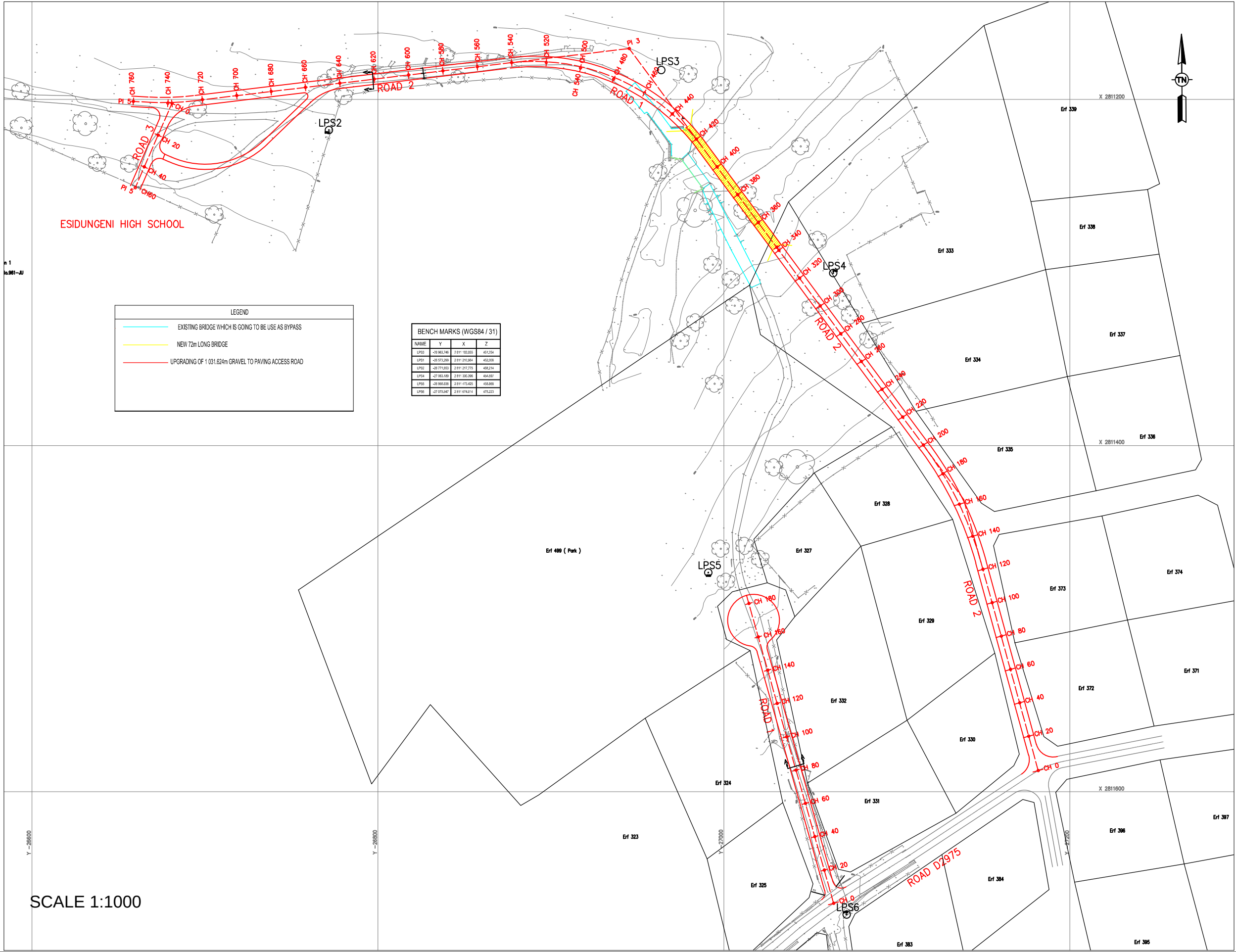
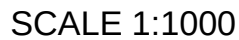


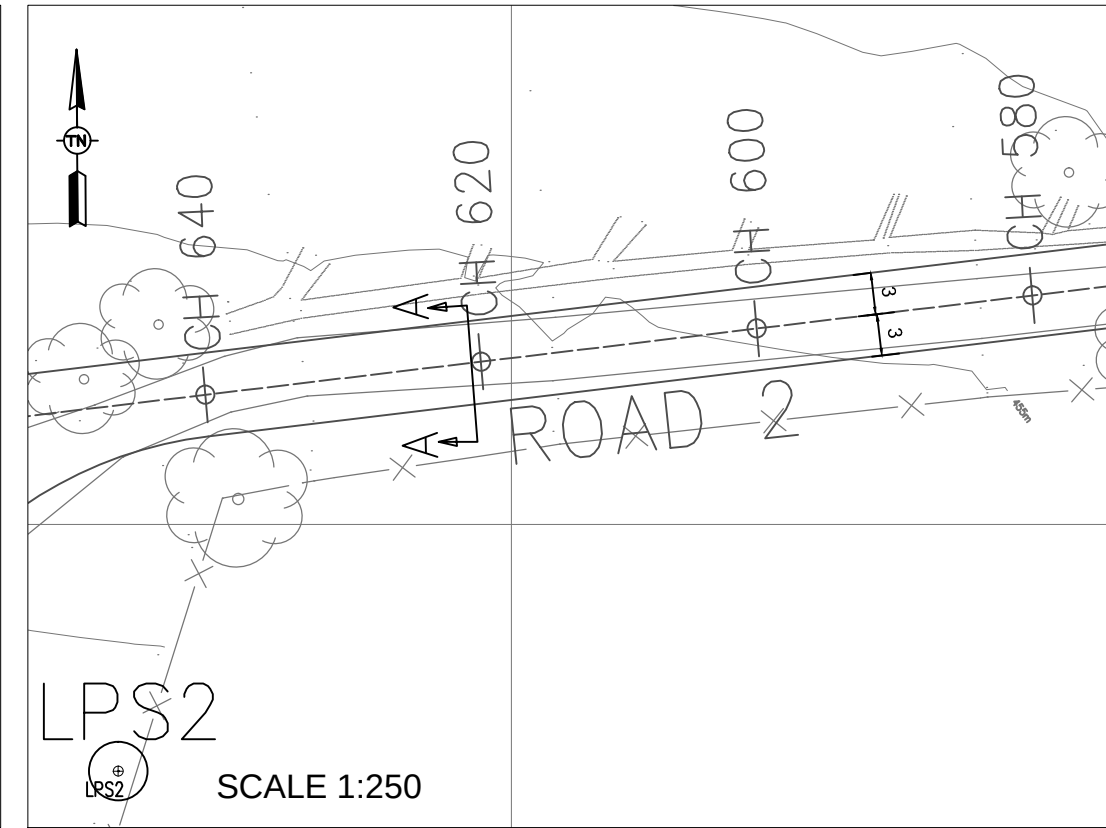
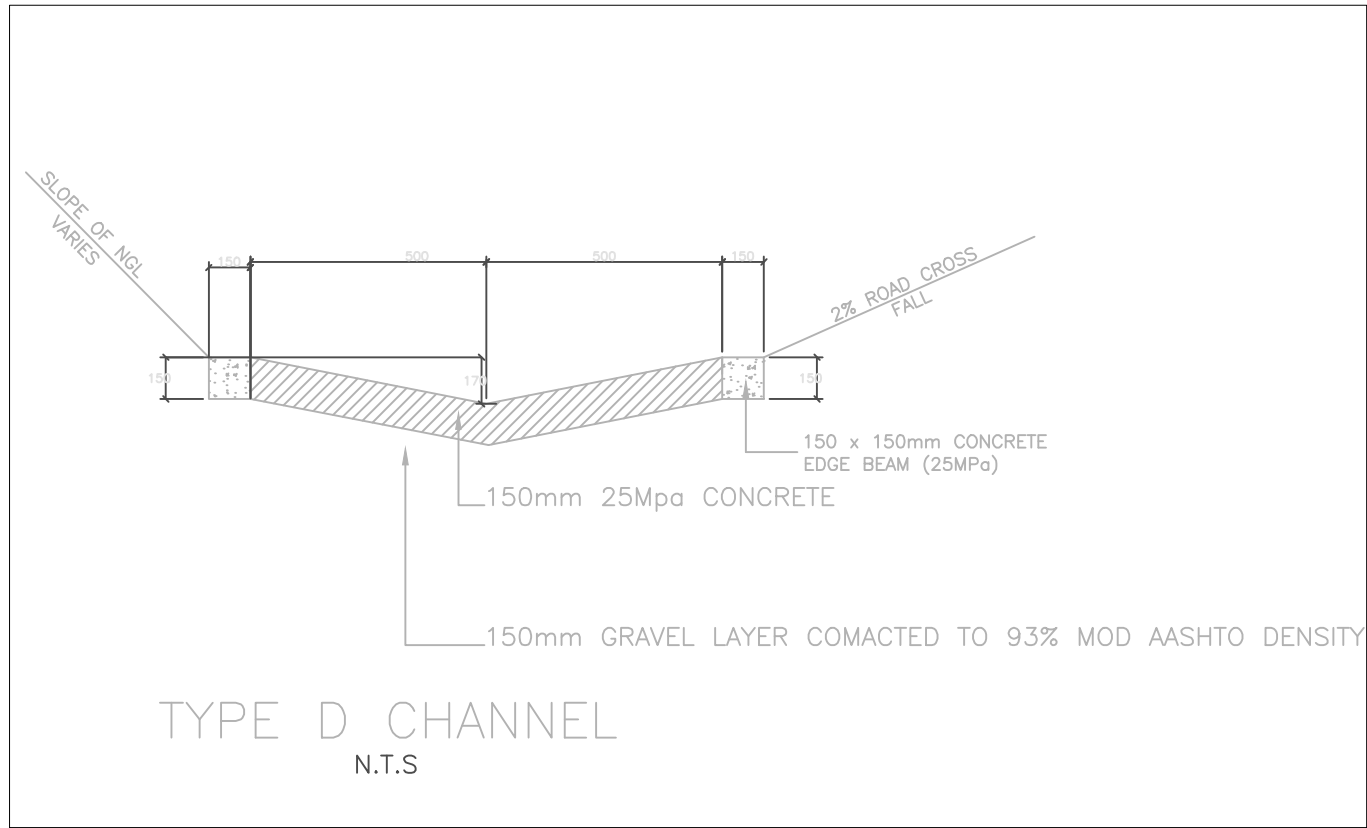


- CONSTRUCTION NOTES:
1. ALL CONSTRUCTION, TOLERANCES AND TESTING MUST BE STRICTLY IN ACCORDANCE WITH SANS 1200 SERIES OF SPECIFICATIONS - ANY DEVIATION FROM THE ABOVE WILL BE FOR THE COST OF THE CONTRACTOR.
 2. ALL LEVELS INDICATED ARE TOP OF PAVING BLOCKS LEVELS SEE (DETAILS DRAWING 001) , I.E. - FINAL ROAD LEVEL.
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 8. ALL TEST ON PAVEMENT LAYERS TO BE SUBMITTED TO ENGINEER ON A FORTNIGHTLY BASIS.

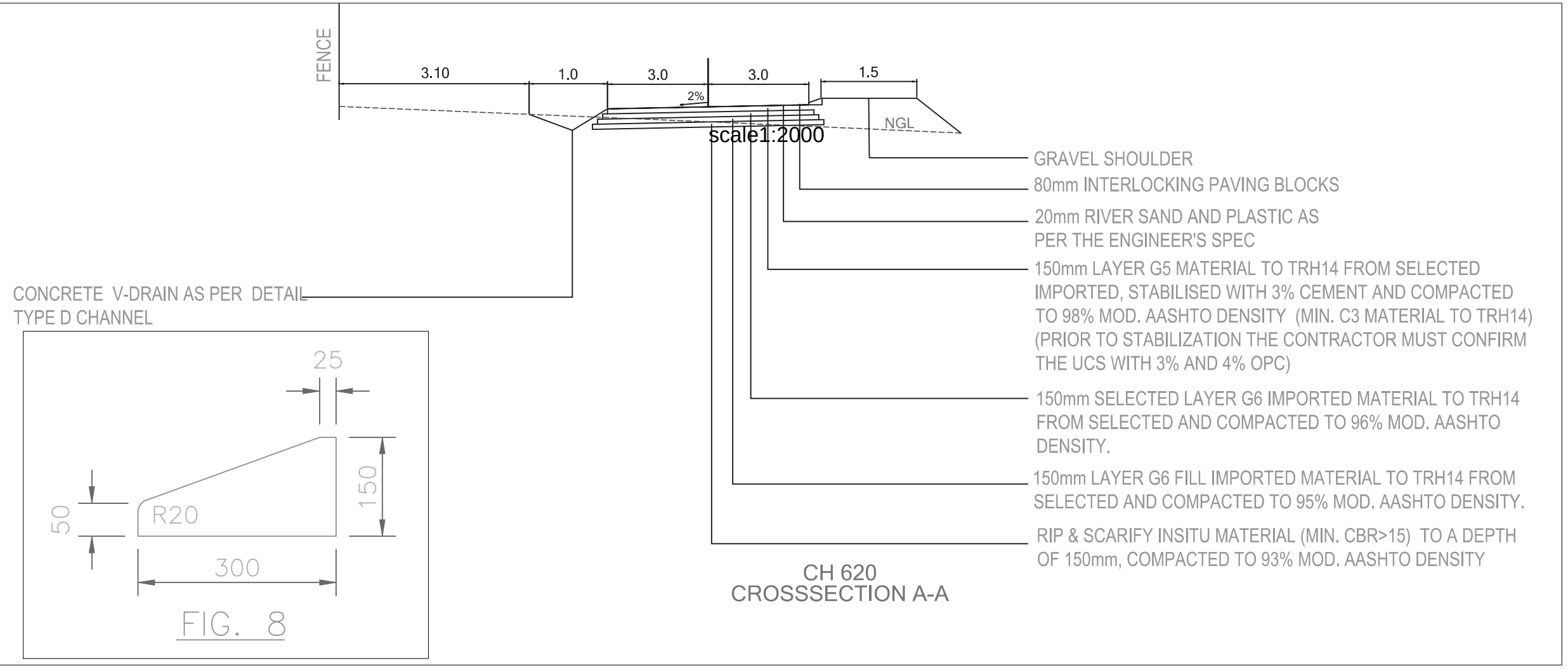
0				24/11/2022				EM				OB				PERLUM DESIGN			
REV		DATE		DRAWN		CHK'D		EM		OB		DESCRIPTION		PERLUM DESIGN		DESCRIPTION			
Ntsoako Ntsoako and Associates (Pty) Ltd e-mail: octavius@ntsoakoconsulting.co.za No. 12 Blue Haven, 130 Bendor Dr Bendor Park, Polokwane, 0699 P.O. Box 688 Thornhill Plaza, 0882 Tel: 27 15 023 0026 Fax: 27 150297 0588																			
CLIENT																			
ARCHITECT																			
PROJECT																			
CONSTRUCTION OF ESIDUNGENI VEHICLE BRIDGE (WARD 24 LUPHISI)																			
DRAWING																			
LAYOUT PLAN																			
CONSTRUCTION																			
SIGNATURE																			
DATE																			
DESIGNED																			
24/11/2022																			
DRAWN																			
24/11/2022																			
CHECKED																			
24/11/2022																			
APPROVED																			
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PROJECT NO.																			
2022-02																			
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A1																			
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CLIENT DRAWING NO.																			
FILE NAME AND LOCATION NO.																			
COPYRIGHT RESERVED																			



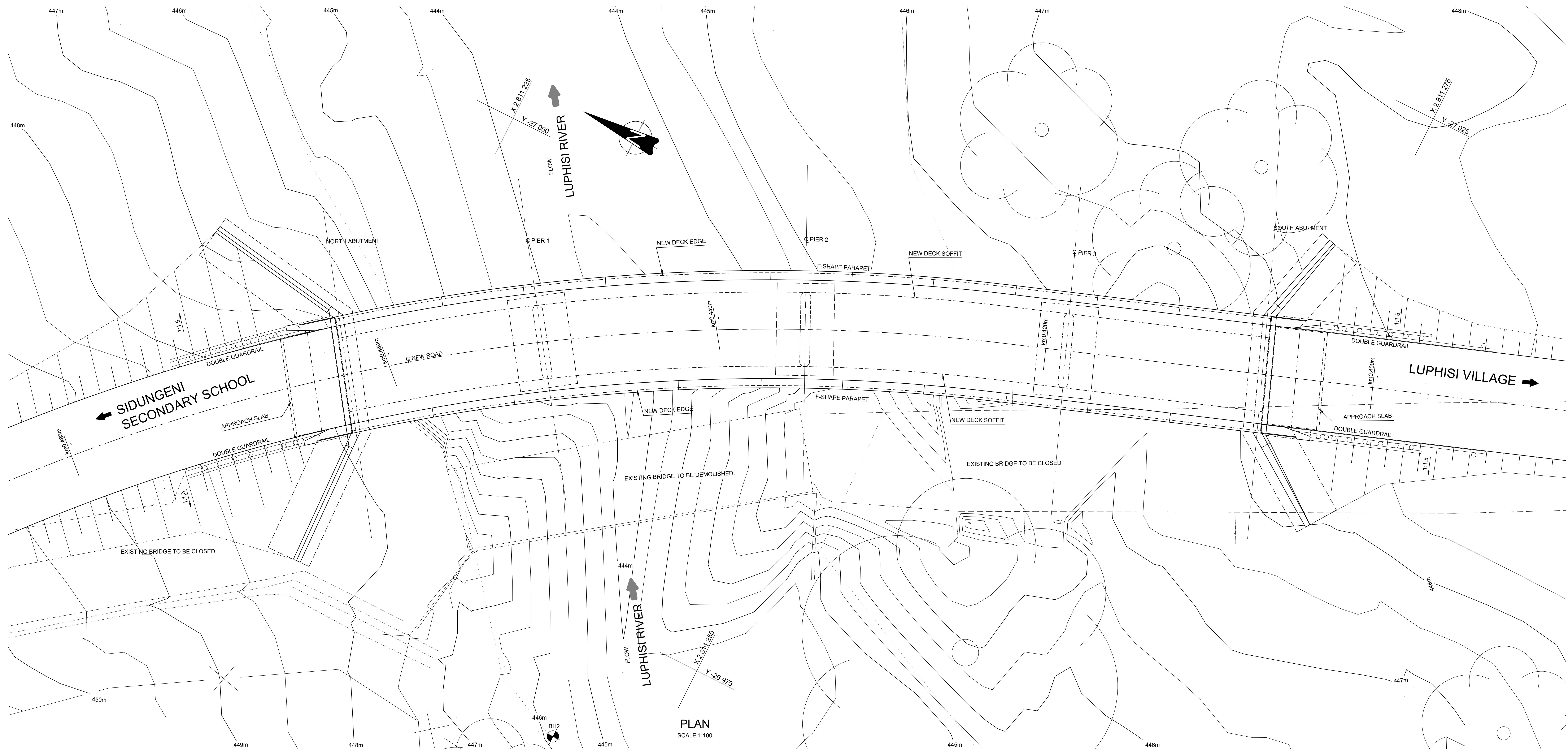
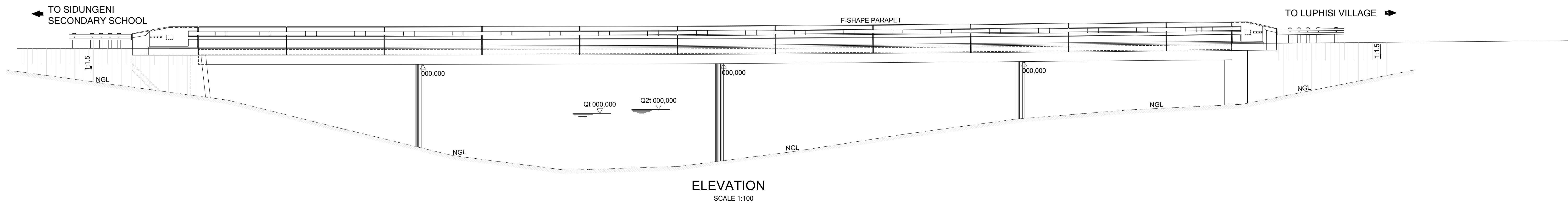
CLIENT DRAWING No.	FILE NAME AND LOCATION No.
COPYRIGHT RESERVED	

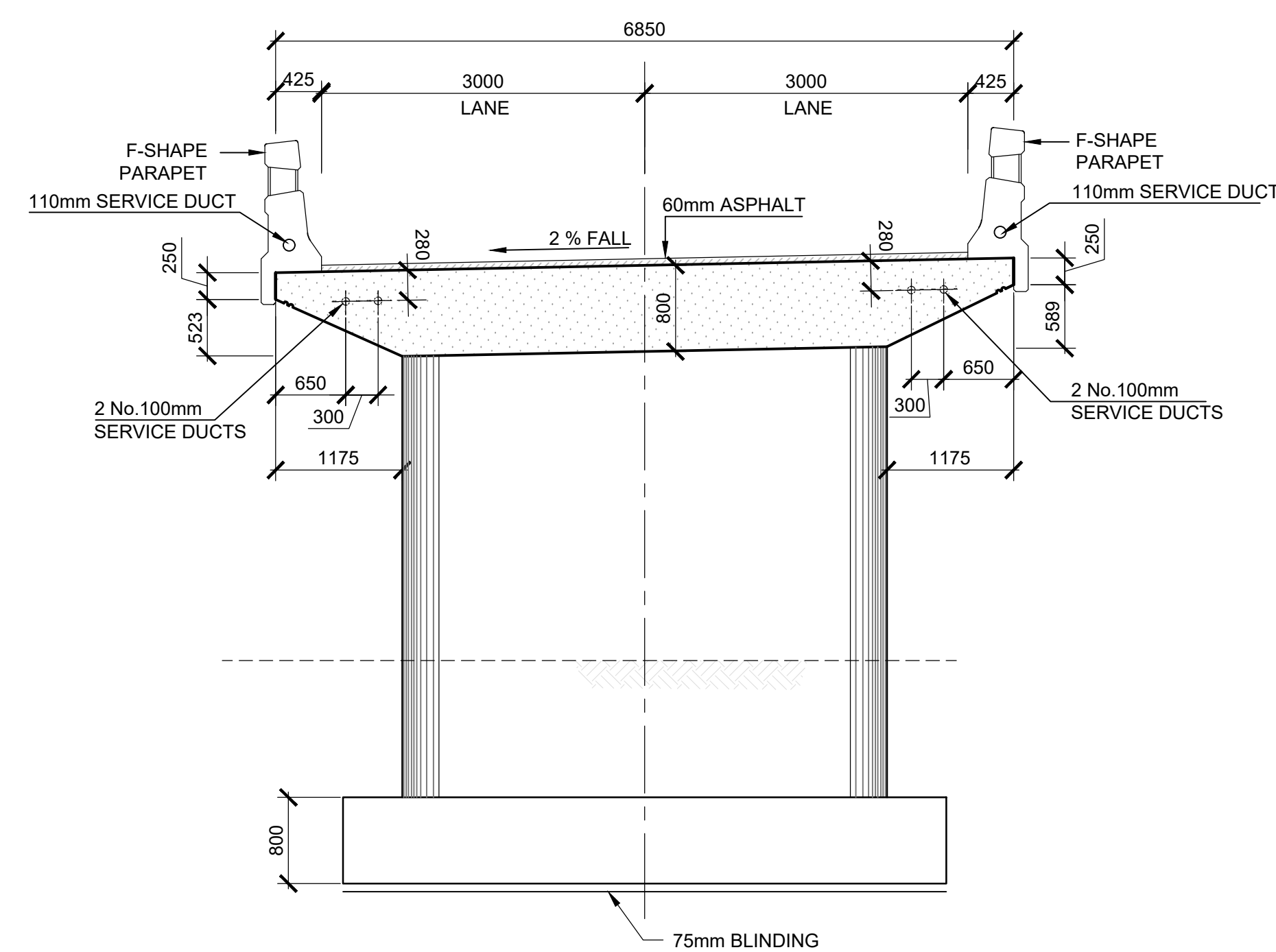


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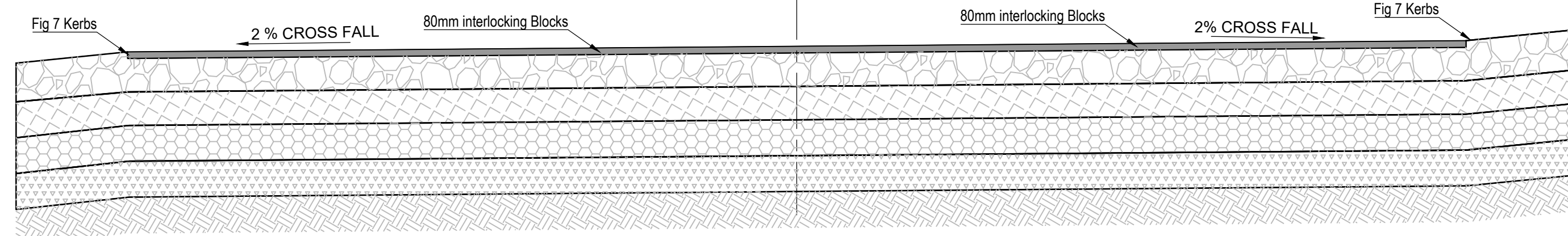


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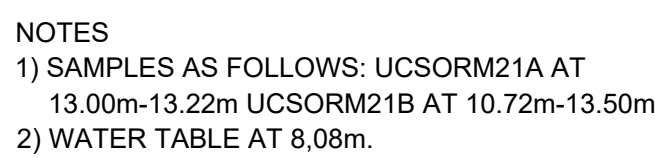




SCALE 1:50



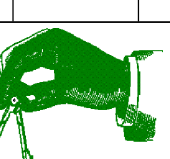
SCALE 1:20



1 : 50

a) EFFECTIVE CATCHMENT AREA	33.000 km ²
b) DESIGN METHODS - SDF, EMPIRICAL, RATIONAL	
c) 20 YEAR FLOOD	73 m ³ /s
d) DESIGN RETURN PERIOD	35 YEARS
e) DESIGN FLOOD QT	89 m ³ /s
f) DESIGN FLOOD Q2T	117.2 m ³ /s
g) RMF	574.7 m ³ /s
h) AVERAGE SLOPE	0.015 m/m
i) DESIGN FLOOD LEVEL QT	1294.8 m
j) DESIGN FLOOD LEVEL Q2T	1295 m
k) DESIGN FLOW VELOCITY	2.1m/s
l) REQUIRED FREEBOARD	0.15 m
m) DESIGN FREEBOARD	0.35 m

NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES TO BE REPORTED TO ENGINEER.

A	07/02/2023	EM	O8	TENDER PURPOSES					
REV	DATE	DRAWN	CHECK	DESCRIPTION					
									
Nisako Tugari and Associates (PTY) LTD e-mail: schwab@nisacoengineering.co.za No: 12 Blue Haven, 130 Bedford Park, Bedford Park, Johannesburg, 6009									
P.O Box 686 Thorndon Place, OGB Tel: 27 15 023 0020 Fax: 27 15 027 1586									

**MBOMBELA
LOCAL
MUNICIPALITY**

ARCHITECT

PROJECT
CONSTRUCTION OF
ESIDUNGENI VEHICLE
BRIDGE (WARD 24 LUPHISI)

GENERAL ARRANGEMENT
2 OF 2

TENDER PURPOSES

	SIGNATURE	DATE
DESIGNED	EM	07/02/2023
DRAWN	EM	07/02/2023
CHECKED	DS	07/02/2023
APPROVED	OB	07/02/2023

SCALE	AS SHOWN					
PROJECT No.	DISCIPL	DWG. NUMBER	STAGE	SHEET SIZE	REVISION	
2022-02	P	202	T	A0	A	

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NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES TO BE REPORTED TO ENGINEER.

NOTES

1. CONCRETE GRADES
FOUNDATIONS -30/19
WALLS -30/19
DECK -40/19
PARAPETS -40/19

2. FINISHES

a) SUBSTRUCTURE, BURIED SURFACES F1 U2
b) SUBSTRUCTURE, VISIBLE SURFACES F2 U2
c) 25mm CHAMFERS TO ALL SHARP CORNERS

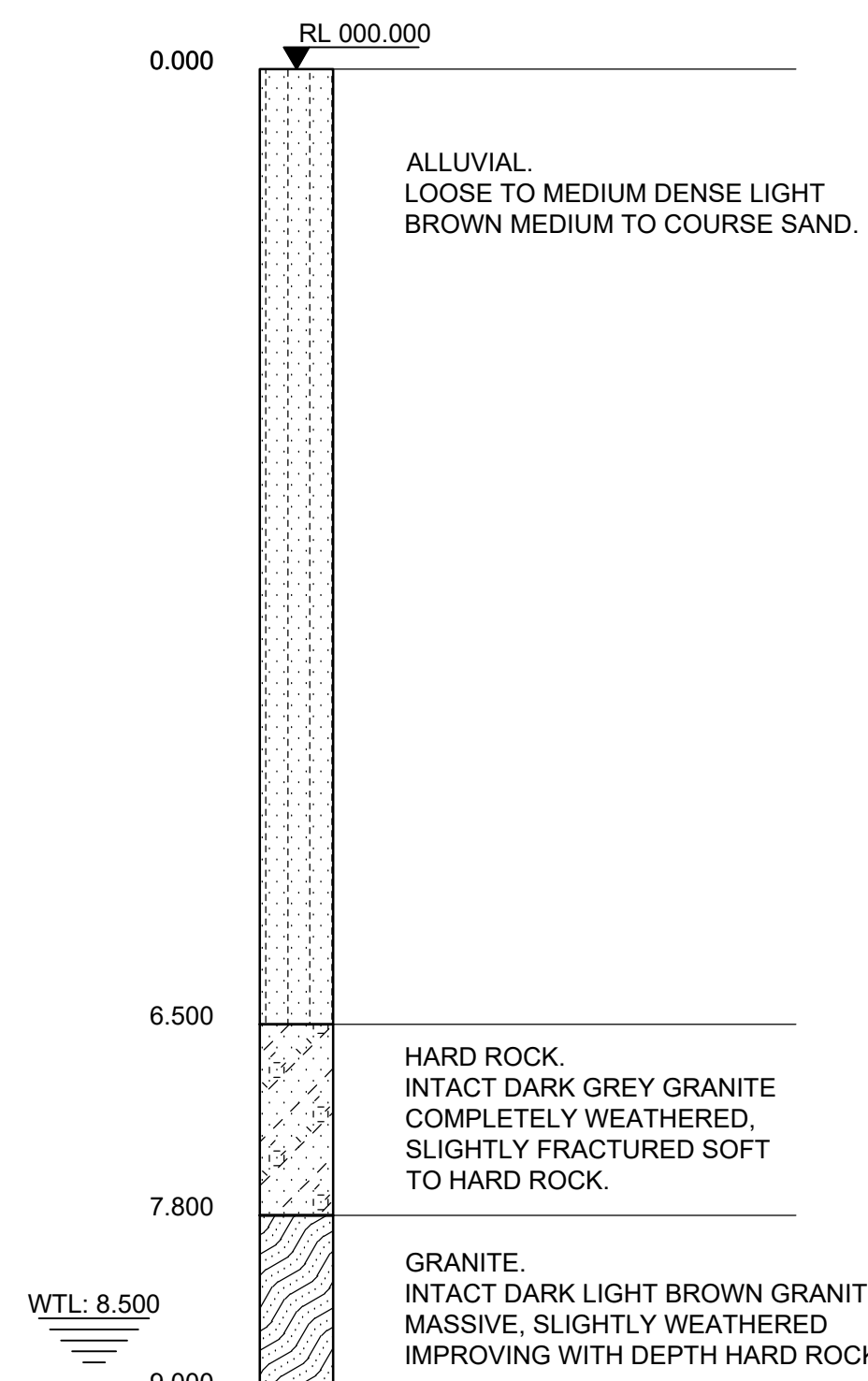
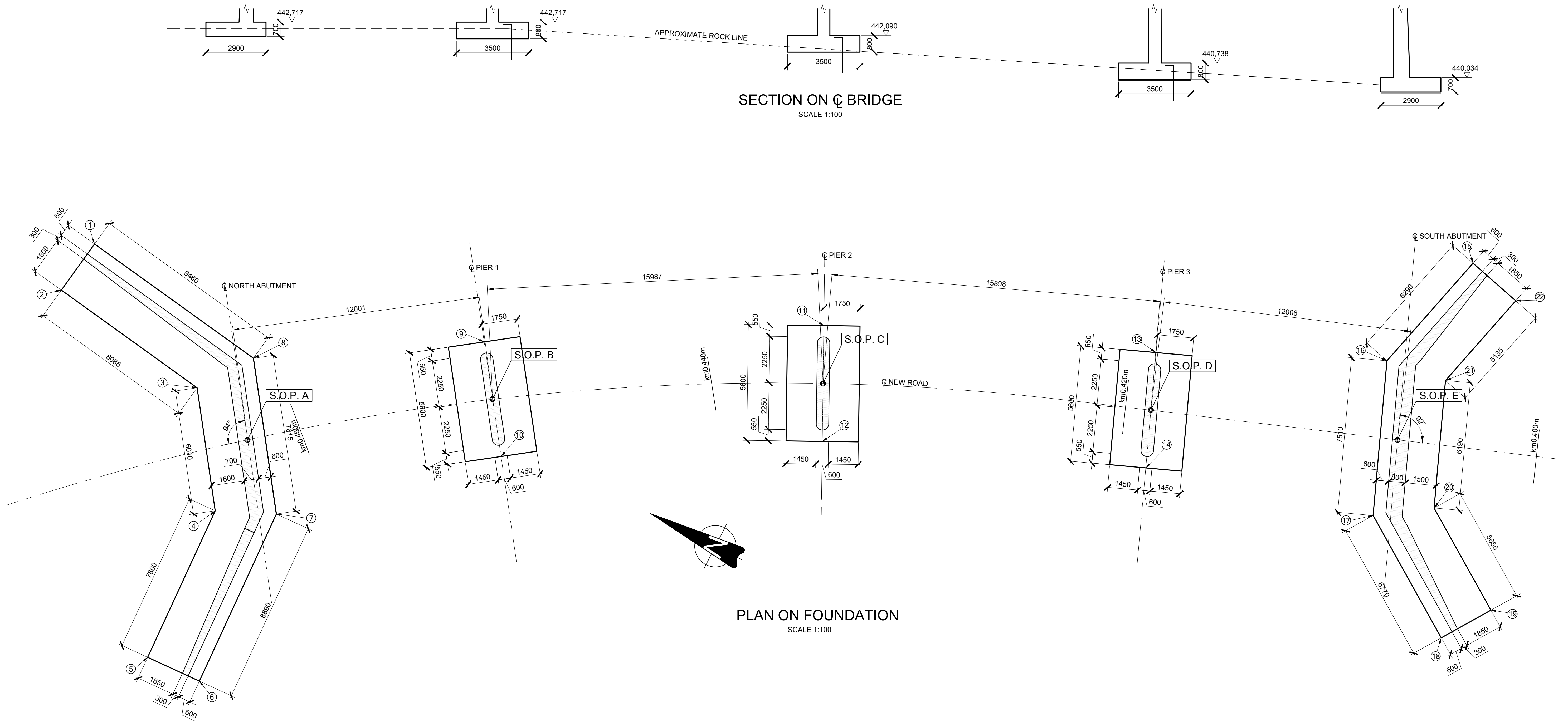
3. CONCRETE COVER

a) DECK -40mm
b) NEW JERSEY BARRIER -40mm
c) FOUNDATIONS -50mm
d) WALLS -40mm

REFER TO DRG. No. 16432-301-010 & 011 FOR BALUSTRADE DETAILS

CO-ORDINATE LIST
SETTING OUT POINTS

POINT	Y	X
S.O.P.		
A	-26981.594	2811222.956
B	-26988.652	2811232.664
C	-26996.483	2811245.602
D	-27002.423	2811261.349
E	-27006.482	2811272.647
NORTH ABUTMENT		
1	-26986.746	2811212.103
2	-26984.032	2811211.666
3	-26982.748	2811219.648
4	-26977.824	2811223.092
5	-26970.028	2811223.350
6	-26970.118	2811226.098
7	-26970.006	2811225.805
8	-26985.245	2811221.441
PIER 1		
9	-26990.946	2811231.060
10	-26986.358	2811234.271
PIER 2		
11	-26999.004	2811245.382
12	-26993.963	2811247.822
PIER 3		
13	-27005.028	2811260.818
14	-26999.818	2811262.375
SOUTH ABUTMENT		
15	-27015.752	2811272.084
16	-27009.688	2811270.478
17	-27002.852	2811273.231
18	-26998.867	2811278.820
19	-27001.139	2811280.370
20	-27004.326	2811275.700
21	-27010.083	2811273.432
22	-27015.050	2811274.742

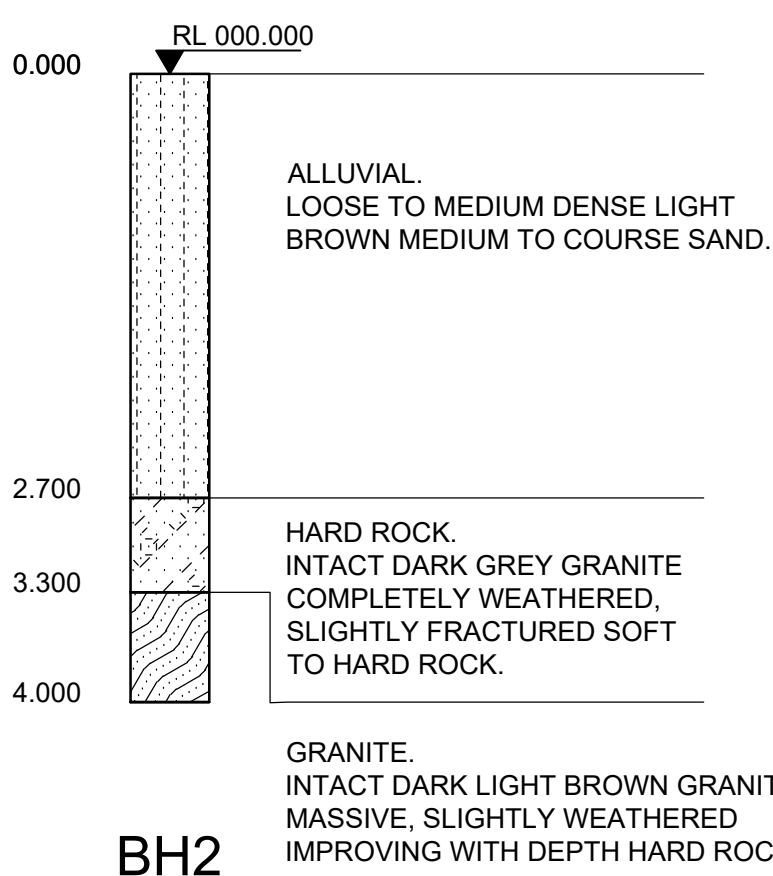


BH1

NOTES
1) SAMPLES AS FOLLOWS: UCSORM21A AT
13.00m-13.22m UCSORM21B AT 10.72m-13.50m.
2) WATER TABLE AT 8.08m.

BOREHOLE LOGS

1 : 50



BH2

REV	DATE	DRAWN	CHKD	DESCRIPTION
A	07/02/2023	EM	DB	TENDER PURPOSES

MBombela Tymp and Associates (PTY) LTD
e-mail: octavius@mbaconsulting.co.za
No. 12 Blue Haven, 130 Bendor Dr
Bendor Park, Polokwane, 0950
P.O. Box 688
Thornhill Plaza, 0882
Tel: 27 15 023 0026
Fax: 27 150297 0588

CLIENT
**MBOMBELA
LOCAL
MUNICIPALITY**

ARCHITECT

PROJECT
**CONSTRUCTION OF
ESIDUNGENI VEHICLE
BRIDGE (WARD 24 LUPHISI)**

DRAWING
**FOUNDATION LAYOUT
AND DETAILS**

TENDER PURPOSES

DESIGNED	EM	SIGNATURE	DATE
DRAWN	EM		07/02/2023
CHECKED	DS		07/02/2023
APPROVED	DB		07/02/2023

SCALE	AS SHOWN	SHEET NUMBER	SHEET SIZE	REGION
PROJECT NO.	2022-02	P	203 T	A0 A
CLIENT DRAWING NO.				

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NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR
TO CONSTRUCTION. ALL DISCREPANCIES
TO BE REPORTED TO ENGINEER.

NOTES

- | | |
|--------------------|---------|
| 1. CONCRETE GRADES | |
| FOUNDATIONS | -30/19 |
| WALLS | -30/19 |
| DECK | - 40/19 |
| PARAPETS | - 40/19 |

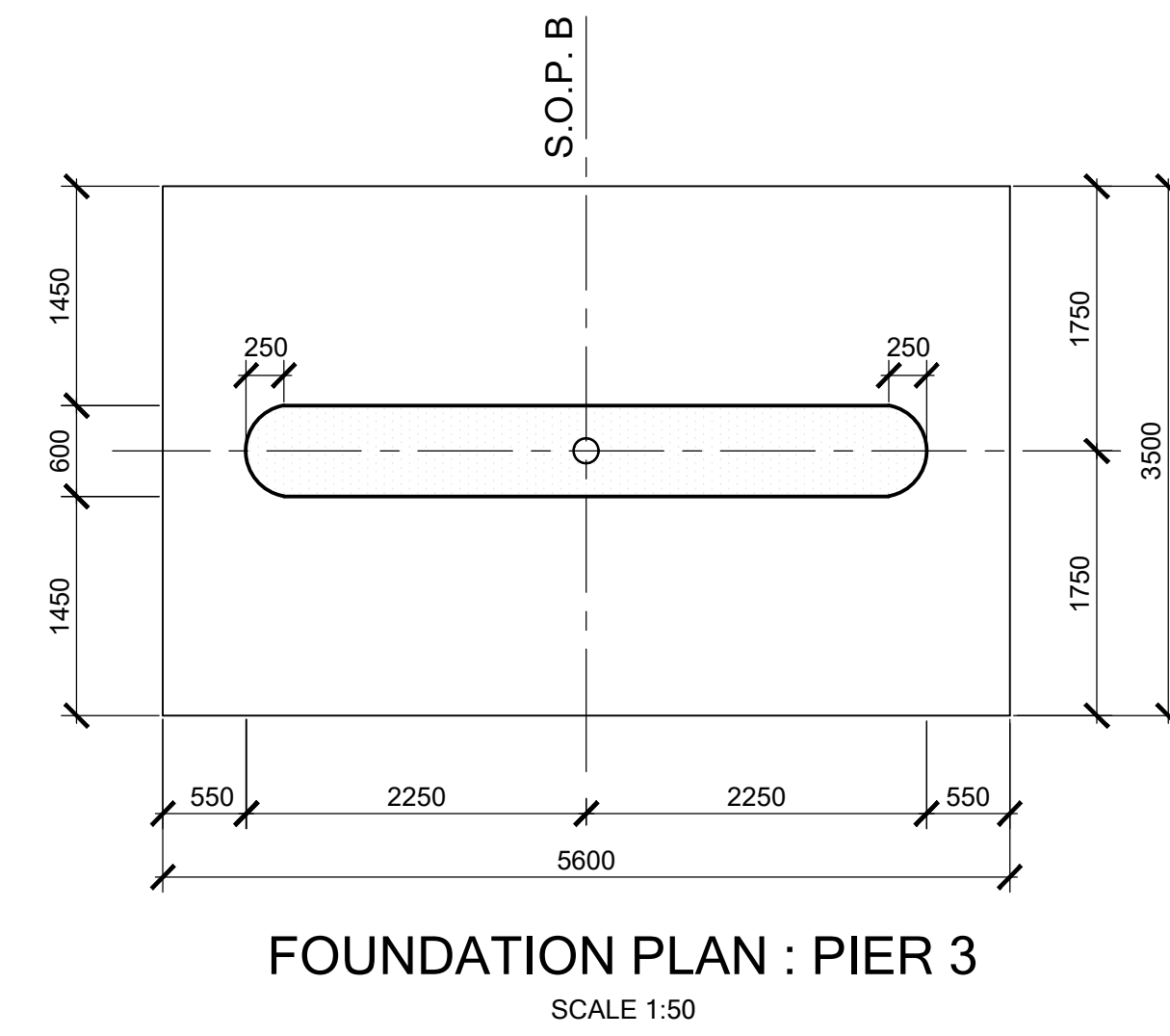
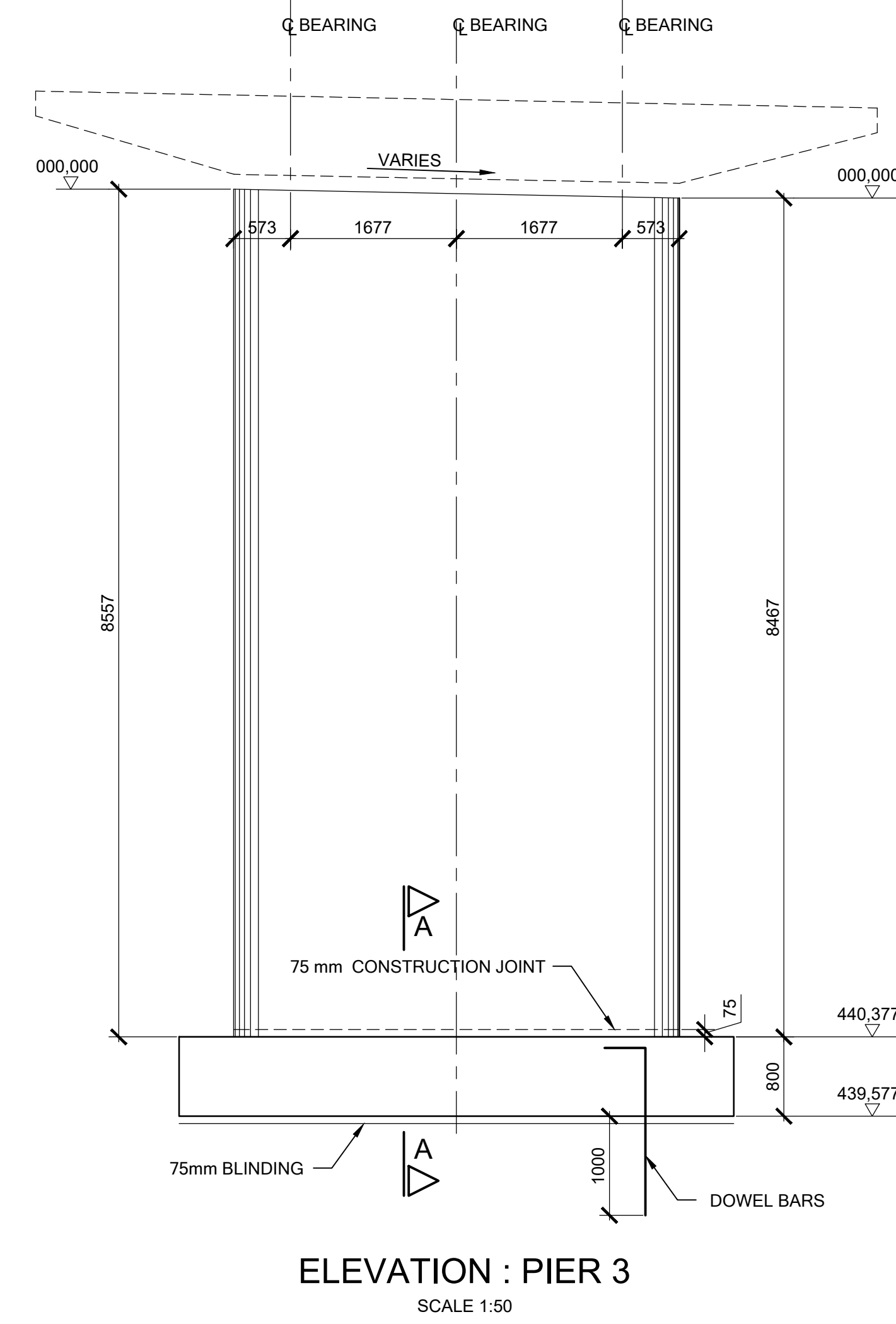
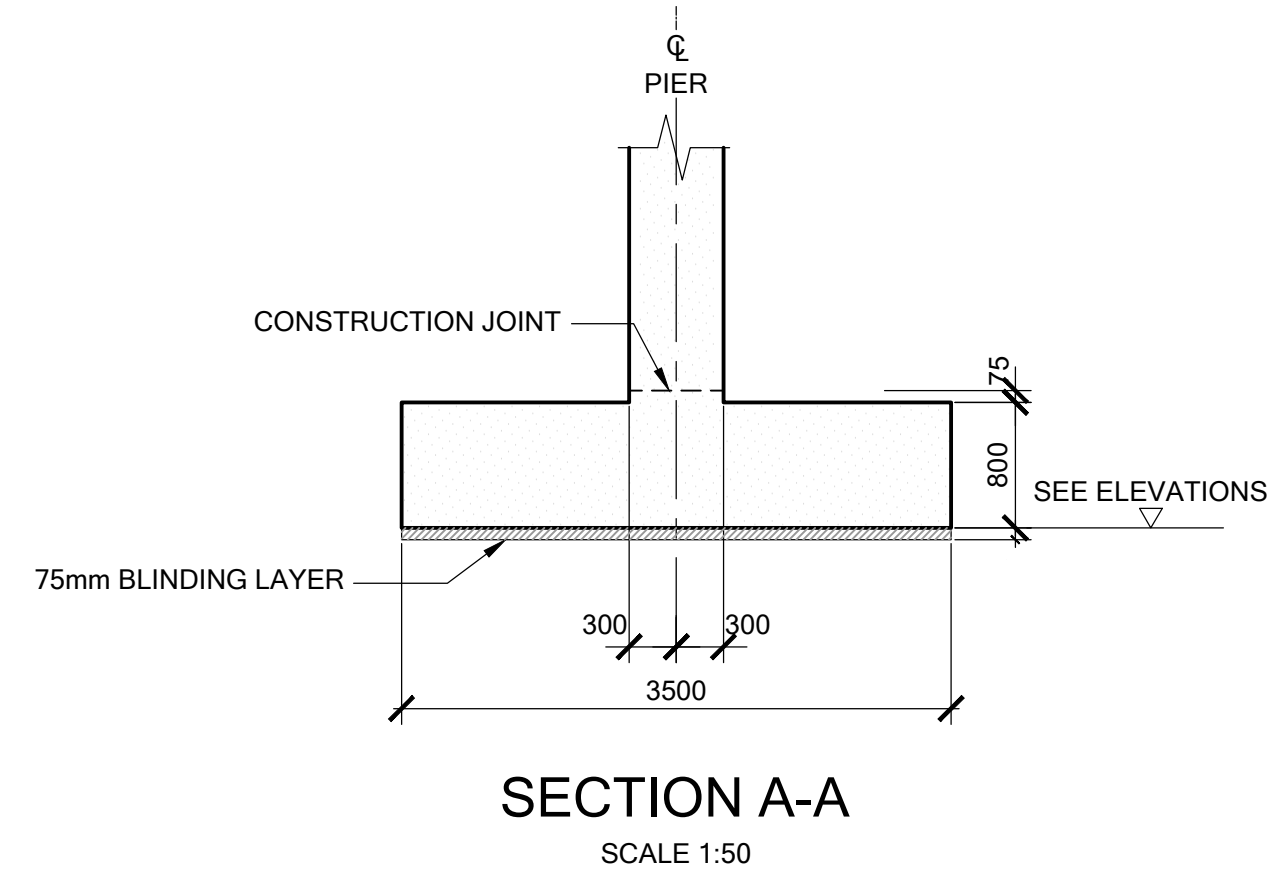
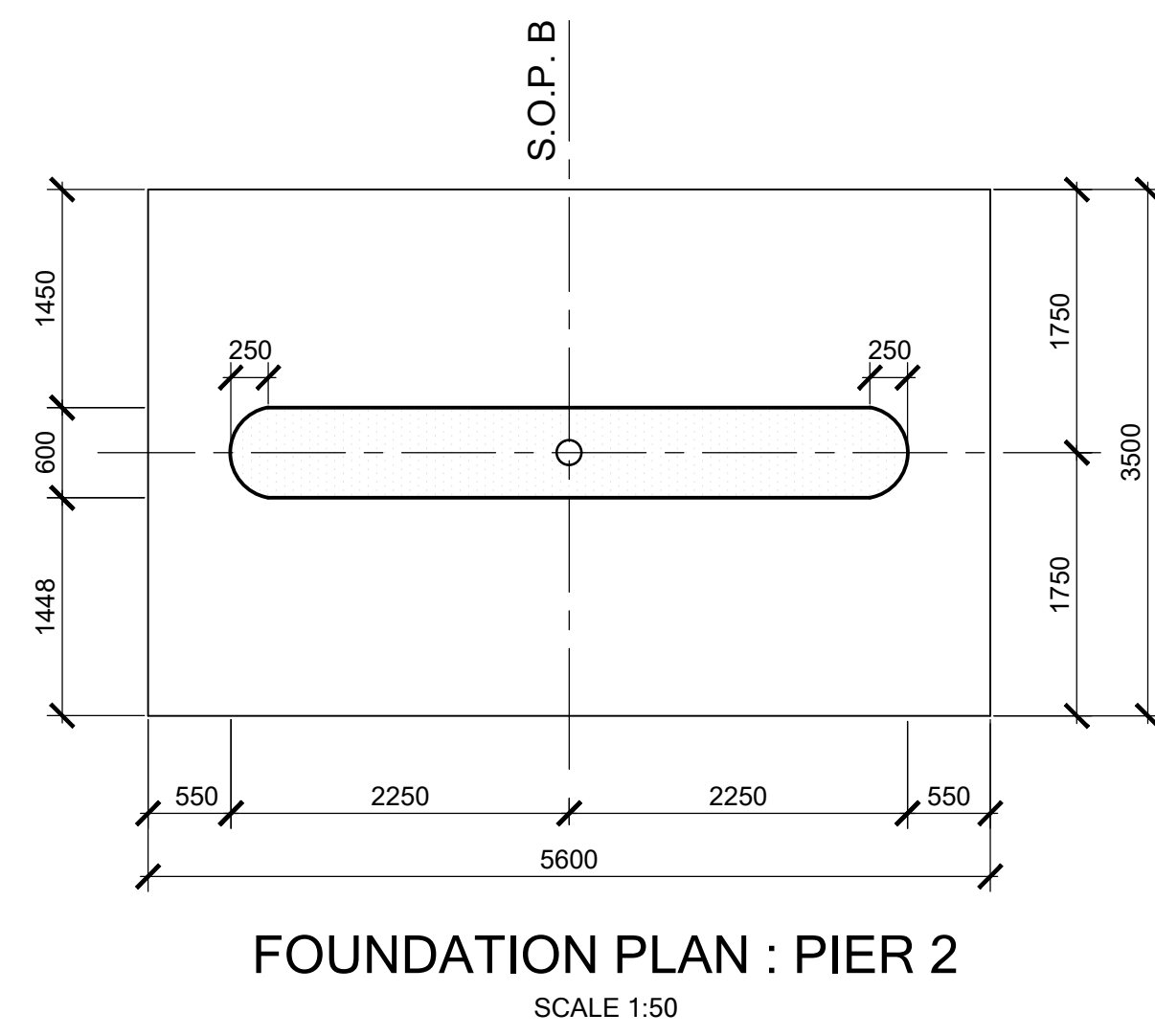
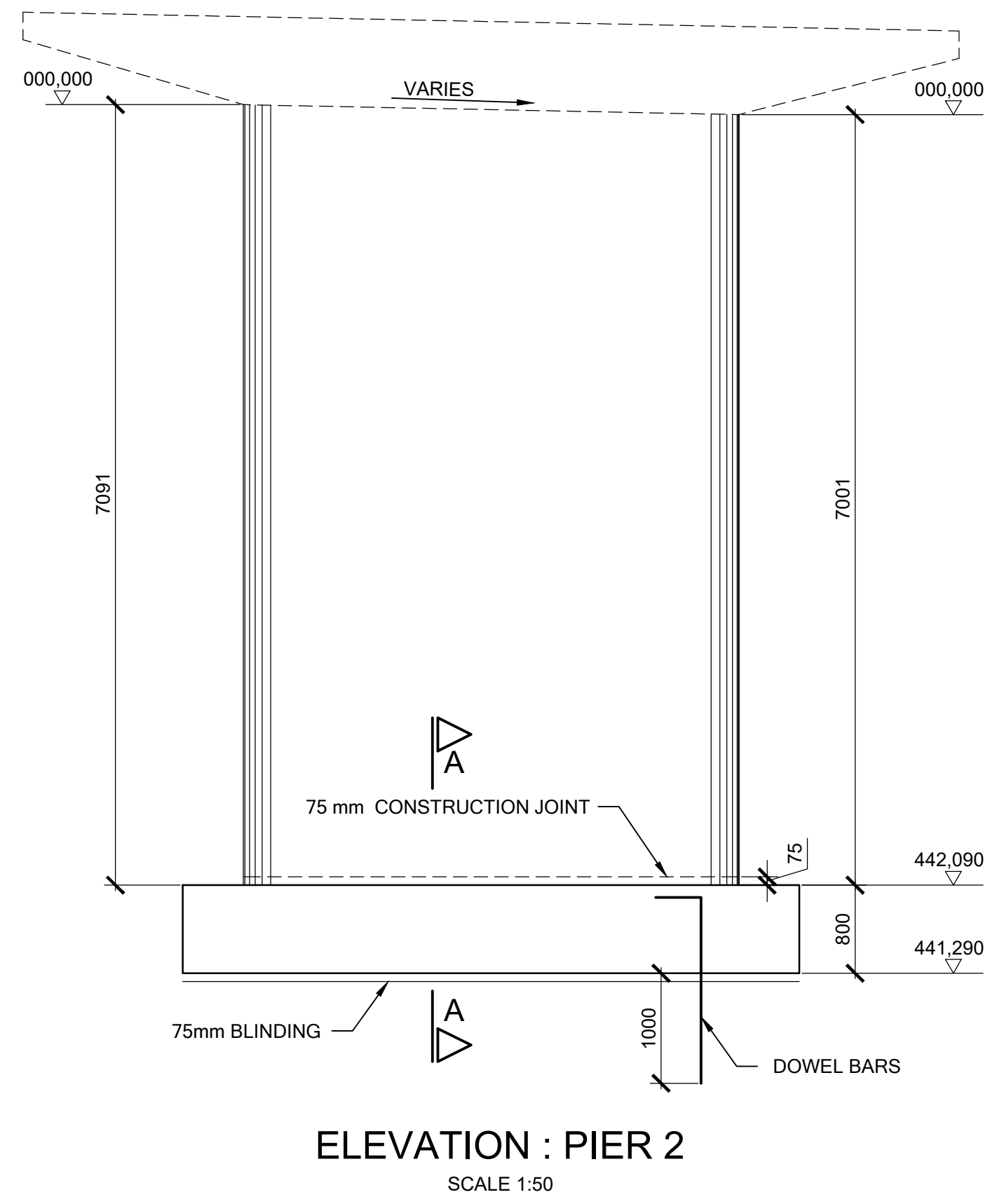
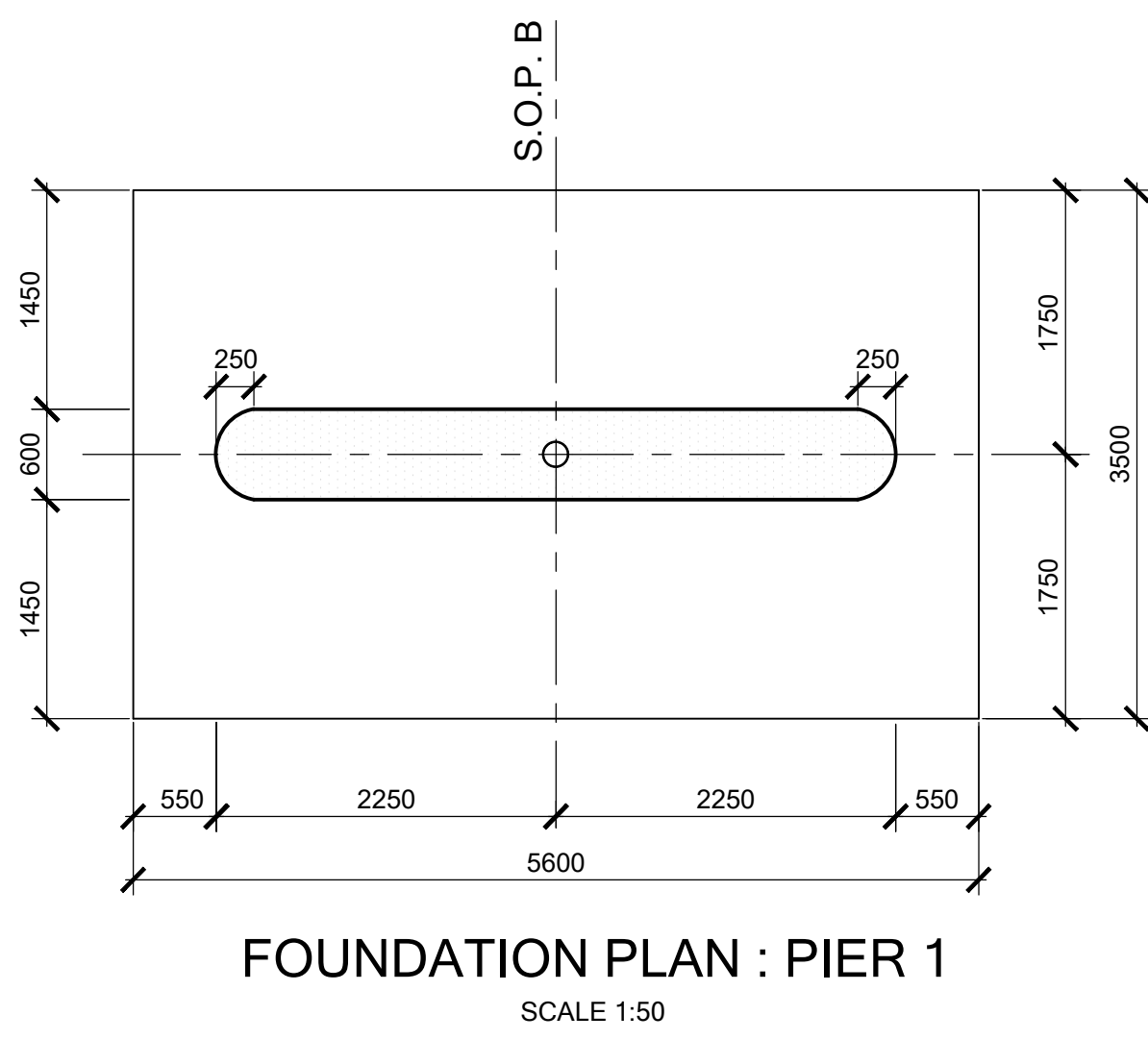
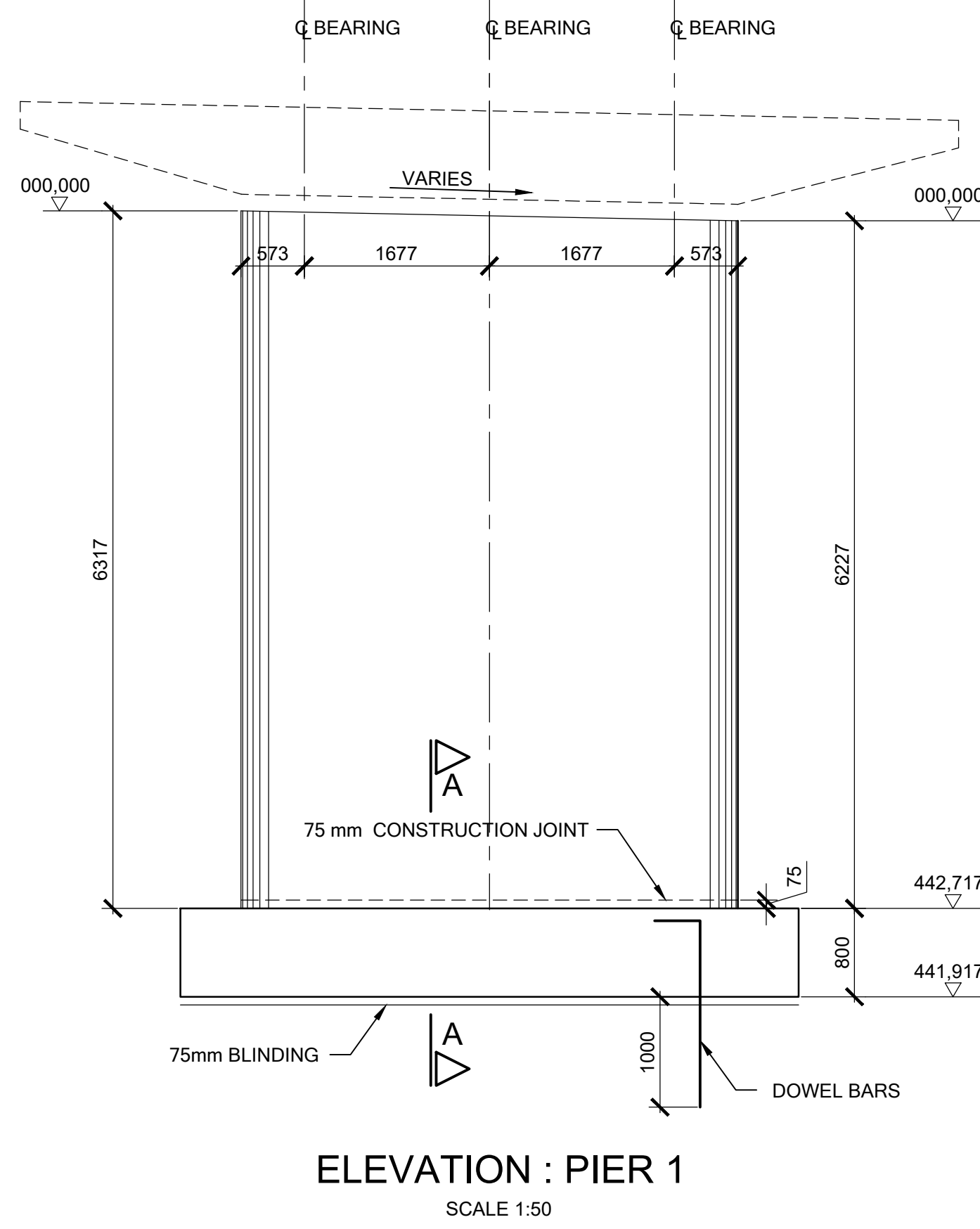
2.FINISH

- | | | |
|---------------------------------------|----|----|
| a) SUBSTRUCTURE, BURIED SURFACES | F1 | U2 |
| b) SUBSTRUCTURE, VISIBLE SURFACES | F2 | U2 |
| c) 25mm CHAMFERS TO ALL SHARP CORNERS | | |

3. CONCRETE COVER

- | | |
|-----------------------|--------|
| a) DECK | - 40mm |
| b) NEW JERSEY BARRIER | - 40mm |
| c) FOUNDATIONS | - 50mm |
| d) WALLS | - 40mm |

REFER TO DRG. No. 16432-301-010 & 011 FOR BALUSTRADE DETAILS

[illegible]

**MBOMBELA
LOCAL
MUNICIPALITY**

ARCHITECT

PROJECT	CONSTRUCTION OF ESIDUNGENI VEHICLE BRIDGE (WARD 24 LUPHISI)
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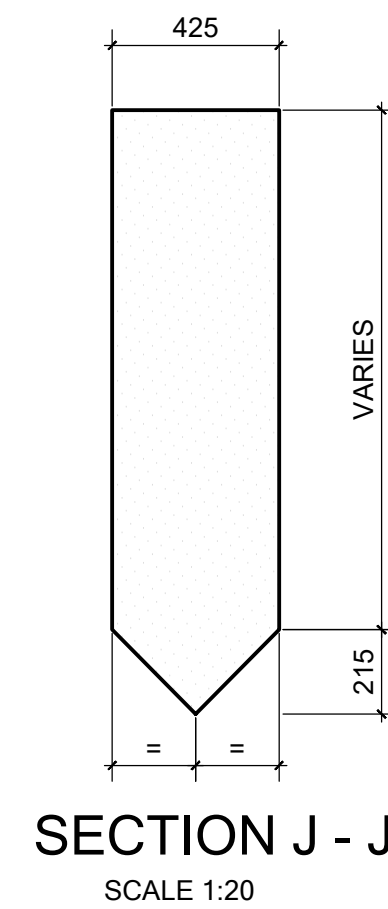
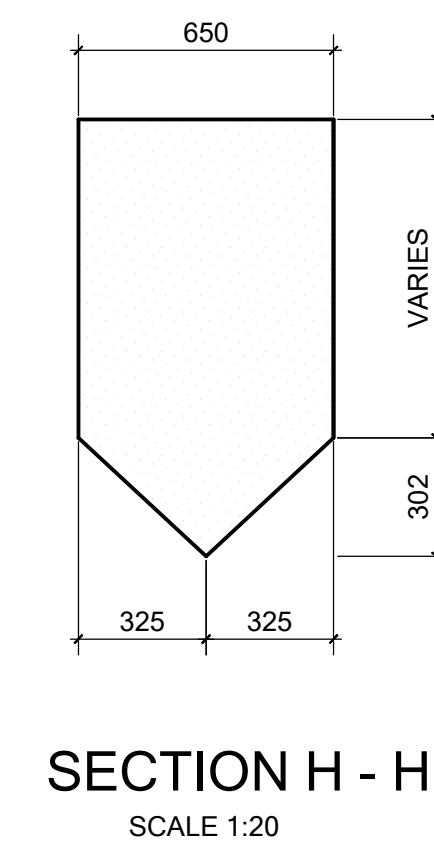
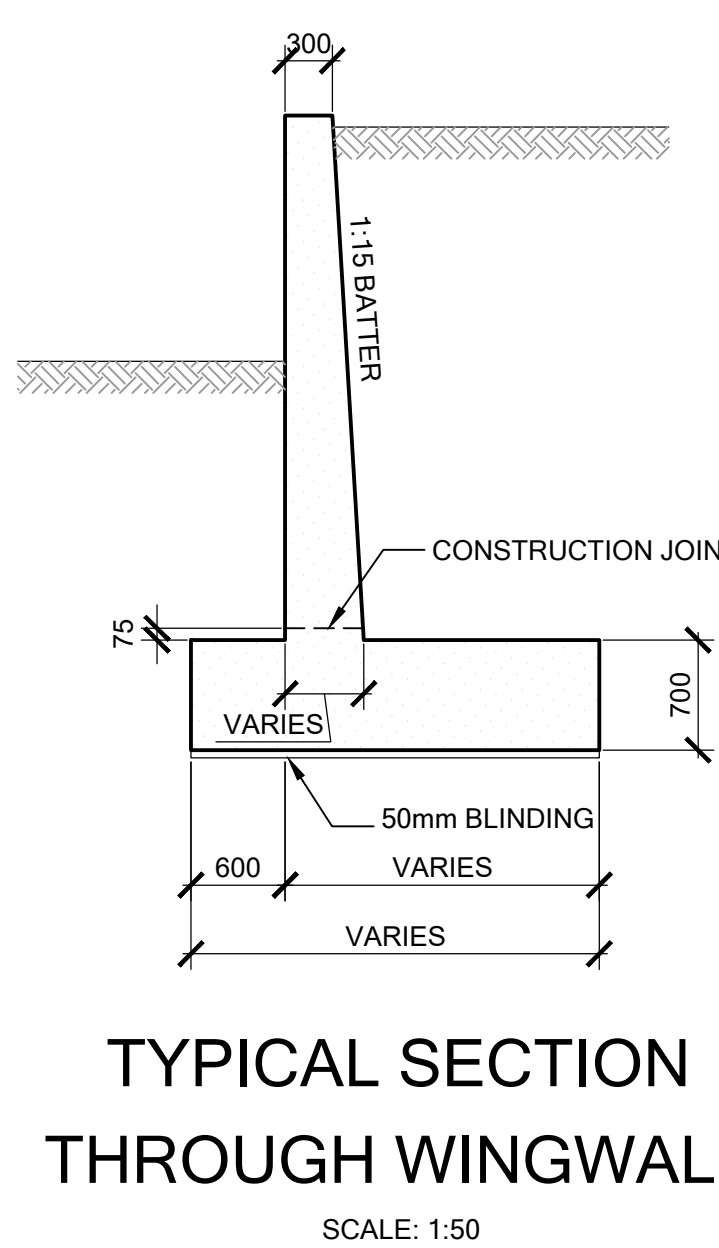
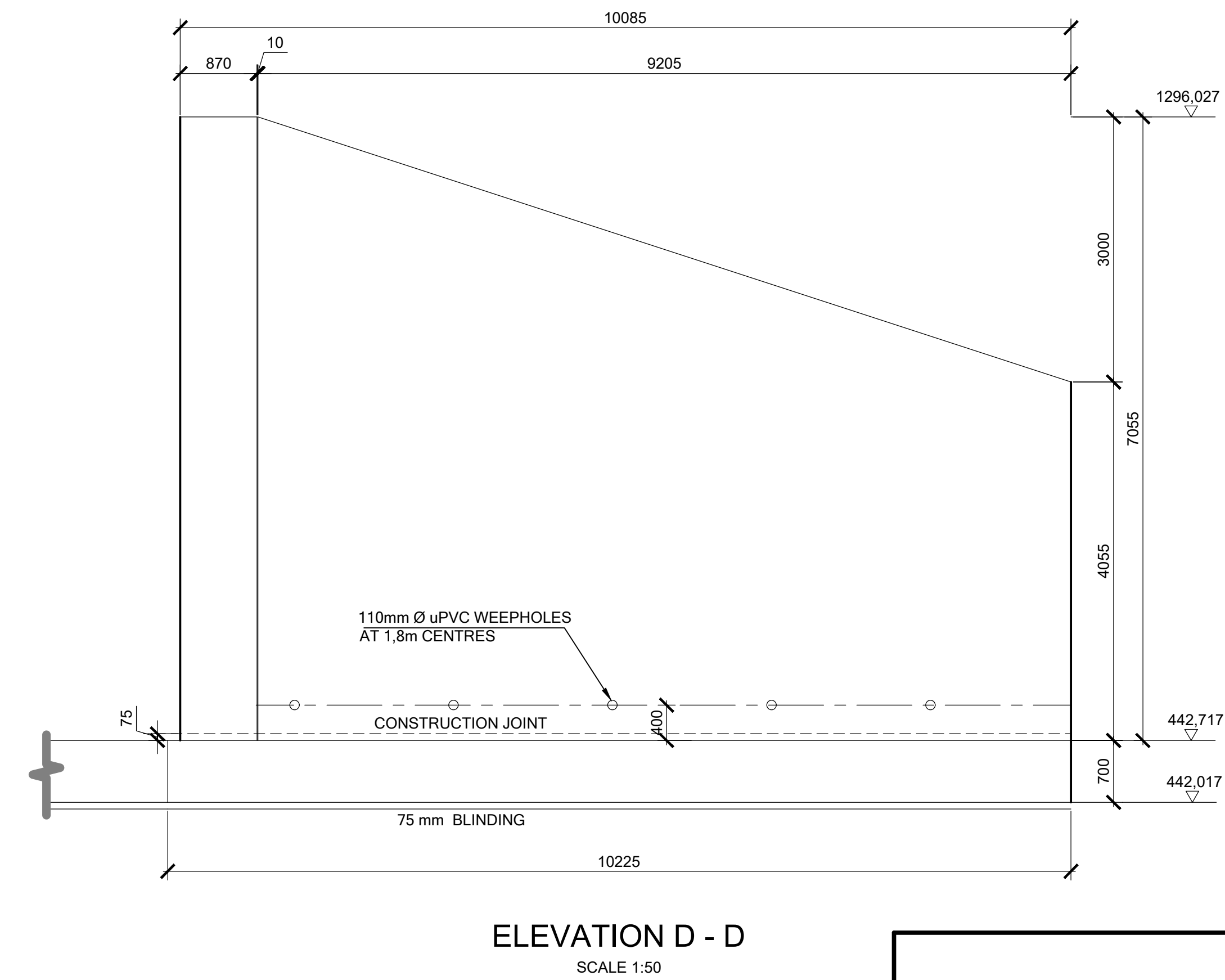
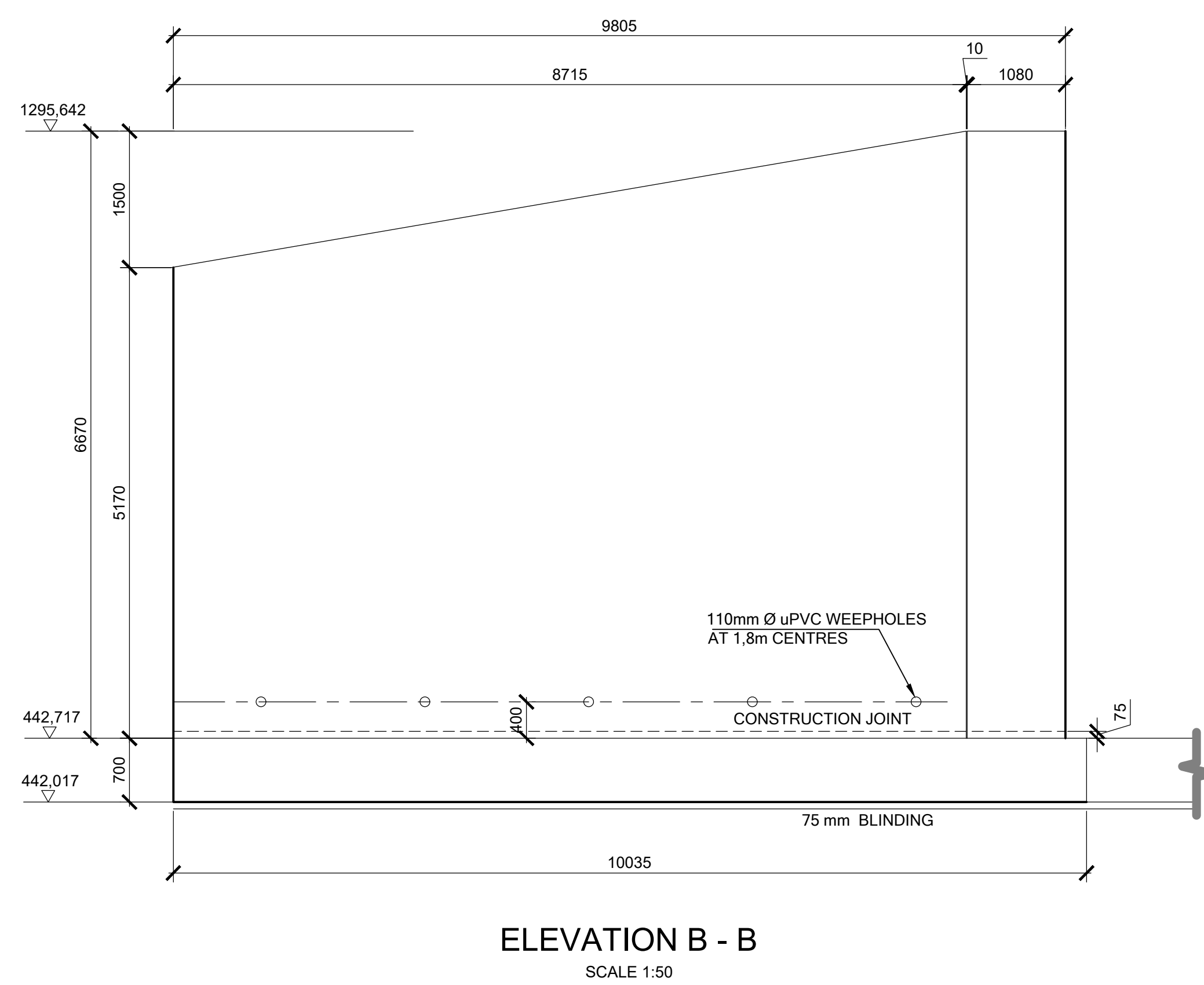
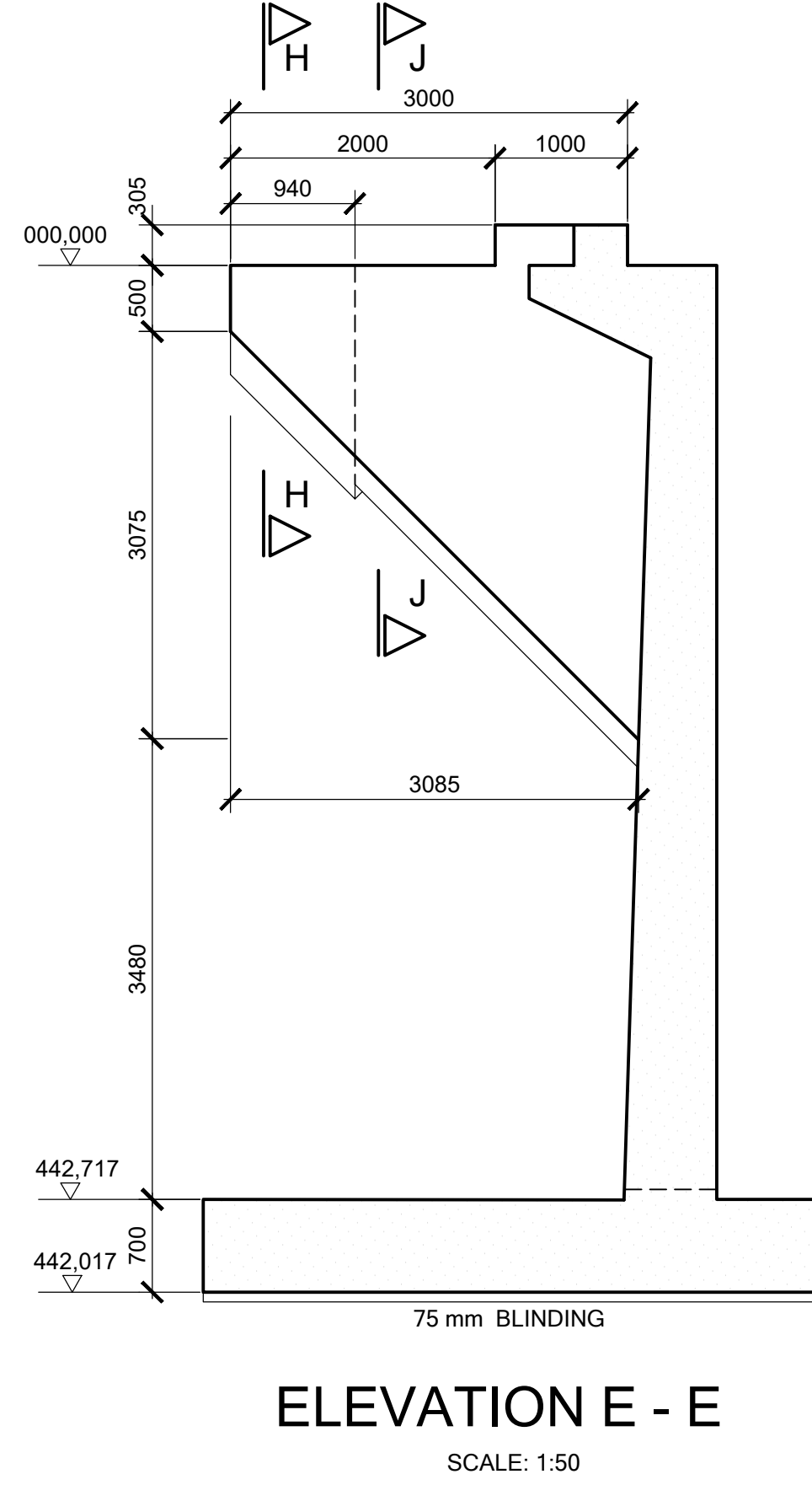
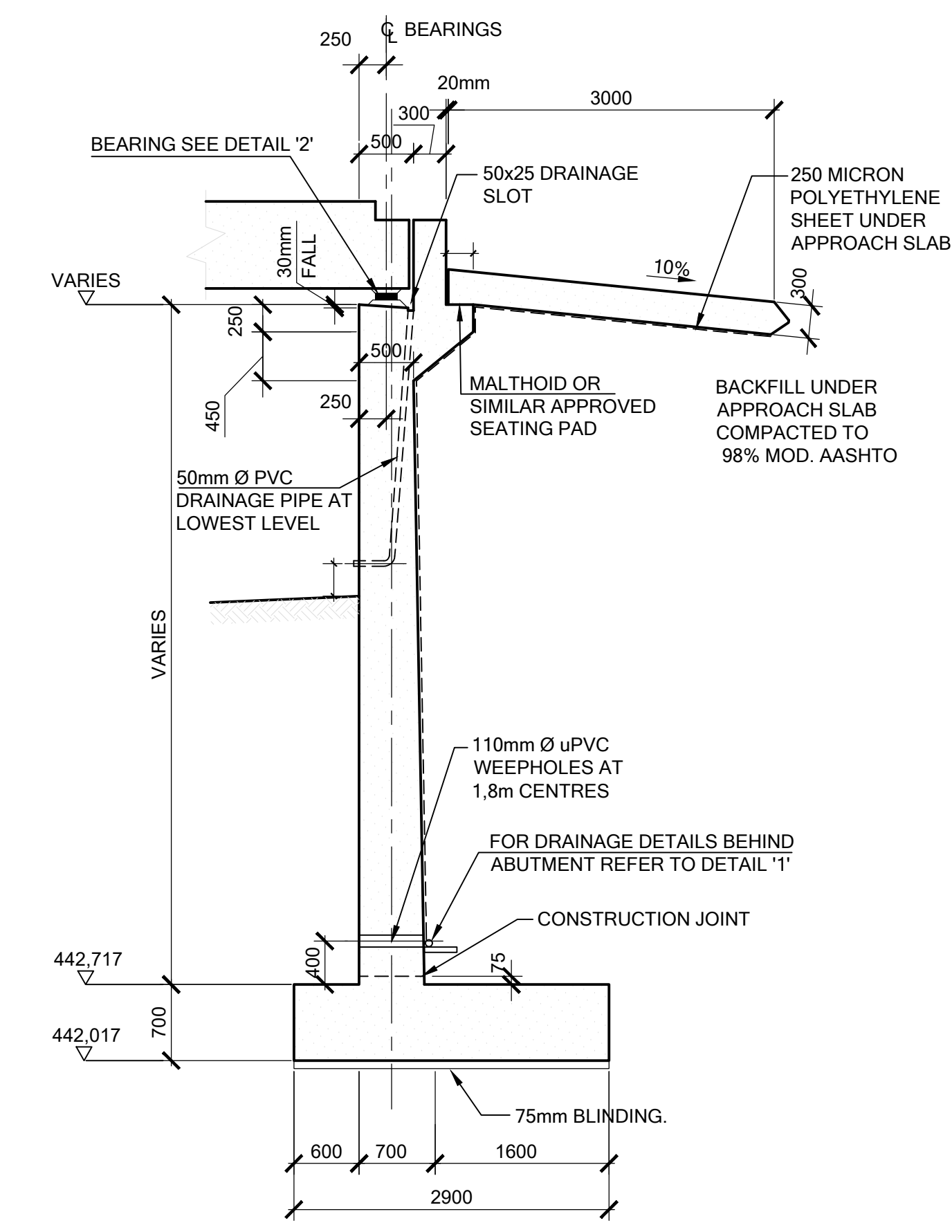
PIER CONCRETE DETAILS

TENDER PURPOSES

	SIGNATURE	DATE
DESIGNED	EM	07/02/2023
DRAWN	EM	07/02/2023
CHECKED	DS	07/02/2023
APPROVED	GB	07/02/2023

SCALE	AS SHOWN					
PROJECT No.		DISCIPL	DWG. NUMBER	STAGE	SHEET SIZE	REVISION
2022-02		P	204	T	A0	A
CLIENT DRAWING No.			FILE NAME AND LOCATION No.			

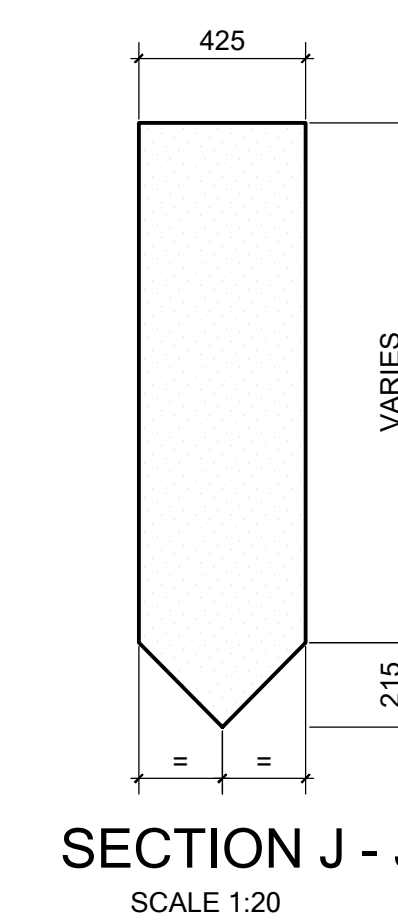
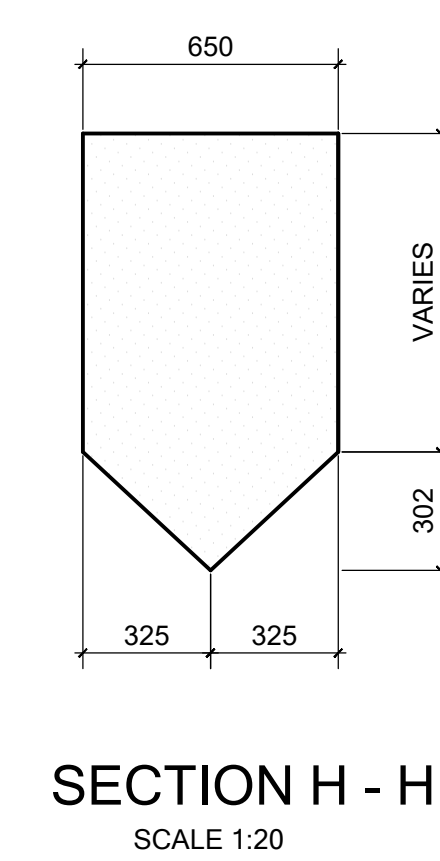
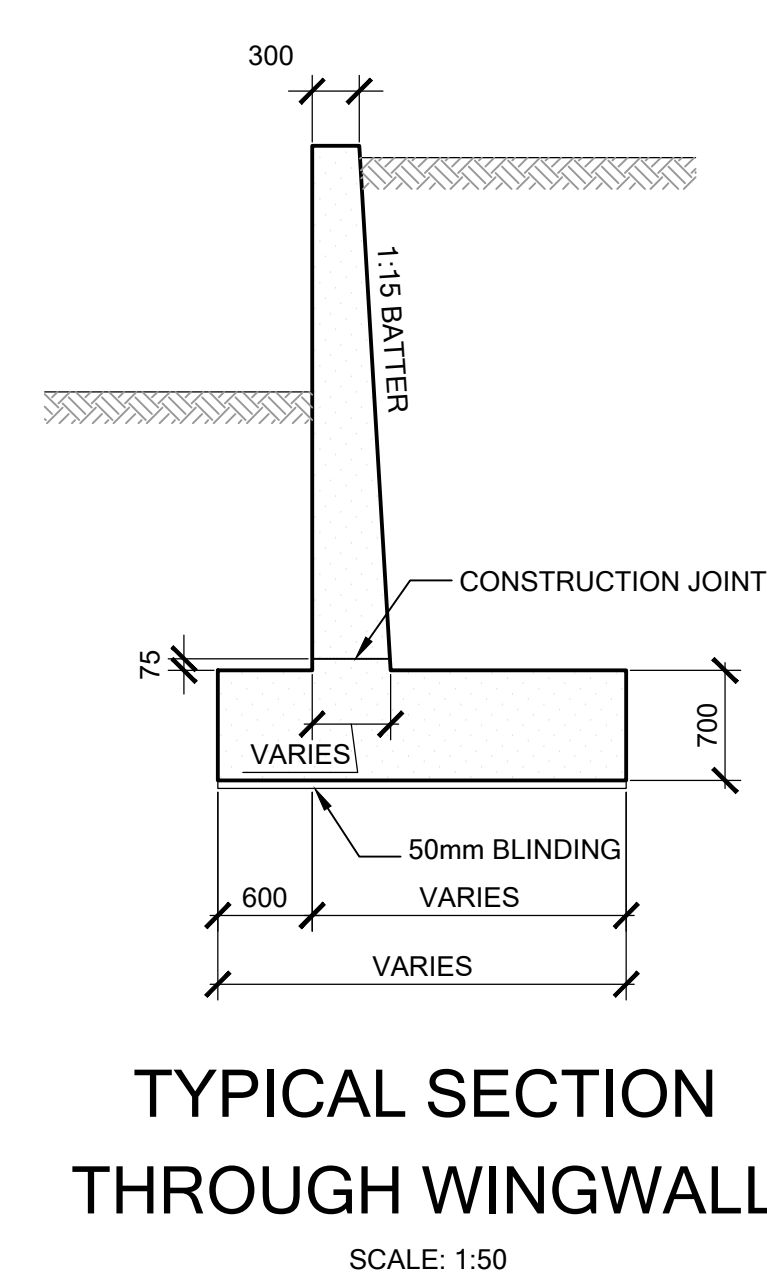
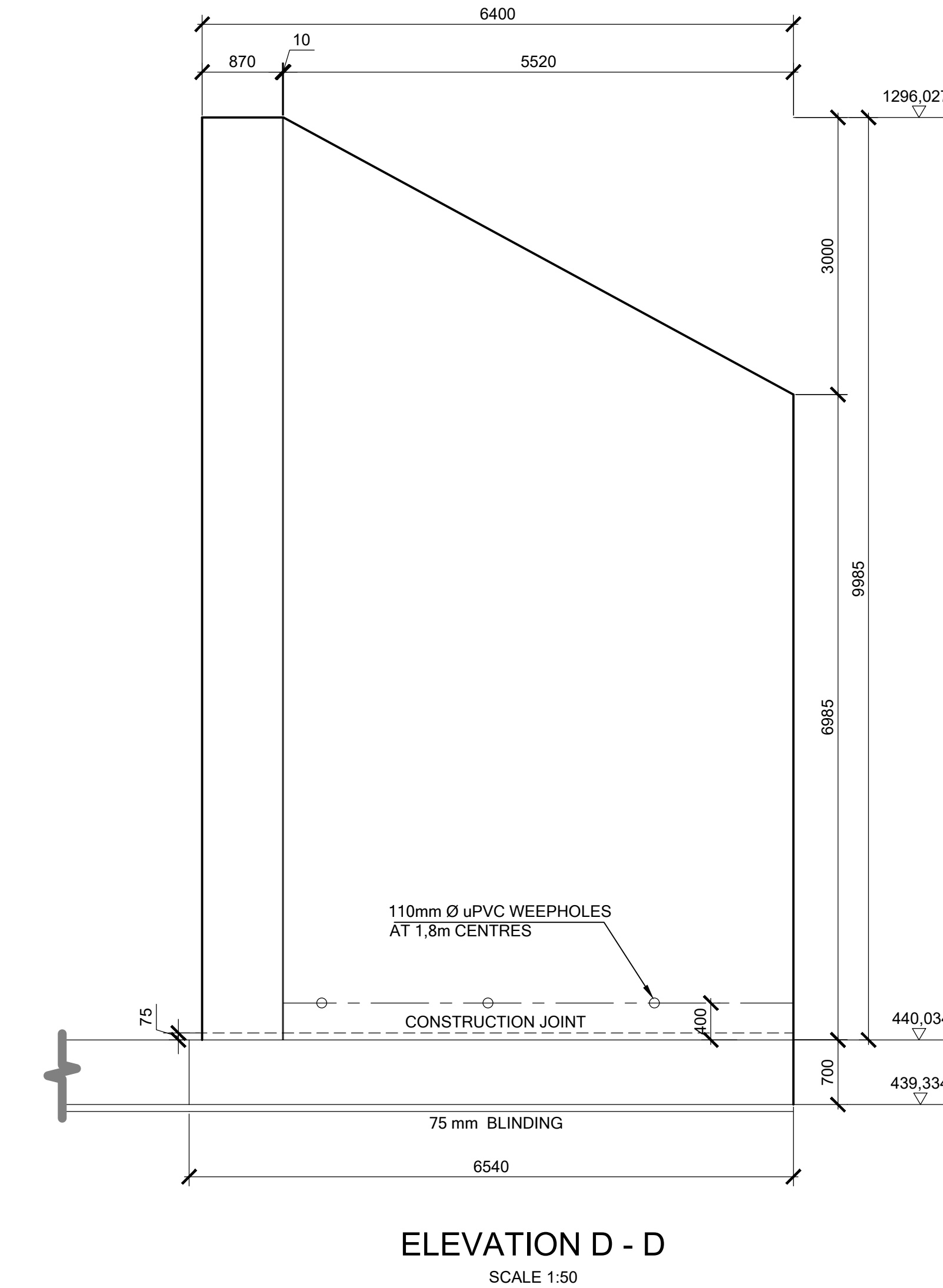
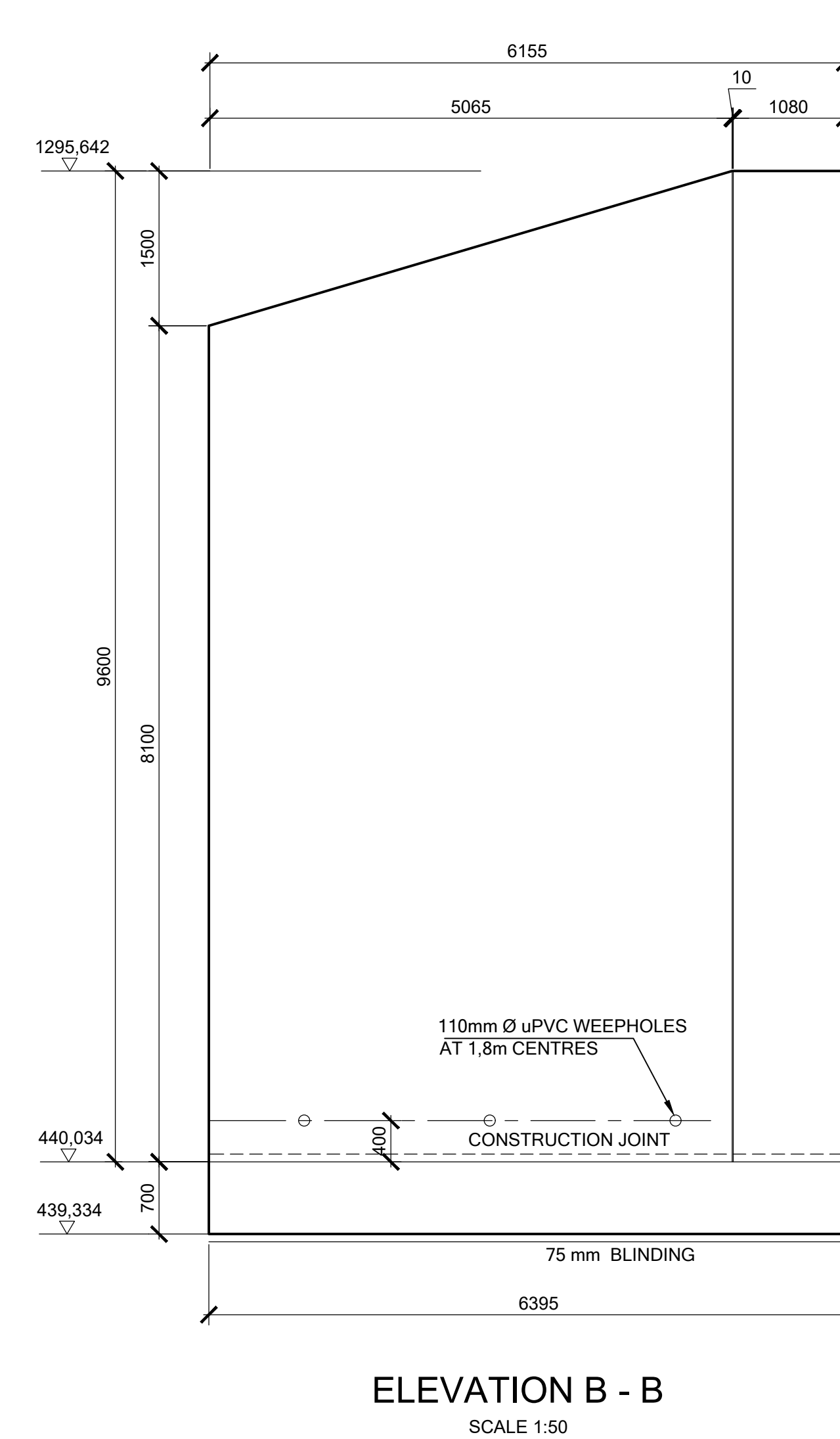
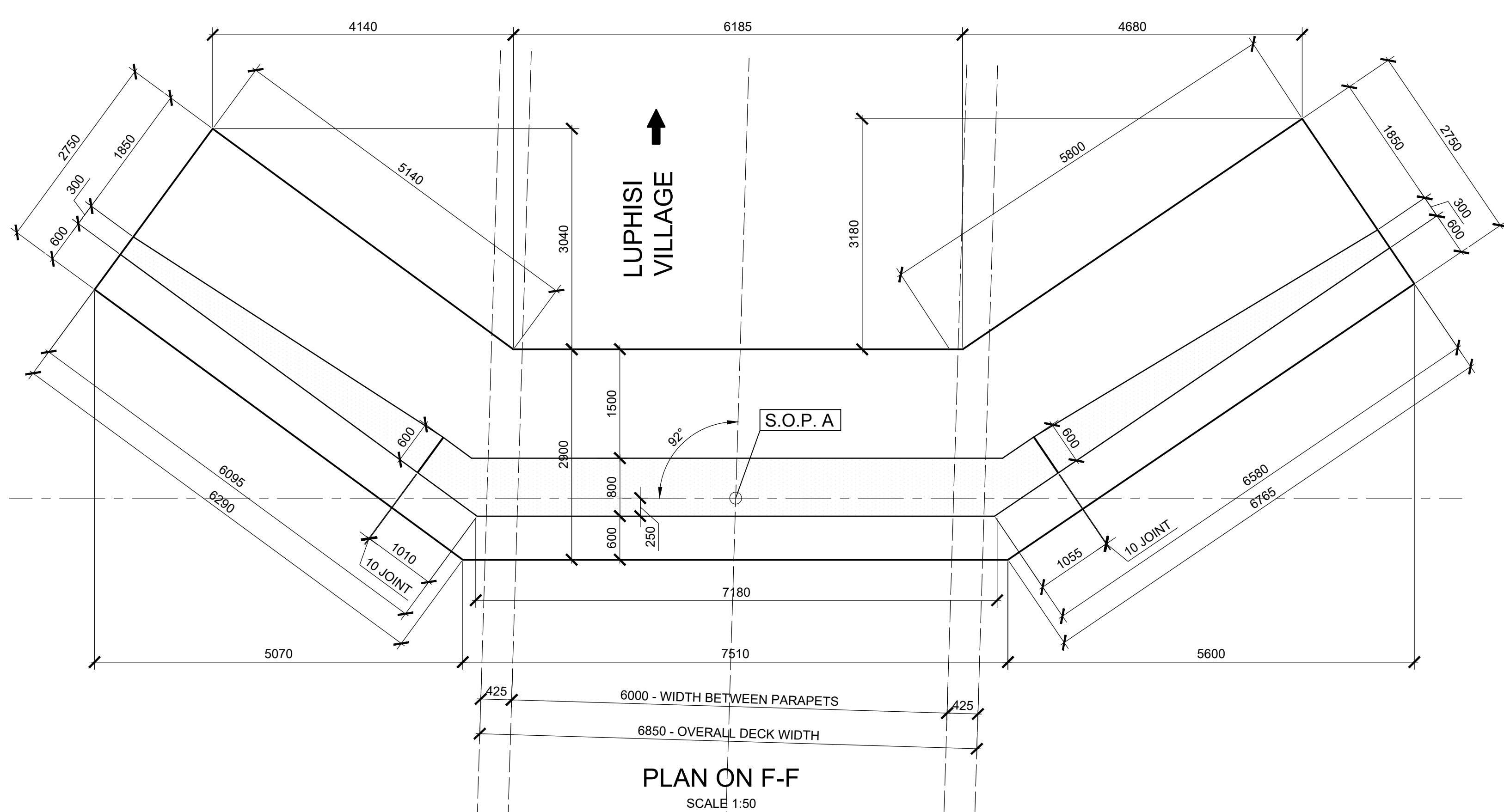
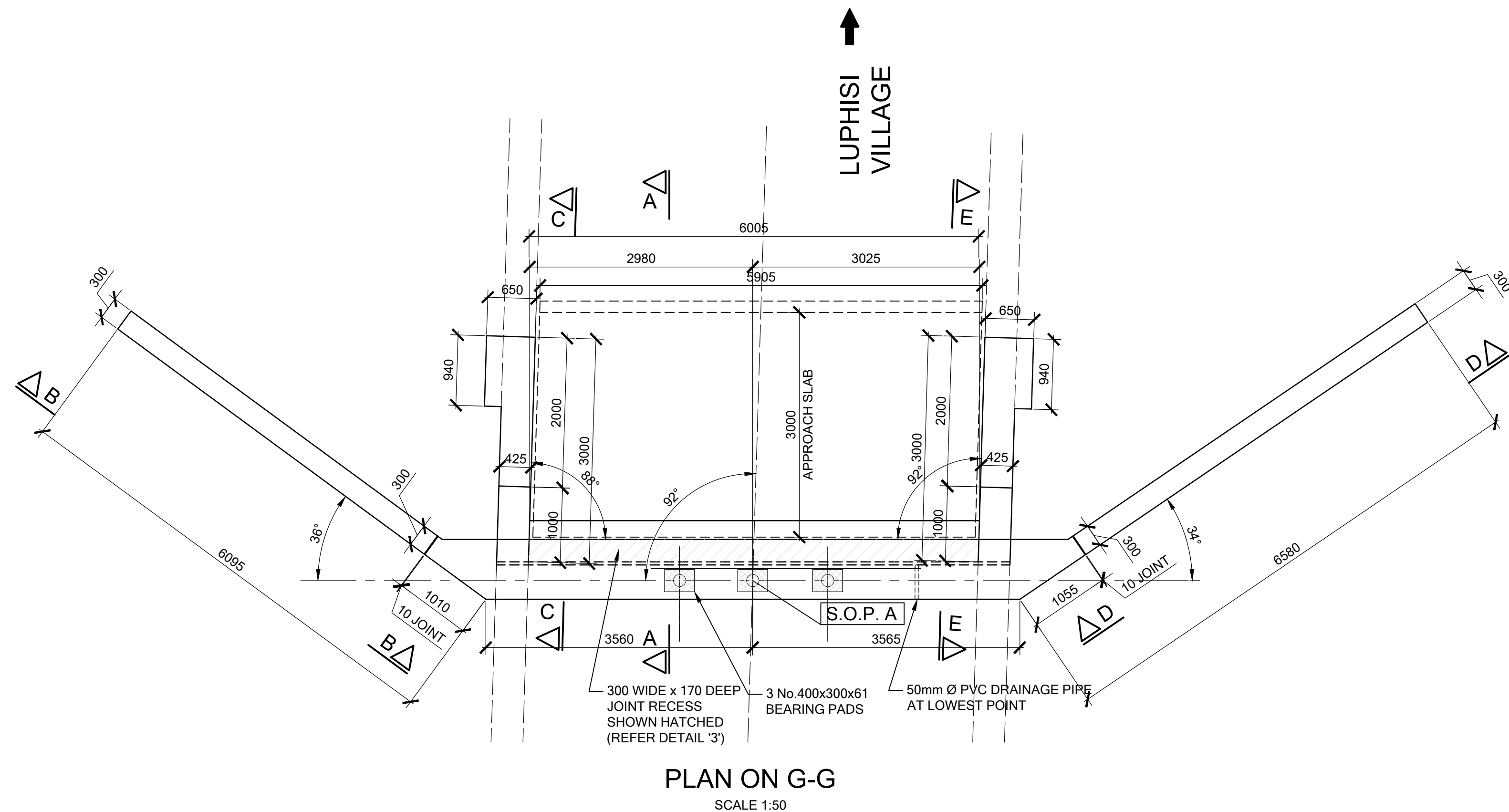
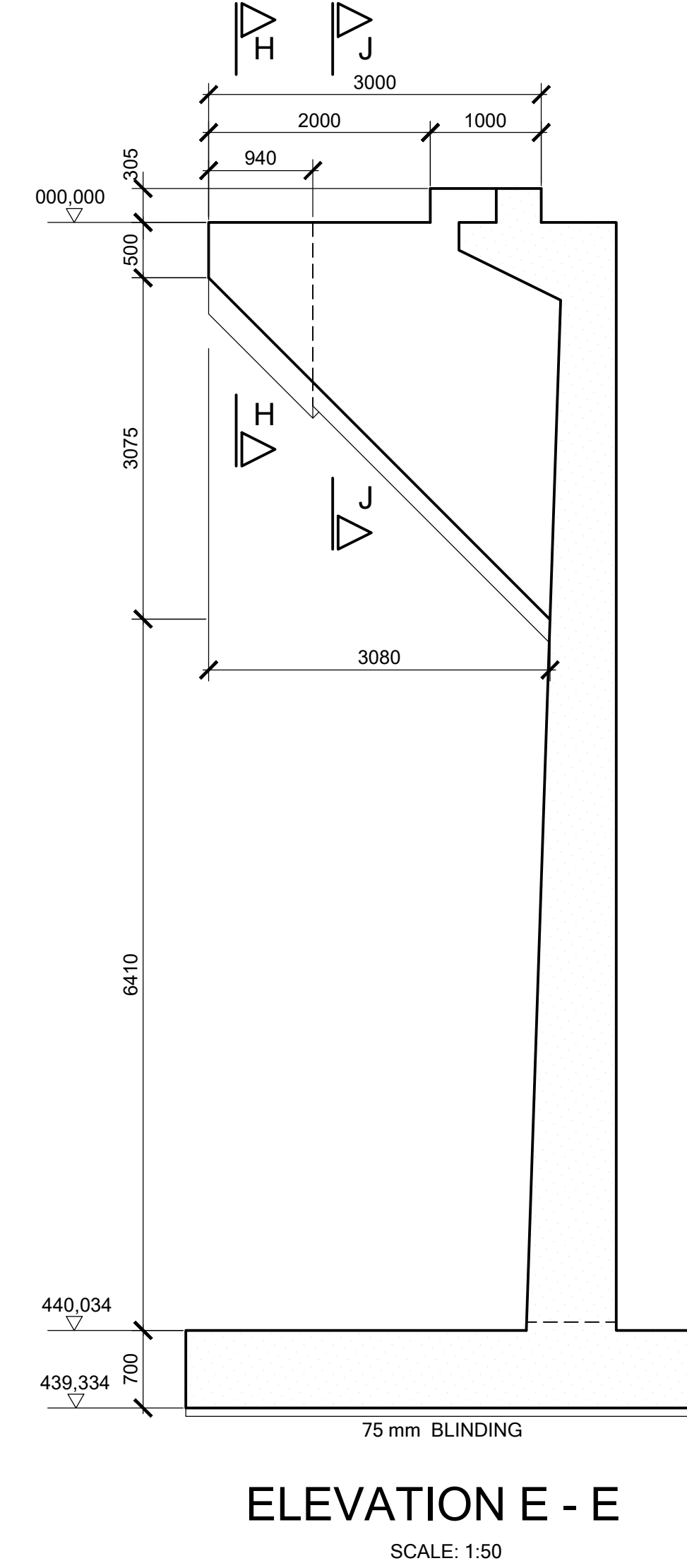
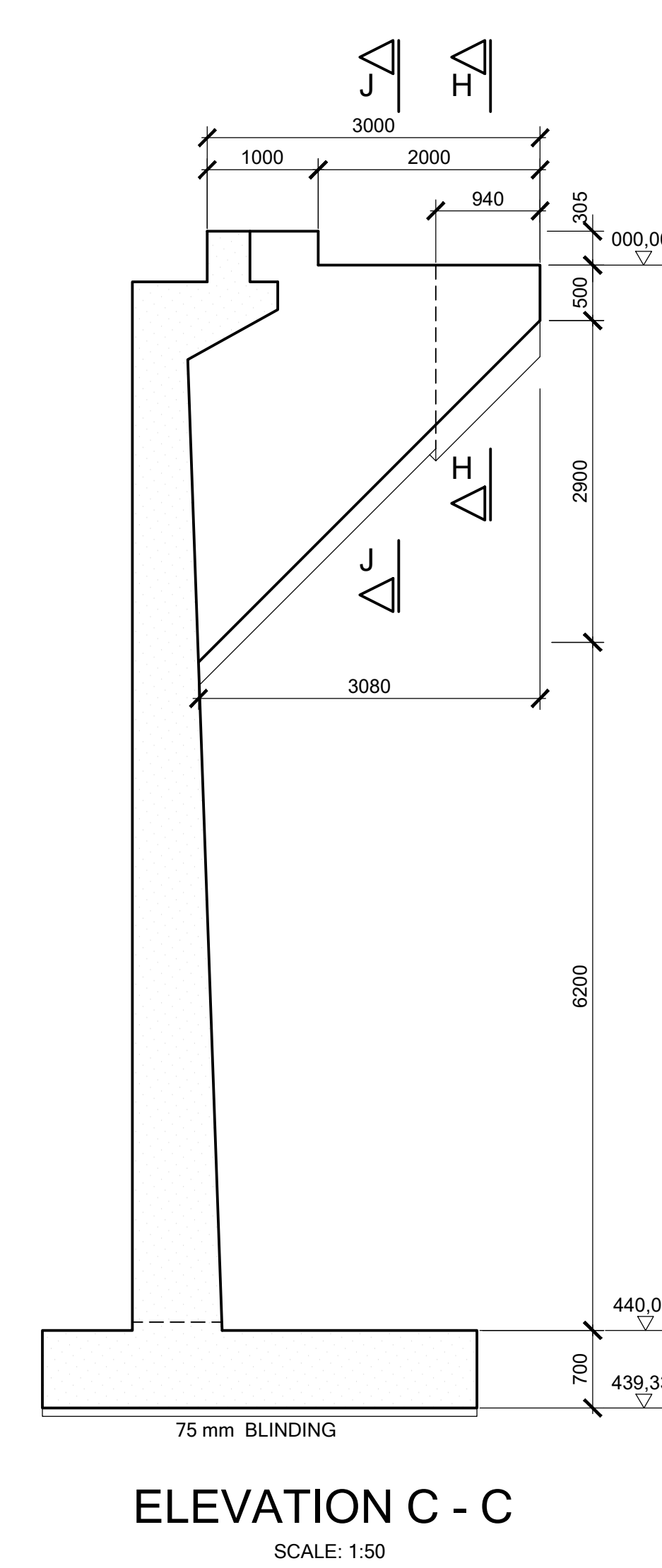
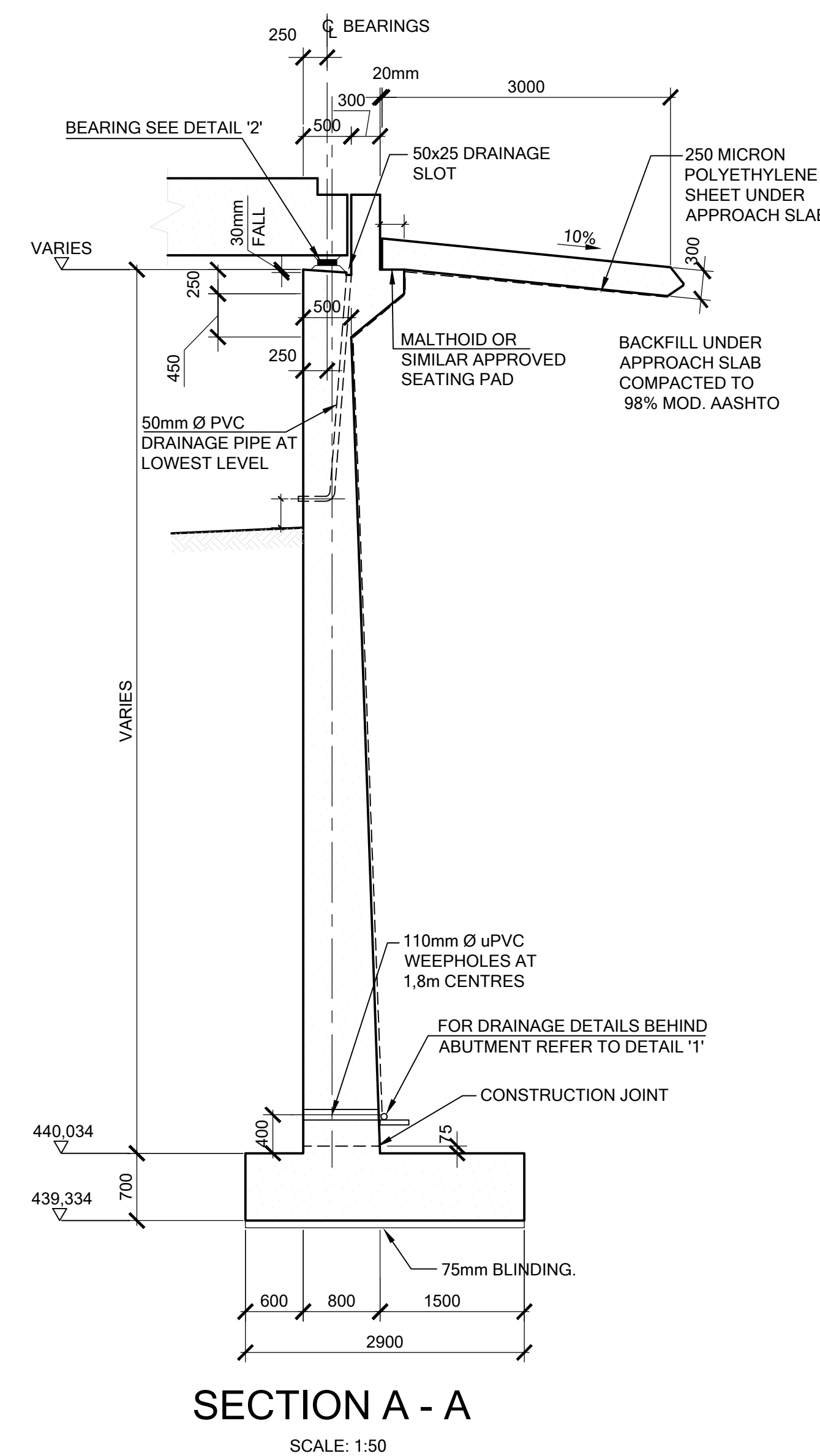
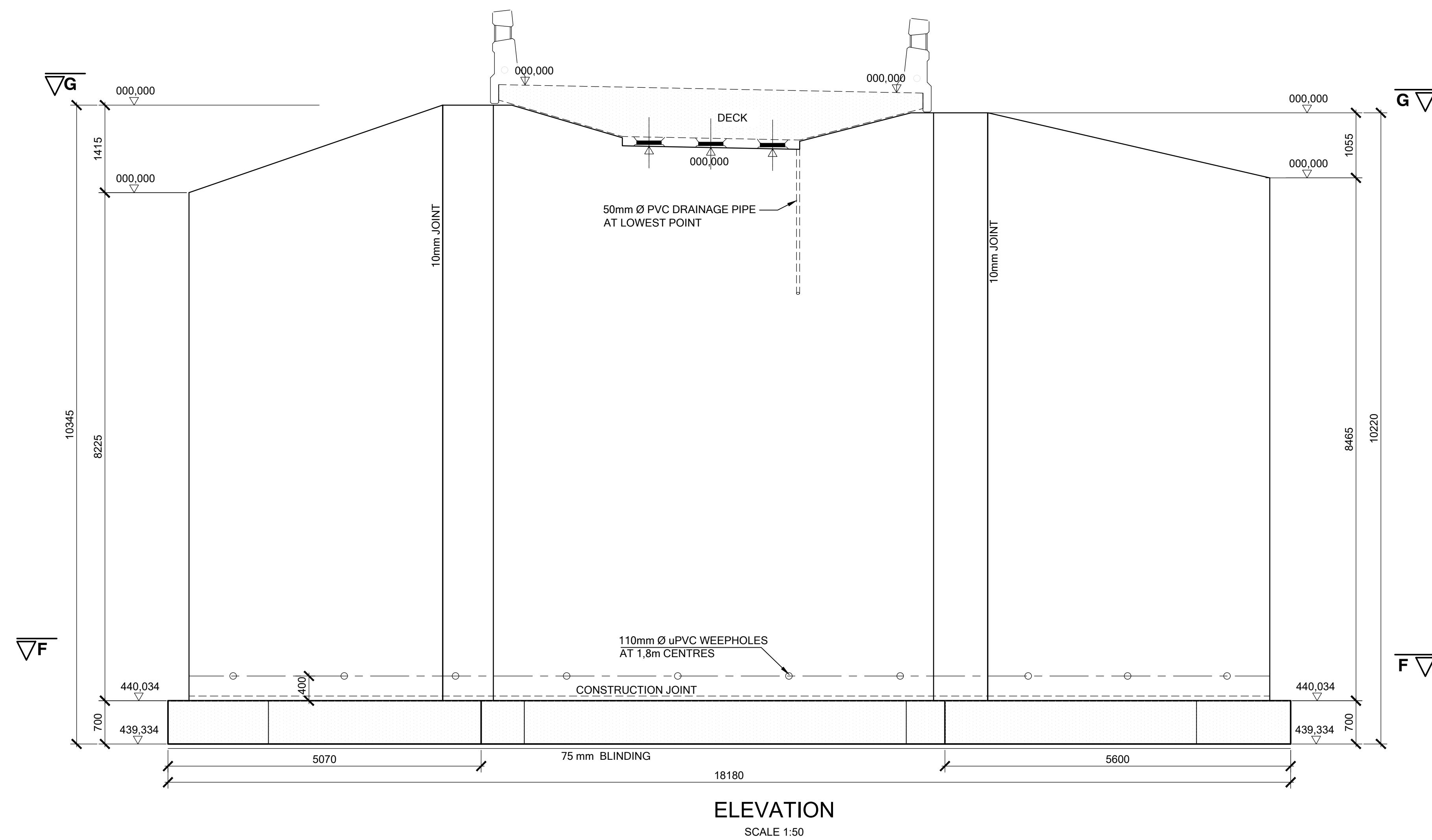
COPYRIGHT RESERVED



NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES TO BE REPORTED TO ENGINEER.

- NOTES
1. CONCRETE GRADES
- | | | |
|-------------|--------|--|
| FOUNDATIONS | -30/19 | |
| WALLS | -30/19 | |
| DECK | -40/19 | |
| PARAPETS | -40/19 | |
2. FINISHES
- | | | |
|---------------------------------------|----|----|
| a) SUBSTRUCTURE, BURIED SURFACES | F1 | U2 |
| b) SUBSTRUCTURE, VISIBLE SURFACES | F2 | U2 |
| c) 25mm CHAMFERS TO ALL SHARP CORNERS | | |
3. CONCRETE COVER
- | | |
|-----------------------|-------|
| a) DECK | -40mm |
| b) NEW JERSEY BARRIER | -40mm |
| c) FOUNDATIONS | -50mm |
| d) WALLS | -40mm |
- REFER TO DRG. NO. 16432-301-010 & 011 FOR BALUSTRADE DETAILS

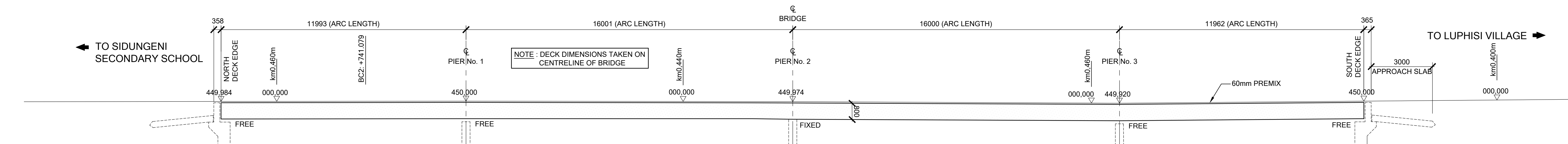
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NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES TO BE REPORTED TO ENGINEER.

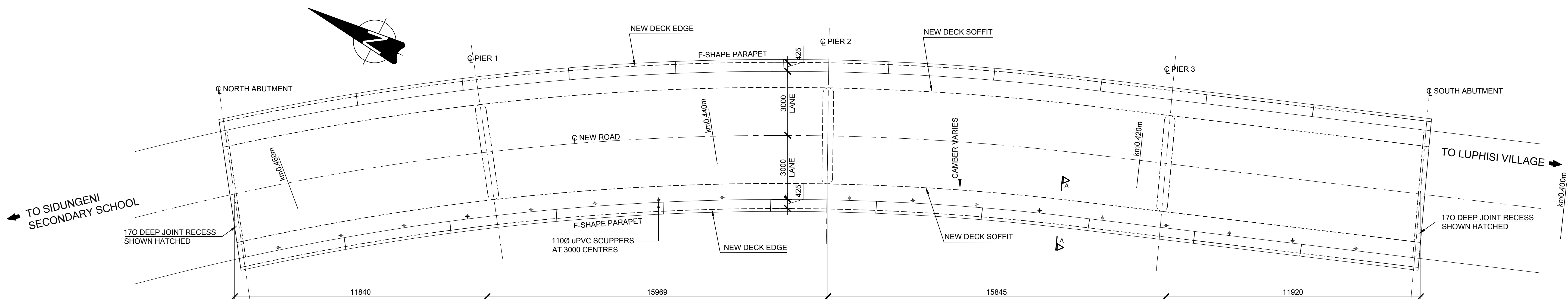
NOTES			
1. CONCRETE GRADES			
FOUNDATIONS	-30/19		
WALLS	-30/19		
DECK	-40/19		
PARAPETS	-40/19		
2. FINISHES			
a) SUBSTRUCTURE, BURIED SURFACES		F1	U2
b) SUBSTRUCTURE, VISIBLE SURFACES		F2	U2
c) 55mm CHAMFERS TO ALL SHARP CORNERS			
3. CONCRETE COVER			
a) DECK		-40mm	
b) NEW JERSEY BARRIER		-40mm	
c) FOUNDATIONS		-50mm	
d) WALLS		-40mm	
REFER TO DRG. No. 16432-301-010 & 011 FOR BALUSTRADE DETAILS			

REVISION			
REV	DATE	BY	DESCRIPTION
1	07/02/2023	EM	ISSUED FOR TENDER PURPOSES
CLIENT			
MBOMBELA LOCAL MUNICIPALITY			
ARCHITECT			
PROJECT			
CONSTRUCTION OF ESIDUNGENI VEHICLE BRIDGE (WARD 24 LUPHISI)			
DRAWING			
SOUTH ABUTMENT CONCRETE DETAILS			
TENDER PURPOSES			
DESIGNED	EM	SIGNATURE	DATE
DRAWN	EM		07/02/2023
CHECKED	DS		07/02/2023
APPROVED	DS		07/02/2023
SCALE	AS SHOWN	DWG. NUMBER	SHEET SIZE
PROJECT No.	2022-02	P	206 T A0 A
CLIENT DRAWING No.		FILE NAME AND LOCATION No.	
COPYRIGHT RESERVED			



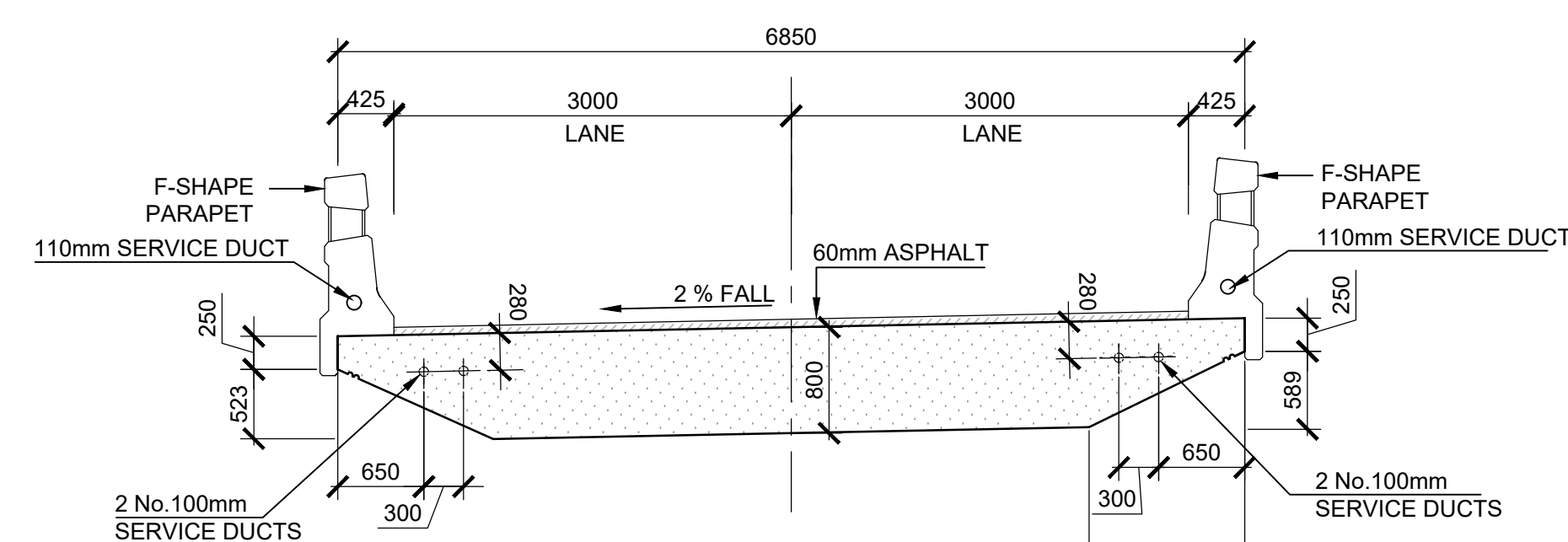
SECTION ON C BRIDGE

SCALE 1:100



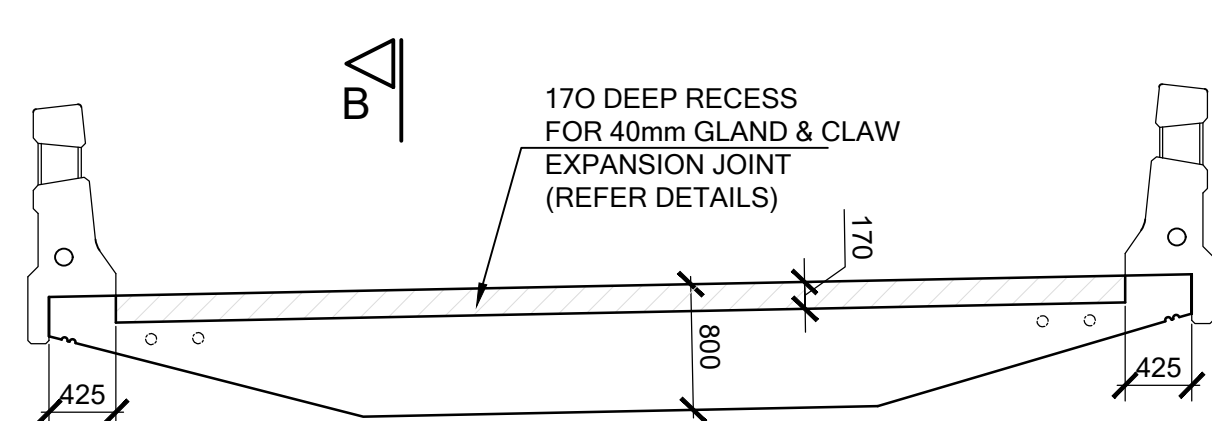
PLAN

SCALE 1:100



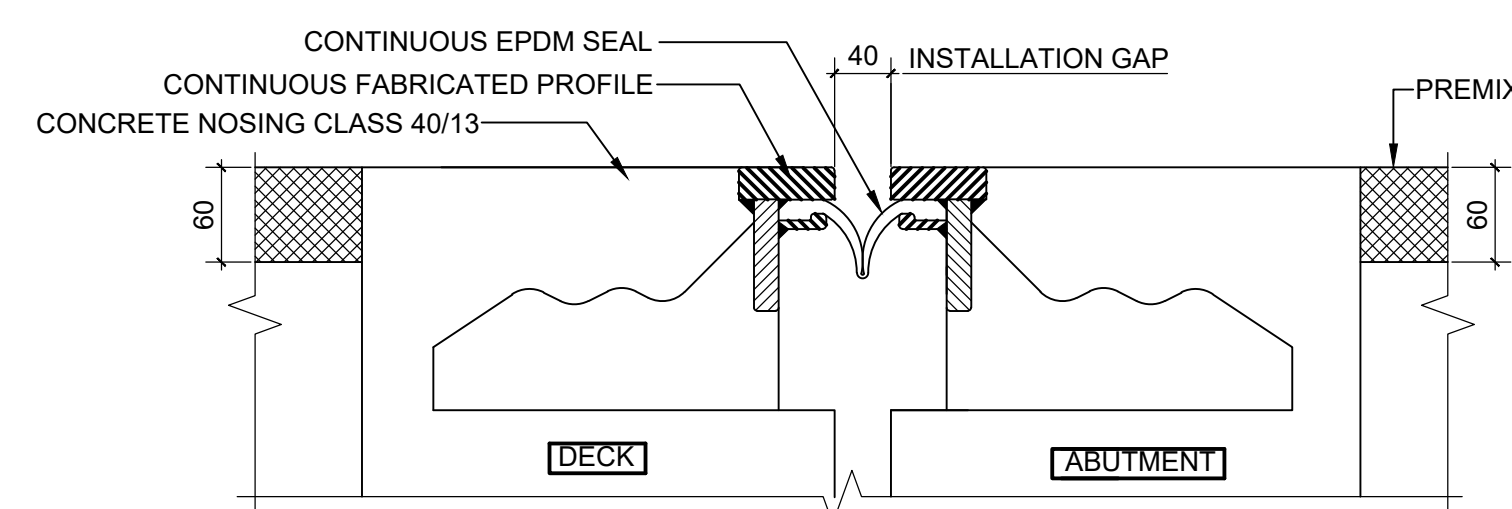
TYPICAL SECTION THROUGH BRIDGE DECK

SCALE 1:50



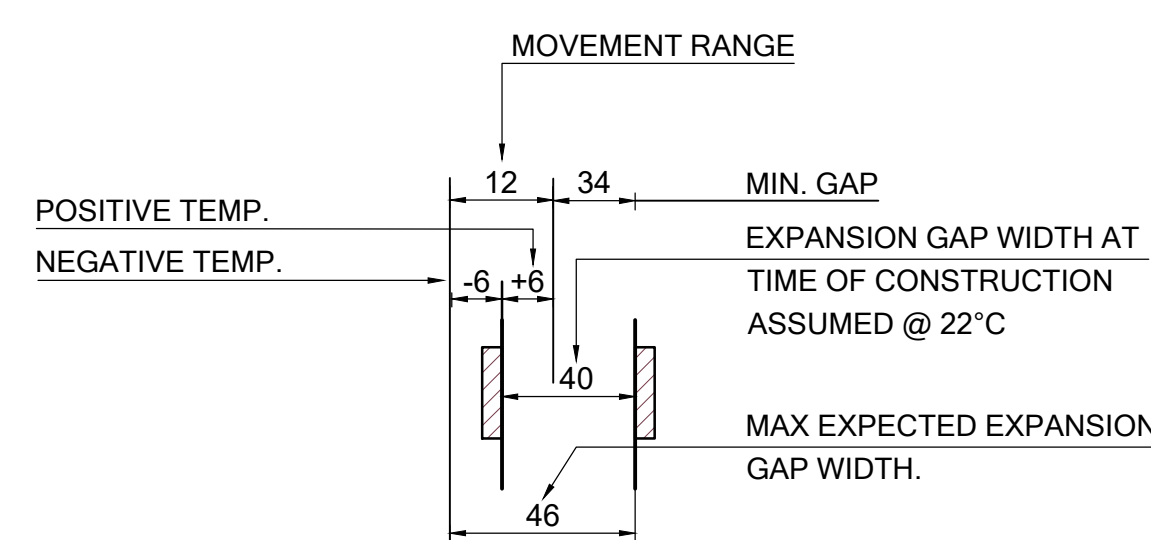
SECTION THROUGH DECK END JOINT

SCALE 1:50



DETAIL 'J1': GLAND AND CLAW EXPANSION JOINT

NTS

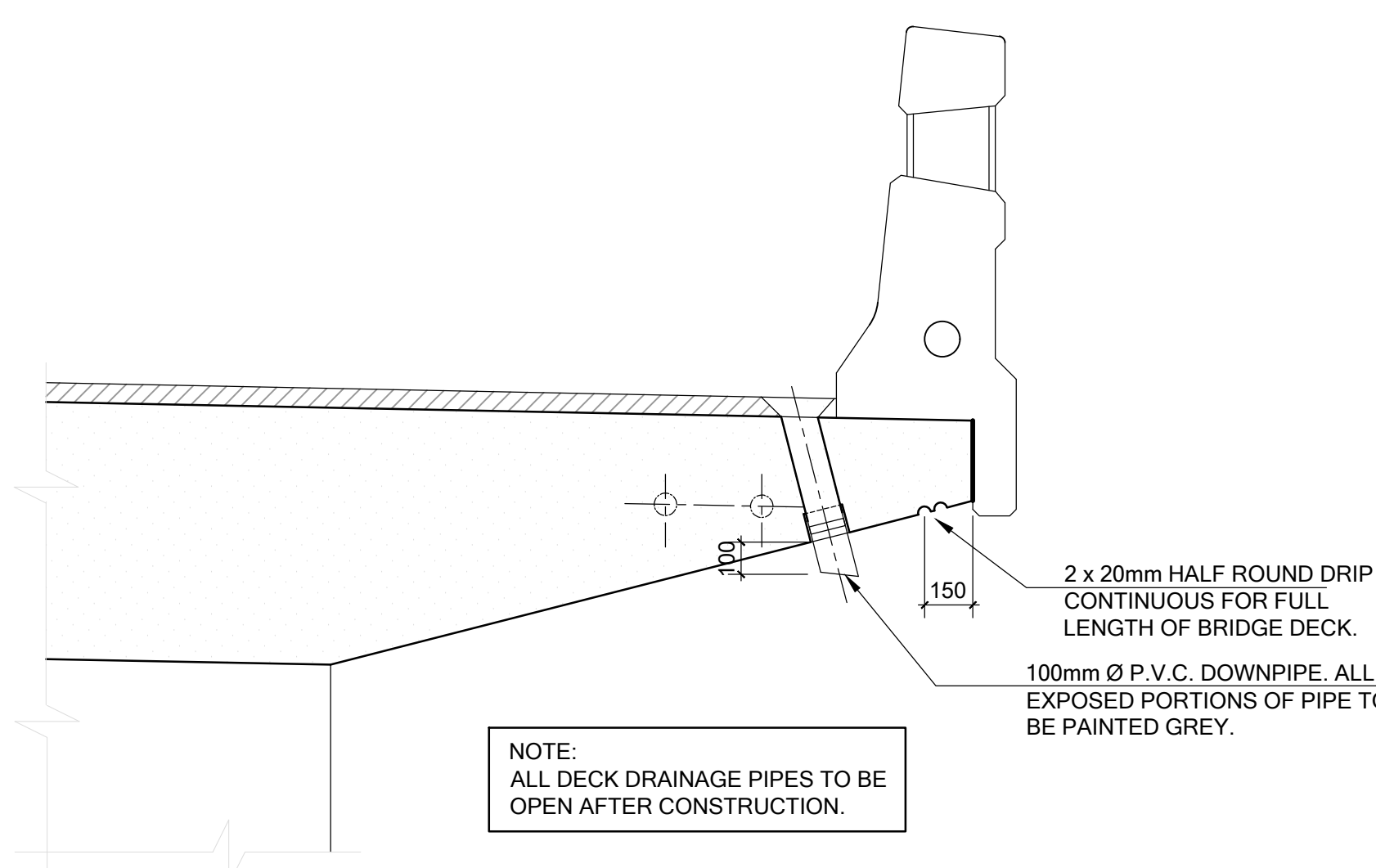


PERMISSIBLE MOVEMENT RANGE OF JOINT

NTS

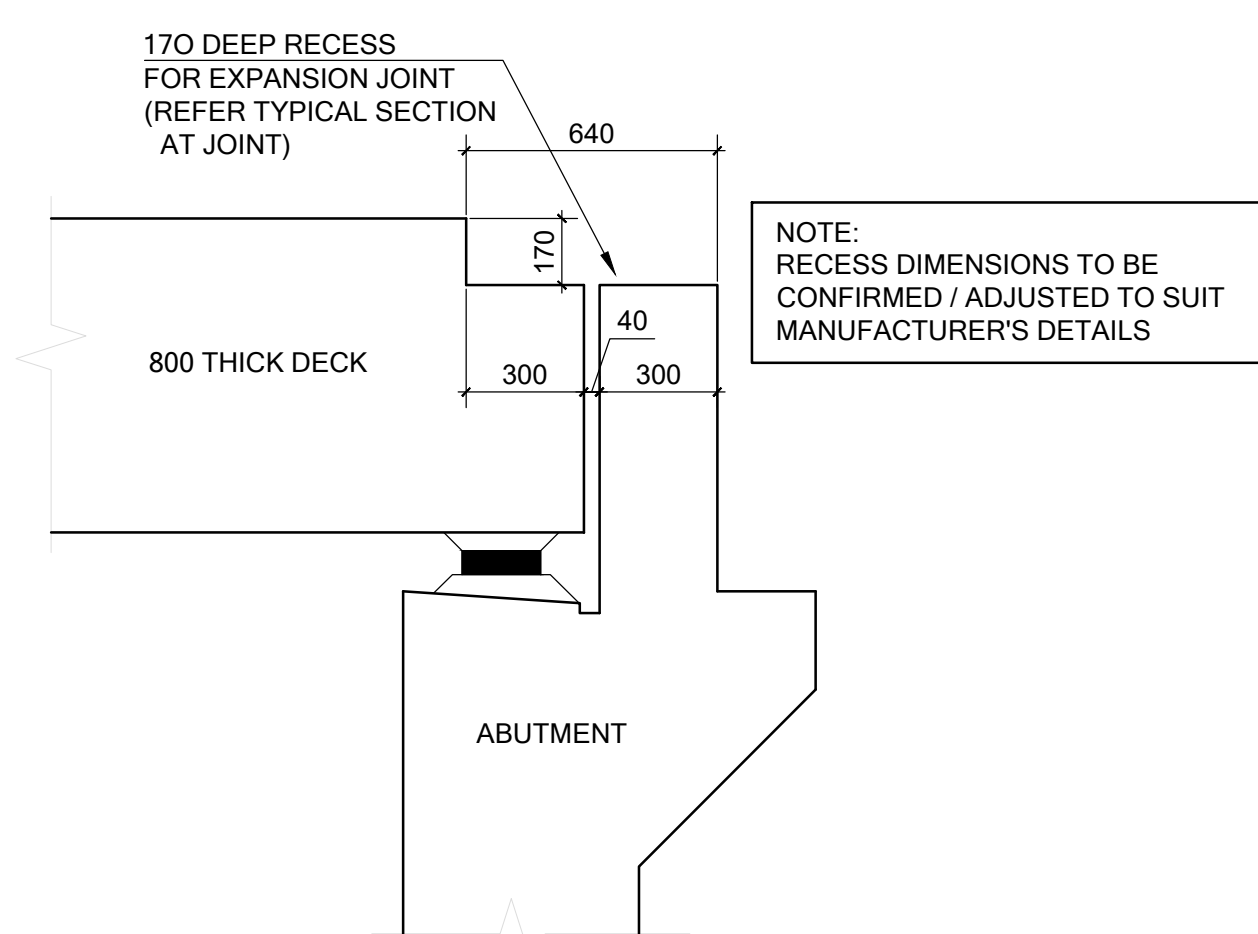
NOTES :

1. ALL STEEL ARMoured JOINTS SHALL BE AGREEMENT SA APPROVED.
2. STRUCTURAL STEEL SHALL BE GRADE 300W IN ACCORDANCE WITH SANS 1431.
3. GALVANIZED COATING NOT LESS THAN 85 MICRONS THICK.
4. ALL JOINTS TO BE SUBJECTED TO A WATER-TIGHTNESS TEST.



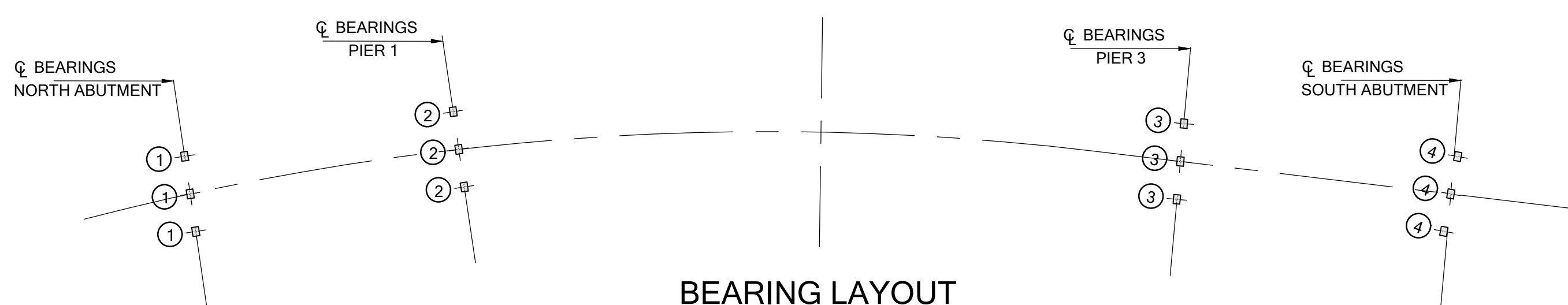
SECTION A-A

SCALE 1:20



SECTION B-B

SCALE 1:20



BEARING LAYOUT

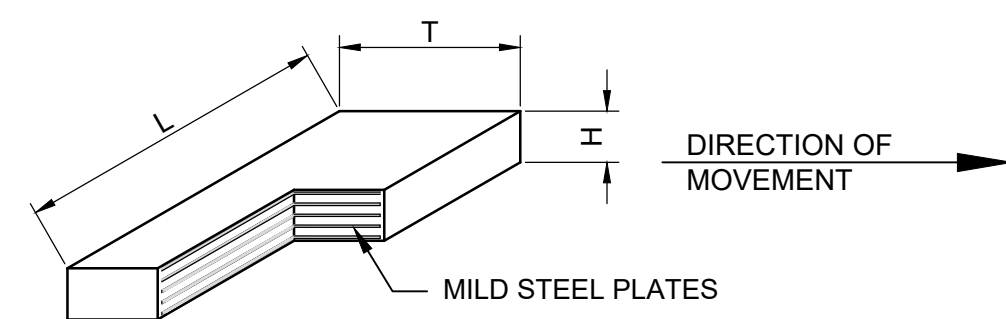
SCALE 1:200

BEARING No.	L	T	H	MAX. VERT.	MOVEMENT	ROTATION
1	400	300	61	470	21	<0.01
2	400	300	61	1065	8	<0.01
3	400	300	61	1035	3	<0.01
4	400	300	61	1065	8	<0.01
5	400	300	61	470	21	<0.01

BEARING TYPE: ALL BEARINGS LAMINATED ELASTOMERIC 60° NR BEARING PADS.

BEARING NOTES

1. BEARINGS TO BE PLACED HORIZONTAL
2. MIN. 30mm EPOXY GROUT UNDER BEARING PADS
3. BEARINGS TO BE TESTED IN ACCORDANCE WITH COLTO CLAUSE 6604 (D)



ELASTOMERIC BEARING PAD

1:10

CLIENT		MBOMBELA LOCAL MUNICIPALITY	
ARCHITECT		ARCHITECT	
PROJECT		CONSTRUCTION OF ESIDUNGENI VEHICLE BRIDGE (WARD 24 LUPHISI)	
DRAWING		DECK CONCRETE DETAILS	
TENDER PURPOSES		TENDER PURPOSES	
DESIGNED	EM	DATE	07/02/2023
DRAWN	EM	DATE	07/02/2023
CHECKED	DS	DATE	07/02/2023
APPROVED	DS	DATE	07/02/2023
SCALE		AS SHOWN	
PROJECT No.	2022-02	DRAWING No.	P 207 T A0 A
CLIENT DRAWING No.		FILE NAME AND LOCATION No.	
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NOTE : ALL DIMENSIONS TO BE CHECKED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES TO BE REPORTED TO ENGINEER.

NOTES

1. CONCRETE GRADES
FOUNDATIONS -30/19
WALLS -30/19
DECK -40/19
PARAPETS -40/19

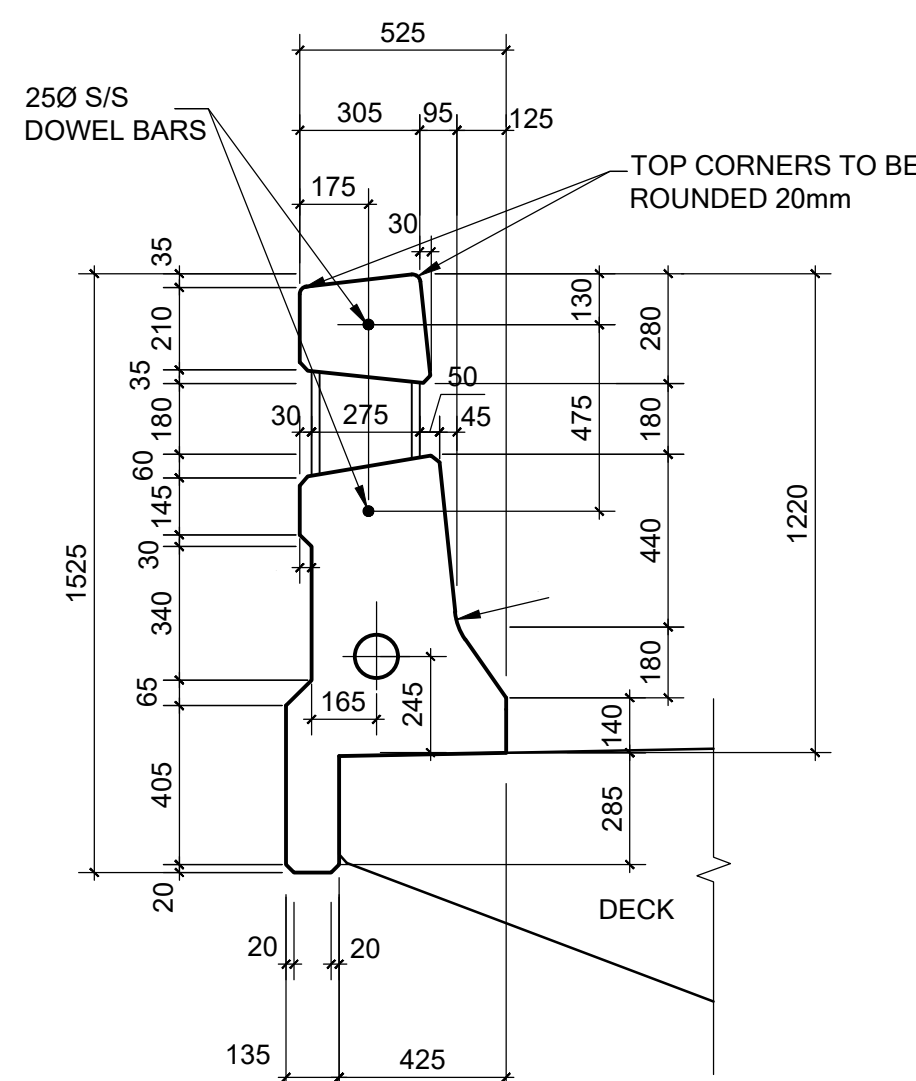
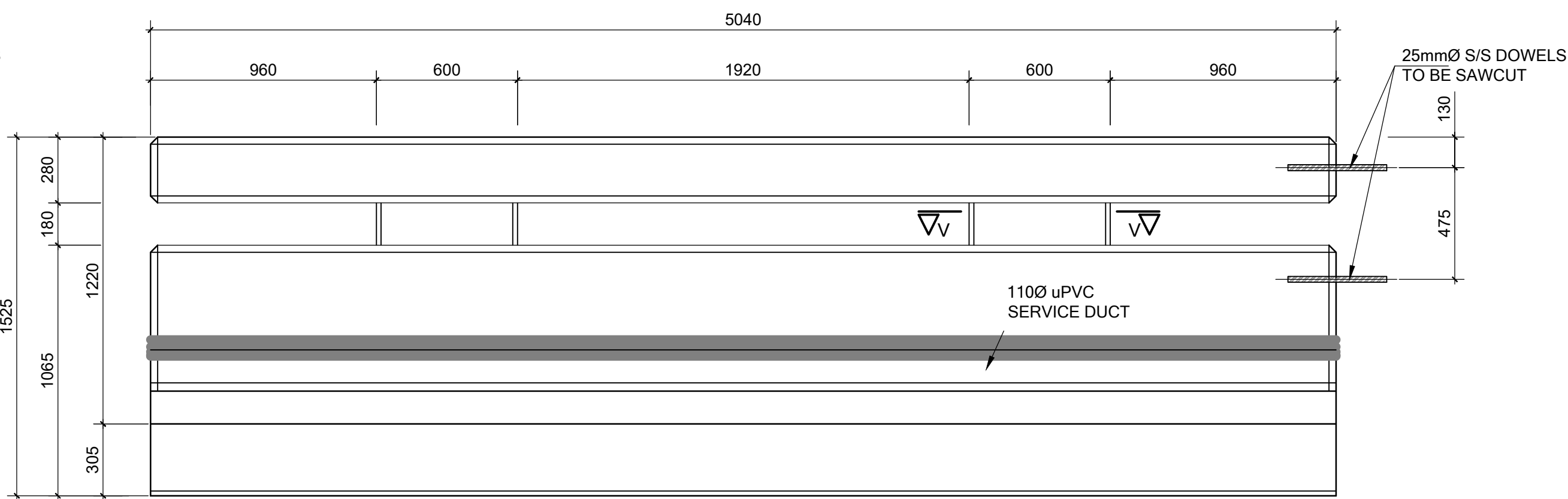
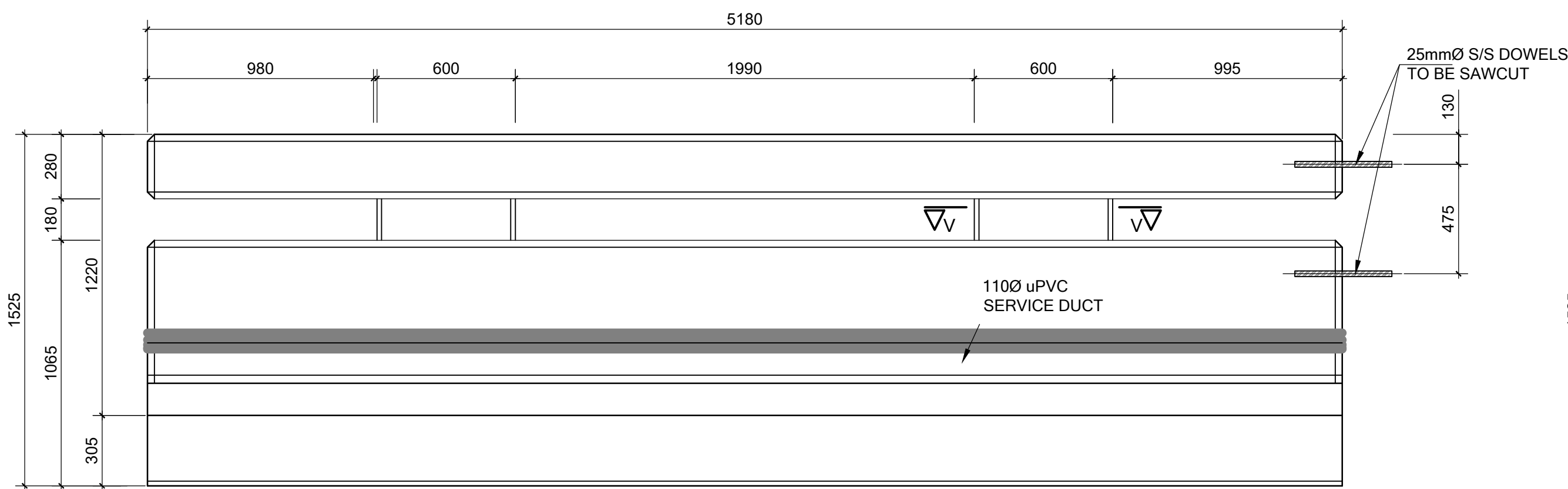
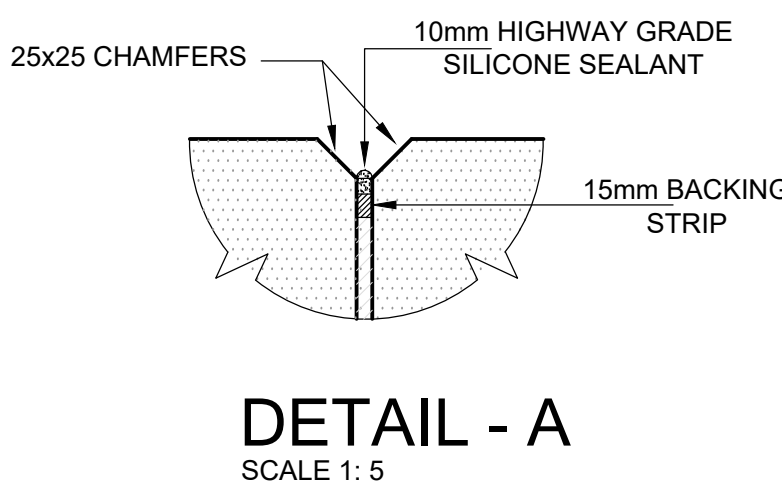
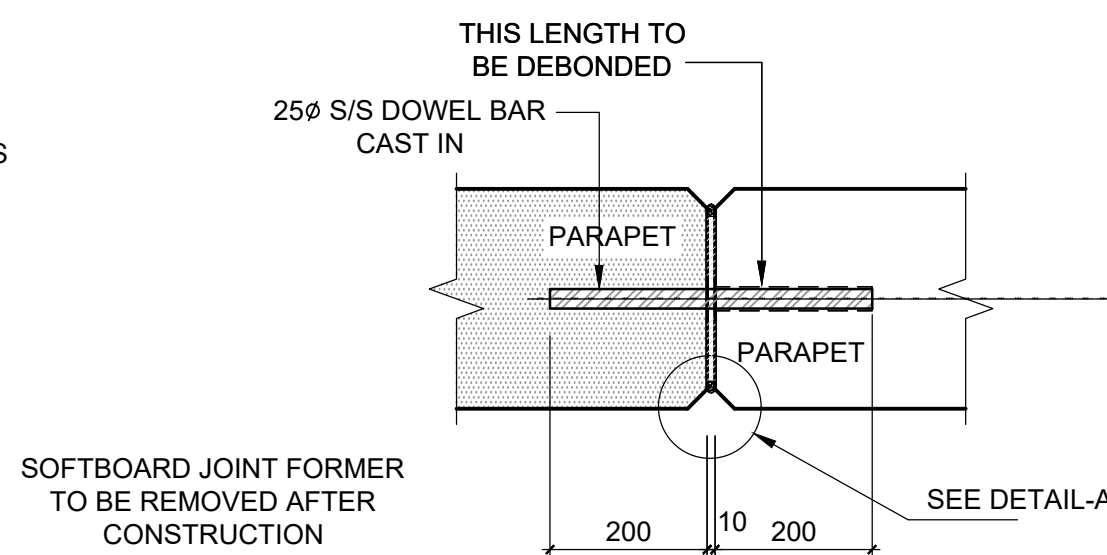
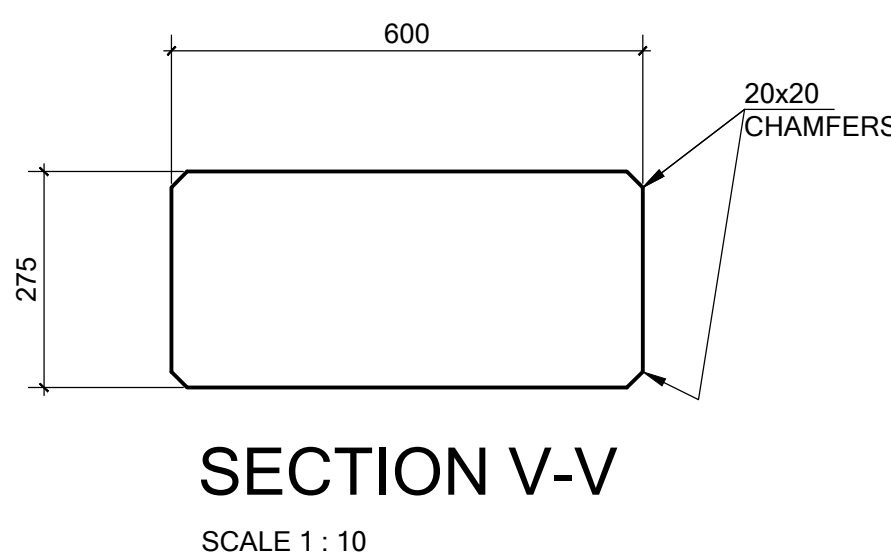
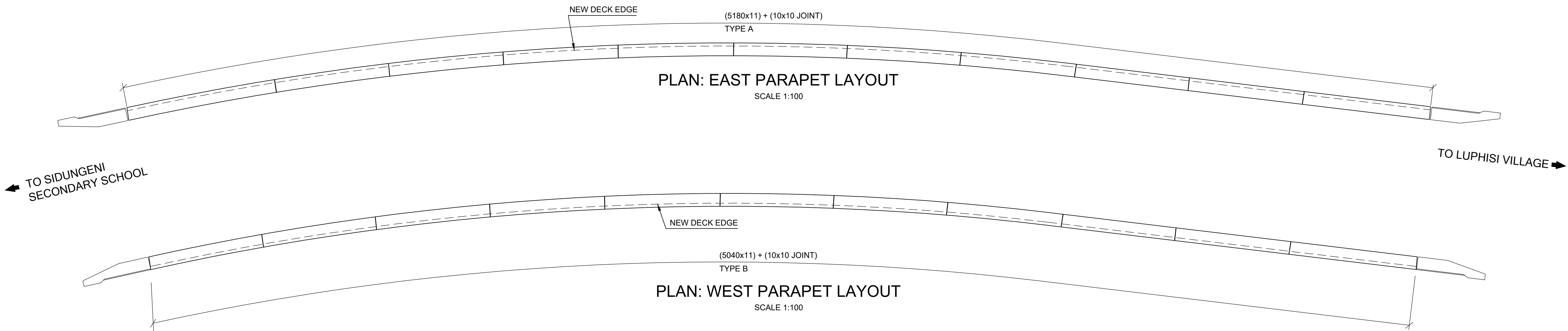
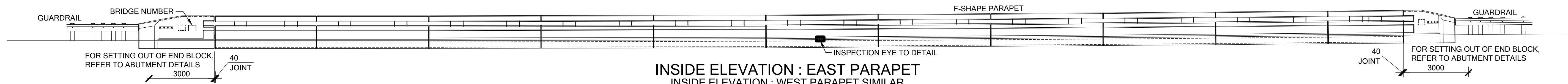
2.FINISHES

- a) SUBSTRUCTURE, BURIED SURFACES F1 U2
b) SUBSTRUCTURE, VISIBLE SURFACES F2 U2
c) 25mm CHAMFERS TO ALL SHARP CORNERS

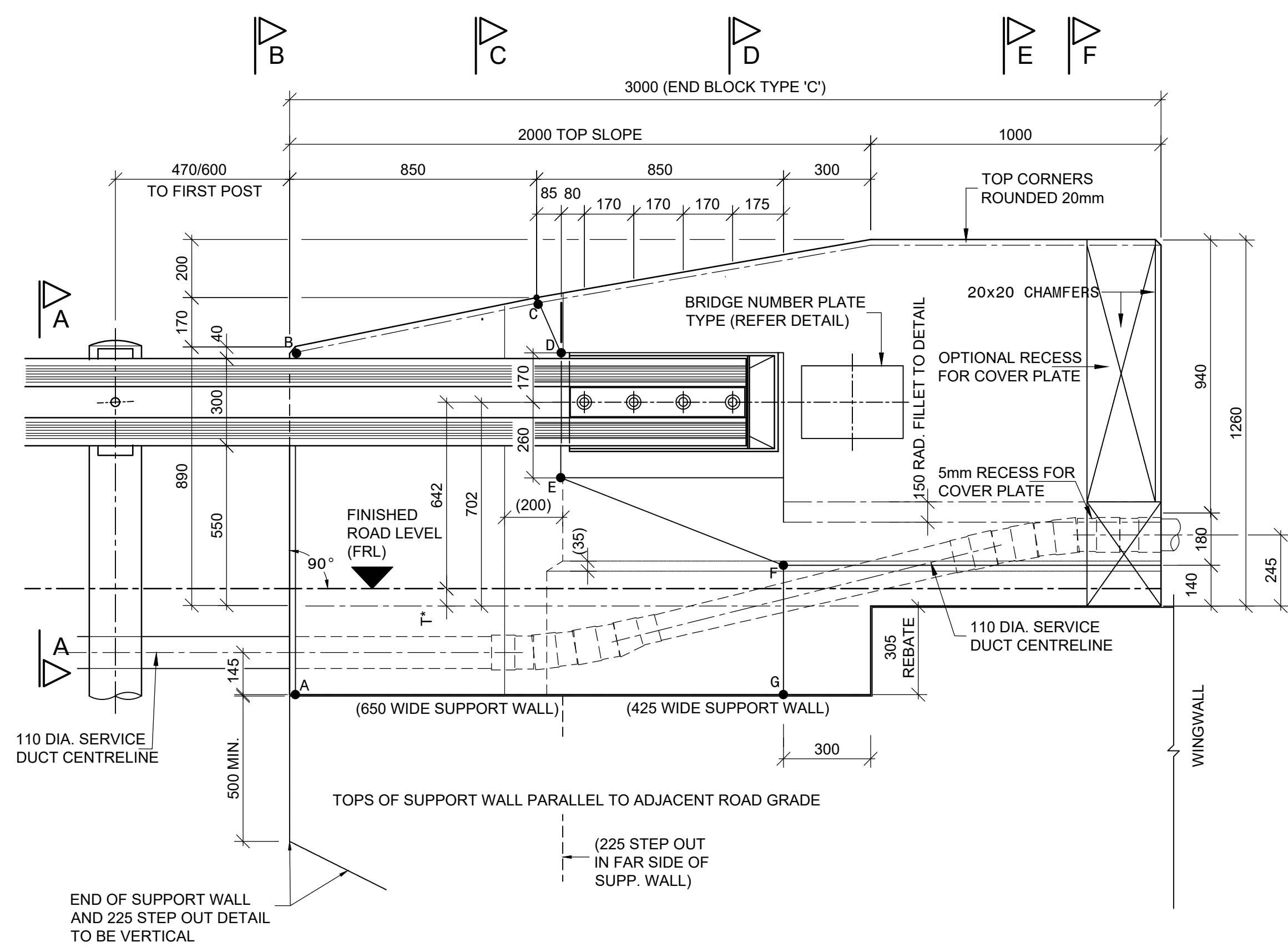
3. CONCRETE COVER

- a) DECK -40mm
b) NEW JERSEY BARRIER -40mm
c) FOUNDATIONS -50mm
d) WALLS -40mm

REFER TO DRG. No. 16432-301-010 & 011 FOR BALUSTRADE DETAILS

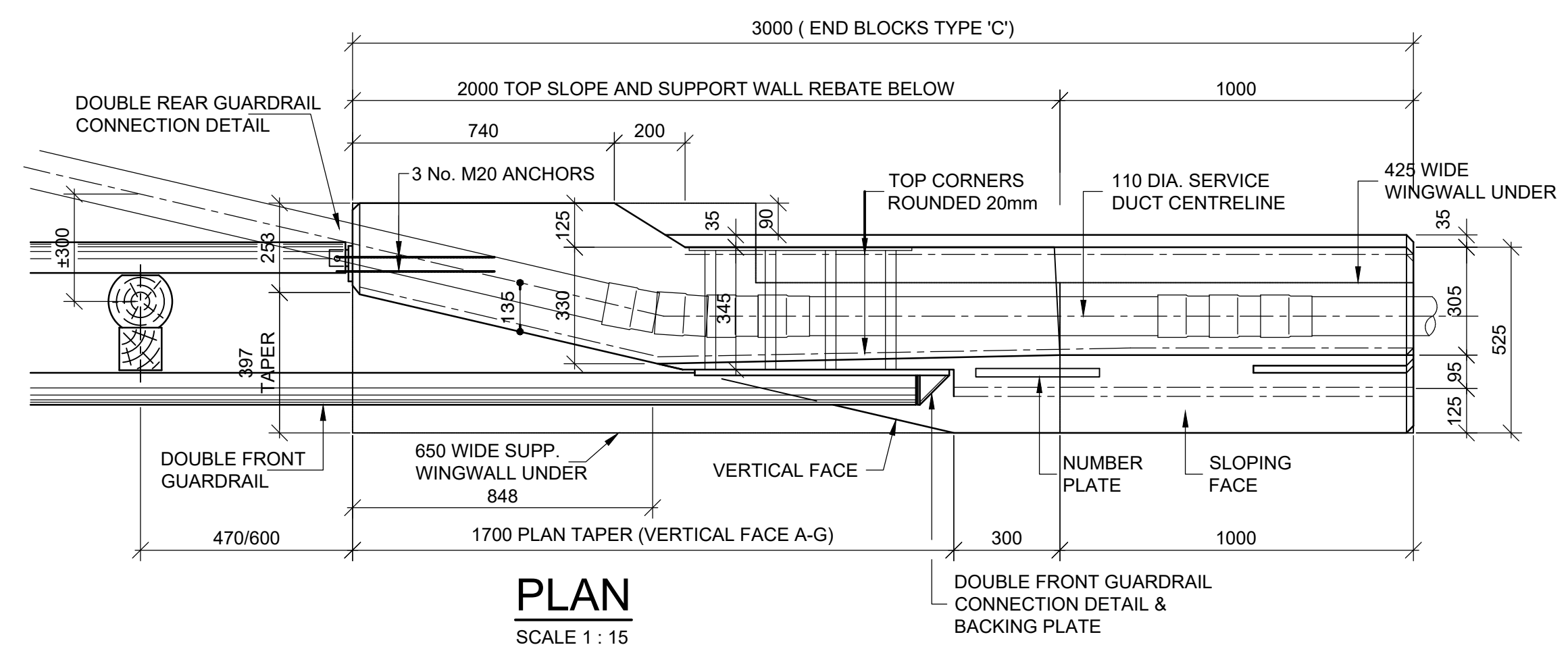


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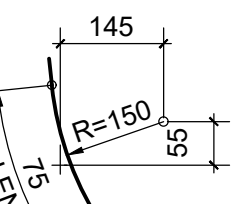


INSIDE ELEVATION

THE SURFACE DESCRIBED BY POLYGON A-B-C-D-E-F-G-A IS PLANAR.
SERVICE DUCT LARGE RADIUS BENDS ACHIEVED BY USING ACCUMULATIVE
PLAY IN RUBBER GASKETS OF MULTIPLE STRAIGHT COUPLERS.

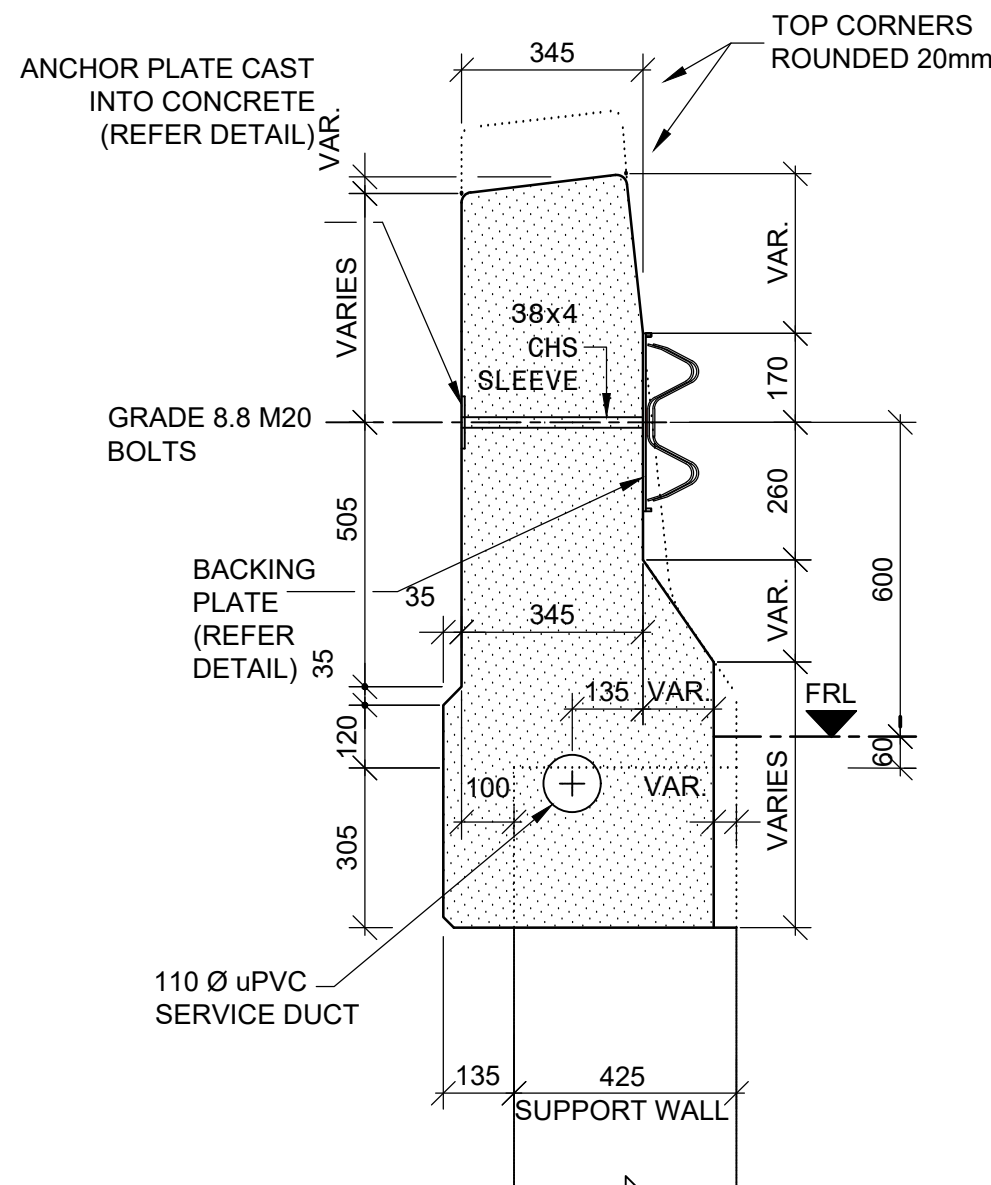


PLAN
SCALE 1 : 15



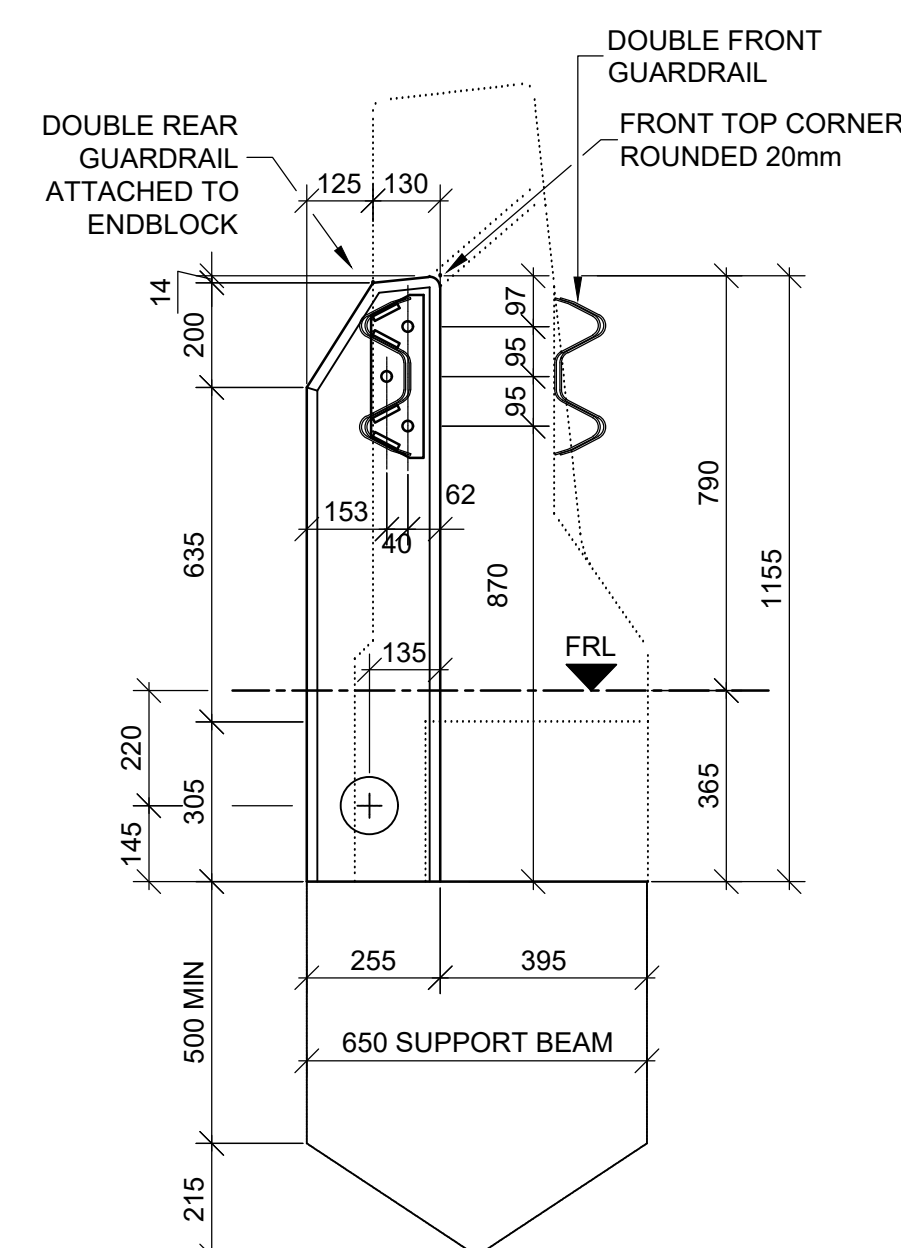
FILLET DETAIL

NTS



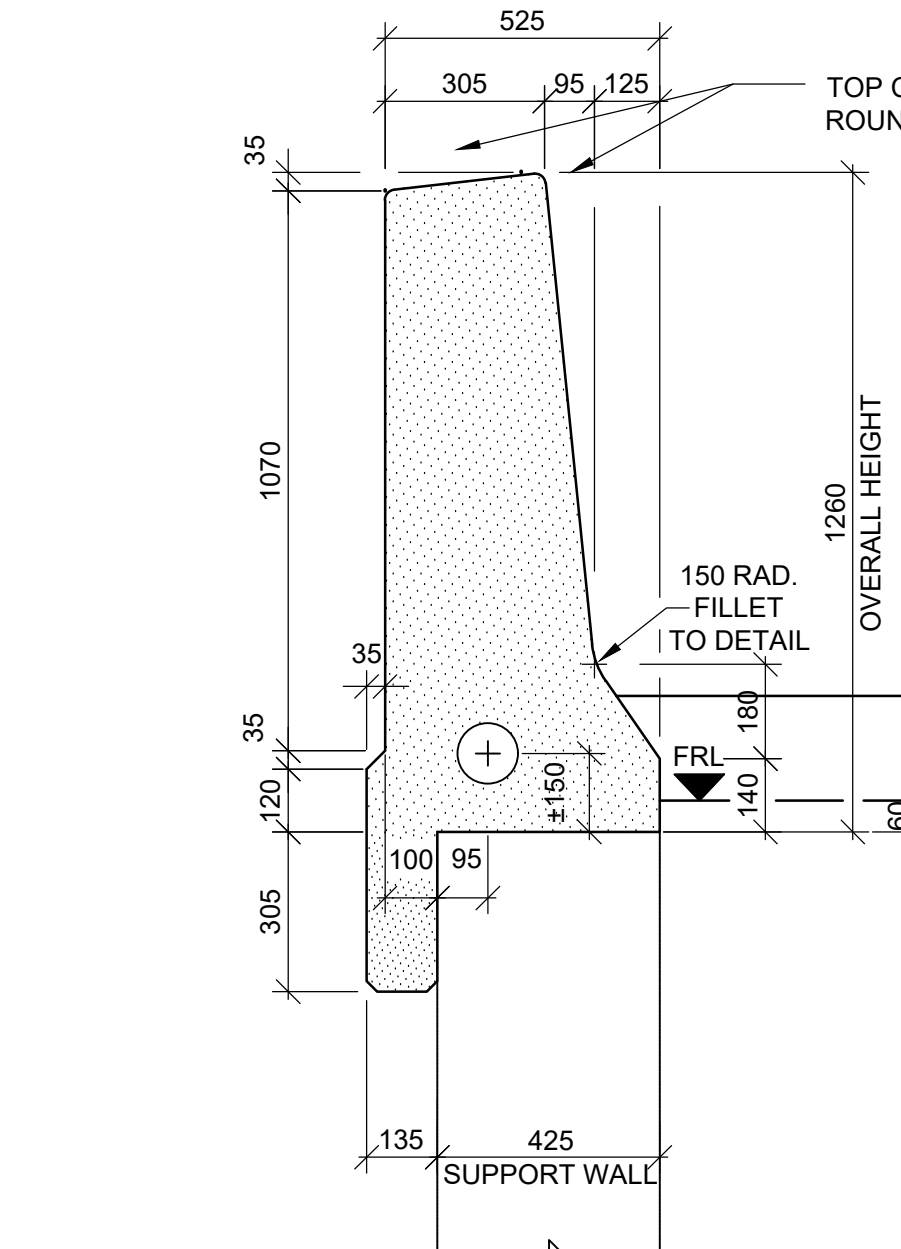
SECTION D-D

1 : 15



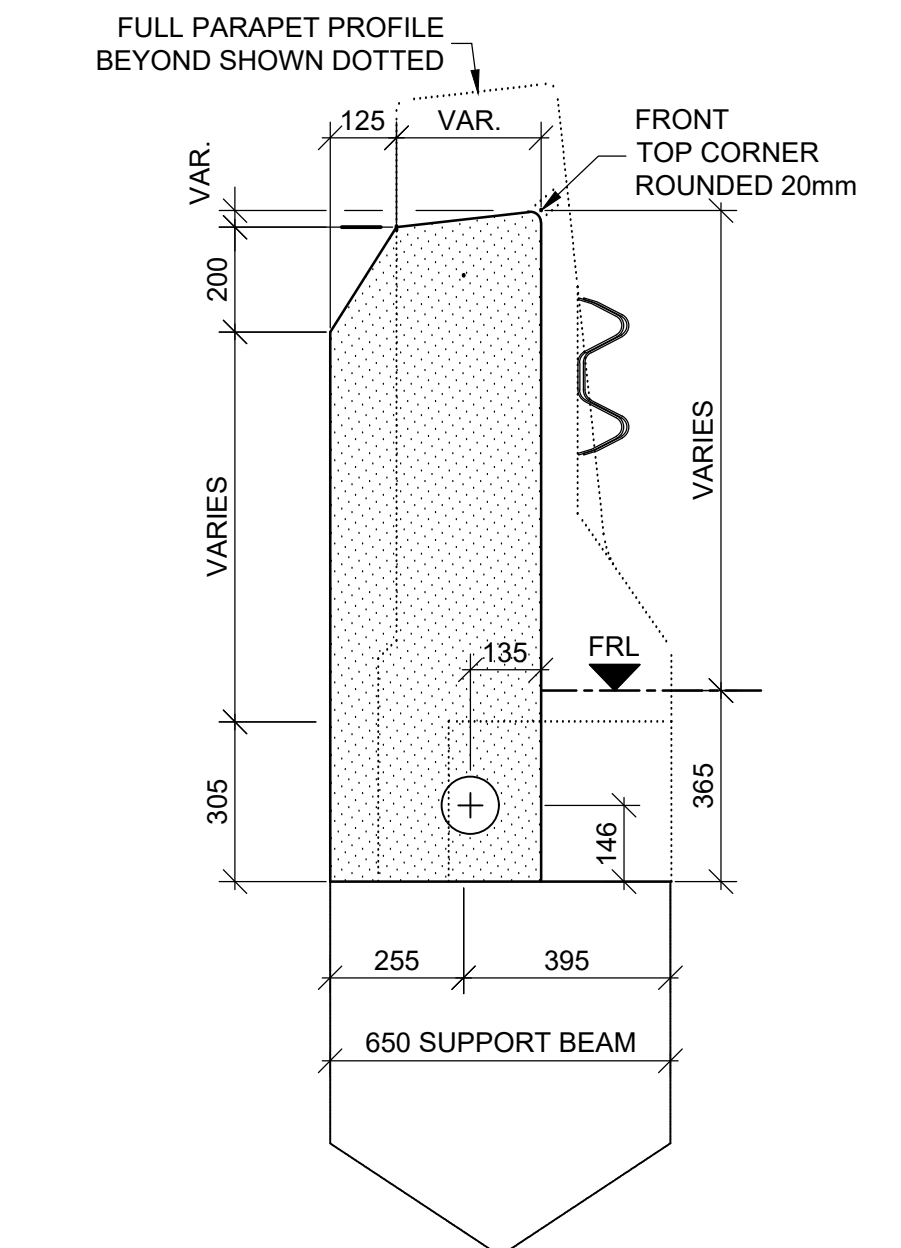
SECTION A-A

1 : 15



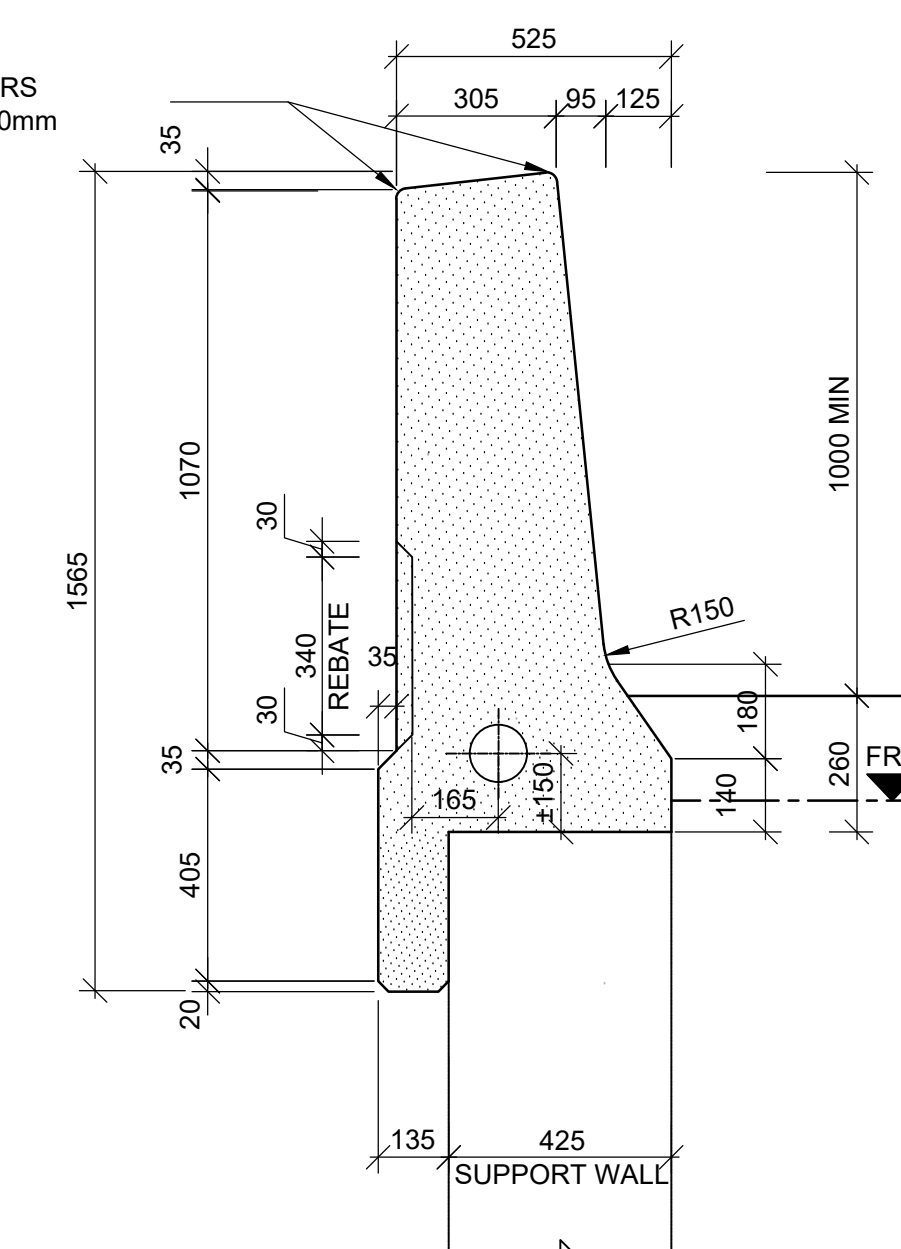
SECTION E-E

1 : 15



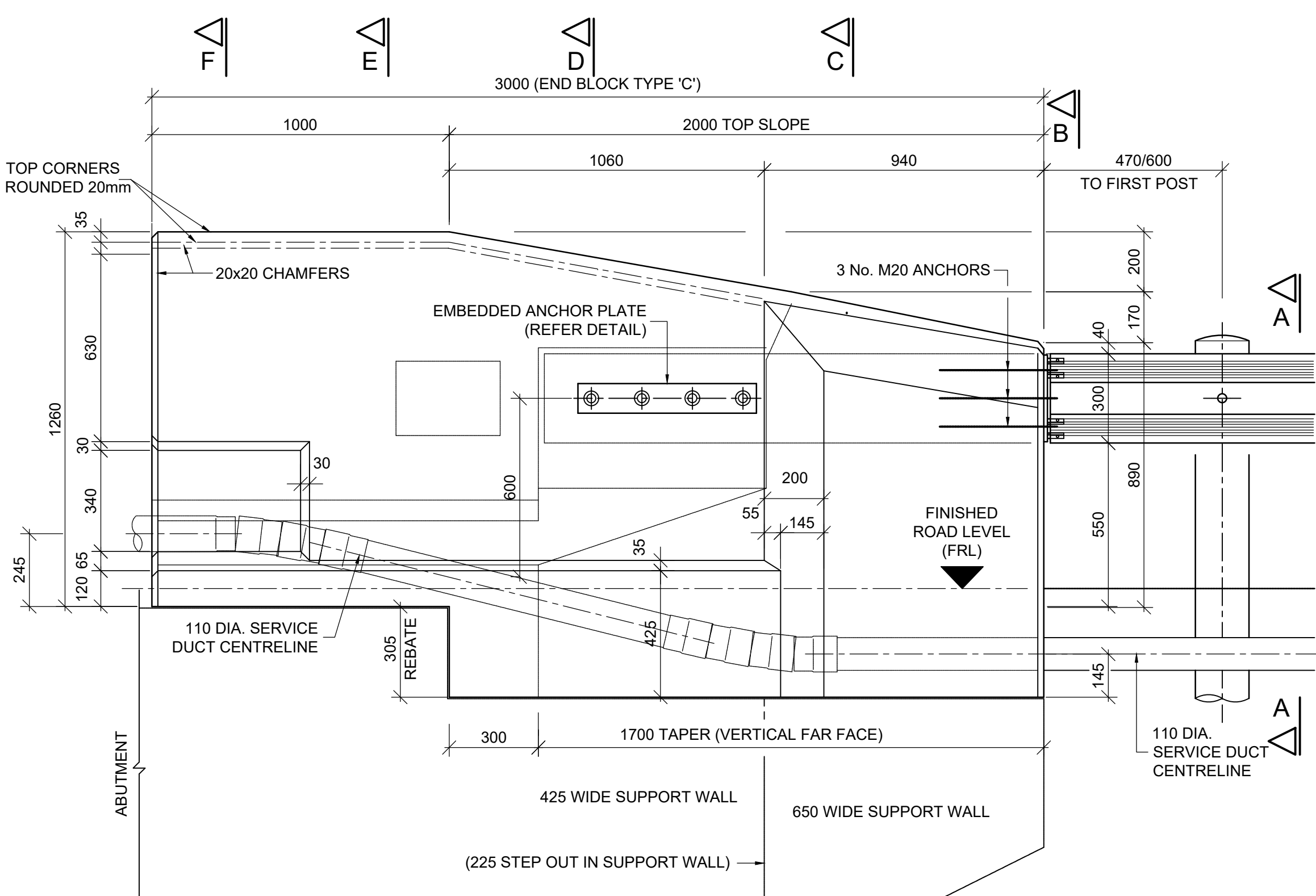
SECTION C-C

1 : 15



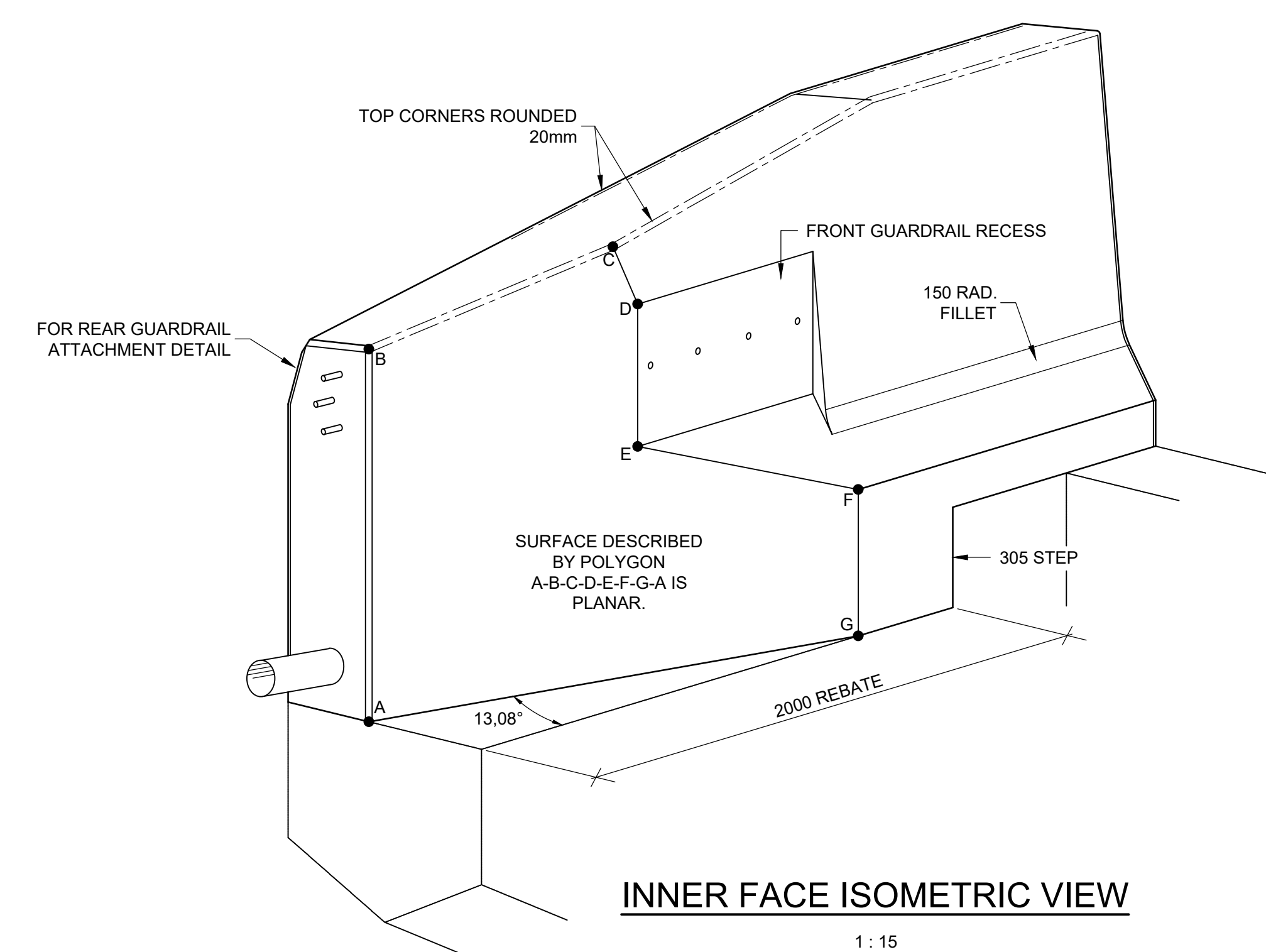
SECTION F-F

1 : 15



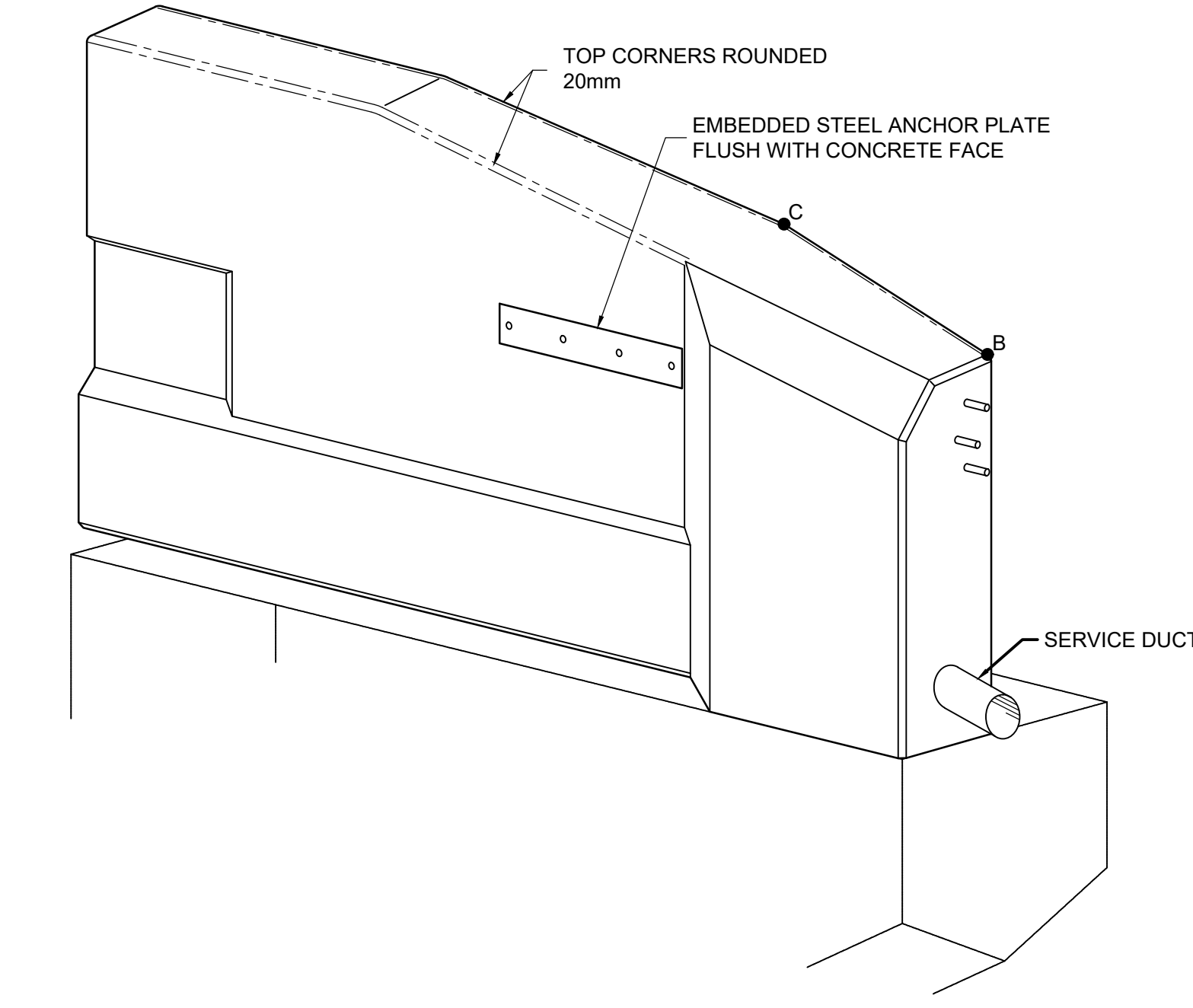
OUTSIDE ELEVATION

1 : 15
(SHOWN FOR 0% ROAD GRADE)



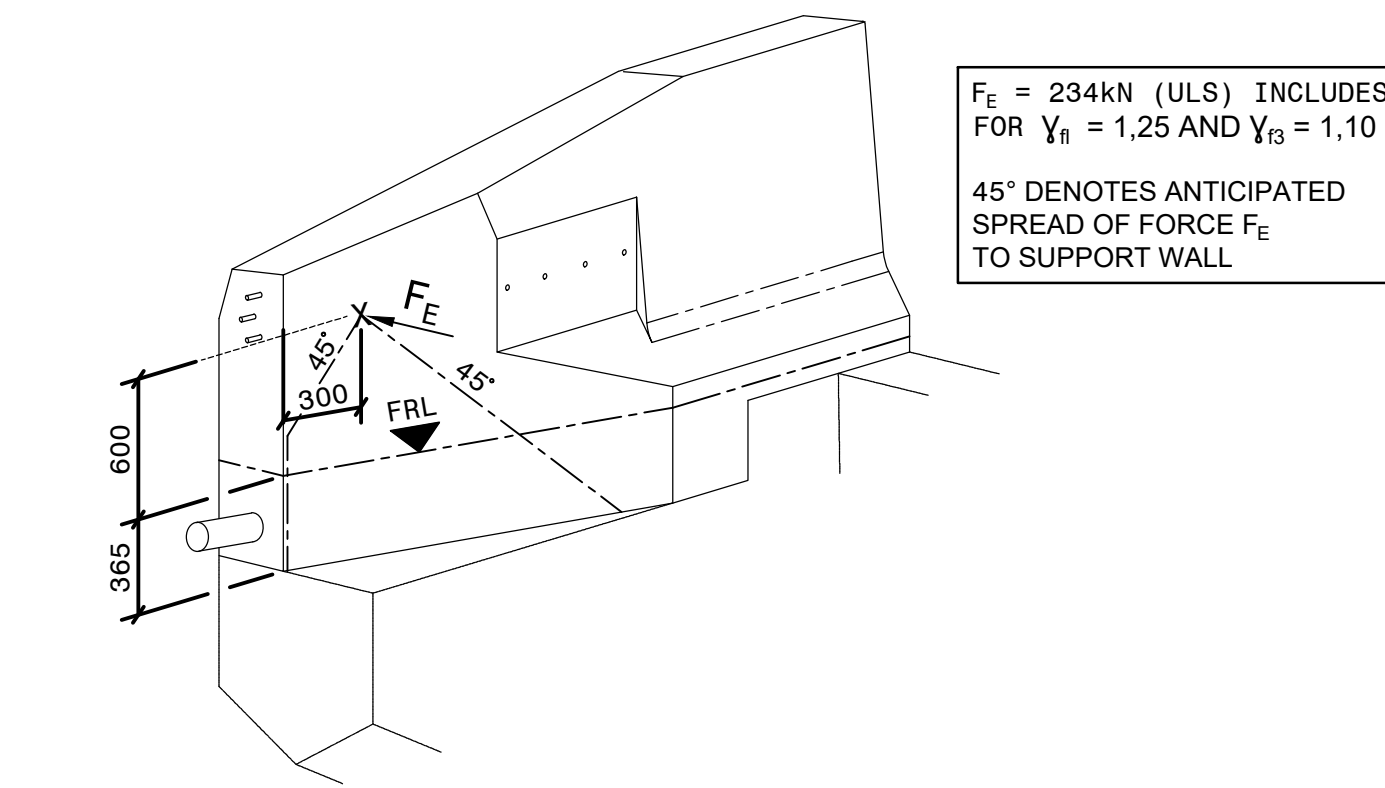
INNER FACE ISOMETRIC VIEW

1 : 15



OUTER FACE ISOMETRIC VIEW

1 : 15



FORCES APPLIED TO ENDBLOCK
FOR SUPPORT WALL ANALYSIS

NTS

$F_1 = 234kN$ (ULS) INCLUDES
FOR $\gamma_1 = 1.25$ AND $\gamma_{10} = 1.10$
45° DENOTES ANTICIPATED
SPREAD OF FORCE F_1
TO SUPPORT WALL

NOTES

1. CONCRETE GRADES
BLINDING
MASS CONCRETE
FOUNDATIONS
ABUTMENTS
DECK
PARAPETS

- C12/15-20
- C12/15-37.5
- D25/30-20-XC2
- D25/30-20-XC4
- D32/40-20-XC4
- D32/40-20-XC4

2. CONCRETE FINISHES

- a) FOUNDATIONS
- b) ABUTMENTS (BURIED)
- c) ABUTMENTS (EXPOSED)
- d) 25mm CHAMFERS TO ALL SHARP CORNERS

F1 U2
F1 U2
F2 U2

3. CONCRETE COVER

- a) FOUNDATIONS
- b) ABUTMENTS
- c) DECK
- d) PARAPETS

- 75mm BOTTOM
- 50mm ALL OTHER SIDES
- 50mm
- 40mm
- 40mm

REV	DATE	DRAWN	CHECKED	DESCRIPTION
A	07/02/2023	EM	DB	TENDER PURPOSES
B	07/02/2023	EM	DB	DESIGN
C	07/02/2023	EM	DB	DESIGN
D	07/02/2023	EM	DB	DESIGN
E	07/02/2023	EM	DB	DESIGN
F	07/02/2023	EM	DB	DESIGN
G	07/02/2023	EM	DB	DESIGN
H	07/02/2023	EM	DB	DESIGN
I	07/02/2023	EM	DB	DESIGN
J	07/02/2023	EM	DB	DESIGN
K	07/02/2023	EM	DB	DESIGN
L	07/02/2023	EM	DB	DESIGN
M	07/02/2023	EM	DB	DESIGN
N	07/02/2023	EM	DB	DESIGN
O	07/02/2023	EM	DB	DESIGN
P	07/02/2023	EM	DB	DESIGN
Q	07/02/2023	EM	DB	DESIGN
R	07/02/2023	EM	DB	DESIGN
S	07/02/2023	EM	DB	DESIGN
T	07/02/2023	EM	DB	DESIGN
U	07/02/2023	EM	DB	DESIGN
V	07/02/2023	EM	DB	DESIGN
W	07/02/2023	EM	DB	DESIGN
X	07/02/2023	EM	DB	DESIGN
Y	07/02/2023	EM	DB	DESIGN
Z	07/02/2023	EM	DB	DESIGN

CLIENT

MBOMBELA LOCAL MUNICIPALITY

ARCHITECT

PROJECT

CONSTRUCTION OF
ESIDUNGENI VEHICLE
BRIDGE (WARD 24 LUPHISI)

DRAWING

END-BLOCK
CONCRETE DETAILS

TENDER PURPOSES

SIGNATURE	DATE
DESIGNED	07/02/2023
DRAWN	07/02/2023
CHECKED	07/02/2023
APPROVED	07/02/2023

SCALE

AS SHOWN

PROJECT NO.	DRAWN	DRAWN	DRAWN	DRAWN
2022-02	P	209	T	A0

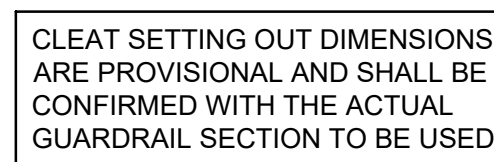
CLIENT DRAWING NO.

FILE NAME AND LOCATION NO.

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- GALVANIZING AT HOLES DRILLED FOR FIXING OF GUARDRAIL TO END BLOCK AND CUT ENDS OF GUARDRAILS SHALL BE REPAIRED WITH "ZINCIFIX", AVAILABLE FROM THE HOT-DIP GALVANIZER'S ASSOCIATION OF SOUTHERN AFRICA.



- GALVANIZING AT HOLES DRILLED FOR FIXING OF GUARDRAIL TO END BLOCK AND CUT ENDS OF GUARDRAILS SHALL BE REPAIRED WITH "ZINCIFIX", AVAILABLE FROM THE HOT-DIP GALVANIZER'S ASSOCIATION OF SOUTHERN AFRICA.



SHOWING POST SPACING AND GUARDRAIL ARRANGEMENT AT BOTH BRIDGE APPROACHES AND DEPARTURES.
(READ IN CONJUNCTION WITH DWG. No. TD-R-GR-200-V2)



DETAIL OF INSPECTION EYE FRAME AND COVER



- APPLY ONE COAT OF TWO COMPONENT ACRYLIC MODIFIED ALIPHATIC POLYURETHANE "PLASCON CPC" OR EQUAL APPROVED, MIXED AND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO A DRY FILM THICKNESS OF 35 ±10 MICRONS. THE COLOUR OF THE TOP COAT SHALL BE G29 LIGHT GREY TO SANS 1091:2004

A	07/02/2025	EM	OB	TENDER PURPOSES
REV	DATE	DRAWN	CHK'D	DESCRIPTION
				Nisako Tiyani and Associates (PTY) LTD e-mail: octavius@intacoconsulting.co.za No: 12 Blue Haven, 130 Bendor Dr Bendor Park, Polokwane, 0699 P.O.Box 688 Thornhill Plaza, 0882 Tel: 27 15 023 0026 Fax: 27 150297 0598

ARCHITECT

PROJECT
CONSTRUCTION OF
ESIDUNGENI VEHICLE
BRIDGE (WARD 24 LUPHISI)

MISCELLANEOUS DETAILS
1 OF 2

TENDER PURPOSES

	SIGNATURE	DATE
DESIGNED	EM	07/02/2023
DRAWN	EM	07/02/2023
CHECKED	DS	07/02/2023
APPROVED	OB	07/02/2023

SCALE	AS SHOWN					
PROJECT No.		DISCIPL	DWG. NUMBER	STAGE	SHEET SIZE	REVISION
2022-02		P	210	T	A0	A

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EXISTING ROAD



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