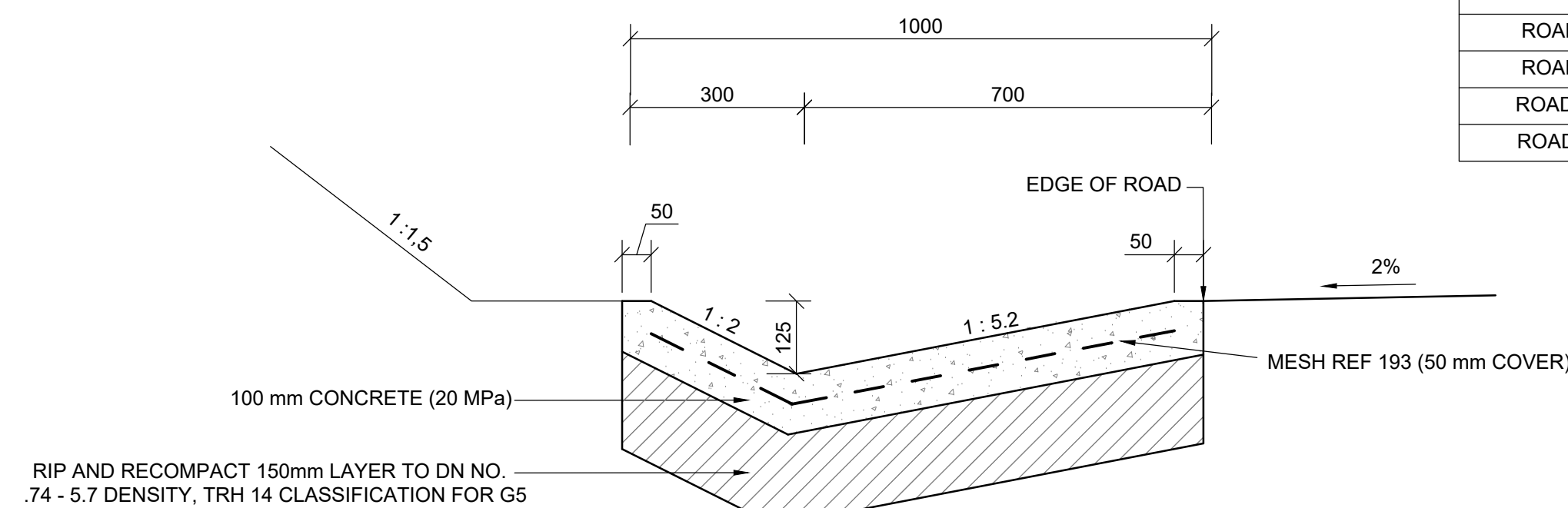
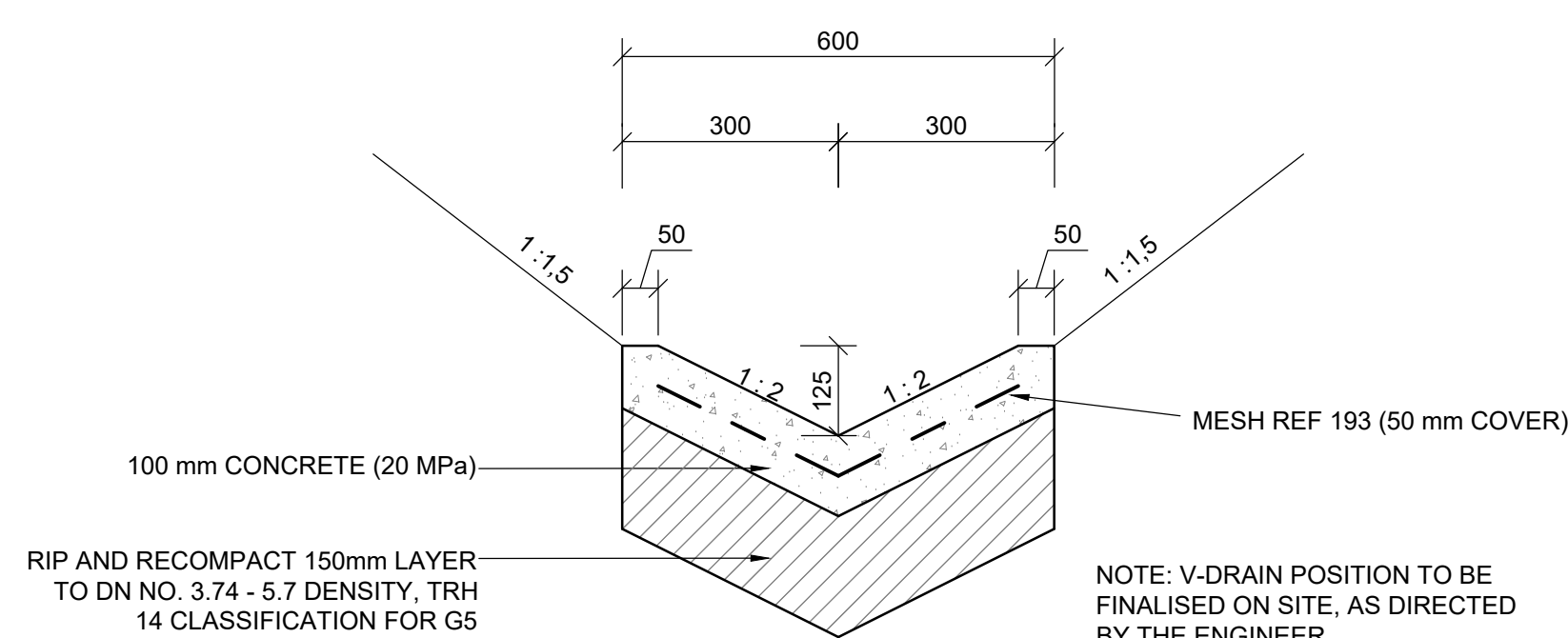


TYPE 'A' - CONCRETE LINED V-DRAIN (DRAIN NEXT TO ROAD)
SCALE 1 : 10

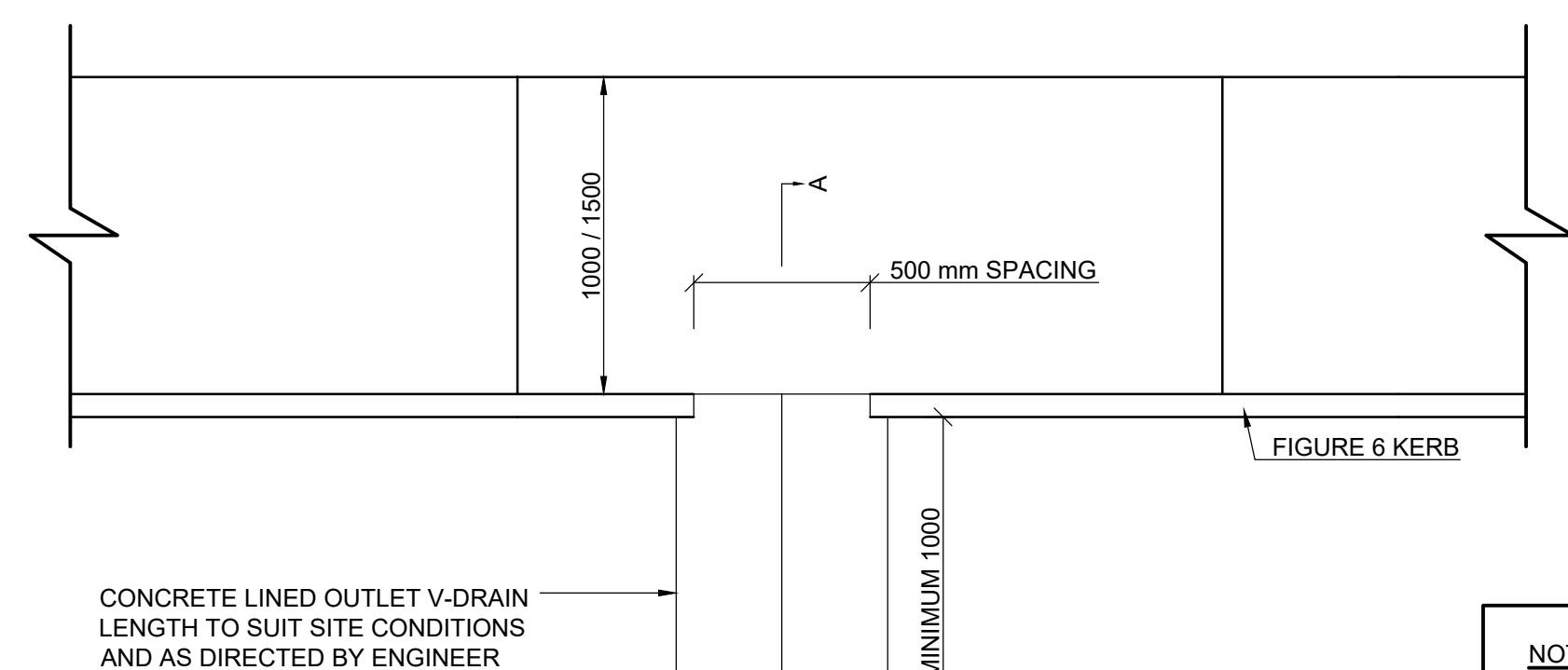
ROAD NAME	ROAD TYPE AND CHANAGE
ROAD 1	TYPE 2 : CH-0 TO CH-225
ROAD 2	TYPE 1 : CH-0 TO CH-100
ROAD 3	TYPE 1 : CH-0 TO CH-160
ROAD 4	TYPE 3 : CH-0 TO CH-80 TYPE 1 : CH-80 TO CH-192.5 TYPE 2 : CH-204.3 TO CH-280
ROAD 5	TYPE 1 : CH-0 TO CH-100
ROAD 6	TYPE 2 : CH-0 TO CH-140
ROAD 7	TYPE 2 : CH-0 TO CH-160
ROAD 8	TYPE 1 : CH-0 TO CH-120
ROAD 9	TYPE 1 : CH-160 TO CH-337
ROAD 10	TYPE 2 : CH-0 TO CH-318
ROAD 11	TYPE 2 : CH-0 TO CH-60



TYPE 'B' - CONCRETE LINED V-DRAIN (ROAD SIDE DRAIN)
SCALE 1 : 10

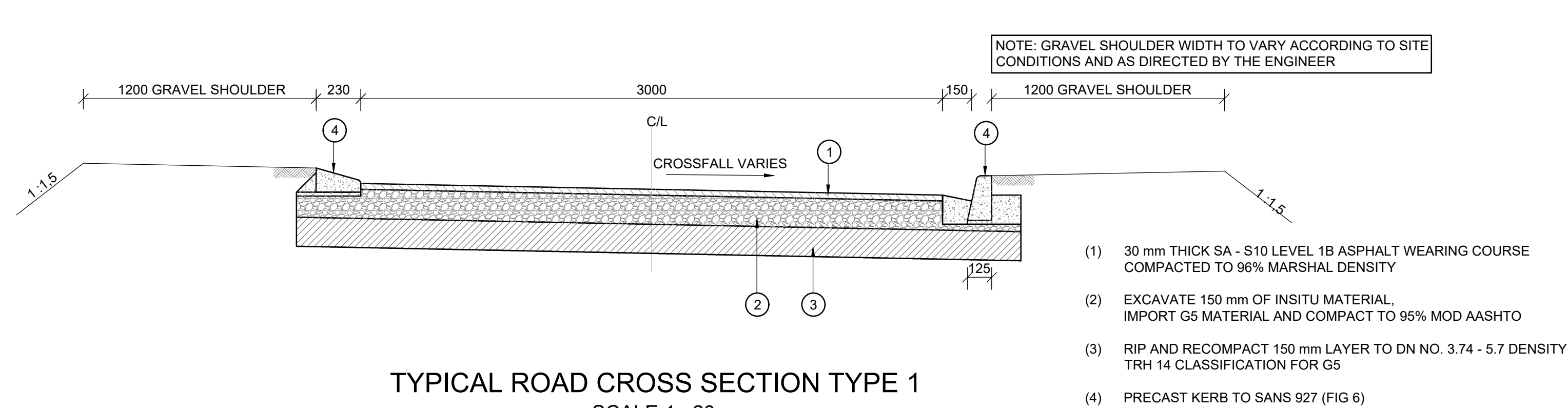


CONCRETE LINED OUTLET V-DRAIN
SCALE 1 : 10

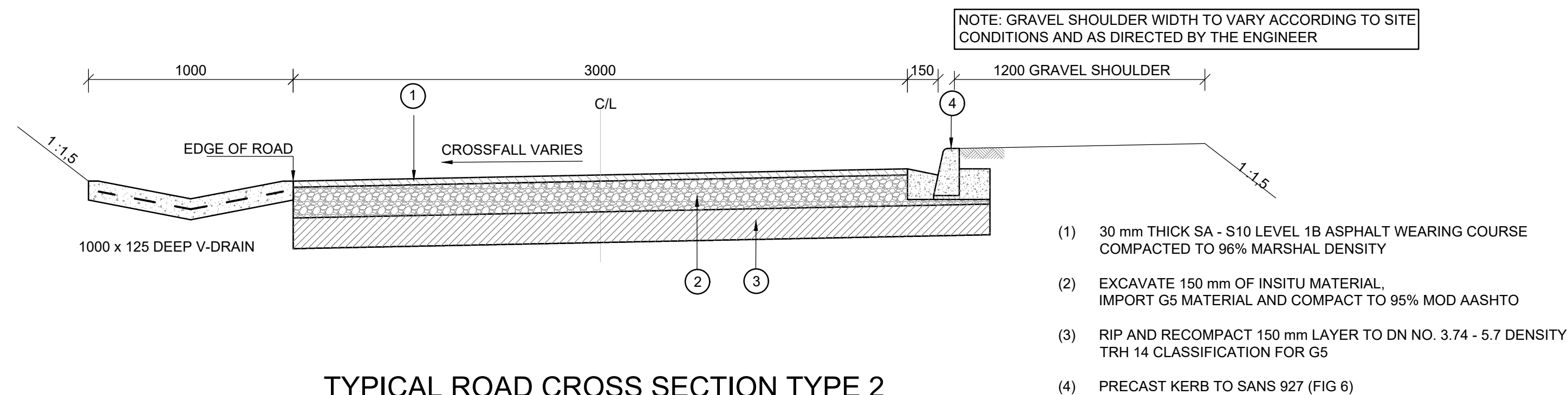


DRAINAGE DETAIL FOR FOOTPATHS TYPE 1
NTS

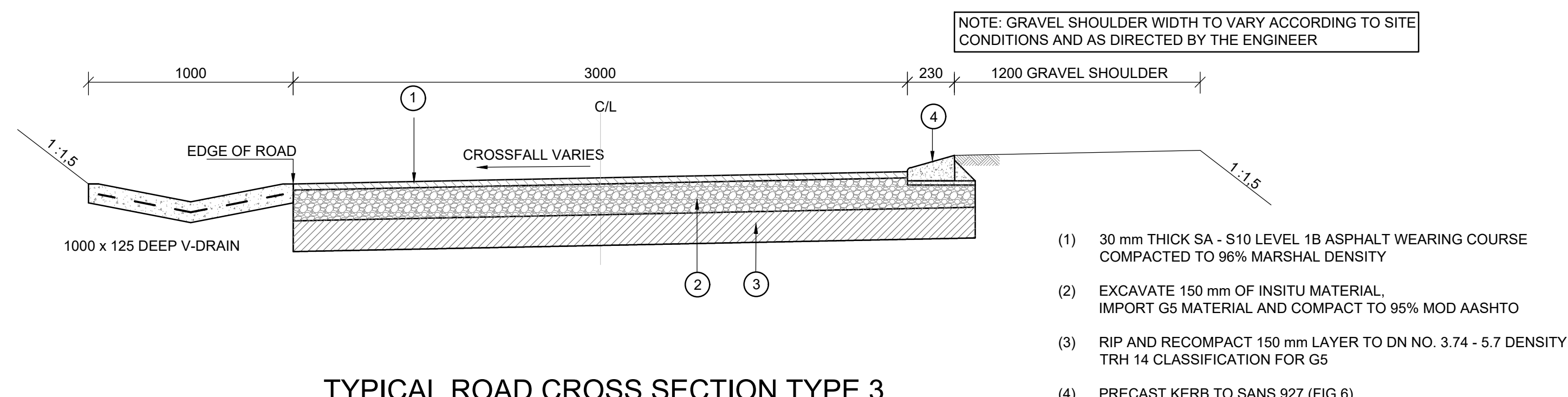
- NOTE: RENO MATTRESSES**
1. RENO MATTRESSES ARE TO BE USED FOR STORMWATER MANAGEMENT IN POSITIONS SHOWN ON LAYOUT DRAWINGS AS WELL AS DISCHARGE POINTS.
 2. MATTRESSES ARE TO BE 2 m x 1 m x 0.3 m TO PREVENT SCOURING.
 3. MATTRESSES ARE TO BE INSTALLED AS PER TYPICAL DETAIL DRAWING.
 4. OPENING IN KERBS TO BE MAXIMUM 0.5 m.
 5. THE MATERIAL TO BE USED FOR FILLING THE MATTRESSES ARE TO BE OBTAINED FROM SOURCES ON OR NEAR THE SITE AND SHOULD BE DURABLE AND OF SOUND QUALITY RANGING IN SIZE BETWEEN 75 MM AND 150 MM FOR MATTRESSES.



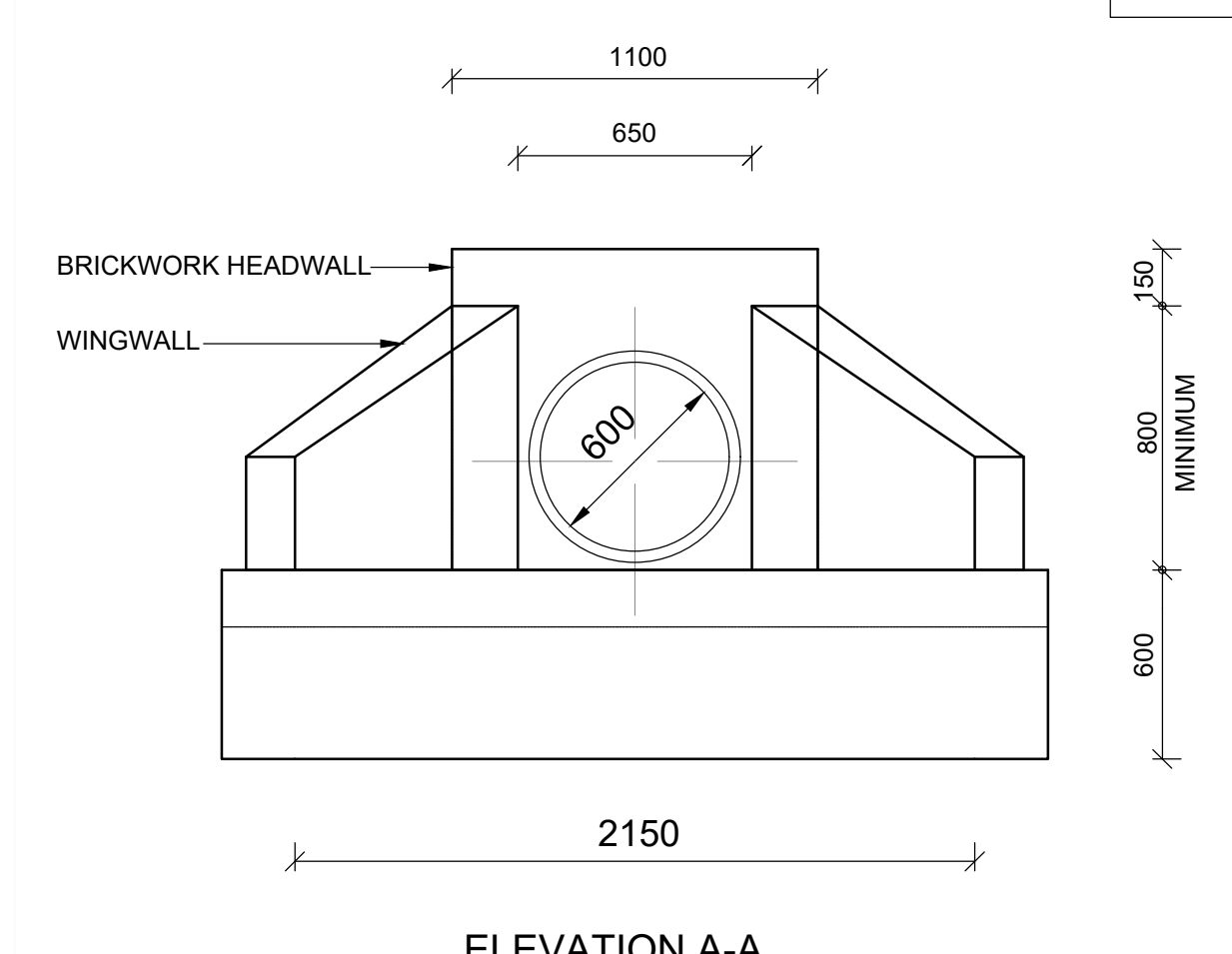
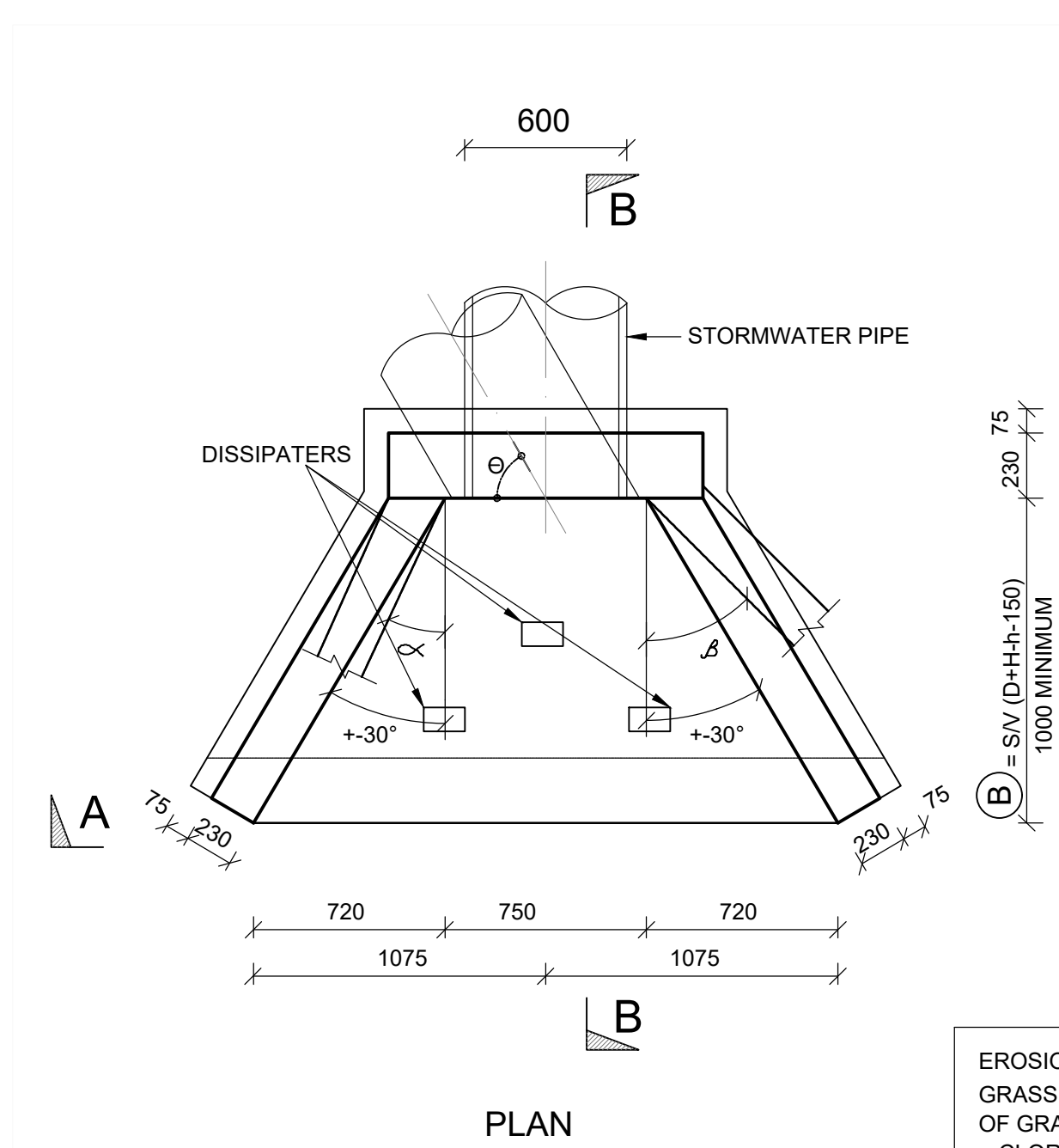
TYPICAL ROAD CROSS SECTION TYPE 1
SCALE 1 : 20



TYPICAL ROAD CROSS SECTION TYPE 2
SCALE 1 : 20



TYPICAL ROAD CROSS SECTION TYPE 3
SCALE 1 : 20



TYPE B STORMWATER HEADWALL DETAILS
NTS

NOTES

1. $\theta = 60^\circ$ MIN. ; 90° MAX.
 $\alpha < 0/2 - 5^\circ$ (30° MAX.)
 $\beta = 75^\circ \pm 0/2$
 D = NOMINAL PIPE DIAMETER
2. APRON SLAB IN 20 MIX CONCRETE
3. ALL EXPOSED CORNERS 10 x 10 CHAMFERED
4. HEADWALL AND WINGWALL : CAST INSITU CONCRETE

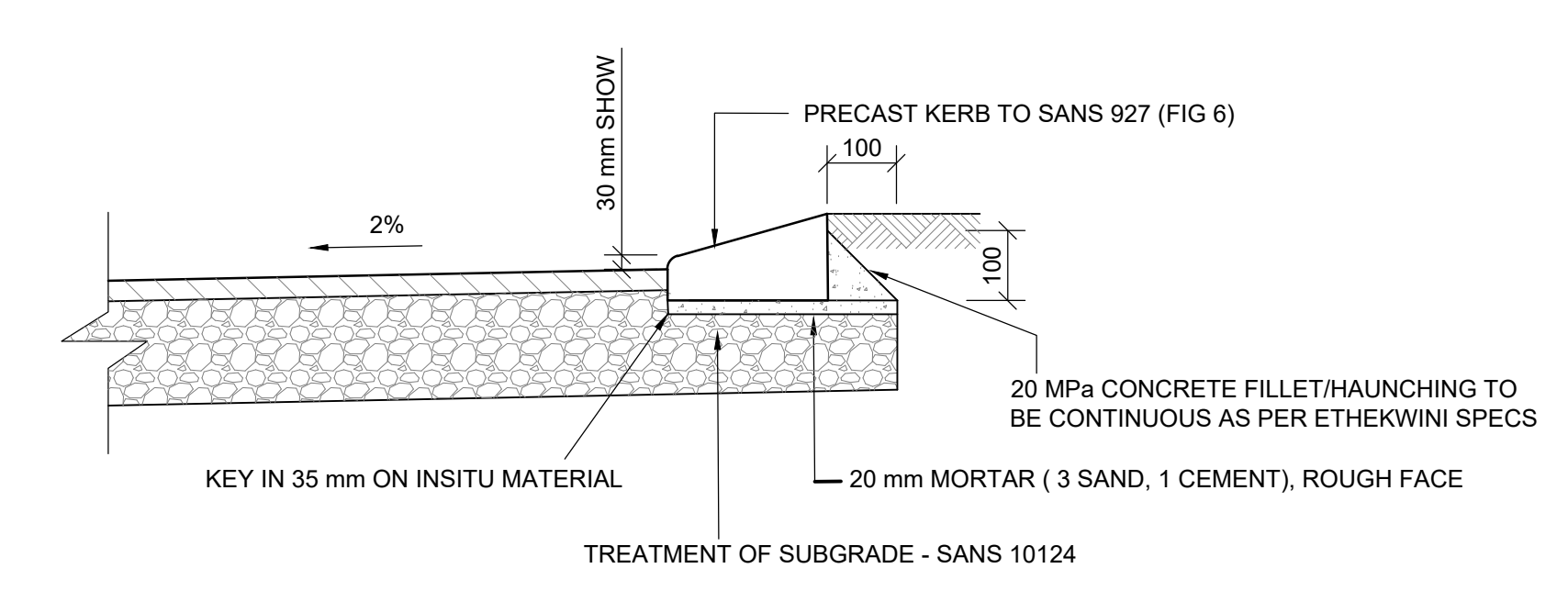
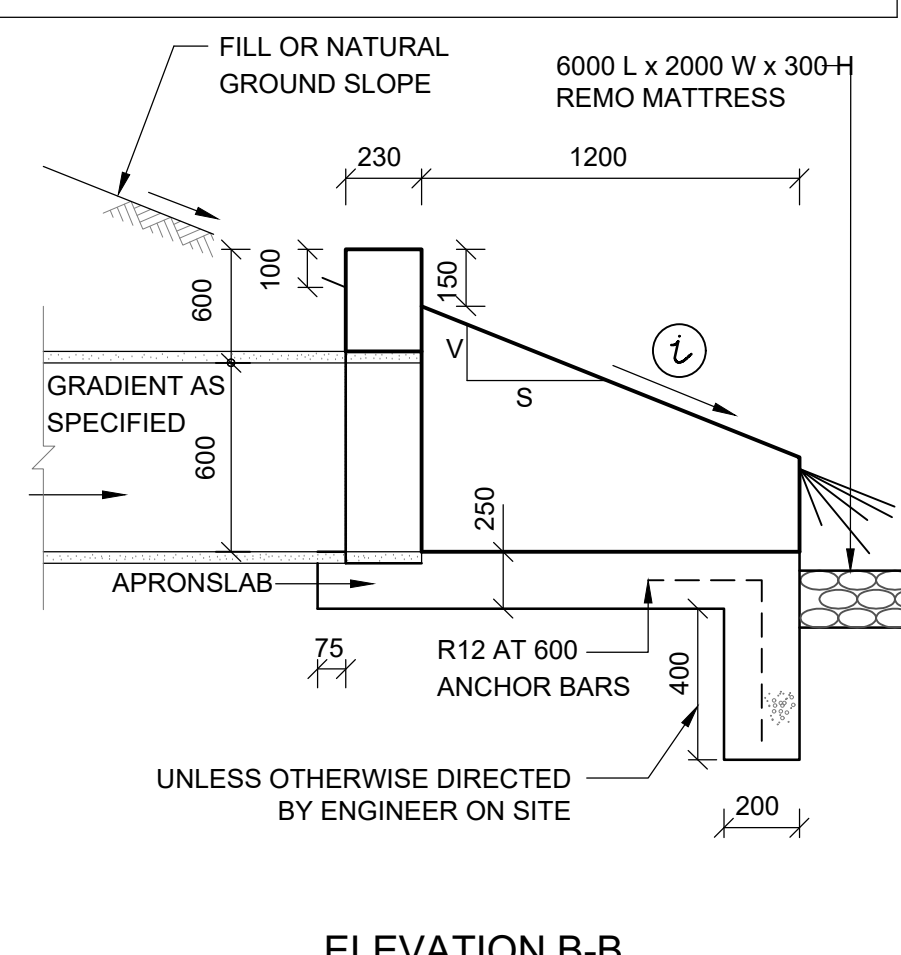
OUTLET/INLET DIMENSIONS IN mm FOR :
 $\theta = 90^\circ$; $t_L = 1:1.5$; $h = 300\text{mm}$ & $H = 600\text{mm}$

NOM PIPE DIA. (D)	(W)	(B)	(L)
600	1100	1200	2150

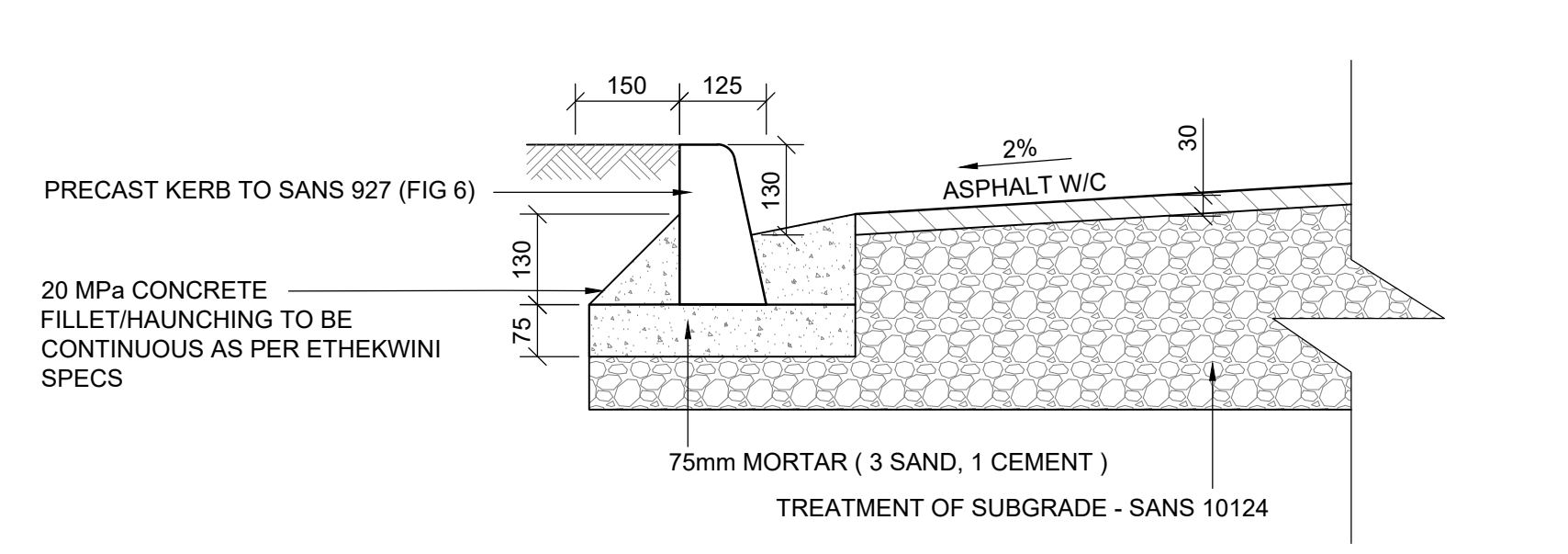
L = VIS = GRADIENT TO SUIT FILL OR NATURAL GROUND SLOPE (1:1.5 MAX.)
 h = HEIGHT TO SUIT GRADIENT (300 MIN.)
 H = 300 MIN. ; 900 MAX.

EROSION PROTECTION MEASURES AS SPECIFIED BY THE ENGINEER. WHERE GRASS IS SPECIFIED, SCARIFY AND HYDROSEED WITH THE FOLLOWING MIX OF GRASS SEED UNLESS ANOTHER MIX HAS BEEN SPECIFIED:

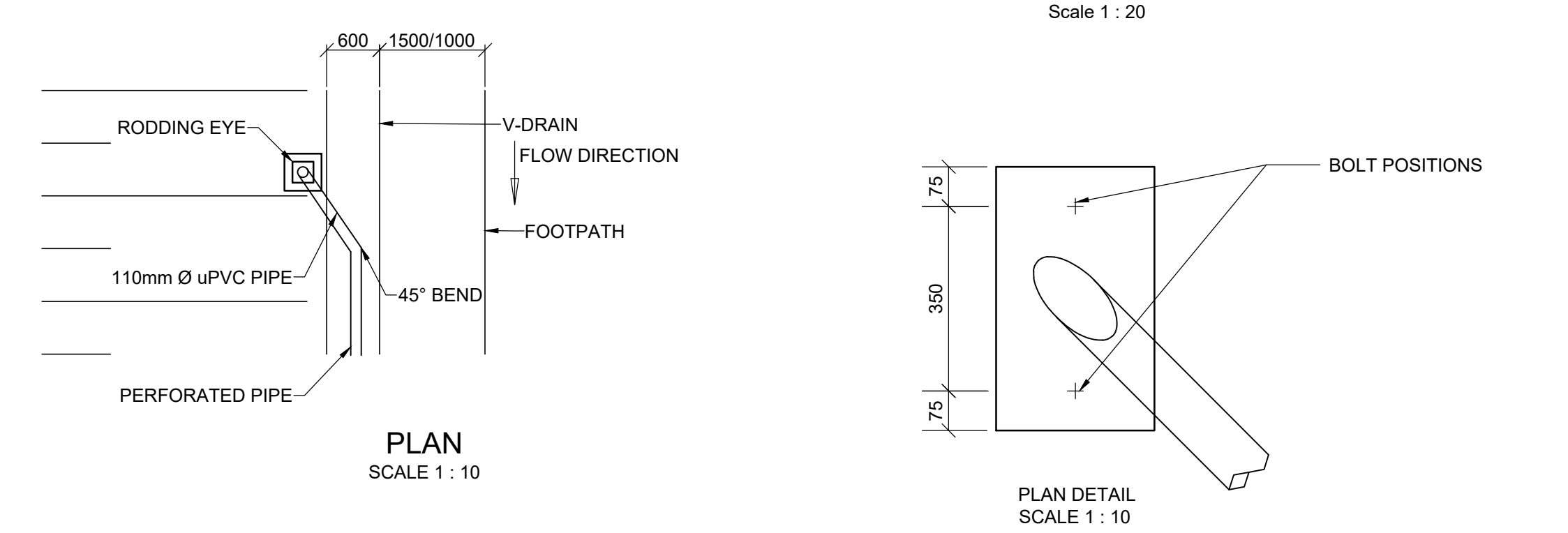
- CLORIS GYANA (10g/ha)
- CYNODON DACTYLON (15kg/ha)
- ERAGROSTIS TEF (5kg/ha)



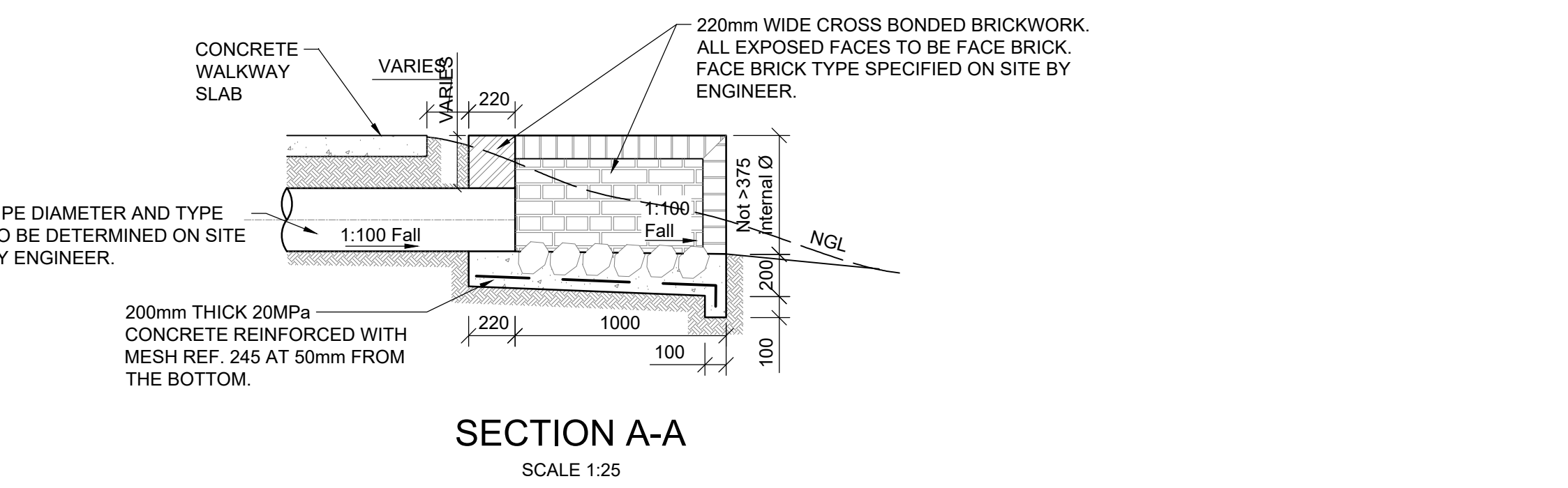
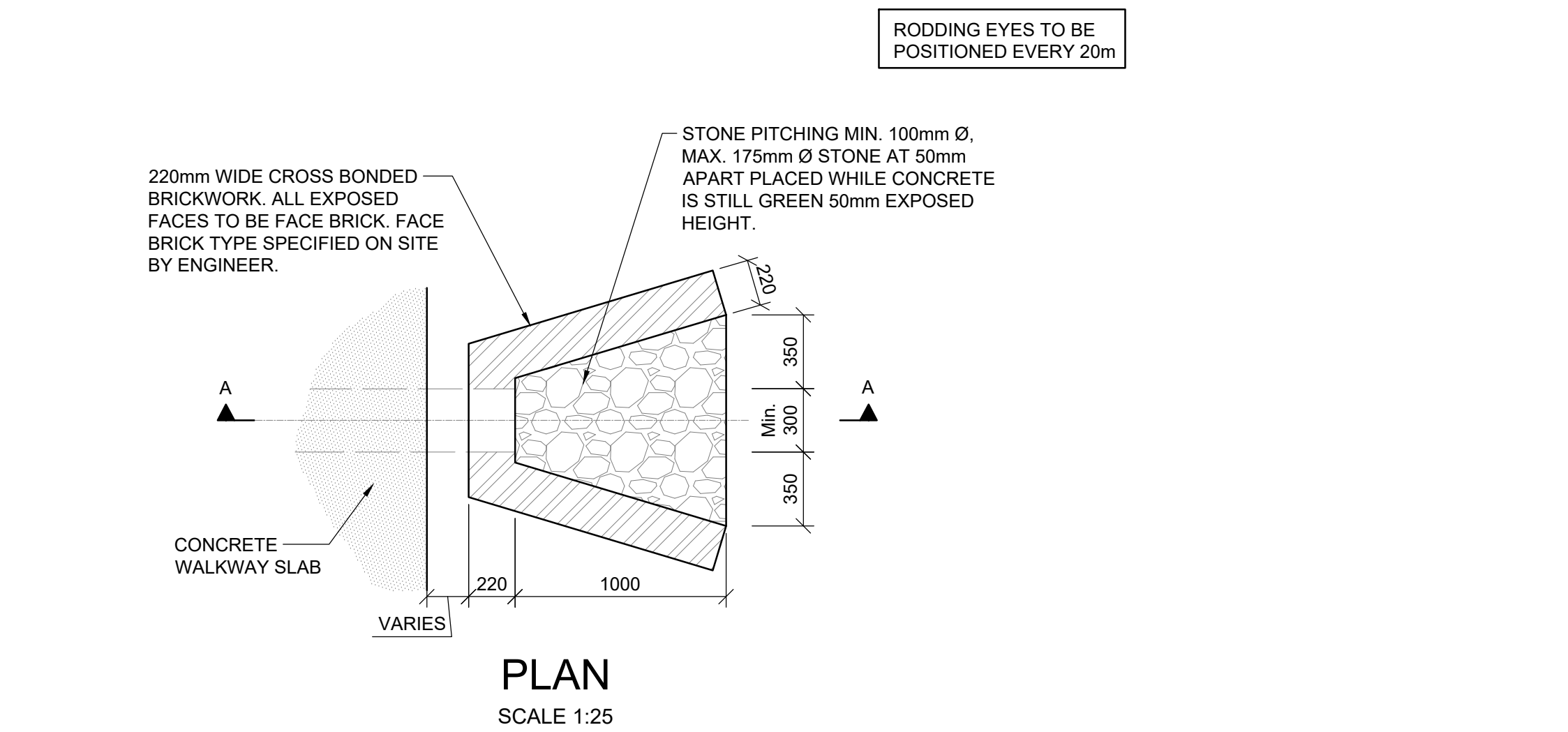
KERB ONLY DETAIL (MOUNTABLE KERB)
SCALE 1 : 10



KERB AND CHANNEL ONLY DETAIL (NON-MOUNTABLE KERB)
SCALE 1 : 10



TYPICAL SUBSOIL DRAINAGE
Scale 1 : 20



TYPE A STORMWATER HEADWALL AND PIPE FOR WALKWAY CROSSING TYPICAL DETAILS

GENERAL Notes:

1. SET BOTTOM ROW OF BLOCKS IN WET CONCRETE.
2. ALL BACKFILL TO BE COMPACTED TO 95% MOD AASHTO DENSITY.
3. PROVIDE ALL SERVICES PRIOR TO CONSTRUCTION.
4. ALL WORK AREAS TO BE REINSTATED (PREMIX CONCRETE, ETC.)
5. MUNICIPALITY TO EXECUTE ALL CONNECTIONS INTO MUNICIPAL LINES.
6. UNLESS OTHERWISE AGREED WITH ENGINEER, CONTRACTOR TO SUPPLY ENGINEER WITH RESULTS OF COMPACTION TESTS, AND WHEN APPLICABLE, PERCENTAGE STABILIZATION TESTS ON BACKFILL.
7. STORM WATER BEHIND THE TOP OF THE WALL TO BE MANAGED IN SUCH A MANNER AS TO OBVIATE SCOUR BEHIND OR OVER-TOPPING OF THE WALL.
8. BACKFILL TO BE BENCHMARKED IN COMPETENT GROUND.
9. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE.
10. SUBSOIL DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH THE PROFESSIONAL LAND SURVEYOR.
11. ALL SETTING OUT TO BE UNDERTAKEN BY A REGISTERED PROFESSIONAL ENGINEER.
12. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE STRUCTURAL ENGINEERING DRAWINGS.
13. ALL WORKS IN ACCORDANCE WITH CITY OF DURBAN SPEC AND SANS 1200.

MATERIAL COMPLIANCE TESTING

1. RESULTS OF COMPACTION AND CBR TESTS ON INSITU SUB-BASE MATERIAL, AND FILL. SUB-BASE MATERIAL MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THE UPPER LAYER WORKS ARE IMPORTED TO THE SITE AND PLACED.

FREQUENCY OF TESTS

1. CBR TESTS 1 PER 500m² (AS REQUESTED BY ENGINEER ON SITE).
2. COMPACTION TESTS 1 PER 200m² / LOT NOTE: COMPACTION TESTS WILL BE REQUIRED FOR EACH OF THE VARYING LAYER WORKS THAT IS IMPORTED AND COMPACTED IN PLACE.

RETAINING WALL :

1. ALL LEVELS AND DIMENSIONS TO BE CHECKED ON SITE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND SANS 1200.
3. ALL CONCRETE WORK IS TO COMPLY WITH SANS 1200G.
4. CONCRETE CLASS
5. STRIP FOOTINGS & BASES
6. COVER TO REINFORCEMENT
7. AS INDICATED ON DRAWINGS.
8. ALL FOUNDATION EXCAVATIONS ARE TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
9. ALL REINFORCING FIXING IS TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
10. SIX CONCRETE CUBES TO BE TAKEN PER FOUR THREE CUBES TO BE TESTED AT SEVEN DAYS. THE REMAINDER AT TWENTY EIGHT DAYS. THE RESULTS ARE TO BE APPROVAL. FORWARDED TO THE ENGINEER FOR REVIEW AND.
11. ALL STRUCTURAL CONCRETE IS TO BE CURED FOR A MINIMUM OF FIVE DAYS. INSPECTIONS
12. THE ENGINEER REQUIRES 24 HOURS NOTICE FOR ALL.

ROADS :

1. ALL LEVELS, DIMENSIONS AND SETTING OUT DETAILS TO BE VERIFIED BY CONSULTANT AND CONTRACTORS ON SITE PRIOR TO CONSTRUCTION.
2. ALL EXISTING DRAINAGE CULVERTS ARE TO BE INSPECTED, AND ANY FOUND IN UNSERVICEABLE CONDITION ARE TO BE REPLACED UNLESS SHOWN OTHERWISE.
3. CULVERT INVERTS ARE TO BE DECIDED BY ENGINEER ON SITE UNLESS SHOWN OTHERWISE. MIN. COVER = 600MM, MIN SLOPE = 2%.
4. FOR EROSION CONTROL, GABION MATTRESSES ARE RECOMMENDED AT CULVERT INLETS AND OUTLETS.
5. ROCK BOLTERS ARE TO BE PLACED ACROSS THE INVERT OF DRAINS SUSCEPTIBLE TO EROSION FOR EVERY 2M VERTICAL DROP.
6. SUBSOIL DRAINS ACCORDING TO CIVIL ENGINEERS DETAILS AND SPECIFICATIONS ARE TO BE INSTALLED WITH V-DRAINS OR WHERE HIGH WATER TABLES ARE ENCOUNTERED.
7. THE POSITIONS OF ACCESSES ARE TO BE DETERMINED IN CONSULTATION WITH THE LOCAL COMMUNITY. DAYLIGHT REQUIREMENTS ARE TO BE DECIDED BY THE ENGINEER ON SITE. CONCRETE WEDES ACCORDING TO CIVIL ENGINEERS DETAILS AND SPECIFICATIONS MAY BE USED IN PLACE OF SURFACED BELL MOUTHS FOR ACCESSES SERVING SINGLE RESIDENTIAL PROPERTIES.
8. EXISTING ROAD SIGNS, SERVICES AND FENCING AFFECTED BY CONSTRUCTION ARE TO BE REMOVED/RELOCATED WHERE NECESSARY.
9. UNDERGROUND SERVICE CROSSINGS AND MARKERS ARE TO BE ACCORDING TO CIVIL ENGINEERS DETAILS AND SPECIFICATIONS.
10. ALL NEW ROAD SIGNS AND ROAD MARKING REQUIREMENTS ARE TO CONFORM TO THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY ROAD TRAFFIC SIGNS MANUAL (SADC - RTSM).
11. ALL WORKS IS TO BE CARRIED OUT IN ACCORDANCE WITH TOLTO SPECIFICATIONS FOR ROAD AND BRIDGE WORKS FOR STATE ROAD AUTHORITIES.
12. ALL SURVEY AND SETTING OUT DATA PROVIDED IS BASED ON (WGS 84).
13. NEW FILLS AND EXPOSED CUTTINGS ARE TO BE TOP-SOILED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.

SCALE (mm)

0 10 20

No. REFERENCE DRAWINGS

49171-100 ROAD, FOOTPATHS AND STORMWATER LAYOUT AND DETAILS

REV DESCRIPTION BY DATE

P1 PRELIMINARY Z.M 2022.09.12

Professional person Registration

CLIENT

PROJECT

eTHEKWINI INCREMENTAL SERVICES BHAMBAYI

DETAILS

TYPICAL DETAILS SHEET 2

MAP AFRICA CONSULTING ENGINEERS

SUITE E55106 STRATHMORE PARK, 305 MUSGRAVE ROAD, MUSGRAVE, DURBAN

e-mail : admin@mapafrica.co.za website : www.mapafrica.co.za

FAX (031) 3092929 TEL (031) 3095831

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DRAWN Z.M

APPROVED A.S PL DATE 2022.09.12

TENDER No.

Drawing No: 49171-308 REV P1