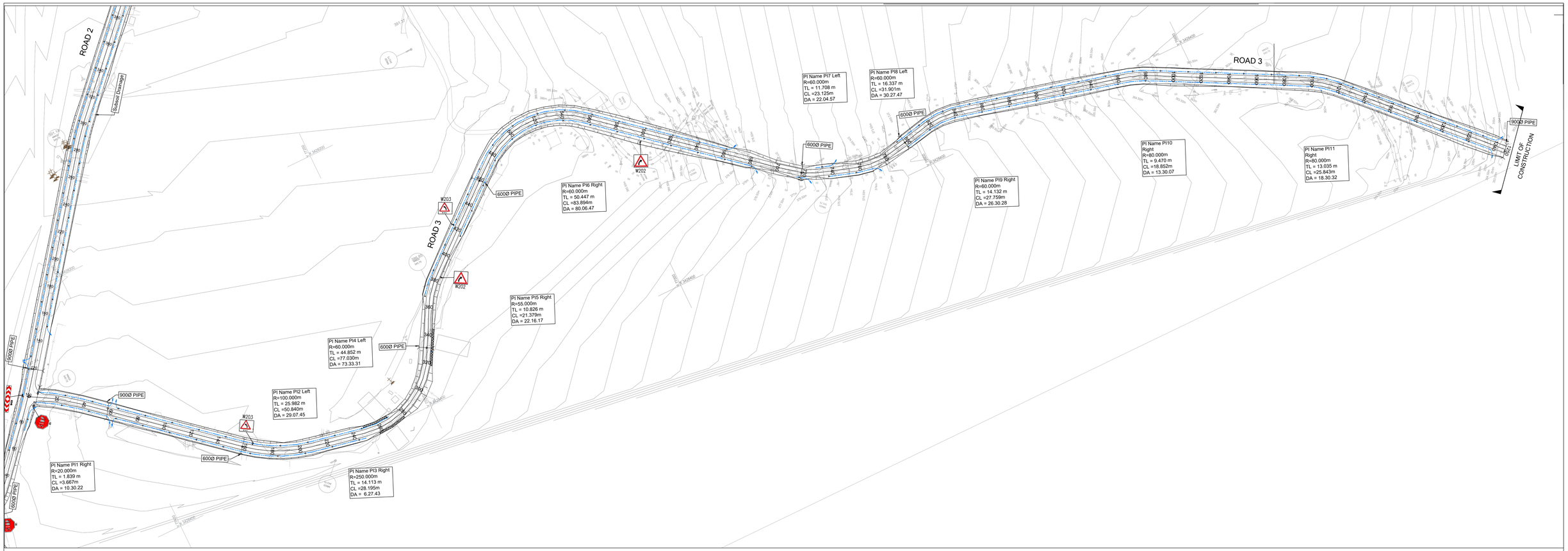

DESIGN SPEED : 40 Km/H

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

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

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.

PIPE CROSSING SCHEDULE-ROAD 3

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	900	100D	GI	C	17.70	0°	2	0	0.180	1.7	0.026
02	200	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	500	600	100D	GI	C	17.70	0°	2	0	0.176	1.5	0.025
06	600	600	100D	GI	C	17.70	0°	2	0	0.128	1.5	0.018
07	700	600	100D	GI	C	28.00	0°	2	0	5.838	1.7	0.840
08	840	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

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					

Road 3 Horizontal Data

Name	Chainage	Radius	Y-Coord	X-Coord
Start	0	0	77459.386	3428267.492
BC1	24.405	0	77438.254	3428279.699
PI1	0	20	77436.662	3428280.619
EC1	28.072	0	77435.264	3428281.814
BC2	159.809	0	77335.121	3428367.405
PI2	0	100	77315.37	3428384.286
EC2	210.649	0	77289.899	3428389.418
BC3	249.768	0	77251.551	3428397.144
PI3	0	60	77207.583	3428406.002
EC3	326.798	0	77186.642	3428366.339
BC4	362.572	0	77169.94	3428334.703
PI4	0	55	77164.885	3428325.13
EC4	383.951	0	77156.579	3428318.186
BC5	473.937	0	77087.541	3428260.469
PI5	0	60	77048.838	3428228.112
EC5	557.831	0	77010.317	3428260.685
BC6	710.719	0	76893.57	3428359.402
PI6	0	60	76884.63	3428366.961
EC6	733.844	0	76873.504	3428370.605
BC7	757.647	0	76850.883	3428378.014
PI7	0	60	76835.358	3428383.098
EC7	789.548	0	76819.397	3428379.61
BC8	817.217	0	76792.307	3428373.702
PI8	0	60	76778.56	3428370.685
EC8	844.976	0	76764.858	3428374.147
BC9	965.577	0	76647.932	3428403.689
PI9	0	80	76638.75	3428406.008
EC9	984.429	0	76630.364	3428410.408
BC10	1096.241	0	76531.349	3428462.35
PI10	0	80	76519.805	3428468.406
EC10	1122.084	0	76510.782	3428477.813
End	1249.934	0	76422.276	3428570.075

Road 3 Vertical Curve Data

	Chainage	Elevation	VC Len	K Val	Grade
Start	0.000	387.643			-5.2215
BVC1	19.852	386.606			
VPI1	49.852	385.040	60.000	9.644	1.0001
EVC1	79.852	385.340			
BVC2	294.521	387.487			
VPI2	519.521	389.737	450.000	64.483	-5.9785
EVC2	744.521	376.285			
BVC3	867.004	368.963			
VPI3	942.004	364.479	150.000	35.804	-1.7890
EVC3	1017.004	363.137			
BVC4	1106.420	361.538			
VPI4	1156.420	360.643	100.000	16.162	-7.9763
EVC4	1206.420	356.655			
End	1249.934	353.184			

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: _____

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

Date _____

---------- Engineer

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

PROJECT: MANDLA MZELEMU: UPGRADING OF PORTION FROM Km 0.000 TO Km 1.250

STAKED KM DISTANCE: Km 0.00 to Km 1.25

SHEET: 4 Of: 4

DRAWING DESCRIPTION: ROAD 3 GEOMETRICS & SERVICES PLAN

ROAD NAME : LOCAL ROAD MANDLA MZELEMU

PROJECT No: 8/2/RNM0451

SCALE: 1 : 1000

PLAN No: 321-CW-04