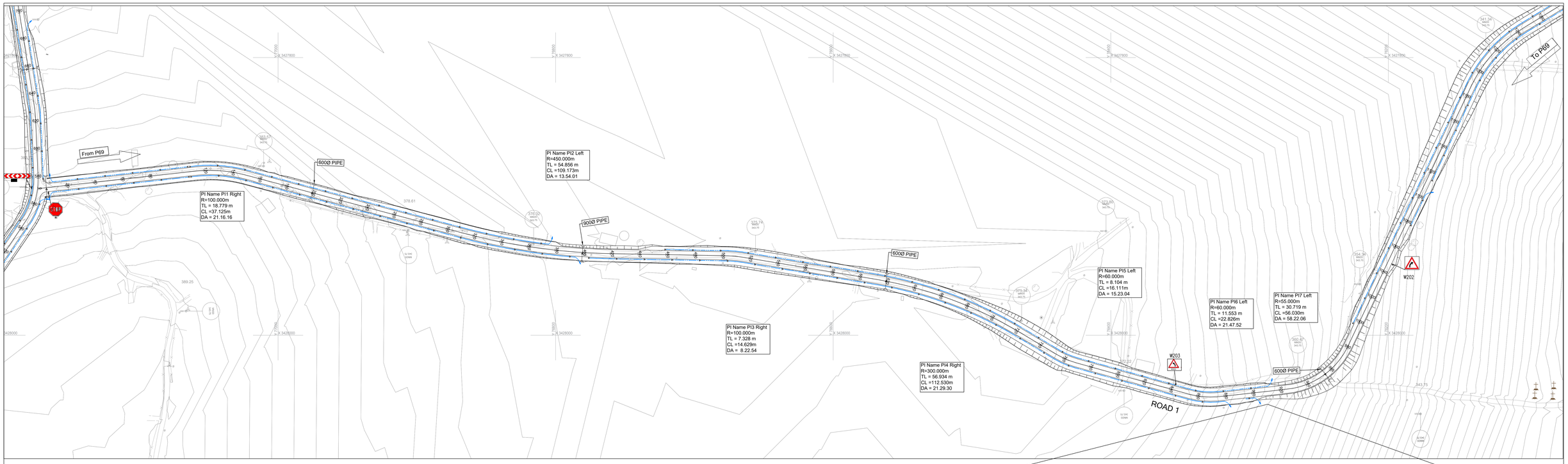
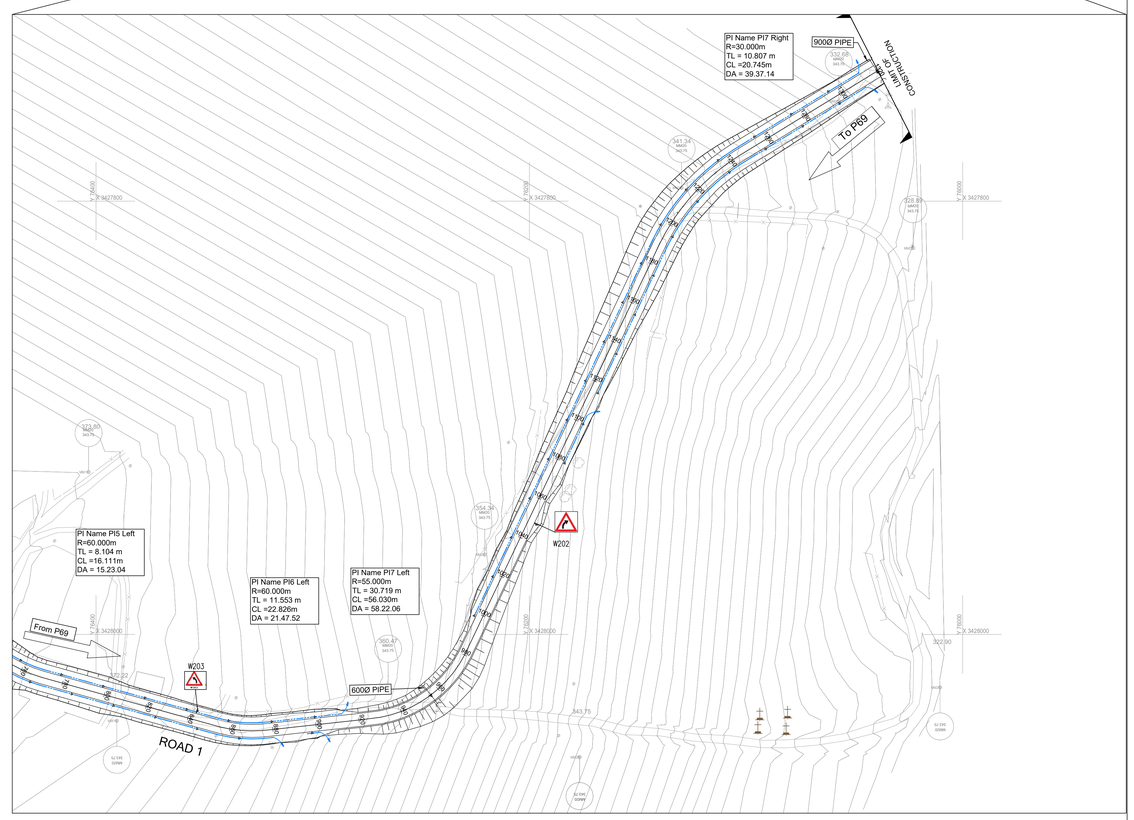


DESIGN SPEED : 40 Km/H



GENERAL NOTES

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. Pipe culverts are to laid in accordance with SD0401 with headwalls as per SD 0402, SD 0403 or SD 0406. Min dia = 450mm for minor access broadband access bell-mouths, and min dia = 600mm for major road cross drainage.
5. Box culverts < 1.8m high are to be constructed in accordance with SD 0404 or SD 0407. Box culverts >1.8m high are to be appropriately designed by a Structural Engineer in Accordance with KZN DOT standards.
6. For erosion control reno mattresses are recommended at culvert inlets and outlets.
7. Earth berms are to be constructed at culvert inlets to direct stormwater into culverts were necessary.
8. Rock bolsters are to be placed across the invert of drains susceptible to erosion for every 2m vertical drop.
9. Grassed/Concrete lined V-drains as per SD 0601/3 & 4 are recommended for shallow cuttings of depth less than 5mm measured at a point 6m from edge of carriageway. Concrete lined 1000 V-drains as per SD 0601/2 are recommended for deep cuttings of depth greater than 5m measured at a point 6m from edge of carriageway.
10. Subsoil drains as per SD 0501 are to be are to be installed with 1000 V-drains or where high water tables are encountered.
11. Kerb and Channel drains as per SD 0701 are to be provided where fill embankments exceed 3m in height, also used in cuts here.
12. Where surface runoff is toward the road, catch - water banks are to be provided to divert stormwater to major cross drainage structures.
13. The positions of accesses are to be determined in consultation with the local community. Daylighting requirements are to be decided by the Engineer on site.Concrete Wedges as per SD 0303 may be used in place of surfaced bell-mouths for accesses serving single residential properties.
14. Guardrails are to be installed in accordance with SD 1101 and SD 1102 where fill embankments exceed 3m height or where hazardous obstructions cannot be removed.
15. Existing road signs, services and fencing affected by construction are to be removed /relocated where necessary.
16. Underground service crossings and markers are to be in accordance with SD 1001-3
17. All new road signs and road marking requirements are to conform to the Southern African Development Community Road Traffic Signs Manual (SADC - RTSM)
18. All work is to be carried out in accordance with COLTO Specifications for Road and Bridge Works for State Road Authorities.
19. All survey and setting out data provided is based on (WGS 84).
20. New fills and exposed cuttings are to be top-soiled and vegetated immediately after Construction to prevent erosion.

NOTATION

BCC : Beginning of circular curve
ECC : End of circular curve
PI : Point of intersection
R : Radius of circular curve
△ : Deflection angle of circular curve
Lc : Length of circular curve
T : Length of curve tangent
BT : Beginning of taper
ET : End of taper

LEGEND

SYMBOL	DESCRIPTION
	PIPE CULVERT AND HEADWALLS
	PIPE CULVERT, HEADWALL AND DROP INLET
	ROAD CENTRE LINE
	2400 GRASS LINED V DRAIN (SD 0601/3)
	CONCRETE V DRAIN (SD 0601/C)
	1000 CONCRETE LINE V DRAIN (SD 0601/2)
	CHUTE (SD 0605/A)
	LIMIT OF CONSTRUCTION
	NEW ROAD RESERVE
	EXISTING ROAD RESERVE
× × × × ×	EXISTING FENCE LINE
	GUARDRAIL
	CHANGE OF SPEED LIMIT

PIPE CROSSING SCHEDULE-ROAD 1

No.	CH Postion	Size (mm)	Pipe Class	Type	Bedding Class	Estimated Length (m)	Skew	Headwall	Drop Inlet	Flow (m^3/s)	Velocity (m/s)	Catchment Area (km^2)
01	100	600	100D	GI	C	17.70	0°	2	0	0.180	1.7	0.026
02	300	600	100D	GI	C	12.50	0°	2	0	0.219	1.5	0.031
03	300	600	100D	GI	C	11.20	0°	2	0	0.358	1.5	0.051
04	400	600	100D	GI	C	16.40	0°	2	0	0.134	1.7	0.019
05	490	900	100D	GI	C	17.70	0°	2	0	0.176	1.5	0.025
06	590	600	100D	GI	C	17.70	0°	2	0	0.128	1.5	0.018
07	690	600	100D	GI	C	28.00	0°	2	0	5.838	1.7	0.840
08	790	600	100D	GI	C	17.70	0°	2	0	0.289	1.5	0.042
09	890	600	100D	GI	C	17.70	0°	2	0	0.142	1.5	0.020
10	980	900	100D	GI	C	28.00	0°	2	0	5.838	1.7	0.840
11	1080	600	100D	GI	C	17.70	0°	2	0	0.289	1.5	0.042
12	1180	600	100D	GI	C	17.70	0°	2	0	0.142	1.5	0.020
13	1280	600	100D	GI	C	28.00	0°	2	0	5.838	1.7	0.840
14	1320	900	100D	GI	C	17.70	0°	2	0	0.289	1.5	0.042

SIDE DRAIN SCHEDULE

LEFT HAND SIDE				RIGHT HAND SIDE			
	TO KM	LENGTH	TYPE	FROM KM	TO KM	LENGTH	TYPE
			ROAD 1				ROAD 1
0.010	0.375	365	2.4m V-Drain	0.010	0.395	385	2.4m V-Drain
0.460	0.910	450	2.4m V-Drain	0.400	0.880	480	2.4m V-Drain
-	-	-	-	0.890	0.900	10	2.4m V-Drain
1.000	1.310	310	2.4m V-Drain	1.080	1.110	20	2.4m V-Drain
-	-	-	-	1.115	1.310	195	2.4m V-Drain
			ROAD 2				ROAD 2
0.060	0.485	425	2.4m V-Drain	0.075	0.090	15	2.4m V-Drain
0.500	0.880	380	2.4m V-Drain	0.150	0.560	410	2.4m V-Drain
-	-	-	-	0.580	0.685	105	2.4m V-Drain
-	-	-	-	0.730	0.740	10	2.4m V-Drain
-	-	-	-	0.750	0.770	20	2.4m V-Drain
-	-	-	-	0.800	0.860	60	2.4m V-Drain
			ROAD 3				ROAD 3
0.005	0.270	265	2.4m V-Drain	0.005	0.250	245	2.4m V-Drain
0.370	0.660	290	2.4m V-Drain	0.420	0.680	260	2.4m V-Drain
-	-	-	-	0.715	0.720	5	2.4m V-Drain
0.730	0.740	10	2.4m V-Drain	0.740	0.770	30	2.4m V-Drain
0.790	1.240	450	2.4m V-Drain	0.800	1.240	440	2.4m V-Drain

Road 1 Vertical Curve Data
==========

	Chainage	Elevation	VC Len	K Val	Grade
Start	0.000	382.902			0.0000
BVC1	10.000	382.902			
VPI1	20.000	382.902	20.000	6.901	2.8980
EVC1	30.000	383.192			
BVC2	45.000	383.626			
VPI2	120.000	385.800	150.000	19.921	-4.6316
EVC2	195.000	382.326			
BVC3	230.000	380.705			
VPI3	310.000	377.000	160.000	44.060	-1.0002
EVC3	390.000	376.200			
BVC4	770.000	372.399			
VPI4	820.000	371.899	100.000	12.058	-9.2935
EVC4	870.000	367.252			
BVC5	993.694	355.757			
VPI5	1043.694	351.110	100.000	53.165	-7.4126
EVC5	1093.694	347.404			
End	1320.036	330.626			

Road 1 Horizontal Data

Name	Chainage	Radius	Y-Coord	X-Coord
Start	0	0	77174.067	3427894.501
BC1	10.679	0	77163.445	3427895.607
PI1	0	30	77159.853	3427895.981
EC1	17.867	0	77156.275	3427895.491
BC2	109.798	0	77065.192	3427883.036
PI2	0	100	77041.442	3427879.788
EC2	156.852	0	77018.8	3427887.661
BC3	201.87	0	76976.279	3427902.447
PI3	0	450	76949.434	3427911.782
EC3	258.638	0	76921.627	3427917.664
BC4	324.641	0	76857.054	3427931.326
PI4	0	450	76815.042	3427940.214
EC4	410.266	0	76772.107	3427940.996
BC5	504.248	0	76678.14	3427942.708
PI5	0	100	76670.814	3427942.842
EC5	518.877	0	76663.585	3427944.042
BC6	660.034	0	76524.334	3427967.158
PI6	0	55	76514.034	3427968.868
EC6	680.671	0	76505.077	3427974.233
BC7	731.631	0	76461.361	3428000.421
PI7	0	250	76432.382	3428017.78
EC7	798.785	0	76399.836	3428026.827
BC8	849.013	0	76351.442	3428040.277
PI8	0	100	76332.89	3428045.434
EC8	887.058	0	76313.75	3428043.332
BC9	928.325	0	76272.729	3428038.829
PI9	0	55	76242.194	3428035.477
EC9	984.355	0	76229.034	3428007.72
BC10	1183.936	0	76143.532	3427827.381
PI10	0	100	76127.727	3427794.045
EC10	1254.625	0	76094.057	3427778.961
BC11	1275.191	0	76075.289	3427770.553
PI11	0	80	76057.408	3427762.543
EC11	1313.62	0	76045.253	3427747.176
End	1322.631	0	76039.663	3427740.109

SIGN POSTING SCHEDULE

Ntshobela

Left Hand Side		Right Hand Side		Size	Note
m Distance	Sign	mDistance	Sign	mm	
Road 1					
0+000m	W409			675x450	New
0+030m	W409			675x450	New
0+840m	W203			900 (S)	New
0+960m	W409			675x450	New
		1+050m	W202	900 (S)	New
1+220m	W409			675x450	New
Road 2					
0+100m	W409			675x450	New
0+570m	W409			675x450	New
Road 3					
0+165m	W203			900 (S)	New
		0+330m	W409	675x450	New
		0+380m	W202	900 (S)	New
0+420m	W203			900 (S)	New

R1 at all unspecified access roads

CONCEPT DESIGN

Description	Checked	Signed
AMENDMENTS		

TENDER DRAWINGS

Supervising Engineer ..... Date .....

Supervising Authority .....

CAD File Ref:-

File Ref:-

Designed by : S. SAROOP
Checked by : J. KUNZE
Drawn by : S. SAROOP
Checked by : J. KUNZE

RAY NKONYENI LOCAL MUNICIPALITY
PO Box 5
Port Shepstone
4240

Designed by :

PO BOX 1575
WESTVILLE
3630

Signature: Date

Ipa Consulting cc
TEL No. 031-765 1907
FAX No. 031-765 2551

---------- Engineer

---------- Head: Municipality

PROJECT: MANDLA MZELEMU: UPGRADING OF PORTION FROM Km 0.000 TO Km 1.320

STAKED KM DISTANCE: Km 0.00 to Km 1.32

SHEET: 1 Of: 4

DRAWING DESCRIPTION: ROAD 1 GEOMETRICS & SERVICES PLAN

ROAD NAME : LOCAL ROAD MANDLA MZELEMU

PROJECT No: 8/2/RNM0451

SCALE: 1 : 1000

PLAN No: 321-CW-02