



MAQUASSI HILLS LOCAL MUNICIPALITY

UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND
STORMWATER MANAGEMENT IN TSWELELANG EXT.5

CONSTRUCTION DRAWINGS VOLUME 2

CONTRACT NUMBER: MHLM/MIG/06/2023/2024

MAY 2024



VERSION	DRAWING NUMBER	DRAWING DESCRIPTION
1.0	2024-04-G/A/001	PROJECT DRAWING INDEX
1.0	2024-04-G/D/001	PROJECT NAME BOARD
1.0	2024-04-G/D/002	MIG PROJECT NAME BOARD
1.0	2024-04-G/P/001	LOCALITY MAP
1.0	2024-04-R/D/001	TYPICAL KERBING DETAILS
1.0	2024-04-R/D/002	TYPICAL PAVEMENT DESIGN DETAIL FOR 5.0m SURFACED ACCESS STREETS (PAVING BLOCK FINISH)
1.0	2024-04-R/D/003	ROAD SIGNAGE SCHEDULE AND DETAILS
1.0	2024-04-R/D/004	ROAD MARKING DETAILS
1.0	2024-04-R/D/005	POSITION OF SUPPORT BRACKETS AND INSTALLATION DETAILS OF ROAD SIGNS
1.0	2024-04-R/D/006	TYPICAL SPEED HUMP & RAISED PEDESTRIAN CROSSING LAYOUT AND DETAILS
1.0	2024-04-R/P/001	PROPOSED NEW ROAD LAYOUT IN TSWELELNAG EXT.5
1.0	2024-04-S/D/001	TYPICAL STORMWATER MANHOLE DETAILS
1.0	2024-04-S/D/002	TYPICAL STORMWATER KERB OUTLET DETAILS
1.0	2024-04-S/D/003	TYPICAL STORMWATER KERB OUTLET DETAILS & END-STRUCTURE

REVISIONS

No.	DATE	BY	DESCRIPTION

NOTES

REFERENCE DRAWINGS

PLAN Nr.	DESCRIPTION

APPROVED:

ENGINEER: _____ DATE: _____

APPROVED:

CLIENT: _____ DATE: _____

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Mobile: + 27 (0)83 265 1524
329 Stateway Chambers, Stateway, Welkom,
PO Box 2600, Welkom, 9460, South Africa



CLIENT
MAQUASSI HILLS
LOCAL MUNICIPALITY

PROJECT

UPGRADING OF GRAVEL ROADS
TO BLOCK PAVING AND
STORMWATER MANAGEMENT
IN TSWELELANG EXT.5

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

PROJECT DRAWING INDEX

DESIGN -	DATE MAY 2024	DRAWN	DATE MAY 2024
SURVEYED -	DATE	CHECKED J.BATEMAN	DATE MAY 2024

SCALE

NTS

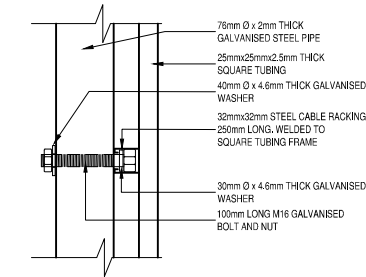
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2024-04-G/A/001

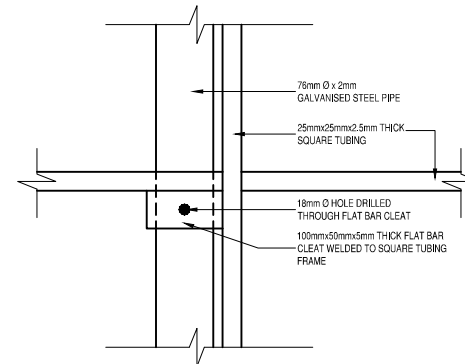
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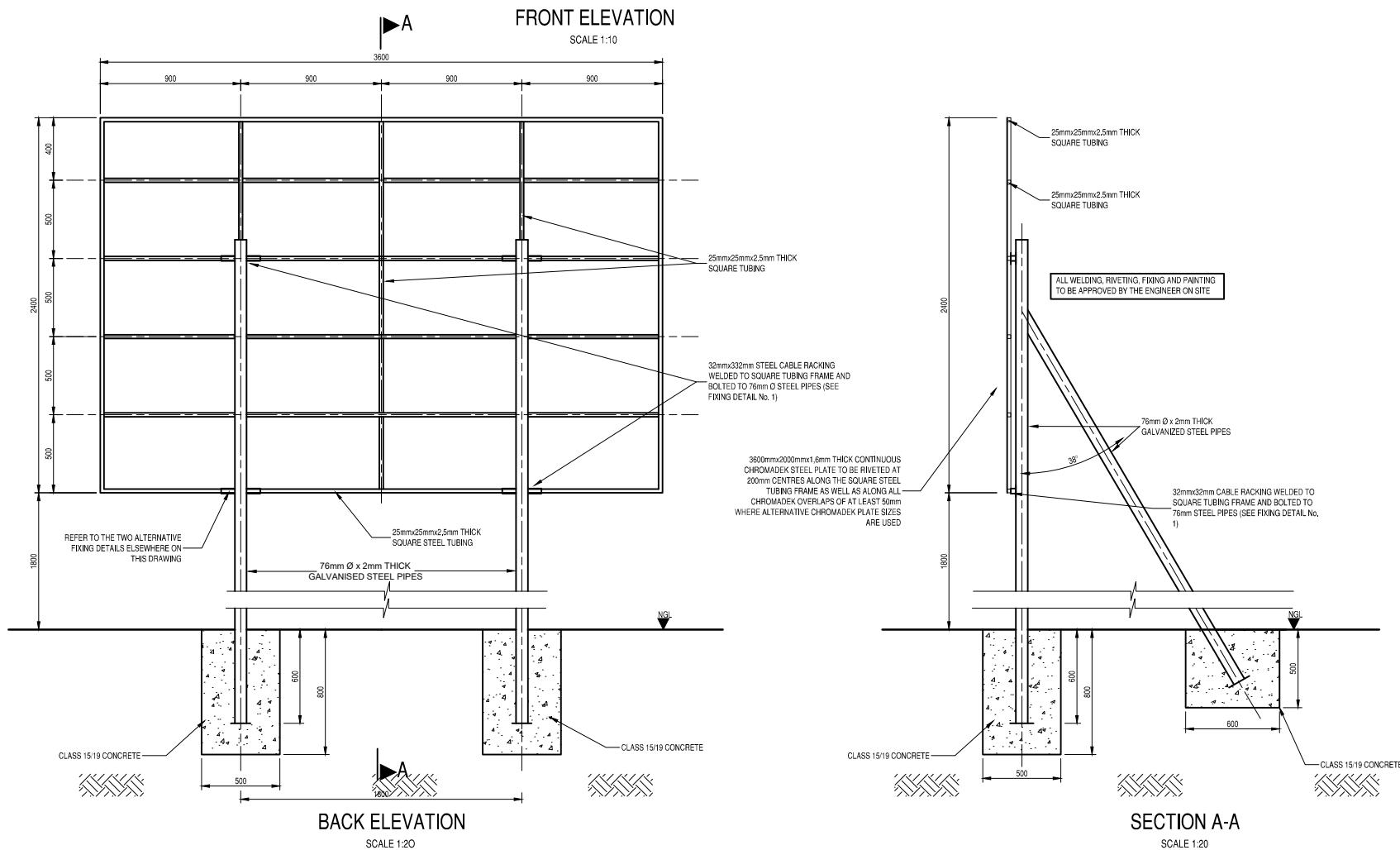
		MAQUASSI HILLS LOCAL MUNICIPALITY	
PROJECT NAME: UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND STORMWATER MANAGEMENT IN TSWELELANG EXT.5			
CONTRACT NUMBER: MHLM/MIG/06/2023/2024		PROJECT AMOUNT: -	
 Municipal Infrastructure Grant	FUNDING AGENT		
	MUNICIPAL INFRASTRUCTURE GRANT		
	CONSULTING ENGINEERS		
	TSELA TSWEU CONSULTING ENGINEERS		
CONTRACTOR (LOGO)	CONTRACTOR		
	CONTRACTOR NAME		



FIXING DETAIL No. 1
SCALE 1:5



FIXING DETAIL No. 2
SCALE 1:5
ALTERNATIVE FIXING DETAILS



REVISIONS			
No.	DATE	BY	DESCRIPTION

- NOTES**
- Description in *Italics* must be adjusted to suit project details.
 - Type face to be used shall be Helvetica Medium Colour of lettering AS INDICATED.
 - LETTERS TO BE CAPITALISED.
 - Background of board to be WHITE. ALL borders & lines to be MIDDLE BLUE. Colour for logos to be AS PER RESPECTIVE.
 - All paint used should match Ref. 290 Acrylic Road Sign Paint.
 - All lettering to be painted on. Stick-on labels will NOT be permitted.

REFERENCE DRAWINGS	
PLAN Nr.	DESCRIPTION

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**MAQUASSI HILLS
LOCAL MUNICIPALITY**

PROJECT

**UPGRADING OF GRAVEL ROADS
TO BLOCK PAVING AND
STORMWATER MANAGEMENT
IN TSWELELANG EXT.5**

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

PROJECT NAME BOARD

DESIGN	DATE	DRAWN	DATE
-	MAY 2024	-	MAY 2024
SURVEYED	DATE	CHECKED	DATE
-	-	J.BATEMAN	MAY 2024

SCALE as shown

DRAWING No.

2024-04-G/D/001

REVISION No.							
1.0							



NOTES	APPROVED:
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CLIENT:	
DATE:	

REFERENCE DRAWINGS	
PLAN Nr.	DESCRIPTION



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**MAQUASSI HILLS
LOCAL MUNICIPALITY**

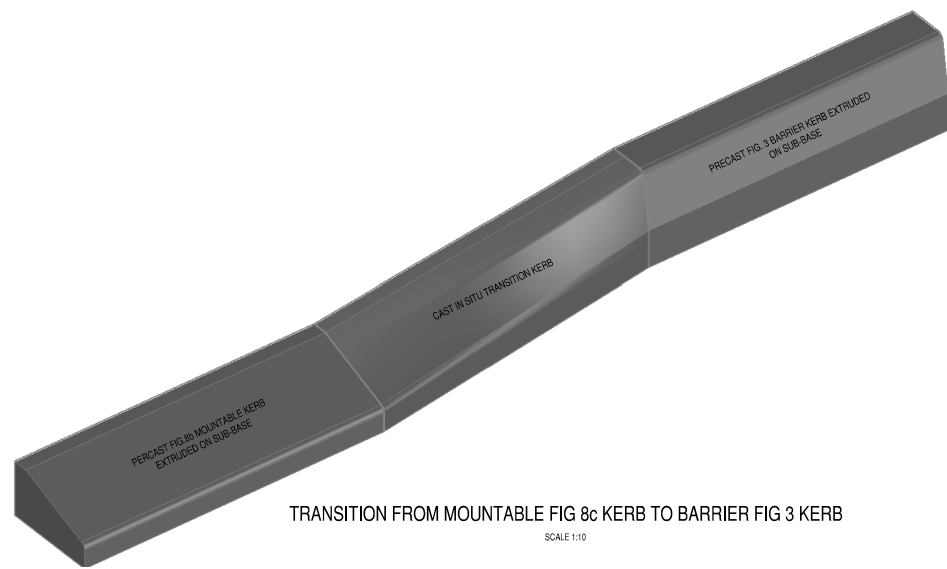
IMPLEMENTING AGENT
MAQUASSI HILLS LM

PROJECT
**UPGRADING OF GRAVEL ROADS
TO BLOCK PAVING AND STORMWATER
MANAGEMENT IN TSWELELANG EXT.5**

DRAWING TITLE
LOCALITY MAP

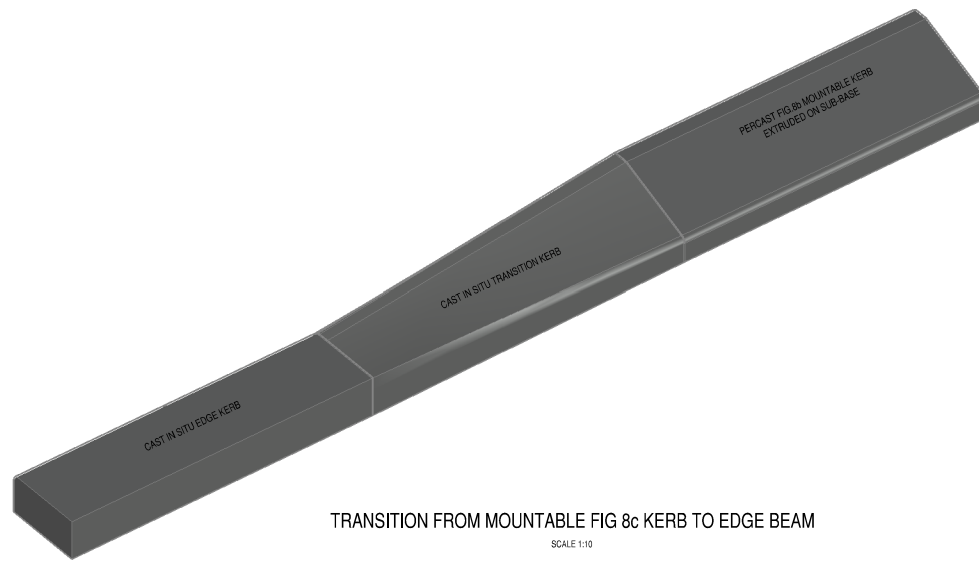
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-	-	J.BATEMAN	MAY 2024
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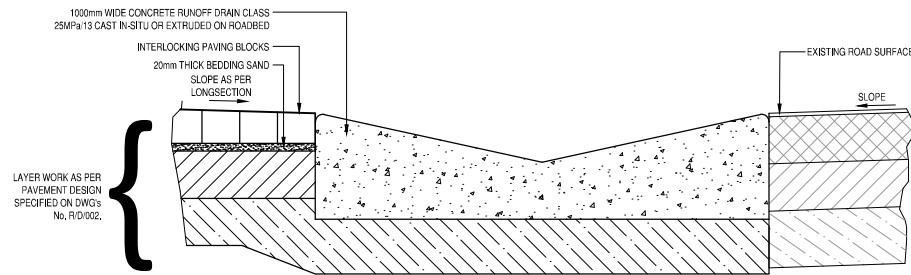
TRANSITION FROM MOUNTABLE FIG 8c KERB TO BARRIER FIG 3 KERB

SCALE 1:10



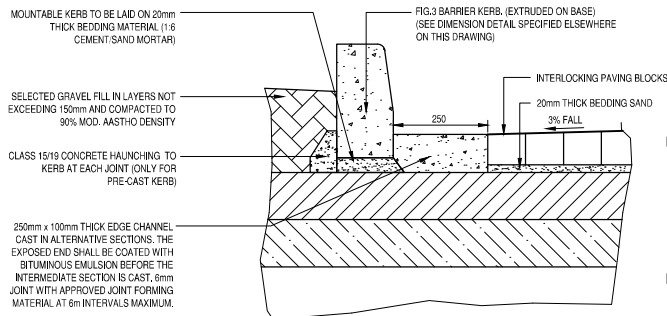
TRANSITION FROM MOUNTABLE FIG 8c KERB TO EDGE BEAM

SCALE 1:10



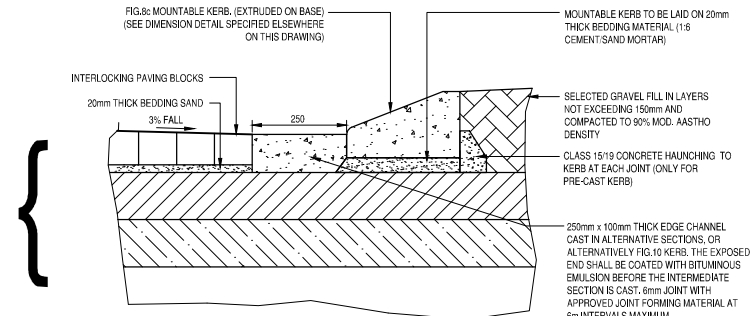
TYPICAL RUNOFF DRAIN SECTION AT INTERSECTION CONNECTION

SCALE 1:10



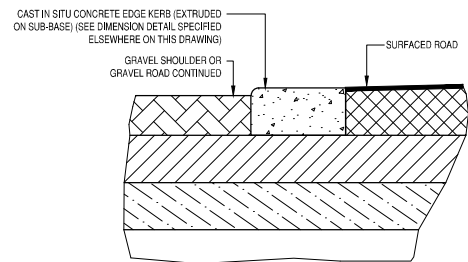
TYPICAL SECTION THROUGH FIG.3 BARRIER KERB

SCALE 1:10

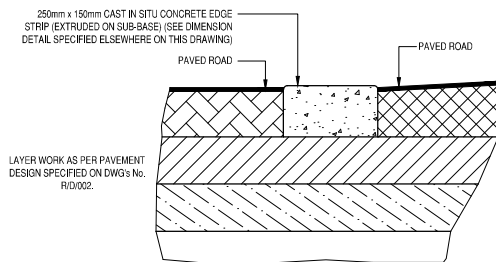


TYPICAL SECTION THROUGH FIG.8b MOUNTABLE KERB

SCALE 1:10

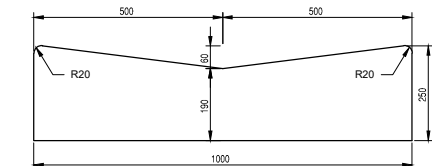


TYPICAL SECTION THROUGH EDGING KERB (FLAT)



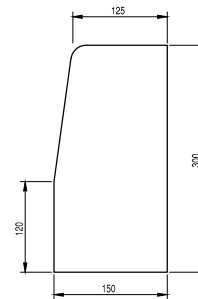
TYPICAL SECTION THROUGH EDGE STRIP

SCALE 1:10



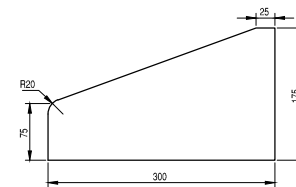
RUNOFF DRAIN CAST INSITU OR EXTRUDED ON ROADBED

SCALE 1:10



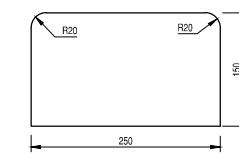
BARRIER KERB (FIG.3)

SCALE 1:5



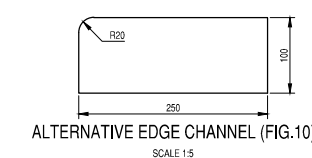
MOUNTABLE KERB (FIG.8b)

SCALE 1:5



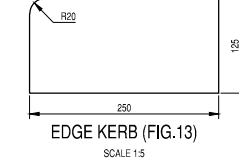
RECTANGULAR EDGING STRIP

SCALE 1:5



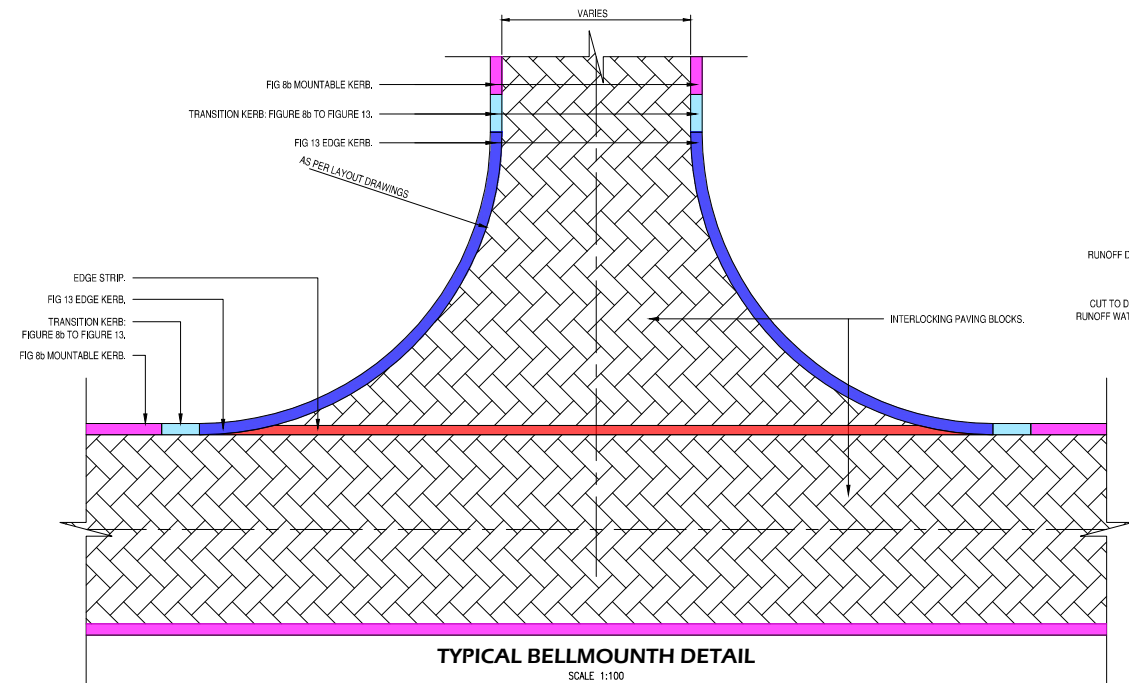
ALTERNATIVE EDGE CHANNEL (FIG.10)

SCALE 1:5



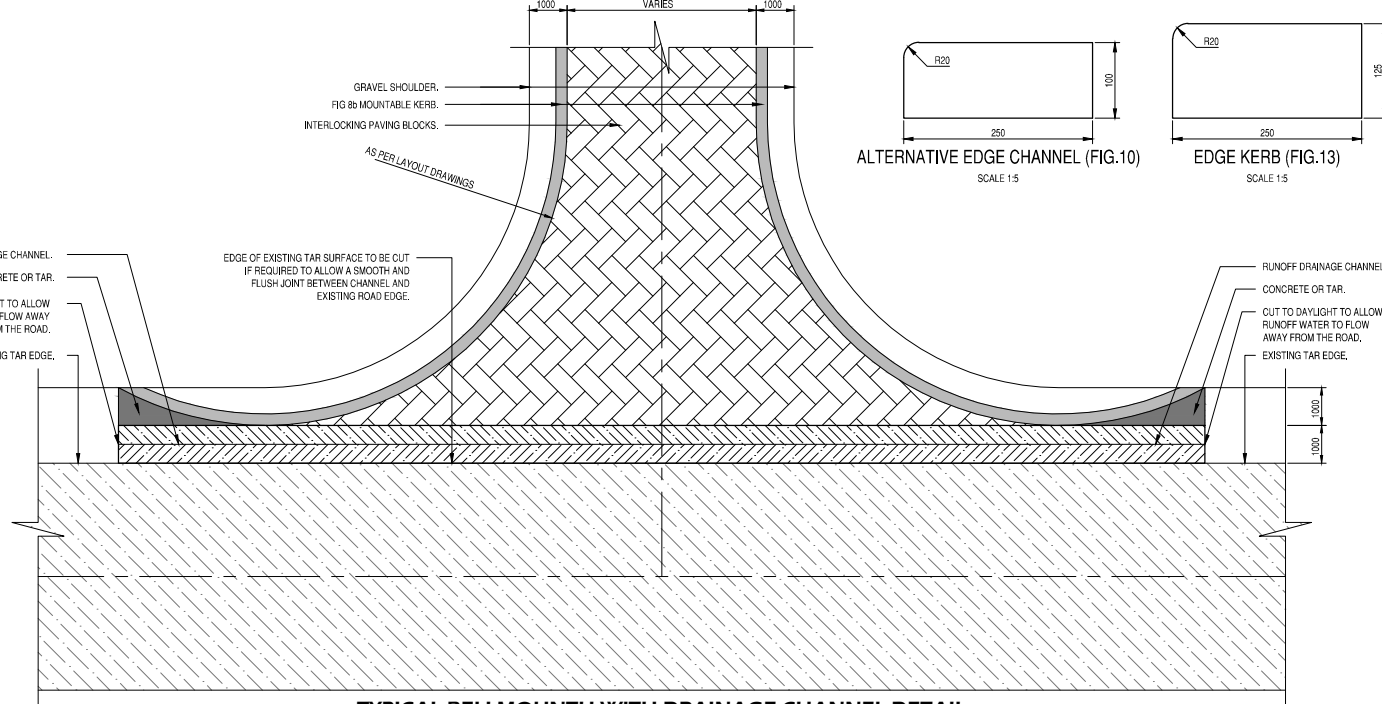
EDGE KERB (FIG.13)

SCALE 1:5



TYPICAL BELLMOUTH DETAIL

SCALE 1:100



TYPICAL BELLMOUTH WITH DRAINAGE CHANNEL DETAIL

SCALE 1:100

REVISIONS

No.	DATE	BY	DESCRIPTION

NOTES

- ALL EXTRUDED CONCRETE KERBING AND EDGE STRIPS SHALL BE CLASS 25/13 CONCRETE.
- FIGURE 8 MOUNTABLE KERB TO BE CONSTRUCTED ON THE DRAINAGE SIDE (LOW LEG) OF ALL THE SURFACED CROSSFALL ROADS, UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE LAYOUT DRAWINGS.
- EDGING STRIP TO BE CONSTRUCTED ON THE NON DRAINAGE SIDE (HIGHER LEG) OF ALL THE SURFACED CROSSFALL ROADS UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE LAYOUT DRAWINGS.
- EDGING STRIP TO BE CONSTRUCTED ALONG THE TOTAL LENGTH OF THE BELLMOUTH OPENING AT ALL INTERSECTIONS WITH THE SURFACED ROADS AS INDICATED ON THE LAYOUT DRAWINGS.
- PRIOR TO THE CONSTRUCTION OF ANY EXTRUDED KERBING OR EDGE STRIP AN APPROPRIATELY CERTIFIED LABORATORY TESTED DESIGN MIX SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
- THE STRENGTH OF ALL PRE-CAST CONCRETE KERBING SHALL BE IN TERMS OF SABS 927.

REFERENCE DRAWINGS

PLAN No.	DESCRIPTION

APPROVED:	
ENGINEER:	DATE:
APPROVED:	
CLIENT:	DATE:

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MAQUASSI HILLS LOCAL MUNICIPALITY

PROJECT

UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND STORMWATER MANAGEMENT IN TSWELELANG EXT.5

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

TYPICAL KERBING DETAILS

DESIGN	DATE	DRAWN	DATE
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		J.BATEMAN	MAY 2024

SCALE

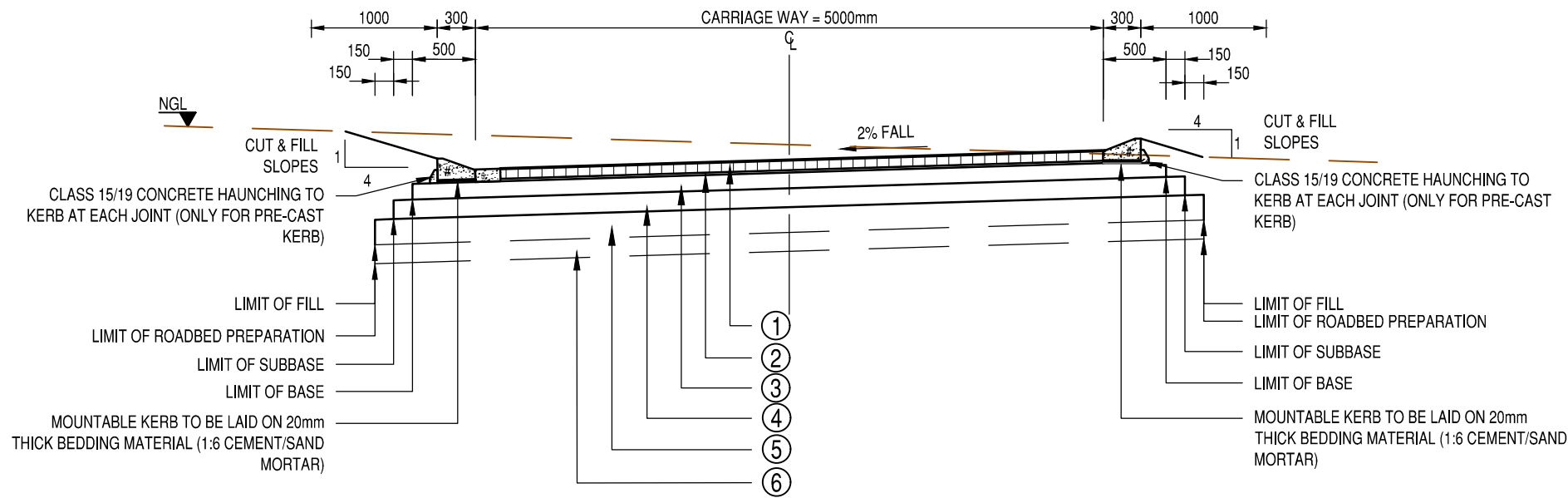
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2024-04-R/D/001

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TYPICAL PAVEMENT DESIGN DETAIL CROSS-FALL ROAD

SCALE 1:50

NOTE:

- PRIOR TO THE UNDERTAKING OF ANY VIBRATORY OR PAD FOOT ROLLING WITHIN THE ROAD FOUNDATION, AN ON SITE TRIAL SECTION SHALL BE PREPARED AND CONDUCTED IN ORDER TO ASCERTAIN THE AVERAGE NUMBER OF m.PASSES REQUIRED IN ORDER TO OBTAIN THE SPECIFIED COMPACTION EFFORT FOR THE ROADBED PREPARATION.
- THE ENGINEER SHALL THEN INSTRUCT THE CONTRACTOR TO REMOVE AND SPOIL THE TOPSOIL AND HILLWASH OVERBURN TO WEARING COURSE DEPTH OR FERRICRETE LEVEL, WHERE REQUIRED WHICHEVER IS THE SHALLOWEST. ALL FERRICRETE MATERIAL SHALL BE CUT TO TEMPORARY STOCKPILE AS DETERMINED BY THE ENGINEER FOR LATER USE IN THE PAVEMENT STRUCTURE AND WEARING COURSE LAYER WORKS.
- THE CONTRACTOR SHALL THEN APPLY THE NUMBER OF m.PASSES ORDERED BY THE ENGINEER, PERIODICALLY WATERING AND BLADING THE ROADBED FOUNDATION AREA TO ENSURE MAXIMUM WORKABILITY AND COMPACTION EFFICIENCY.
- AFTER APPLYING THE VIBRATORY OR PAD FOOT ROLLING, CUT TO FILL OR BLADE TO WINDROW THE FERRICRETE PINNACLES, RIP, SCARIFY AND RECOMPACT ROADBED TO ABOVE SPECIFICATION WHERE REQUIRED.

LEGEND:

- REQUIREMENTS ARE GIVEN IN THE FOLLOWING ORDER:
LAYER THICKNESS/MATERIAL/CBR AND
MIN COMPACTION/MIN. GM/MAX. PI
- MIN. UNCONFINED COMPRESSIVE STRENGTH (UCS) IS SHOWN IN MPa.
- MIN. DENSITY IS GIVEN AS % OF MAX MODIFIED AASHTO DENSITY.
- SG = STABILIZED GRAVEL
NG = NATURAL GRAVEL
IS = IN SITU SOIL
PI = PLASTICITY INDEX
GM = GRADING MODULES
SBP = SHOULDER BREAK POINT
- # FIGURE 8c MOUNTABLE CONCRETE KERB (CLASS 25/13) EXTRUDED ON BASE
* FIGURE 3 MOUNTABLE CONCRETE KERB (CLASS 25/13) EXTRUDED ON SUBBASE
§ 250mm WIDE x 100mm THICK EDGE CHANNEL CAST IN ALTERNATIVE SECTIONS, OR ALTERNATIVELY FIG.10 KERB, THE EXPOSED END SHALL BE COATED WITH BITUMINOUS EMULSION BEFORE THE INTERMEDIATE SECTION IS CAST. 6mm JOINT WITH APPROVED JOINT FORMING MATERIAL AT 6m INTERVALS MAXIMUM.

①	SEGMENTED PAVING SHAPE S-A (G-BLOCKS), CLASS 25, 60mm THICK
②	RIVER SAND 20 / RIVER SAND IMPORTED FROM COMMERCIAL SOURCE
③	BASE 150mm C4 MATERIAL COMPACTED TO 98% MOD AASHTO DENSITY.
④	SUBBASE 150mm G5 MATERIAL COMPACTED TO 95% MOD AASHTO DENSITY
⑤	ROADBED PREPARATION (REFER TO NOTES) VIBRATORY OR PAD FOOT ROLLING OR RIP SCARIFY AND RE-COMPACT 200/IS@90%
⑥	FILL - ONLY WHERE REQUIRED FILL TO BE A MINIMUM OF G9 MATERIAL TO BE COMPACTED IN LAYERS NOT EXCEEDING 150mm THICKNESS TO 90% MOD AASHTO DENSITY.

NOTES	APPROVED:
ENGINEER:	
DATE:	
CLIENT:	APPROVED:
DATE:	

REFERENCE DRAWINGS	
PLAN Nr.	DESCRIPTION

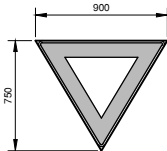
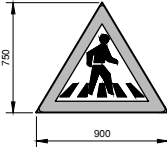
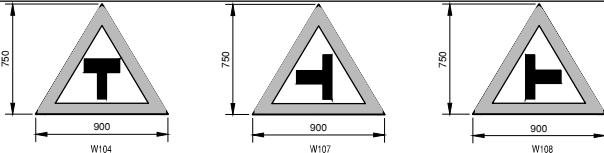
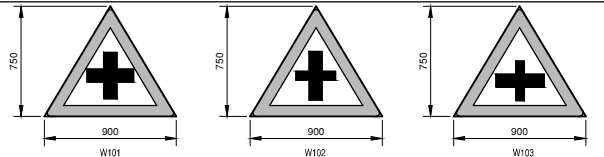
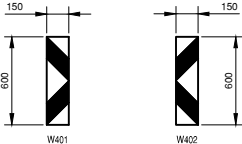
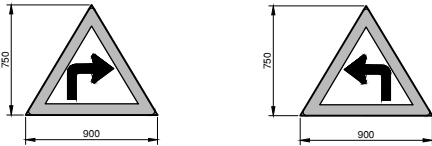
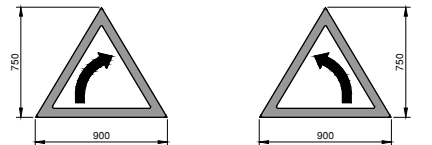
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LOCAL MUNICIPALITY**
IMPLEMENTING AGENT
MAQUASSI HILLS LM

PROJECT
**UPGRADING OF GRAVEL ROADS
TO BLOCK PAVING AND STORMWATER
MANAGEMENT IN TSWELELANG EXT.5**
DRAWING TITLE
**TYPICAL PAVEMENT DESIGN DETAIL FOR
5.0m SURFACED ACCESS STREETS
(PAVING BLOCK FINISH)**

PRINT ISSUED ON			
REVISIONS			
No.	DATE	BY	DESCRIPTION
SCALE: 1:50			

DESIGN	DATE	DRAWN	DATE
-	-	-	-
SURVEYED	DATE	CHECKED	DATE
-	-	J.BATEMAN	MAY 2024
DRAWING No. 2024-04-R/D/002			
REVISION No.			
1.0			

ITEM No.	TYPE OF SIGN	SIGN. No.	DESCRIPTION	No.	ROADSIGN	LEGEND	SYMBOL	COLOUR		
								BORDER	LETTERS OR SYMBOL	BACKGROUND
1.	REGULATION CONTROL	R1	STOP SIGN	8		DIN 1451 STYLE "A"	LETTER: STOP	WHITE RETROREFLECTIVE	WHITE RETROREFLECTIVE	RED RETROREFLECTIVE
2.	REGULATION CONTROL	R2	YIELD SIGN (RIGHT)	X				OUTER BORDER: WHITE RETROREFLECTIVE INNER BORDER: RED RETROREFLECTIVE		WHITE RETROREFLECTIVE
3.	SYMBOLIC	W306	PEDESTRIAN CROSSING	X			PEDESTRIAN CROSSING	RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
4.	WARNING ROAD LAYOUT	W104 & W107 & W108	T-JUNCTION SIDE ROAD JUNCTION (LEFT) SIDE ROAD JUNCTION (RIGHT)	7 X X			T-SYMBOL	TRIANGLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
5.	WARNING ROAD LAYOUT	W101 & W102 & W103	CROSSROAD JUNCTION	X X X			+SYMBOL	TRIANGLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
6.	WARNING HAZARD MARKER	W401 & W402	DANGER PLATE DELINRATOR PLATE	16 16			DIAGONALS @ 45°	NO BORDER	RED RETROREFLECTIVE	WHITE RETROREFLECTIVE
7.	WARNING HAZARD MARKER	W409	T-JUNCTION CHEVRON	6			ARROWS	NO BORDER	ARROWS: RED RETROREFLECTIVE	WHITE RETROREFLECTIVE
11.	INFORMATION LOCATION	R201	SPEED LIMIT SIGN	12 12			NUMBERS: 40 NUMBERS: 60	CIRCLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
9.	INFORMATION	W204 & W205	SHARP RIGHT CURVE SHARP LEFT CURVE	2 2			CURVE-SYMBOL	TRIANGLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
10.	INFORMATION LOCATION	W202 & W203	GENTLE CURVE SIGN	9 9			CURVE-SYMBOL	TRIANGLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
11.	WARNING HAZARD MARKER	W332 & IN 11.1	SPEED HUMP SIGN	12 12			SPEED HUMP SYMBOL	TRIANGLE: RED RETROREFLECTIVE	BLACK SEMI-MATT	WHITE RETROREFLECTIVE
12.	RESERVATION	R327-P	BUS & MINIBUS PARKING RESERVATION SIGN	X			BUS & MINIBUS PARKING RESERVATION SYMBOLS	RECTANGLE: WHITE RETROREFLECTIVE	WHITE RETROREFLECTIVE	BLUE RETROREFLECTIVE

REVISIONS			
No.	DATE	BY	DESCRIPTION
NOTES			
1. REFER TO DRAWING No. R/5/001 FOR ROAD SIGNAGE POSITION			
2. REFER TO DRAWING No. R/D/005 FOR POSITION OF SUPPORT BRACKETS AND INSTALLATION DETAILS OF ROAD SIGNS			
3. ALL ROAD MARKINGS AND ROAD SIGNS TO BE MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH THE SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL			
4. ALL ROAD SIGNS TO BE PLACED AT A DEFLECTION ANGLE OF 93° WITH THE CENTRE LINE OF THE ROAD			

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NOTES

1. REFER TO DRAWING No. R/D/005 FOR POSITION OF SUPPORT BRACKETS AND INSTALLATION DETAILS OF ROAD SIGNS
2. REFER TO DRAWING No. R/D/003 FOR ROAD SIGNAGE SCHEDULES
3. ALL ROAD MARKINGS AND ROAD SIGNS TO BE MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH THE SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL
4. REFER TO DRAWINGS No. R/S/001 FOR ROAD SIGNAGE LAYOUT DETAILS
5. ALL ROAD SIGNS TO BE PLACED AT A DEFLECTION ANGLE OF 93° WITH THE CENTER LINE OF THE ROAD
6. FOR RTM4 THE 2m LENGTH OF LINE MAY BE MEASURED ALONG THE LINE (IF USING A MASK OR TEMPLATE (B)), OR ALONG THE LINE OF THE ROAD (FOR EASE OF SETTING OUT (A))
7. THE ZIG-ZAG OFFSET (C) MAY BE REDUCED FROM 500mm TO 300mm FOR LANES WITH A WIDTH LESS THAN 3400mm

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TO BLOCK PAVING AND
STORMWATER MANAGEMENT
IN TSWELELANG EXT.5**

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

ROAD MARKING DETAILS

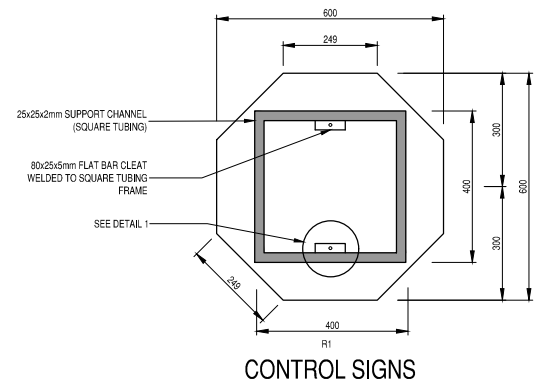
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2024-04-R/D/004

REVISION No.	
1.0	



NOTES

1. REFER TO DRAWING NO. R/S/001 FOR ROAD SIGNAGE POSITION
2. REFER TO DRAWING NO. R/D/004 FOR ROAD MARKING DETAILS
3. ALL ROAD MARKINGS AND ROAD SIGNS TO BE MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH THE SOUTH AFRICAN ROAD TRAFFIC SIGNS MANUAL
4. ALL ROAD SIGNS TO BE PLACED AT A DEFLECTION ANGLE OF 93° WITH THE CENTER LINE OF THE ROAD
5. M10 x 90mm GALVANISED BOLTS AND NUTS FOR FIXING ROAD SIGNS TO GALVANISED STEEL PIPES
6. ALL ROAD SIGNS TO BE FIXED TO SQUARE TUBING SUPPORT CHAINS BY MEANS OF 6mm Ø RIVETS AT A MAXIMUM SPACING OF 125mm c/c

APPROVED: _____
ENGINEER: _____ DATE: _____

APPROVED: _____
CLIENT: _____ DATE: _____

PRINT ISSUED ON _____

CLIENT

**MAQUASSI HILLS
LOCAL MUNICIPALITY**

PROJECT

UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND STORMWATER MANAGEMENT IN TSWELELANG EXT.5

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

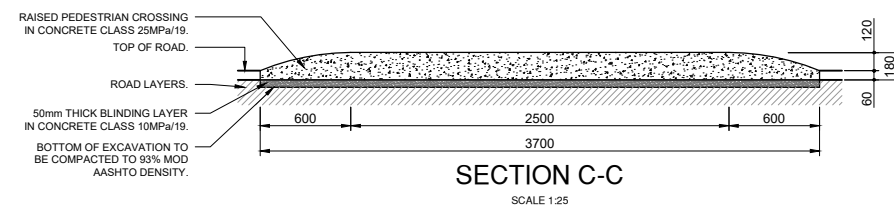
**POSITION OF SUPPORT
BRACKETS AND
INSTALLATION DETAILS
OF ROAD SIGNS**

SCALE as shown

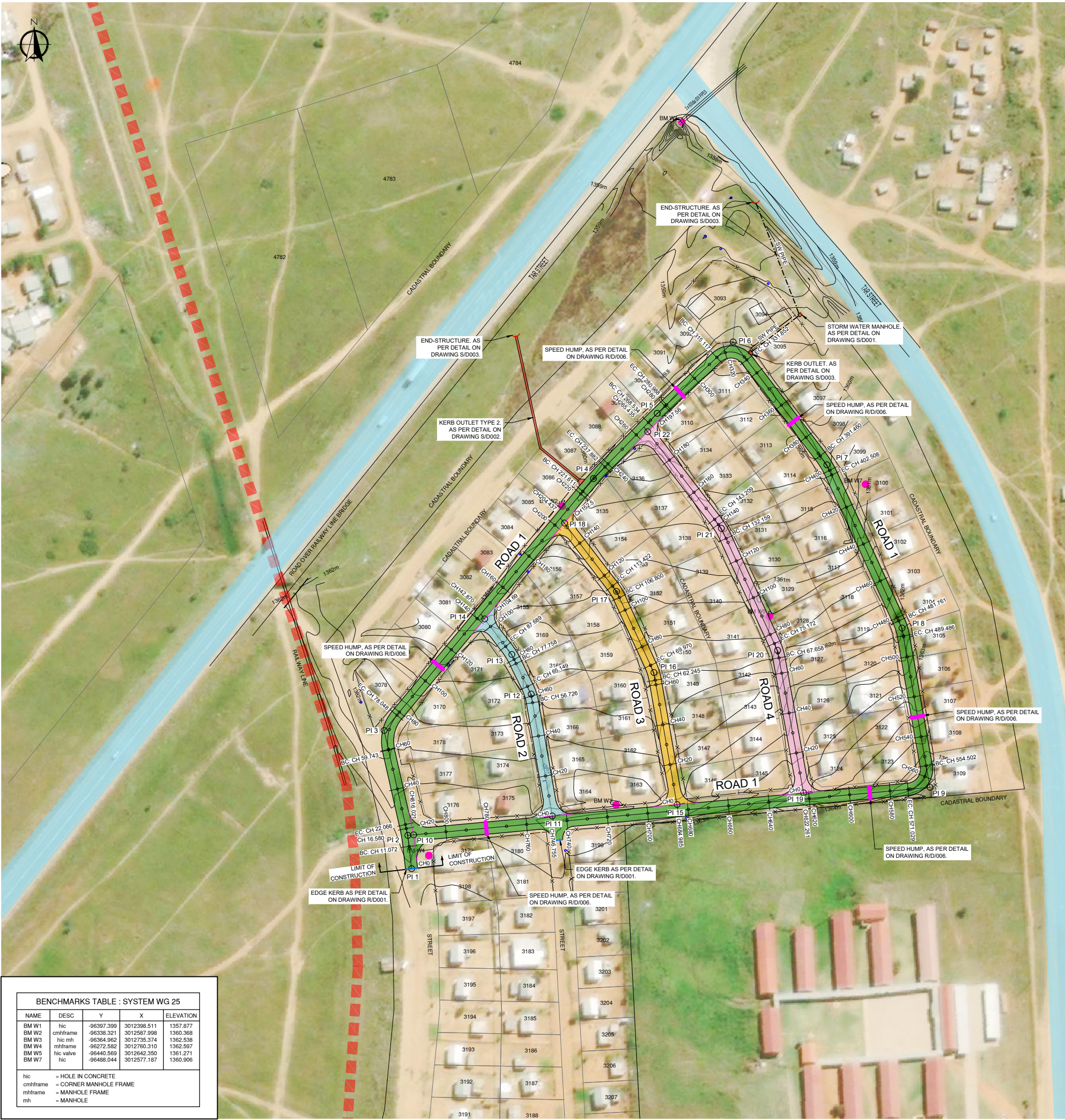
DRAWING No.

2024-04-R/D/005

REVISION No.							
1.0							



REVISION No.									
	1.0								



BENCHMARKS TABLE : SYSTEM WG 25				
NAME	DESC	Y	X	ELEVATION
BM W1	hic	-96397.399	3012398.511	1357.877
BM W2	cmhframe	-96338.321	3012587.998	1360.368
BM W3	hic mh	-96364.962	3012735.374	1362.538
BM W4	mhframe	-96272.582	3012760.310	1362.597
BM W5	hic valve	-96440.569	3012642.350	1361.271
BM W7	hic	-96488.044	3012577.187	1360.906
hic = HOLE IN CONCRETE				
cmhframe = CORNER MANHOLE FRAME				
mhframe = MANHOLE FRAME				
mh = MANHOLE				

ROAD SETTING OUT DATA						
PI No.	CH	YLo	XLo	Radius (m)	DA D M S	Lo 25 TL (m) AL (m)
Const:		-90000.000	3000000.000			
ROAD 1						
PI 1	0.000	-6264.045	12766.883			
BC 2	11.072	-6262.805	12755.881	100	6°1'58"	5.503 10.995
EC 2	22.066	-6260.977	12745.045			
BC 3	59.743	-6252.677	12708.294	20	52°26'30"	9.850 18.306
PI 3		-6250.506	12698.686			
EC 3	78.048	-6258.800	12691.109			
BC 4	221.611	-6348.531	12580.675	200	4°39'41"	8.140 16.271
PI 4		-6353.732	12574.413			
EC 4	237.882	-6359.425	12568.595			
BC 5	268.534	-6380.862	12546.686	300	2°22'42"	6.228 12.454
PI 5		-6385.217	12542.234			
EC 5	280.988	-6389.754	12537.968			
BC 6	315.117	-6414.614	12514.584	10	95°52'52"	11.083 16.734
PI 6		-6422.688	12506.991			
EC 6	331.852	-6428.414	12515.789			
BC 7	391.460	-6465.589	12563.176	50	12°39'33"	5.546 11.047
PI 7		-6468.955	12567.584			
EC 7	402.508	-6471.273	12572.622			
BC 8	481.761	-6504.398	12644.621	30	14°45'14"	3.884 7.725
PI 8		-6506.021	12648.149			
EC 8	489.486	-6506.692	12651.975			
BC 9	554.502	-6517.928	12716.013	10	94°41'37"	10.855 16.527
PI 9		-6519.804	12726.704			
EC 9	571.029	-6508.995	12727.699			
PI 10	817.923	-6263.140	12750.325			

ROAD SETTING OUT DATA						
PI No.	CH	YLo	XLo	Radius (m)	DA D M S	Lo 25 TL (m) AL (m)
Const:		-90000.000	3000000.000			
ROAD 2						
PI 11	0.000	-6333.490	12740.838			
BC 12	56.726	-6323.729	12684.958	30	16°05'14"	4.239 8.423
PI 12		-6323.000	12680.782			
EC 12	65.149	-6321.141	12676.971			
BC 13	77.758	-6315.615	12665.638	50	11°22'47"	4.962 9.931
PI 13		-6313.431	12661.160			
EC 13	87.889	-6310.407	12657.201			
PI 14	104.690	-6300.087	12643.691			

ROAD SETTING OUT DATA						
PI No.	CH	YLo	XLo	Radius (m)	DA D M S	Lo 25 TL (m) AL (m)
Const:		-90000.000	3000000.000			
ROAD 3						
PI 15	0.000	-6394.998	12735.178			
BC 16	62.245	-6384.237	12673.870	30	14°45'16"	3.884 7.725
PI 16		-6383.565	12670.044			
EC 16	69.970	-6381.942	12666.516			
BC 17	106.800	-6366.546	12633.059	30	12°38'51"	3.325 6.622
PI 17		-6365.156	12630.038			
EC 17	113.422	-6363.139	12627.396			
PI 18	152.502	-6339.428	12596.332			

ROAD SETTING OUT DATA						
PI No.	CH	YLo	XLo	Radius (m)	DA D M S	Lo 25 TL (m) AL (m)
Const:		-90000.000	3000000.000			
ROAD 4						
PI 19	0.000	-6457.437	12729.431			
BC 20	67.658	-6445.279	12662.875	30	14°21'03"	3.777 7.514
PI 20		-6444.600	12659.159			
EC 20	75.172	-6443.021	12655.728			
BC 21	132.159	-6419.205	12603.956	50	12°38'42"	5.547 11.049
PI 21		-6416.887	12598.917			
EC 21	143.209	-6413.520	12594.508			
PI 22	197.560	-6380.534	12551.310			

REVISIONS				
No.	DATE	BY	DESCRIPTION	

- NOTES**
- PROPOSED NEW ROAD 1
 - PROPOSED NEW ROAD 2
 - PROPOSED NEW ROAD 3
 - PROPOSED NEW ROAD 4
 - PROPOSED STORM WATER OUTLET
 - EXISTING TAR ROAD
 - EXISTING RAILWAY LINE
 - EDGE KERB
 - 600mmØ RC CLASS 1000 STORM WATER PIPE
 - POINT OF INTERSECTION NUMBER 2
 - PROPOSED STORM WATER END-STRUCTURE
 - BENCHMARK
 - EXISTING FENCE LINE
 - EXISTING ELECTRICITY
 - EXISTING MANHOLE
1. FOR TYPICAL ROAD DETAILS REFER TO DRAWINGS RANGE R/D/00#.
2. FOR ROAD LONGSECTIONS REFER TO DRAWING RANGE R/L/0#.
3. FOR ROAD CROSS-SECTIONS REFER TO DRAWING RANGE R/X/0#.
4. FOR STORM WATER DETAILS REFER TO DRAWING RANGE S/D/0#.

REFERENCE DRAWINGS	
PLAN Nr.	DESCRIPTION

APPROVED: _____ DATE: _____

ENGINEER: _____ DATE: _____

APPROVED: _____ DATE: _____

CLIENT: _____ DATE: _____

PRINT ISSUED ON

Tsela Tsweu
CONSULTING ENGINEERS

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PO Box 2600, Welkom, 9460, South Africa

CLIENT

MAQUASSI HILLS LOCAL MUNICIPALITY

PROJECT

UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND STORMWATER MANAGEMENT IN TSWELELANG EXT.5

IMPLEMENTING AGENT:

MAQUASSI HILLS LM

DRAWING TITLE

PROPOSED NEW ROAD LAYOUT IN TSWELELANG EXT.5

DESIGN	DATE	DRAWN	DATE
	MAY 2024		MAY 2024
SURVEYED	DATE	CHECKED	DATE
		J.BATEMAN	MAY 2024

SCALE 1:1000

DRAWING No.

2024-04-R/P/001

REVISION No.				
1.0				

ROOF SLAB REINFORCEMENT BENDING SCHEDULE



REVISIONS

NOTES

REFERENCE DRAWINGS

APPROVED:

PRINT ISSUED ONPROJECT

IMPLEMENTING AGENT:

DRAWING TITLE

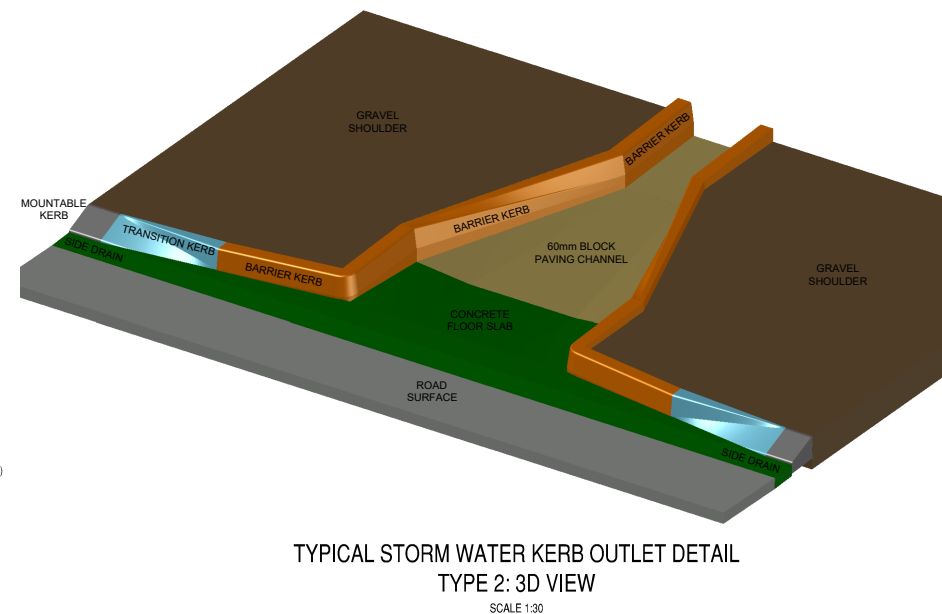
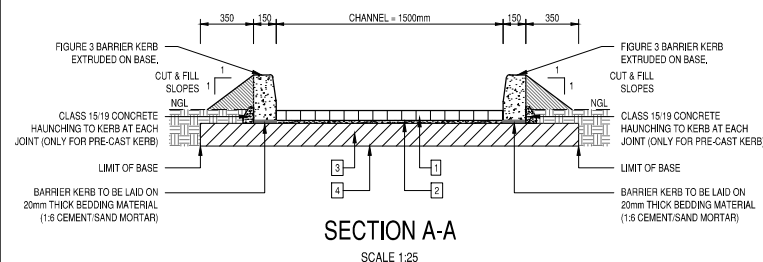
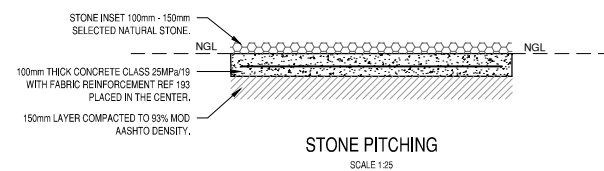
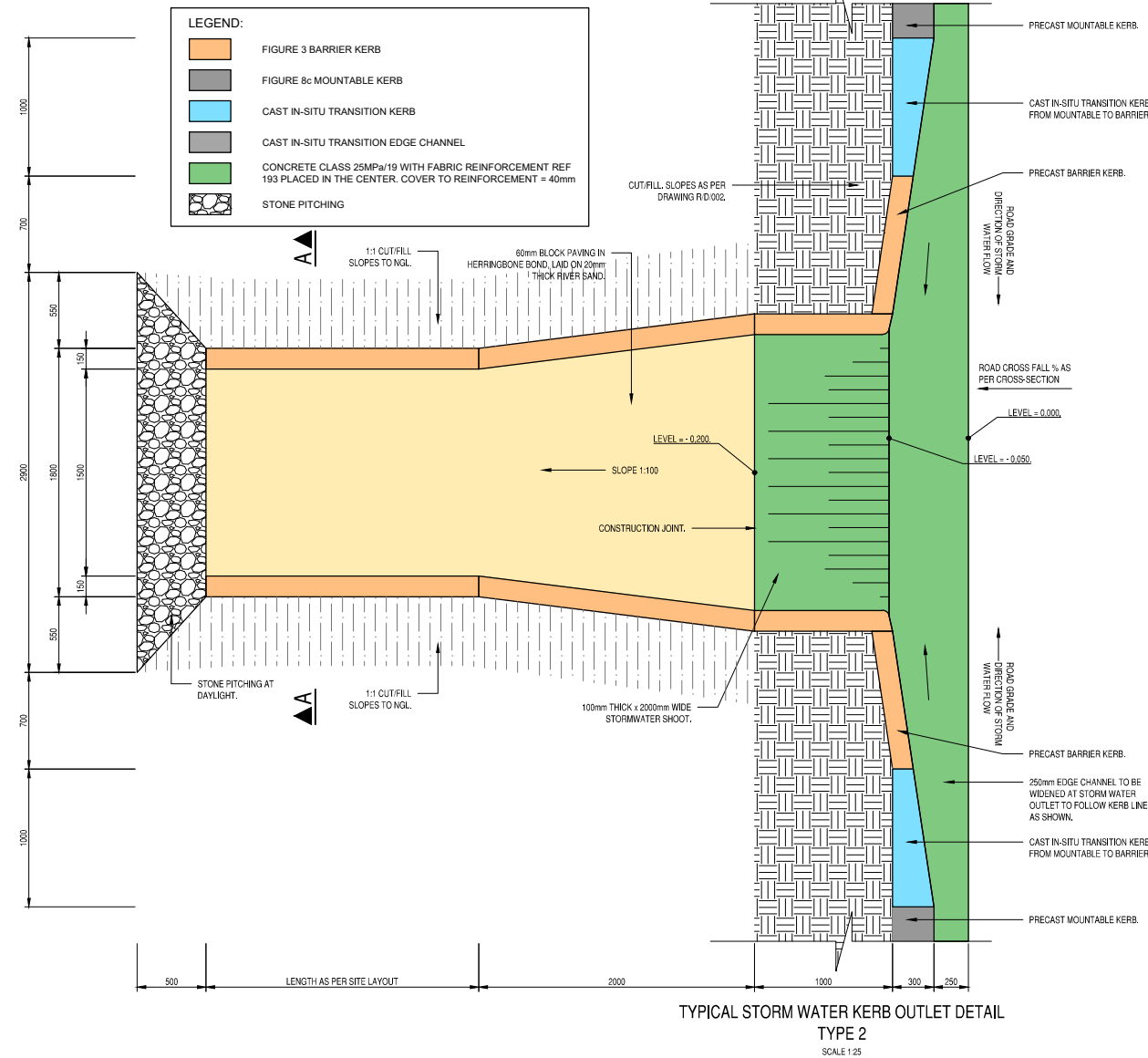
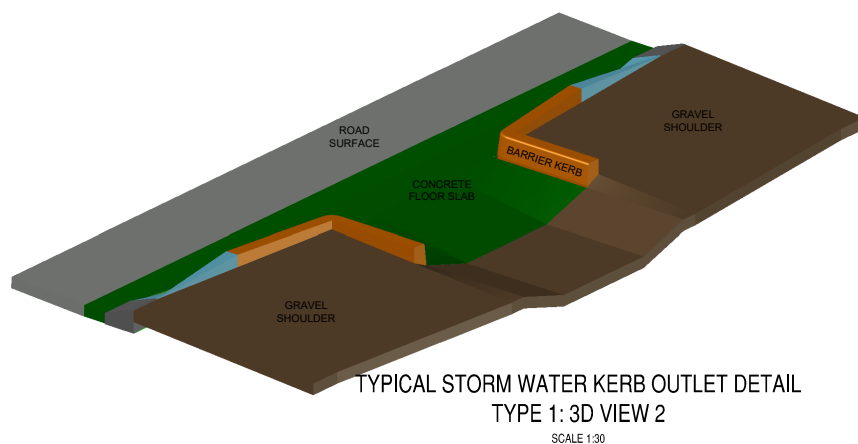
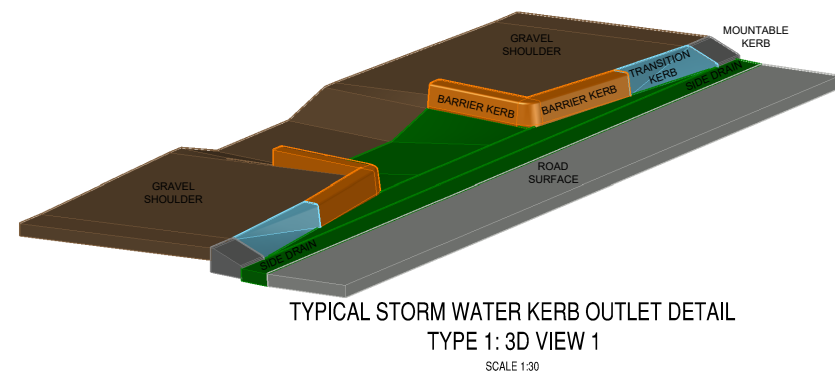
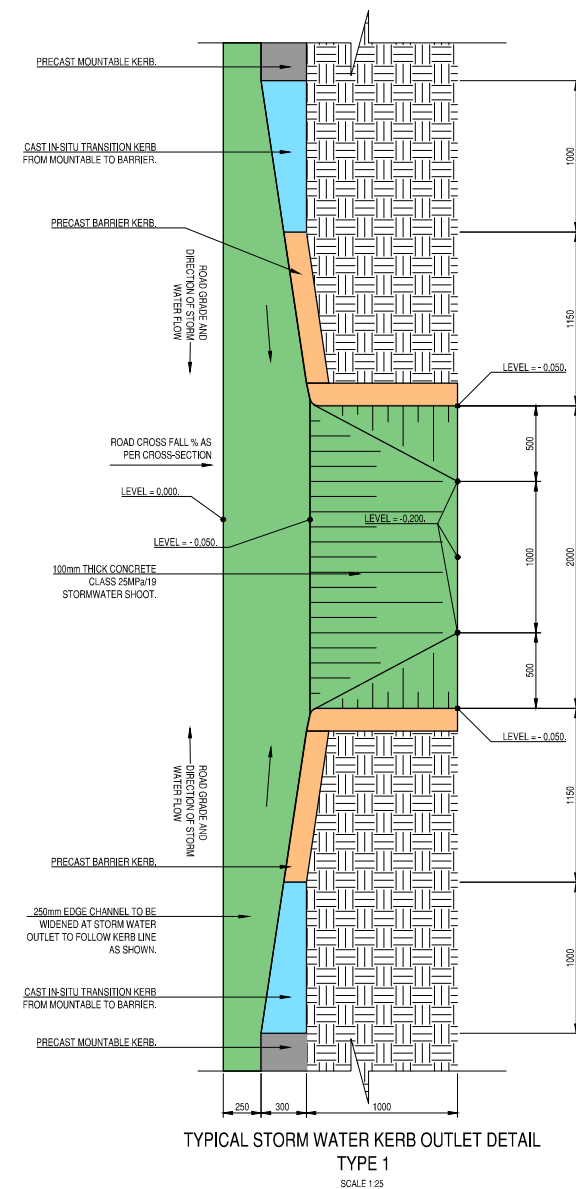
DESIGN

SCALE

DRAWING No.

2024-04-S/D/001

REVISION No. _____



REVISIONS			
No.	DATE	BY	DESCRIPTION

NOTES

1. REFER TO ROAD LAYOUT AND LONGSECTION DRAWINGS FOR POSITIONING AND TYPE OF STORMWATER KERB OUTLETS.

[illegible]

APPROVED: _____

ENGINEER: _____ DATE: _____

APPROVED: _____

CLIENT: _____ DATE: _____

PRINT ISSUED ON _____



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329 Stateway Chambers, Stateway, Welkom,
PO Box 2600, Welkom, 9460, South Africa



CLIENT

**MAQUASSI HILLS
LOCAL MUNICIPALITY**

PROJECT

**UPGRADING OF GRAVEL ROADS
TO BLOCK PAVING AND
STORMWATER MANAGEMENT
IN TSWELELANG EXT.5**

IMPLEMENTING AGENT:
MAQUASSI HILLS LM

DRAWING TITLE

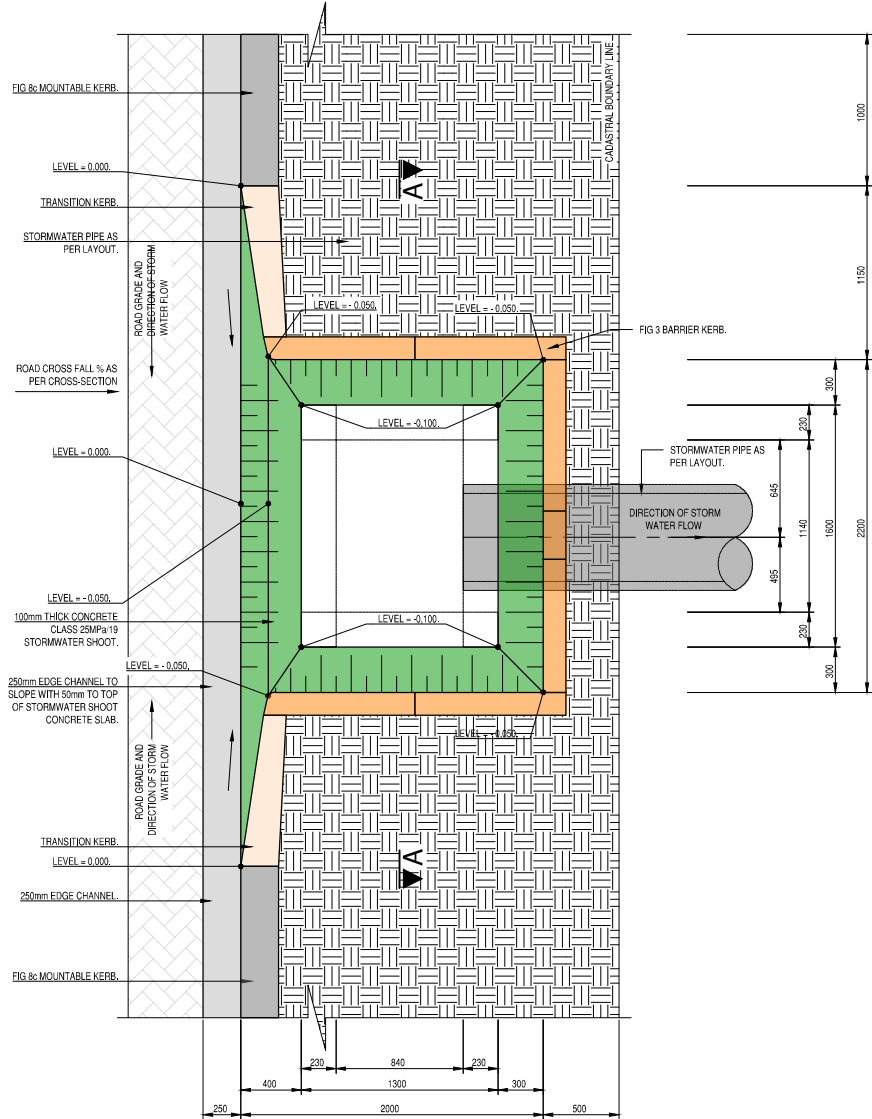
**TYPICAL STORMWATER
KERB OUTLET DETAILS**

DESIGN -	DATE MAY 2024	DRAWN -	DATE MAY 2024
SURVEYED -	DATE -	CHECKED J.BATEMAN	DATE MAY 2024

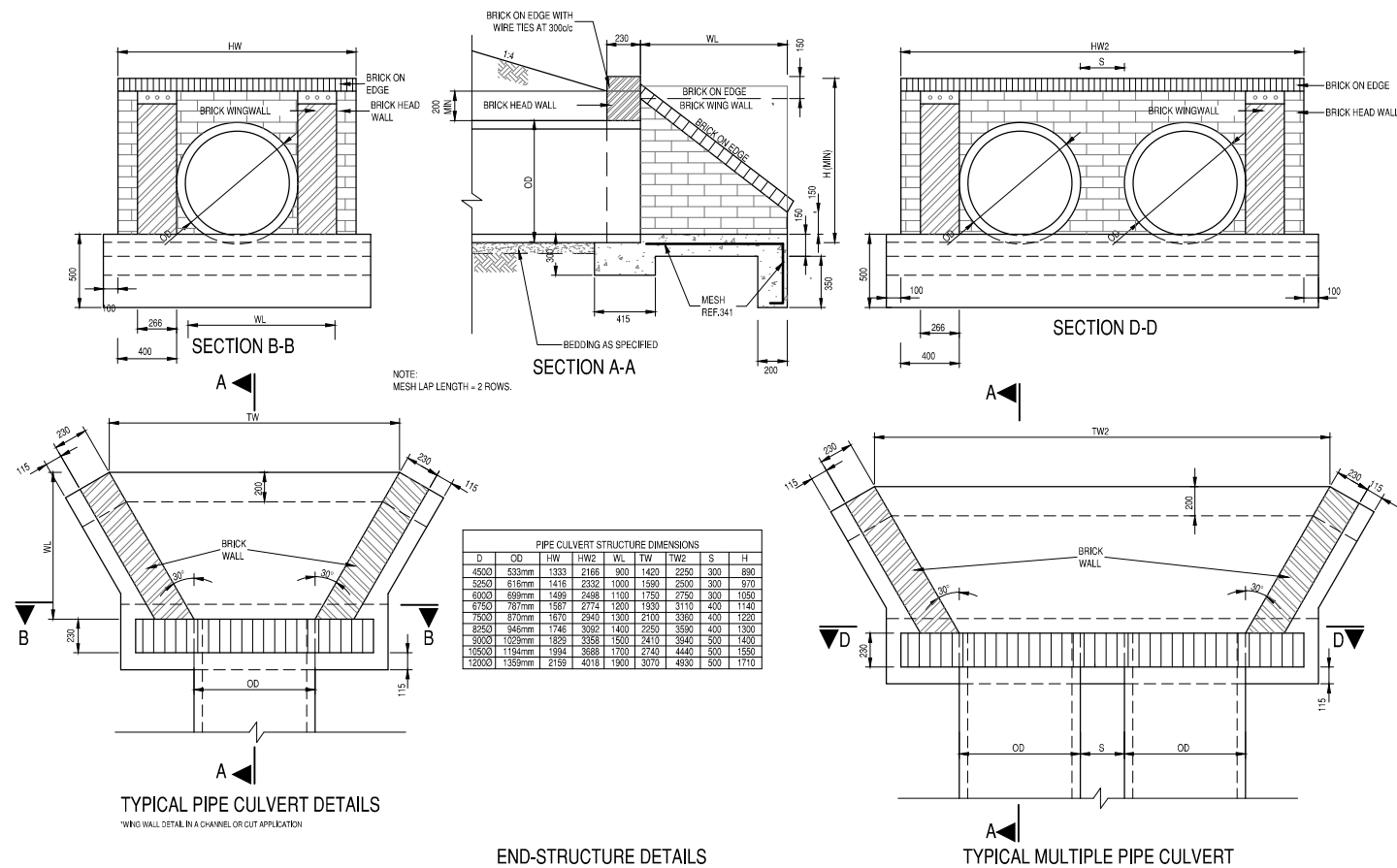
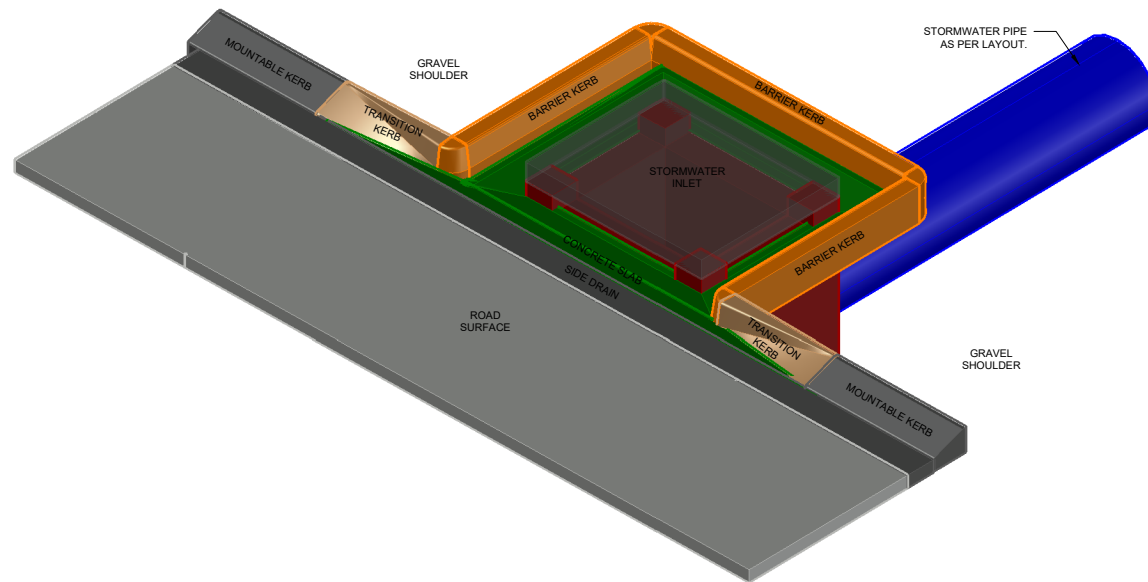
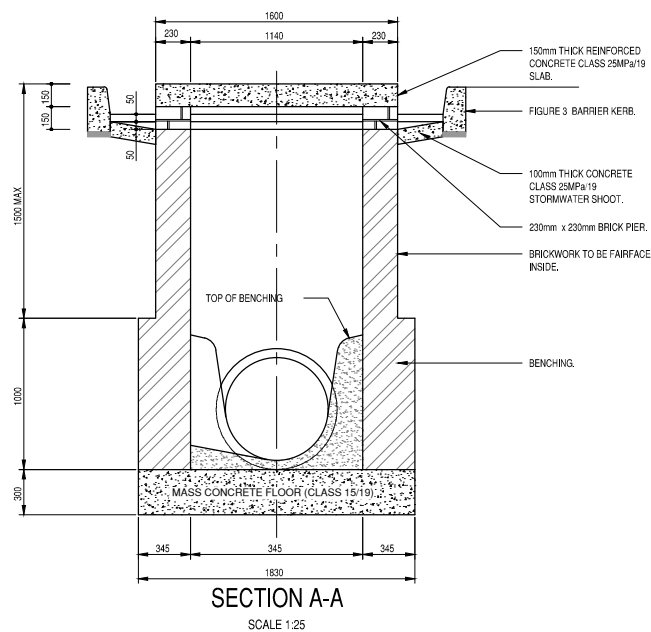
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REVISION No.							
1.0							



TYPICAL STORM WATER KERB OUTLET DETAIL
TYPE 1
SCALE 1:25



REVISIONS

No.	DATE	BY	DESCRIPTION

NOTES

- REFER TO ROAD LAYOUT AND LONGSECTION DRAWINGS FOR POSITIONING OF STORMWATER KERB OUTLETS.

REFERENCE DRAWINGS

PLAN No.	DESCRIPTION

APPROVED:	
ENGINEER:	
APPROVED:	
CLIENT:	

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MAQUASSI HILLS LOCAL MUNICIPALITY

UPGRADING OF GRAVEL ROADS TO BLOCK PAVING AND STORMWATER MANAGEMENT IN TSWELELANG EXT.5

MAQUASSI HILLS LM

TYPICAL STORMWATER KERB OUTLET DETAILS & END-STRUCTURE

DESIGN	DATE	DRAWN	DATE
	MAY 2024		MAY 2024
SURVEYED	DATE	CHECKED	DATE
		J.BATEMAN	MAY 2024

SCALE as shown

DRAWING No. **2024-04-S/D/003**

REVISION No.	
1.0	