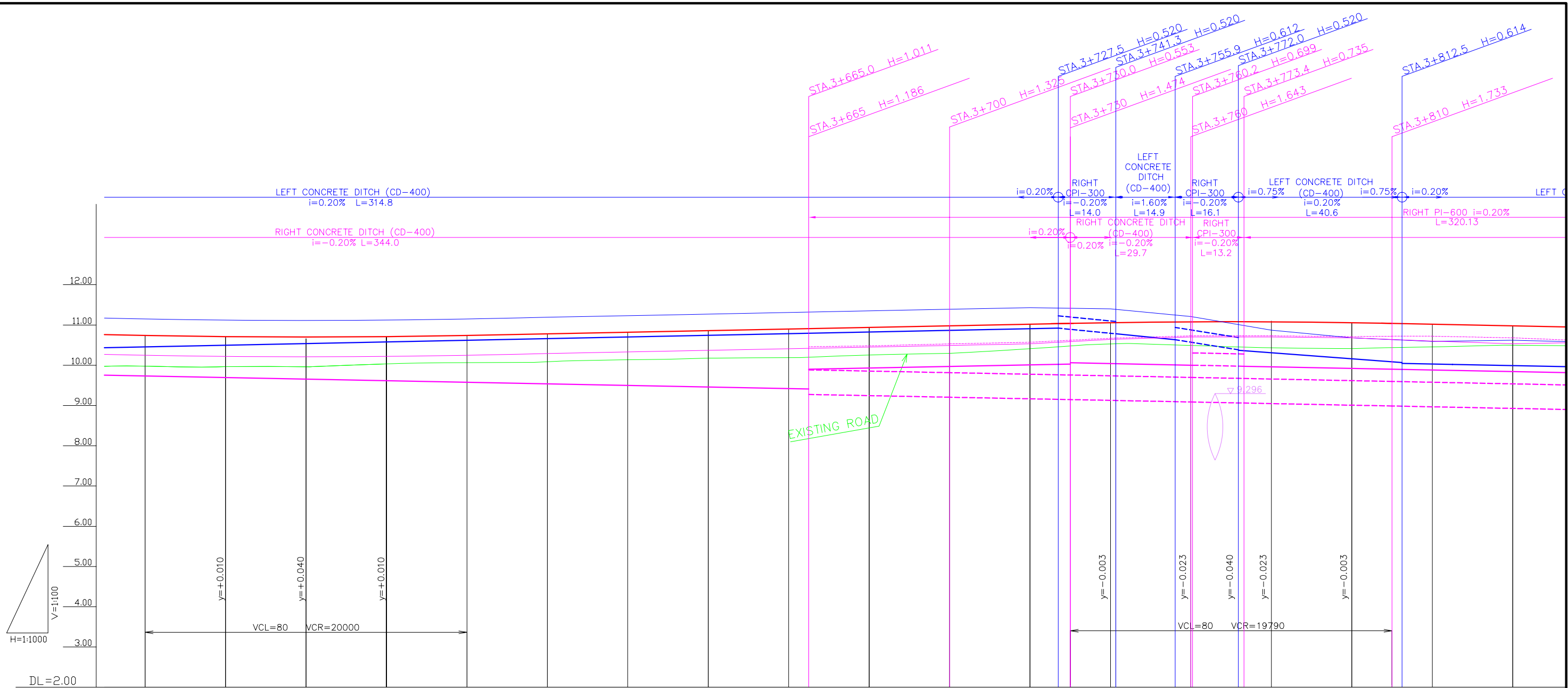




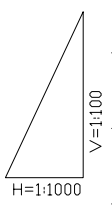
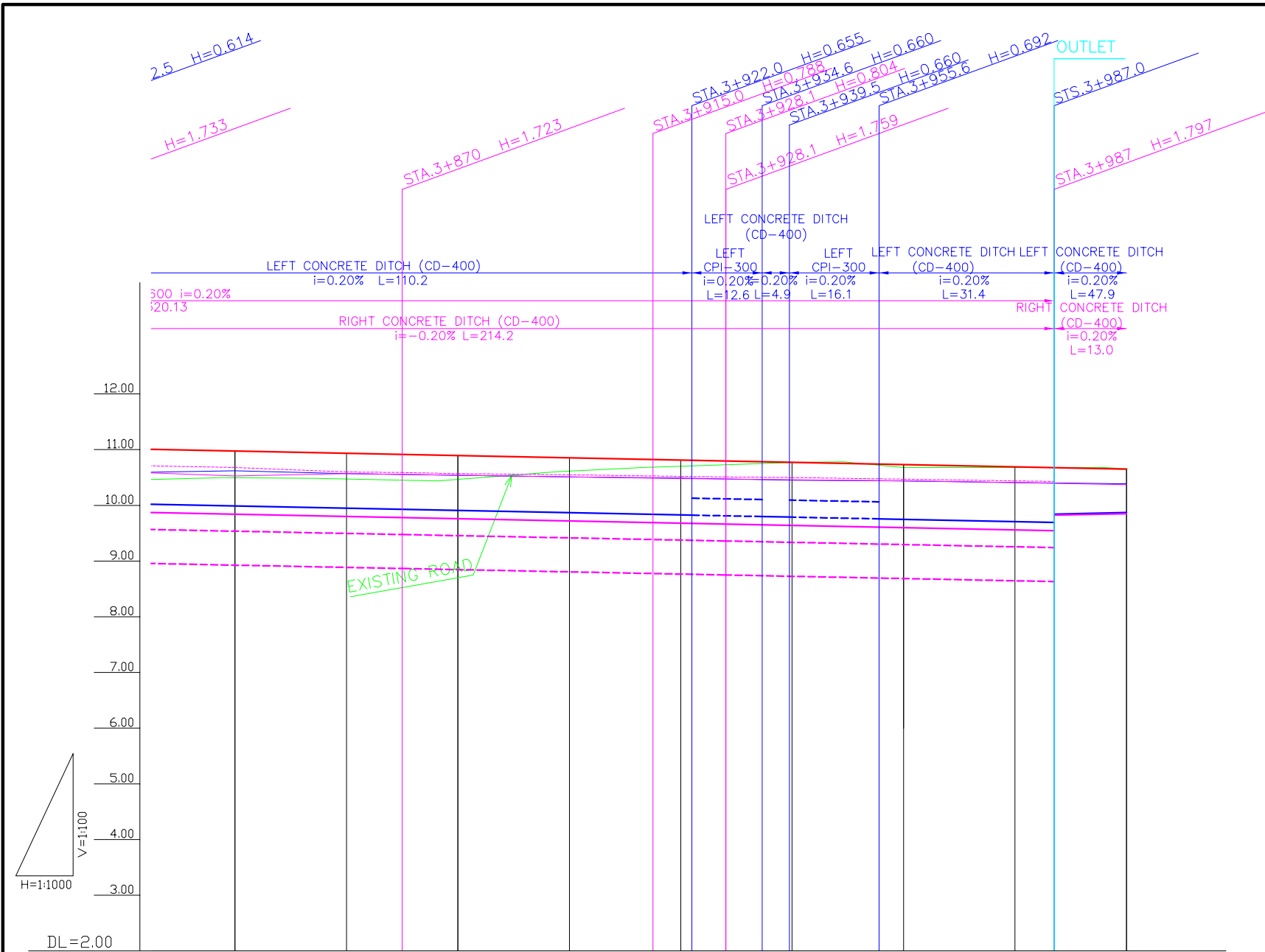
| VERTICAL ALIGNMENT             | PAVEMENT HEIGHT | GROUND HEIGHT | STATION | HORIZONTAL CURVATURE        | SUPER-ELEVATION |
|--------------------------------|-----------------|---------------|---------|-----------------------------|-----------------|
| $i = -0.200\%$<br>$L = 160.00$ | 10.990          | 10.49         | +820    |                             |                 |
|                                | 10.960          | 10.45         | +840    |                             |                 |
|                                | 10.920          | 10.45         | +860    |                             |                 |
|                                | 10.880          | 10.47         | +880    |                             |                 |
|                                | 10.840          | 10.45         | +900    |                             |                 |
|                                | 10.800          | 10.40         | +920    |                             |                 |
|                                | 10.773          | 10.35         | +940    |                             |                 |
| $10.720$                       | 10.770          | 10.34         | +960    | $L = 348.756$<br>$R = 1000$ |                 |
|                                | 10.793          | 10.36         | +980    |                             |                 |
|                                | 10.840          | 10.38         | STA.3   |                             |                 |
|                                | 10.900          | 10.38         | +20     |                             |                 |
|                                | 10.960          | 10.34         | +40     |                             |                 |
|                                | 10.985          | 10.31         | EC-4-0  |                             |                 |
|                                | 11.020          | 10.31         | +60     | $R = 18$<br>$L = 44.892$    |                 |
|                                | 11.080          | 10.31         | +80     |                             |                 |
|                                | 11.120          | 10.38         | KA-5-1  |                             |                 |
|                                | 11.140          | 10.49         | +100    |                             |                 |
|                                | 11.200          | 10.57         | +120    | $L = 64.800$<br>$A = 180$   |                 |
|                                | 11.260          | 10.61         | +140    |                             |                 |
|                                | 11.304          | 10.61         | KE-5-1  |                             |                 |
|                                | 11.308          |               | +160    |                             |                 |



| VERTICAL ALIGNMENT | PAVEMENT HEIGHT  | GROUND HEIGHT | STATION        | HORIZONTAL CURVATURE | SUPER-ELEVATION |
|--------------------|------------------|---------------|----------------|----------------------|-----------------|
| 11.360             | 11.304<br>11.308 | 10.61         | KE-5-1<br>+160 |                      | 4.00%           |
|                    | 11.330           | 10.63         | +180           |                      |                 |
|                    | 11.328           | 10.62         | +200           |                      |                 |
|                    | 11.300           | 10.60         | +220           | L=567.042<br>R=500   |                 |
|                    | 11.260           | 10.67         | +240           |                      |                 |
|                    | 11.220           | 10.69         | +260           |                      |                 |
|                    | 11.180           | 10.64         | +280           |                      |                 |
|                    | 11.140           | 10.54         | +300           |                      |                 |
|                    | 11.100           | 10.47         | +320           |                      |                 |
|                    | 11.060           | 10.37         | +340           | L=567.042<br>R=500   |                 |
|                    | 11.020           | 10.24         | +360           |                      |                 |
|                    | 10.980           | 10.13         | +380           |                      |                 |
|                    | 10.940           | 10.11         | +400           |                      |                 |
|                    | 10.900           | 10.07         | +420           |                      |                 |
|                    | 10.860           | 10.07         | +440           |                      |                 |
|                    | 10.820           | 10.02         | +460           |                      |                 |
|                    | 10.780           | 9.99          | +480           |                      |                 |
|                    | 10.740           | 9.98          | +500           |                      |                 |

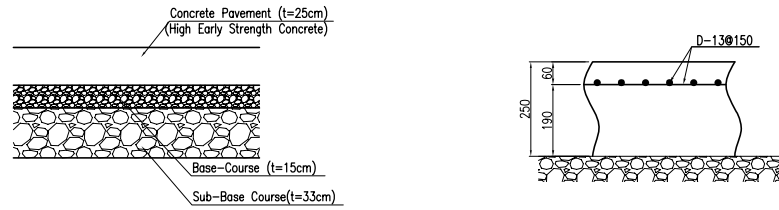


| VERTICAL ALIGNMENT | PAVEMENT HEIGHT | GROUND HEIGHT | STATION | HORIZONTAL CURVATURE | SUPER-ELEVATION |
|--------------------|-----------------|---------------|---------|----------------------|-----------------|
| 10.660             | 10.740          | 9.98          | +500    |                      |                 |
|                    | 10.710          | 9.96          | +520    |                      |                 |
|                    | 10.700          | 9.96          | +540    |                      |                 |
|                    | 10.710          | 10.03         | +560    |                      |                 |
|                    | 10.740          | 10.06         | +580    |                      |                 |
|                    | 10.780          | 10.09         | +600    |                      |                 |
|                    | 10.820          | 10.13         | +620    | L=567.042<br>R=500   |                 |
|                    | 10.860          | 10.17         | +640    |                      |                 |
|                    | 10.900          | 10.19         | +660    |                      |                 |
|                    | 10.940          | 10.25         | +680    |                      |                 |
|                    | 10.980          | 10.29         | +700    |                      |                 |
|                    | 11.020          | 10.41         | +720    |                      |                 |
|                    | 11.030          | 10.41         | +720    | KE-5-2               |                 |
|                    | 11.057          | 10.53         | +740    |                      |                 |
|                    | 11.077          | 10.49         | +760    |                      |                 |
|                    | 11.080          | 10.43         | +770    | L=64.800<br>A=180    |                 |
|                    | 11.077          | 10.43         | +780    |                      |                 |
|                    | 11.069          | 10.41         | +800    | R=∞<br>L=210.034     |                 |
|                    | 11.056          | 10.41         | +800    |                      | NC=3.0%         |
|                    | 11.018          | 10.45         | +820    |                      |                 |
|                    | 10.977          | 10.50         | +840    |                      | NC=3.0%         |



DL = 2.00

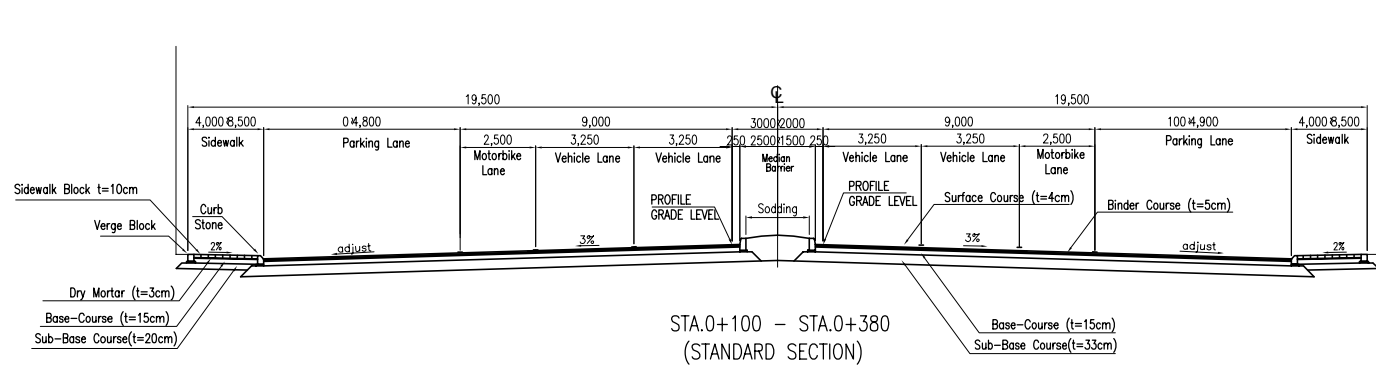
|                      |         |        |        |        |        |         |        |        |        |  |
|----------------------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--|
| VERTICAL ALIGNMENT   |         |        |        |        |        |         |        |        |        |  |
| PAVEMENT HEIGHT      | 10.977  | 10.936 | 10.895 | 10.854 | 10.813 | 10.773  | 10.732 | 10.691 | 10.650 |  |
| GROUND HEIGHT        | 10.50   | 10.47  | 10.47  | 10.61  | 10.70  | 10.77   | 10.68  | 10.68  | 10.66  |  |
| STATION              | +840    | +860   | +880   | +900   | +920   | +940    | +960   | +980   | STA.4  |  |
| HORIZONTAL CURVATURE |         |        |        |        |        |         |        |        |        |  |
| SUPER-ELEVATION      | NC=3.0% |        |        |        |        | NC=3.0% |        |        |        |  |



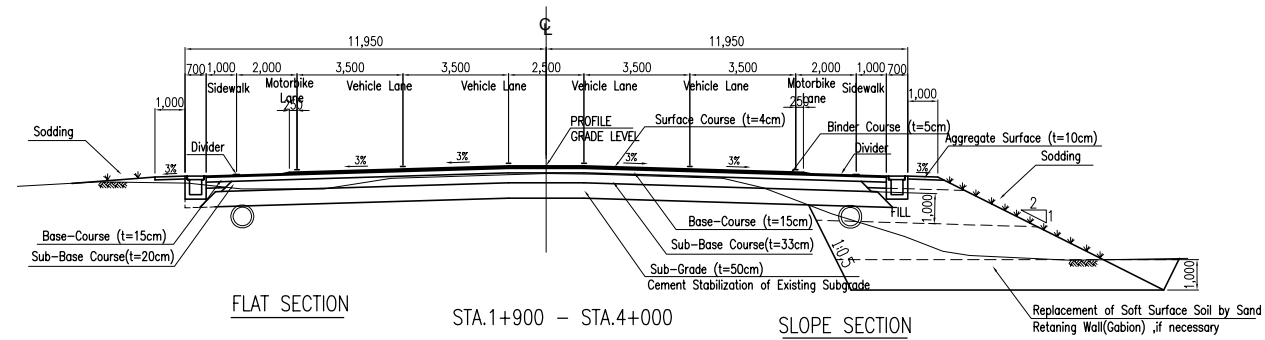
SCALE 1:50

STA. 0+70  
(MONIBONG BR. LEFT TURN LANE)  
CONCRETE PAVEMENT

SCALE 1:20



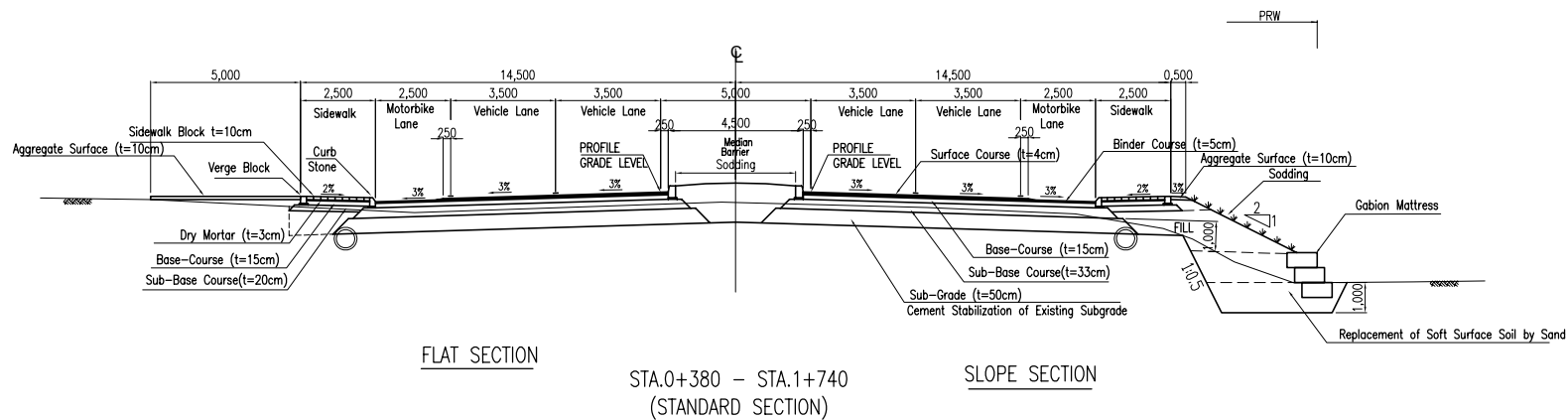
STA. 0+100 - STA. 0+380  
(STANDARD SECTION)



FLAT SECTION

STA. 1+900 - STA. 4+000

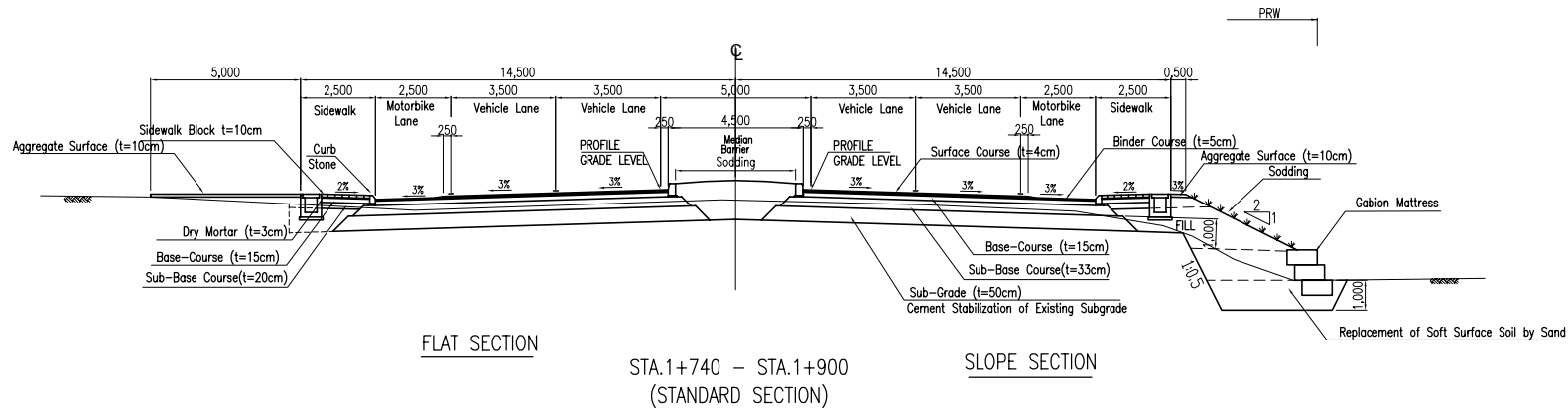
SLOPE SECTION



FLAT SECTION

STA. 0+380 - STA. 1+740  
(STANDARD SECTION)

SLOPE SECTION



FLAT SECTION

STA. 1+740 - STA. 1+900  
(STANDARD SECTION)

SLOPE SECTION

TYPICAL CROSS SECTION SCALE 1:250



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by : \_\_\_\_\_ Date : \_\_\_\_\_



KATAHIRA & ENGINEERS INTERNATIONAL

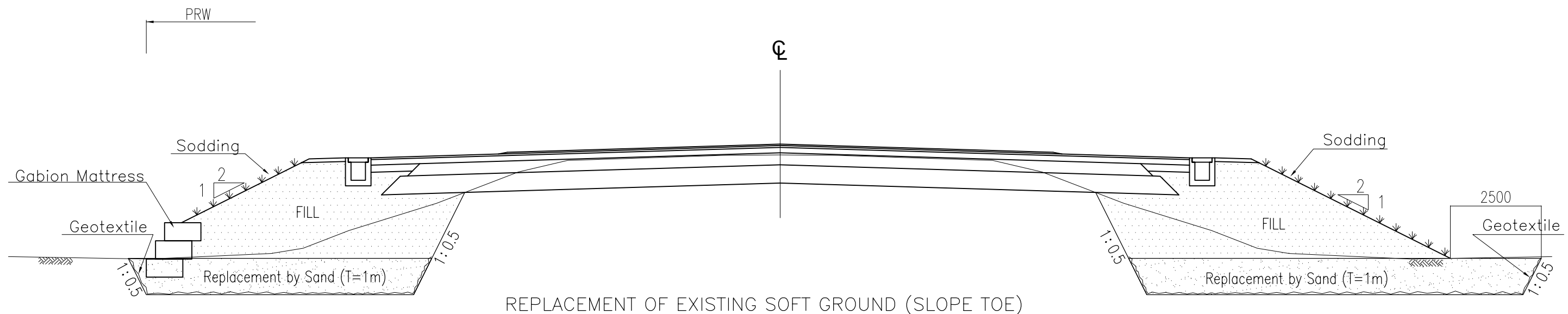
Designed by : \_\_\_\_\_ Date : \_\_\_\_\_  
Checked by : \_\_\_\_\_ Date : \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE : TYPICAL CROSS SECTION

DRAWING No : TC - 1  
SCALE : As Shown

RV



REPLACEMENT OF EXISTING SOFT GROUND (SLOPE TOE)

SCHEDULE OF REPLACEMENT

| Left Side(Mekon Side) |          |        | Right Side |          |        |
|-----------------------|----------|--------|------------|----------|--------|
| Beg. Sta.             | End Sta. | Length | Beg. Sta.  | End Sta. | Length |
| 410                   | 490      | 80     | 530        | 570      | 40     |
| 510                   | 530      | 20     | 630        | 670      | 40     |
| 590                   | 630      | 40     | 810        | 830      | 20     |
| 670                   | 690      | 20     | 850        | 890      | 40     |
| 730                   | 750      | 20     | 1,050      | 1,090    | 40     |
| 770                   | 890      | 120    | 1,110      | 1,170    | 60     |
| 910                   | 930      | 20     | 1,430      | 1,590    | 160    |
| 950                   | 970      | 20     | 1,610      | 1,710    | 100    |
| 1,090                 | 1,130    | 40     | 1,730      | 1,790    | 60     |
| 1,150                 | 1,190    | 40     |            |          |        |
| 1,230                 | 1,250    | 20     |            |          |        |
| 1,290                 | 1,350    | 60     |            |          |        |
| 1,490                 | 1,510    | 20     |            |          |        |
| 1,530                 | 1,550    | 20     |            |          |        |
| 1,590                 | 1,610    | 20     |            |          |        |
| 1,690                 | 1,750    | 60     |            |          |        |
| 1,890                 | 1,900    | 10     |            |          |        |
| Sub Total             |          | 630    | Sub Total  |          | 560    |
| 1,900                 | 1,970    | 70     | 2,150      | 2,190    | 40     |
| 2,230                 | 2,270    | 40     | 2,250      | 2,290    | 40     |
| 2,950                 | 2,990    | 40     | 2,370      | 2,390    | 20     |
| 3,210                 | 3,270    | 60     | 2,630      | 2,650    | 20     |
| 3,330                 | 3,370    | 40     | 2,830      | 2,850    | 20     |
| 3,390                 | 3,430    | 40     | 2,930      | 3,030    | 100    |
| 3,490                 | 3,510    | 20     | 3,070      | 3,090    | 20     |
| 3,630                 | 3,730    | 100    | 3,130      | 3,270    | 140    |
| 3,850                 | 3,930    | 80     | 3,450      | 3,530    | 80     |
| 3,950                 | 4,000    | 50     | 3,610      | 3,730    | 120    |
|                       |          |        | 3,750      | 3,770    | 20     |
|                       |          |        | 3,790      | 3,810    | 20     |
|                       |          |        | 3,870      | 3,910    | 40     |
|                       |          |        | 3,930      | 3,950    | 20     |
| Sub Total             |          | 540    | Sub Total  |          | 700    |
| Total                 |          | 1,170  | Total      |          | 1,260  |

※ Replacement section shall be finalized by the Engineer as of the construction stage in accordance with the actual site condition.



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by : \_\_\_\_\_ Date : \_\_\_\_\_



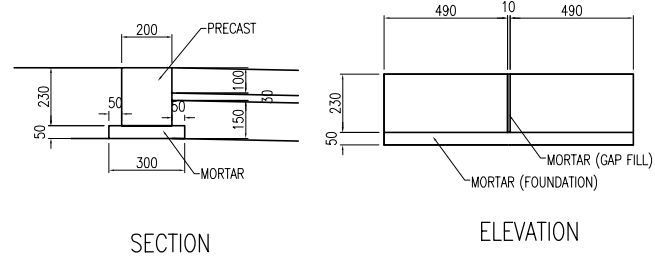
KATAHIRA & ENGINEERS INTERNATIONAL

Designed by : \_\_\_\_\_ Date : \_\_\_\_\_  
Checked by : \_\_\_\_\_ Date : \_\_\_\_\_

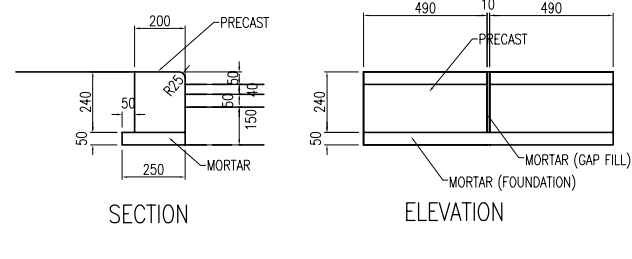
PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE :  
REPLACEMENT OF EXISTING SOFT  
GROUND (SLOPE TOE)

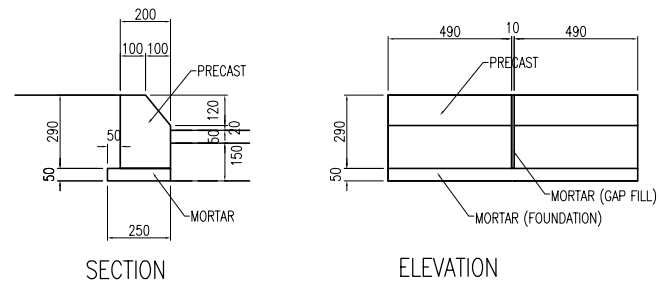
DRAWING No:  
RP - 1  
SCALE:  
None Scale  
Rv.



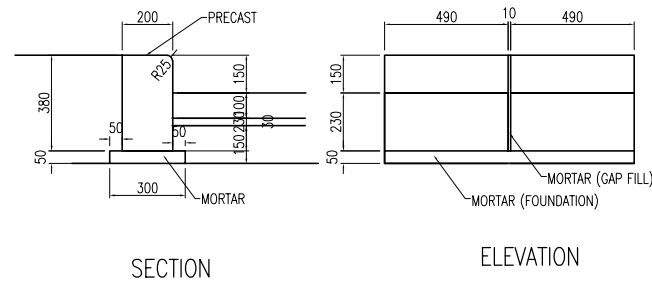
VERGE BLOCK (VB)



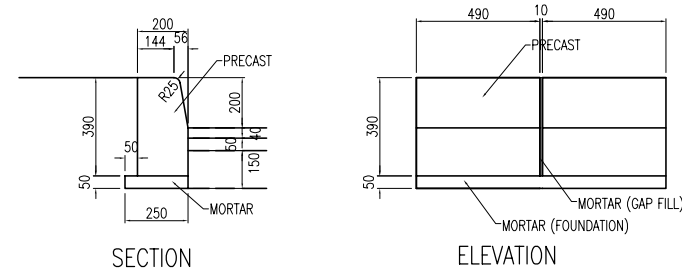
CURB STONE FOR MEDIAN X SIDEWALK (CS-50)



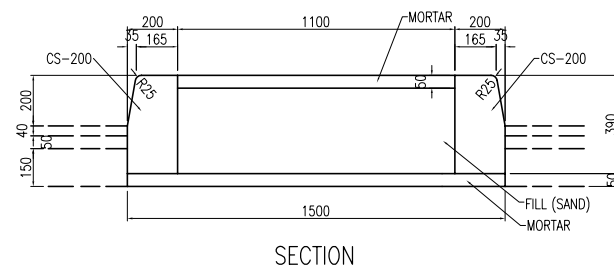
CURB STONE FOR SIDEWALK (CS-120)



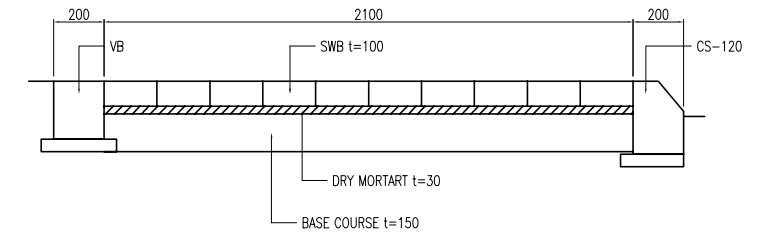
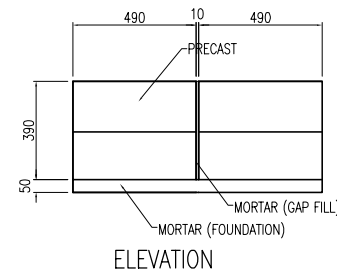
CURB STONE FOR SIDEWALK X MEDIAN (CS-150)



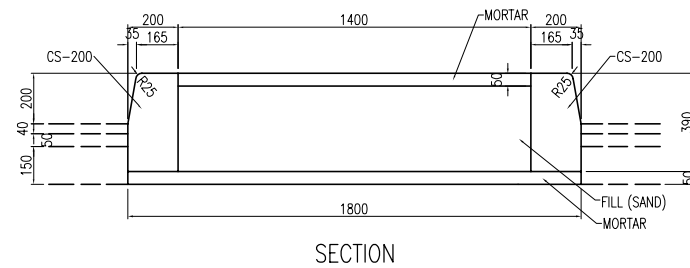
CURB STONE FOR MEDIAN (CS-200)



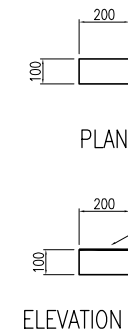
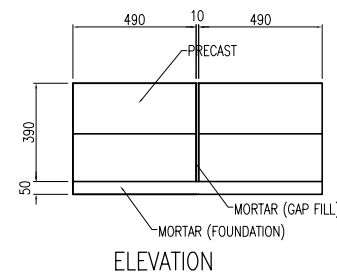
MEDIAN BARRIER (MB-200X1500)



TYPICAL CROSS SECTION OF SIDEWALK



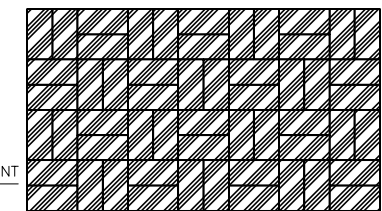
MEDIAN BARRIER (MB-200X1800)



PLAN

ELEVATION

TOP SIDE TO BE APPLIED WITH THERMAL INSULATION PAINT



PLAN LAYOUT OF SIDEWALK BLOCK

SIDEWALK BLOCK WITH THERMAL INSULATION PAINT (SWB)



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



KATAHIRA & ENGINEERS INTERNATIONAL

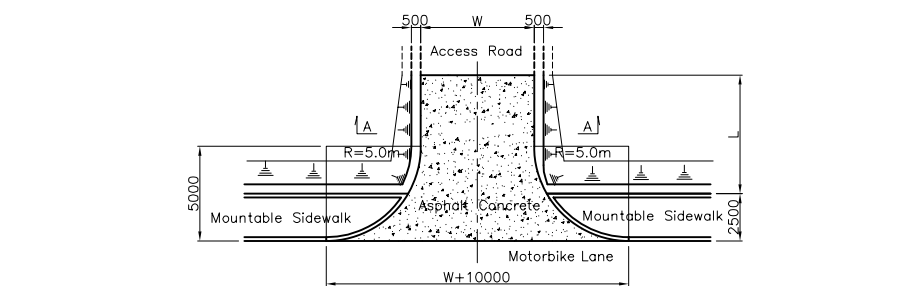
Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

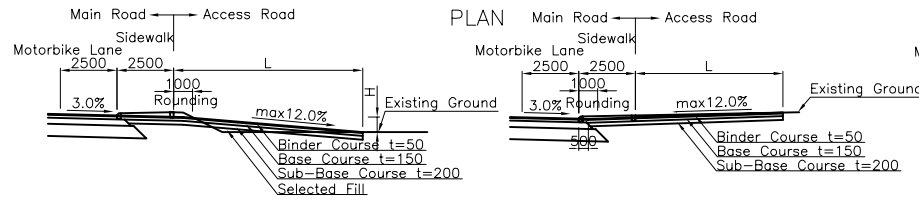
TITLE :  
**ROAD STRUCTURES OF CURB STONE,  
MEDIAN BARRIER, SIDEWALK BLOCK, ETC.**

DRAWING No:  
RS - 1  
SCALE:  
1:30

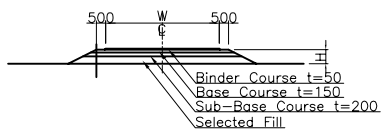
Rev.



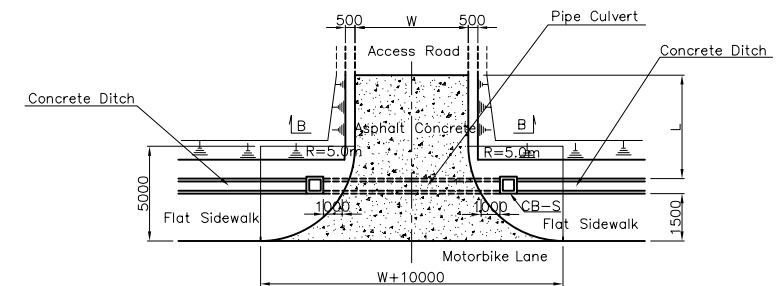
PLAN



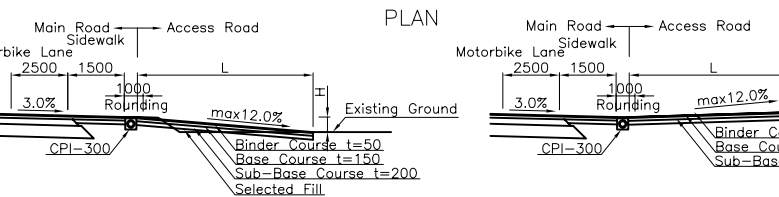
PROFILE



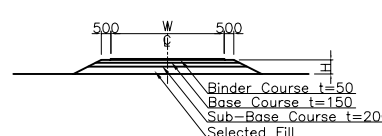
A-A SECTION  
AC-TYPE-A  
(4-Lane Section)



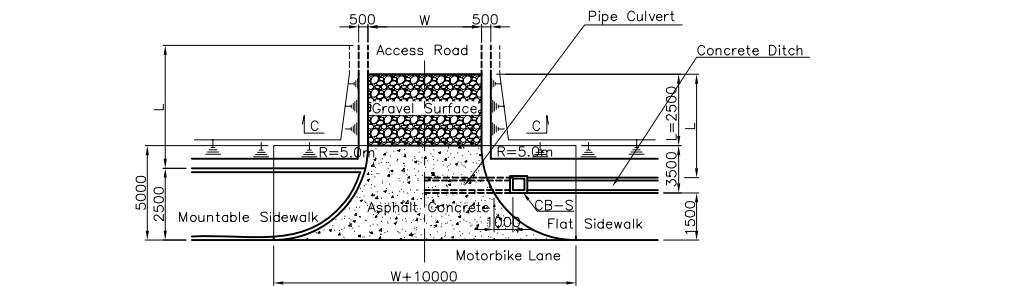
PLAN



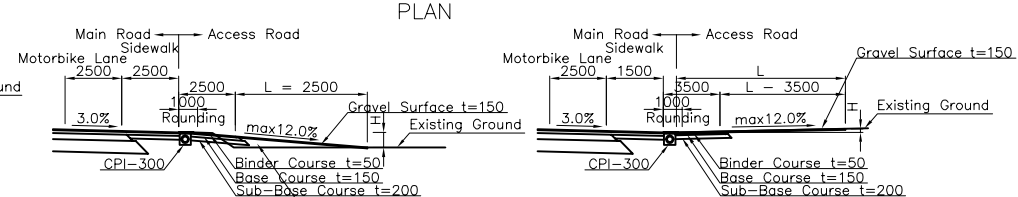
PROFILE



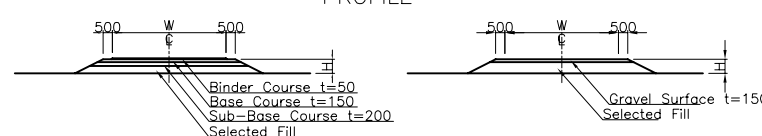
B-B SECTION  
AC-TYPE-B



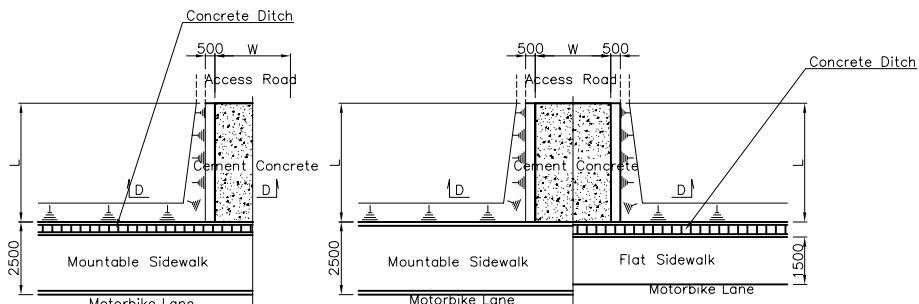
PLAN



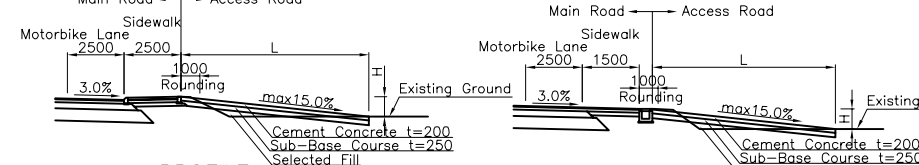
PROFILE



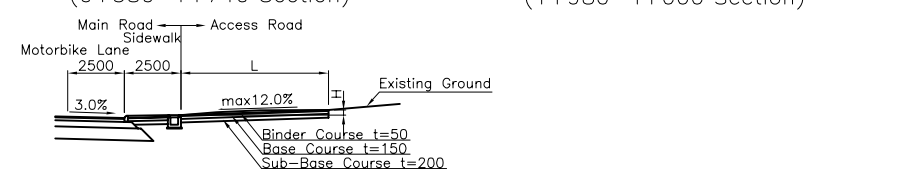
C-C SECTION (Asphalt Section)  
C-C SECTION (Gravel Section)  
AC-TYPE-C  
(2-Lane Section)



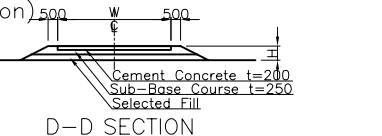
PLAN



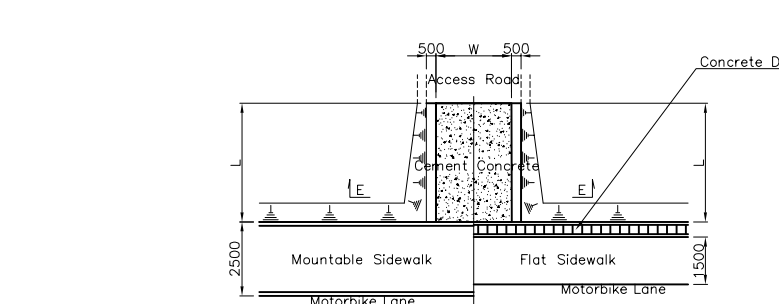
PROFILE



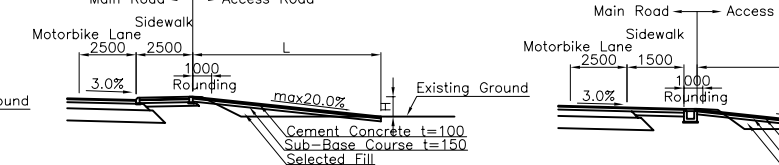
PROFILE



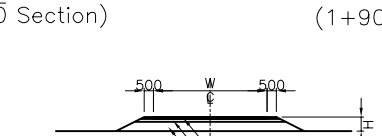
D-D SECTION  
AC-TYPE-D



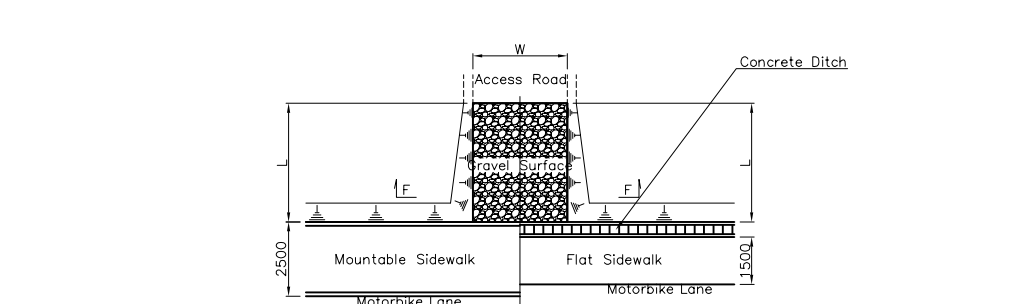
PLAN



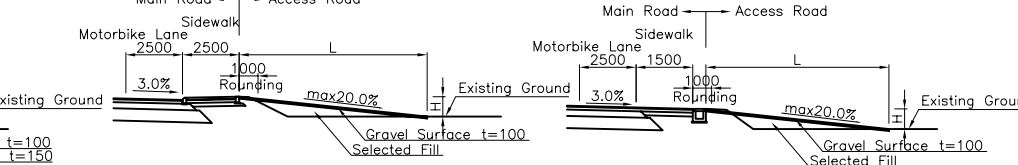
PROFILE



E-E SECTION  
AC-TYPE-E



PLAN

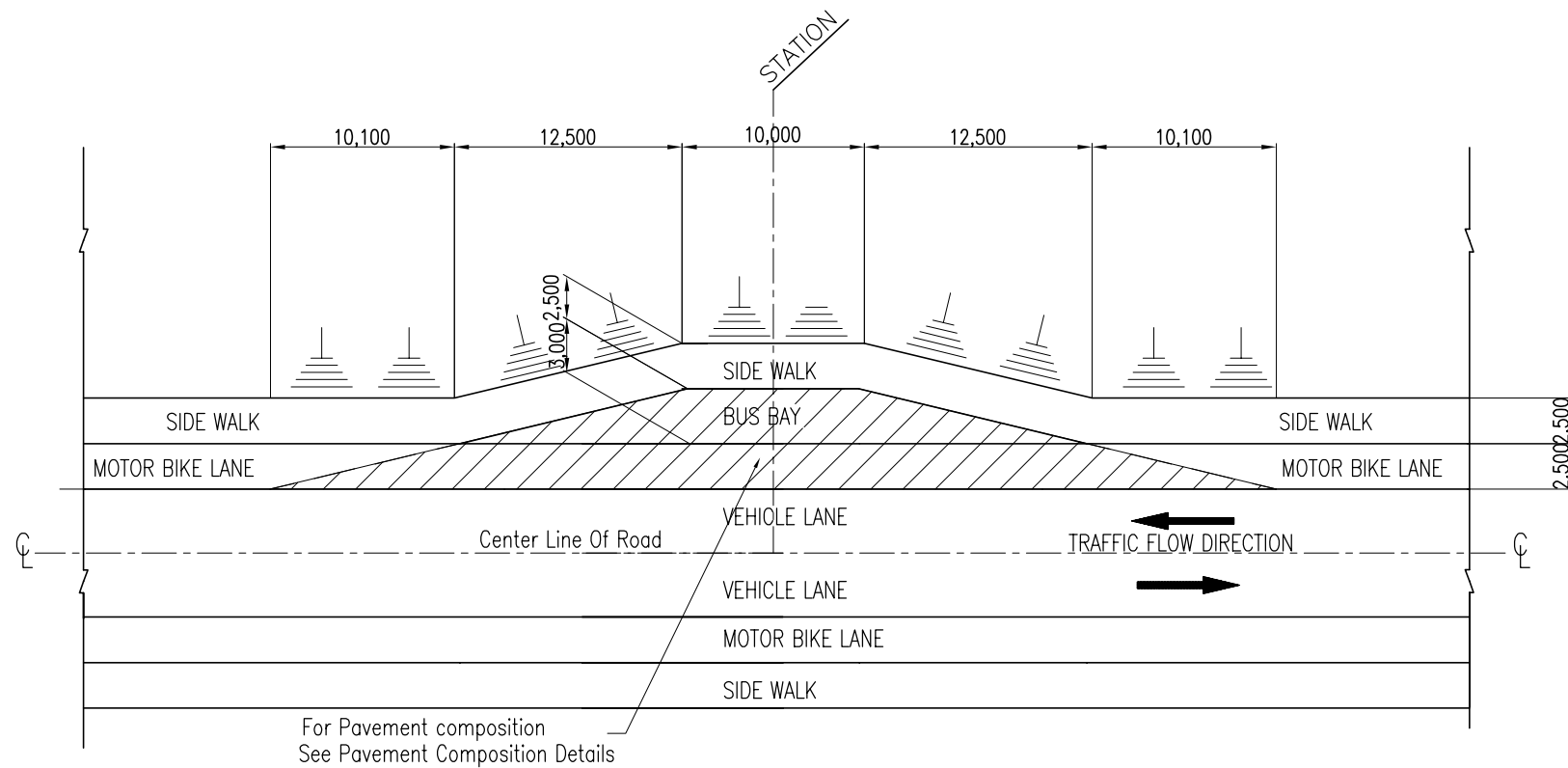


PROFILE



F-F SECTION  
AC-TYPE-F

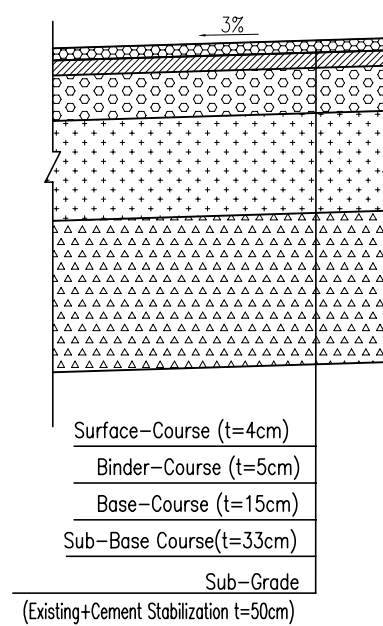




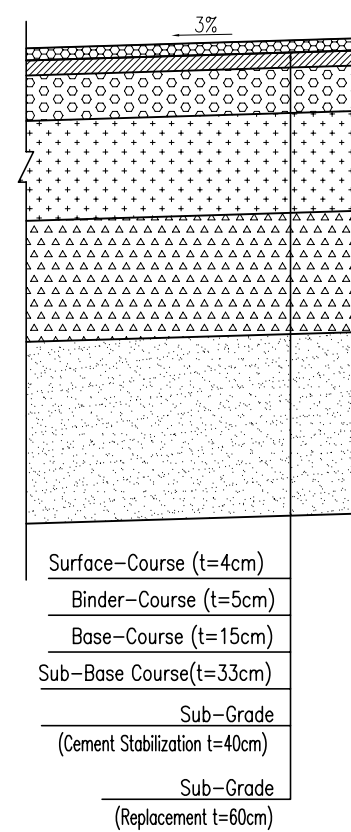
PLAN S=1:400

SCHEDULE OF BUS BAY

| No.   | STATION(km) | WIDENING SIDE | PAVEMENT TYPE |
|-------|-------------|---------------|---------------|
| 1     | 0+650       | Right side    | Type 1        |
| 2     | 0+730       | Left side     | Type 1        |
| 3     | 1+050       | Left side     | Type 1        |
| 4     | 1+180       | Right side    | Type 1        |
| 5     | 1+475       | Right side    | Type 1        |
| 6     | 1+482.5     | Left side     | Type 1        |
| 7     | 2+270       | Left side     | Type 1        |
| 8     | 2+330       | Right side    | Type 1        |
| 9     | 3+300       | Left side     | Type 2        |
| 10    | 3+360       | Right side    | Type 2        |
| 11    | 3+830       | Left side     | Type 2        |
| 12    | 3+832.5     | Right side    | Type 2        |
| TOTAL |             | 12            |               |

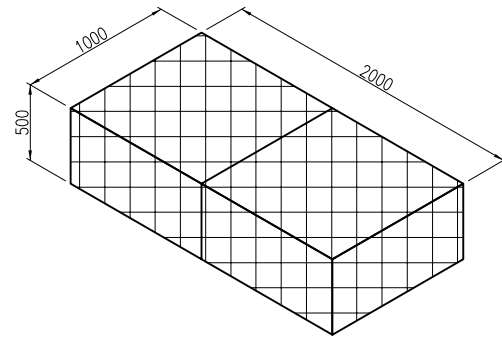


TYPE 1

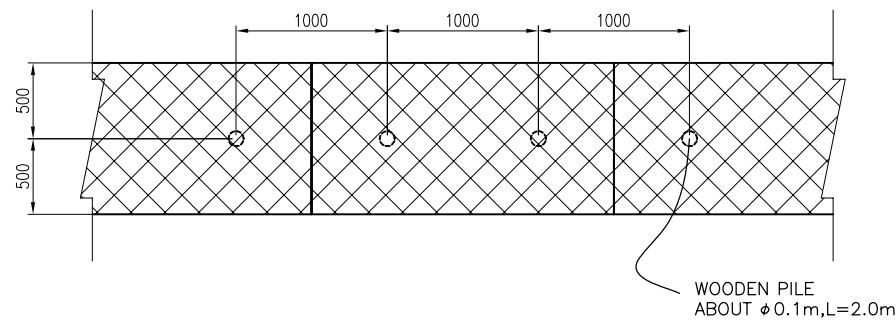


TYPE 2

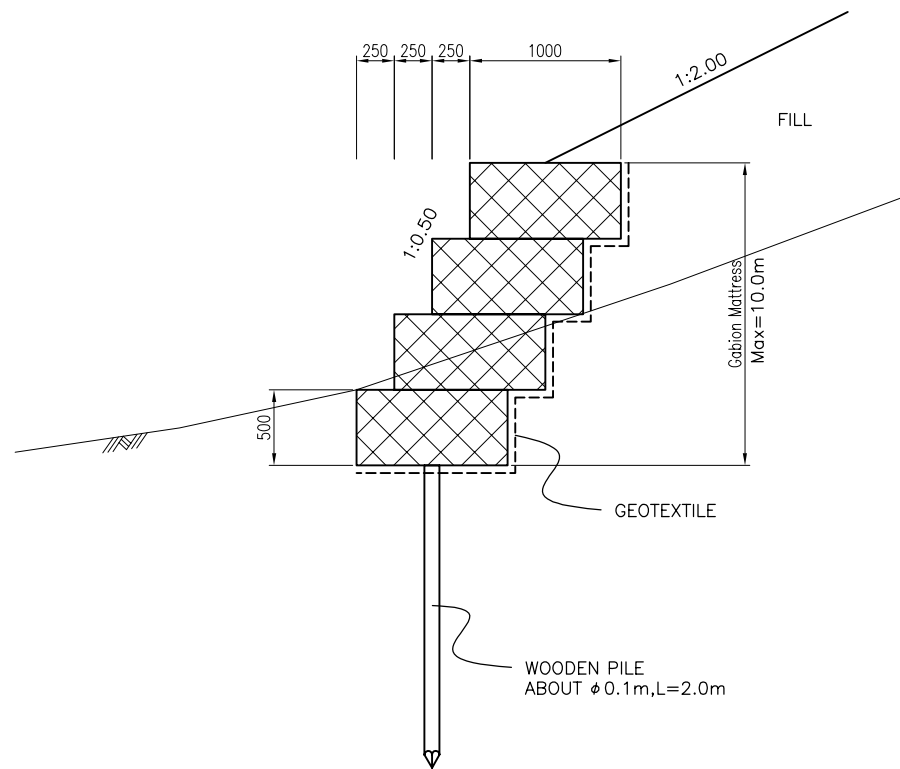
PAVEMENT TYPE S=1:250



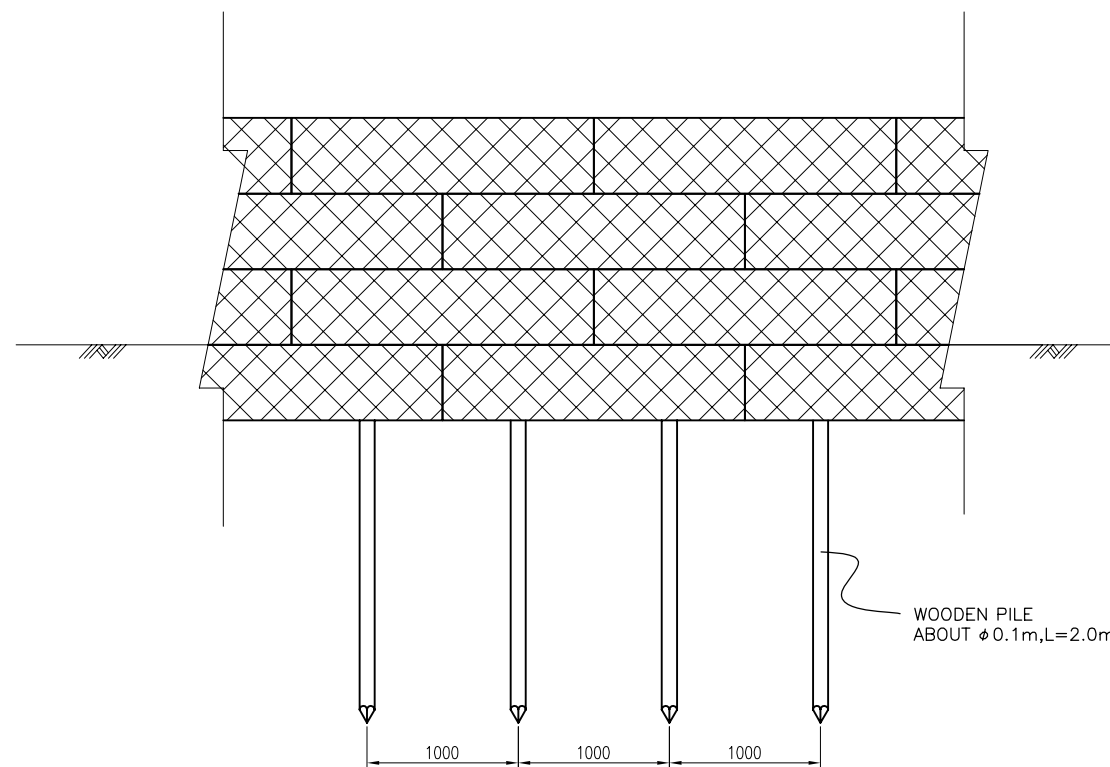
GABION MATTRESS (GM)



WOOD PILE LOCATION PLAN



CROSS SECTION



ELEVATION

Note: Gabion mesh and Boulders shall comply with the Technical Specifications of this Contract.  
Gabion Mattress shall be placed on Geotextile Fabric.



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



KATAKIRA & ENGINEERS INTERNATIONAL

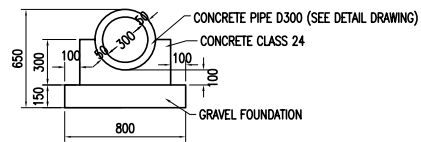
Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

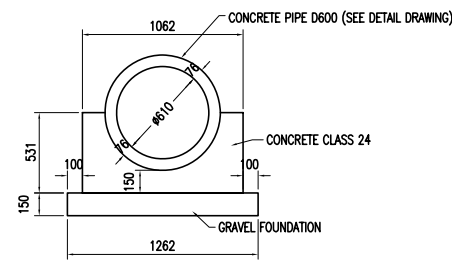
TITLE :

GABION MATTRESS WALL

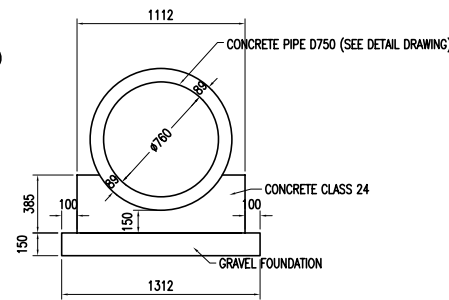
DRAWING No:  
GM - 1  
SCALE:  
1:50  
Rv.



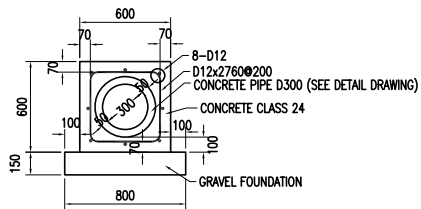
CONCRETE PIPE D300  
(PI-300)



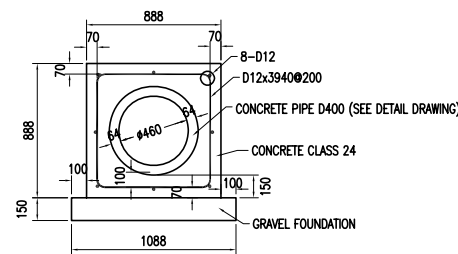
CONCRETE PIPE D600  
(PI-600)



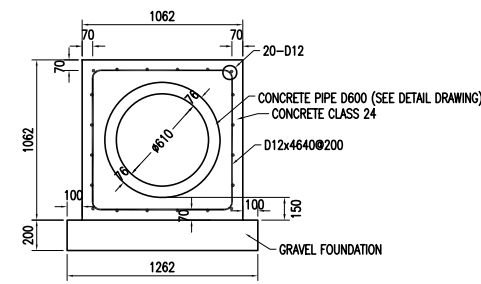
CONCRETE PIPE D750  
(PI-750)



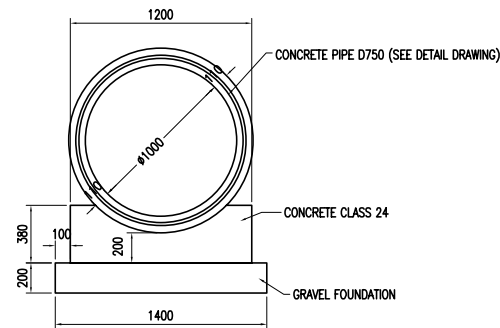
CONCRETE PIPE D300  
(CPI-300)



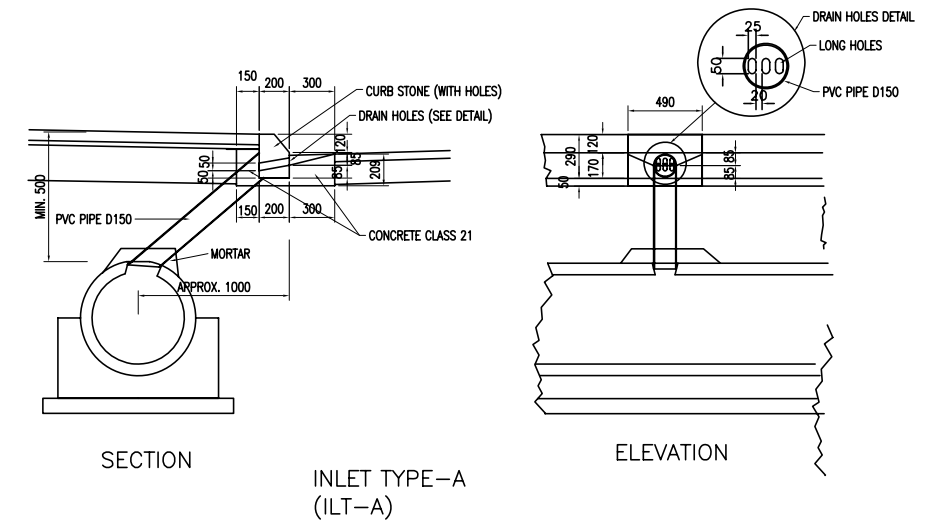
CONCRETE PIPE D400  
(CPI-400)



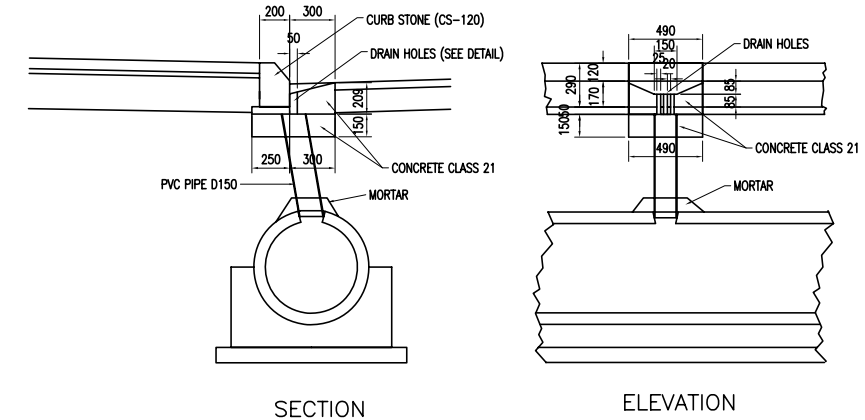
CONCRETE PIPE D600  
(CPI-600)



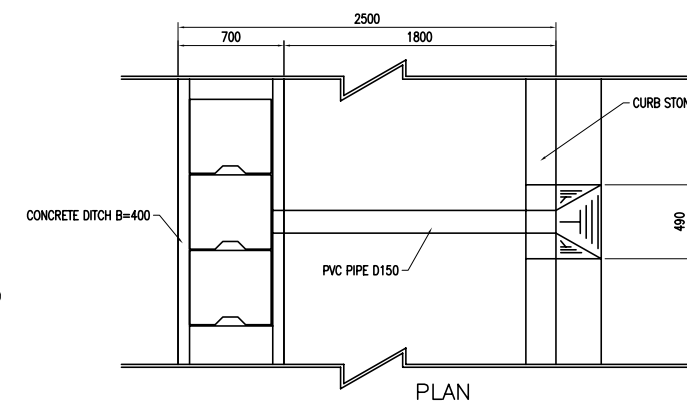
CONCRETE PIPE D1000  
(PI-1000)



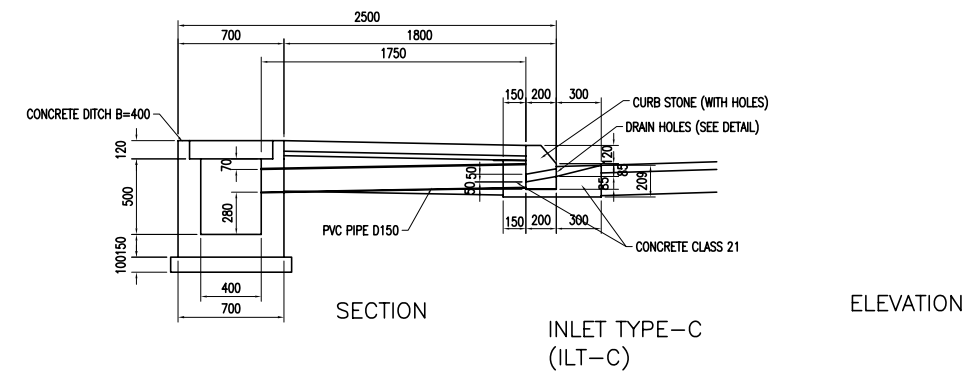
SECTION  
INLET TYPE-A  
(ILT-A)



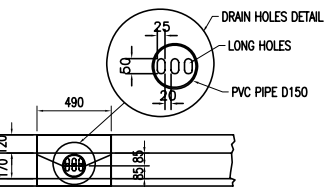
SECTION  
INLET TYPE-B  
(ILT-B)



PLAN



SECTION  
INLET TYPE-C  
(ILT-C)



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



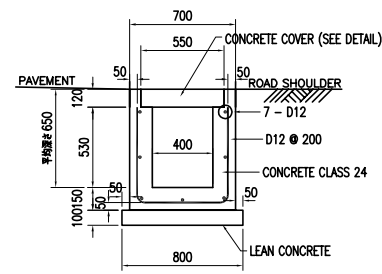
KATAHIRA & ENGINEERS INTERNATIONAL

Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

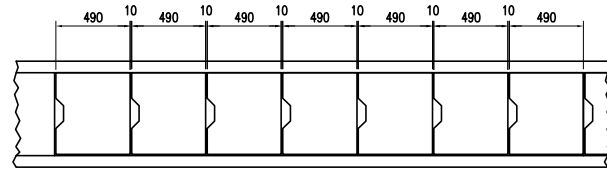
PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE : DRAINAGE STRUCTURES (1/8)

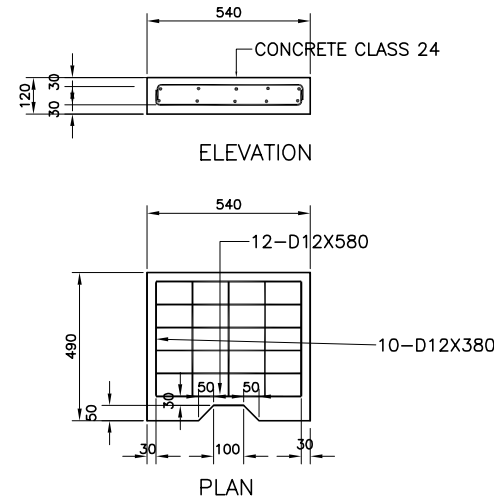
DRAWING No: DR - 1  
SCALE: 1:50  
Rv.



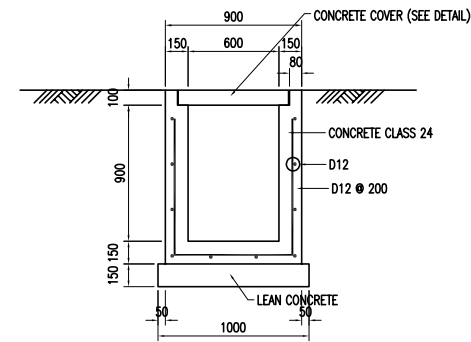
CONCRETE DITCH B=400  
(CD-400)



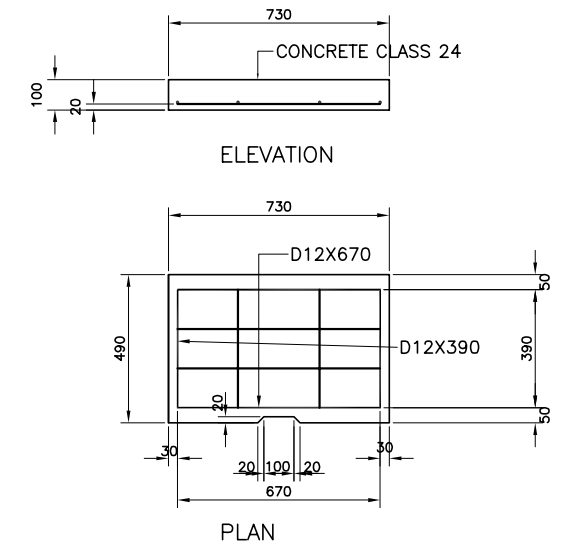
COVER LAYOUT PLAN FOR SECTIONS WITHOUT VEHICLE CROSSING



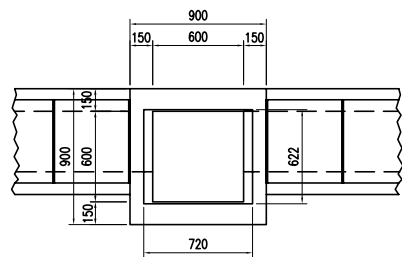
MOVABLE COVER  
(MC-400)



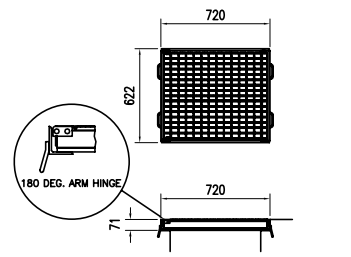
CONCRETE DITCH B=600  
(CD-600)



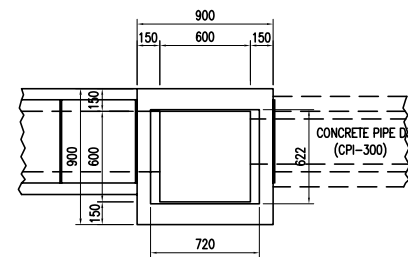
MOVABLE COVER  
(MC-600)



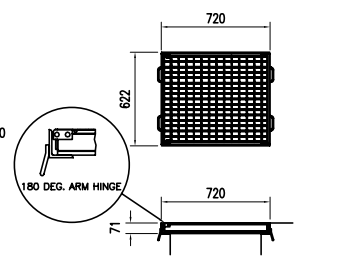
PLAN



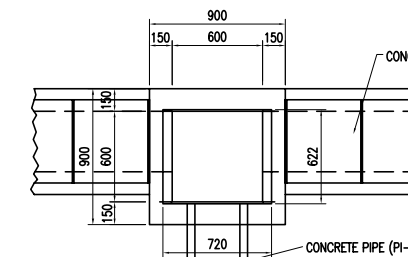
GRATING DETAIL  
(DIKURE R5SM65-66 OR EQUIVALENT)



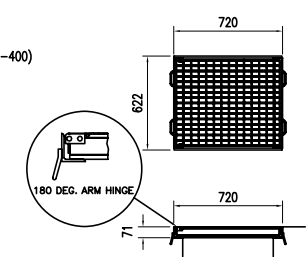
PLAN



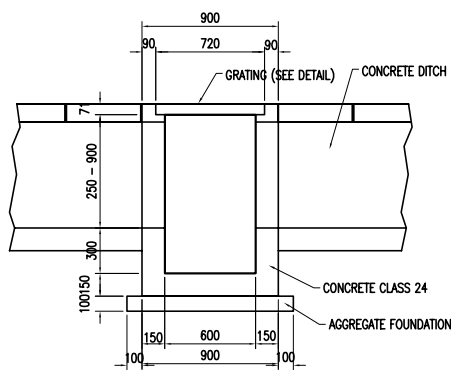
GRATING DETAIL  
(DIKURE R5SM65-66 OR EQUIVALENT)



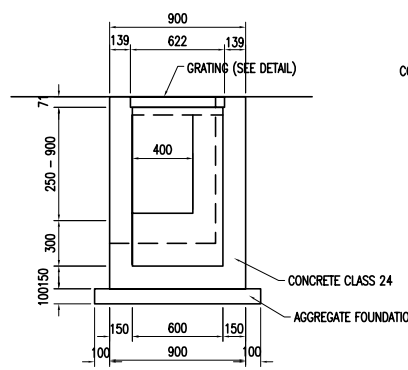
PLAN



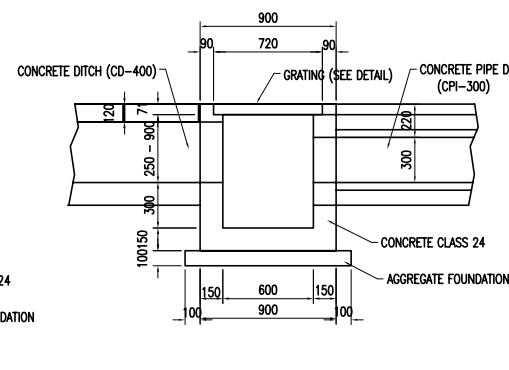
GRATING DETAIL  
(DIKURE R5SM65-66 OR EQUIVALENT)



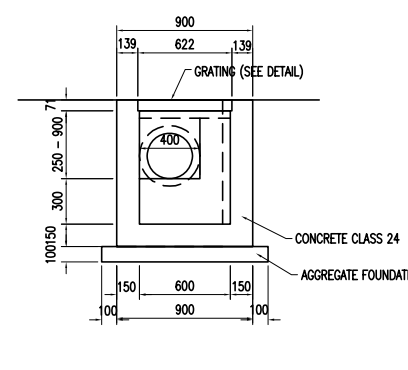
ELEVATION



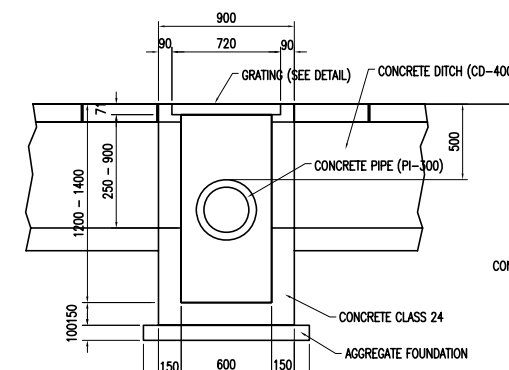
SECTION



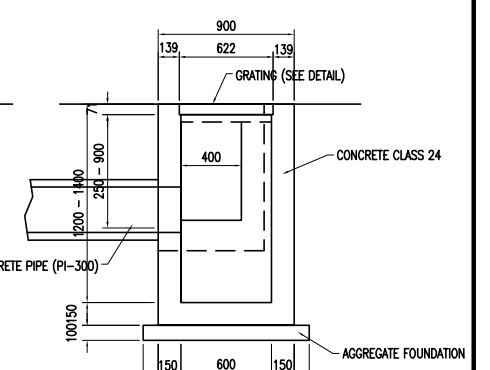
ELEVATION



SECTION



ELEVATION



SECTION

CATCH BASIN FOR DITCH-400  
(CB-S)

CATCH BASIN FOR DITCH-400  
(CB-C)

CATCH BASIN FOR DITCH-OUTLET  
(CB-SP)



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



KATAHARA & ENGINEERS INTERNATIONAL

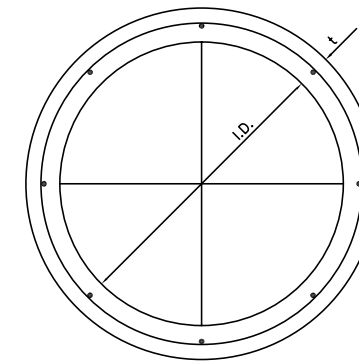
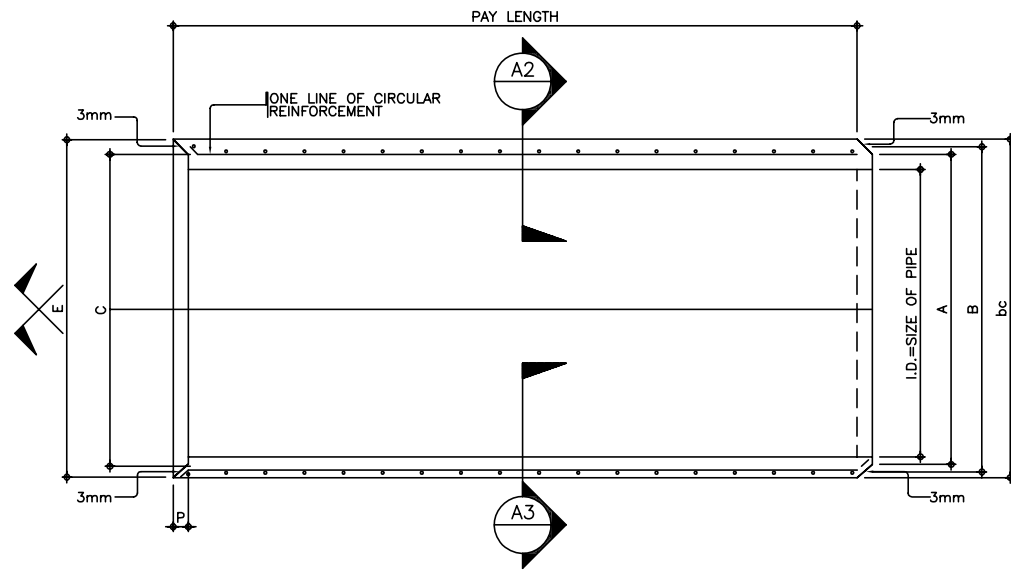
Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

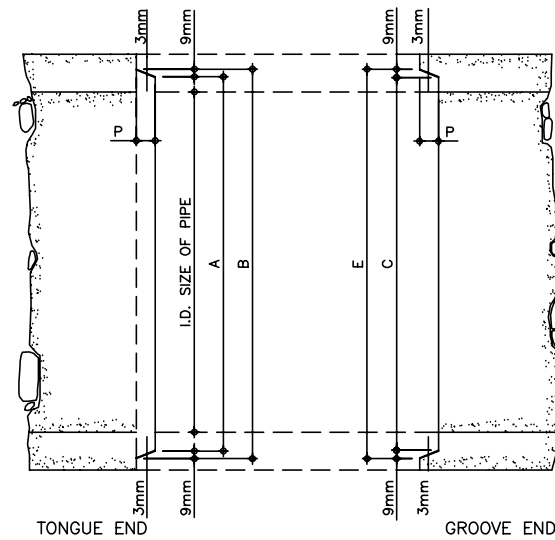
TITLE : DRAINAGE STRUCTURES (2/8)

DRAWING No:  
DR - 2  
SCALE:  
1:50

Rv.



ONE LINE OF CIRCULAR REINFORCEMENT



REINFORCED CONCRETE PIPE DETAIL

STANDARD DESIGN OF REINFORCED CONCRETE PIPE

| PIPE NOMINAL SIZE (mm) | PIPE INNER SIZE (mm) | WALL THICKNESS (mm) | TONGUE (mm) |      | GROOVE (mm) |      | DEPTH (mm) | CONCRETE STRENGTH (kg/cm <sup>2</sup> ) |
|------------------------|----------------------|---------------------|-------------|------|-------------|------|------------|---|
|                        |                      |                     | A           | B    | C           | E    |            |   |
| I.D.                   | I.D.                 | t                   | A           | B    | C           | E    | P          |   |
| 300                    | 300                  | 50                  | 338         | 354  | 346         | 362  | 30         | 240                                     |
| 400                    | 460                  | 64                  | 508         | 527  | 514         | 534  | 44         | 240                                     |
| 600                    | 610                  | 76                  | 673         | 692  | 680         | 699  | 44         | 240                                     |
| 750                    | 760                  | 89                  | 858         | 857  | 845         | 864  | 51         | 240                                     |
| 1000                   | 1000                 | 110                 | 1086        | 1126 | 1094        | 1134 | 45         | 240                                     |



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT



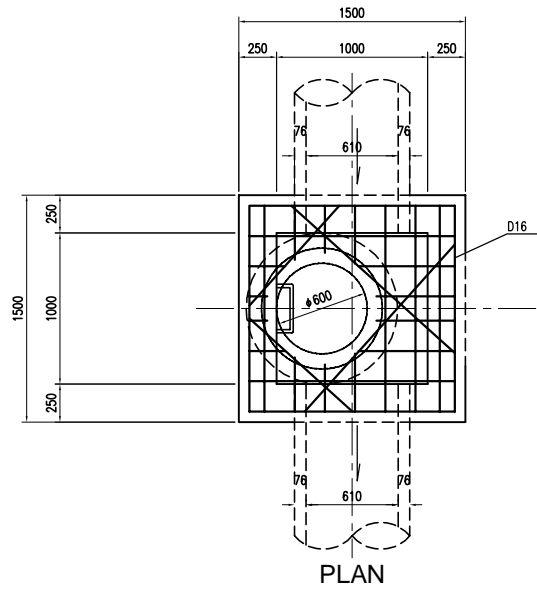
KATAHIRA & ENGINEERS INTERNATIONAL

Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

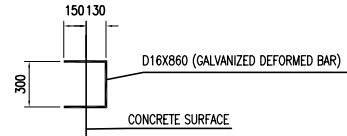
PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE : DRAINAGE STRUCTURES (3/8)  
RC PIPE

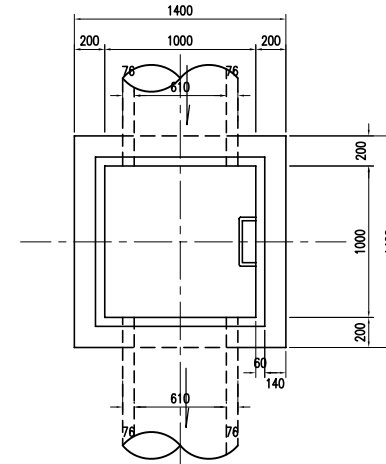
DRAWING No: DR - 3  
SCALE: None Scale  
Rv



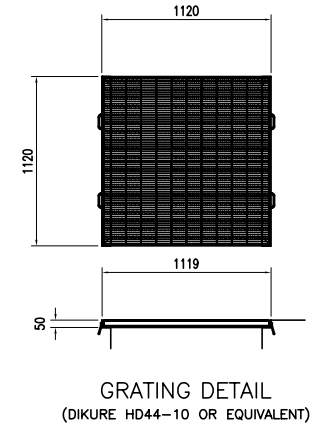
PLAN



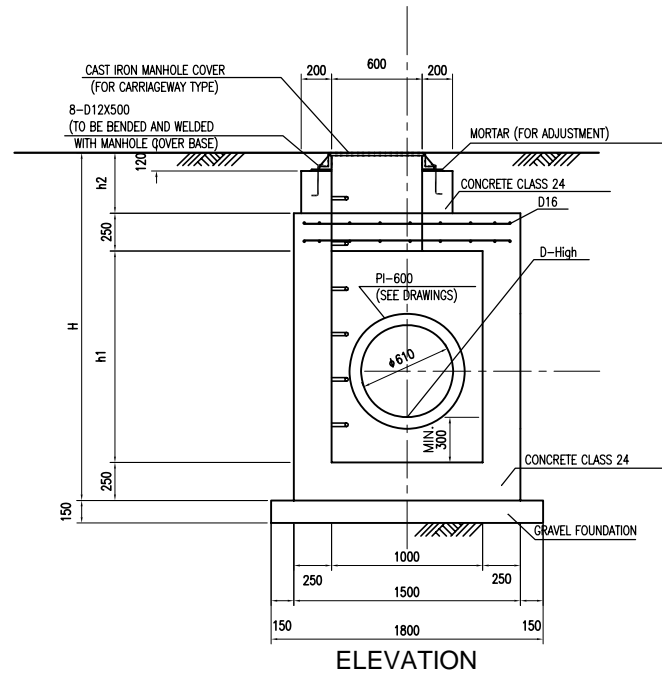
FOOT STEPS DETAIL



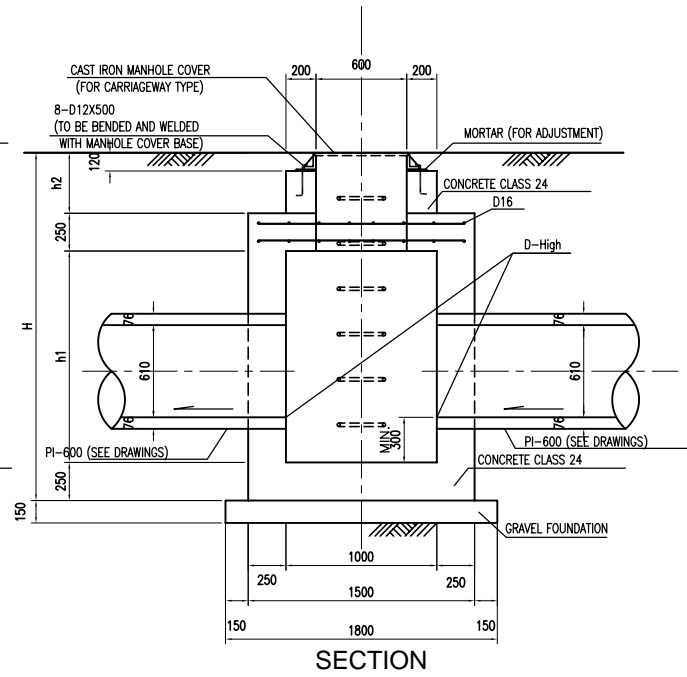
PLAN



GRATING DETAIL  
(DIKURE HD44-10 OR EQUIVALENT)

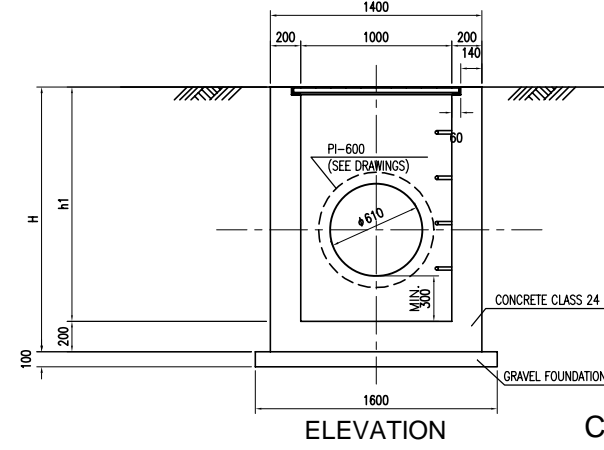


ELEVATION

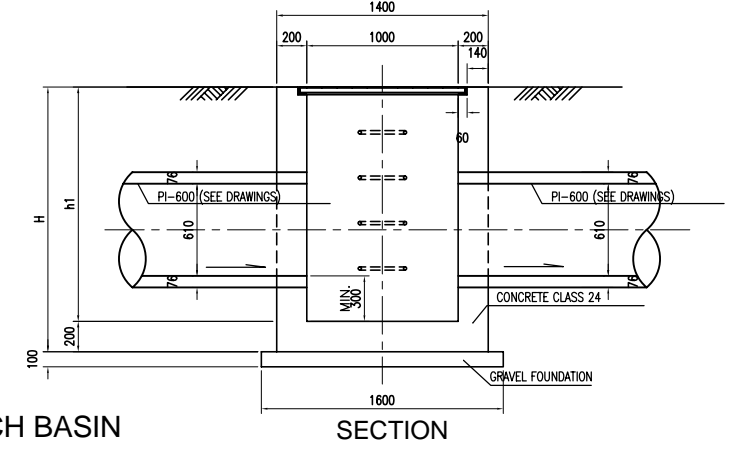


SECTION

CATCH BASIN  
(MH-N)

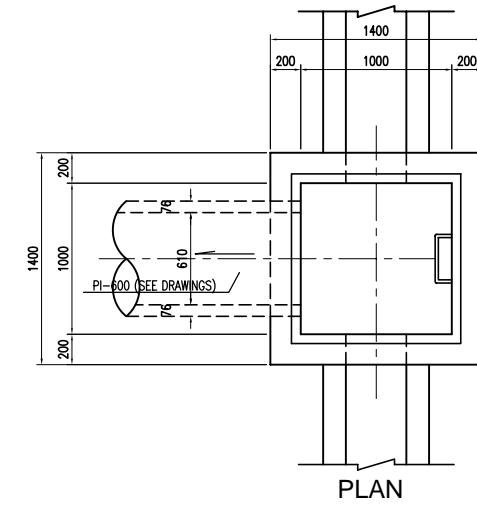


ELEVATION

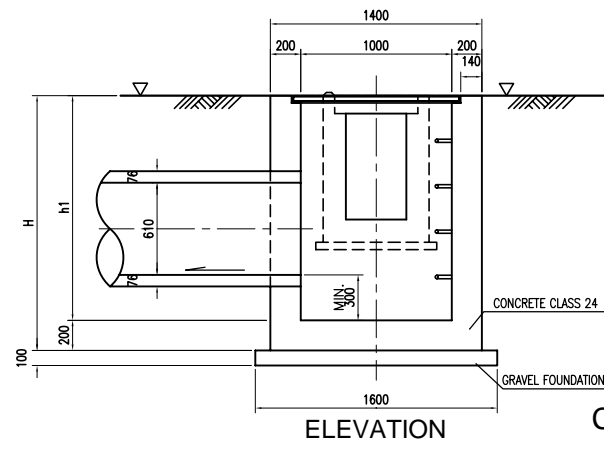


SECTION

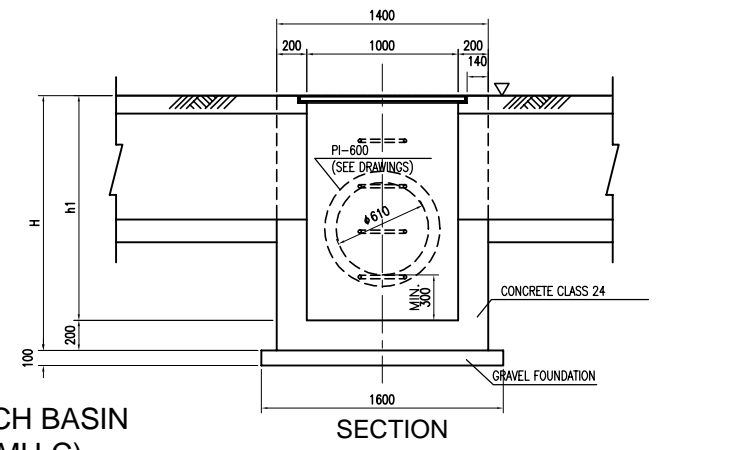
CATCH BASIN  
(MH-D)



PLAN



ELEVATION



SECTION

CATCH BASIN  
(MH-C)



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



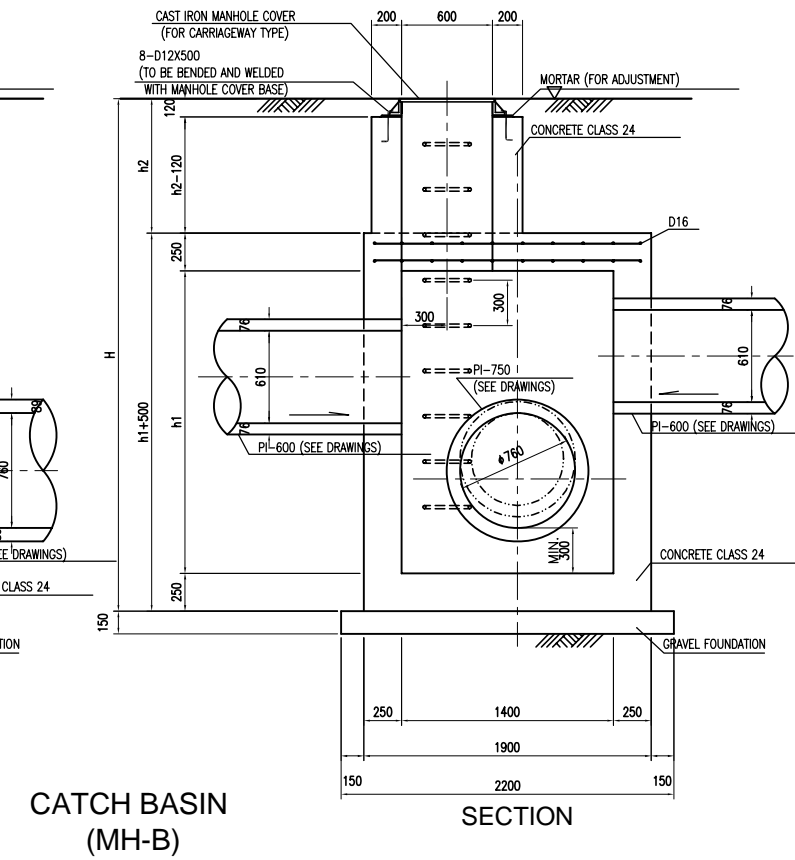
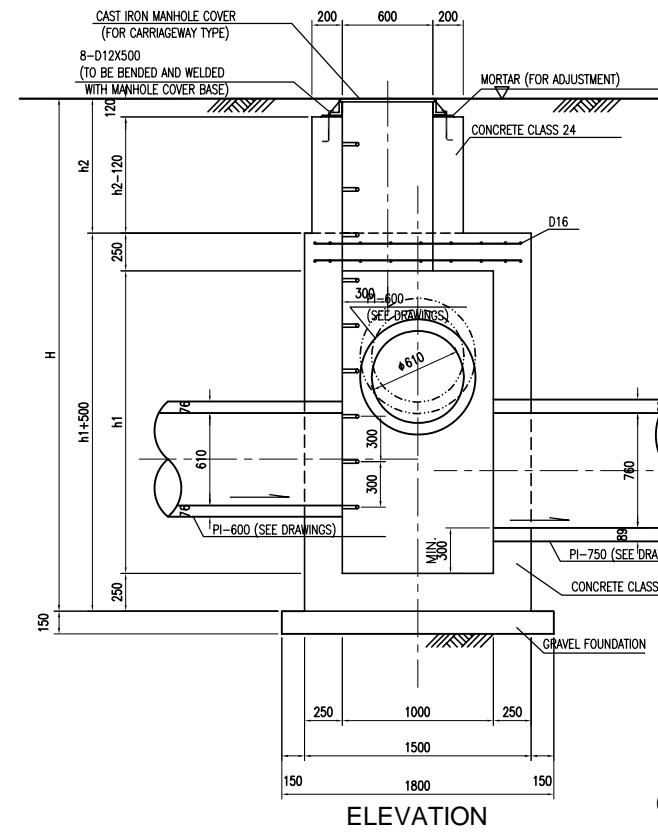
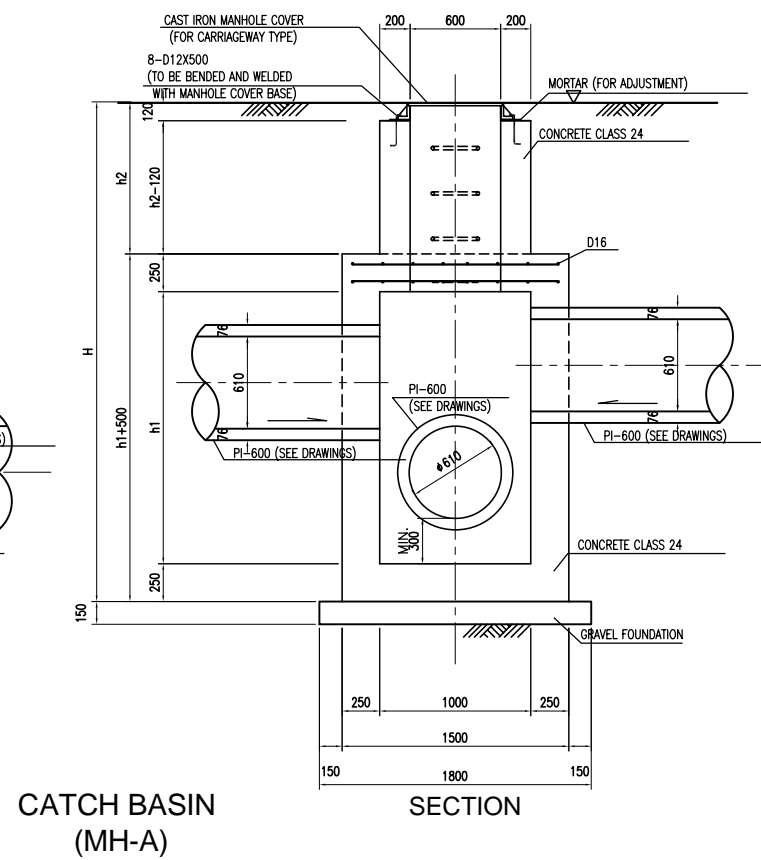
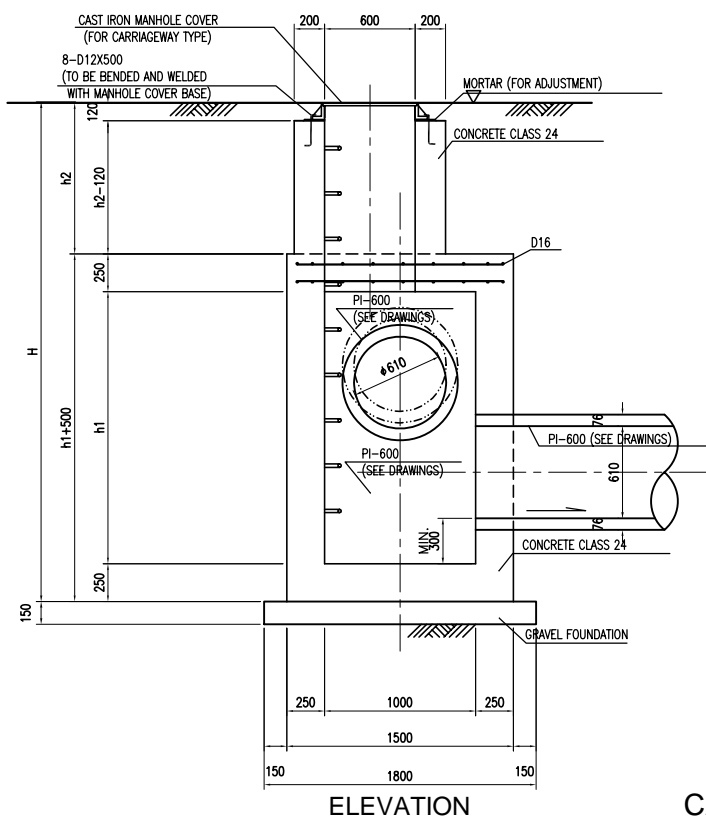
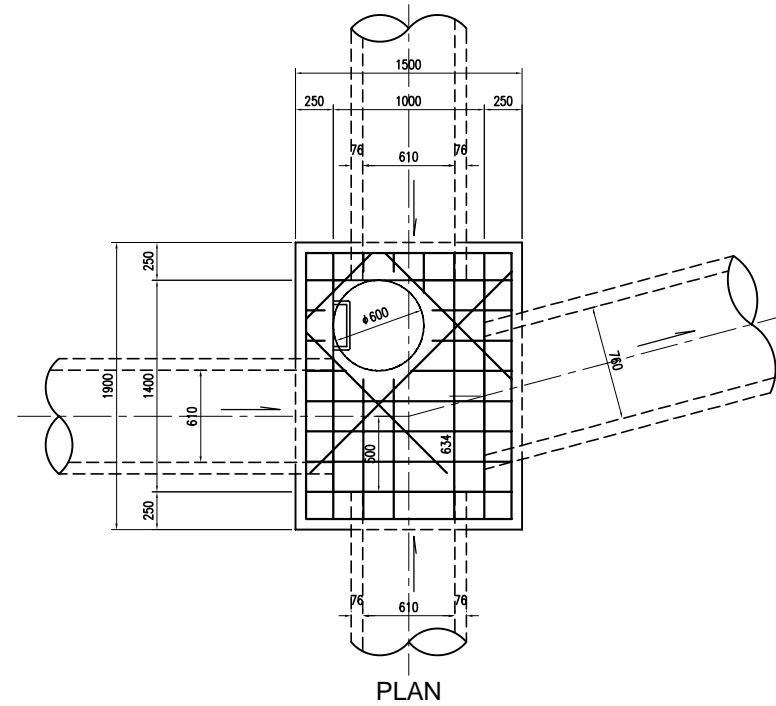
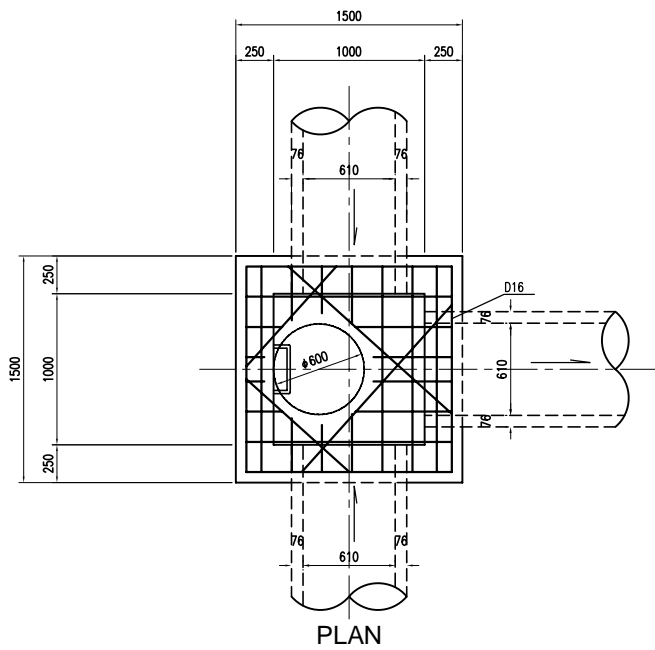
KATAHARA & ENGINEERS INTERNATIONAL

Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE : DRAINAGE STRUCTURES (4/8)

DRAWING No: DR - 4  
SCALE: 1:50  
Rv.



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



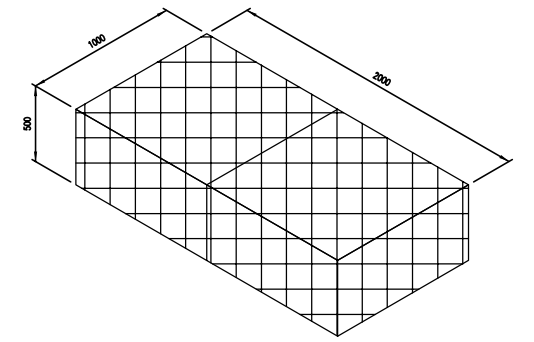
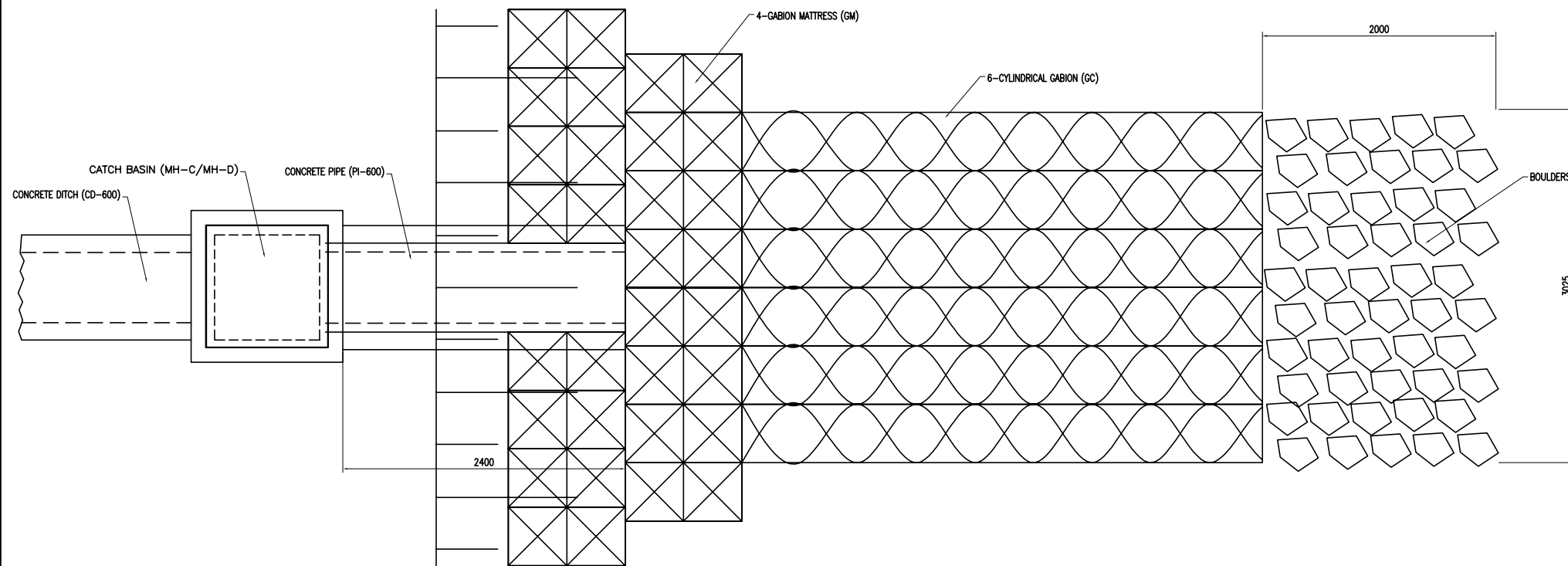
KATAHARA & ENGINEERS INTERNATIONAL

Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

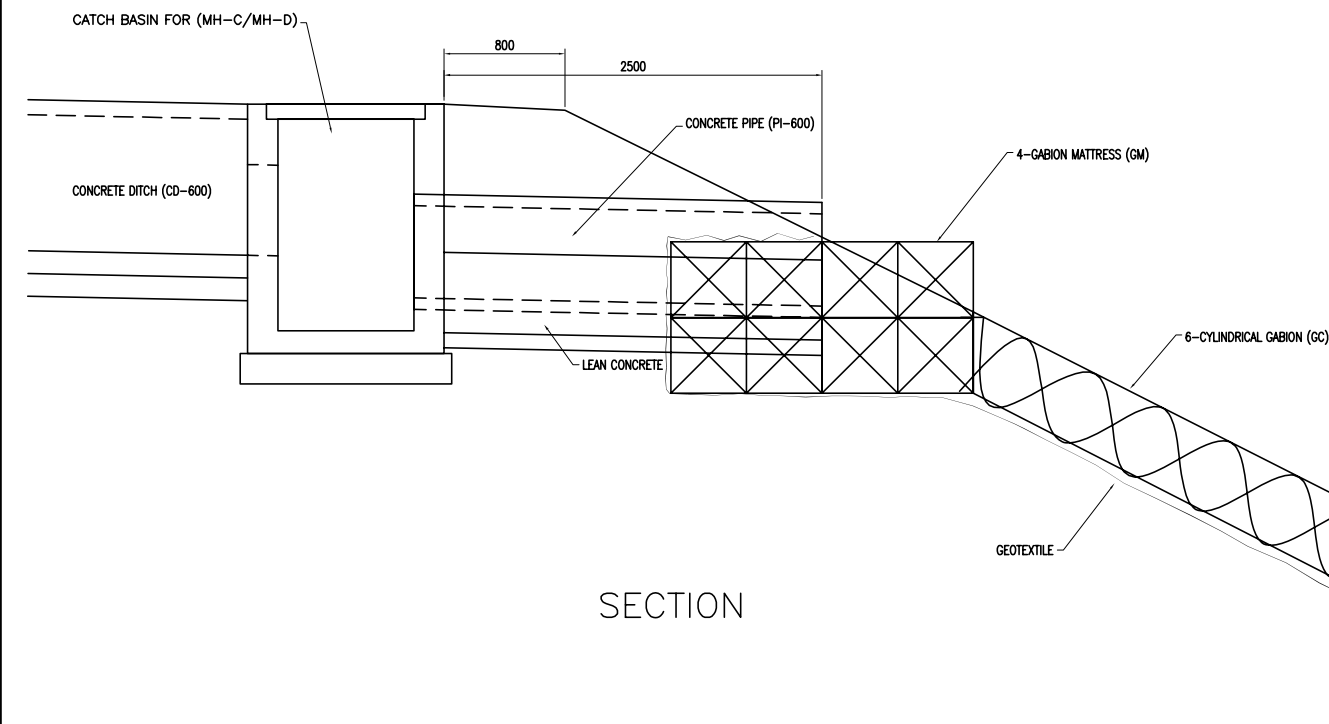
PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE : DRAINAGE STRUCTURES (5/8)

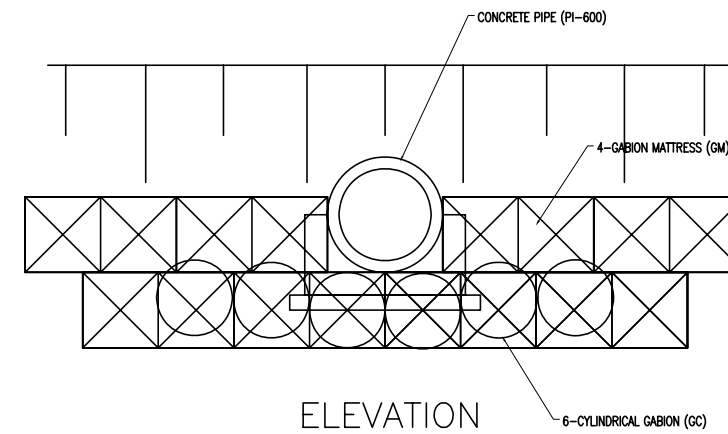
DRAWING No:  
DR - 5  
SCALE:  
1:50  
Rv.



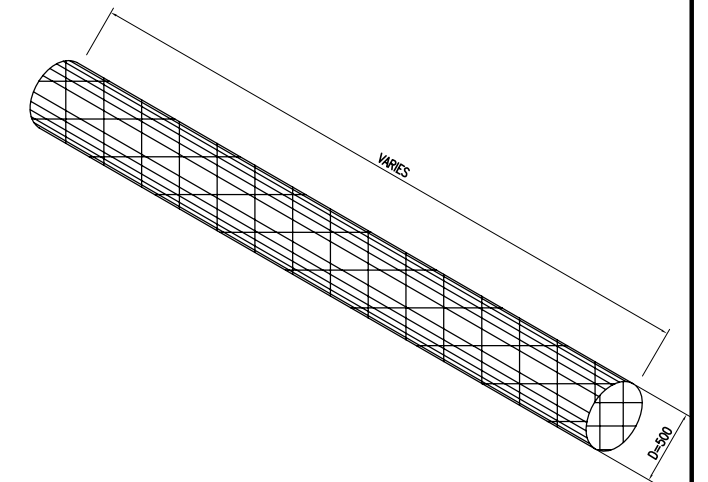
GABION MATTRESS (GM)



SECTION



ELEVATION



CYLINDRICAL GABION (GC)

DRAIN OUTLET (DOUT)

Note: Gabion mesh and Boulders shall comply with the Technical Specifications of this Contract. Gabion Mattress and Cylindrical Gabion shall be placed on Geotextile Fabric.



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



KAHARA & ENGINEERS INTERNATIONAL

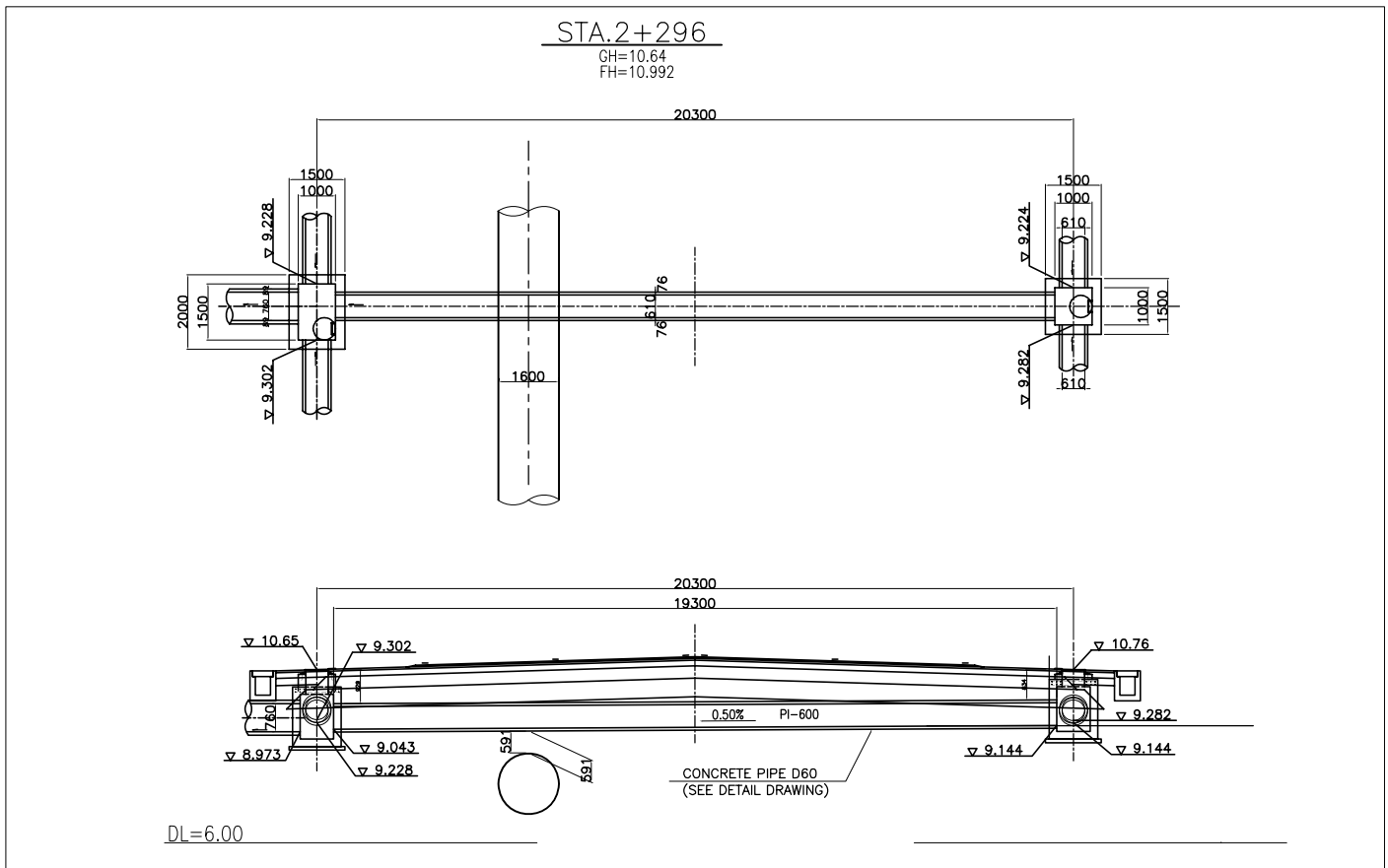
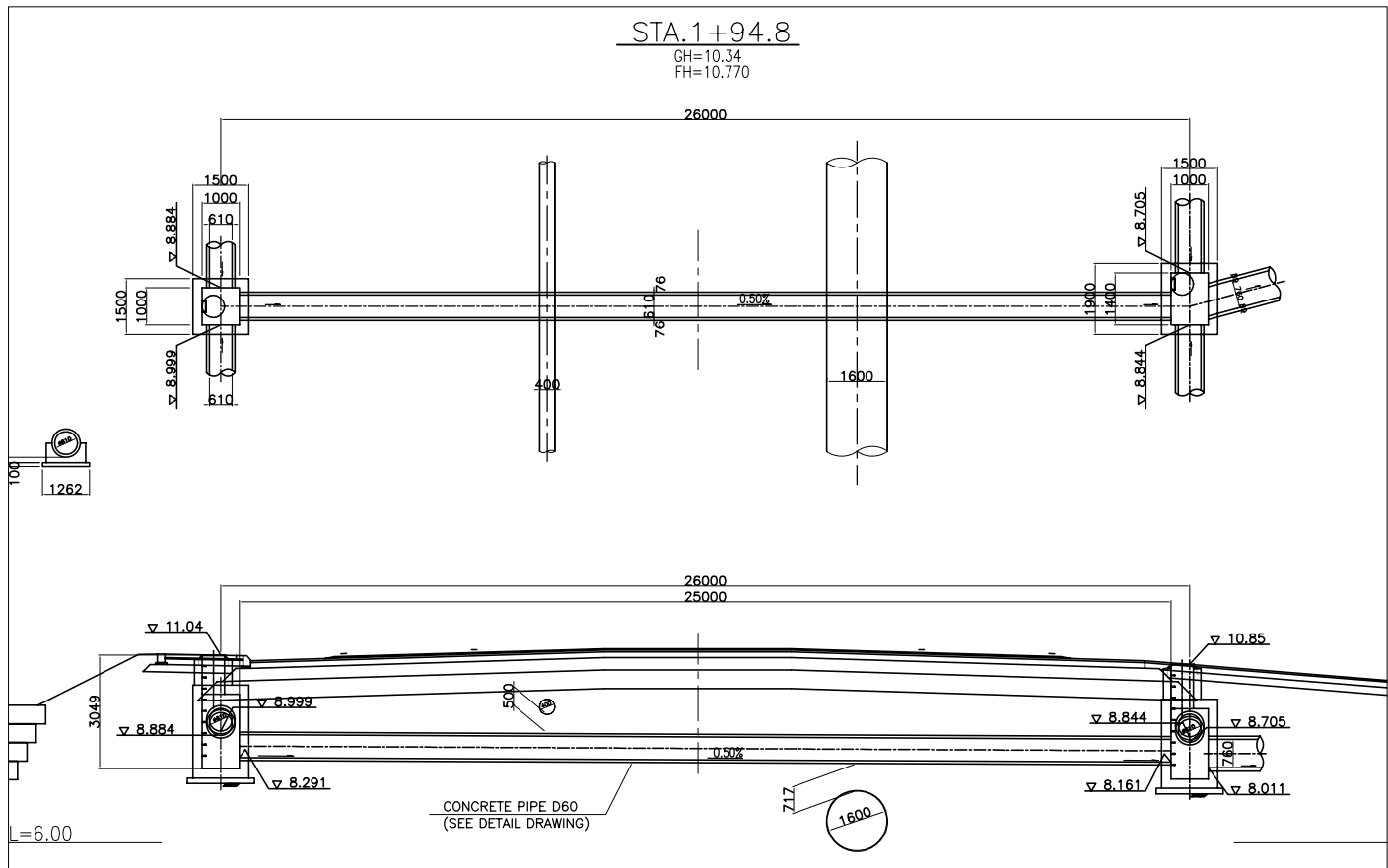
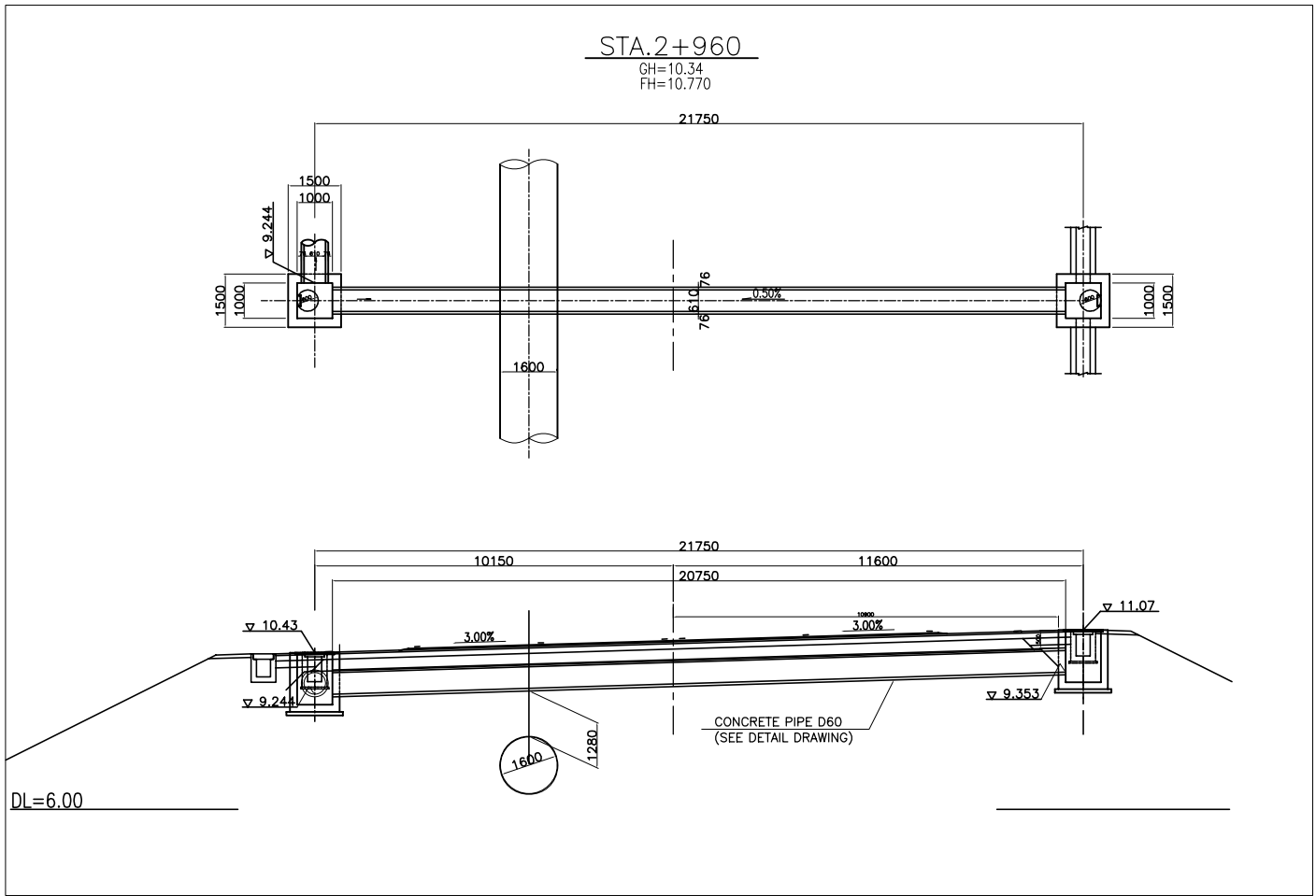
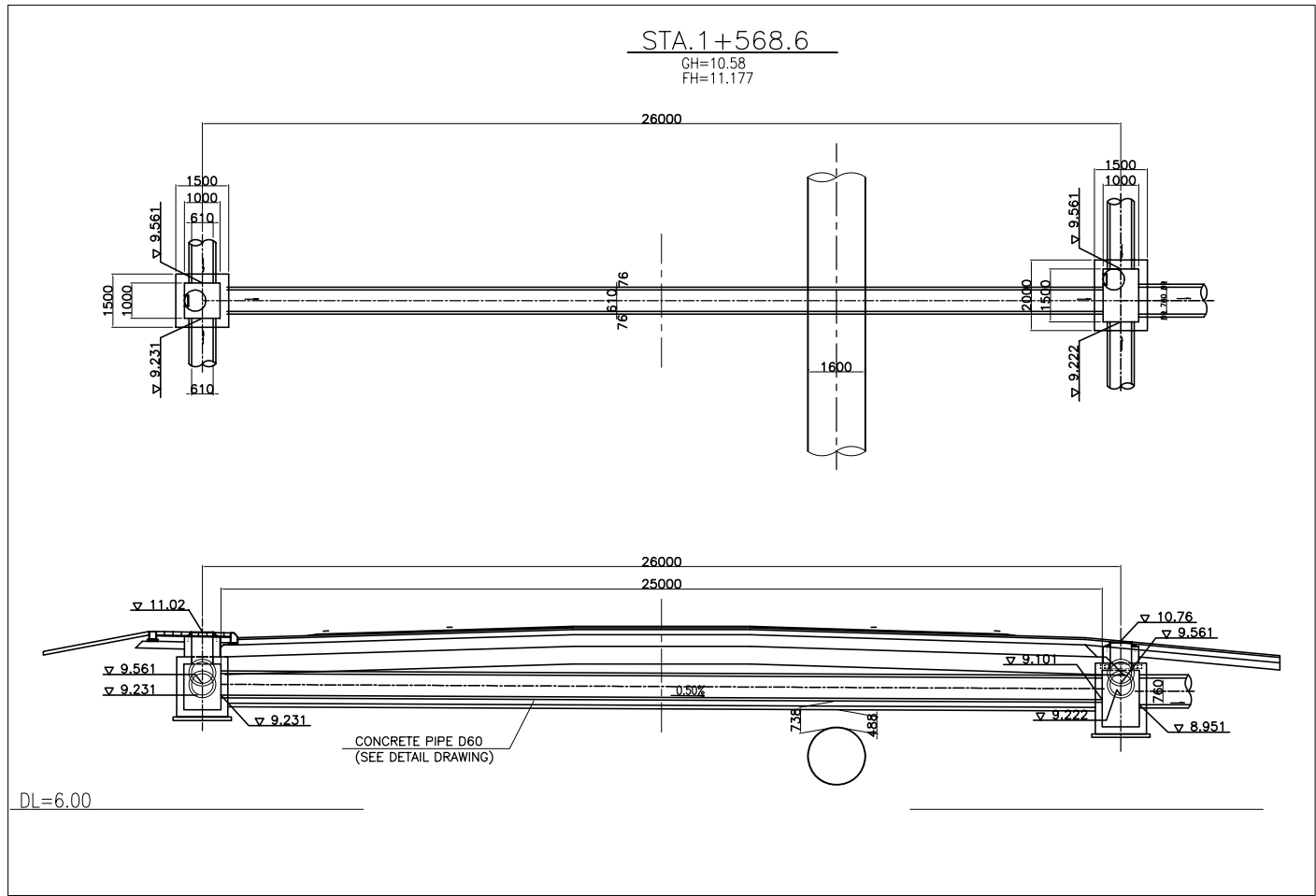
Designed by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

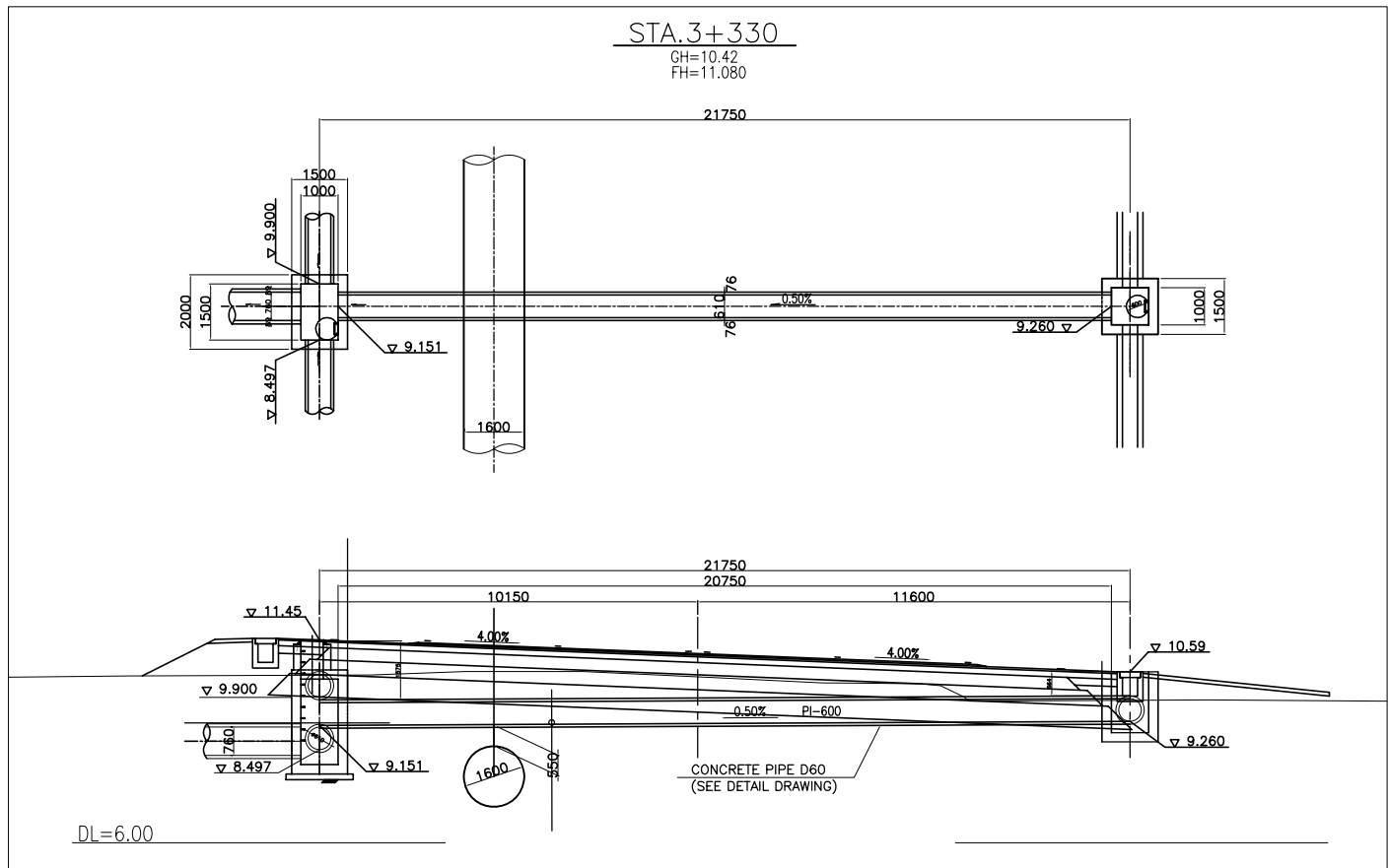
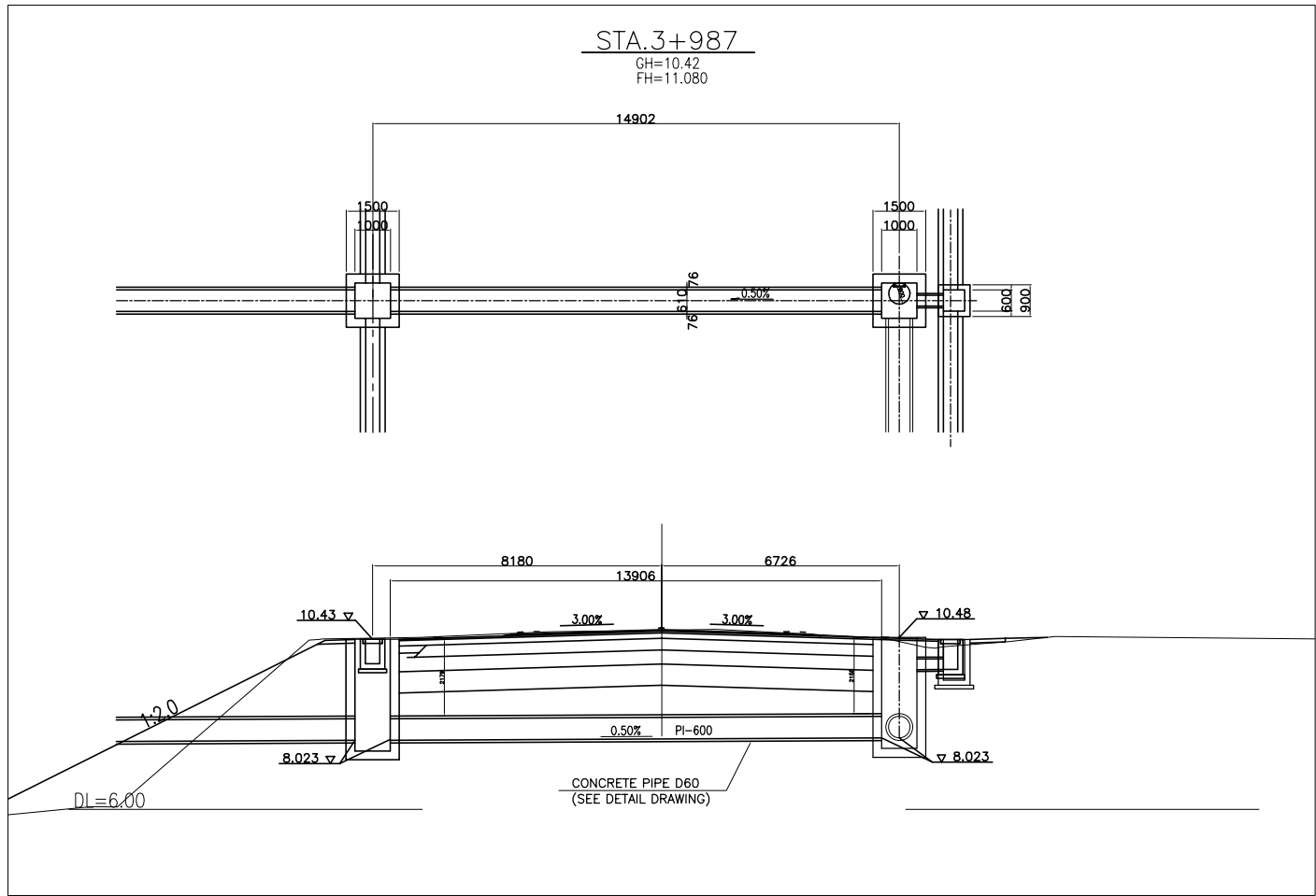
PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

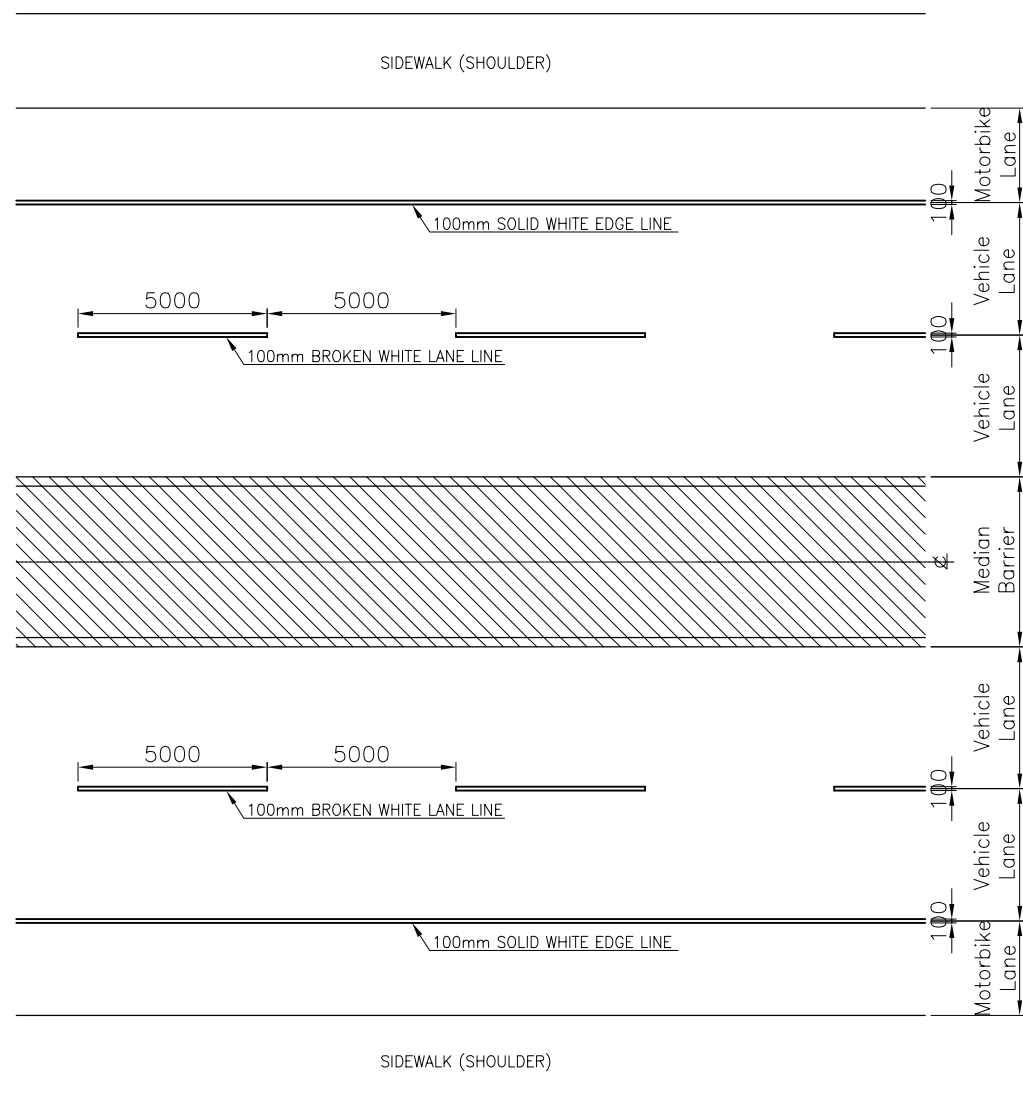
TITLE : DRAINAGE STRUCTURES (6/8)

DRAWING No: DR - 6  
SCALE: 1:50  
Rv.

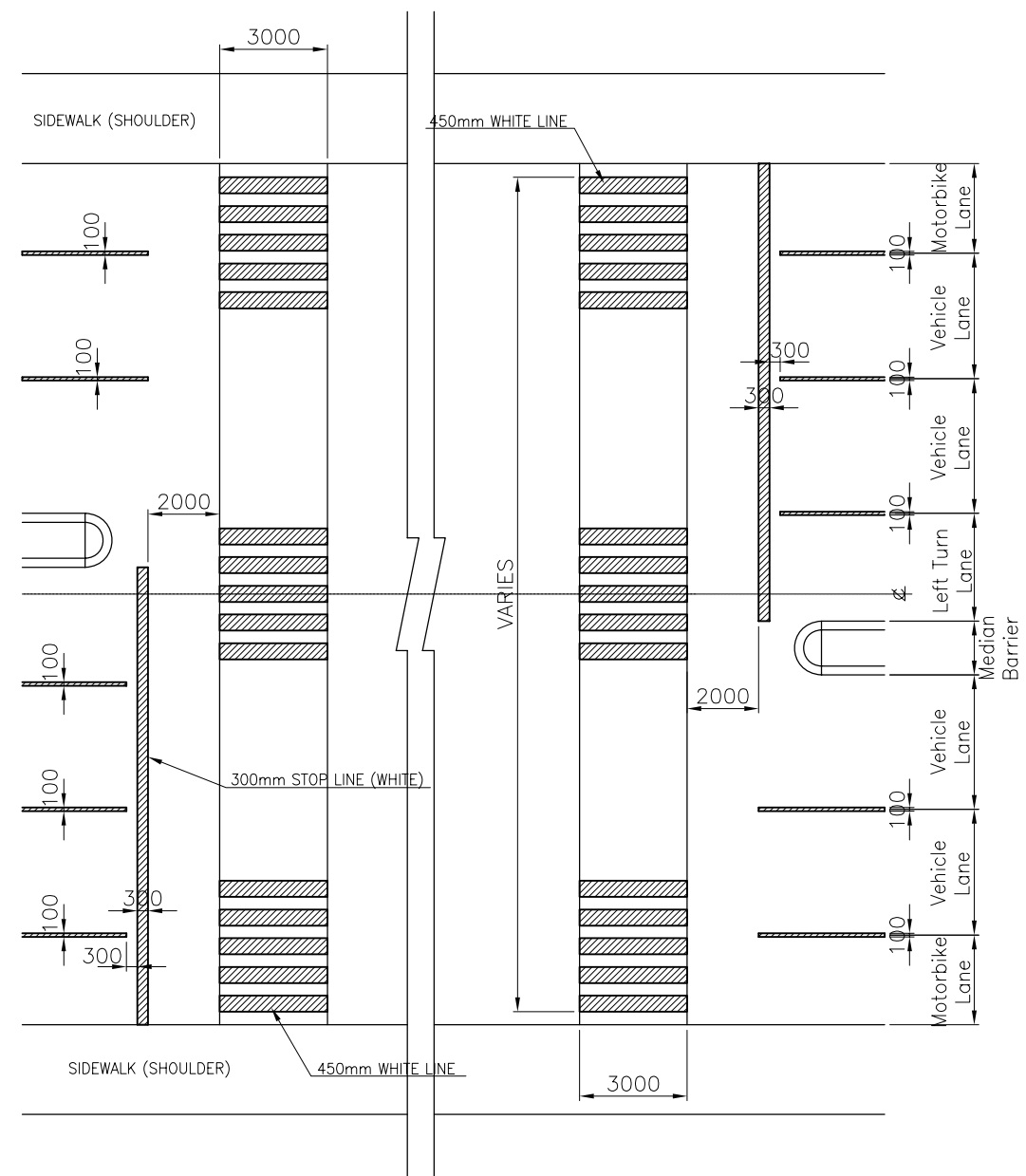








EDGE & LANE LINE MARKINGS  
 STA.0+100~1+900, 4 LANE & MOTORBIKE LANE  
 S=1/200



PEDESTRIAN CROSSING(ZEBRA TYPE) AT INTERSECTION  
 STA.0+100~1+900, 4 LANE & MOTORBIKE LANE  
 S=1/200

NOTES :

PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST CAMBODIA ROAD DESIGN GUIDE ON PAVEMENT MARKINGS.



KINGDOM OF CAMBODIA  
 MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by : \_\_\_\_\_ Date : \_\_\_\_\_



KATAHARA & ENGINEERS INTERNATIONAL

Designed by : \_\_\_\_\_ Date : \_\_\_\_\_  
 Checked by : \_\_\_\_\_ Date : \_\_\_\_\_

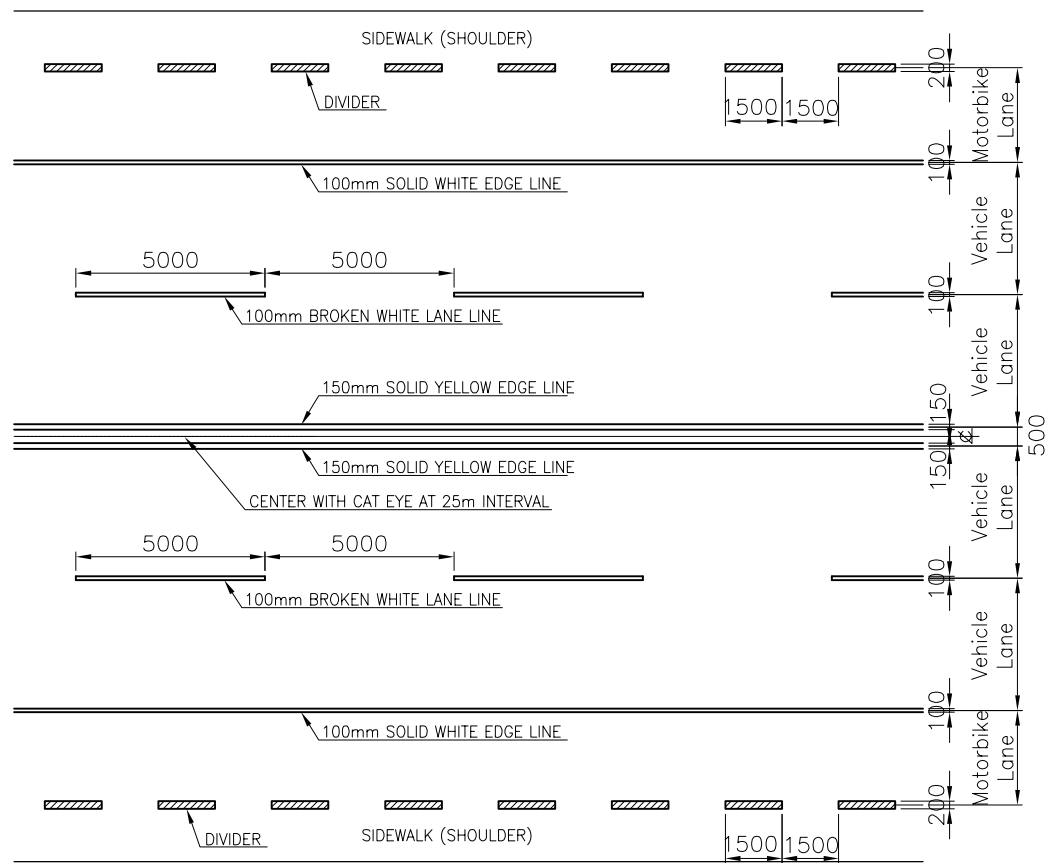
PROJECT : JAPAN GRANT AID PROJECT  
 THE PROJECT FOR THE IMPROVEMENT OF THE  
 NATIONAL ROAD NO. 1

TITLE :

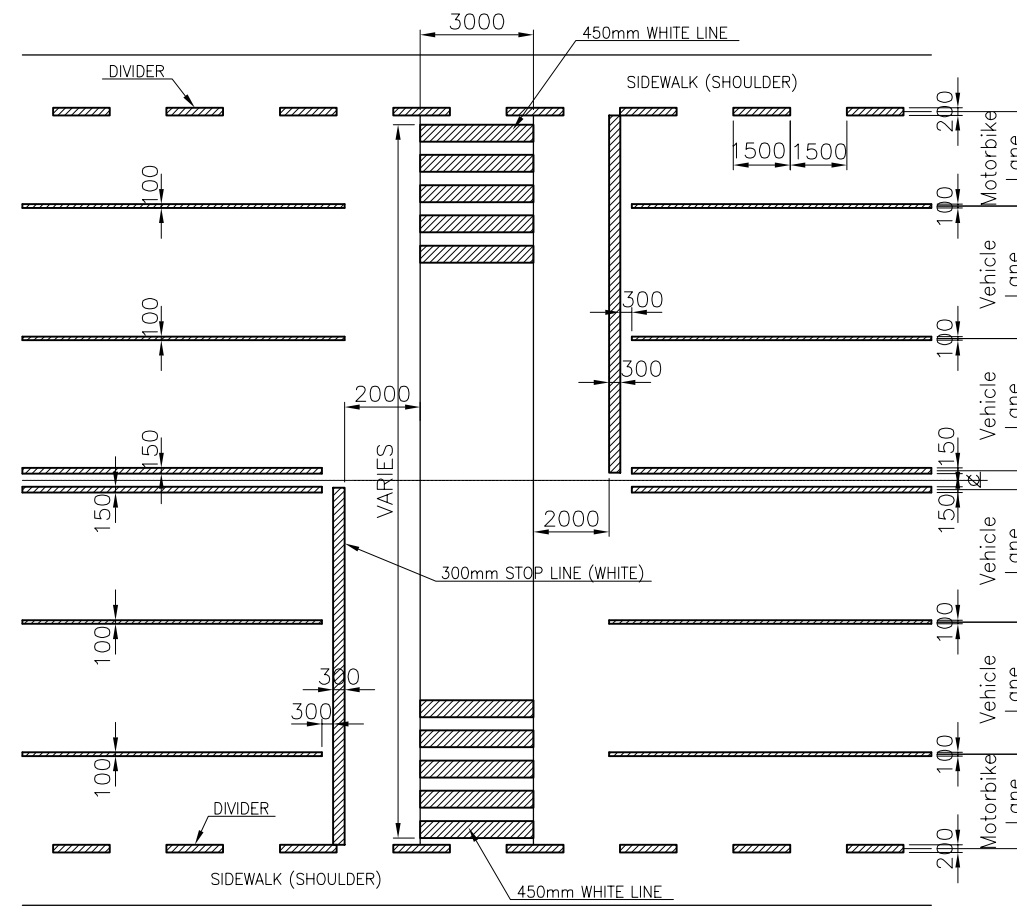
ROAD MARKING (1/3)

DRAWING No:  
 RM - 1  
 SCALE:  
 As Shown

Rv

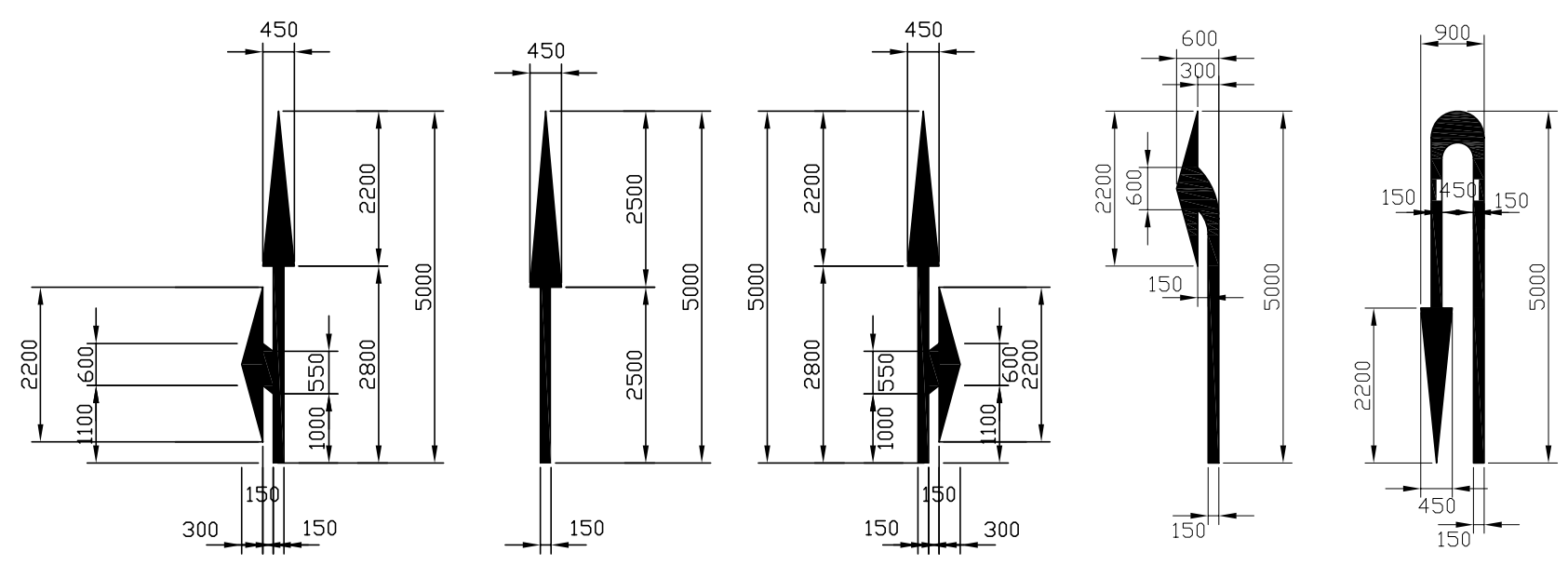
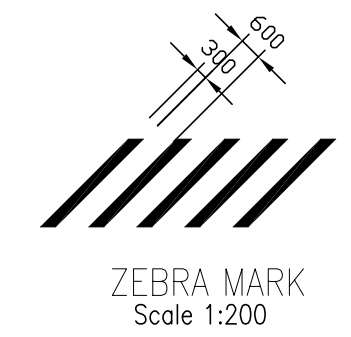
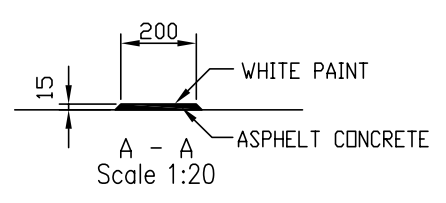
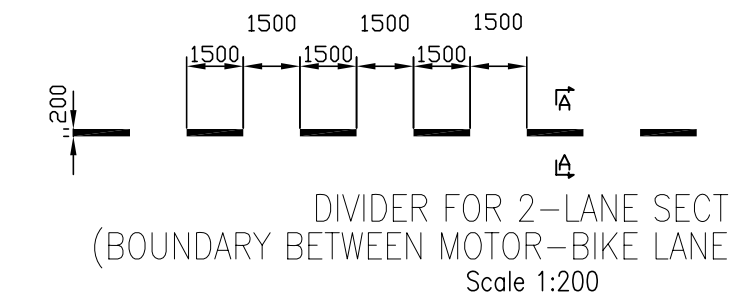
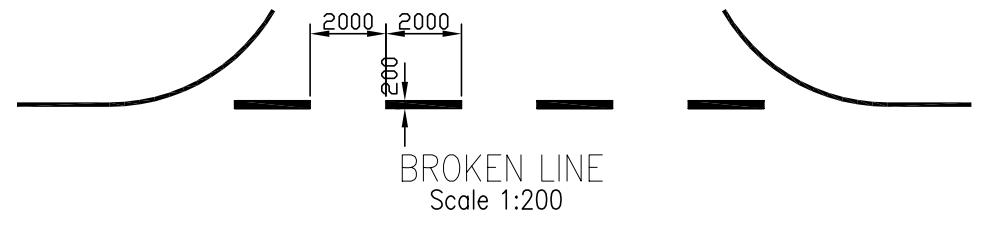
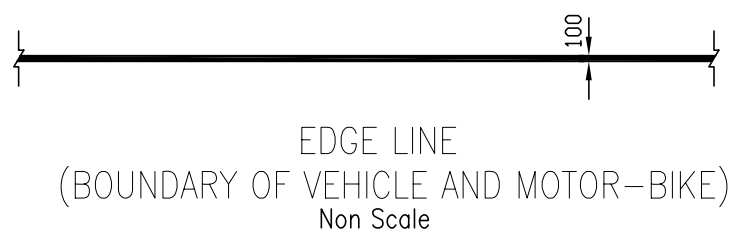
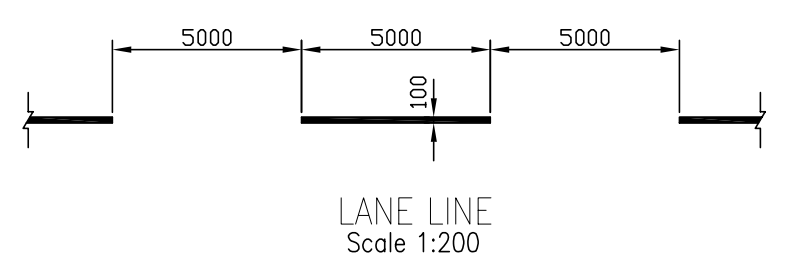
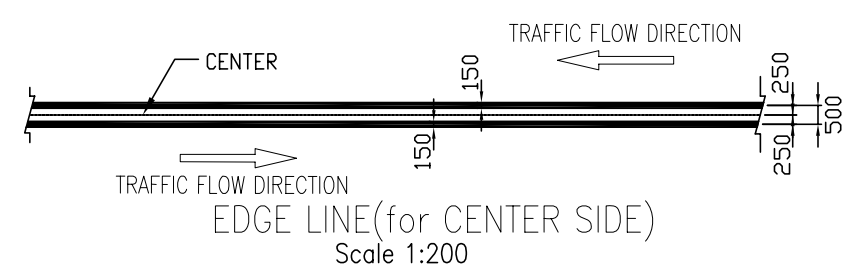


CENTER , EDGE & LANE LINE MARKINGS  
 STA.1+900~4+000, 4 LANE & MOTORBIKE LANE  
 S=1/200

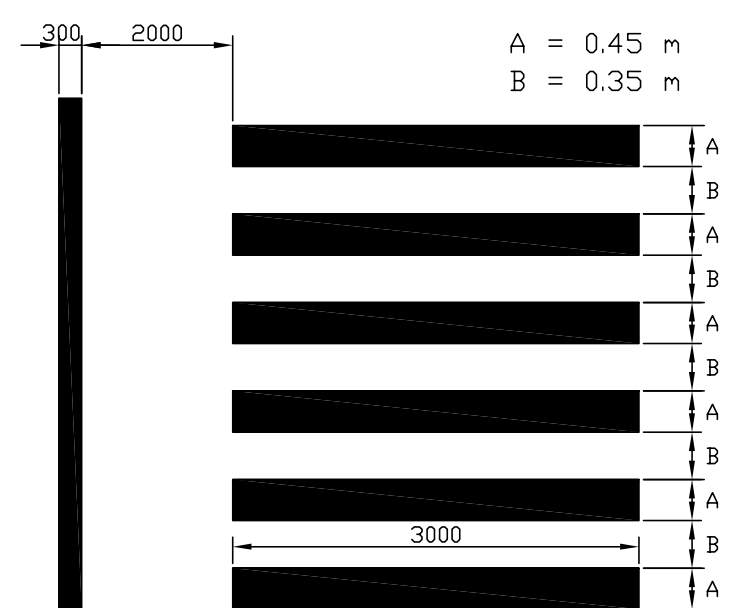


PEDESTRIAN CROSSING(ZEBRA TYPE)  
 STA.1+900~4+000, 4 LANE & MOTORBIKE LANE  
 S=1/200

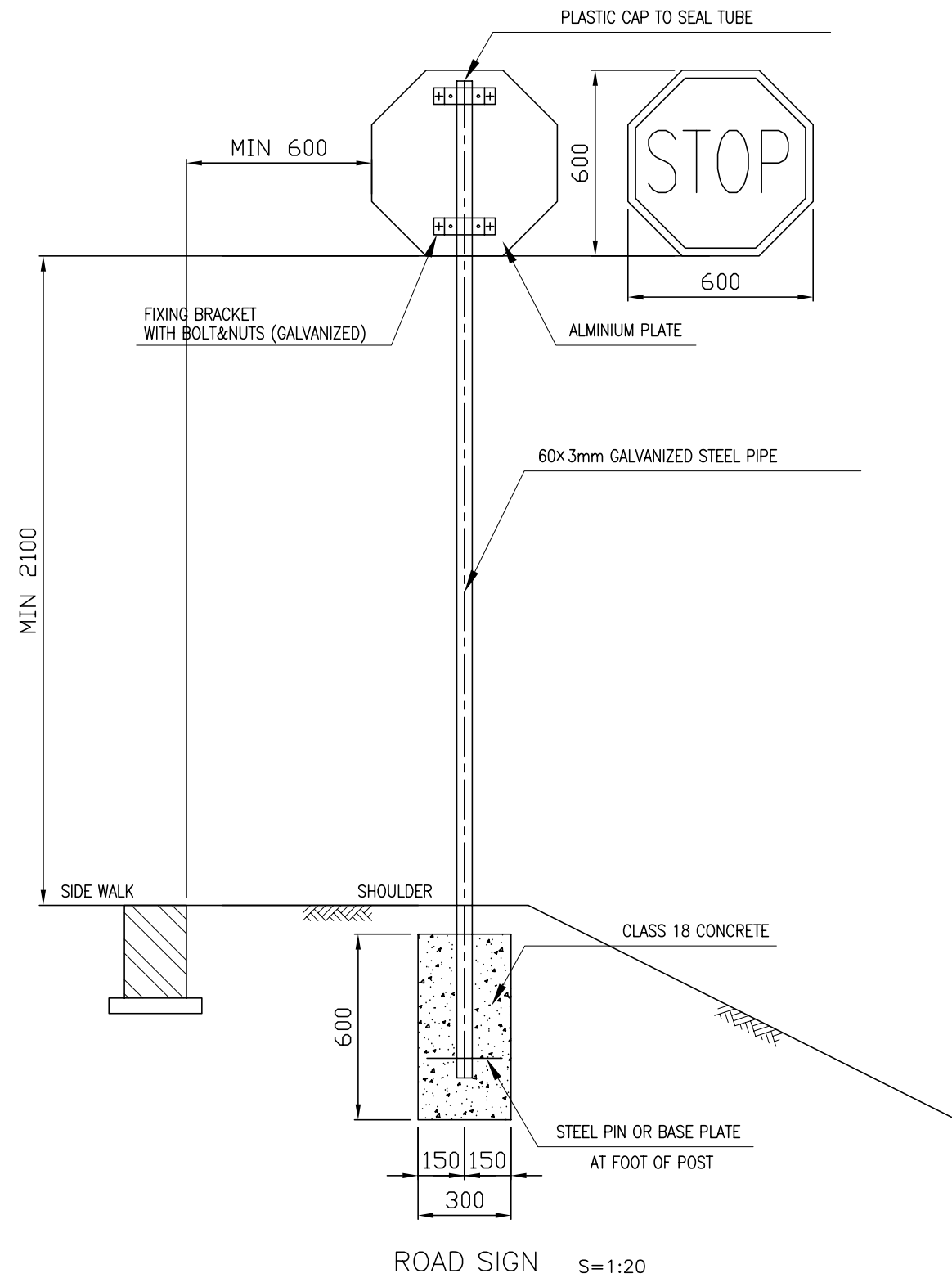
NOTES :  
 PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST CAMBODIA ROAD DESIGN GUIDE ON PAVEMENT MARKINGS.



ARROOW MARKS Scale 1:100



ROAD SIGN INSTALLATION SCHEDULE



| TYPE OF ROAD SIGN   | LOCATION OF ROAD SIGN |         |         |         |         |
|---------------------|-----------------------|---------|---------|---------|---------|
| 40 km/h Max         | 0+110-L               | 0+110-R | 0+300-L | 0+300-R | 0+490-L |
|                     | 0+490-R               | 0+690-L | 0+700-R | 0+900-L | 0+890-R |
|                     | 1+120-L               | 1+120-R | 1+300-L | 1+300-R | 1+500-L |
|                     | 1+500-R               | 1+700-L | 1+700-R | 1+900-L |         |
| 60 km/h Max         | 2+100-L               | 2+100-R | 2+310-L | 2+290-R | 2+500-L |
|                     | 2+500-R               | 2+700-L | 2+700-R | 2+900-L | 2+900-R |
|                     | 3+080-L               | 3+110-R | 3+290-L | 3+280-R | 3+500-L |
|                     | 3+500-R               | 3+700-L | 3+700-R | 3+900-L | 3+930-R |
| No Left Turn        | 0+040-L               | 0+170-L | 0+180-R | 0+240-L | 0+255-R |
|                     | 0+305-L               | 0+325-R |         |         |         |
| No Right Turn       | 0+080-L               |         |         |         |         |
| Stop                | 0+040-L               | 0+170-L | 0+180-R | 0+240-L | 0+255-R |
|                     | 0+305-L               | 0+325-R | 0+695-L | 0+800-R | 1+245-L |
|                     | 1+570-R               | 1+870-L | 2+295-L | 3+330-L | 3+730-L |
|                     | 3+925-L               | 3+925-R | 3+945-L | 4+000-R |         |
| No Entry            | 0+040-L               | 0+085-R |         |         |         |
| Bus Stop Ahead      | 0+620-R               | 0+760-L | 1+090-L | 1+150-R | 1+450-R |
|                     | 1+505-L               | 2+300-R | 2+310-L | 3+330-L | 3+340-L |
|                     | 3+800-R               | 3+860-L |         |         |         |
| Intersection Ahead  | 0+630-R               | 0+735-R | 0+760-L | 0+860-L | 1+160-R |
|                     | 1+315-L               | 1+500-R | 1+640-L | 1+810-R | 2+270-R |
|                     | 2+330-L               | 3+300-R | 3+360-L | 3+700-R | 3+800-L |
|                     | 3+880-R               | 3+980-L |         |         |         |
| Crosswalk Ahead     | 1+500-R               | 1+600-L | 3+050-R | 3+130-L | 3+870-R |
|                     | 3+960-L               |         |         |         |         |
| Road Width Narrower | 3+800-R               |         |         |         |         |
| Road Width Wider    | 4+000-L               |         |         |         |         |



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by : \_\_\_\_\_ Date : \_\_\_\_\_



KATAHIRA & ENGINEERS INTERNATIONAL

Designed by : \_\_\_\_\_ Date : \_\_\_\_\_  
Checked by : \_\_\_\_\_ Date : \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

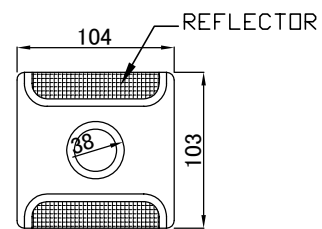
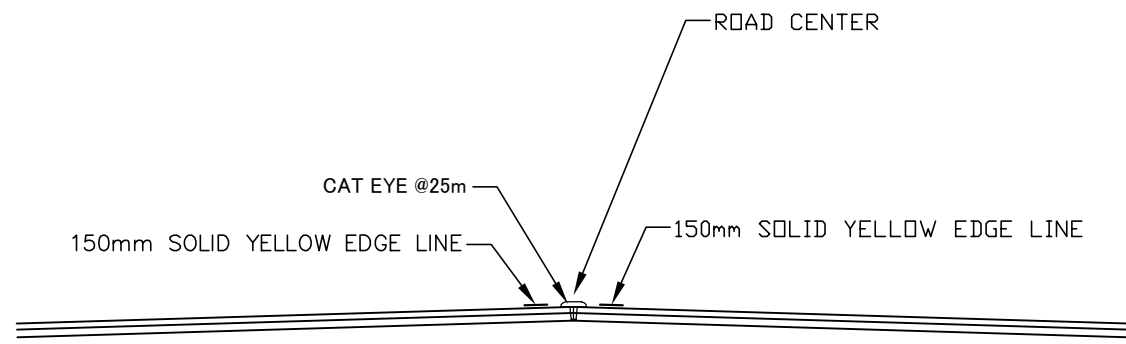
TITLE :

ROAD SIGN DETAIL

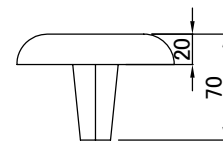
DRAWING No:  
RS - 1

SCALE:  
1:20

Rv

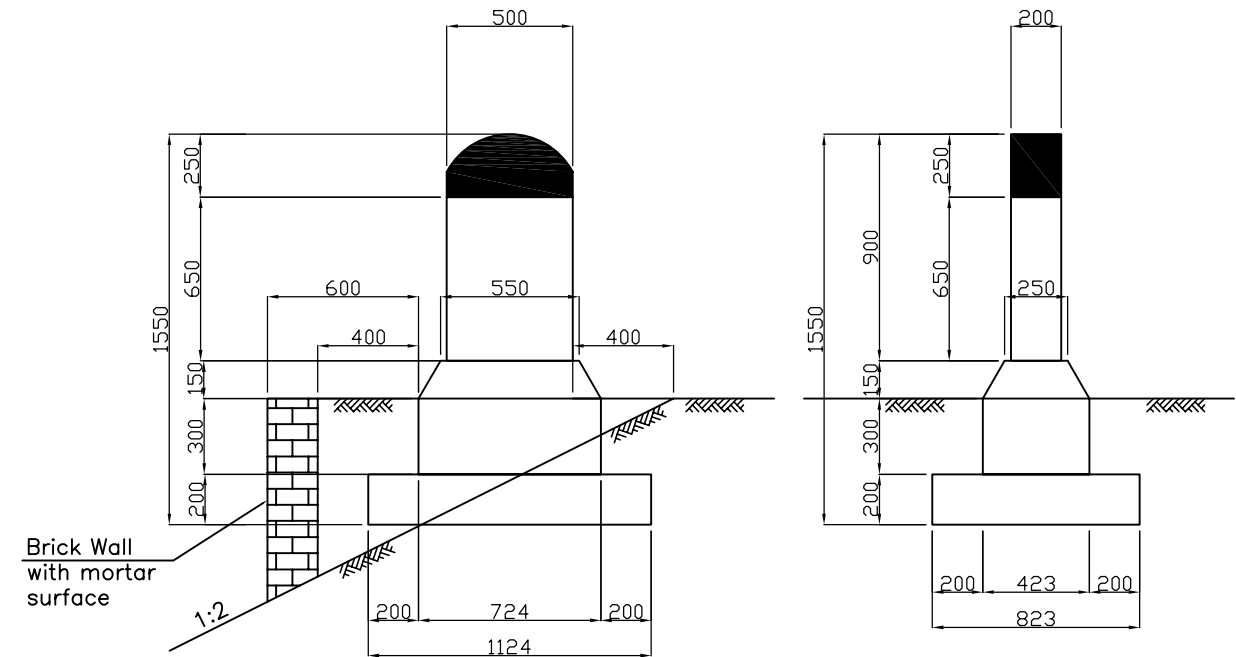


PLAN

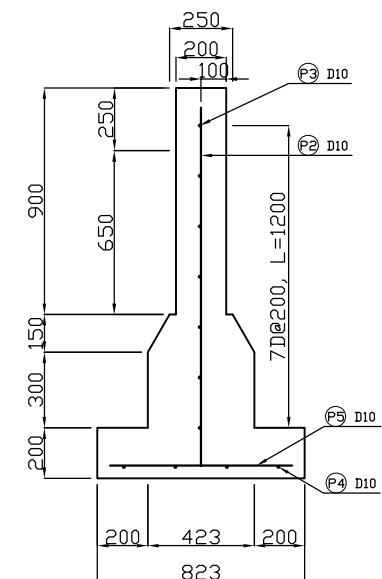
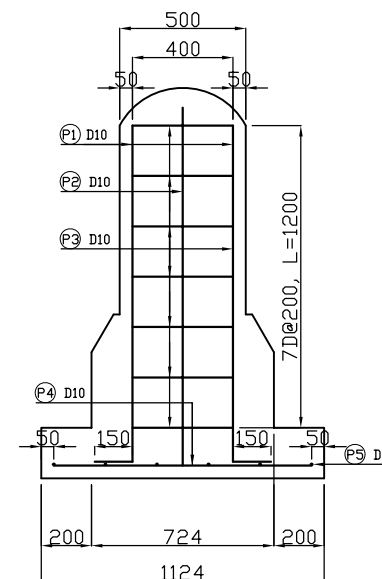


ELEVATION

CAT EYE DETAIL S=1:5



KILOMETER POST S=1:30  
(To be installed at every 1km interval)



| MARK           | DIA-METER | LENGTH (mm) | NO. | WEIGHT/m (kg/m) | WEIGHT/ONE (kg) | WEIGHT    | REMARKS |
|----------------|-----------|-------------|-----|-----------------|-----------------|-----------|---------|
| P <sub>1</sub> | D10       | 1502        | 2   | 0.616           | 0.925           | 1.850     | ┌       |
| 2              | ''        | 1595        | 1   | ''              | 0.983           | 0.983     | ┌       |
| 3              | ''        | 400         | 7   | ''              | 0.246           | 1.722     | —       |
| 4              | ''        | 723         | 4   | ''              | 0.445           | 1.780     | —       |
| 5              | ''        | 1025        | 6   | ''              | 0.631           | 3.786     | —       |
|                |           |             |     |                 |                 | 10.121 kg |         |



KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

Approved by : \_\_\_\_\_ Date : \_\_\_\_\_



KATAHIRA & ENGINEERS INTERNATIONAL

Designed by : \_\_\_\_\_ Date : \_\_\_\_\_  
Checked by : \_\_\_\_\_ Date : \_\_\_\_\_

PROJECT : JAPAN GRANT AID PROJECT  
THE PROJECT FOR THE IMPROVEMENT OF THE  
NATIONAL ROAD NO. 1

TITLE :

KILOMETER POST AND  
CAT EYE DETAIL

DRAWING No:  
KC - 1

SCALE:  
AS SHOWN

Rv