

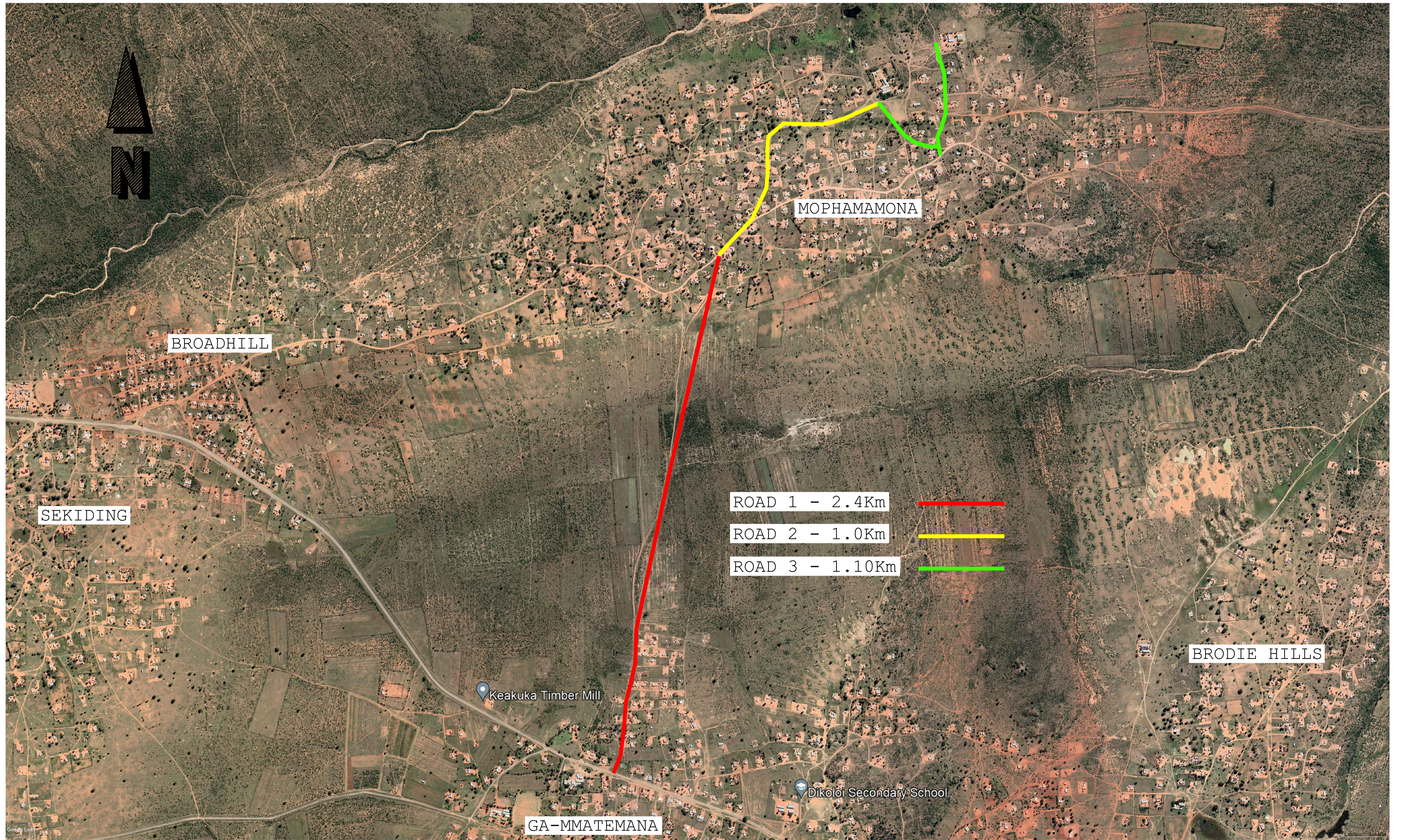
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 admin@morulaconsulting.co.za



PO Box 1593
 SENWABARANWA
 0790
 Tel: 015 505 7100
 Fax: 015 505 0296
 Web: <http://www.blouberg.gov.za/>

AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE
				ENGINEER: _____	
				REG. No.: _____	
				DATE: _____	
				SIGNATURE: _____	

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
LOCALITY PLAN		REVIEWED
CONTRACT:	DRAWING	REVISION
DATE: SEPTEMBER 2022	ML/BLB1/LAY-01	PROJECT ENGINEER



- ROAD 1 - 2.4Km █
- ROAD 2 - 1.0Km █
- ROAD 3 - 1.10Km █

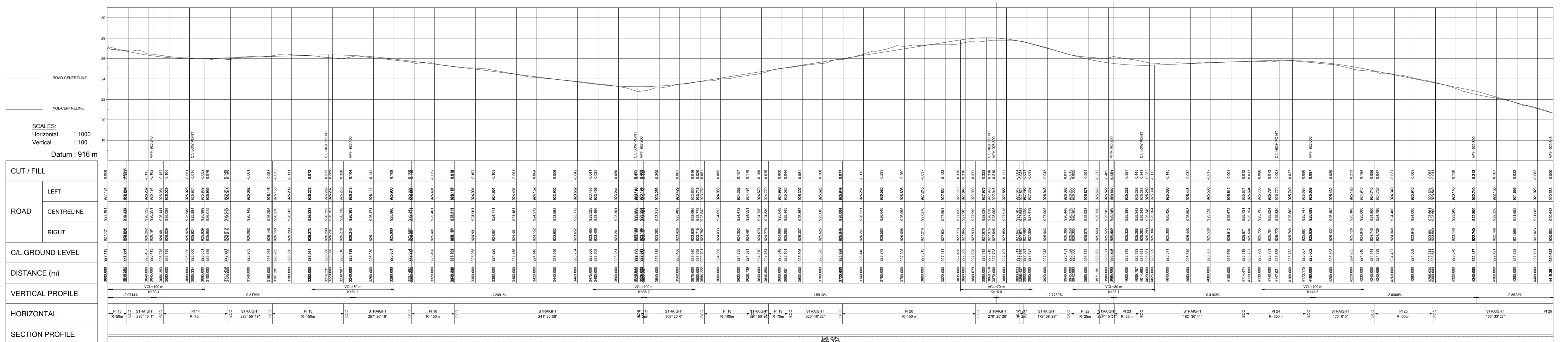


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					ENGINEER : _____ REG. No. : _____ DATE : _____ SIGNATURE : _____	

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
KEY PLAN		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB1/LAY-02	REVISION



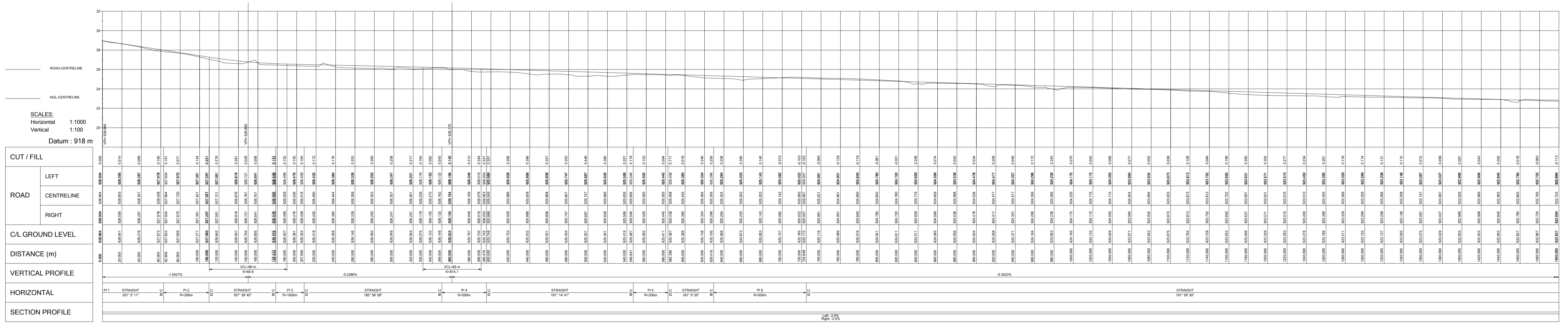
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					ENGINEER: _____ REG. No.: _____ DATE: _____ SIGNATURE: _____	

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
LAYOUT AND LONG SECTION (3 OF 3)		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB1/LAY-05	



SCALES:
Horizontal 1:1000
Vertical 1:100
Datum : 918 m

CUT / FILL	ROAD	C/L GROUND LEVEL	DISTANCE (m)	VERTICAL PROFILE	HORIZONTAL	SECTION PROFILE
LEFT						
CENTRELINE						
RIGHT						

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NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

TENDER NO: xxxxx

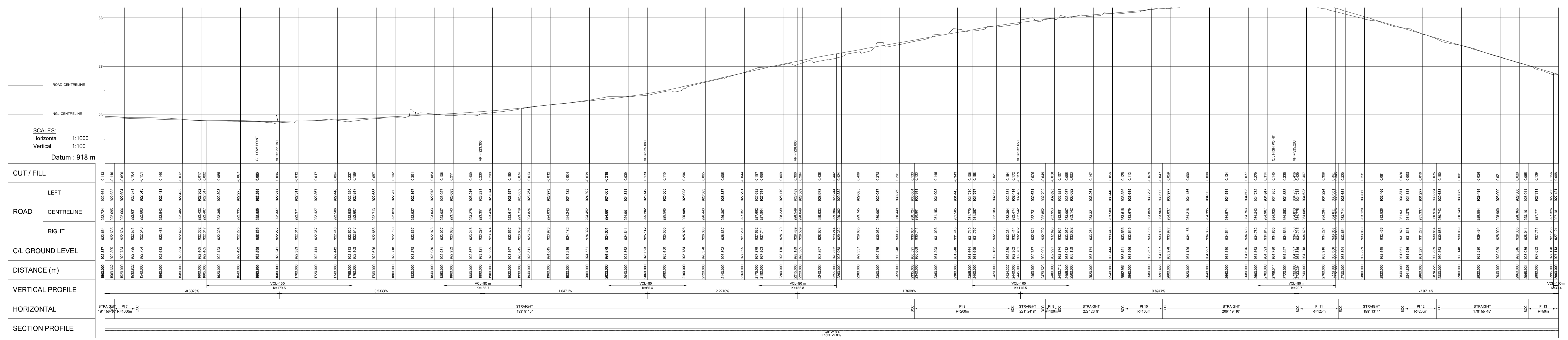
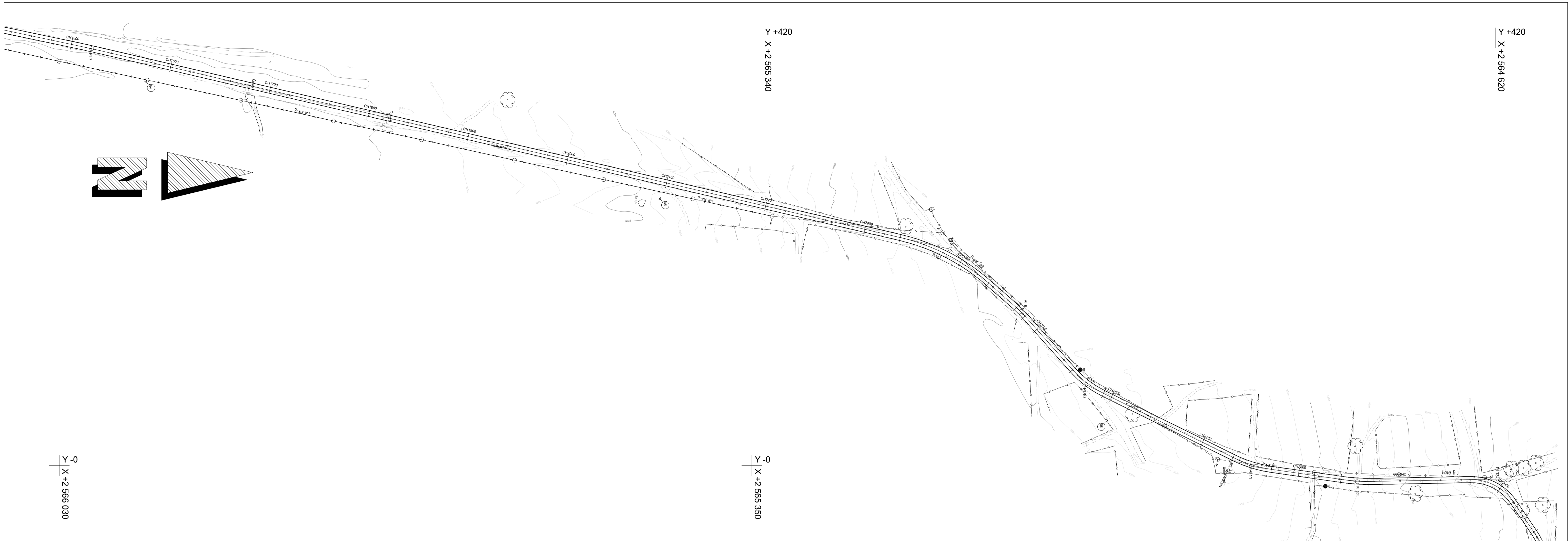
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS

LAYOUT AND LONG SECTION (1 OF 3)

CONTRACT: _____ DATE: SEPTEMBER 2022

DRAWING: ML/BLB1/LAY-03

REVISION: _____ PROJECT ENGINEER: _____



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NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

TENDER NO: xxxxx

UPGRADING OF GA-MOTSEMI INTERNAL STREETS

LAYOUT AND LONG SECTION (2 OF 3)

CONTRACT: _____ DATE: SEPTEMBER 2022

DRAWING: ML/BLB1/LAY-04

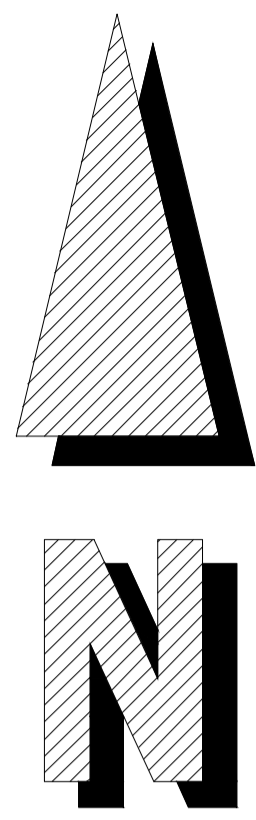
DESIGNED: _____

DRAWN: _____

REVIEWED: _____

PROJECT ENGINEER: _____

Y +850
X +2 567 390



Y +660
X +2 567 390

Y +490
X +2 567 3

Y +850
X +2 567 480


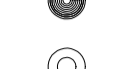
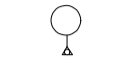
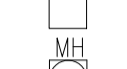
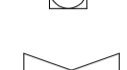
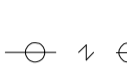




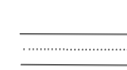







Y +490
X +2 567 4

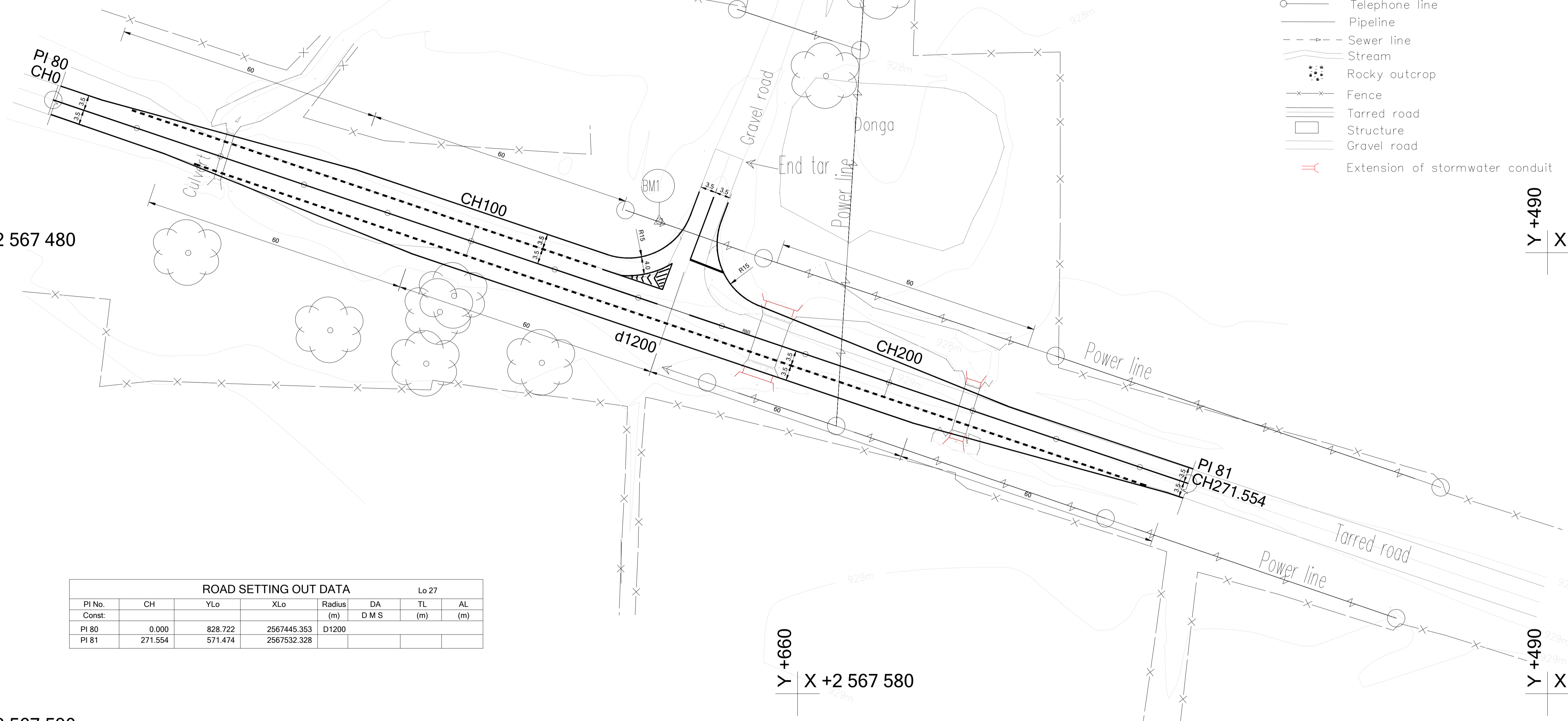
Y +850
X +2 567 590

Y +660
X +2 567 580


Y +490
X +2 567 5

LEGEND

-  Tree
-  Tap
-  Borehole
-  Benchmark
-  Water Tank
-  Manhole
-  Gate
-  Powerline
-  Telephone line
-  Pipeline
-  Sewer line
-  Stream
-  Rocky outcrop
-  Fence
-  Tarred road
-  Structure
-  Gravel road
-  Extension of stormwater conduit




ROAD SETTING OUT DATA							Lo 27	
PI No.	CH	YLo	XLo	Radius	DA	TL	AL	
Const:				(m)	D M S	(m)	(m)	
PI 80	0.000	828.722	2567445.353	D1200				
PI 81	271.554	571.474	2567532.328					



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NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

TENDER NO: xxxxx

UPGRADING OF GA-MOTSEMI INTERNAL STREETS

D1200 LAYOUT

CONTRACT:	DRAWING:	REVISION:	PROJECT ENGINEER:
DATE: SEPTEMBER 2022	ML/BLB1/LAY-02	△	

Y +850
X +2 567 390

Y +660
X +2 567 390

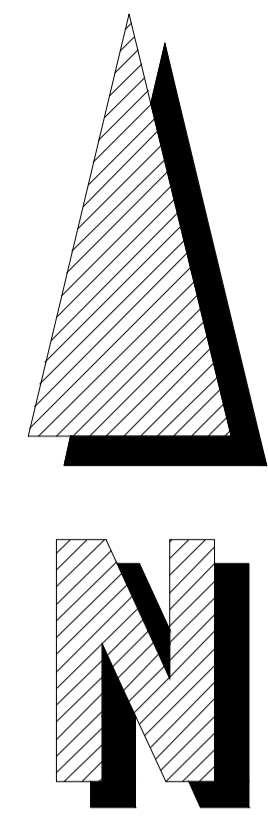
Y +490
X +2 567 3

Y +850
X +2 567 480

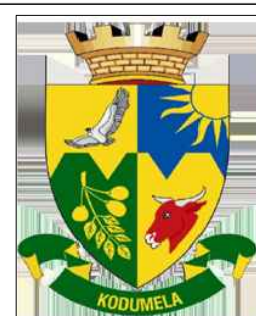
Y +490
X +2 567 4

Y +850
X +2 567 590

Y +490
X +2 567 5



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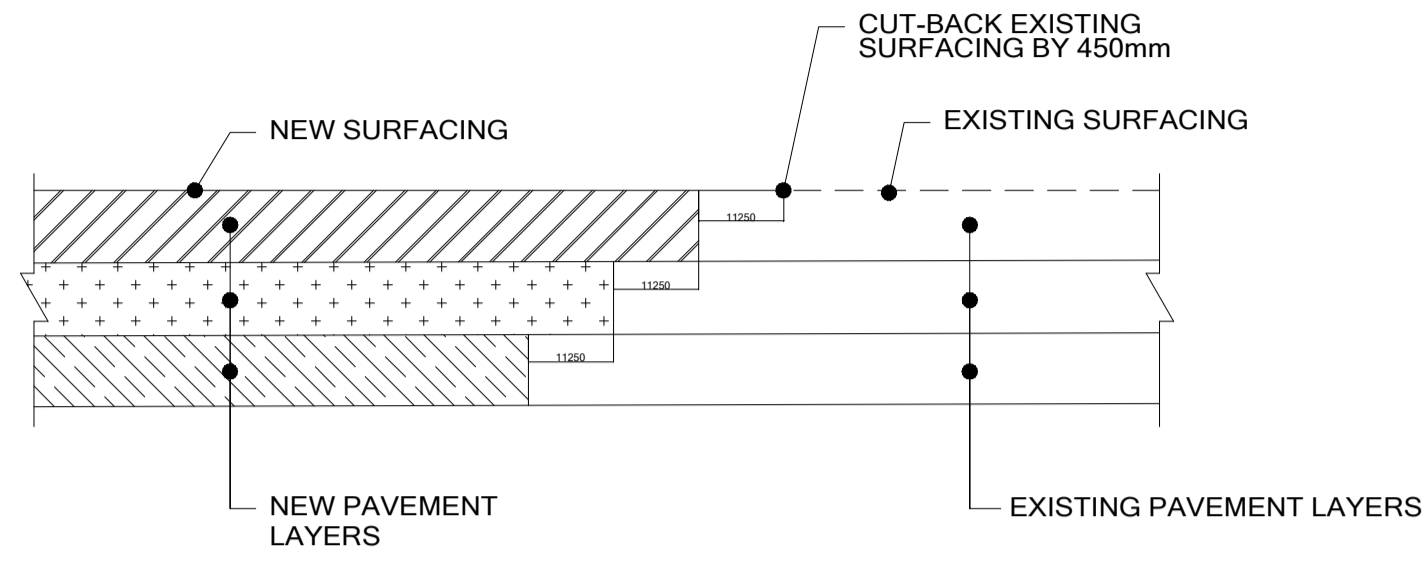
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NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

ENGINEER: _____
REG. No.: _____
DATE: _____
SIGNATURE: _____

TENDER NO: xxxxx	
UPGRADING OF GA-MOTSEMI INTERNAL STREETS	
D1200 ROAD MARKINGS LAYOUT	
CONTRACT: _____	DRAWING: ML/BLB1/LAY-04
DATE: SEPTEMBER 2022	REVISION: _____

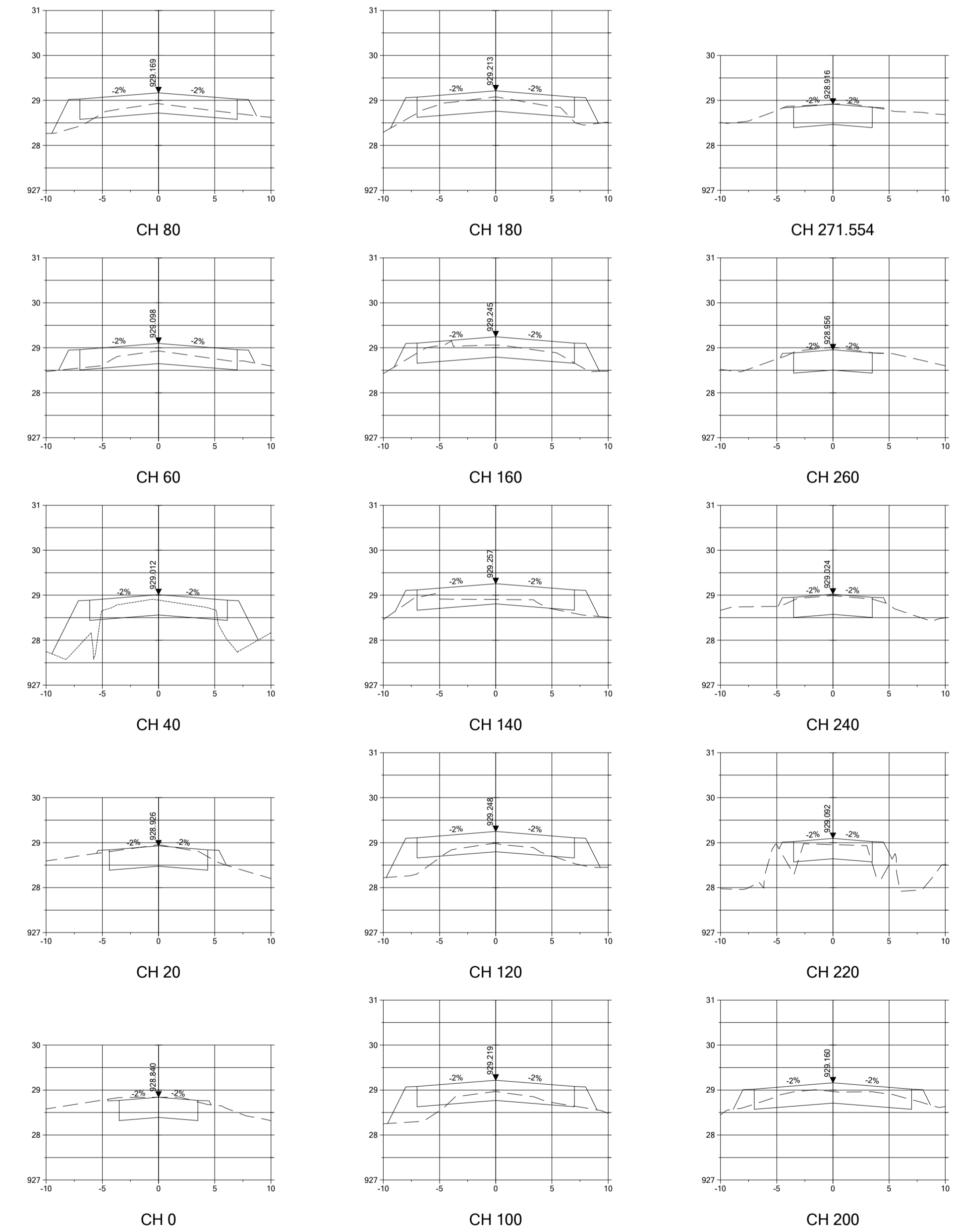
DESIGNED
DRAWN
REVIEWED
PROJECT ENGINEER



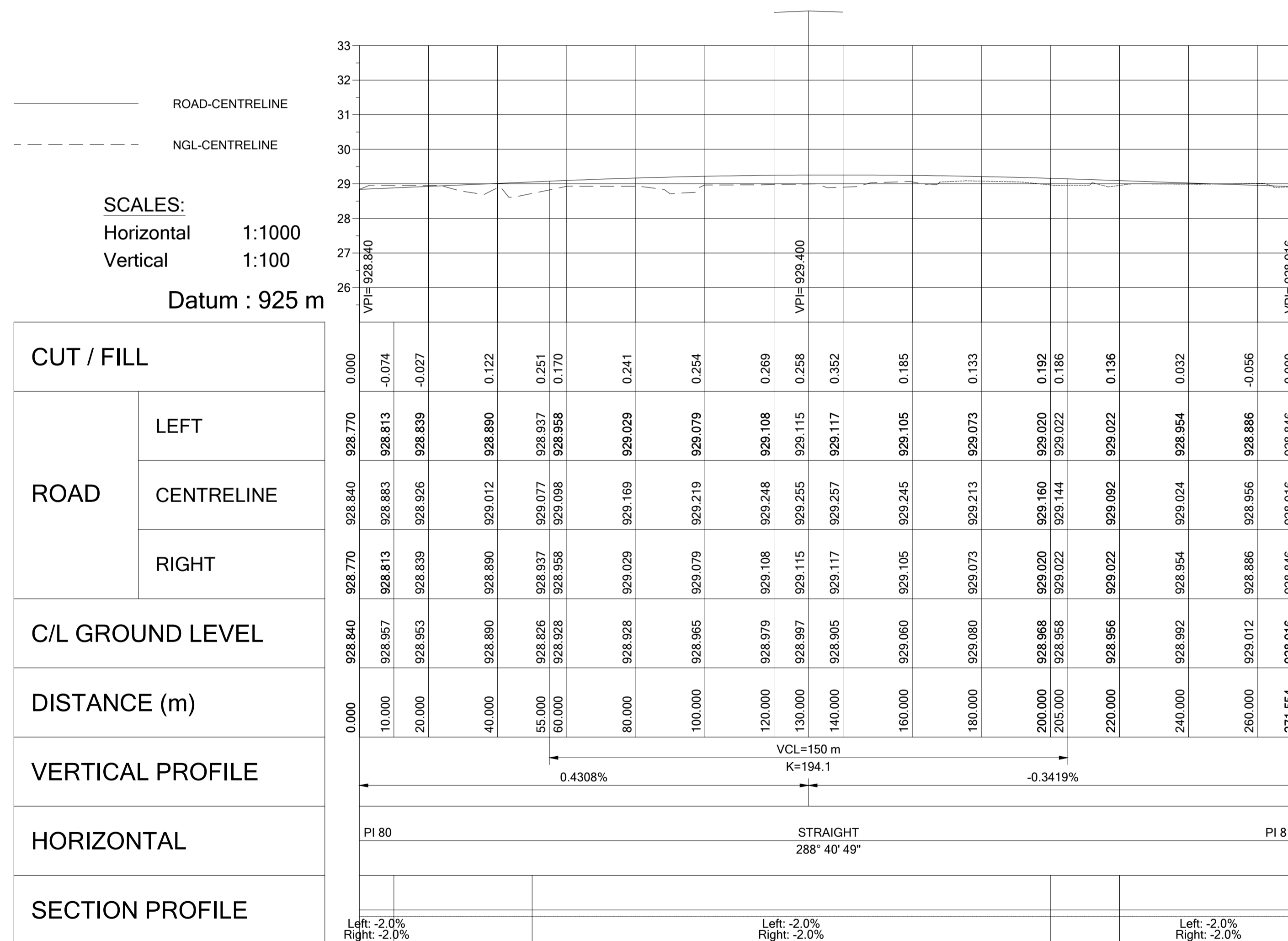
NEW CONSTRUCTION TO EXISTING
PAVEMENT STRUCTURE JOINT DETAIL

PROPOSED PAVEMENT DESIGN

- 150mm G2 MATERIAL COMPACTED TO A MINIMUM OF 98% MODIFIED AASHTO DENSITY.
- 150mm C4 LAYER COMPACTED TO A MINIMUM OF 97% MODIFIED AASHTO DENSITY.
- 150mm LAYER (G6) COMPACTED TO A MINIMUM OF 95% MODIFIED AASHTO DENSITY.
- 150mm LAYER (G6) COMPACTED TO A MINIMUM OF 93% MODIFIED AASHTO DENSITY.
- 150mm THICK LAYER OF IN-SITU RIP AND RECOMPACT TO A MINIMUM OF 90% MODIFIED AASHTO DENSITY.



H-SCALE 1: 200
V-SCALE 1: 50



ROAD-CENTRELINE
NGL-CENTRELINE

SCALES:
Horizontal 1:1000
Vertical 1:100
Datum : 925 m

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NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

TENDER NO: xxxxx

UPGRADING OF GA-MOTSEMI INTERNAL STREETS

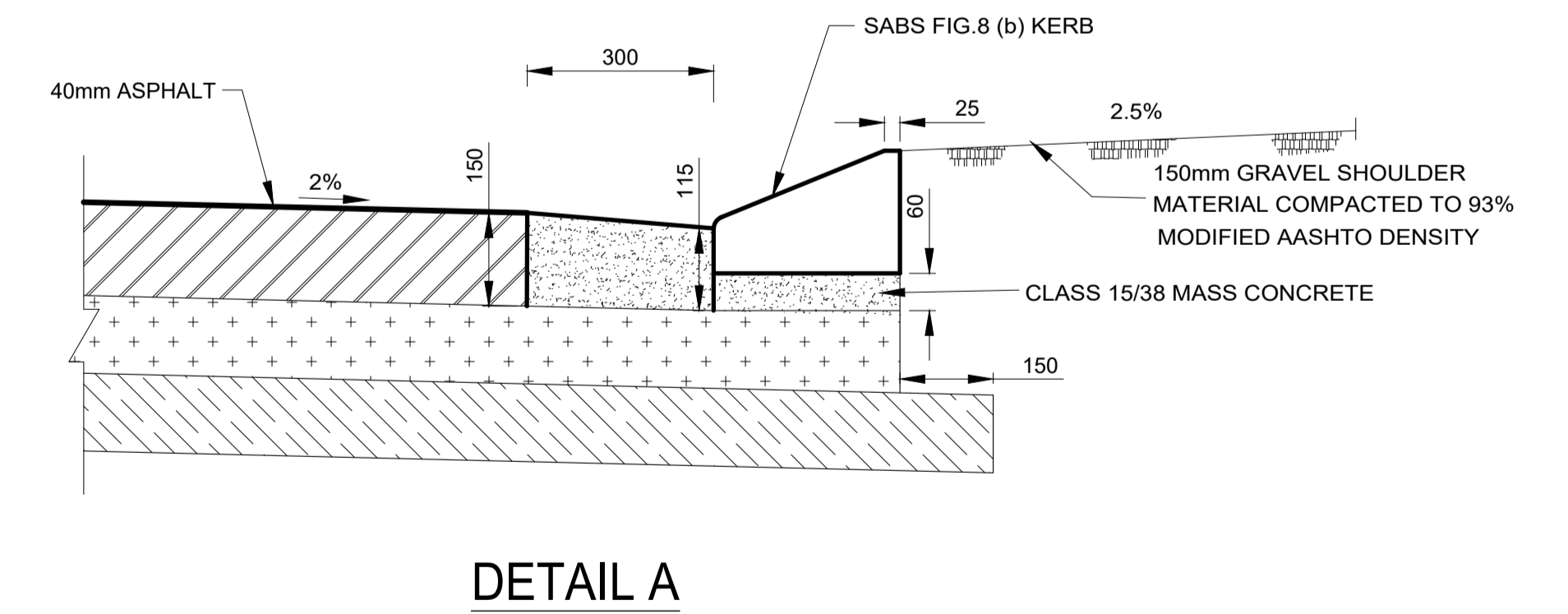
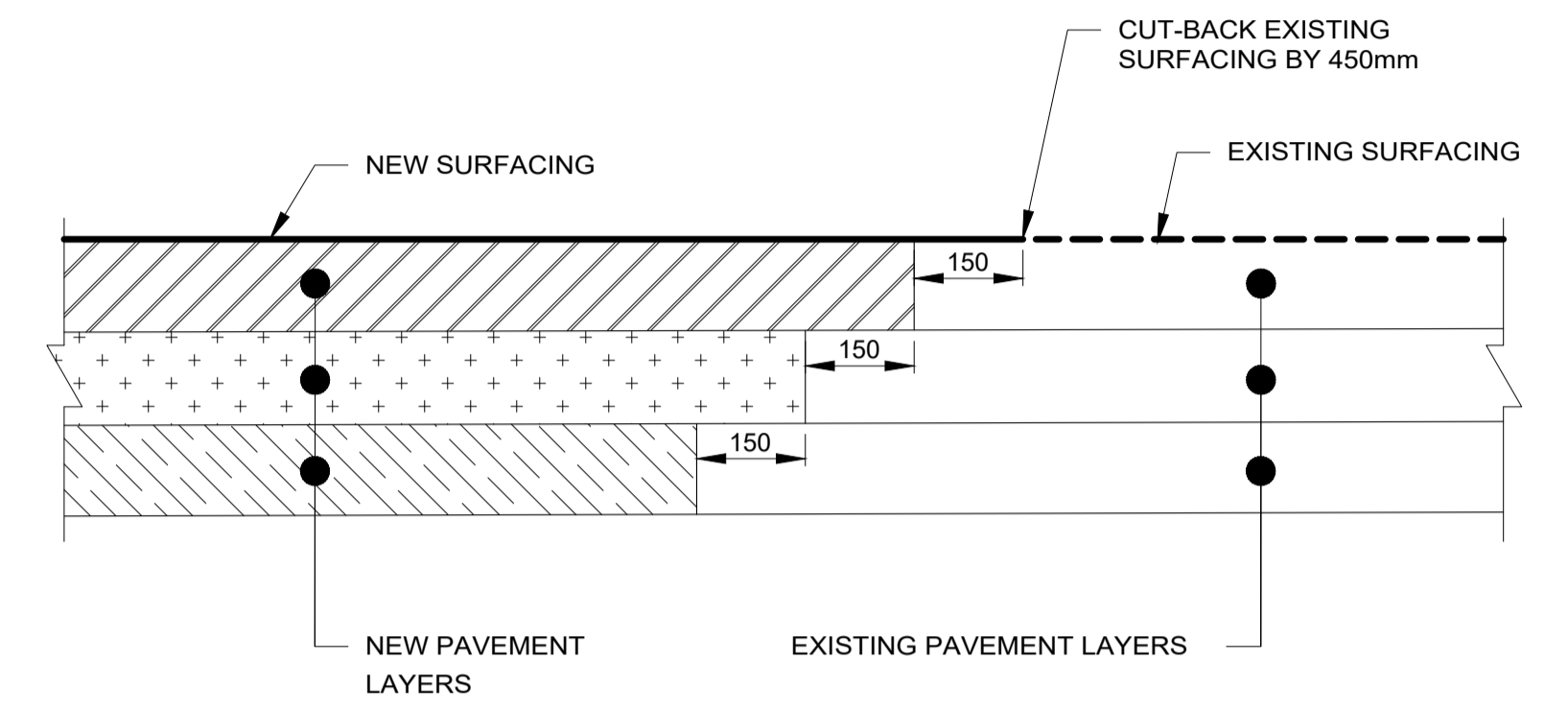
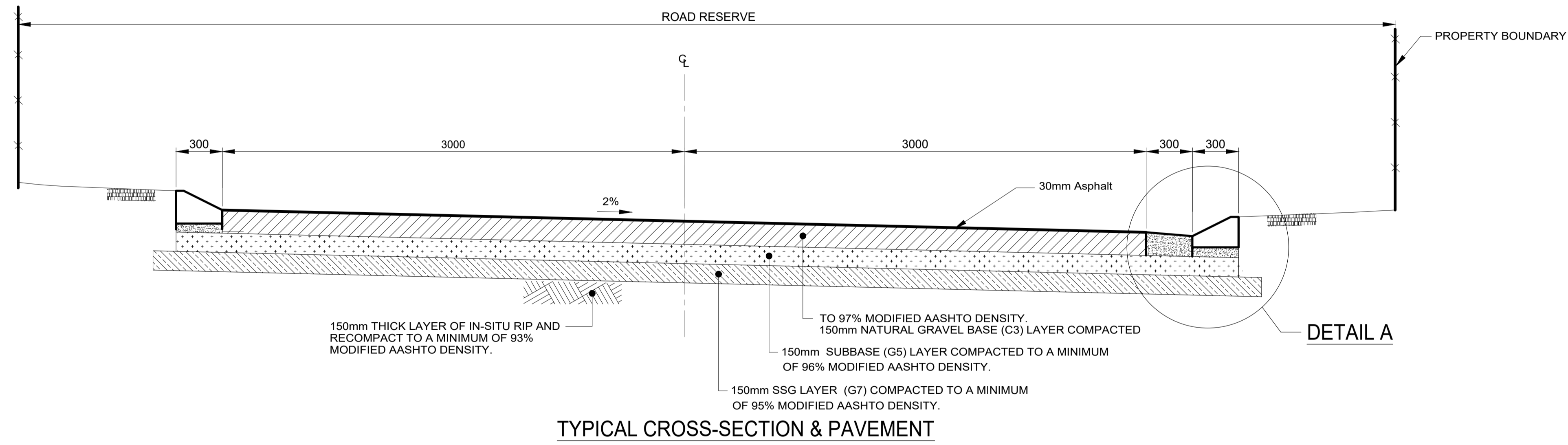
D1200 - SECTIONS & PAVEMENT DESIGN

CONTRACT: DATE: SEPTEMBER 2022

DRAWING: ML/BLB1/LAY-03

REVISION: [Symbol]

DESIGNED: [Symbol]
DRAWN: [Symbol]
REVIEWED: [Symbol]
PROJECT ENGINEER: [Symbol]



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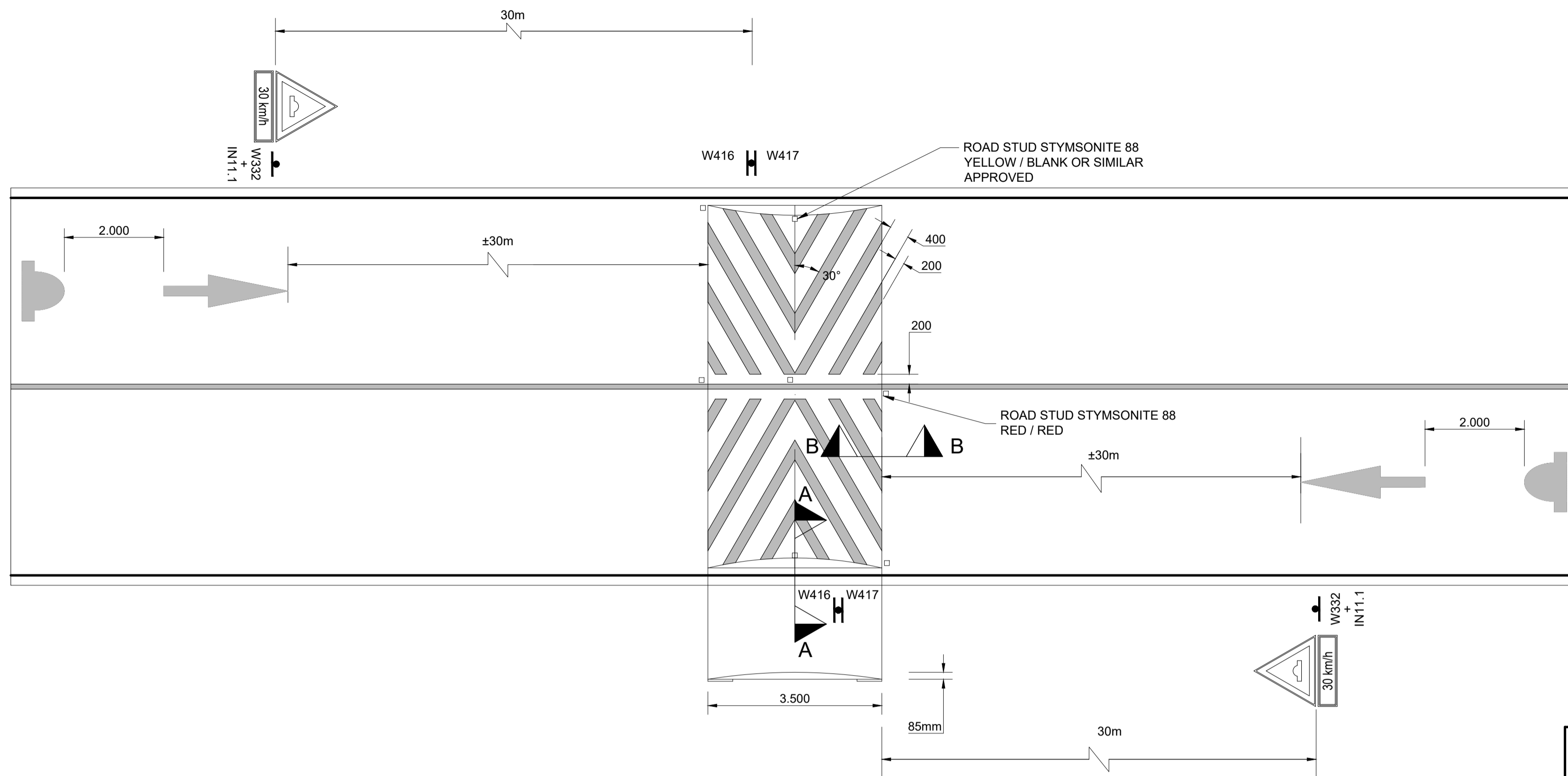
NO.	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE
					ENGINEER: _____	
					REG. No.: _____	
					DATE: _____	
					SIGNATURE: _____	

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
TYPICAL CROSS SECTIONS AND PAVEMENT DESIGN		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB1/STD-01	REVISION

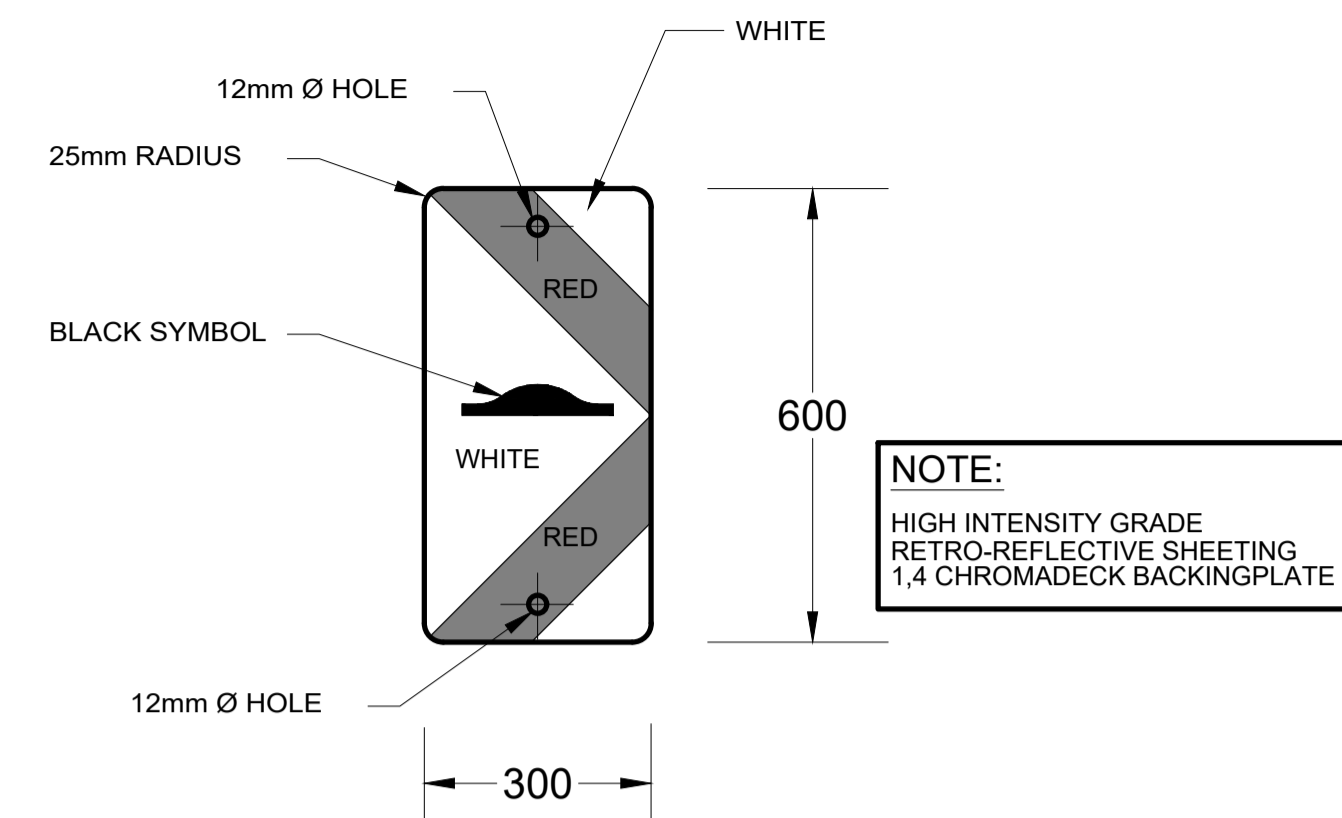
NOTES

CONSTRUCTION METHOD:

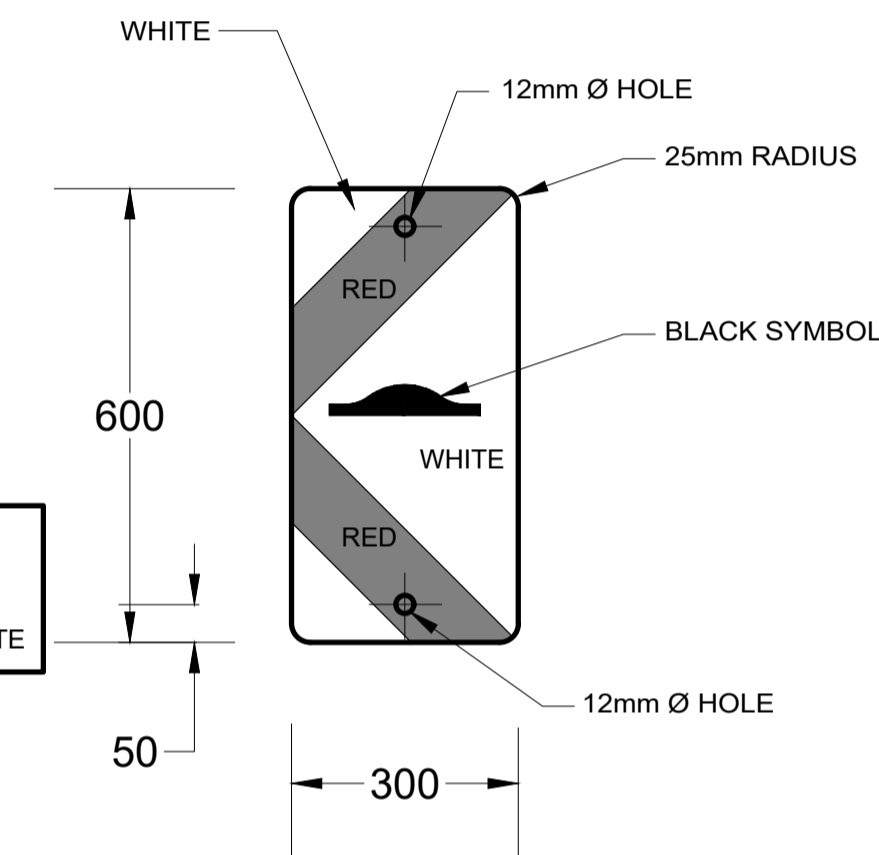
- Setting out of hump - few days before construction.
 - Saw cuts one to two days before construction.
- ## ON CONSTRUCTION DAY:
- Remove 500 mm asphalt strips.
 - Start erecting road signs and paint warning road marking.
 - Place asphalt in strips and compact with two passes without vibrator.
 - Place templates - both sides of one lane at a time.
 - Place asphalt and rake till slightly higher than templates.
 - Shape asphalt with straight edge (channel section 6 m long).
 - Remove templates and compact without vibrator (three passes)
 - Measure profile and rectify if necessary.
 - Final compaction with three to four passes with vibrator.
 - Place road studs.
 - Paint speed hump the next day.



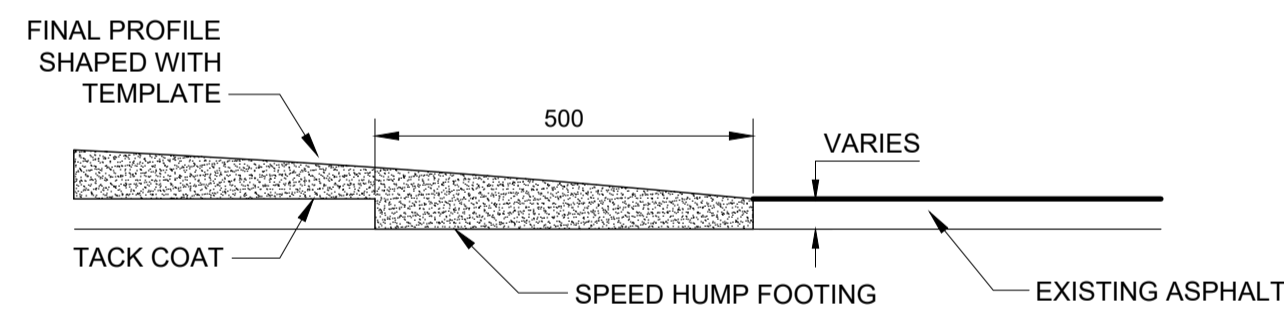
PLAN OF SPEED HUMP
SCALE 1:100



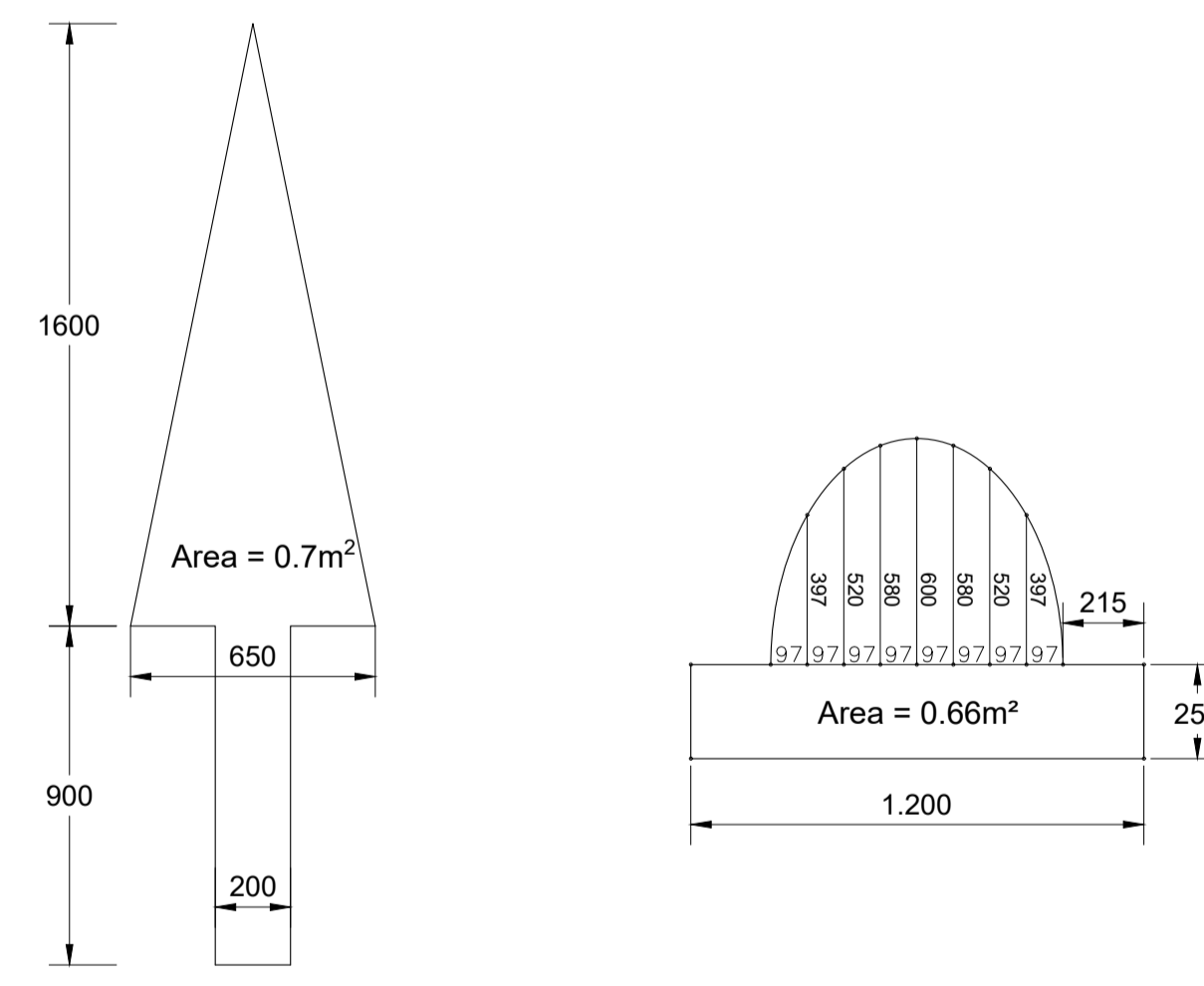
DANGER PLATE SPEEDHUMP (LEFT)
W416
SCALE 1:10



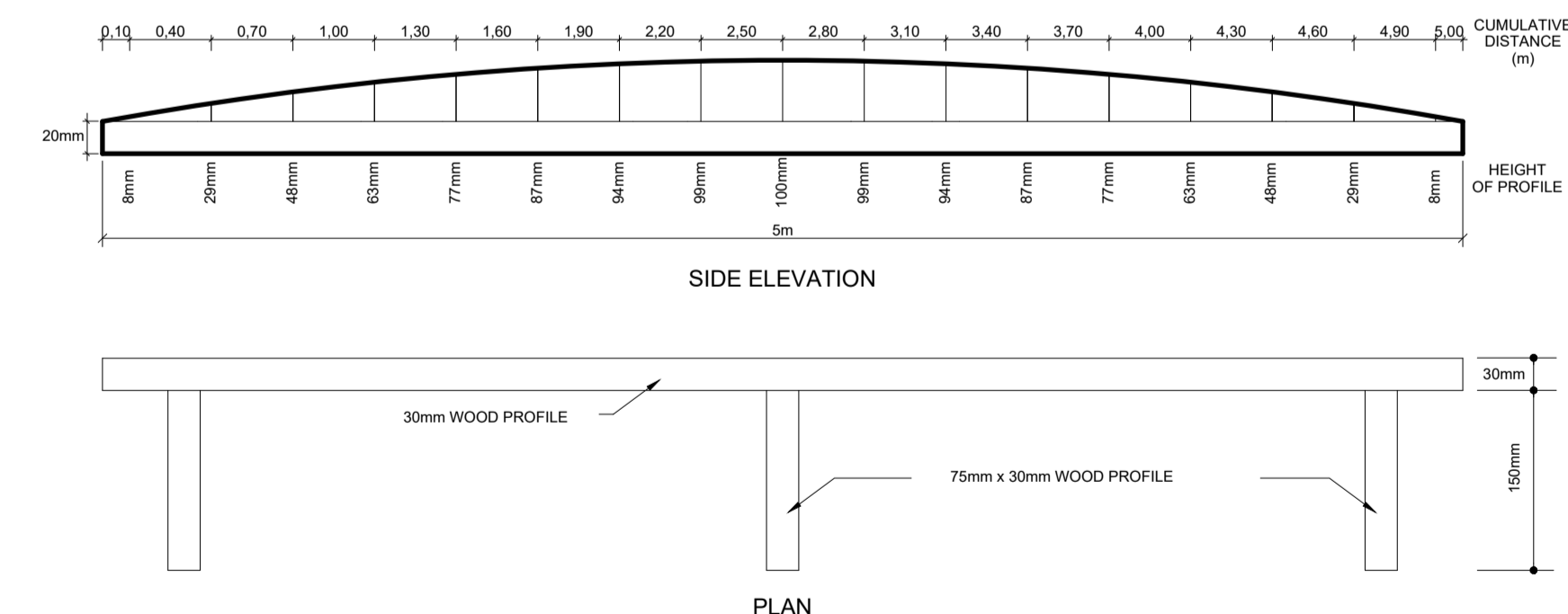
DANGER PLATE SPEEDHUMP (RIGHT)
W417
SCALE 1:10



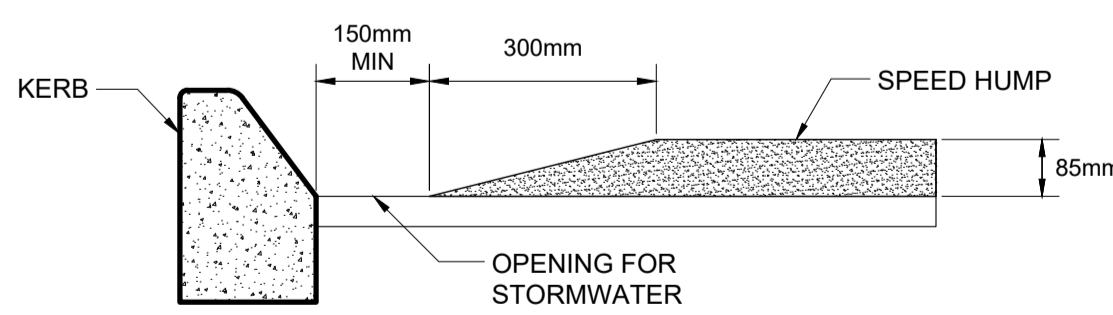
SECTION A-A:
CONSTRUCTION DETAIL OF SPEED HUMP
SCALE 1: 100



DETAIL OF SPEED HUMP ROAD MARKING
SCALE 1: 20



TEMPLATE DETAIL FOR CONSTRUCTION OF SPEED HUMP
SCALE 1: 20



SECTION B-B:
CONSTRUCTION DETAIL OF SPEED HUMP

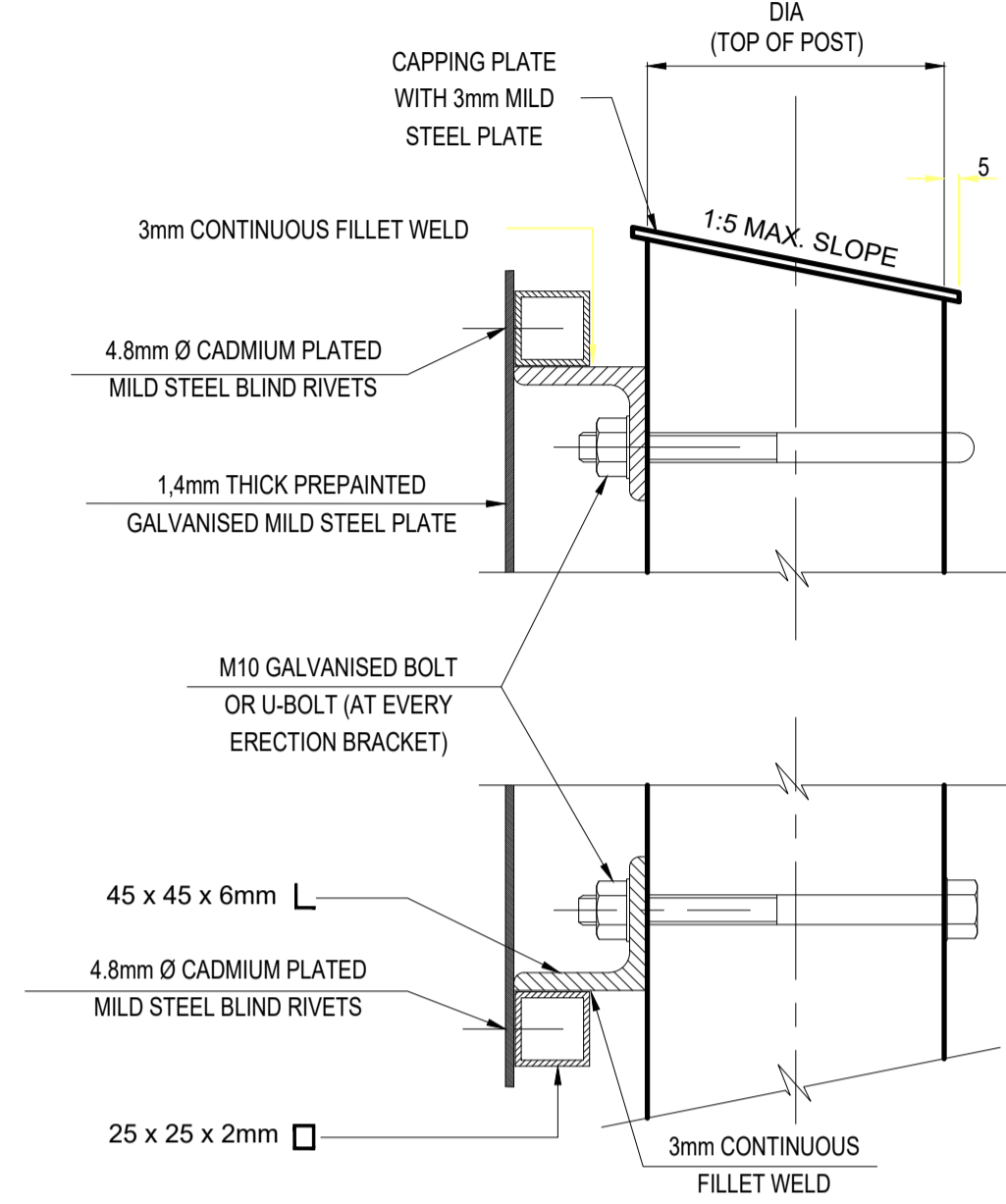
NO.	AMENDMENTS	BY	APPROVED	DATE

APPROVED ON BEHALF OF THE CONSULTING ENGINEER

ENGINEER: _____
REG. No.: _____
DATE: _____
SIGNATURE: _____

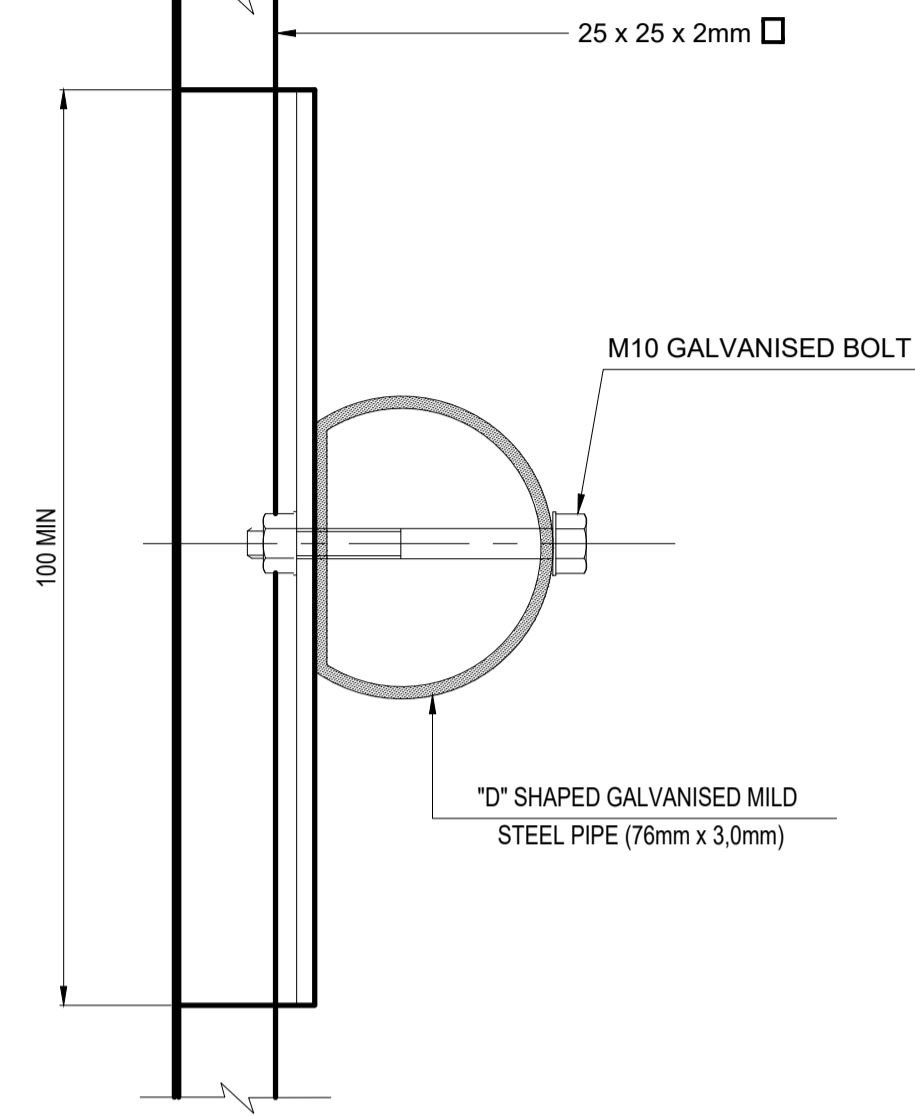
REFERENCE

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
SPEED HUMP DETAILS		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/LET1/STD-02	REVISION



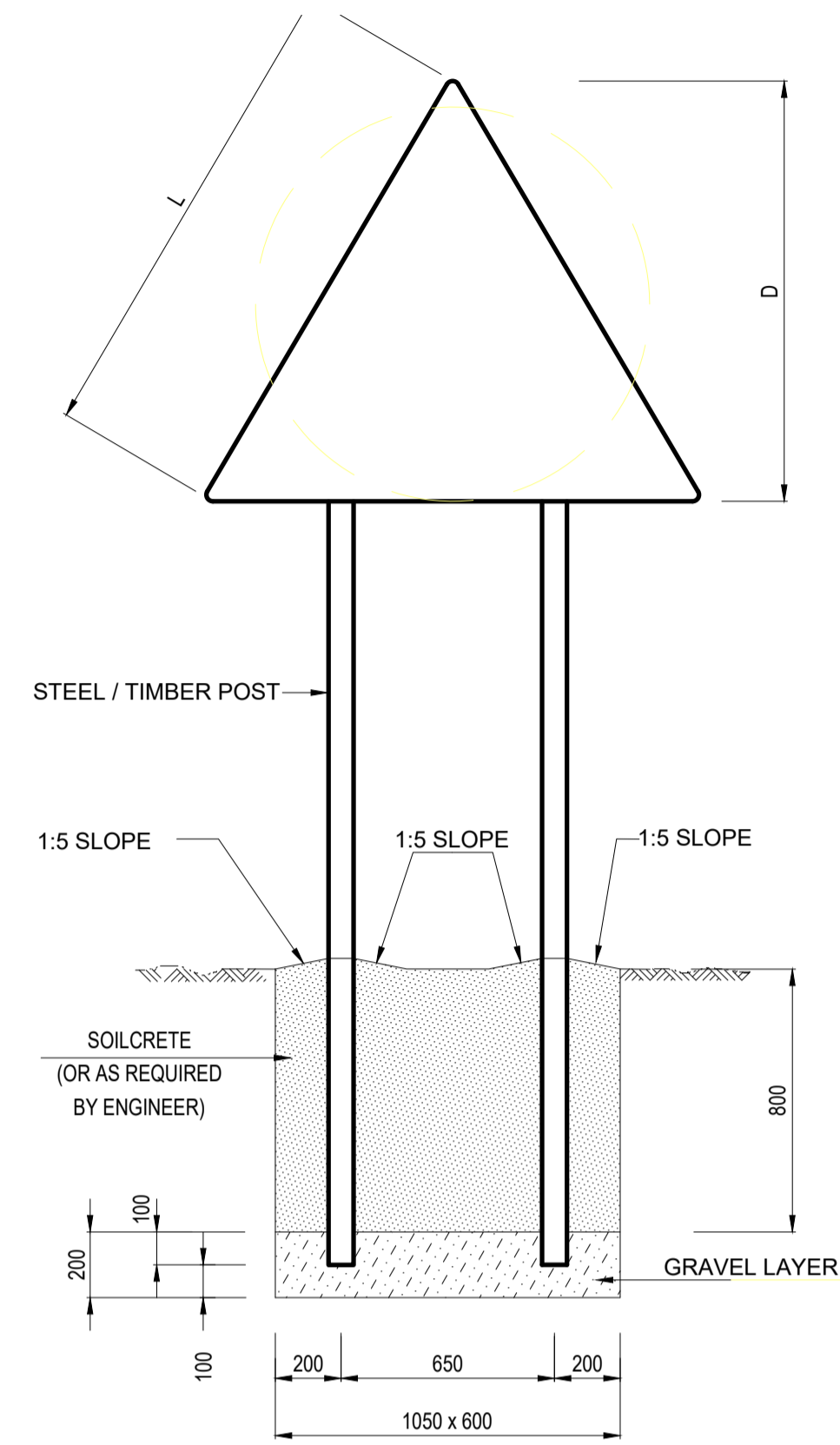
SIDE ELEVATION

SCALE 1 : 2,5



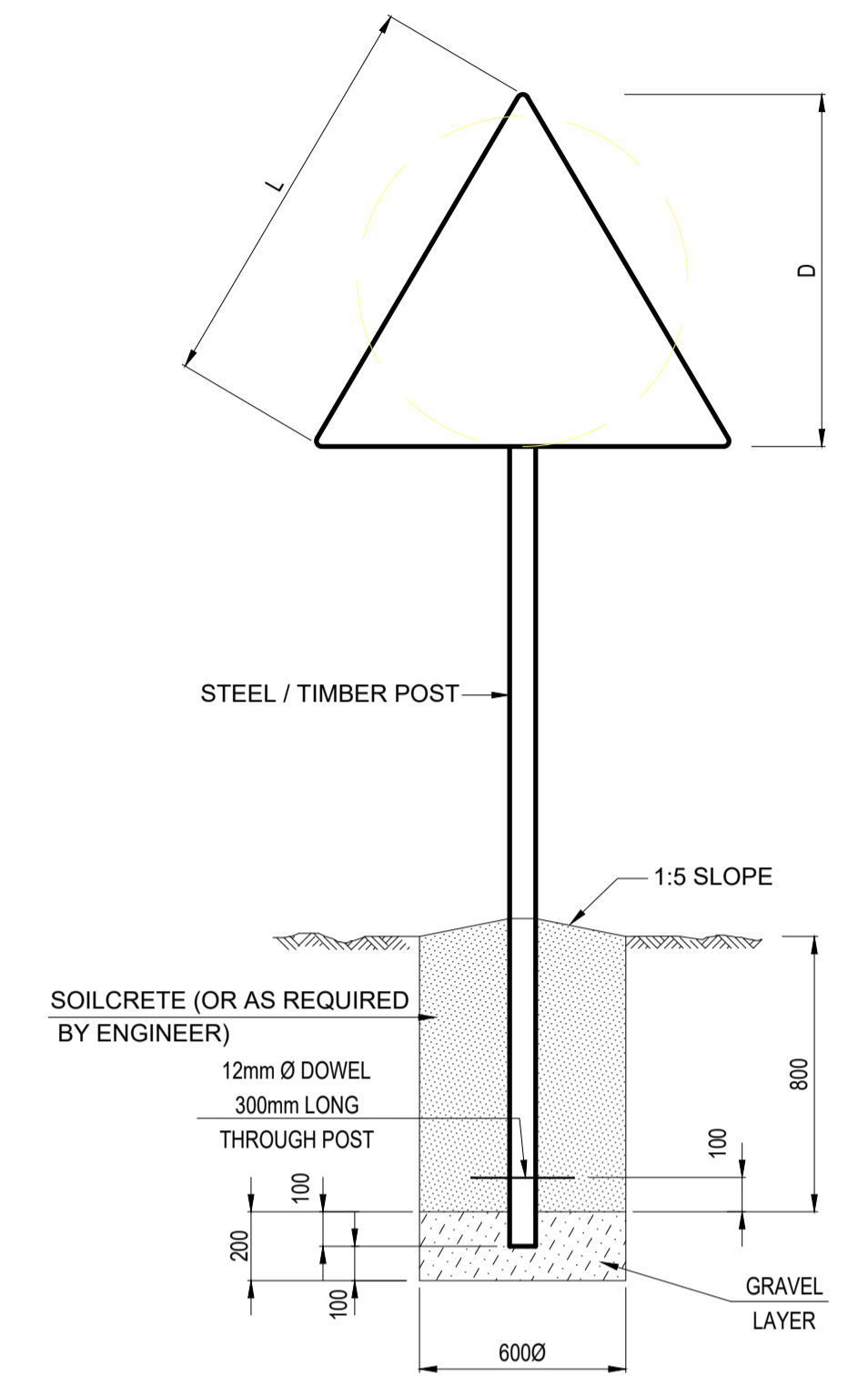
SIDE ELEVATION

SCALE 1 : 2



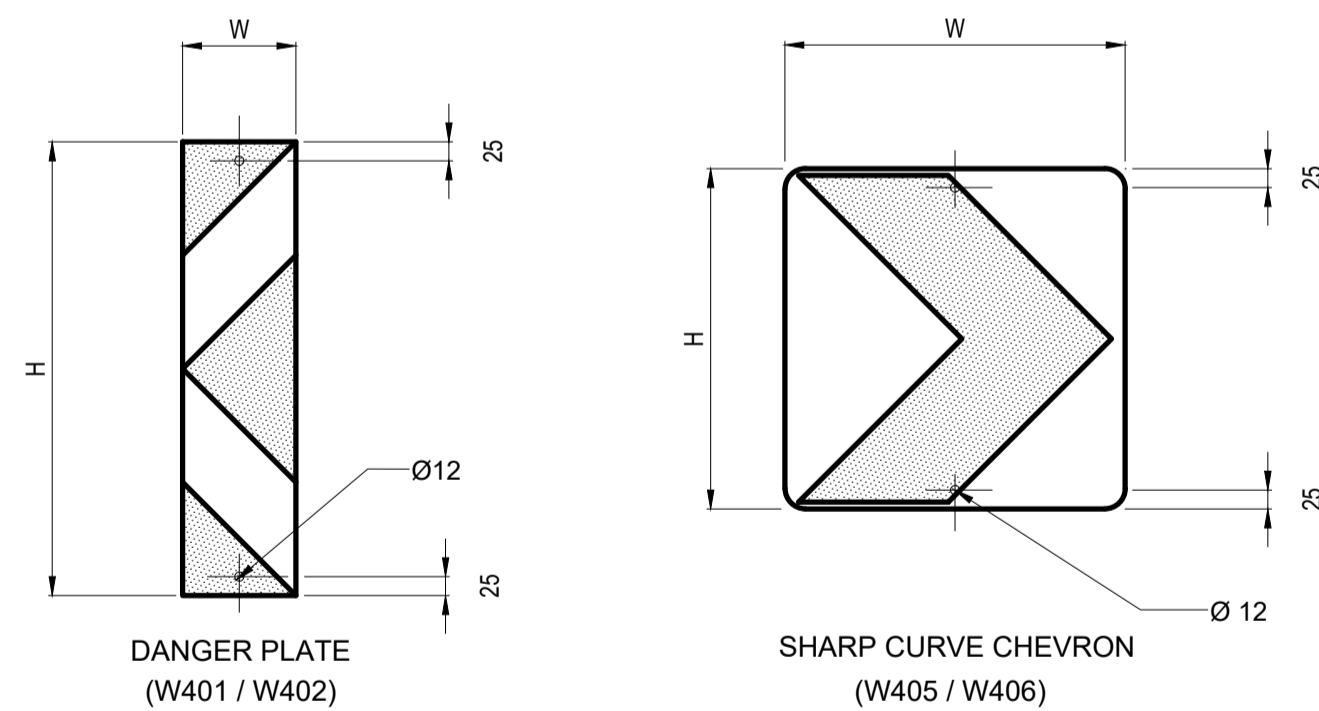
FOUNDATION DETAIL
L = 1500 AND D = 1200

SCALE 1:20



FOUNDATION DETAIL
L < 1200 AND D < 900

SCALE 1:20



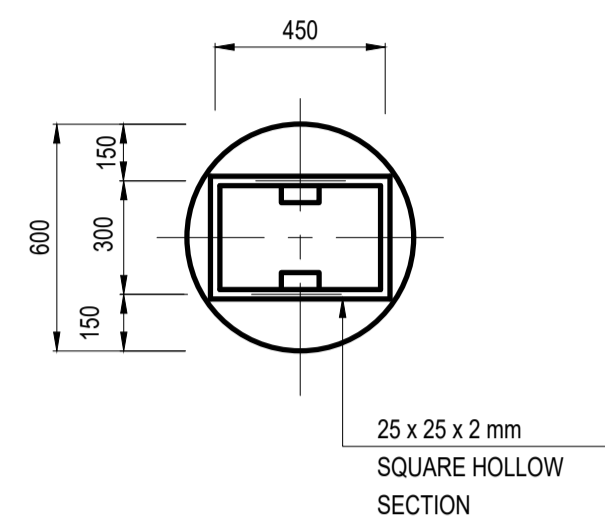
**MOUNTING HOLES FOR HAZARD MARKER
SIGNS WITHOUT FRAMEWORK**

HAZARD MARKER SIGNS		
	DANGER PLATE SIGN	SHARP CURVE CHEVRON
	W401-RIGHT W402-LEFT	W405-RIGHT W406-LEFT
OPERATING SPEED (km/h)	SIZE H x W (mm)	SIZE H x W (mm)
120	800 x 200	600 x 600
100	800 x 200	600 x 600
80	600 x 150	450 x 450
60	600 x 150	450 x 450

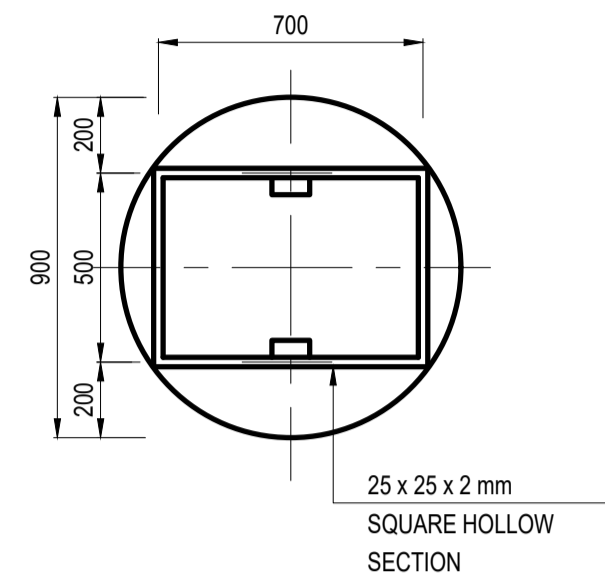
NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

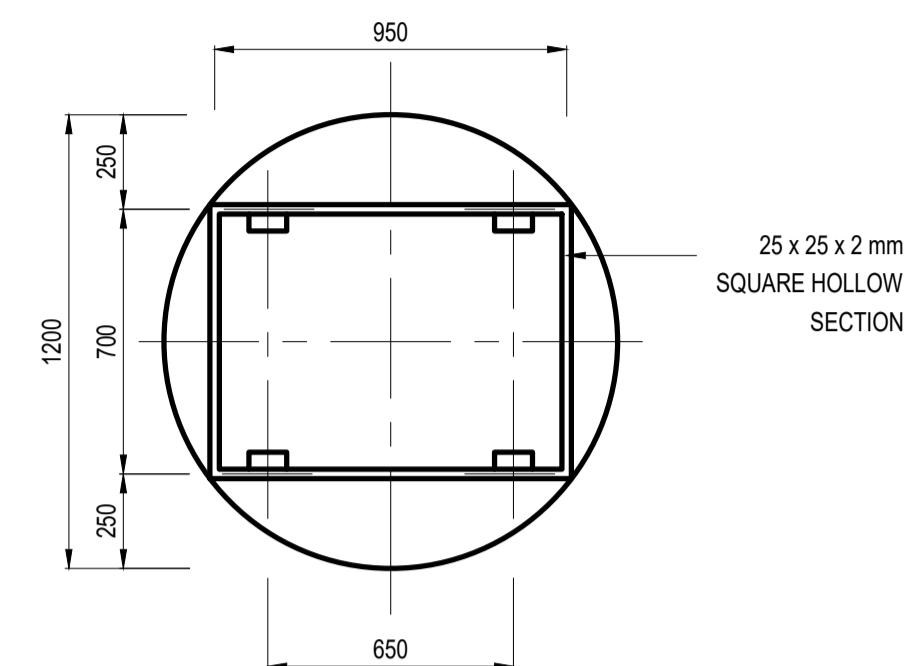
- STRUCTURAL STEEL SECTIONS SHALL BE MILD STEEL CONFORMING TO THE REQUIREMENTS OF SANS 1431, GRADE 300W. RECTANGULAR HOLLOW SECTION AND SPECIAL CHANNEL PROFILES MAY BE COLD FORMED OF COMMERCIAL QUALITY MILD STEEL. ALL SECTIONS SHALL BE HOT-DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
- TIMBER POLE SUPPORTS SHALL COMPLY WITH THE REQUIREMENTS SHOWN ON DRAWING TD-R-RS-001 & TD-R-RS-002
- BOLTS, WASHERS AND NUTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 1700-S-1 AND SHALL BE GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
- BLIND RIVETS SHALL BE 4.8mm DIA CADMIUM PLATED MILD STEEL.



SINGLE SUPPORT



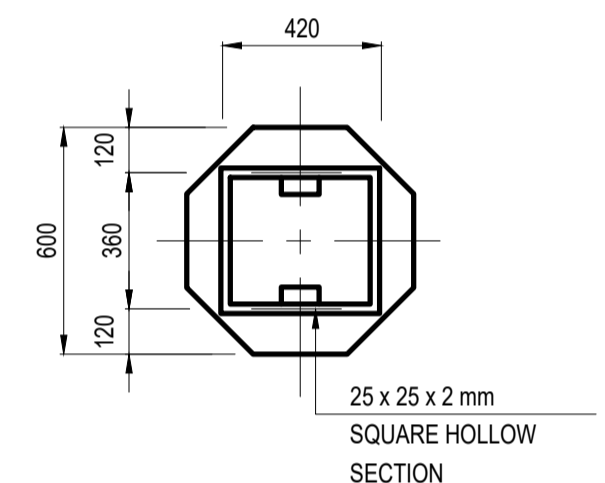
SINGLE SUPPORT
REINFORCEMENT FOR CIRCULAR ROAD SIGNS



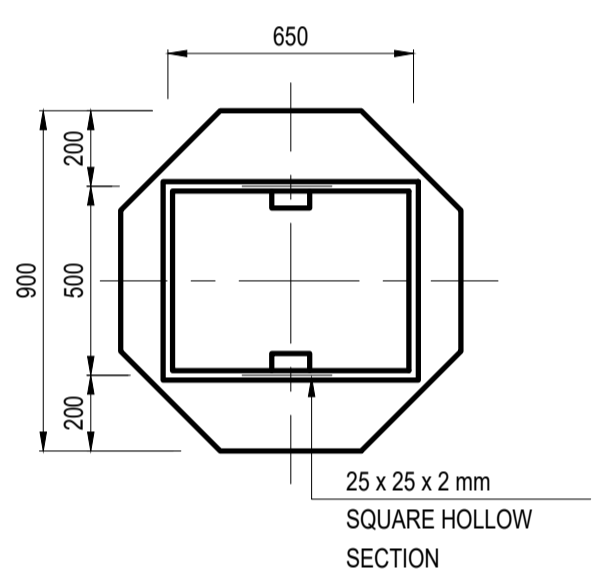
DOUBLE SUPPORT

	MINIMUM REGULATORY SIGN SIZES		
	OPERATING SPEED (km/h)		
	100 - 120	70 - 90	60
CIRCULAR SIGN DIAMETER (mm)	1200	900	600
RECTANGULAR SIGN WxH (mm)	1200 x 900	900 x 675	600 x 450
TRIANGULAR SIGN SIDE LENGTH (mm)	1500	1200	900

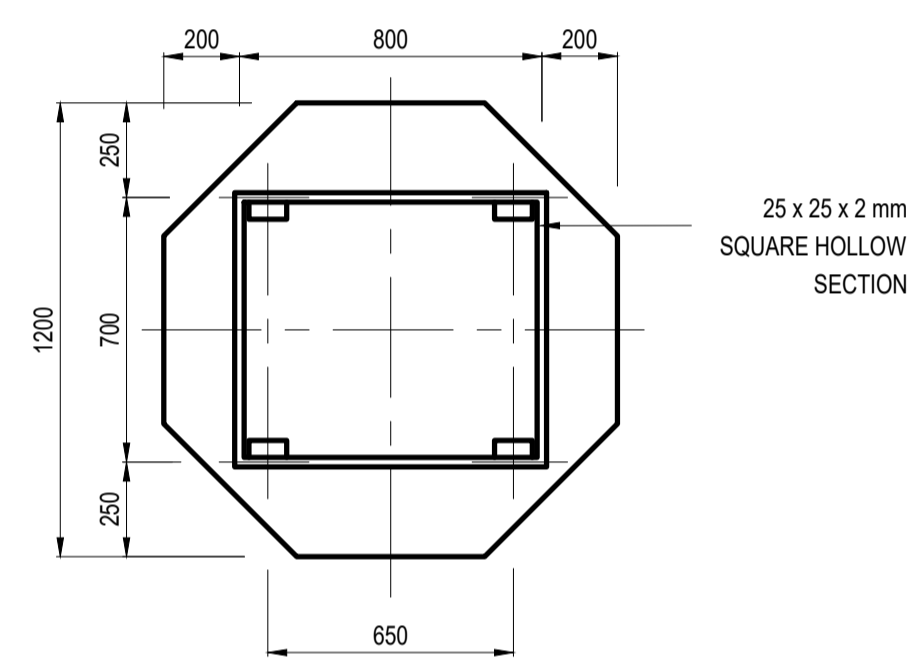
SCALE 1 : 20



SINGLE SUPPORT



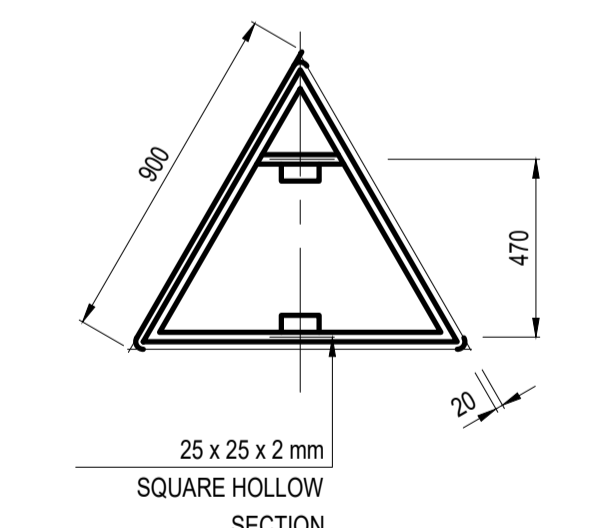
SINGLE SUPPORT
REINFORCEMENT FOR STOP SIGNS



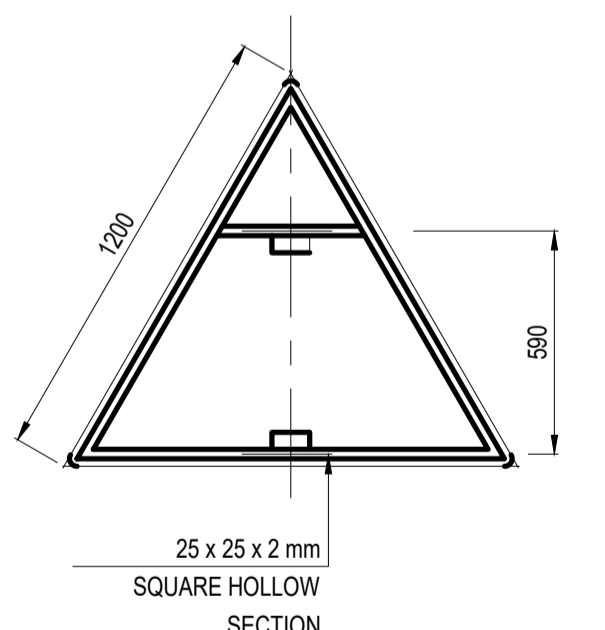
DOUBLE SUPPORT

OPERATING SPEED (km/h)	ADVANCE WARNING SIGN LOCATION AND SIZE	
	LOCATION (DISTANCE FROM HAZARD) (m)	SIZE (mm)
120	330	1500
100	240	1500
80	160	1200
60	120	900

SCALE 1 : 20

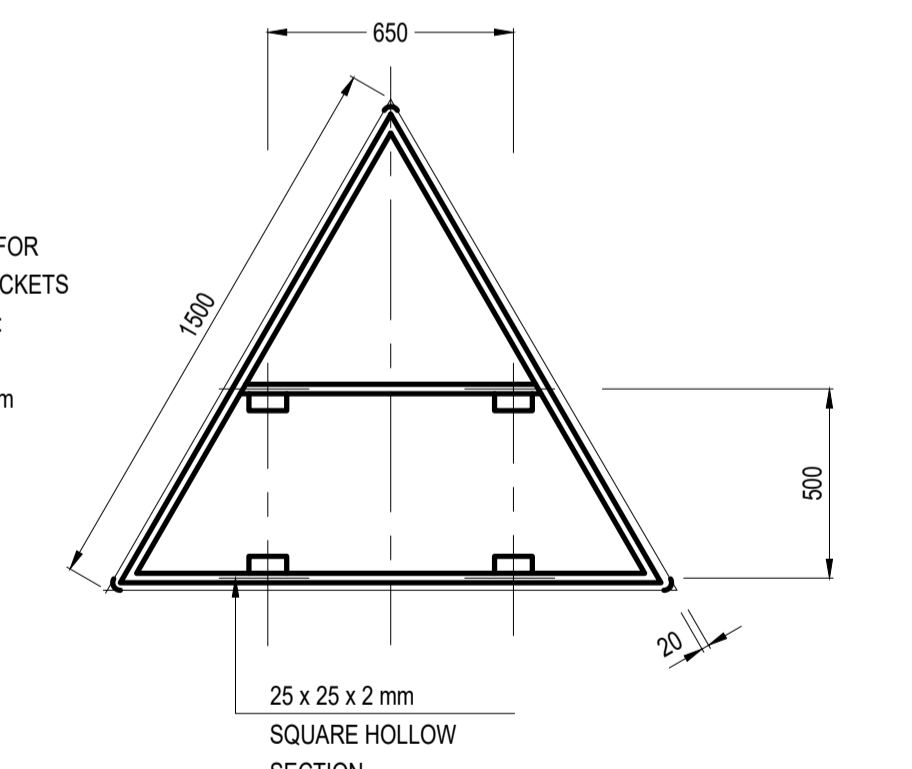


SINGLE SUPPORT



SINGLE SUPPORT

NOTE:
MINIMUM SIZE FOR
ERECTION BRACKETS
ON R/W SIGNS :
L 45 x 45 x 6
LENGTH : 100mm



DOUBLE SUPPORT

REINFORCEMENT FOR TRIANGULAR ROAD SIGNS
SCALE 1 : 20

NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

1. DETAILS ON THIS DRAWING ARE APPLICABLE TO ROAD SIGNS SMALLER THAN 1.5m² REQUIRING DOUBLE / SINGLE SUPPORTS.
2. STRUCTURAL STEEL SECTIONS SHALL BE MILD STEEL CONFORMING TO THE REQUIREMENTS OF SANS 1431, GRADE 300W. RECTANGULAR HOLLOW SECTION AND SPECIAL CHANNEL PROFILES MAY BE COLD FORMED OF COMMERCIAL QUALITY MILD STEEL. ALL SECTIONS SHALL BE HOT-DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).

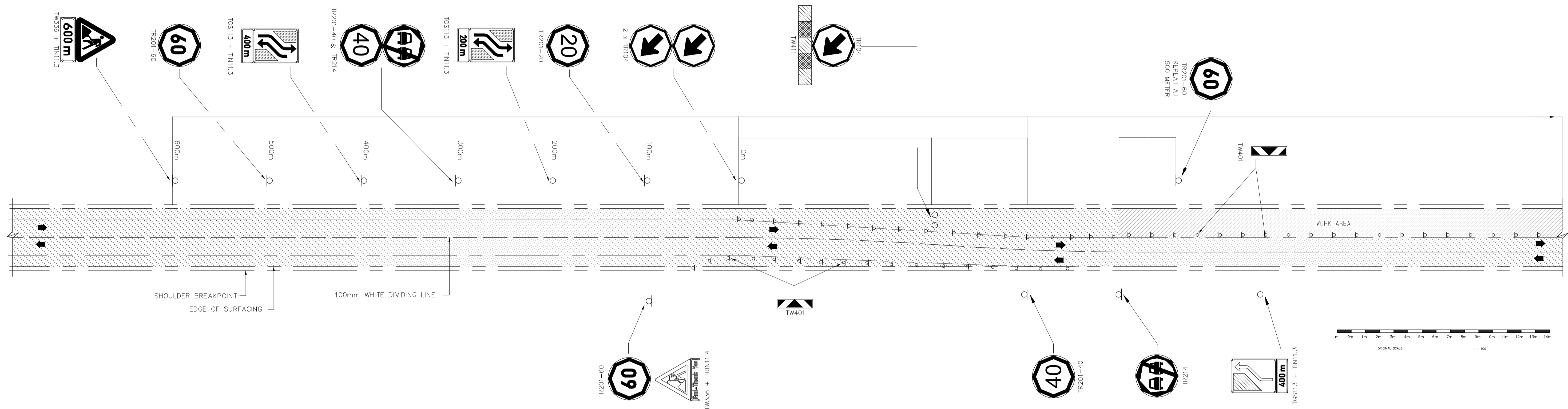


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No.	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE	CONTRACT	DRAWING	REVISION	DESIGNED
							TENDER NO: xxxxx			
							UPGRADING OF GA-MOTSHEMI INTERNAL STREETS			DRAWN
							ROAD SIGNS DETAILS			REVIEWED
							DATE: SEPTEMBER 2022	ML/BLB1/STD-04		PROJECT ENGINEER



TYPICAL ROAD SIGN SEQUENCE FOR HALF-WIDTH CONSTRUCTION

N.T.S



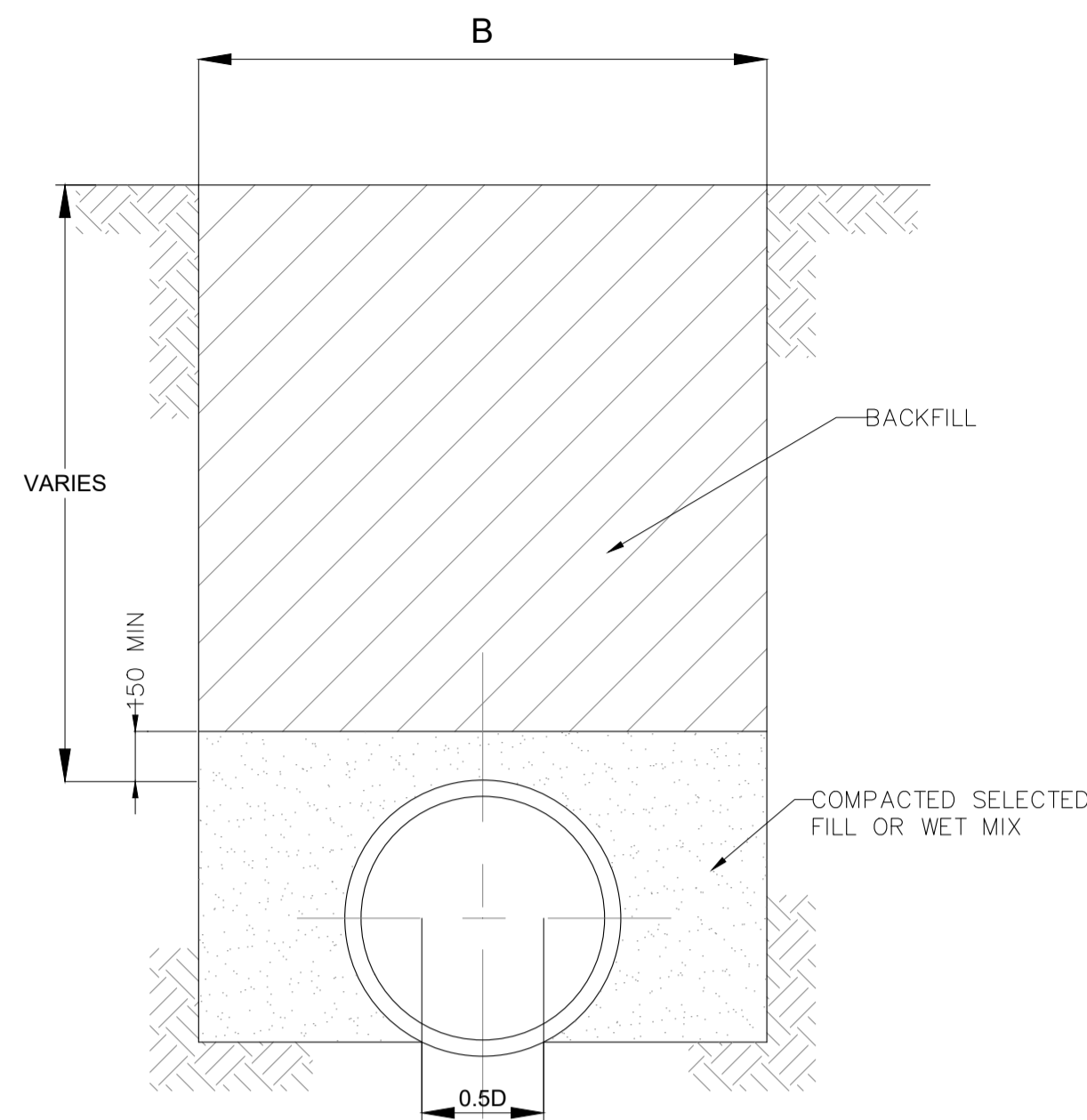
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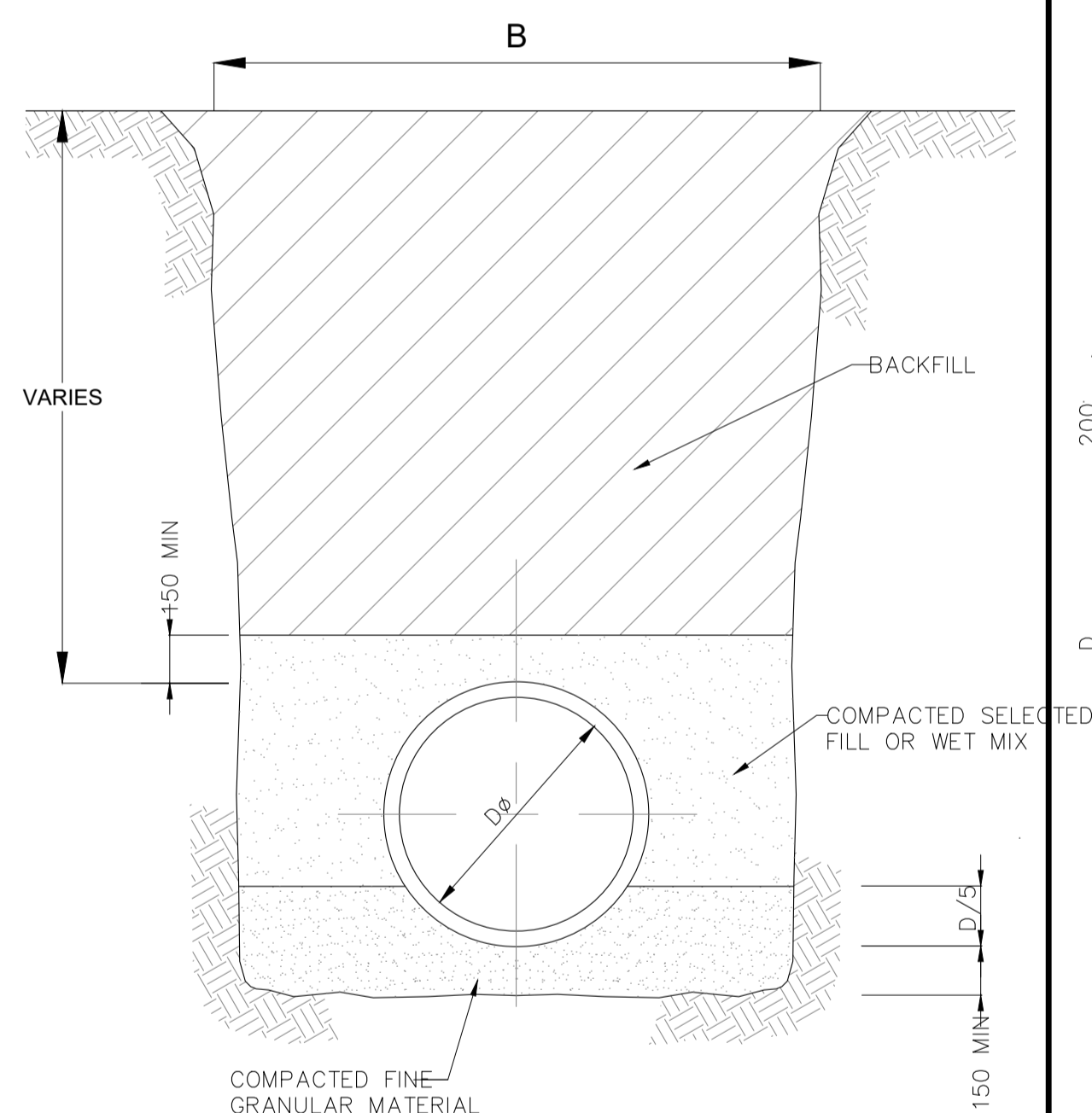
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					ENGINEER : _____ REG. No. : _____ DATE : _____ SIGNATURE : _____	

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSEMI INTERNAL STREETS		DRAWN
ACCOMMODATION OF TRAFFIC DETAILS		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB1/STD-05	REVISION



CLASS C PIPE BEDDING IN SOIL

SCALE 1:20

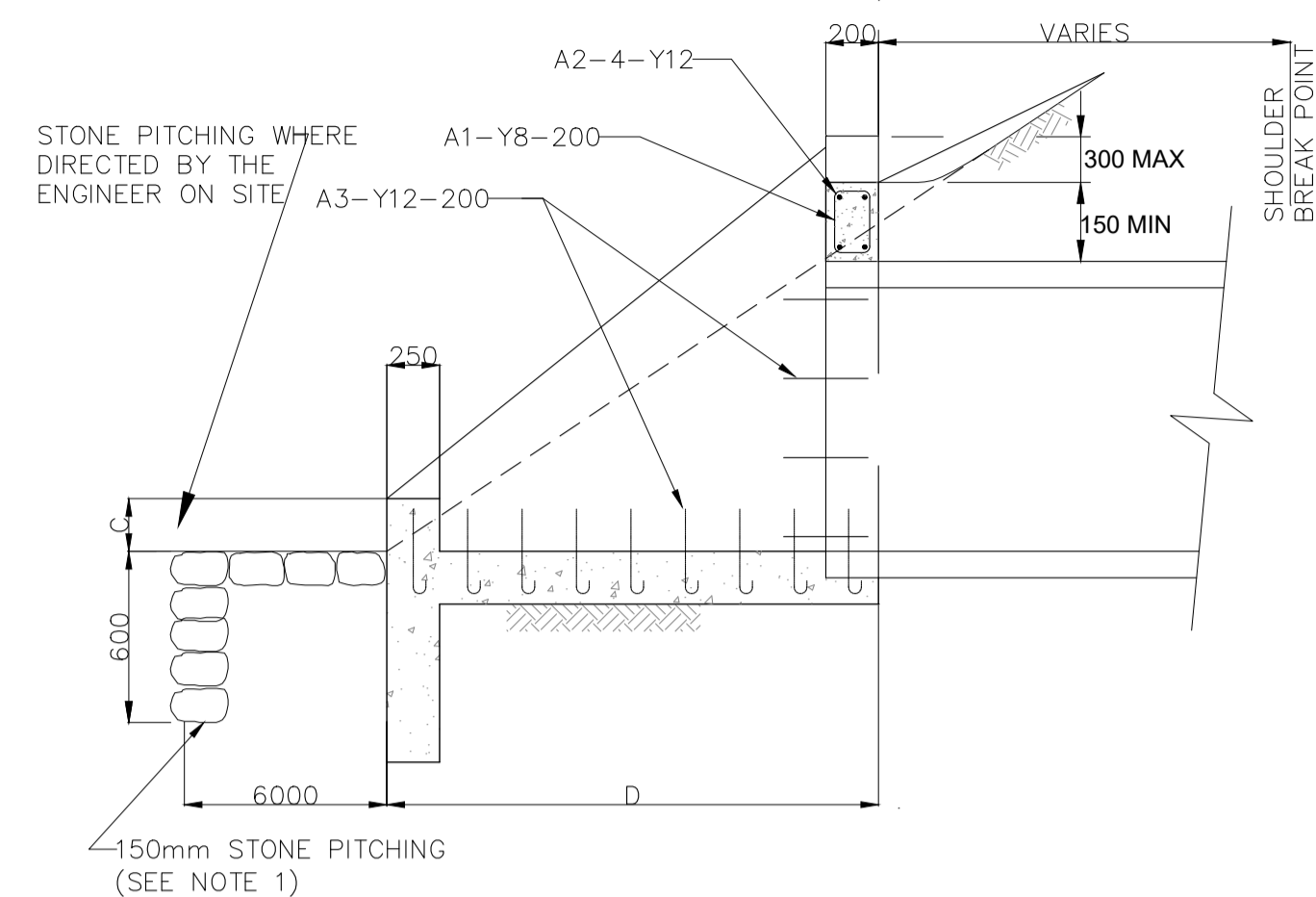


CLASS C PIPE BEDDING IN ROCK

SCALE 1:20

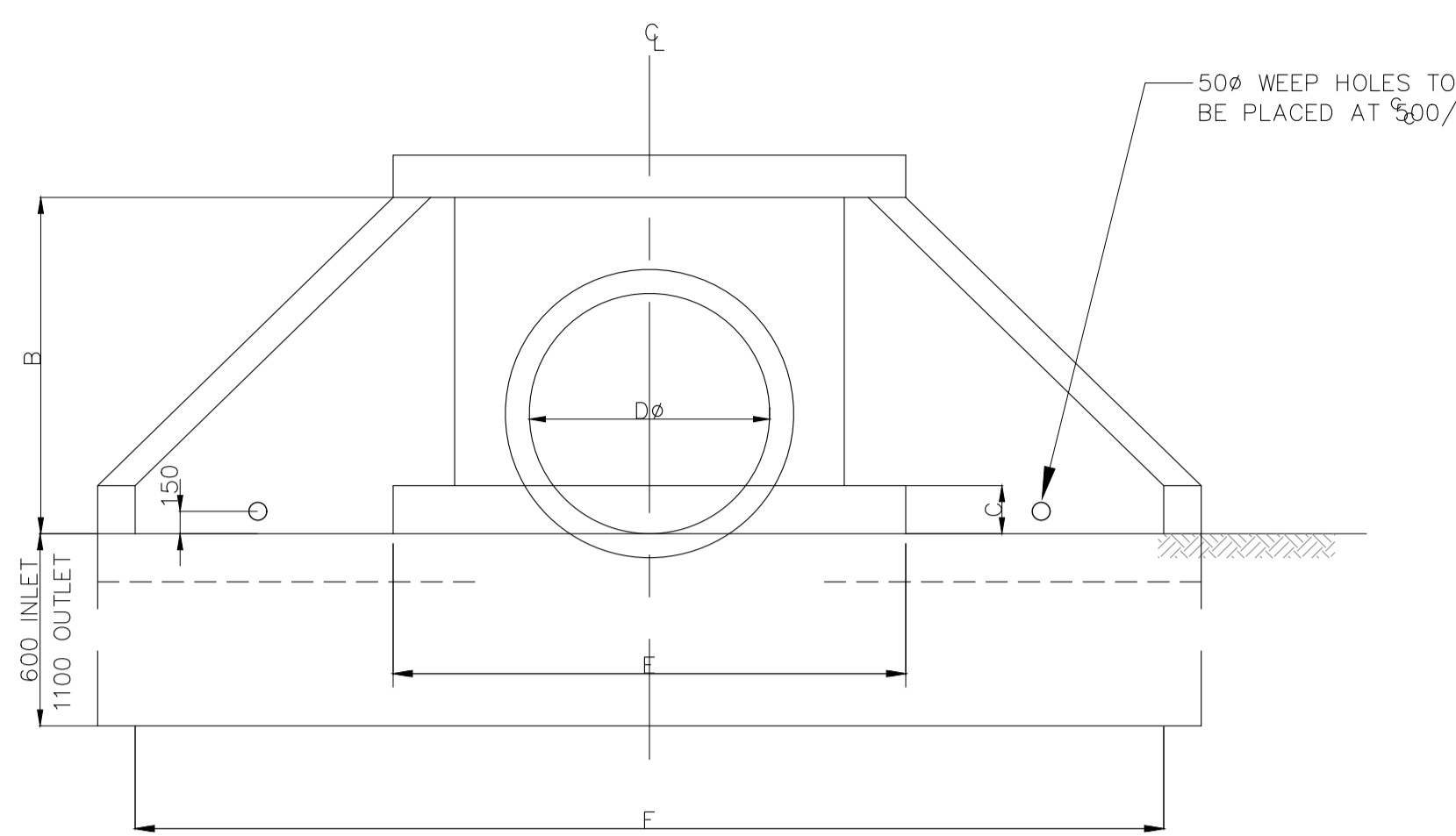
Dφ	WIDTH 'B'	
	SINGLE PIPE	DOUBLE PIPE
600	1600	2500
750	1750	2875
900	1900	3250

PIPE BEDDING DETAILS



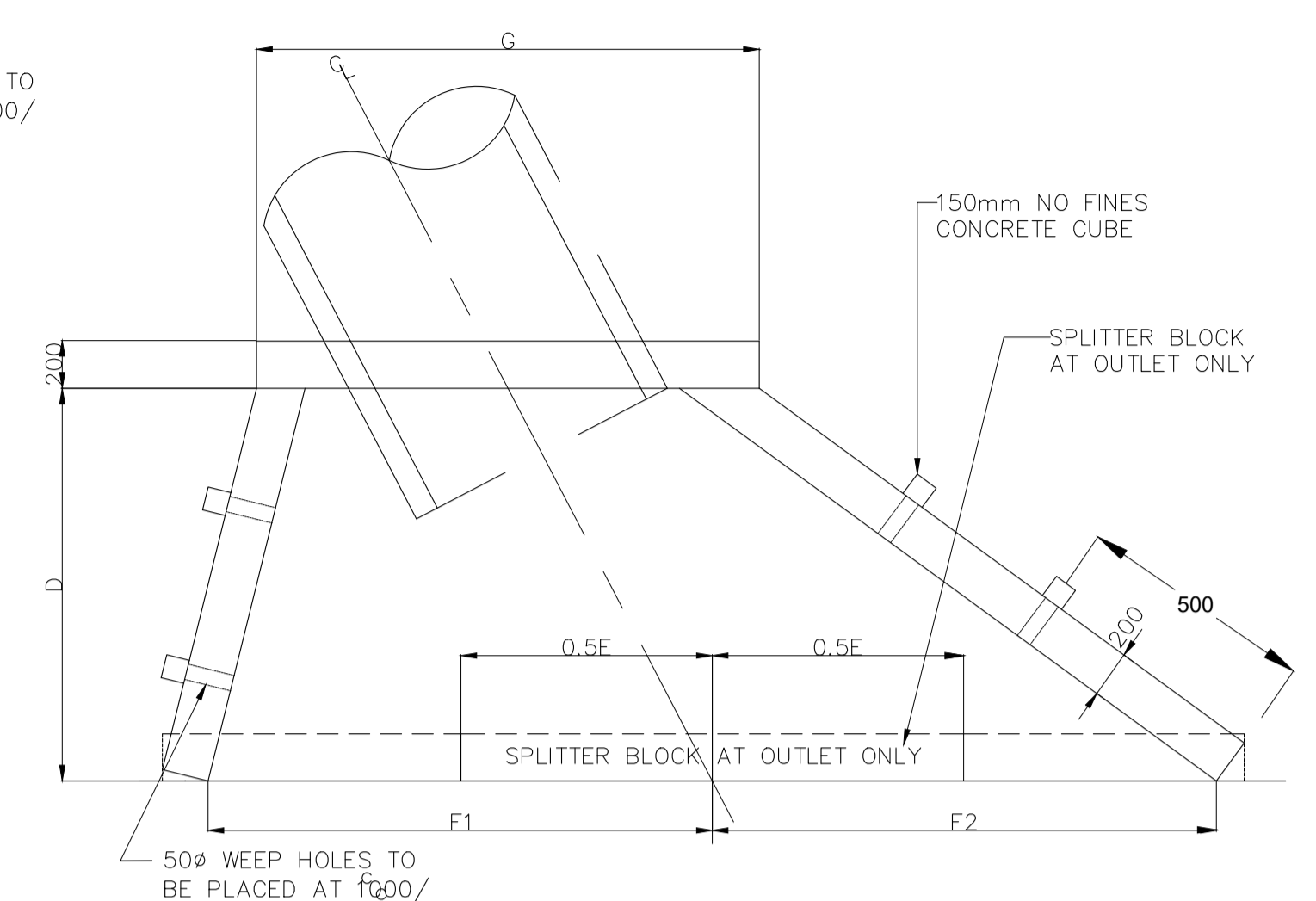
SECTION A-A

(FOR DIMENSIONS SEE TABLE 1)
(FOR REINFORCEMENT SEE TABLE 2)
SCALE 1:20



FRONT ELEVATION - SINGLE PIPE

(FOR DIMENSIONS SEE TABLE 1)
SCALE 1:20

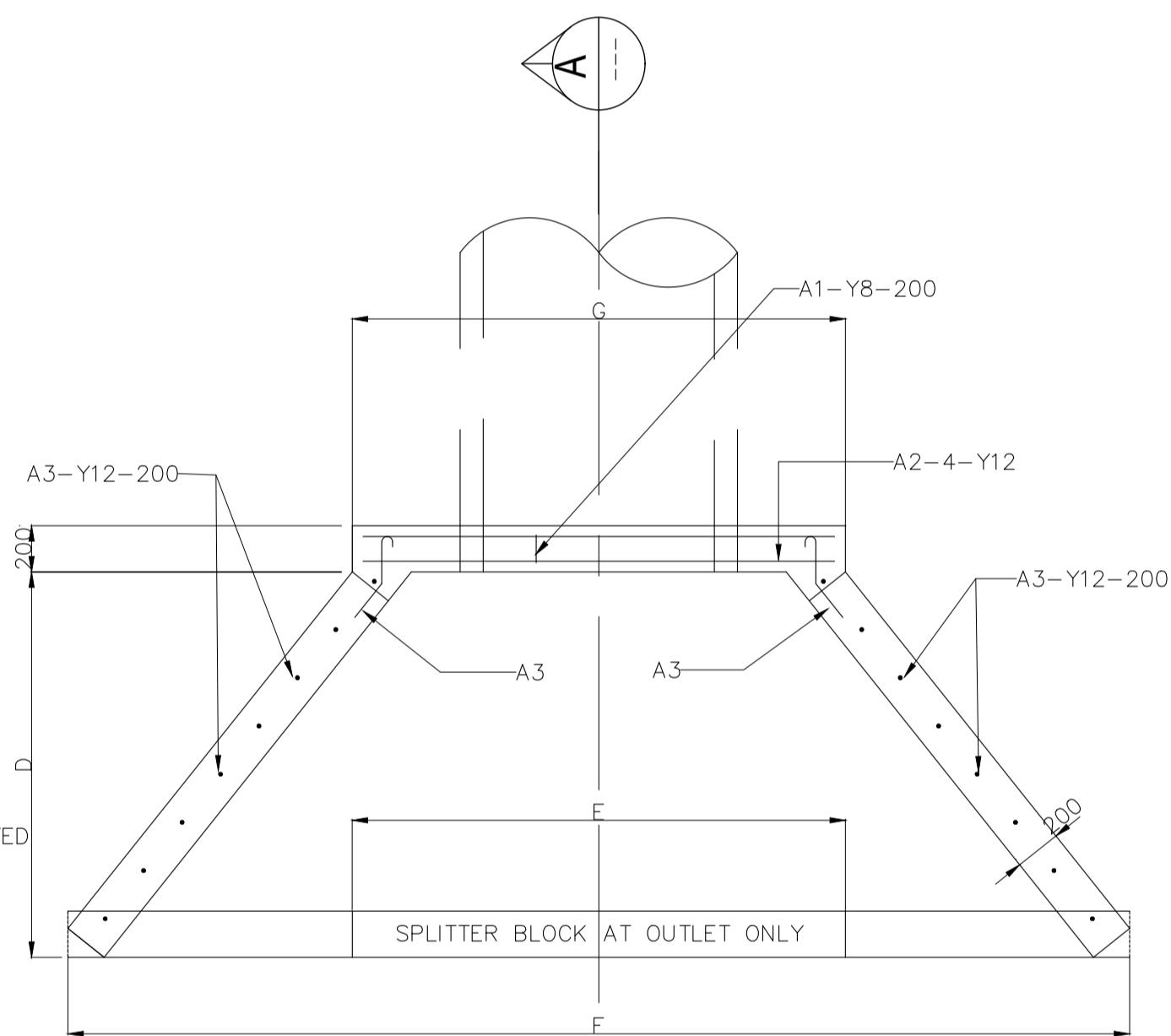


SKEW PIPE CULVERT

(FOR DIMENSIONS SEE TABLE 3)
SCALE 1:20

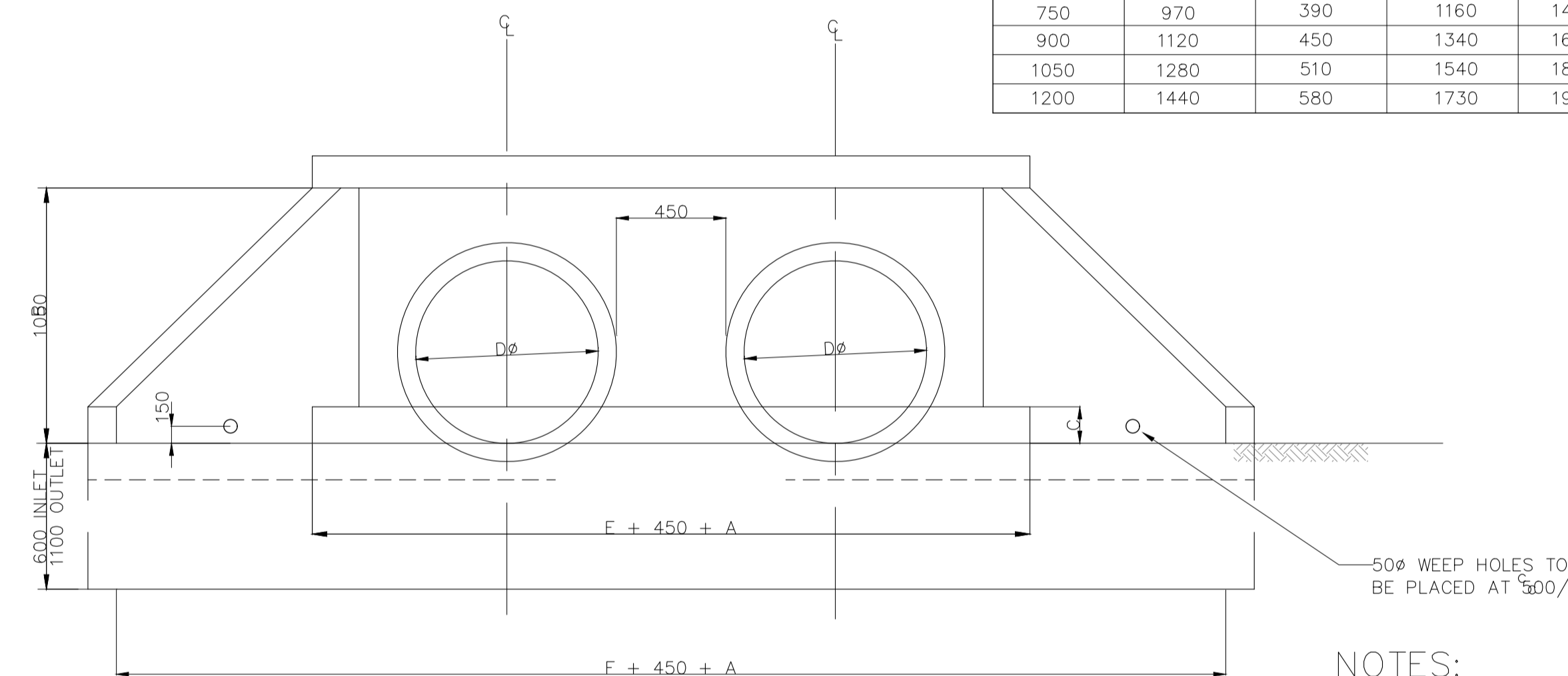
TABLE 3

NOMINAL DIAMETER	DIMENSIONS							
	A	B	C	D	E	F1	F2	G
450	660	270	790	1140	1025	1025	1140	1140
600	810	320	990	1300	1210	1210	1300	1300
750	970	390	1160	1470	1410	1410	1470	1470
900	1120	450	1340	1630	1590	1590	1630	1630
1050	1280	510	1540	1800	1800	1800	1800	1800
1200	1440	580	1730	1960	980	980	1960	1960



PLAN

SCALE 1:20
(FOR DIMENSIONS SEE TABLE 1)
(FOR REINFORCEMENT SEE TABLE 2)



FRONT ELEVATION - MULTIPLE PIPES

(FOR DIMENSIONS SEE TABLE 1)
SCALE 1:20

NOTES:

- INLET/OUTLET APPROACHES IN FILL CONDITION TO BE STONE PITCHED WHERE EROSION IS LIKELY TO OCCUR.
- SPLITTER BLOCK MAY BE OMITTED IF DISCHARGE VELOCITY IS LESS THAN 1.50m/s AND PROVIDED AT OUTLETS ONLY.
- CUT OFF WALLS MAY BE OMITTED IF STRUCTURE IS FOUNDED ON ROCK.
- FOR MULTIPLE PIPE CULVERTS INCREASE DIMENSIONS "E" AND "F" BY $(n-1)(A+450)$ mm WHERE n = NUMBER OF PIPES WHERE A = NOMINAL DIAMETER OF PIPES
- FOR SKEW PIPE CULVERTS THE HEADWALL SHALL BE PARALLEL TO THE CENTER LINE OF THE ROAD.
- IF CORRUGATED METAL PIPES ARE USED 4 x 20mm x 150mm LONG GALVANISED ANCHOR BOLTS IN THE HOLLOW OF THE CORRUGATIONS ARE TO BE USED.
- ALL CONCRETE TO BE 20MPa. MIN COVER TO STEEL IS 40mm UNLESS OTHERWISE STATED.
- SQUARE MESH FABRIC (REFERENCE S.M.F 311) TO BE PLACED CENTRALLY
- DIMENSIONS IN TABLE 1 AND 3 ARE AS PER MANUFACTURING STANDARD OF ROCLA PIPE CULVERT TYPE SC TO SABS .

TABLE 1

NOMINAL DIAMETER	DIMENSIONS						
	A	B	C	D	E	F	G
450	660	270	790	1140	2050	1140	1140
600	810	320	990	1300	2420	1300	1300
750	970	390	1160	1470	2810	1470	1470
900	1120	450	1340	1630	3180	1630	1630
1050	1280	510	1540	1810	3570	1800	1800
1200	1440	580	1730	1960	3960	1960	1960

TABLE 2

ITEM	NUMBER	DIAMETER	CUT LENGTH	CODE	SHAPE
A1	VARIES	Y8	600	60	
A2	4	Y12	VARIES	20	STRAIGHT
A3	VARIES	Y12	500	32	



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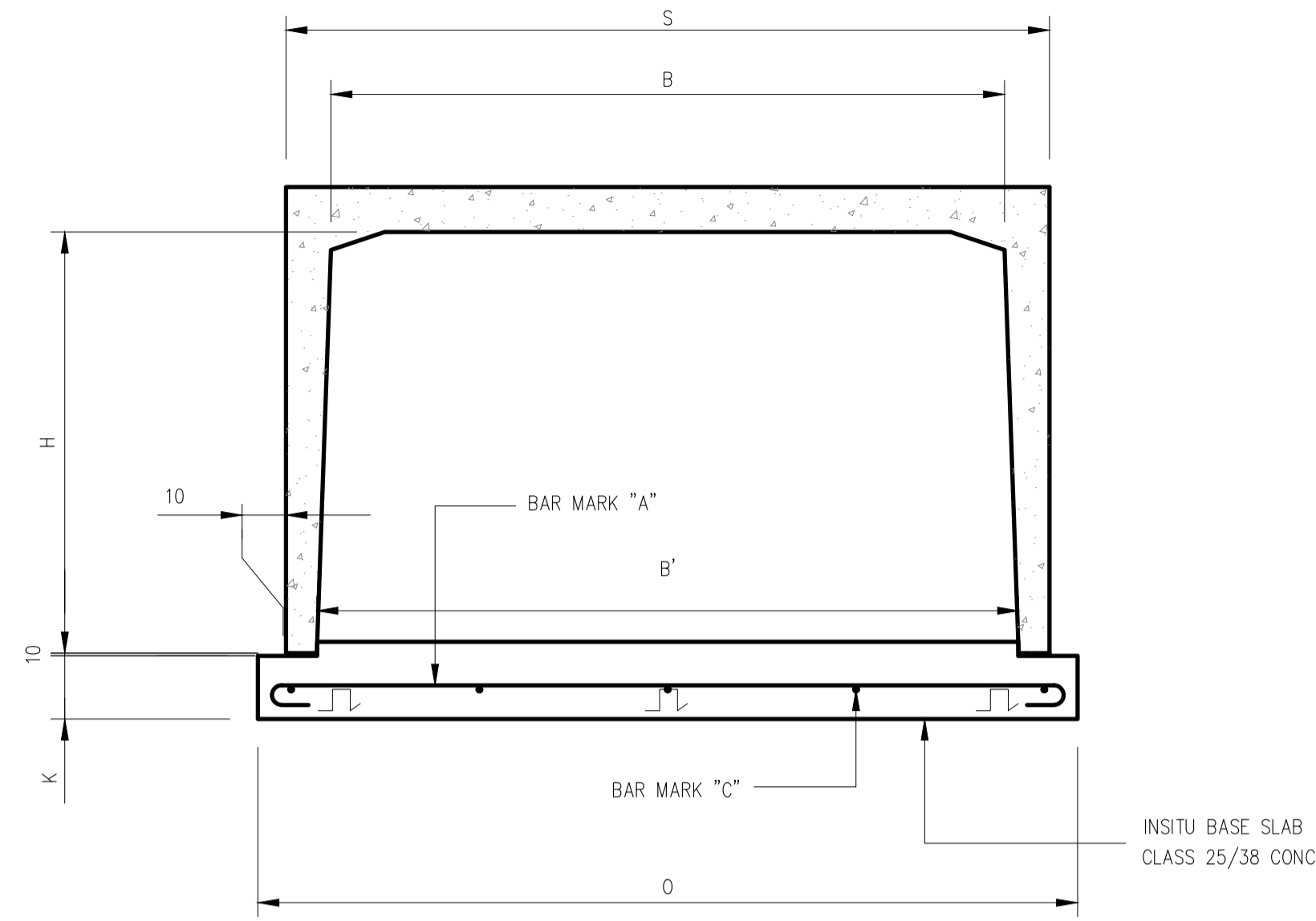


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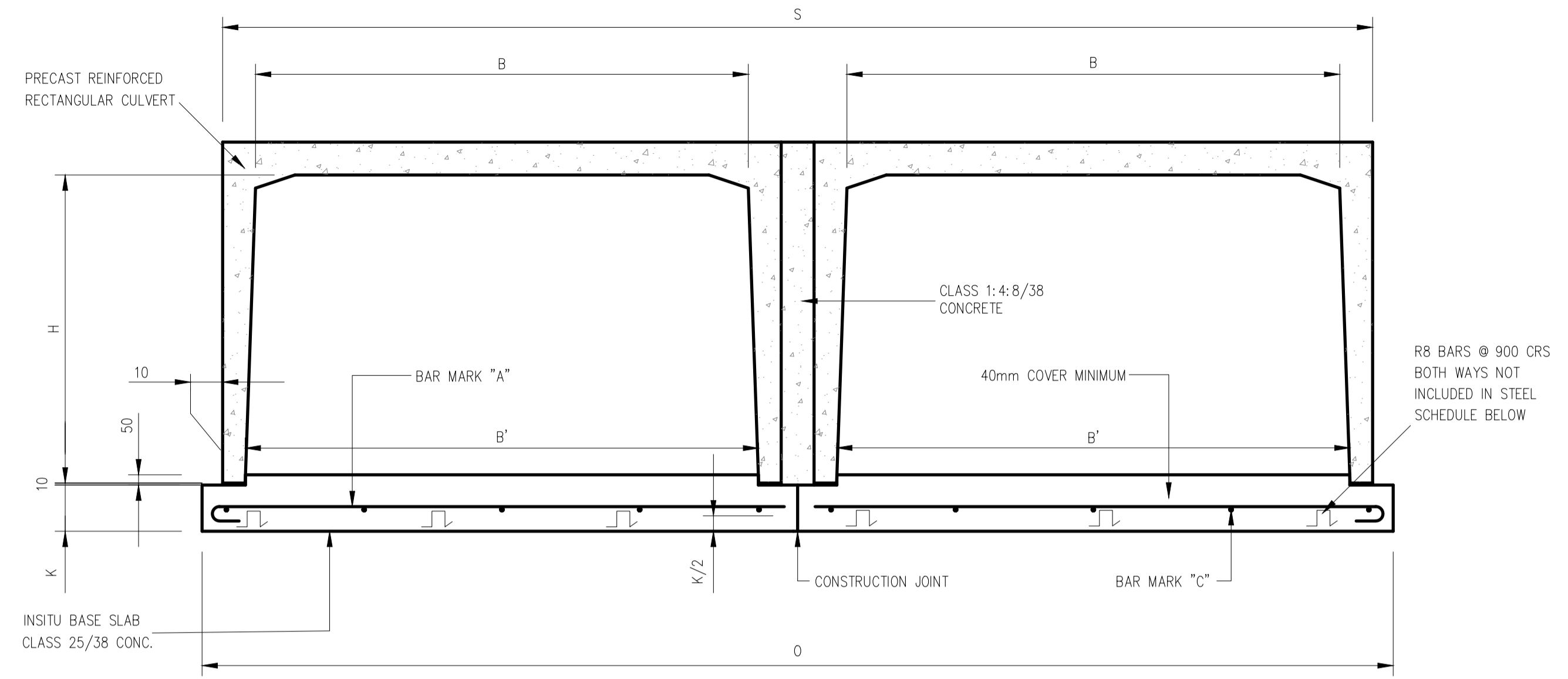
NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE

ENGINEER : _____
REG. No. : _____
DATE : _____
SIGNATURE : _____

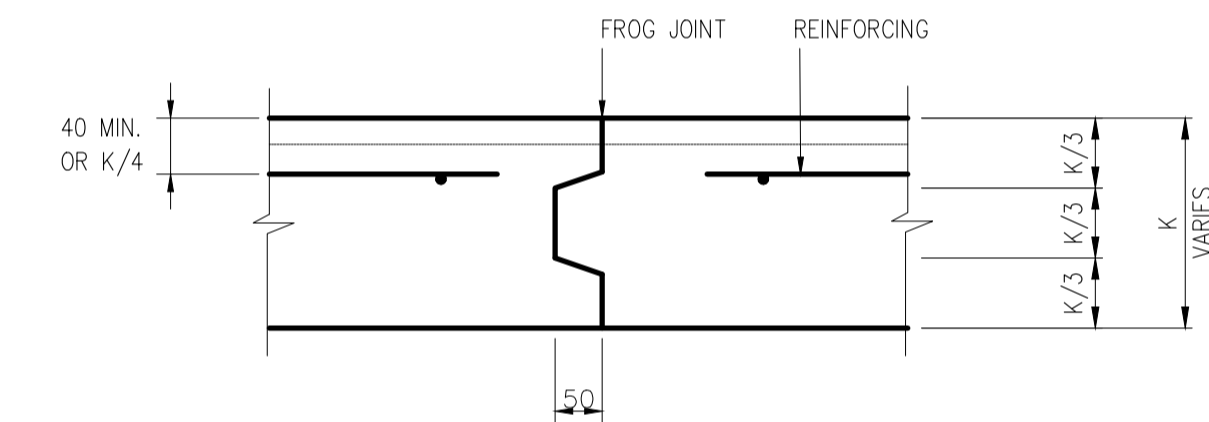
TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
HEADWALL AND BEDDING DETAILS		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB/STD-O6	REVISION



TYPICAL CROSS SECTION : SINGLE UNIT
SCALE 1:20



TYPICAL CROSS SECTION : MULTIPLE UNITS
SCALE 1:20



CONSTRUCTION JOINT
SCALE 1:5

DIMENSIONS					REINFORCEMENT						
B	H	S	O	K	BAR A	L	CUT LENGTH	BENDING	BAR C	BENDING	
1 X 600	300	775	980	150	Y12-225	900	1100	HOOKS PLACED ALTERNATELY	4Y10-250	LENGTH VARIES WITH CULVERT LENGTH UNIT LENGTH NOT TO EXCEED 10000	
2 X 600	450	1630	1840	150	Y12-225	1760	1950		8Y10-250		
3 X 600	600	2480	2690	150	Y12-225	2610	2800		11Y10-250		
1 X 750	300	940	1150	150	Y12-180	1060	1250	5Y10-250			
2 X 750	450	1960	2170	150	Y12-180	2090	2300	9Y10-250			
3 X 750	600	2980	3190	150	Y12-180	3110	3300	13Y10-250			
1 X 900	300	1100	1310	150	Y12-160	1230	1450	5Y10-250			
2 X 900	450	2280	2490	150	Y12-160	2410	2600	10Y10-250			
3 X 900	600	3460	3670	150	Y12-160	3590	3800	15Y10-250			
1 X 900	900	3460	3670	150	Y12-160	3590	3800	15Y10-250			
1 X 900	300	1100	1310	150	Y12-160	1230	1450	5Y10-250			
2 X 900	450	2280	2490	150	Y12-160	2410	2600	10Y10-250			
3 X 900	600	3460	3670	150	Y12-160	3590	3800	15Y10-250			
1 X 1200	450	1420	1630	175	Y12-160	1550	1750	8Y10-200			
2 X 1200	600	2920	3130	175	Y12-160	3050	3150	15Y10-200			
3 X 1200	900	4420	4630	175	Y12-160	4550	4750	22Y10-200			
1 X 1500	600	1770	1980	175	Y12-130	1900	2100	9Y10-200			
5 X 1500	900	3620	3830	175	Y12-130	3750	3950	18Y10-200			
3 X 1500	1500	5470	5680	175	Y12-130	5600	5800	22Y10-200			
1 X 1800	600-900	2080	2290	200	Y12-125	2210	2450	13Y10-180			
2 X 1800	1200	4230	4440	200	Y12-125	4360	4600	28Y10-150			
1 X 2400	900-1200	2710	2920	225	Y16-170	2840	3200	19Y10-150			
2 X 2400	1500	5500	5710	225	Y16-170	5630	6000	37Y10-150			
1 X 3000	1800-2400	3320	3530	250	Y16-150	3450	3800	23Y10-150			

SEE NOTE 10

- GENERAL NOTES:
- ALL CONCRETE TO BE CLASS 25/38 UNLESS OTHERWISE INDICATED.
 - REINFORCEMENT SHALL COMPLY TO THE REQUIREMENTS OF S.A.B.S 920 TYPE C, CLASS 2, GRADE 1.
 - PITCHING ON INLET SIDE TO BE TO DESIGN HIGH FLOOD LEVEL. (SEE CULVERT SCHEDULE)
 - CONCRETE COVER TO STEEL 40mm MINIMUM OR K/4
 - DESIGN MASS OF FILL = 1900 kg/m³
 - LOAD FACTOR FOR PROOF LOAD OF S.A.B.S. 986 = 1.5.
 - HIGH TENSILE (Y) REINFORCEMENT WORKING STRESS : 3890 kPa.
 - PRECAST REINFORCED CULVERTS SHALL COMPLY WITH THE REQUIREMENTS OF S.A.B.S. 986 AND ADDITIONAL TEST LOADING AS SPECIFIED.
 - DIMENSIONS AND REINFORCEMENT DETAILS FOR IN-SITU BASE SLABS ARE VALID ONLY IF :
 - THE HEIGHT OF FILL ABOVE THE CULVERT IS LESS THAN SPECIFIED BELOW

DIMENSION B	HEIGHT OF FILL
600mm	6m
750mm	5m
900mm	4m
1200mm	3m
1500mm	2.5m
1800mm	2.0m
2400mm	1.5m
3000mm	0.9m
 - THE TYPE OF MATERIAL UNDER THE BASE SLAB IS NOT ROCK.
 - THE DIMENSIONS IN THE TABLE MAY NOT CONFORM TO ALL MARKED UNITS; IT MAY BECOME NECESSARY TO REVISE TABULATED DIMENSIONS.



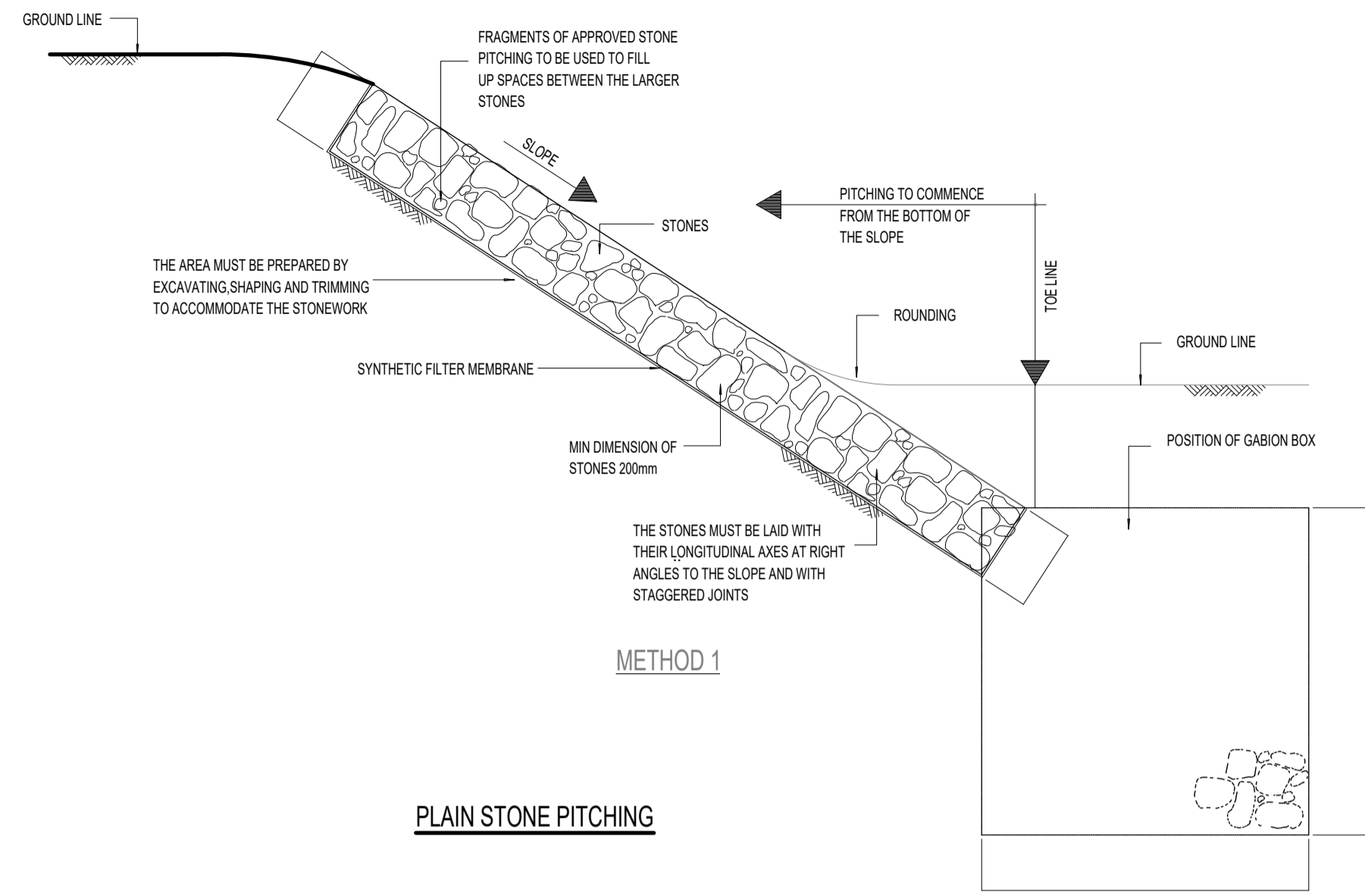
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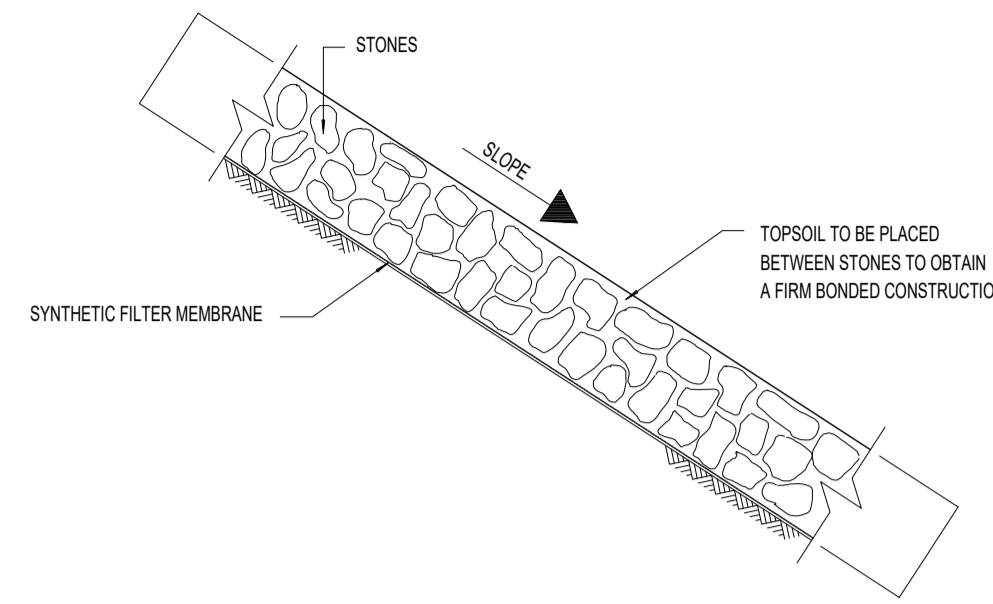
NO	AMENDMENTS	BY	APPROVED	DATE	APPROVED ON BEHALF OF THE CONSULTING ENGINEER	REFERENCE	TENDER NO: xxxxx	DESIGNED
					ENGINEER : _____		UPGRADING OF GA-MOTSHEMI INTERNAL STREETS	DRAWN
					REG. No. : _____			PORTAL CULVERT DETAILS
					DATE : _____		CONTRACT : _____	PROJECT ENGINEER
					SIGNATURE : _____		DATE : SEPTEMBER 2022	ML/BLB/STD-07

STONE PITCHING



PLAIN STONE PITCHING

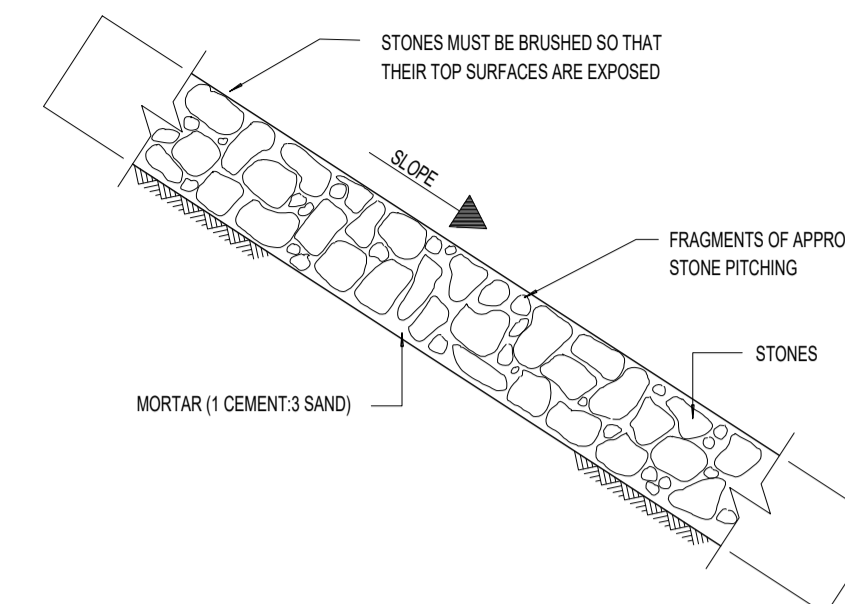
METHOD 1



METHOD 2

NOTES:
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:

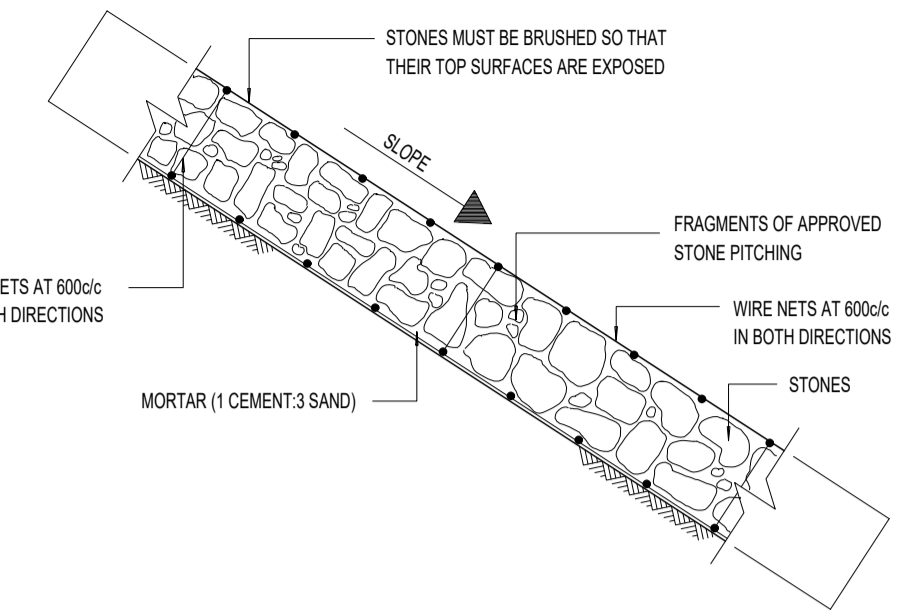
1. NO SMALL STONES SHALL BE USED TO FILL THE SPACES BETWEEN THE LARGER STONES.
2. TOPSOIL SHALL BE INTRODUCED BETWEEN INDIVIDUAL STONES SIMULTANEOUSLY WITH PLACING OF STONES.
3. ROOTED GRASS OR GRASS TUFTS SHALL THEN BE PLACED IN THE TOPSOIL.



GRouted STONE PITCHING

NOTES:
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTION:

1. THE SPACES BETWEEN THE STONES SHALL BE FILLED WITH MORTAR.

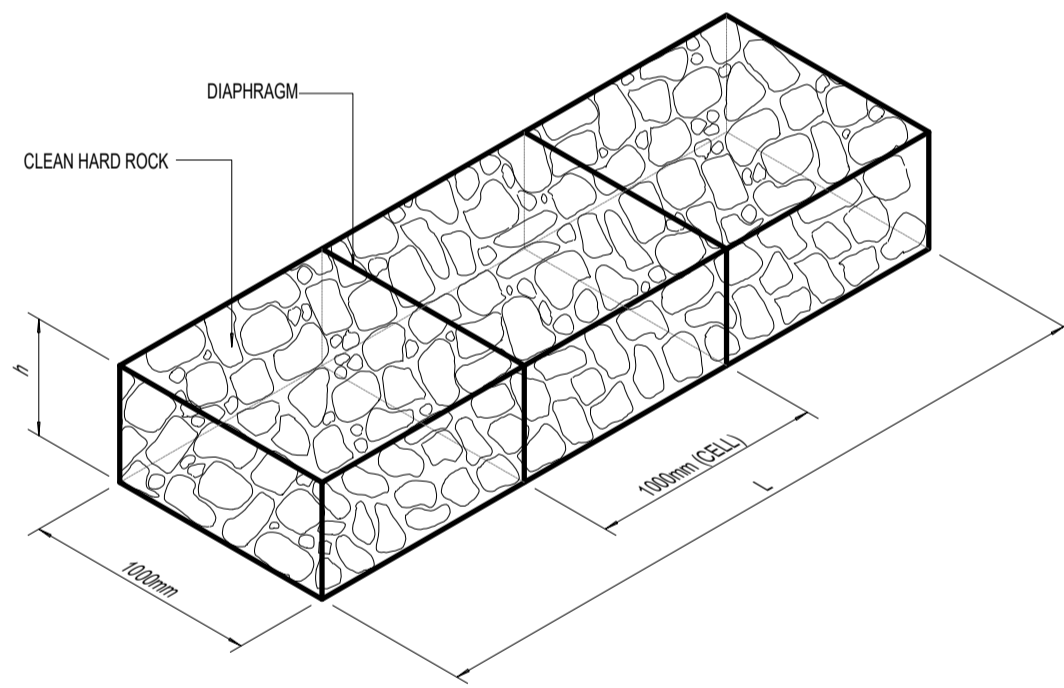


WIRE AND GRouted STONE PITCHING

NOTES:
THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:

1. PITCHING IN ACCORDANCE WITH GRouted STONE PITCHING.
2. CONSTRUCTION SHALL BE AS FOLLOWS:
 - a) PLACING OF BOTTOM WIRE NET.
 - b) ATTACHING OF WIRE TIES TO BOTTOM MESH.
 - c) PITCHING.
 - d) PLACING THE TOP WIRE NET AND FASTENING WIRE TIES.
 - e) GRROUTING.

GABIONS



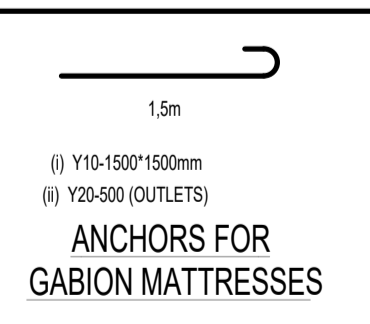
BOXES

STANDARD SIZES OF BOXES	
LENGTH	1000mm, 2000mm, 3000mm, 4000mm
WIDTH	1000mm
DEPTH	500mm, 1000mm
DIAPHRAGM SPACING	1000mm

MESH SIZE AND WIRE DIAMETER FOR CAGES		
DEPTH OF GABION AND OVER	MESH SIZE (mm)	WIRE DIA. (mm)
500mm	80 x 100	2,7
200mm TO 300mm	80 x 100	2,5

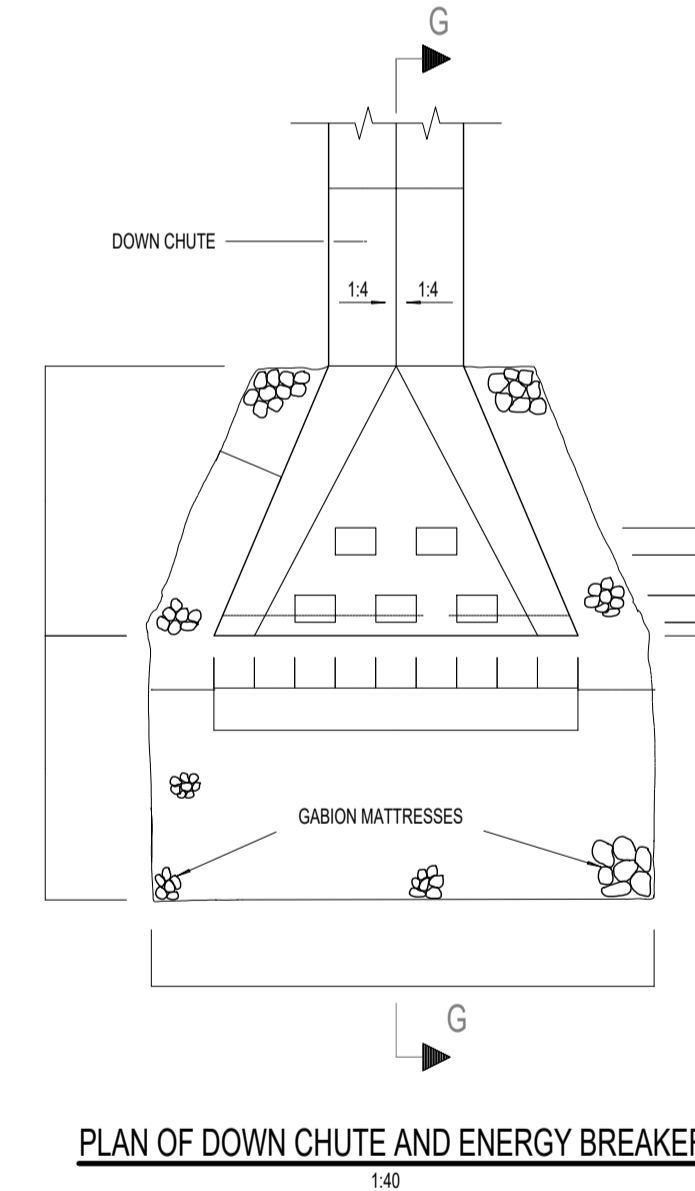
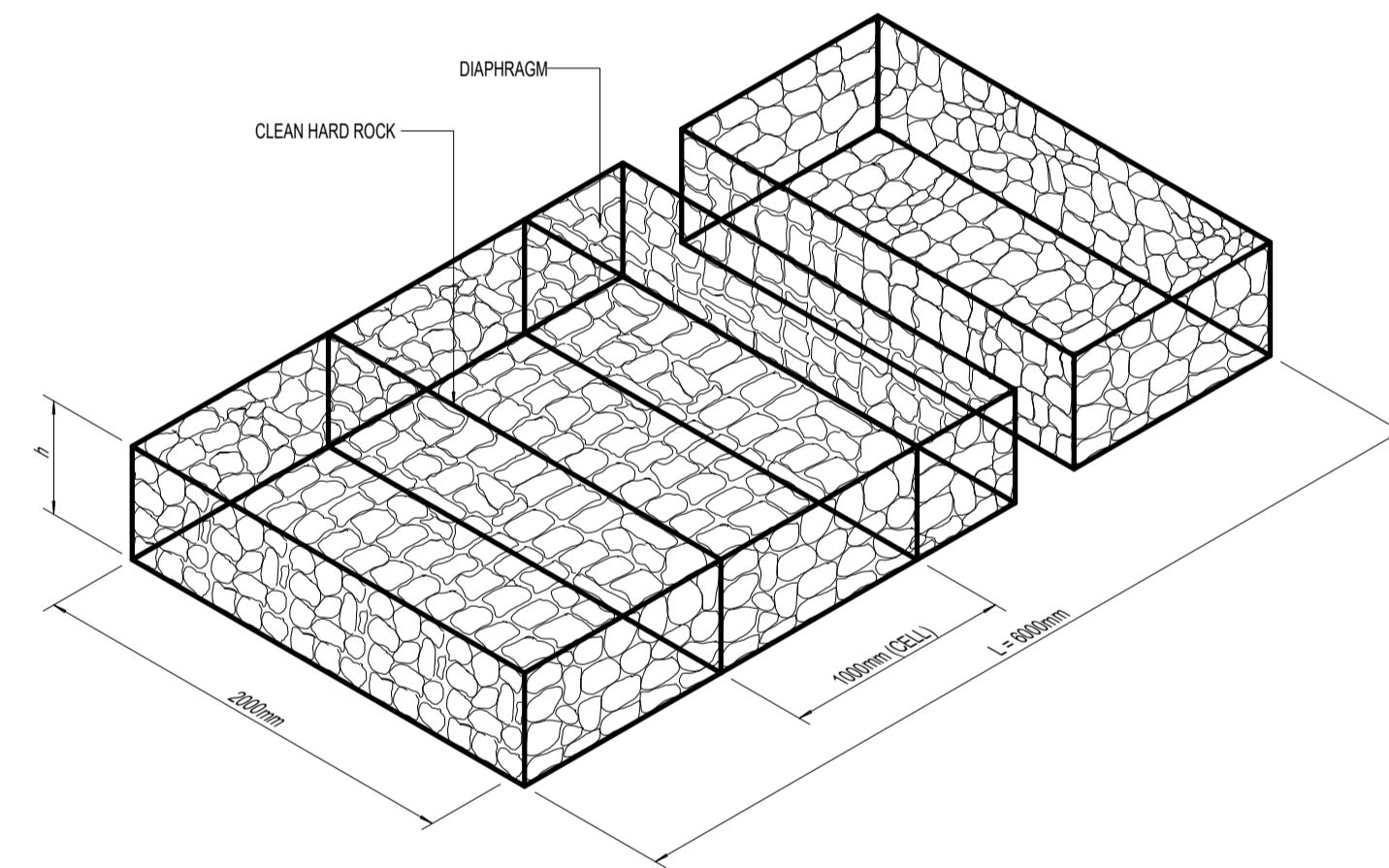
MATTRESSES

STANDARD SIZES	
LENGTH	6000mm
WIDTH	2000mm
DEPTH	170mm, 230mm, 300mm

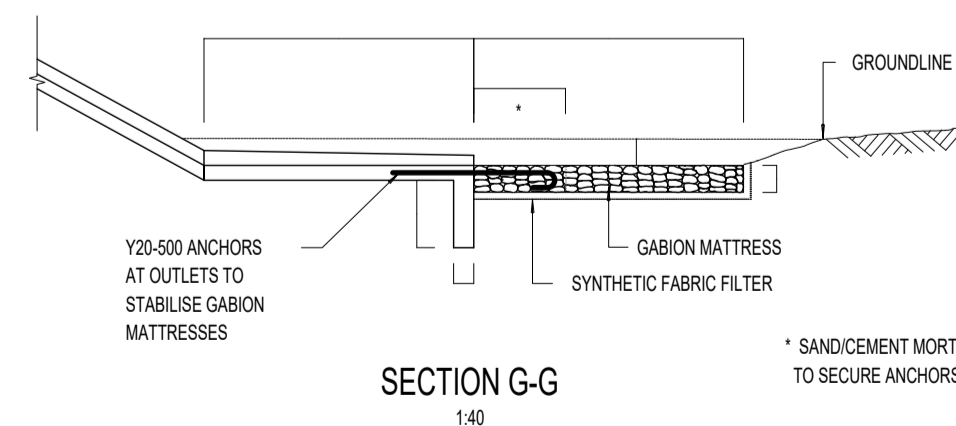


ANCHORS FOR GABION MATTRESSES

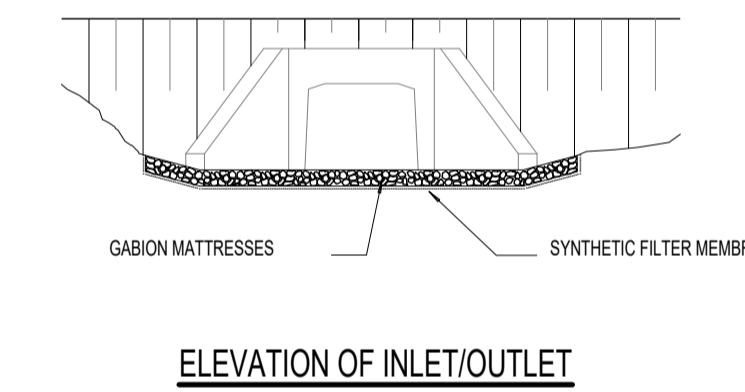
ROCK USED FOR THE FILLING OF CAGES		
DEPTH OF CAGES	MIN (mm)	MAXS. (mm)
230	100	125
300	100	200
500	100	250
1000	100	300



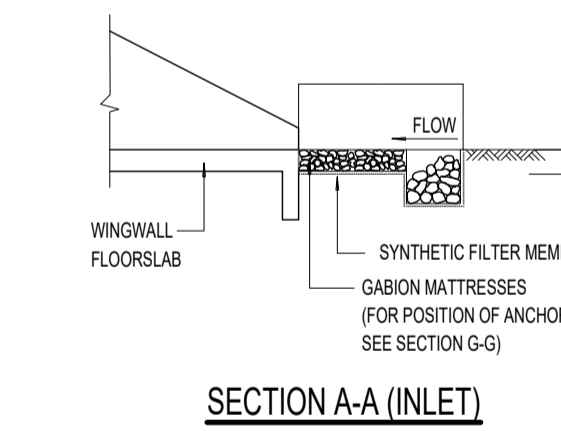
PLAN OF DOWN CHUTE AND ENERGY BREAKER



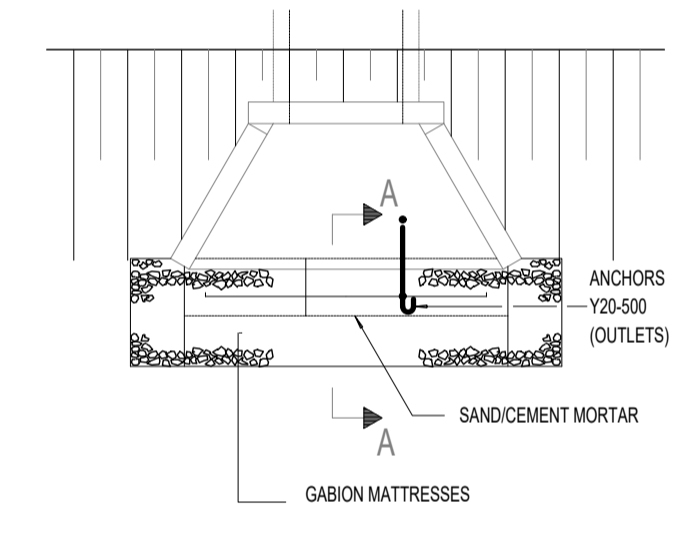
SECTION G-G



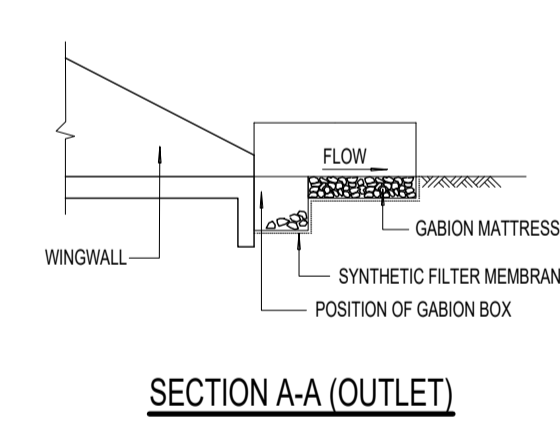
ELEVATION OF INLET/OUTLET



SECTION A-A (INLET)

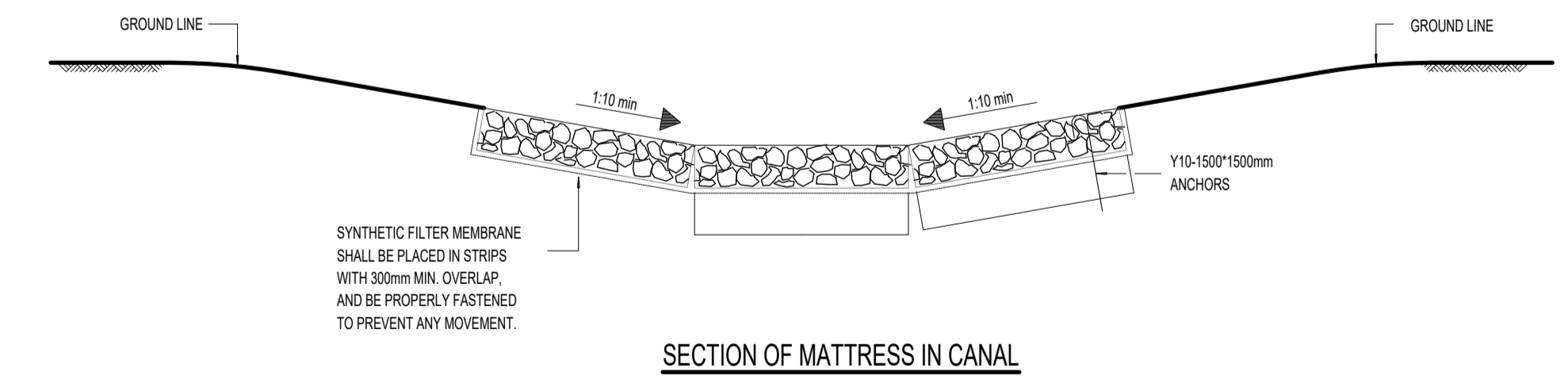


PLAN OF INLET/OUTLET



SECTION A-A (OUTLET)

DETAIL OF GABION MATTRESSES AND BOXES AT INLETS AND OUTLETS



SECTION OF MATTRESS IN CANAL

ORIGINAL SCALE: 1:100



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ENGINEER : _____
REG. No. : _____
DATE : _____
SIGNATURE : _____

TENDER NO: xxxxx		DESIGNED
UPGRADING OF GA-MOTSHEMI INTERNAL STREETS		DRAWN
STONE PITCHING AND GABION DETAILS		REVIEWED
CONTRACT:	DRAWING	PROJECT ENGINEER
DATE: SEPTEMBER 2022	ML/BLB1/STD-08	