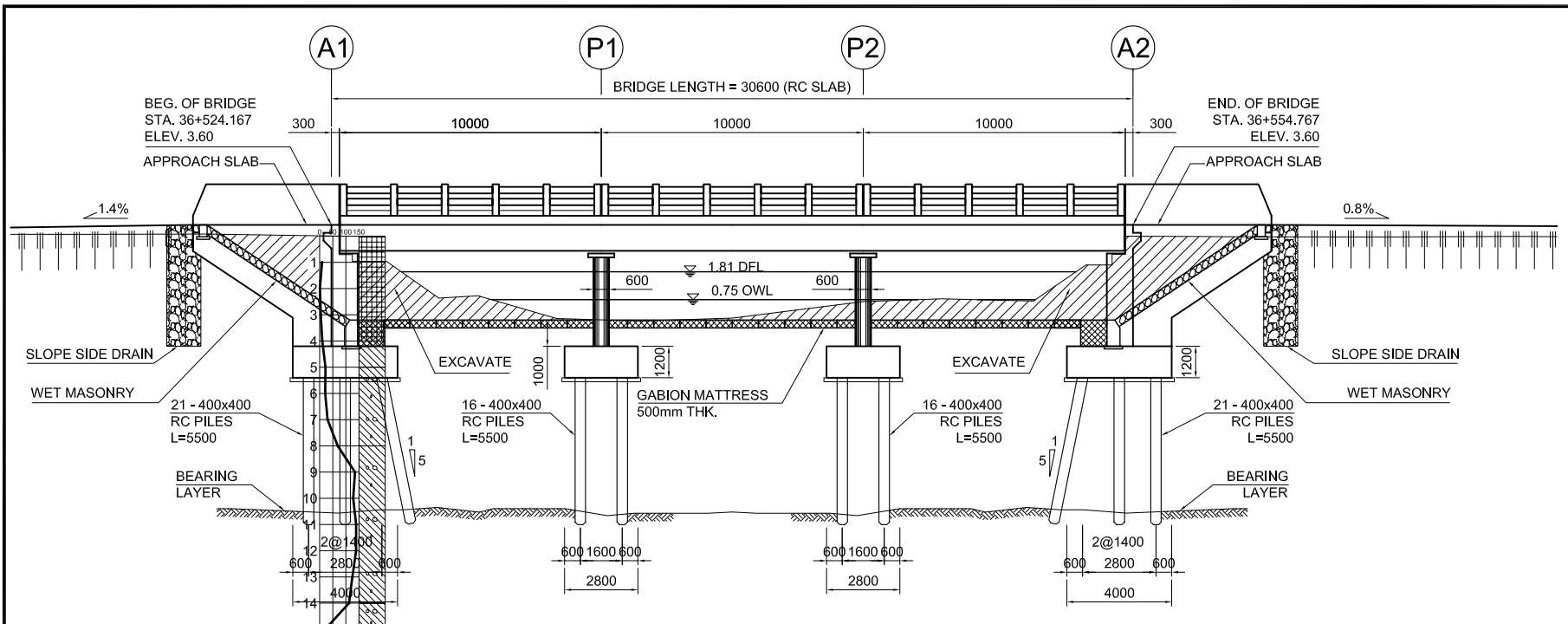
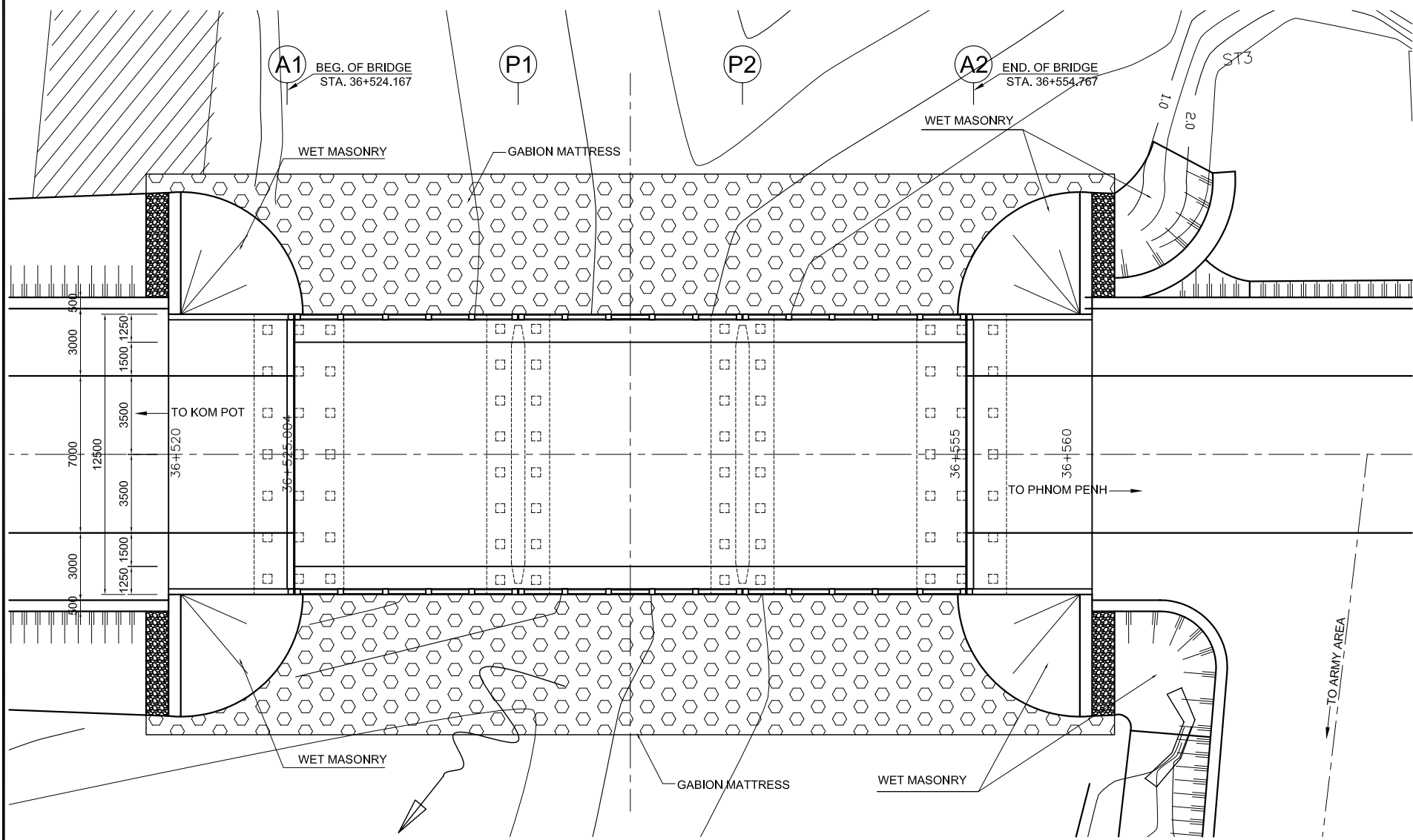


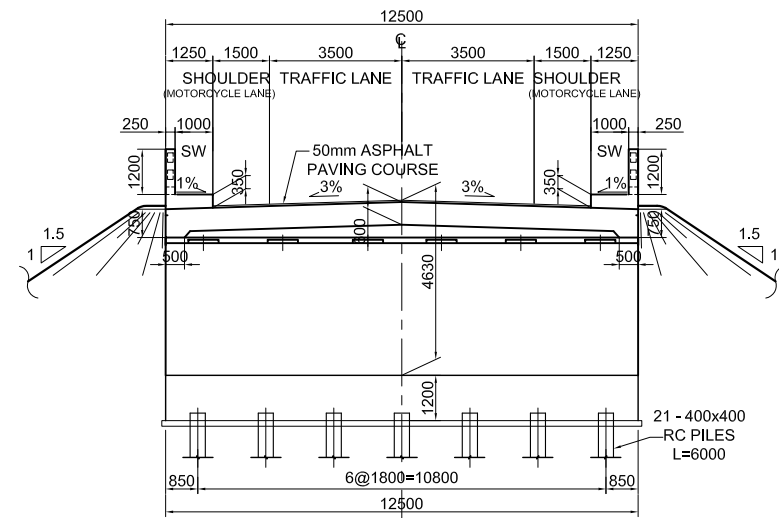
PROPOSED HEIGHT	2.942	3.079	3.252	3.425	3.571	3.600	3.600	3.600	3.596	3.566	3.531	3.496	3.470
EXISTING HEIGHT	2.685	2.637	2.742	2.899	3.076	2.986	0.416	3.106	3.110	2.990	3.336	3.323	
STATION	36+424	36+440	36+460	36+480	36+500	36+520	36+540	36+560	36+580	36+600	36+620	36+640	36+655



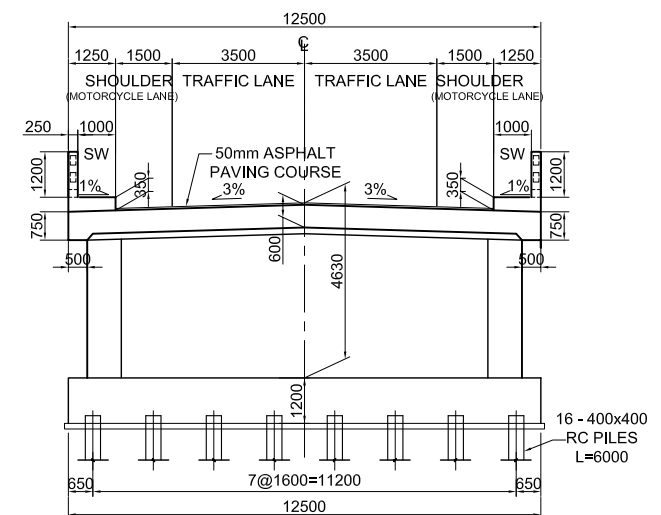
**1 BRIDGE ELEVATION**  
SCALE: 1:250



**2 PLAN VIEW**  
SCALE: 1:250



**3 ABUTMENT SECTION**  
SCALE: 1:200



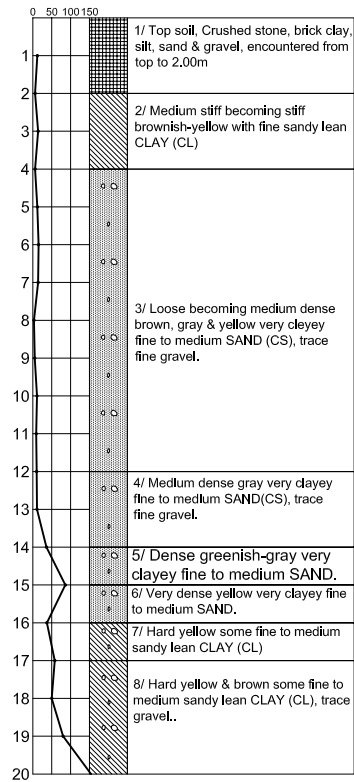
**4 WALL PIER SECTION**  
SCALE: 1:200

**GENERAL NOTES:**

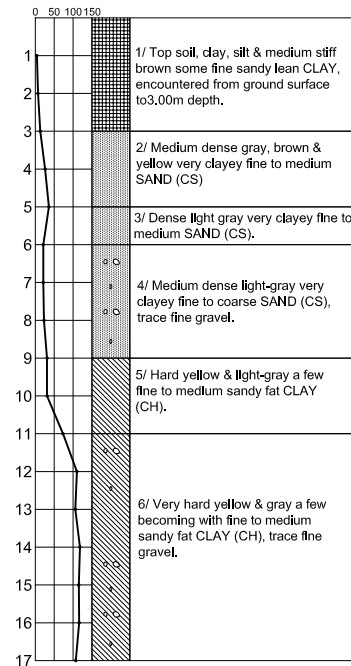
- BASIC DESIGN SPECIFICATION : "CAMBODIAN BRIDGE DESIGN STANDARD (CBDS), CAM PW. 04.102.99, MPWT, 2003".
- MATERIALS
  - CONCRETE STRENGTHS SHALL BE :
 

TYPE	MEMBER	28 <sup>TH</sup> DAY COMPRESSIVE STRENGTH (MPa)
1. REINFORCED CONCRETE	DECK SLAB, RAILINGS, SIDEWALK, RC GIRDERS, DIAPHRAGMS, COPING BEAMS, PIER COLUMNS, FOOTING, PILE CAP, RC DRIVEN PILES, RC CAST-IN-PLACE PILES, ABUTMENT	32
2. PRESTRESSED CONCRETE	PRESTRESSED CONCRETE BEAMS (AASHTO TYPE)	42
3. LEAN CONCRETE	LEAN CONCRETE BELOW FOOTING	18
  - REINFORCING STEEL  
YIELD STRENGTH FOR REINFORCING BARS (ASTM A615) SHALL BE:  
PLAIN,  $F_y = 250\text{MPa}$   
DEFORMED,  $F_y = 400\text{MPa}$
  - PRESTRESSING STEEL SHALL BE 7-WIRE ASTM A416  $f_p = 1860\text{MPa}$ .
  - BRIDGE BEARING SHALL BE ELASTOMERIC TYPE WITH HARDNESS OF DURO 60.
- SLOPE PROTECTION FOR BRIDGE SHALL BE WET MASONRY TYPE WITH BOULDER SIZE GREATER THAN 200MM.
- THE RIVER SECTION (WATERWAY) SHALL BE CLEARED OF ALL OBSTRUCTION INCLUDING EXISTING OLD BRIDGE STRUCTURES. EXISTING BRIDGE AND OTHER STRUCTURES SHALL BE DEMOLISHED AND REMOVED FROM THE RIVER WATERWAY.

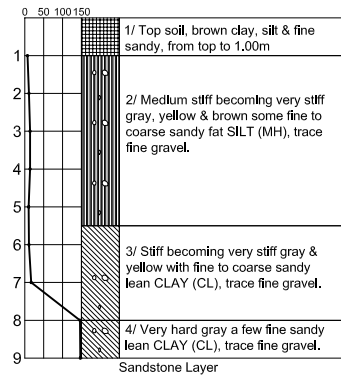
Borehole No. 1  
Road No. NR-3  
Station 25+927  
Borehole Elevation 14.440



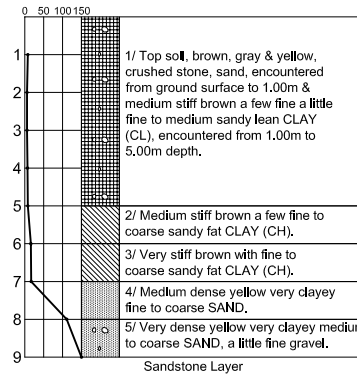
Borehole No. 2  
Road No. NR-3  
Station 105+985  
Borehole Elevation 26.450



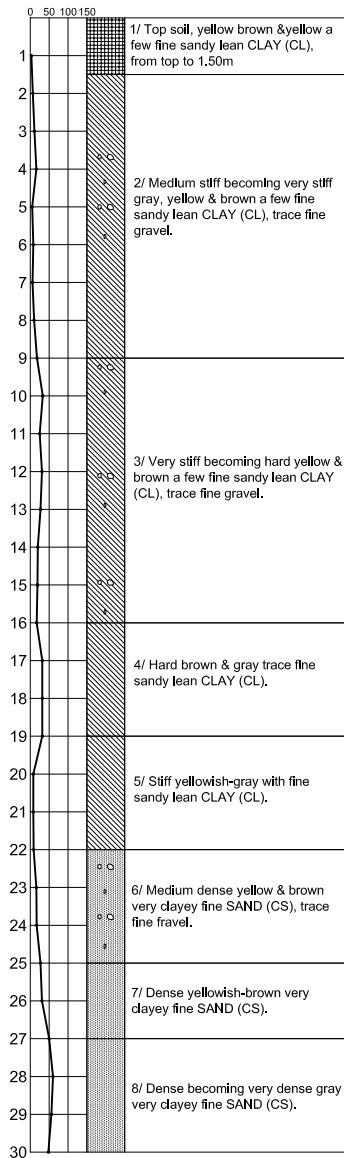
Borehole No. 3A  
Road No. NR-7  
Station 277+200  
Borehole Elevation 56.500



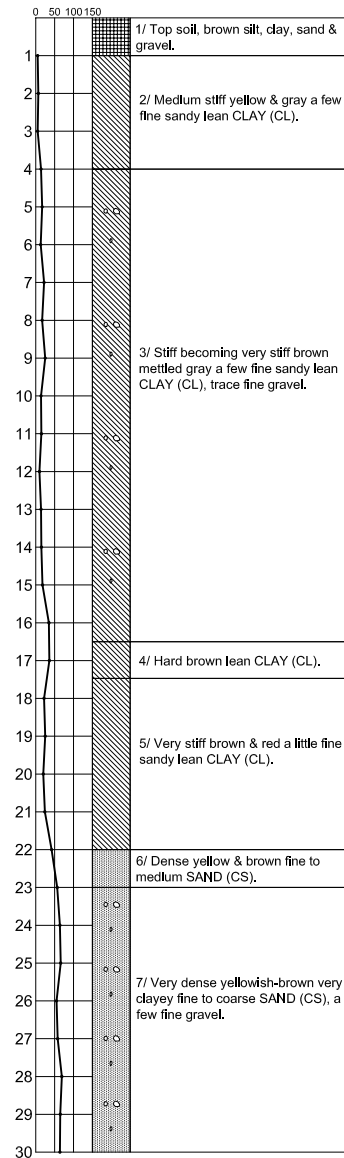
Borehole No. 3B  
Road No. NR-7  
Station 277+200  
Borehole Elevation 61.999



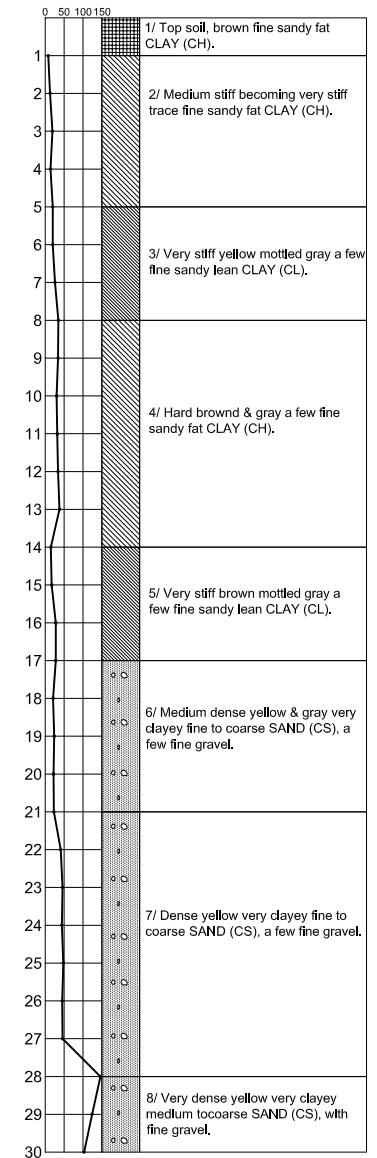
Borehole No. 4  
Road No. NR-11  
Station 84+900  
Borehole Elevation 4.416



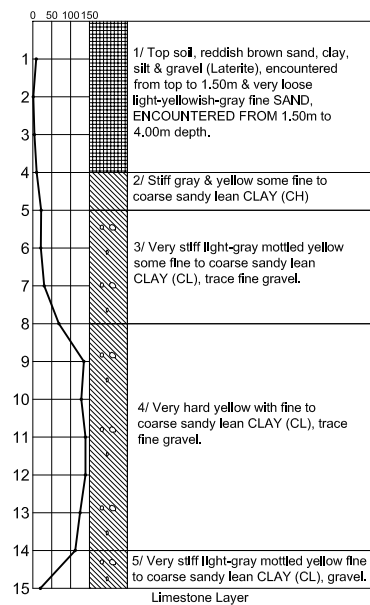
Borehole No. 5  
Road No. NR-11  
Station 88+094  
Borehole Elevation 4.551

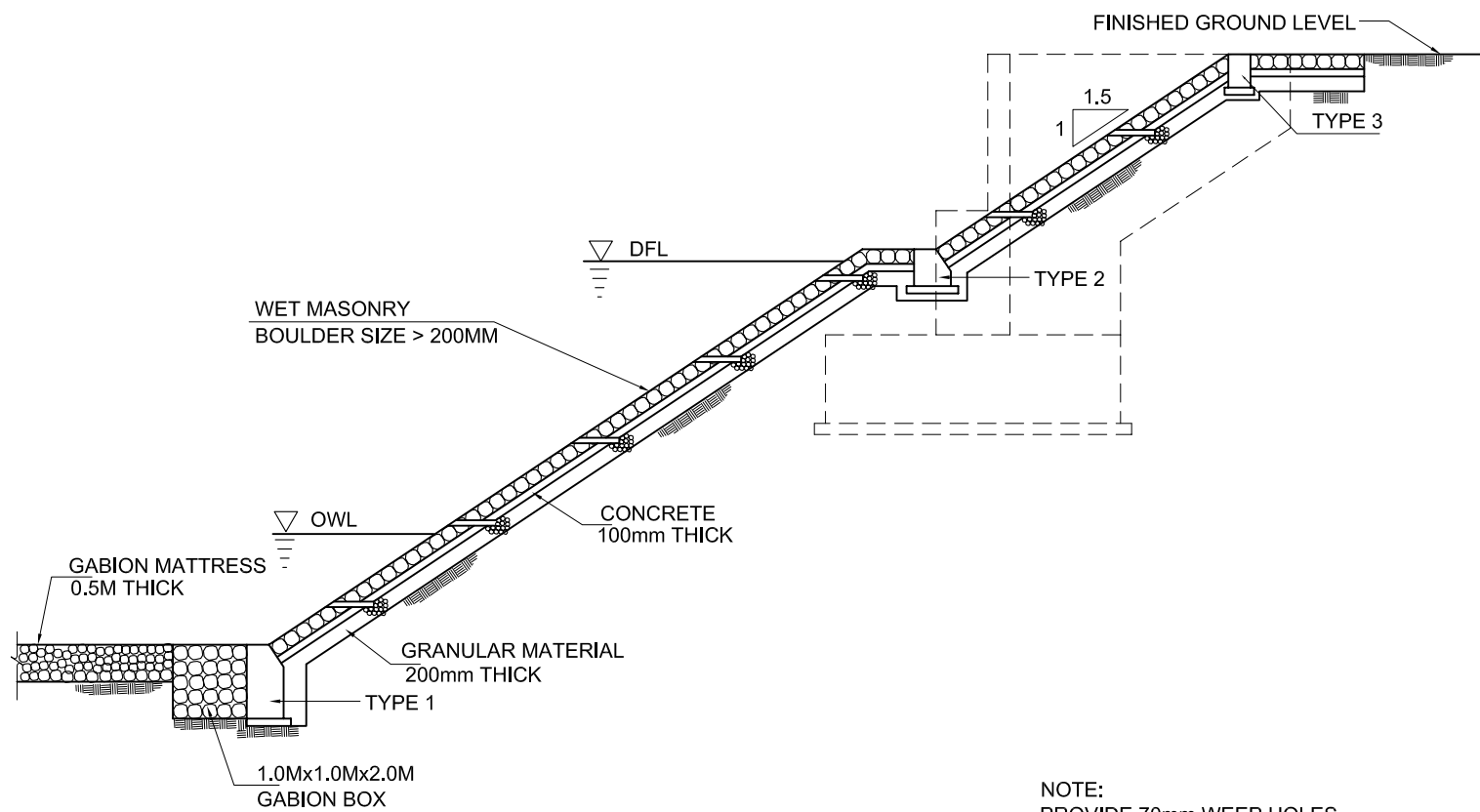


Borehole No. 7  
Road No. NR-11  
Station 103+475  
Borehole Elevation 6.188



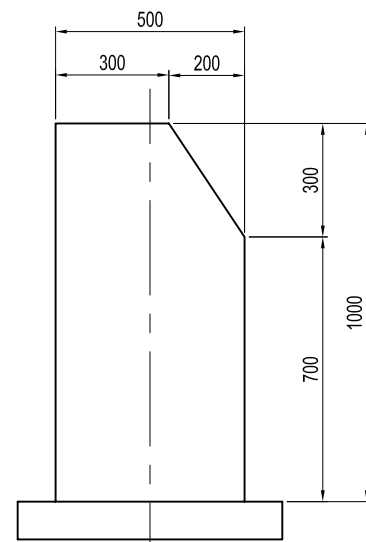
Borehole No. 8  
Road No. NR-33  
Station 36+540  
Borehole Elevation 3.085



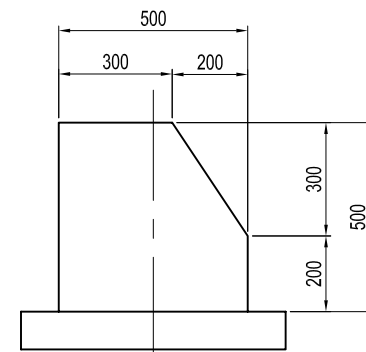


1 SECTION  
SCALE: 1:100

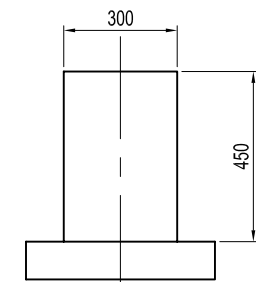
NOTE:  
PROVIDE 70mm WEEP HOLES  
SPACED @ 2.0M WITH 20mm GRAVEL  
BAGGED IN NON-WOVEN POLYESTER CLOTH



TYPE 1



TYPE 2



TYPE 3

2 DETAILS  
SCALE: 1:20

A WET MASONRY SLOPE PROTECTION



MINISTRY OF PUBLIC WORKS AND TRANSPORT  
Cnr Norodom Blvd & St 106, Phnom Penh, Kingdom Cambodia  
Tel : (855) 23 426099 - Fax : (855) 23 426098

THE STUDY ON THE ROAD NETWORK  
DEVELOPMENT IN THE KINGDOM OF CAMBODIA  
PRE-FEASIBILITY STUDY ON  
URGENT BRIDGE REHABILITATION

JAPAN INTERNATIONAL COOPERATION AGENCY  
NIPPON KOEI CO., LTD. &  
KATAHIRA & ENGINEERS INTERNATIONAL

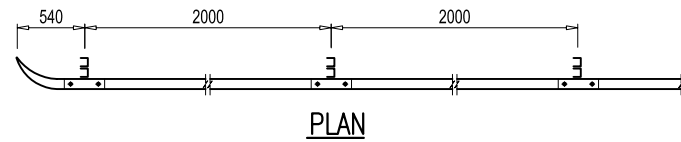
TITLE :

BRIDGE SLOPE PROTECTION

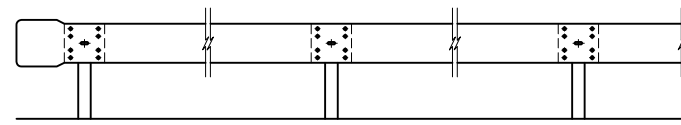
SCALE  
AS SHOWN

DRAWING No :  
B-22

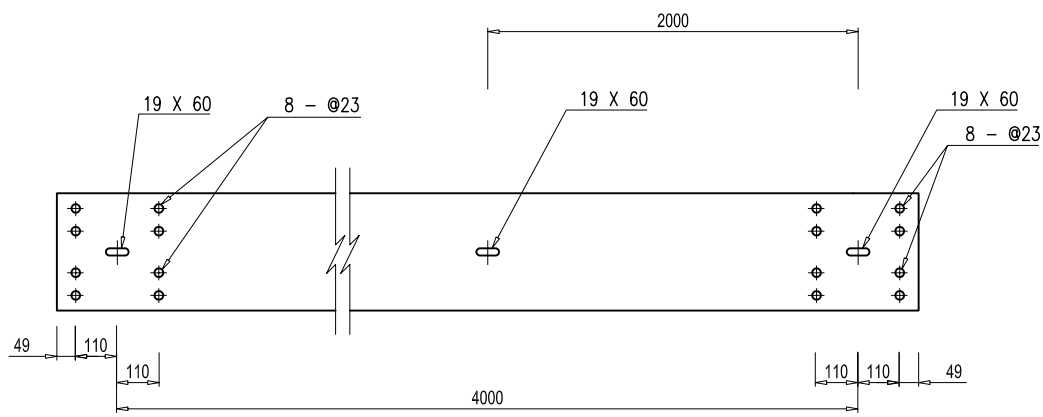




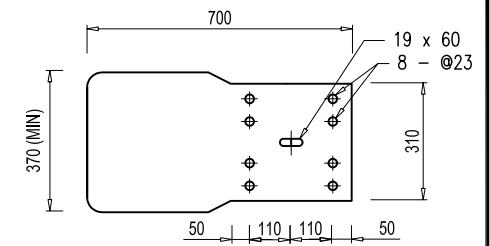
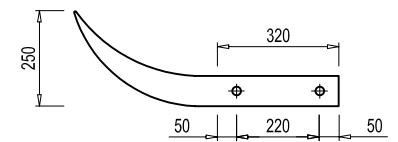
**PLAN**



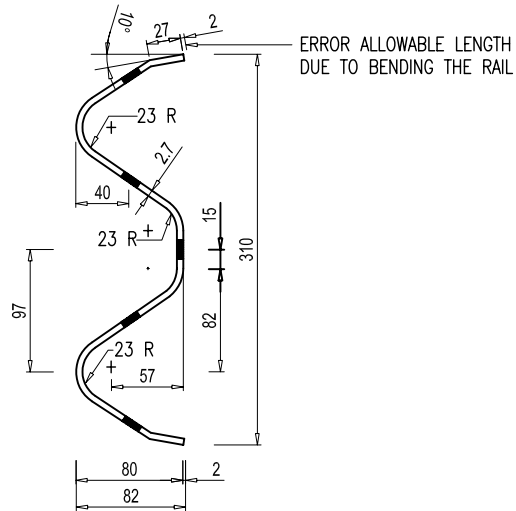
**ELEVATION  
GUARDRAIL**  
SCALE 1:60



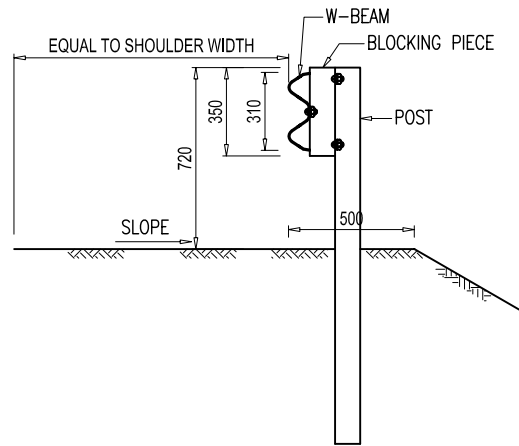
**PLAN**  
SCALE 1:10



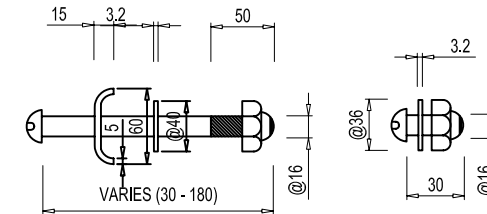
**TERMINAL SECTION**  
SCALE 1:20



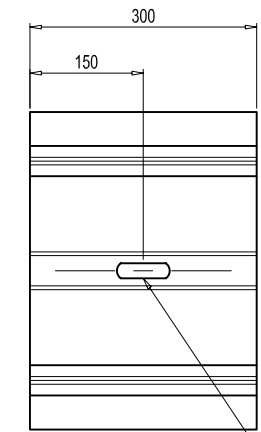
**W-BEAM**  
SCALE 1:6



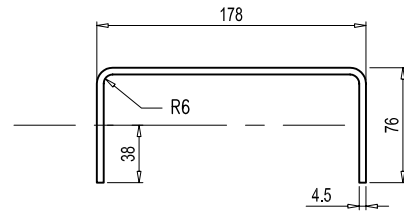
**GUARDRAIL POST**



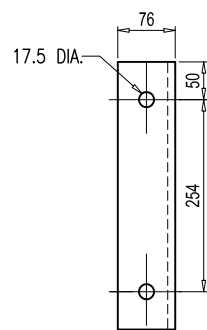
**BOLT & NUT**  
SCALE 1:6



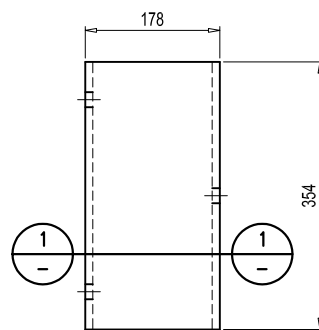
**STIFFENER PLATE**  
SCALE 1:10



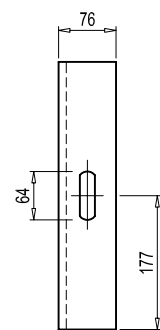
**SECTION 1**  
SCALE 1:5



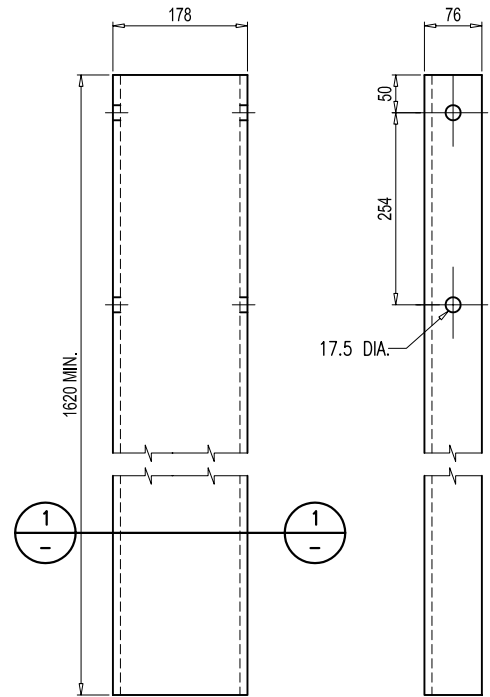
**ELEVATION**



**END ELEVATION  
INTERMEDIATE POST**  
SCALE 1:10



**ELEVATION**

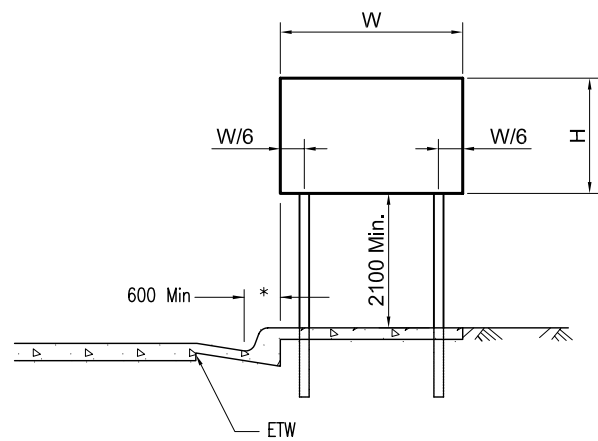


**END ELEVATION  
INTERMEDIATE POST**  
SCALE 1:10

**NOTES:**

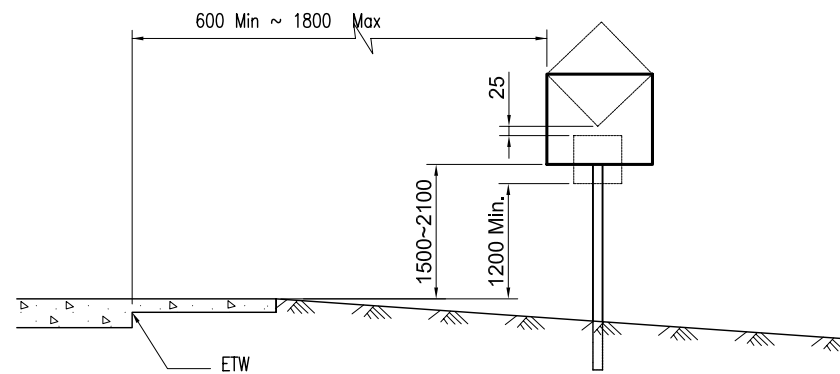
- 1 ALL DIMENSIONS ARE IN MILLIMETRES.
- 2 W-BEAMS SHALL BE MANUFACTURED FROM STEEL PANEL PLATE 2.7 MM THICK TO AS 3678. STANDARD PANEL LENGTHS ARE TO BE 4318 MM.
- 3 POSTS AND BLOCKING PIECES ARE TO BE MANUFACTURED FROM STEEL CHANNEL TO AS 3679.
- 4 TERMINAL SECTIONS AND STIFFENER PLATES TO BE MANUFACTURED FROM STEEL PANEL PLATE 2.7 MM THICK TO AS 3678.
- 5 BOLTS SHALL CONFORM TO REQUIREMENTS OF AS 1111.
- 6 NUTS SHALL CONFORM TO REQUIREMENTS OF AS 1112.
- 7 ALL STEELWORK IS TO BE HOT DIPPED GALVANISED AFTER FABRICATION TO AS 1650.
- 8 POSTS ARE TO BE INSTALLED EITHER BY PRE-BORING HOLE AND PLACING POST IN 20 MPa CONCRETE OR BY DRIVING POST INTO GROUND USING DROP HAMMER OF A TYPE APPROVED BY THE ENGINEER.





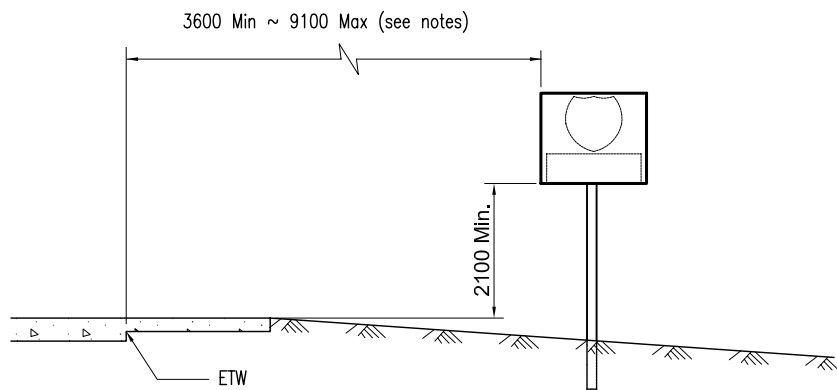
\* 200 to 600 Min. where lateral clearance limited

URBAN LOCATIONS

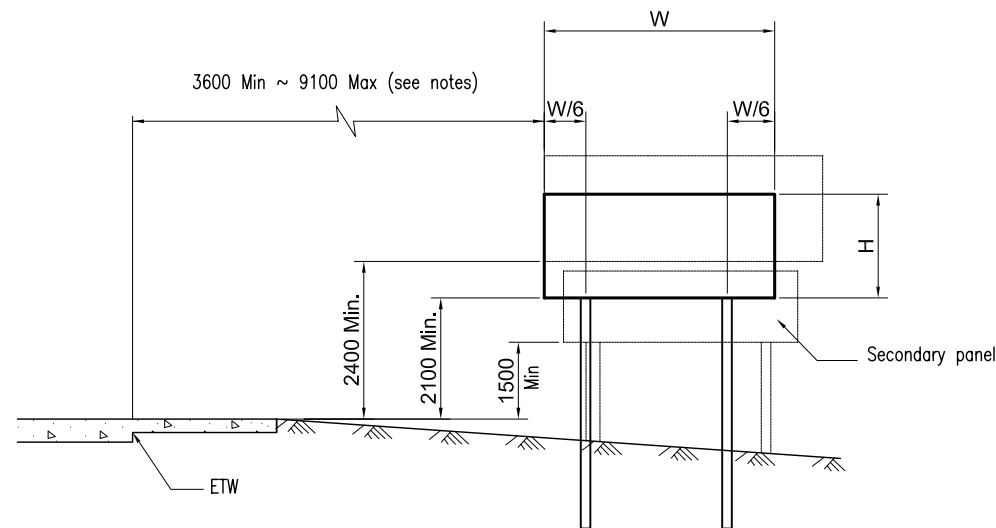


RURAL LOCATIONS

CONVENTIONAL HIGHWAYS AND INTERCHANGE AREAS

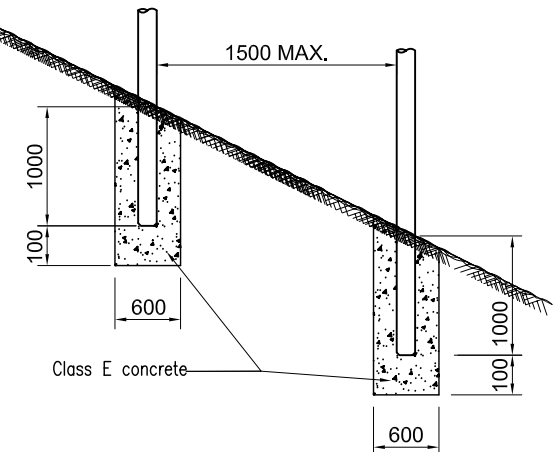
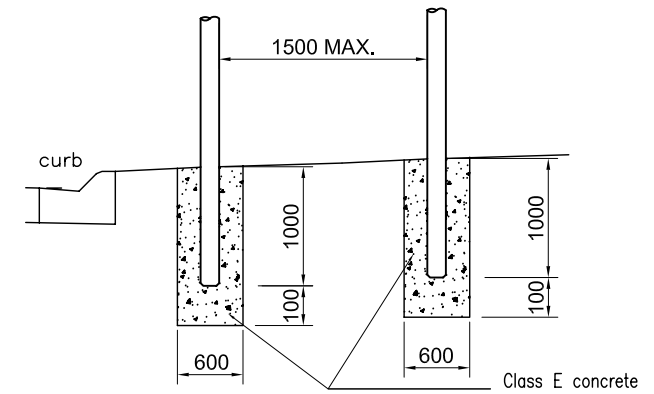


REGULATORY AND WARNING SIGNS  
AND ROUTE SHIELDS

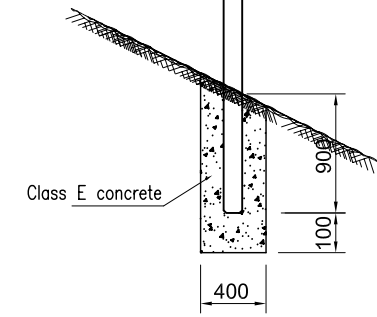
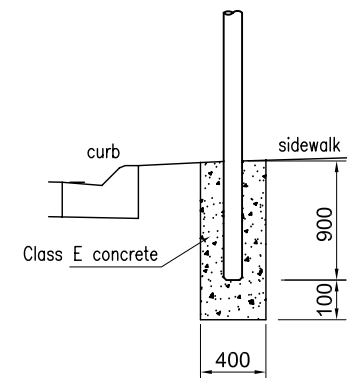


GUIDE SIGNS

FREEWAY AND EXPRESSWAY LOCATIONS



DIRECTION SIGN INSTALLATION DETAIL



SIGN POST INSTALLATION DETAIL

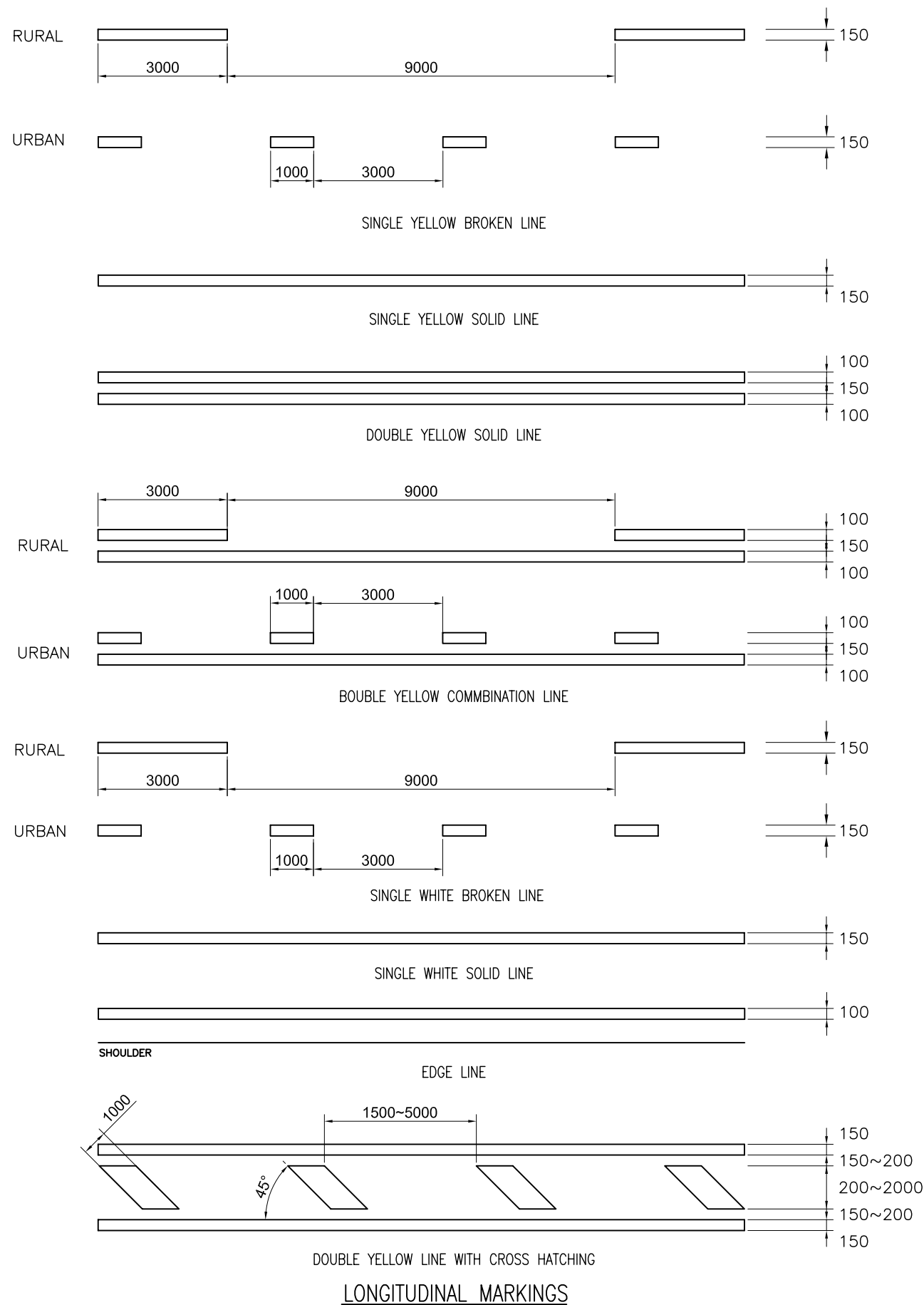
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
  2. WHEN CLEAR ROADSIDE RECOVERY AREAS ARE PROVIDED, SIGNS SHALL BE PLACED AS FAR FROM THE EDGE OF TRAVELED WAY AS POSSIBLE, UP TO A MAXIMUM OF 9.1M. WHEN POSSIBLE THEY SHALL BE PLACED IN PROTECTED LOCATIONS.
  2. SIGNS IN MEDIANS SHALL BE PLACED AT MIDPOINT OF MEDIAN UP TO A MAXIMUM DISTANCE OF 9.1M FROM EDGE OF TRAVELED WAY. WHEN APPROPRIATE, SIGNS FOR OPPOSING DIRECTIONS SHALL BE PLACED BACK TO BACK.
- ETW = EDGE OF TRAVELED WAY

FOR DETAILS OF SIGN FACES PLEASE REFER TO:  
"ROAD SIGNS SPECIFICATIONS"  
PUBLIC WORKS STANDARD PW 03-300-2003"  
REVISED BY THE MINISTRY OF PUBLIC WORKS AND TRANSPORT  
IN MARCH 2003

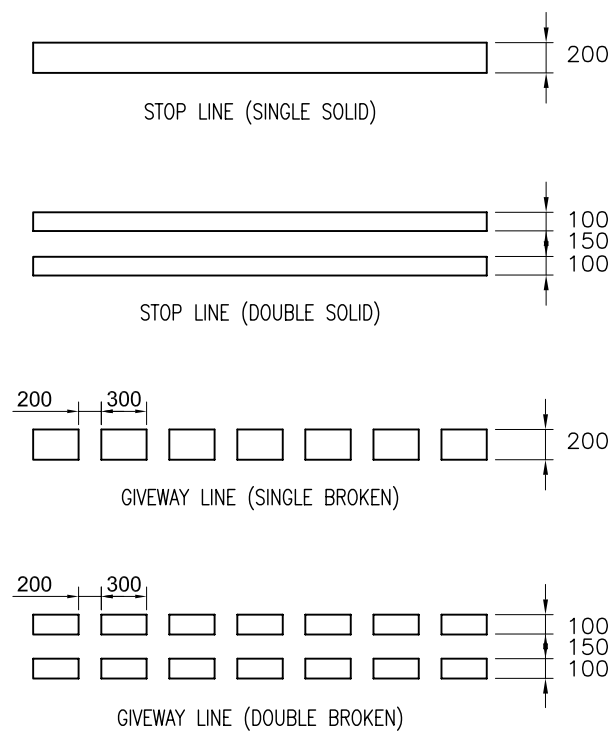
SIGN SIZES					
URBAN	850	1000 x 865	850	700 x 700	700 x 700
RURAL	1050	1250 x 1080	1050	900 x 900	900 x 900





**ROAD STUD INSTALLATION**

TYPE OF LINE	COLOUR OF REFLECTOR	SPACING OF ROAD STUD (M)		LOCATION
		RURAL	URBAN	
CENTRE LINE SINGLE BROKEN LINE	YELLOW	24.00	12.00	BETWEEN BROKEN LINE
SINGLE SOLID LINE	YELLOW	12.00	4.00	ON SOLID LINE
DOUBLE SOLID LINE	YELLOW	12.00	4.00	BETWEEN DOUBLE SOLID LINES
LANE LINE BROKEN LINE	YELLOW	24.00	12.00	BETWEEN BROKEN LINE
SINGLE LINE	YELLOW	24.00	12.00	ON SOLID LINE



**NOTES**

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. ALL ROAD STUDS TO BE REFLECTING TYPE.

