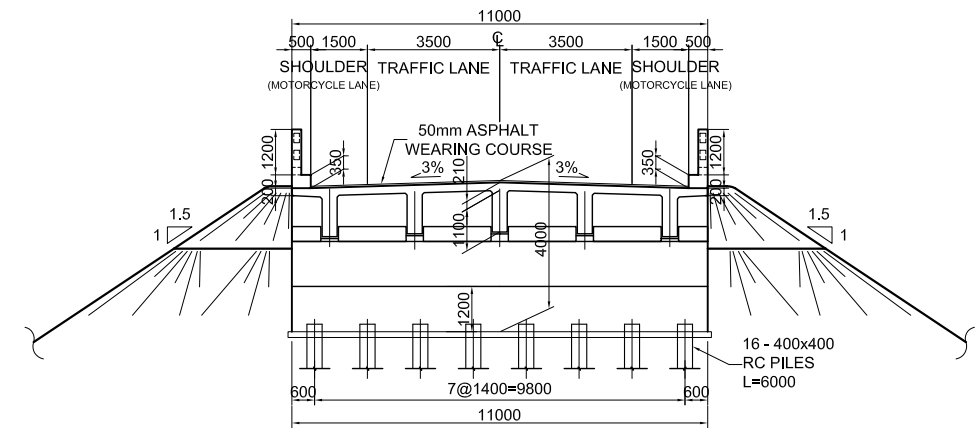
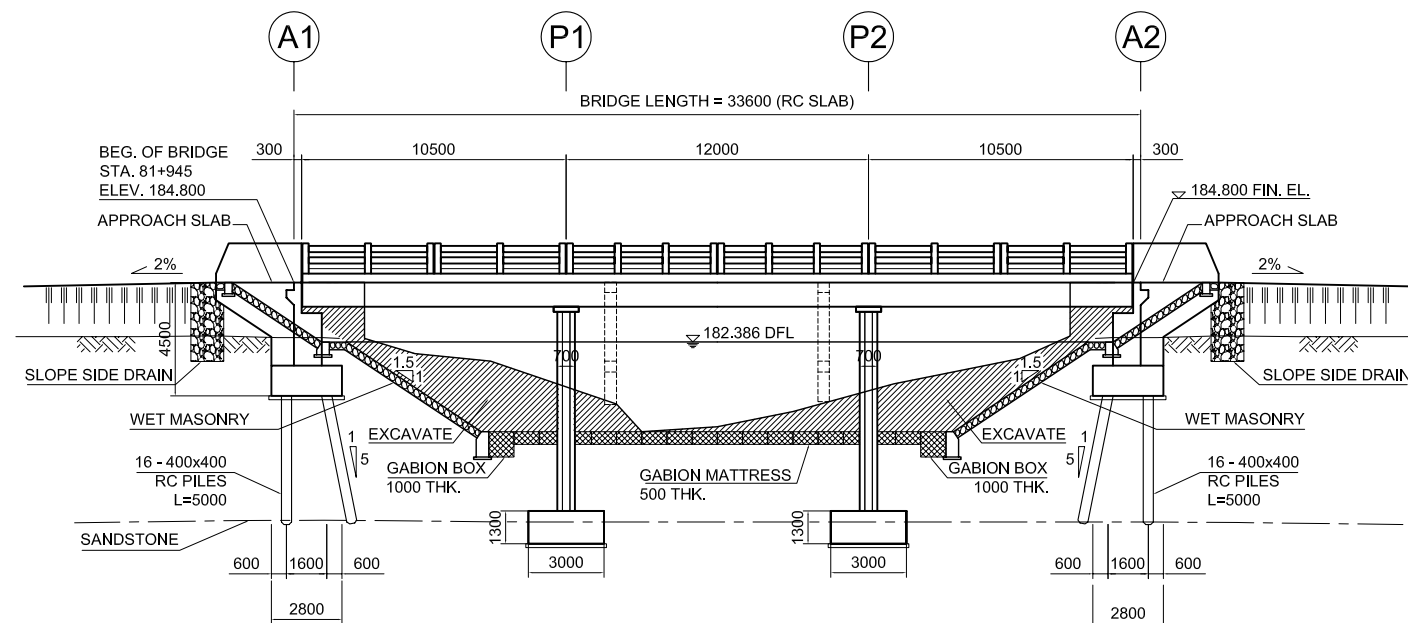


1 ELEVATION
SCALE: 1:250

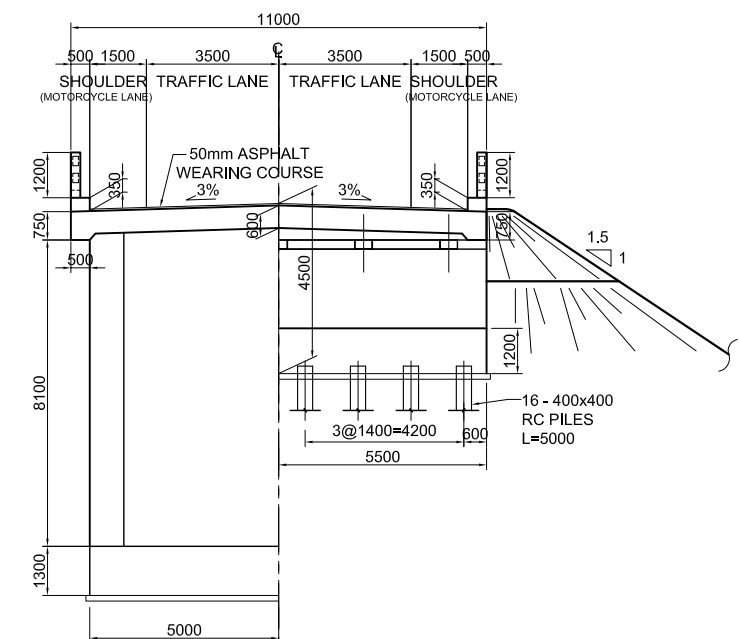


2 ABUTMENT SECTION
SCALE: 1:200

A BRIDGE No.9 STA. 72+946



3 ELEVATION
SCALE: 1:300



4 WALL PIER HALF SECTION
SCALE: 1:200

5 ABUTMENT HALF SECTION
SCALE: 1:200

B BRIDGE No.10 STA. 81+945



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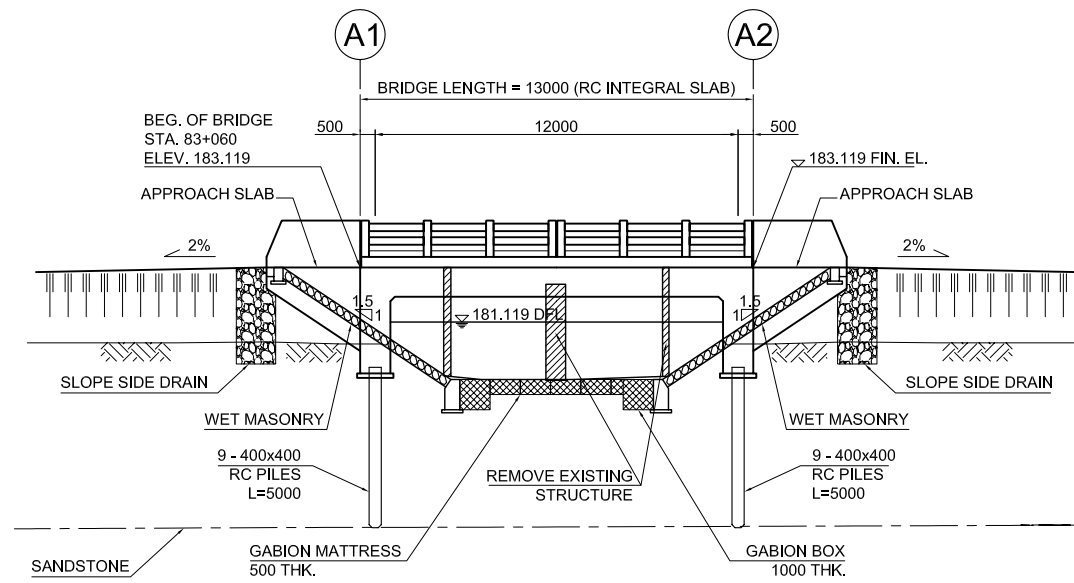
THE STUDY ON THE ROAD NETWORK
DEVELOPMENT IN THE KINGDOM OF CAMBODIA
PRE-FEASIBILITY STUDY ON
IMPROVEMENT OF NATIONAL ROAD No. 57

JAPAN INTERNATIONAL COOPERATION AGENCY
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KATAHIRA & ENGINEERS INTERNATIONAL

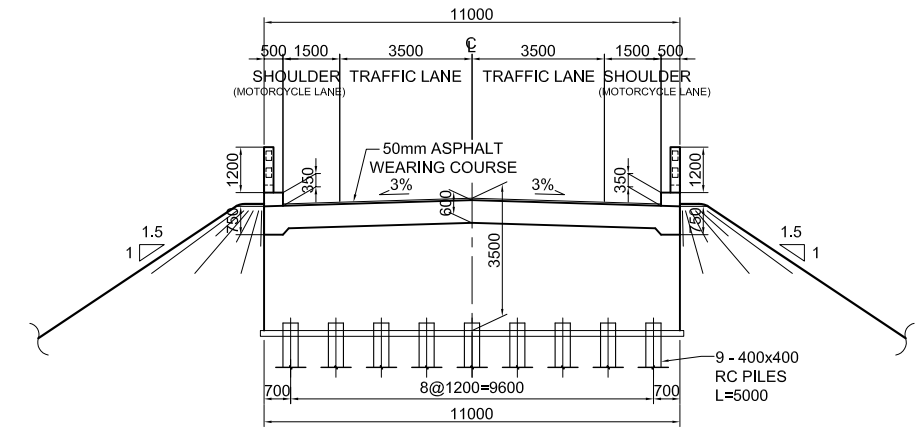
TITLE:
BRIDGE No.9 STA.72+946 &
BRIDGE No.10 STA.81+945
ELEVATION AND SECTION

SCALE
AS SHOWN

DRAWING No :
A-45

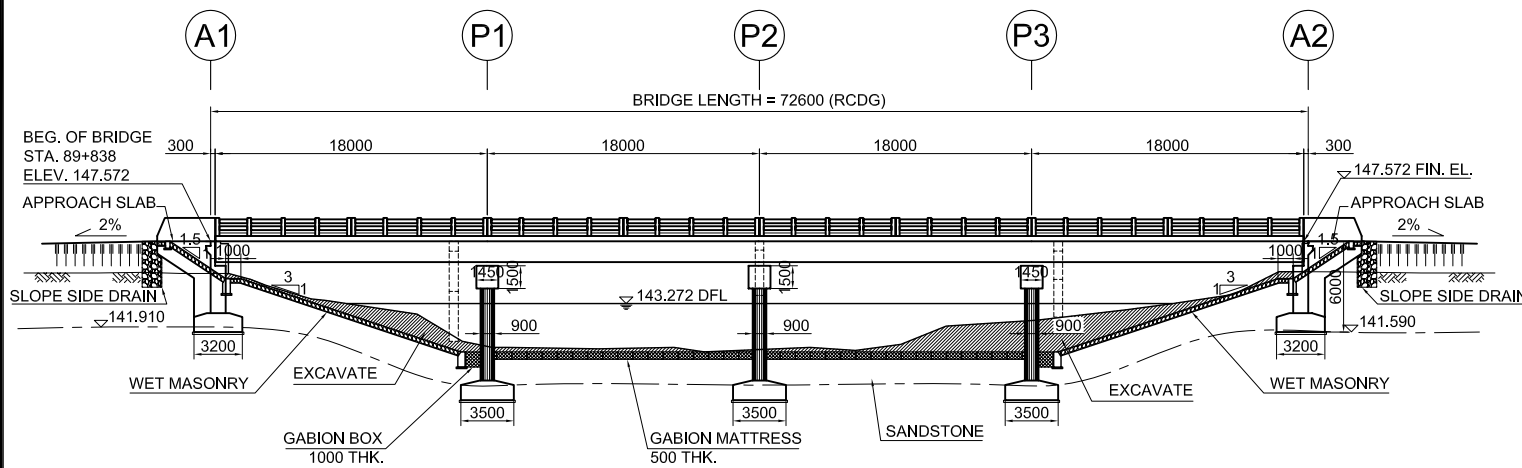


1 ELEVATION
SCALE: 1:250

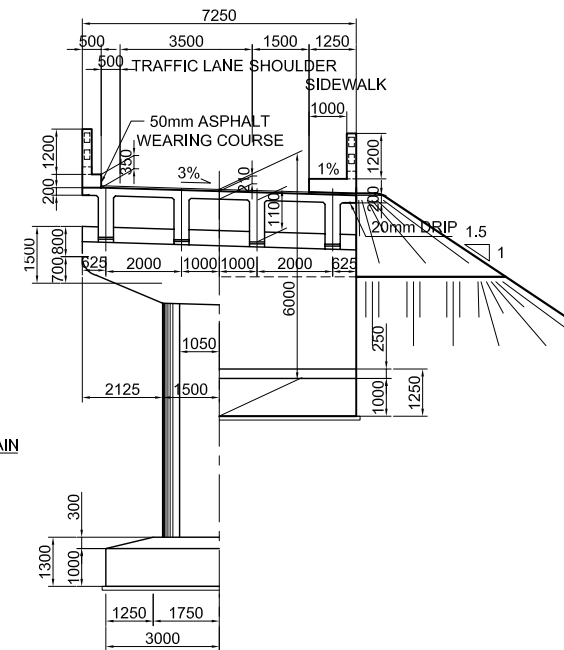


2 ABUTMENT SECTION
SCALE: 1:200

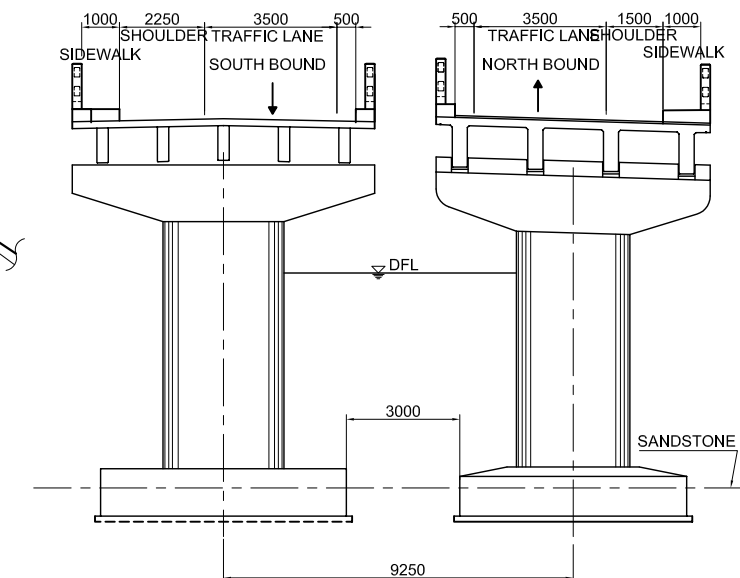
A BRIDGE No.11 STA. 83+060



3 ELEVATION
SCALE: 1:500



4 WALL PIER HALF SECTION
SCALE: 1:200



EXISTING BRIDGE
SCALE: 1:200

NEW BRIDGE
SCALE: 1:200

NOTE: NEW BRIDGE SHALL BE CONSTRUCTED PARALLEL WITH EXISTING BRIDGE TO PROVIDE NORTH BOUND TRAFFIC. EXISTING BRIDGE WILL SERVE SOUTH BOUND TRAFFIC.

B BRIDGE No.12 STA. 89+838



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PRE-FEASIBILITY STUDY ON IMPROVEMENT OF NATIONAL ROAD No. 57

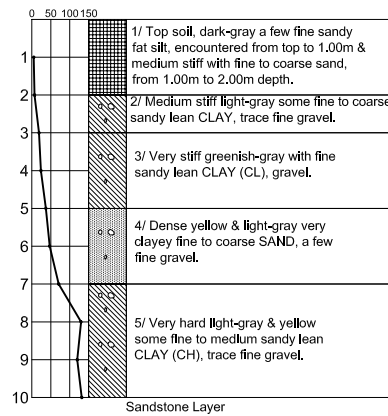
JAPAN INTERNATIONAL COOPERATION AGENCY
NIPPON KOEI CO., LTD. & KATAHIRA & ENGINEERS INTERNATIONAL

TITLE:
BRIDGE No.11 STA.83+060 & BRIDGE No.12 STA.89+838
ELEVATION AND SECTION

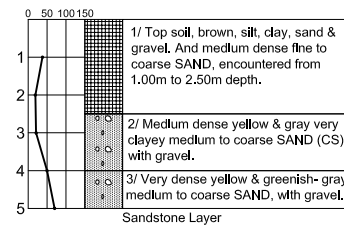
SCALE
AS SHOWN

DRAWING No :
A-46

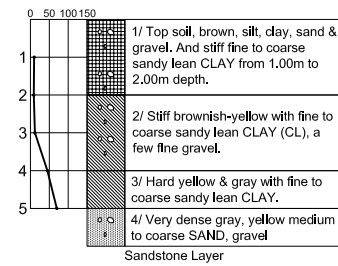
Borehole No. 9
 Road No. NR-57
 Station 41.800
 Borehole Elevation 35.850



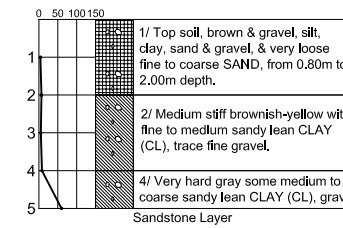
Borehole No. 10
 Road No. NR-57
 Station 60+000
 Borehole Elevation 77.990

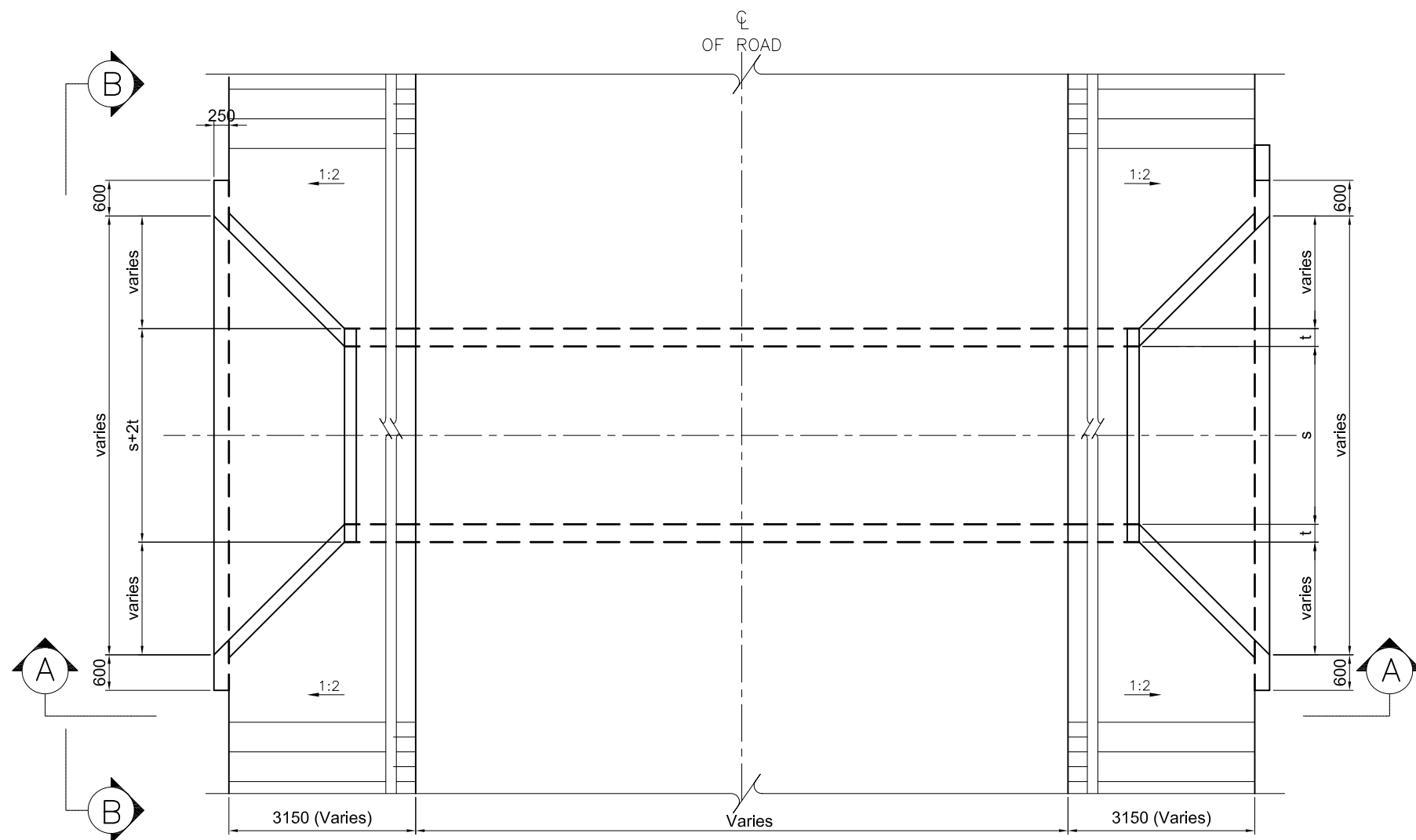


Borehole No. 11A
 Road No. NR-57
 Station 90+000
 Borehole Elevation 147.210



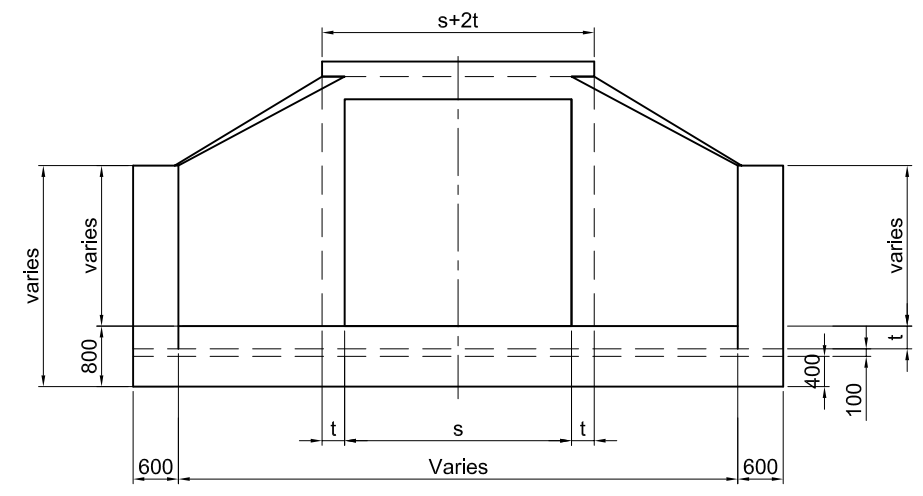
Borehole No. 11B
 Road No. NR-57
 Station 90+00
 Borehole Elevation 146.890





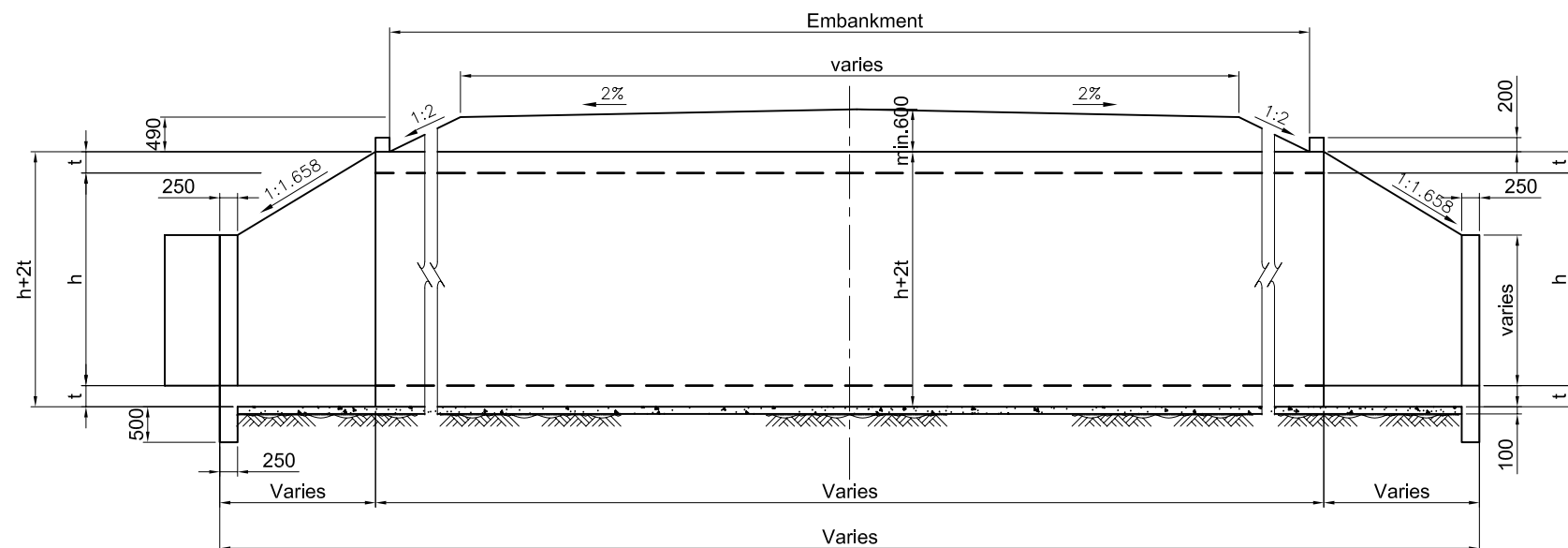
PLAN VIEW

SCALE: 1:100



B - B

SCALE: 1:100



A - A

SCALE: 1:100

GENERAL NOTES

- 1-ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT OTHERWISE SHOWN.
- 2-CONCRETE COVER SHALL BE MINIMUM 40mm. TO FACE OF STEEL BAR.
- 3-MAIN BAR TO BE DB-DEFORM BAR OF GRADE SD 30 HAVING A CHARACTERISTIC YIELD STRENGTH OF $f_y=295$ N/mm²
- 4-LAP LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS.
- 5-LOCATION OF STAGGER OF REBARS SHALL BE APPROVED BY ENGINEER.
- 6-STRUCTURAL CONCRETE TO HAVE A CHARACTERISTIC CYLINDER STRENGTH $f_c'=30$ MPa.
- 7-BLINDING CONCRETE TO HAVE A REQUIREMENT STRENGTH $f_c'=18$ MPa.
- 8-EMBANKMENT ON TOP OF BOX CULVERT SHALL HAVE THICKNESS min. 0.6m.

TYPE 1 BOX CULVERT (RCBC-1)



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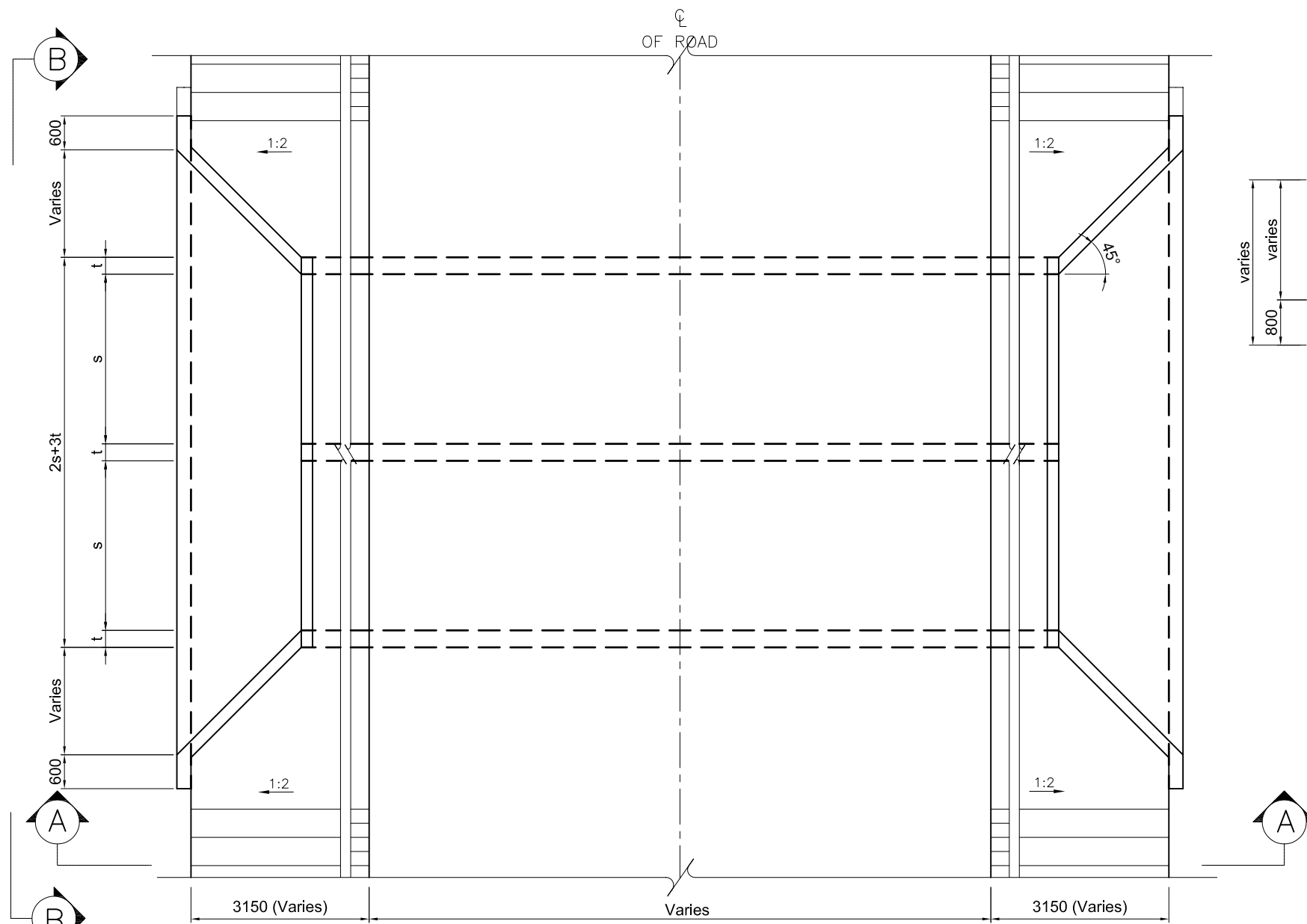
THE STUDY ON THE ROAD NETWORK
DEVELOPMENT IN THE KINGDOM OF CAMBODIA
**PRE-FEASIBILITY STUDY ON
IMPROVEMENT OF NATIONAL ROAD No. 57**

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

TITLE :
TYPE 1 BOX CULVERT (RCBC-1)
PLAN AND ELEVATIONS

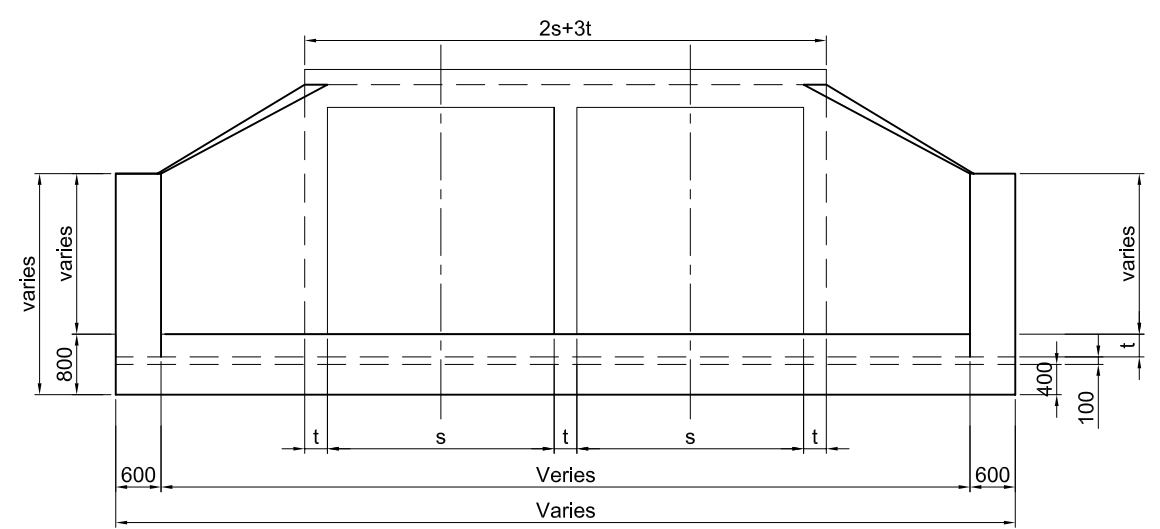
SCALE
AS SHOWN

DRAWING No :
A-48



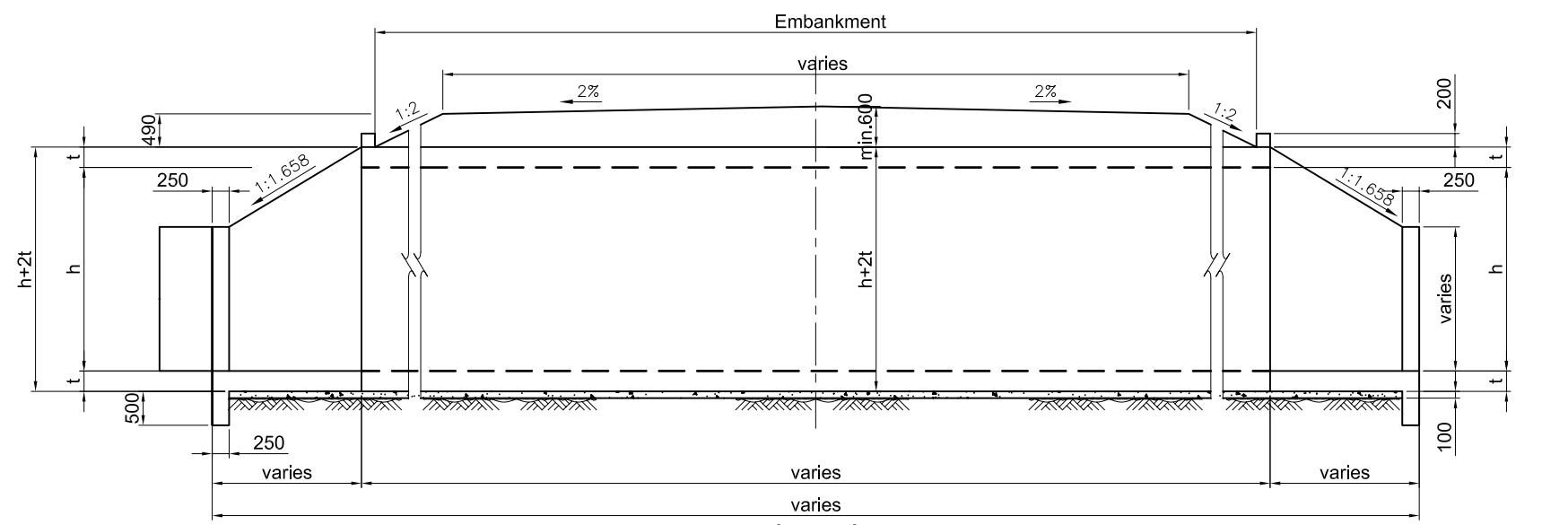
PLAN VIEW

SCALE: 1:100



B - B

SCALE: 1:100



A - A

SCALE: 1:100

TYPE 2 BOX CULVERT (RCBC-2)

GENERAL NOTES

- 1-ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT OTHERWISE SHOWN.
- 2-CONCRETE COVER SHALL BE MINIMUM 40mm. TO FACE OF STEEL BAR.
- 3-MAIN BAR TO BE DB-DEFORM BAR OF GRADE SD 30 HAVING A CHARACTERISTIC YIELD STRENGTH OF $f_y=295$ N/mm²
- 4-LAP LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS.
- 5-LOCATION OF STAGGER OF REBARS SHALL BE APPROVED BY ENGINEER.
- 6-STRUCTURAL CONCRETE TO HAVE A CHARACTERISTIC CYLINDER STRENGTH $f_c'=30$ MPa.
- 7-BLINDING CONCRETE TO HAVE A REQUIREMENT STRENGTH $f_c'=18$ MPa.
- 8-EMBANKMENT ON TOP OF BOX CULVERT SHALL HAVE THICKNESS min. 0.6m.



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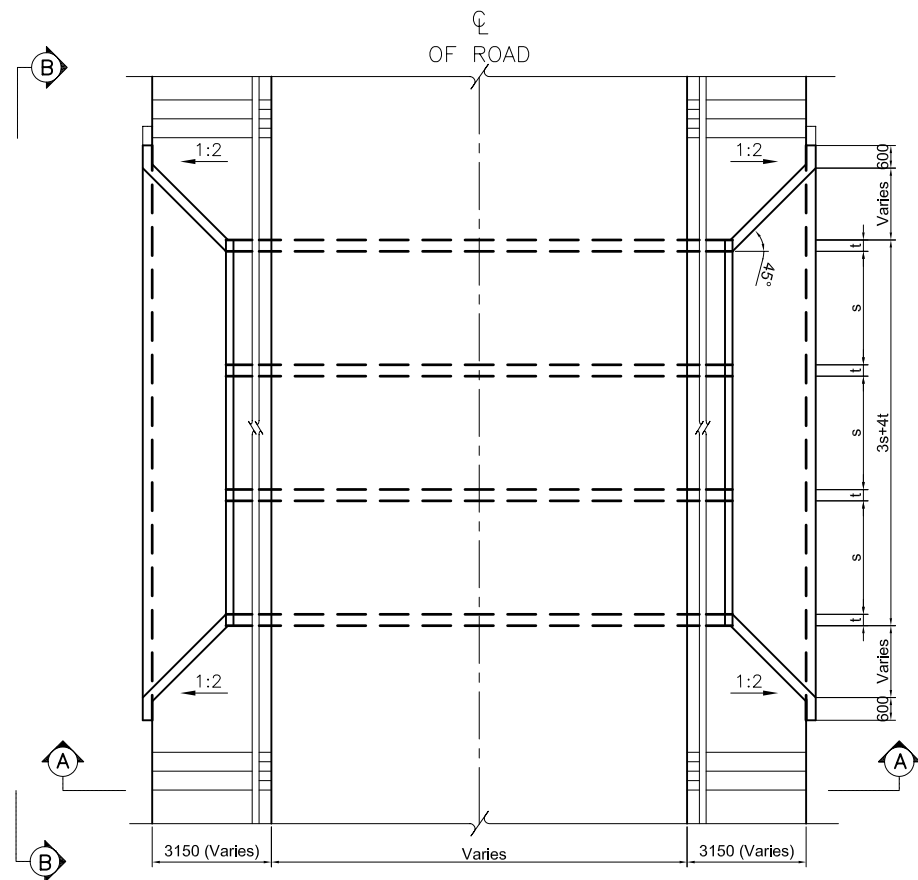
THE STUDY ON THE ROAD NETWORK
DEVELOPMENT IN THE KINGDOM OF CAMBODIA
**PRE-FEASIBILITY STUDY ON
IMPROVEMENT OF NATIONAL ROAD No. 57**

JAPAN INTERNATIONAL COOPERATION AGENCY
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TITLE:
TYPE 2 BOX CULVERT (RCBC-2)
PLAN AND ELEVATIONS

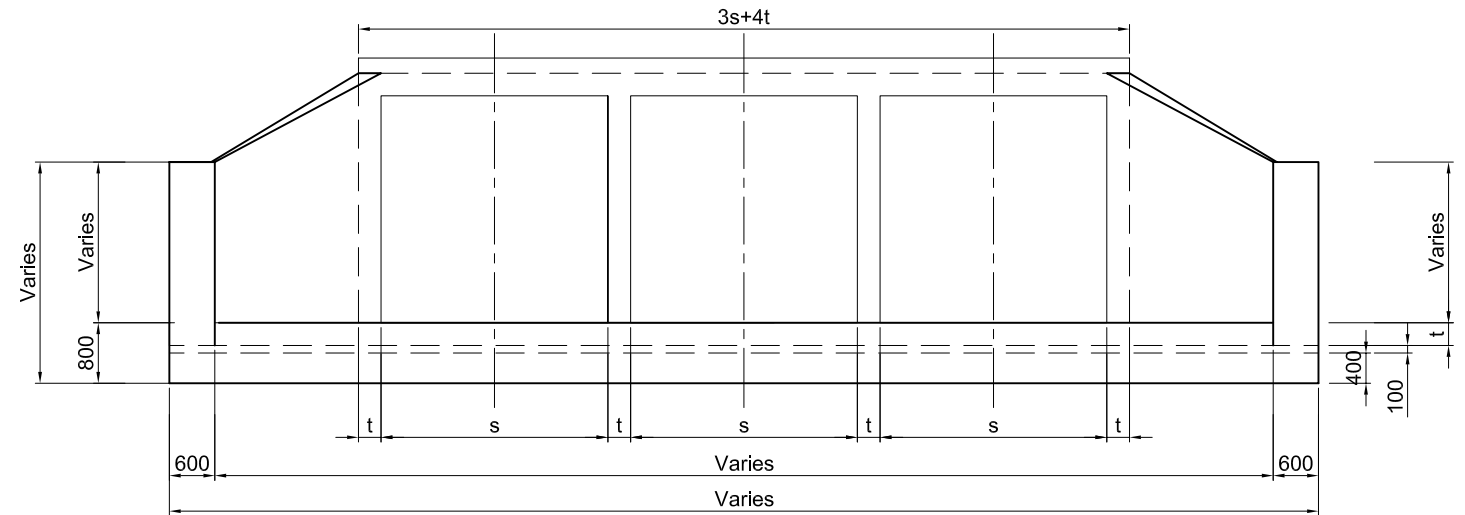
SCALE
AS SHOWN

DRAWING No :
A-49



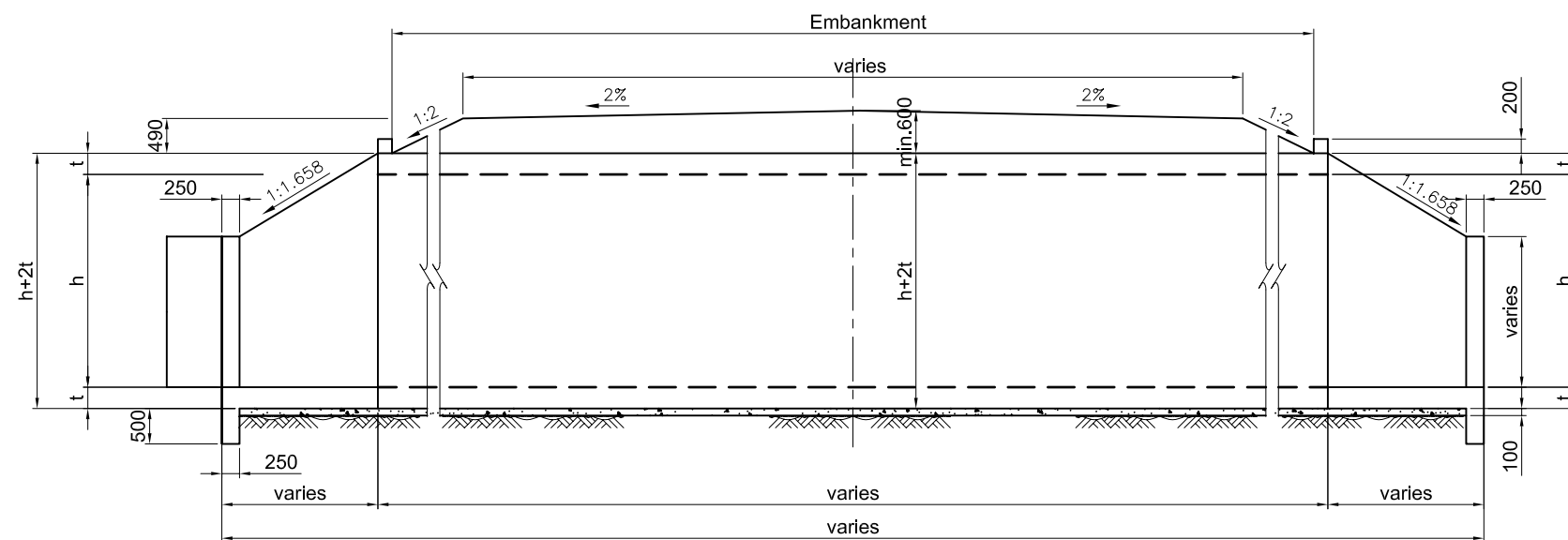
PLAN VIEW

SCALE: 1/200



B - B

SCALE: 1/100



A - A

SCALE: 1:100

GENERAL NOTES

- 1-ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT OTHERWISE SHOWN.
- 2-CONCRETE COVER SHALL BE MINIMUM 40mm. TO FACE OF STEEL BAR.
- 3-MAIN BAR TO BE DB-DEFORM BAR OF GRADE SD 30 HAVING A CHARACTERISTIC YIELD STRENGTH OF $f_y=295 \text{ N/mm}^2$
- 4-LAP LENGTH SHALL NOT BE LESS THAN 40 BAR DIAMETERS.
- 5-LOCATION OF STAGGER OF REBARS SHALL BE APPROVED BY ENGINEER.
- 6-STRUCTURAL CONCRETE TO HAVE A CHARACTERISTIC CYLINDER STRENGTH $f_c'=30 \text{ MPa}$.
- 7-BLINDING CONCRETE TO HAVE A REQUIREMENT STRENGTH $f_c'=18 \text{ MPa}$.
- 8-EMBANKMENT ON TOP OF BOX CULVERT SHALL HAVE THICKNESS min. 0.6m.

TYPE 3 BOX CULVERT (RCBC-3)



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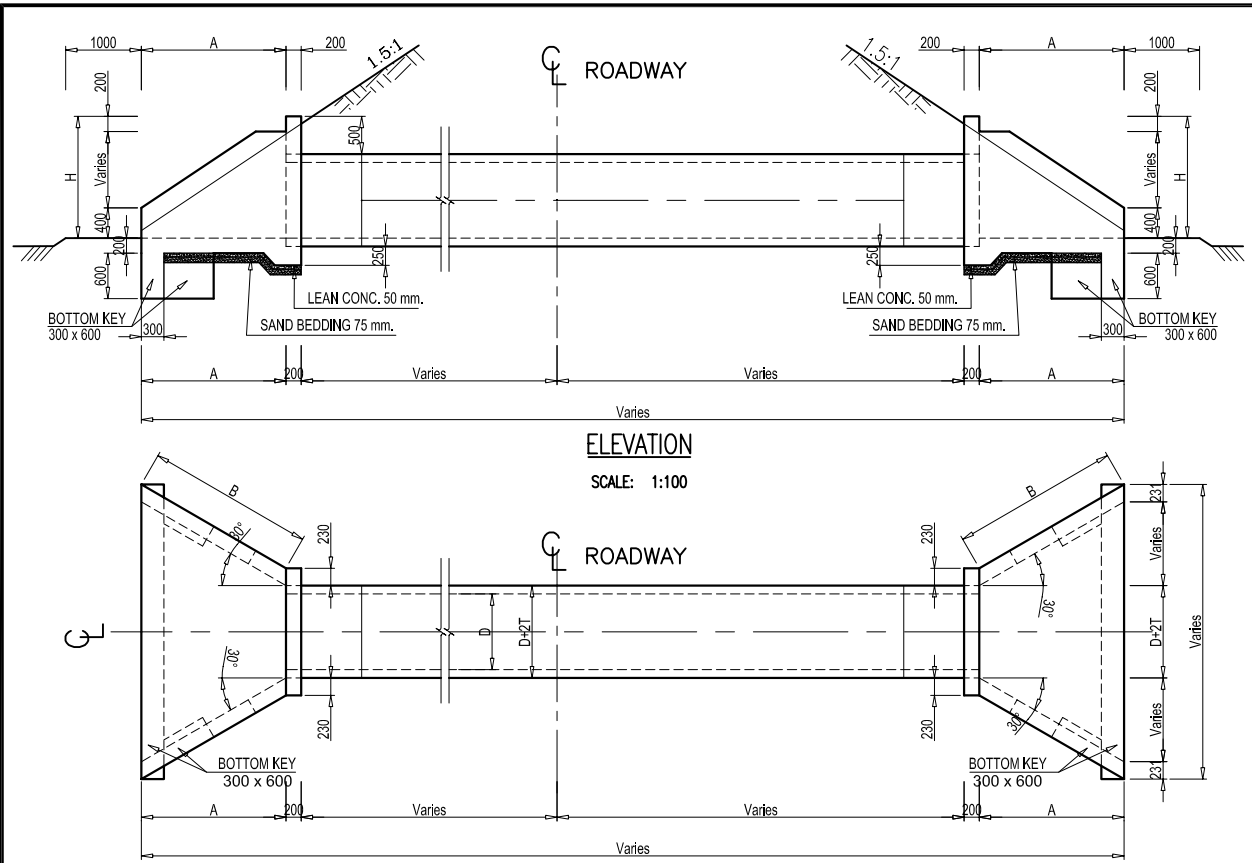
THE STUDY ON THE ROAD NETWORK
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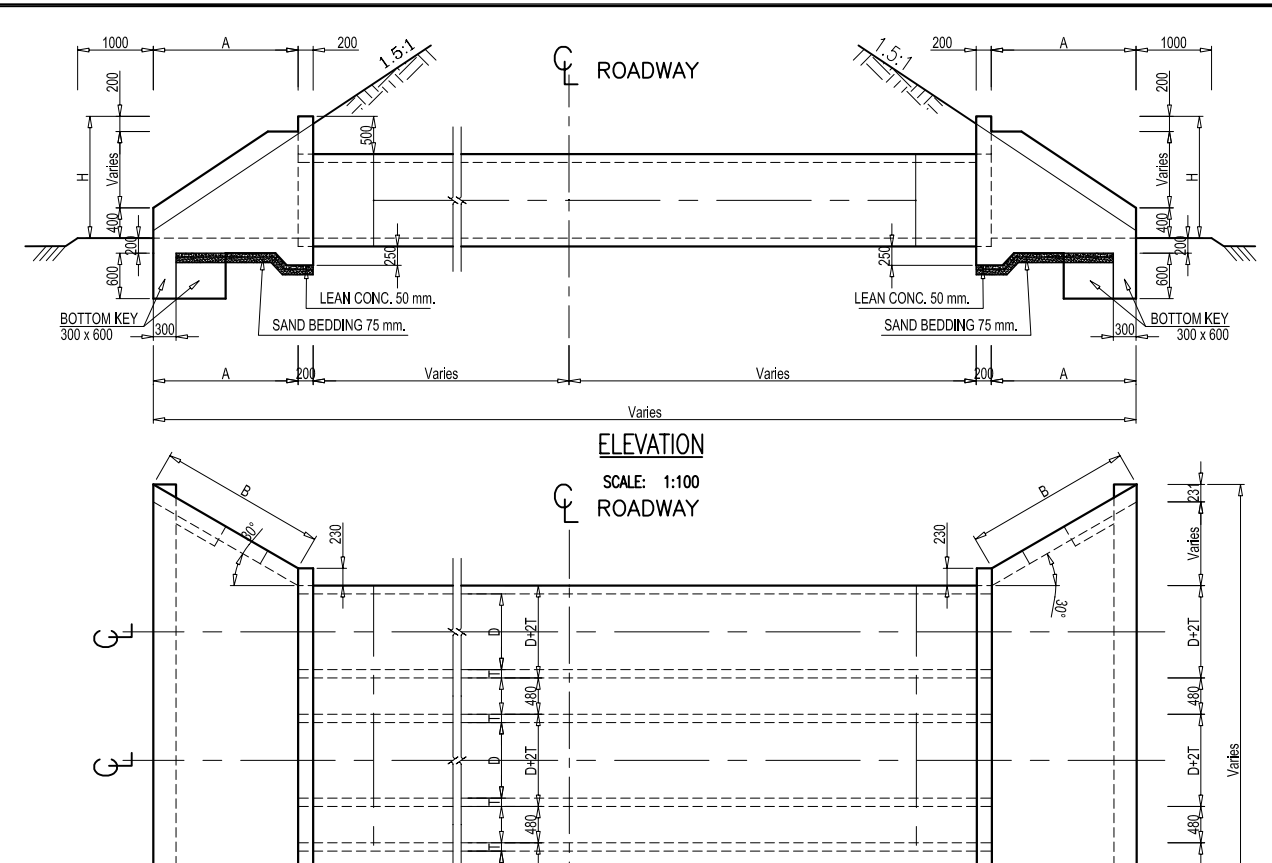
TITLE :
TYPE 3 BOX CULVERT (RCBC-3)
PLAN AND ELEVATIONS

SCALE
AS SHOWN

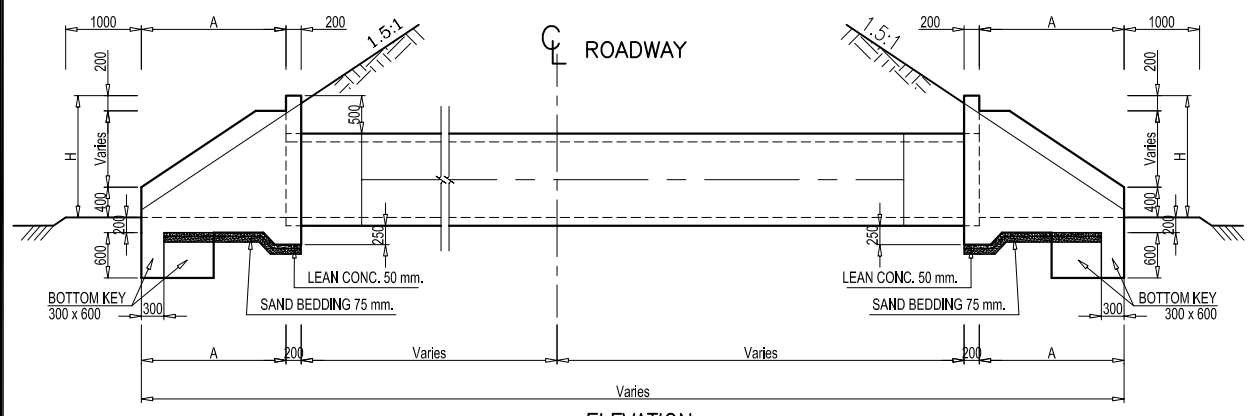
DRAWING No :
A-50



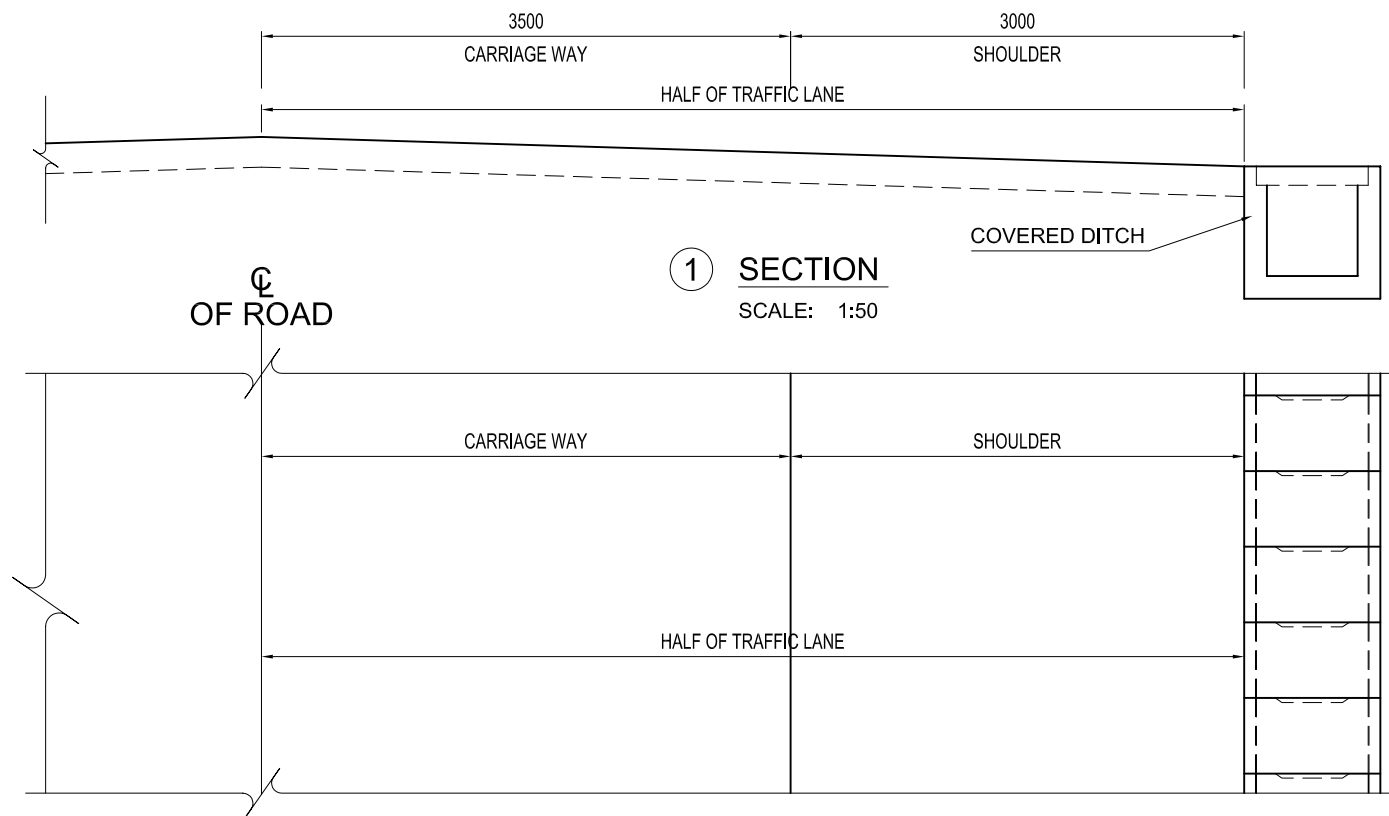
(A) RCPC TYPE 1 (RCPC-1)



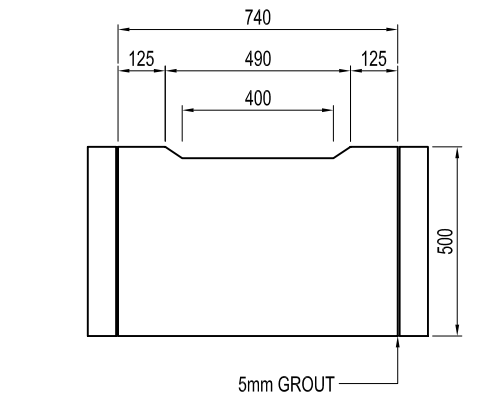
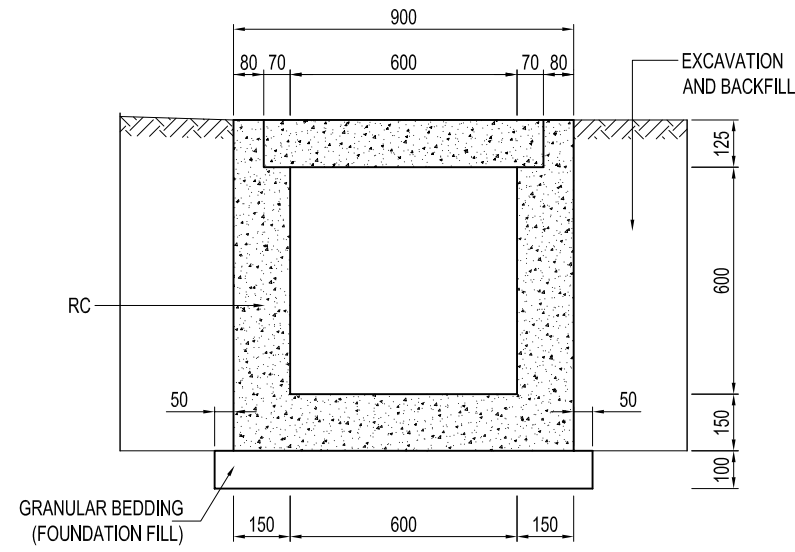
(C) RCPC TYPE 3 (RCPC-3)



(B) RCPC TYPE 2 (RCPC-2)

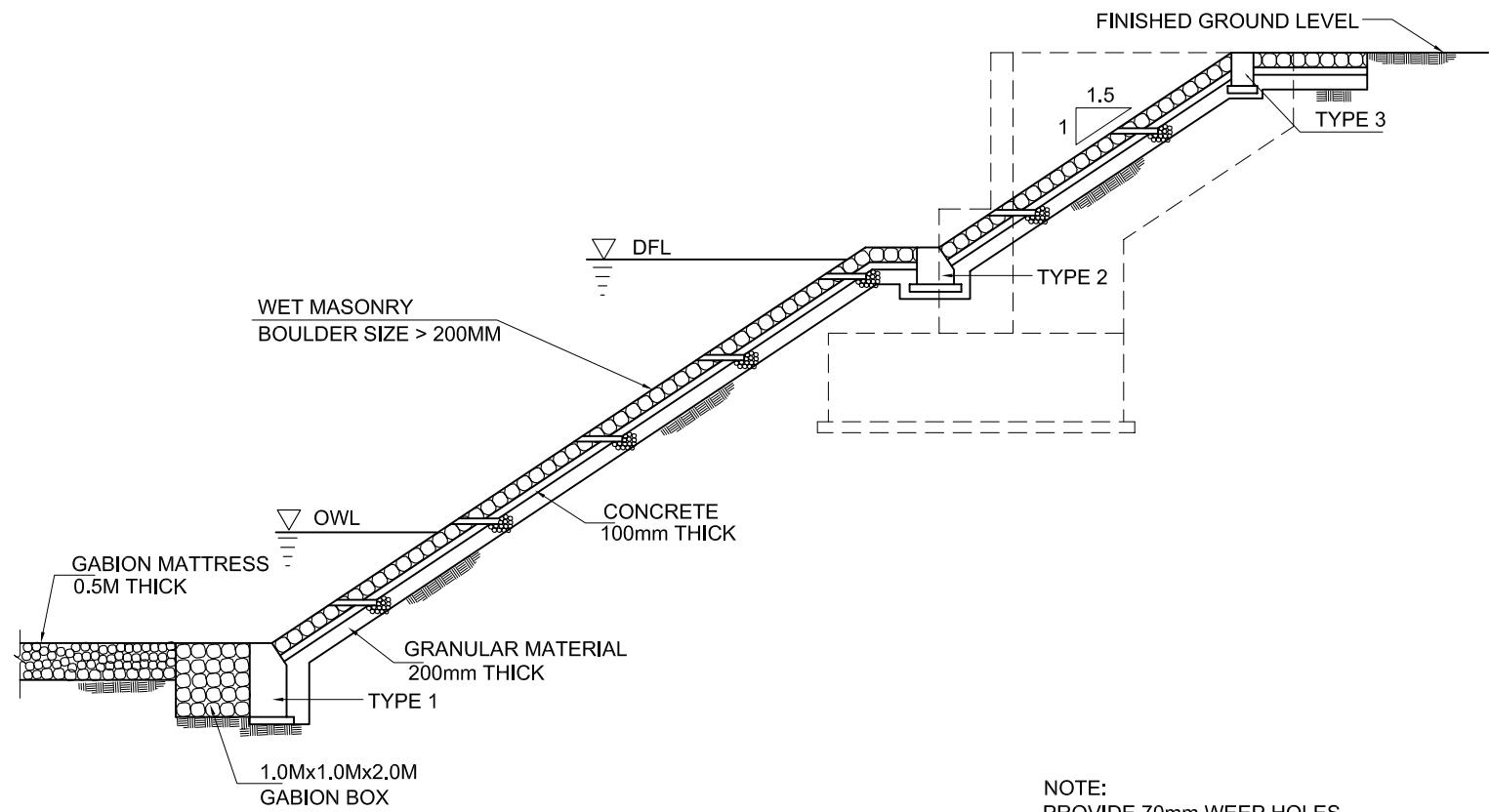


(A) TYPICAL ROADWAY SECTION WITH COVERED DITCH

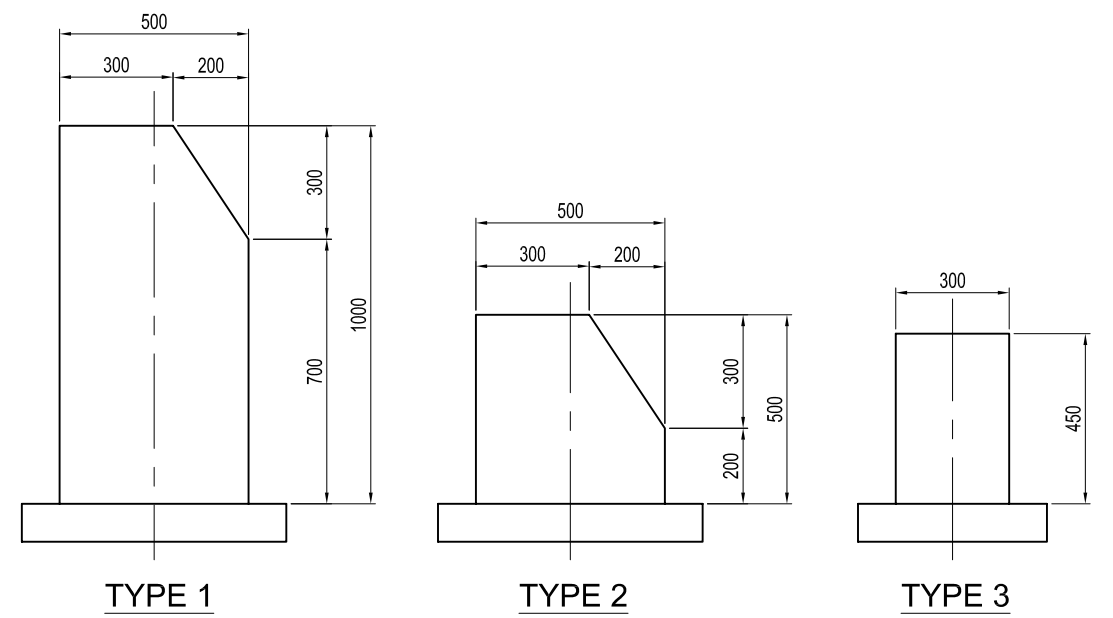


(3) REINFORCED CONCRETE DITCH WITH COVER
SCALE: 1:20

(4) PLAN OF COVER-DITCH
SCALE: 1:20



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



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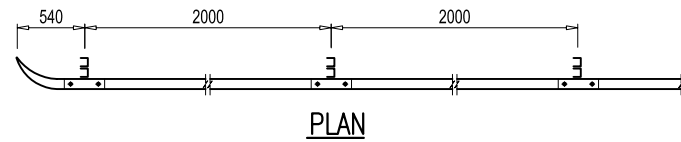
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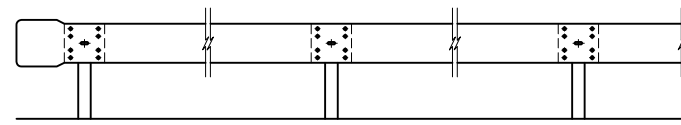
TITLE :
**SIDE DITCH AND
BRIDGE SLOPE PROTECTION**

SCALE
AS SHOWN

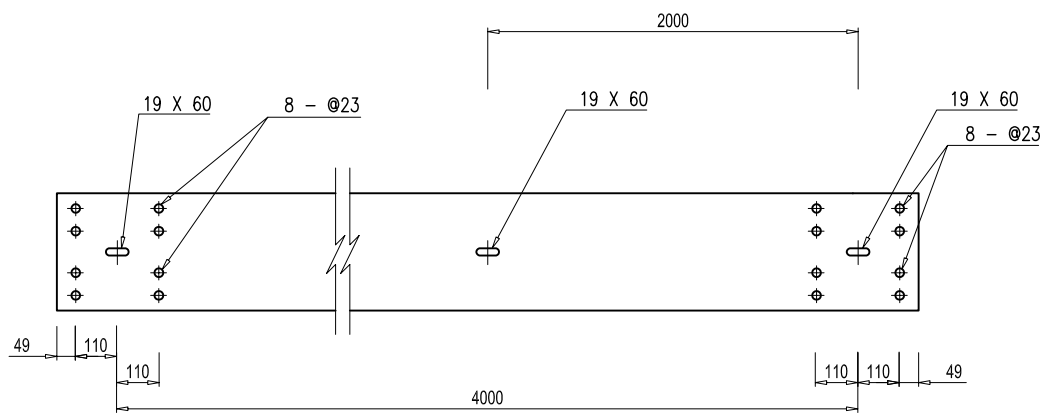
DRAWING No :
A-52



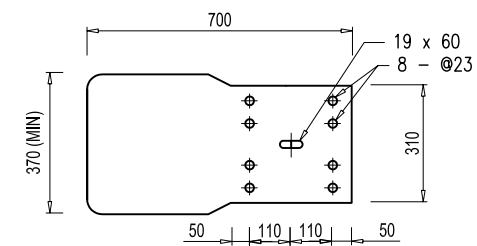
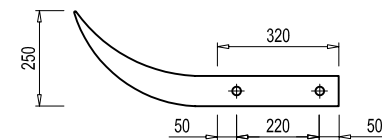
PLAN



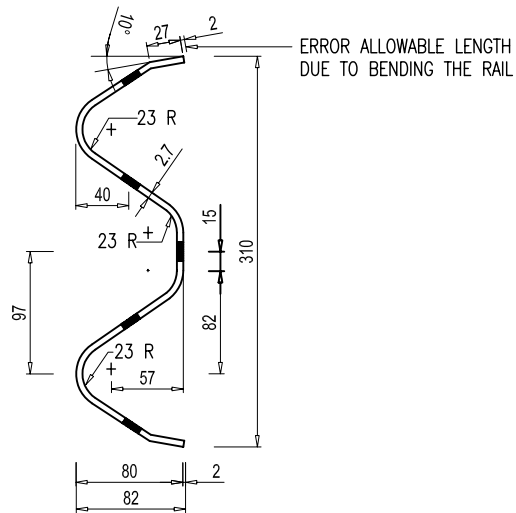
ELEVATION
GUARDRAIL
SCALE 1:60



PLAN
SCALE 1:10

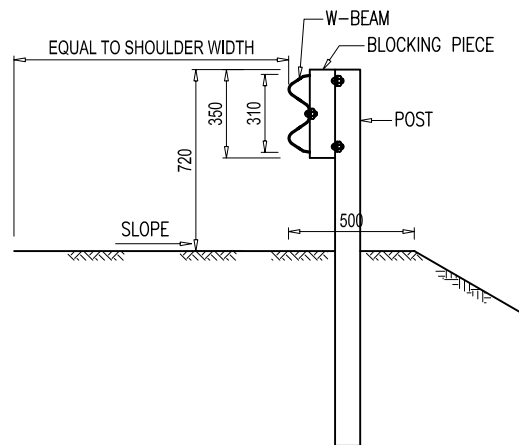


TERMINAL SECTION
SCALE 1:20

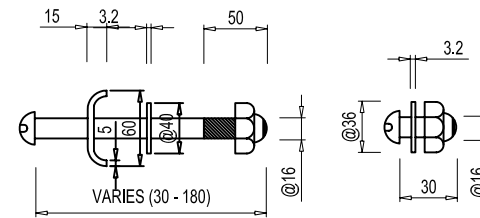


W-BEAM
SCALE 1:6

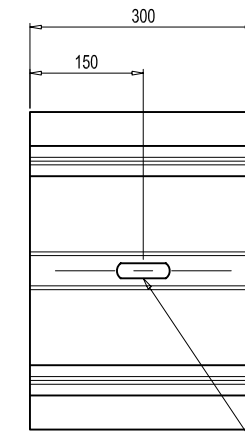
ERROR ALLOWABLE LENGTH
DUE TO BENDING THE RAIL



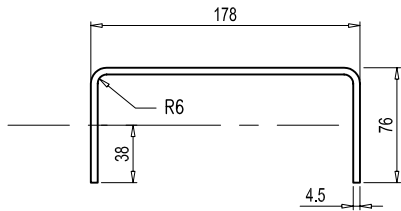
GUARDRAIL POST



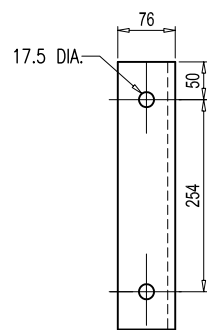
BOLT & NUT
SCALE 1:6



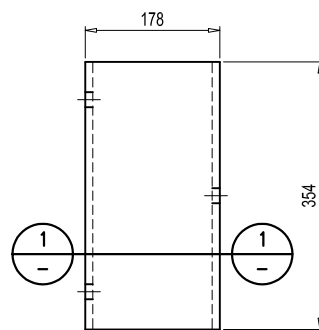
STIFFENER PLATE
SCALE 1:10



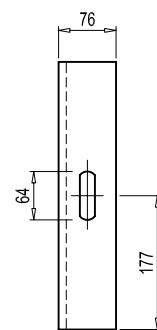
SECTION 1
SCALE 1:5



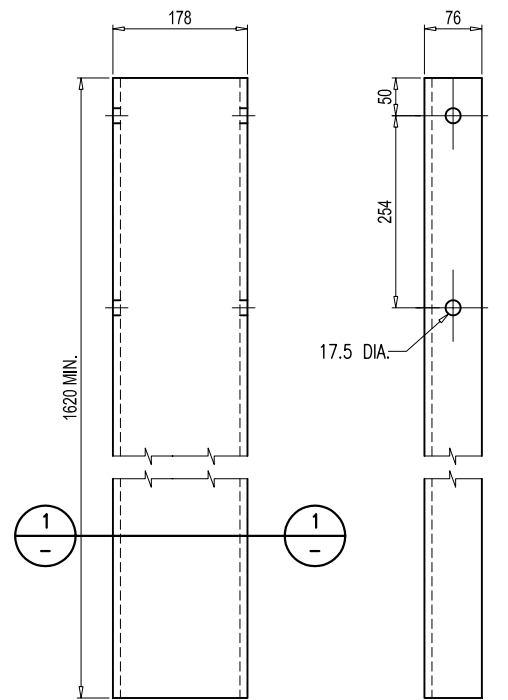
ELEVATION



END ELEVATION
INTERMEDIATE POST
SCALE 1:10



ELEVATION



END ELEVATION
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.

