

VOLUME 1



SENQU LOCAL MUNICIPALITY

TECHNICAL SERVICES

PROJECT NO.

FOR

**REPAIRING OF 5.2 KM GRAVEL ROADS AND
STORMWATER CHANNELS IN Ndofela, Bikizana
and Mbobo (Ward 1)**

VOLUME 1

TENDER DRAWINGS

FEBRUARY 2025

DRAWINGS COMPILED FOR:

THE MUNICIPAL MANAGER

SENQU LOCAL MUNICIPALITY
19 Murray Street
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DRAWINGS COMPILED BY:

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DRAWING LIST

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CLIENT:



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Email: pmo@thewo.co.za

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Y.P

CHECKED BY:

M.N

APPROVED BY:

Z.D

REVISIONS

REV	DATE	DESCRIPTION	BY
0	2025-02-23	ISSUED FOR TENDER	L.M.

PROJECT NAME

REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN NDOFELA, BIKIZANA AND MBOBO (WARD 1)

TITLE

DRAWING LIST

PROJECT STATUS:

TENDER

DATE	SCALE	SHEET	REV	A1
2025-02-23	N.T.S.	1 OF 1	0	A1

DWG NO

P-SM01-PMO-GR-W1-T-0

LEGEND

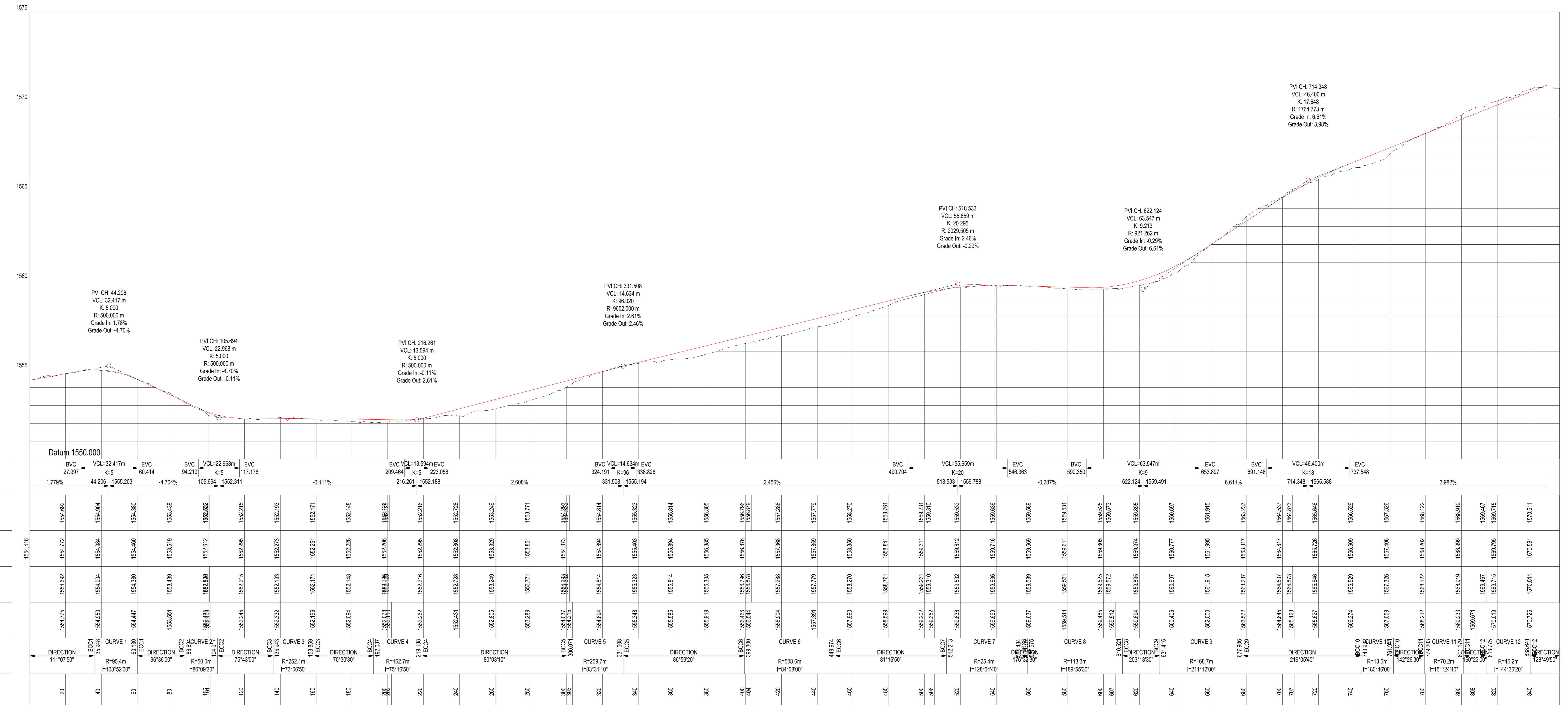
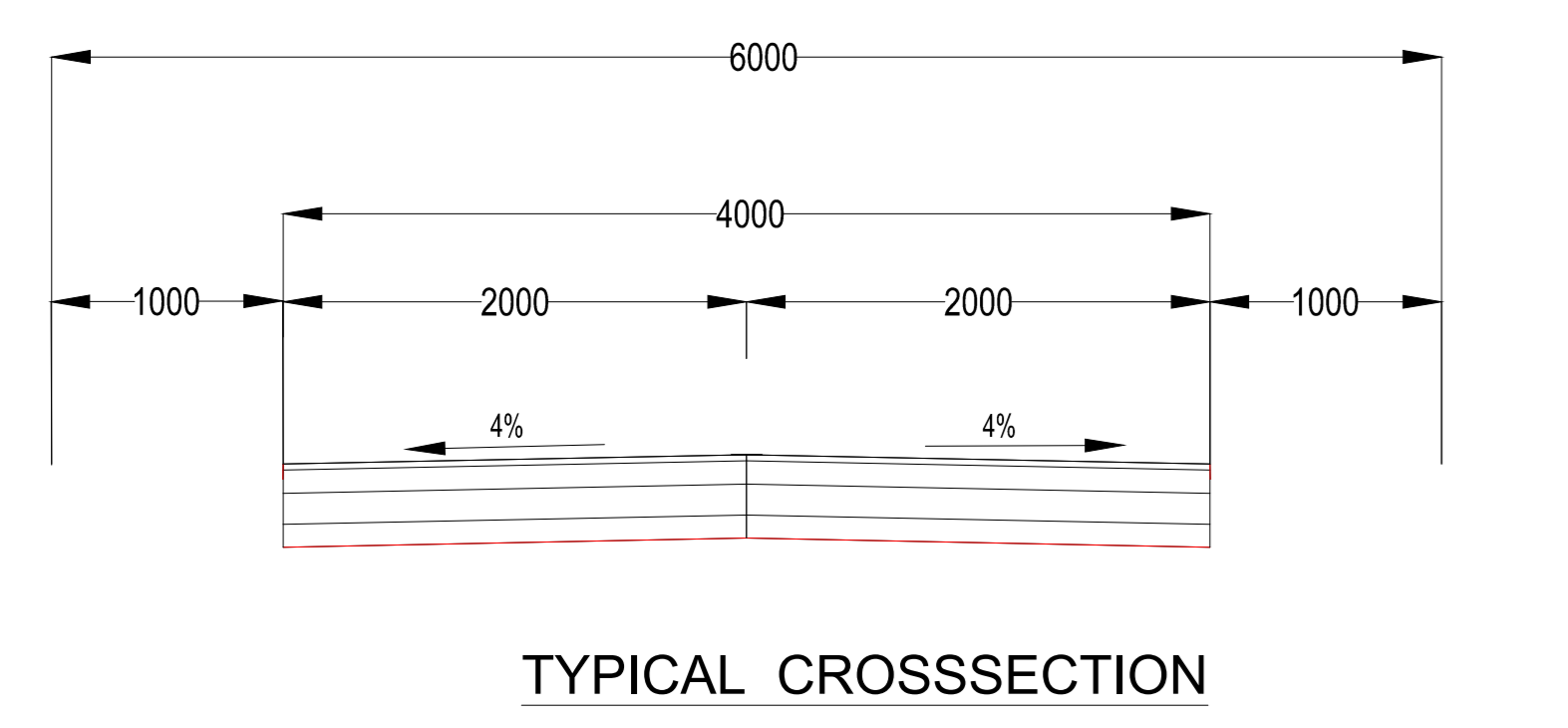
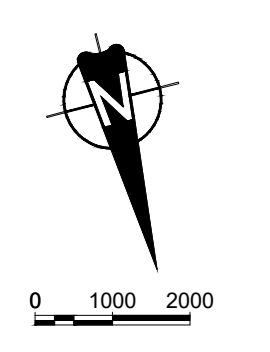
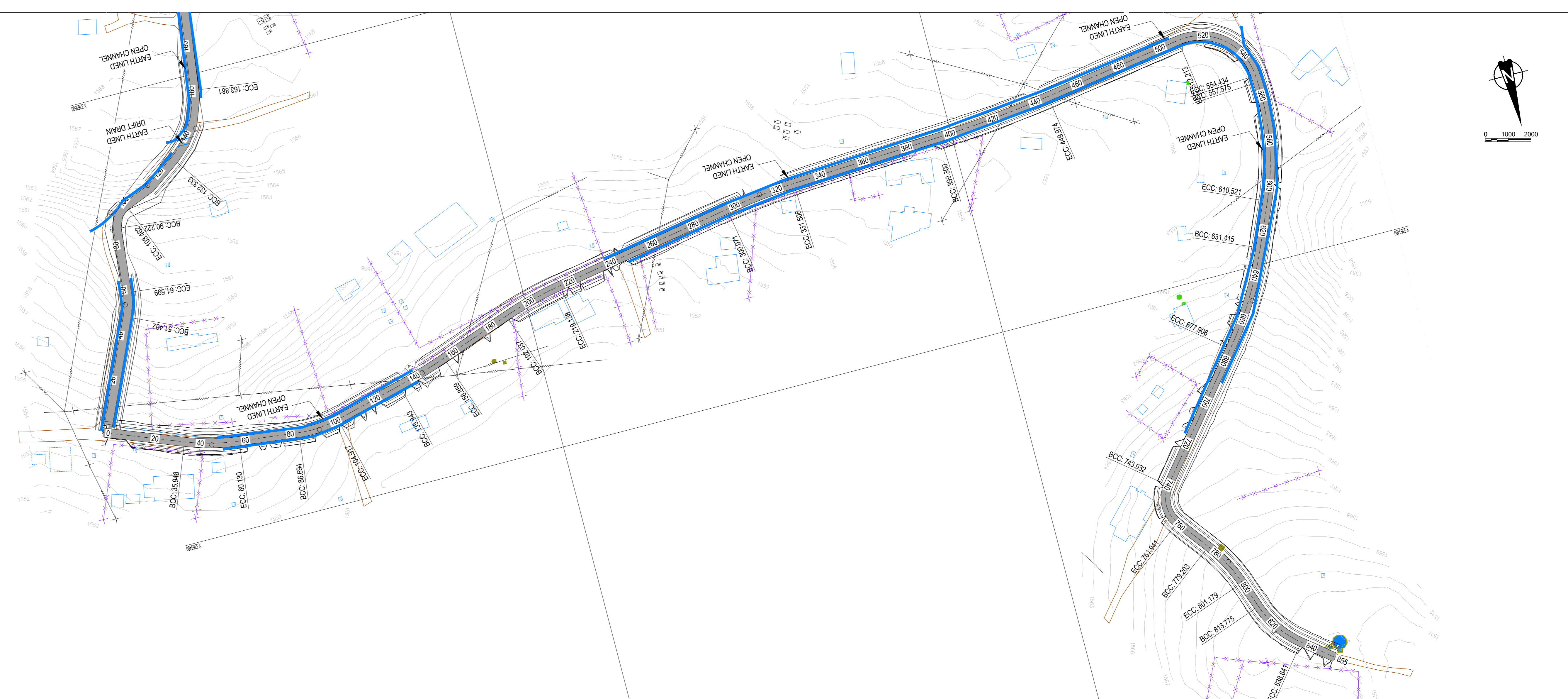
- CENTRELINE
- ESKOMTELKOM POLE
- EXISTING POWER LINE
- ROAD CROSS FALL
- FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

- BM44 -38824.39 3384291.20 1659.18
- BM45 -38788.72 3384311.84 1666.44
- BM46 -38987.31 3384152.35 1670.73
- BM47 -39151.79 3384292.79 1672.35
- V01 -38952.48 3384294.20 1657.86



VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade	BVC	VCL	EVC	Grade
27.997	32.417	60.414	1.779%	105.694	117.178	1552.215	-4.704%	206.464	223.058	1552.188	-0.111%	331.508	338.826	1555.194	2.456%	490.704	518.533	1559.788	-0.287%	590.350	653.897	1565.588	6.611%	691.148	737.548	1570.911	3.982%				

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CONSULTANT: THEWO & SMMS - JV. 58 Brestner Road, Westdene, Ekurhuleni 6301.

PROFESSIONAL ENGINEER: L. MARAH. PROF. Reg.No: 920281. DATE: SIGNATURE:

DESIGN BY: R DHLIWAYO. DRAWN BY: R DHLIWAYO. CHECKED BY: L. MARAH. APPROVED BY: L. MARAH.

REV	DATE	DESCRIPTION	BY

PROJECT NAME: REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN N dofela, Bikizana and Mboho (Ward 1)

TITLE: NDOFELA ROAD 1 LONGSECTION

PROJECT STATUS: FOR TENDER

DATE: 2025-02-21	SCALE: N.T.S.	SHEET: 1 OF 1	REV: 0	A1
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DWG NO: P-SM01-PMO-GR-ND-T-01

LEGEND

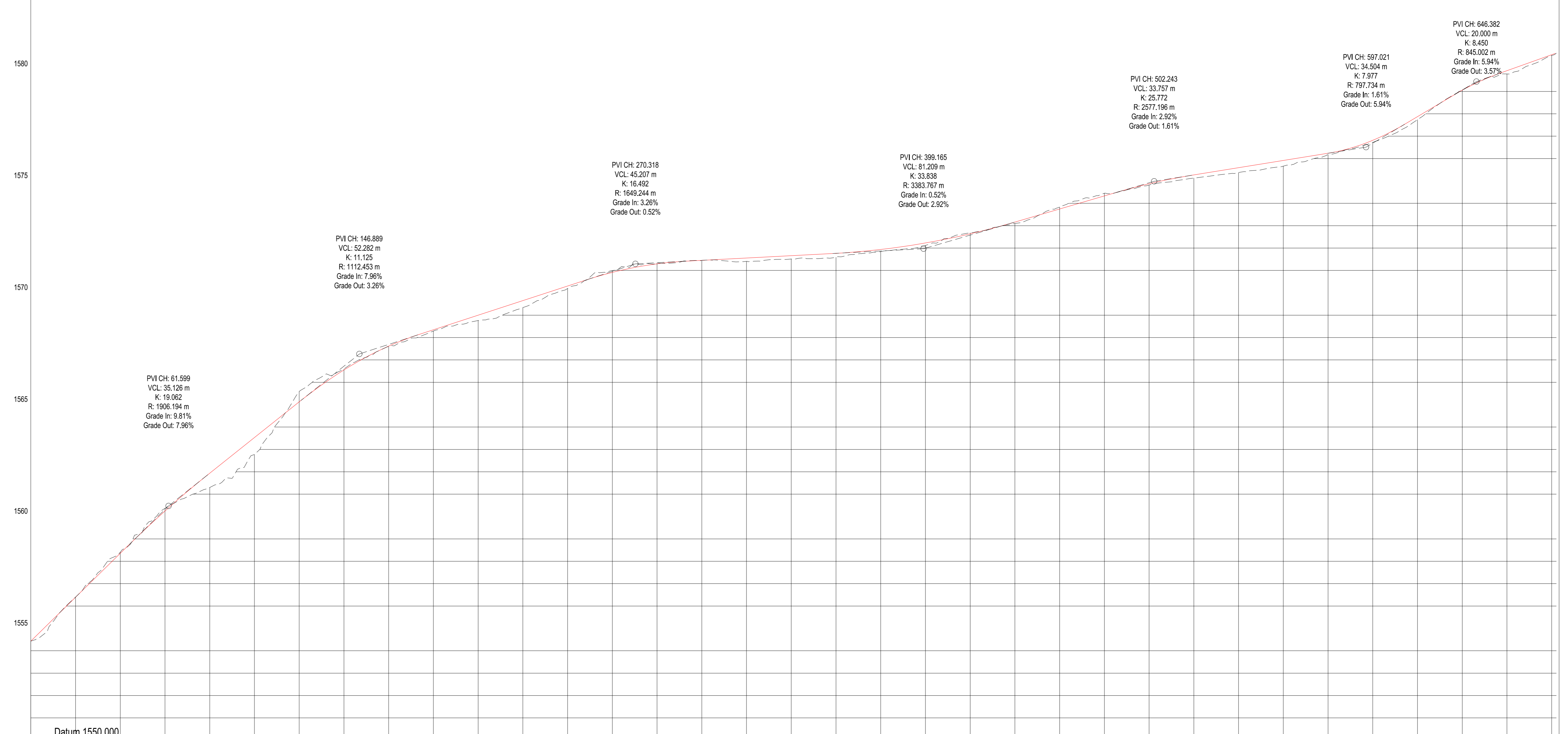
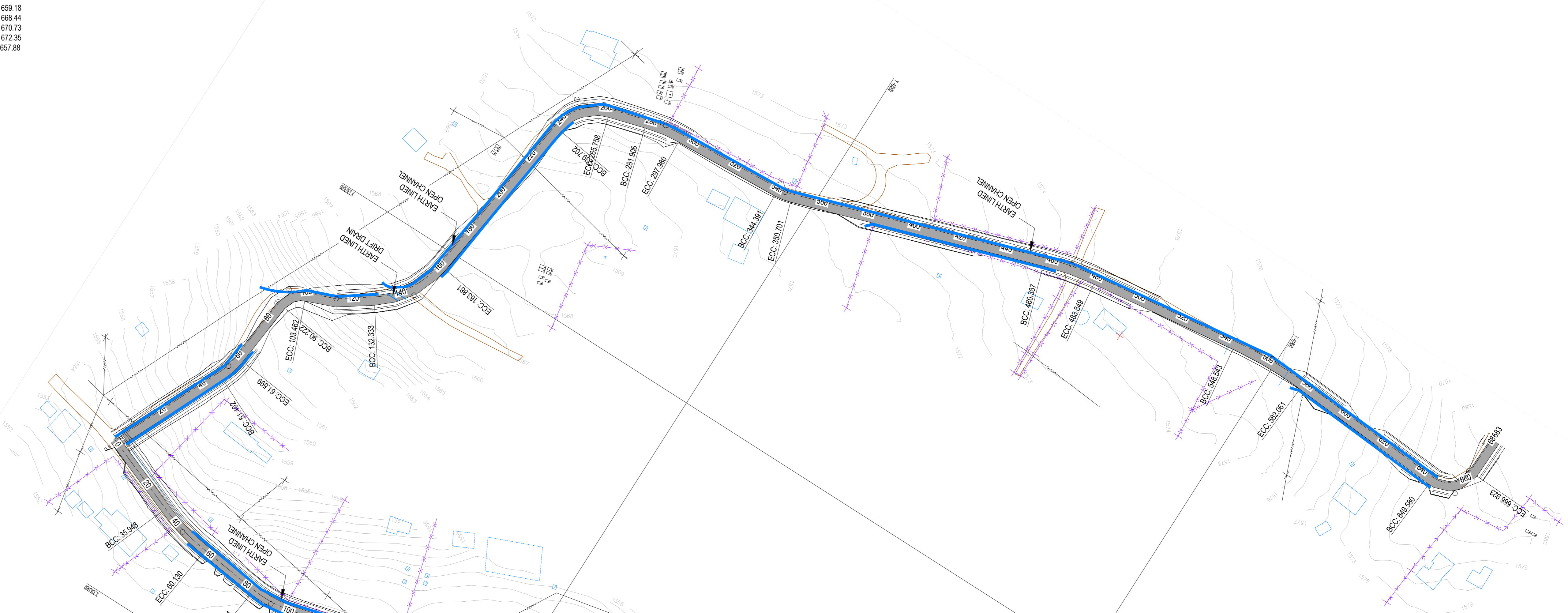
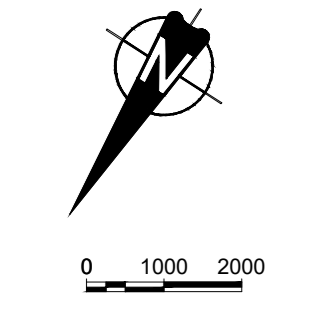
- CENTRELINE
- ⊙ ESKOMTELKOM POLE
- EXISTING POWER LINE
- 4% ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

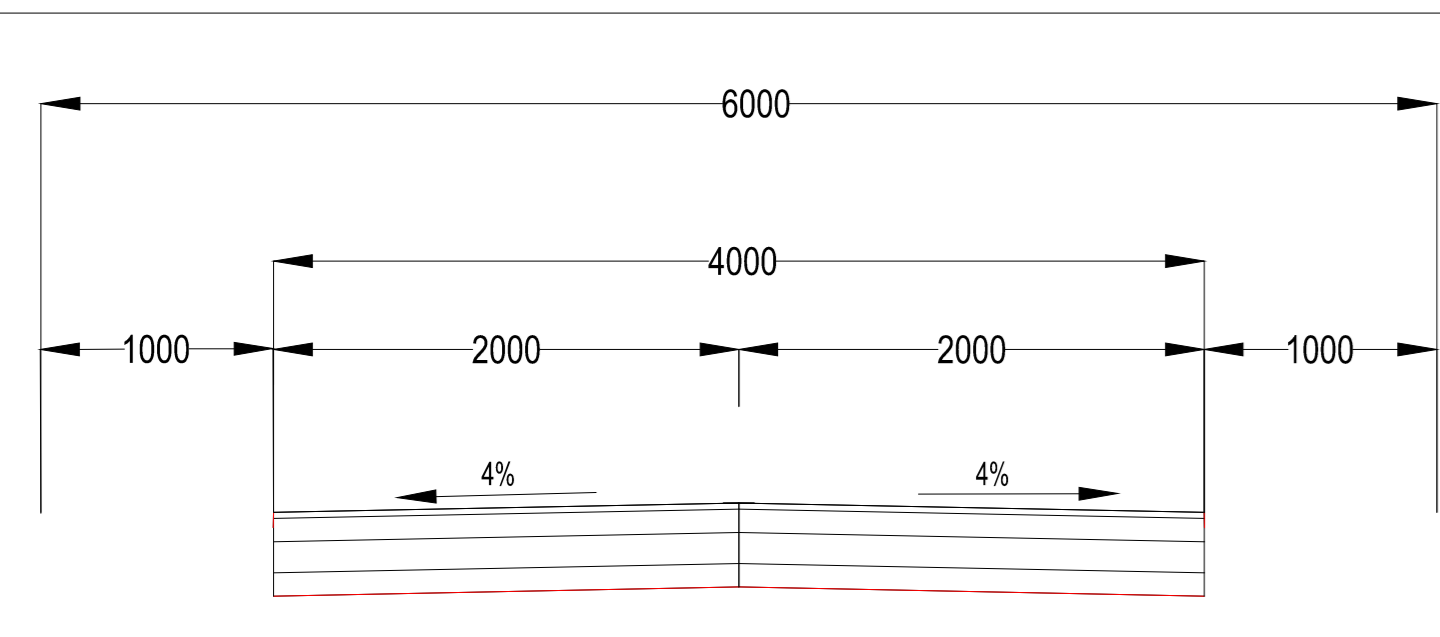
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COORDINATE LIST


- BM44 -38624.35 3384291.20 1659.18
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- BM46 -38887.31 3384152.35 1670.73
- BM47 -39151.79 3384029.79 1672.35
- V01 -38662.46 3384294.20 1657.86





VERTICAL PROFILE GRADES		BVC	VCL=35.128m	EVC	BVC	VCL=52.282m	EVC	BVC	VCL=45.207m	EVC	BVC	VCL=81.209m	EVC	BVC	VCL=33.757m	EVC	BVC	VCL=34.504m	EVC	BVC	VCL=20.000m	EVC																													
		44.036	1360.473	120.748	120.748	173.030	247.714	247.714	292.921	358.561	358.561	439.770	439.770	485.364	519.121	519.121	579.769	614.273	614.273	656.382	656.382																														
		9.807%	61.59%	1360.473	7.964%	148.88%	1567.26%	3.264%	270.31%	1571.29%	0.523%	396.16%	1571.96%	2.622%	502.24%	1574.98%	1.613%	597.02%	1576.51%	5.938%	646.38%	1579.44%	3.572%																												
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1556.449	1556.394	1556.310	1556.205	1556.084	1555.946	1555.792	1555.624	1555.444	1555.252	1555.048	1554.832	1554.604	1554.364	1554.112	1553.848	1553.576	1553.296	1553.008	1552.712	1552.408	1552.096	1551.776																											
	CENTRE LINE (CL)	1556.401	1556.349	1556.265	1556.150	1556.012	1555.850	1555.674	1555.482	1555.274	1555.050	1554.812	1554.560	1554.292	1554.008	1553.712	1553.404	1553.080	1552.740	1552.384	1552.012	1551.624	1551.224	1550.812	1550.388																										
	RIGHT EDGE (HR)	1556.459	1556.408	1556.310	1556.205	1556.084	1555.946	1555.792	1555.624	1555.444	1555.252	1555.048	1554.832	1554.604	1554.364	1554.112	1553.848	1553.576	1553.296	1553.008	1552.712	1552.408	1552.096	1551.776	1551.456																										
GROUND LEVELS ON CL		1556.401	1556.408	1556.310	1556.205	1556.084	1555.946	1555.792	1555.624	1555.444	1555.252	1555.048	1554.832	1554.604	1554.364	1554.112	1553.848	1553.576	1553.296	1553.008	1552.712	1552.408	1552.096	1551.776	1551.456																										
HORIZONTAL ALIGNMENT		DIRECTION 24°29'10"		DIRECTION 15°04'48"		DIRECTION 5°43'00"		DIRECTION 12°28'57"		DIRECTION 34°50'30"		DIRECTION 12°33'		DIRECTION 7°13'10"		DIRECTION 86°39'30"		DIRECTION 71°37'00"		DIRECTION 82°31'30"		DIRECTION 93°51'00"		DIRECTION 10°10'00"																											
DISTANCE (m)		20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000



TYPICAL CROSSSECTION

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CONSULTANT:  THEWO & SMMS - JV. 58 Brebner Road, Westdene, Bloemfontein 9301.  Sigodi Marah Martin, Management Support, Development & Engineering Consultants.

PROFESSIONAL ENGINEER: L. MARAH. PROF. Reg.No: 920281. DATE: SIGNATURE:

DESIGN BY: R.DHLIWAYO. DRAWN BY: R.DHLIWAYO. CHECKED BY: L. MARAH. APPROVED BY: L. MARAH.

REVISIONS

REV	DATE	DESCRIPTION	BY

PROJECT NAME: **REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefela, Bikizana and Mboho (Ward 1)**

TITLE: **NDOFELA ROAD 2 LONGSECTION**

PROJECT STATUS: **FOR TENDER**

DATE: 2025-02-21	SCALE: N.T.S	SHEET: 1 OF 1	REV: 0	A1
DWG NO: P-SM01-PMO-GR-ND-T-02				

LEGEND

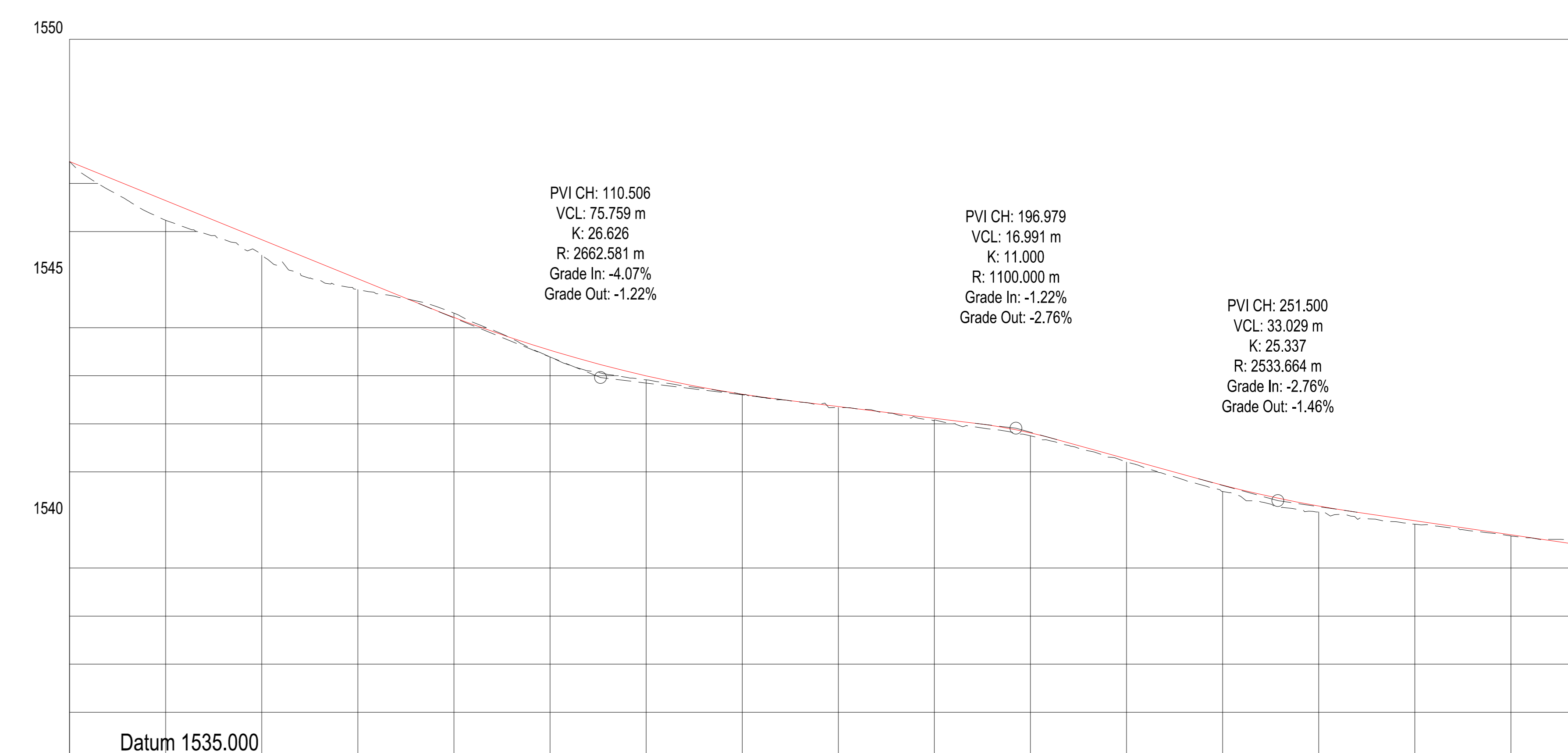
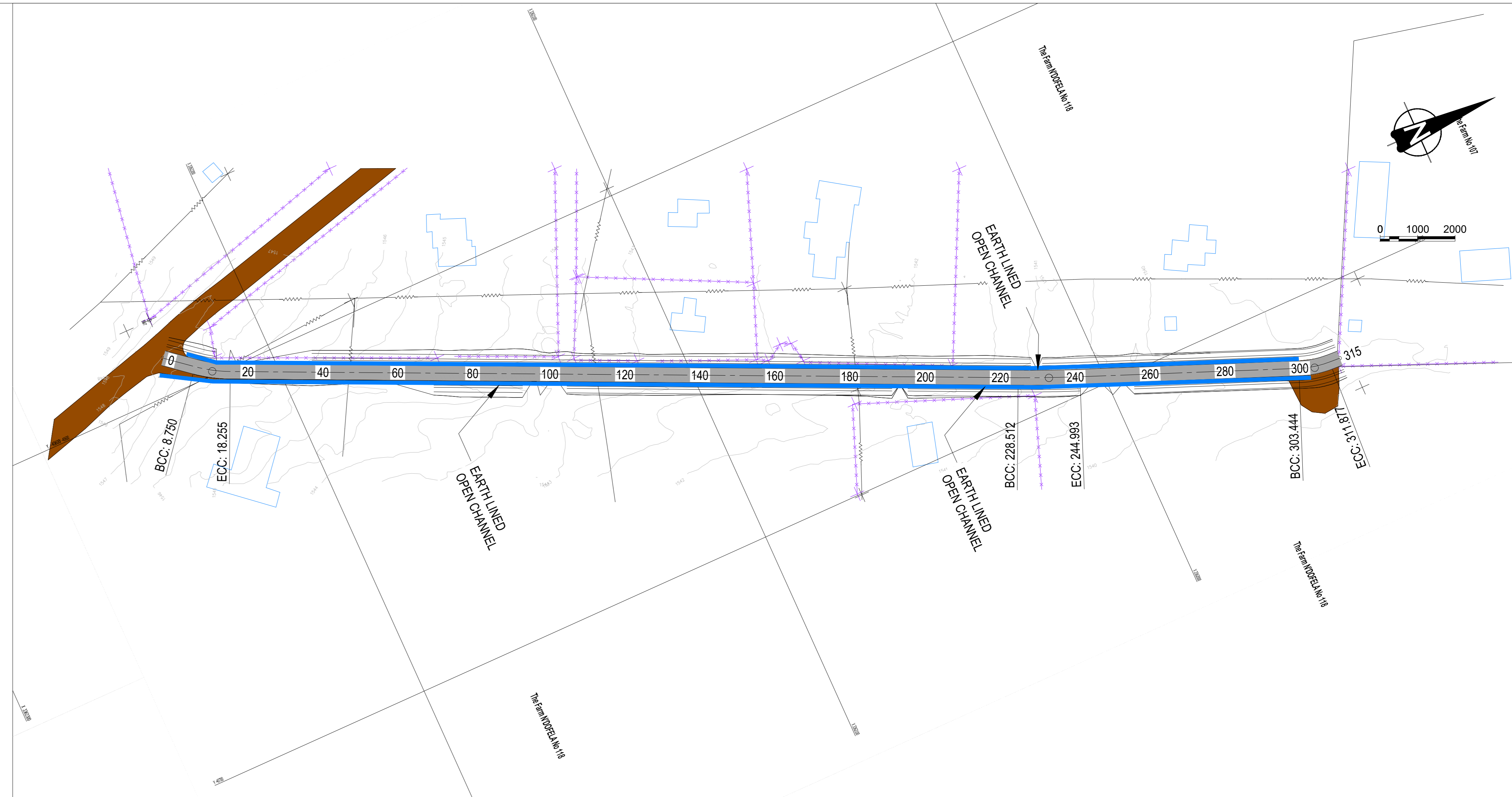
- CENTRELINE
- ESKOMTELKOM POLE
- EXISTING POWER LINE
- ROAD CROSS FALL
- FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

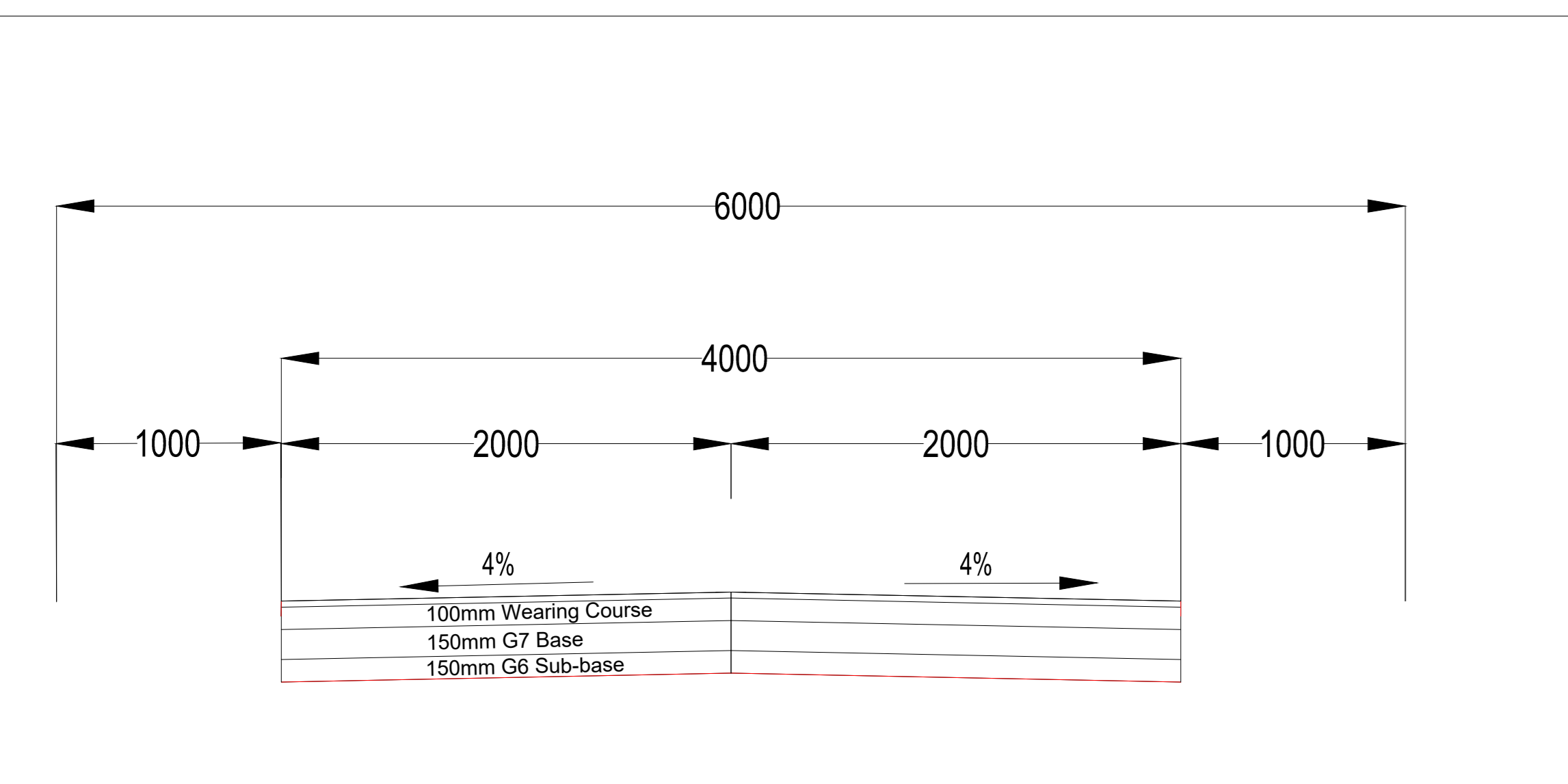
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- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

BM57 -43168.25 3384280.01 1632.59
 BM58 -43133.53 3384417.41 1634.99



VERTICAL PROFILE GRADES		GRADES																
		K=27					K=11					K=25						
		110.506					196.979					251.500						
		1542.963					1541.908					1540.401						
		-1.220%					-2.765%					-1.461%						
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1547.456	1546.563	1545.750	1544.937	1544.134	1543.450	1542.919	1542.537	1542.279	1542.035	1541.783	1541.592	1541.444	1541.210	1539.905	1538.612	1538.477
	CENTRE LINE (CL)	1546.643	1545.830	1545.017	1544.214	1543.531	1542.999	1542.617	1542.359	1542.115	1541.811	1541.511	1541.272	1540.974	1540.680	1539.365	1538.052	1537.917
	RIGHT EDGE (HR)	1546.563	1545.750	1544.937	1544.134	1543.450	1542.919	1542.537	1542.279	1542.035	1541.783	1541.592	1541.444	1541.210	1540.905	1539.612	1538.319	1538.184
GROUND LEVELS ON CL		1546.234	1545.510	1544.794	1544.303	1543.988	1542.915	1542.613	1542.340	1542.080	1541.798	1541.505	1541.261	1540.961	1540.668	1539.368	1538.068	1537.933
HORIZONTAL ALIGNMENT		DIRECTION 219°22'44" I=212°03'40"					DIRECTION 204°44'30"					DIRECTION 202°06'00" I=192°40'10"						
DISTANCE (m)		20	40	60	80	100	120	140	160	180	200	220	240	260	280	300		



TYPICAL CROSSSECTION

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PROFESSIONAL ENGINEER: L. MARAH, PROF. Reg.No: 920281, DATE: , SIGNATURE: _____

DESIGN BY: R. DHLIWAYO, DRAWN BY: R. DHLIWAYO, CHECKED BY: L. MARAH, APPROVED BY: L. MARAH

REV	DATE	DESCRIPTION	BY

PROJECT NAME: **REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefela, Bikizana and Mbofo (Ward 1)**

TITLE: **MBOBO ROAD 2 LONGSECTION**

PROJECT STATUS: **TENDER**

DATE: 2025-02-21, SCALE: N.T.S., SHEET: 1 OF 1, REV: 0, A1

DWG NO: **P-SM01-PMO-GR-MB-T-02**

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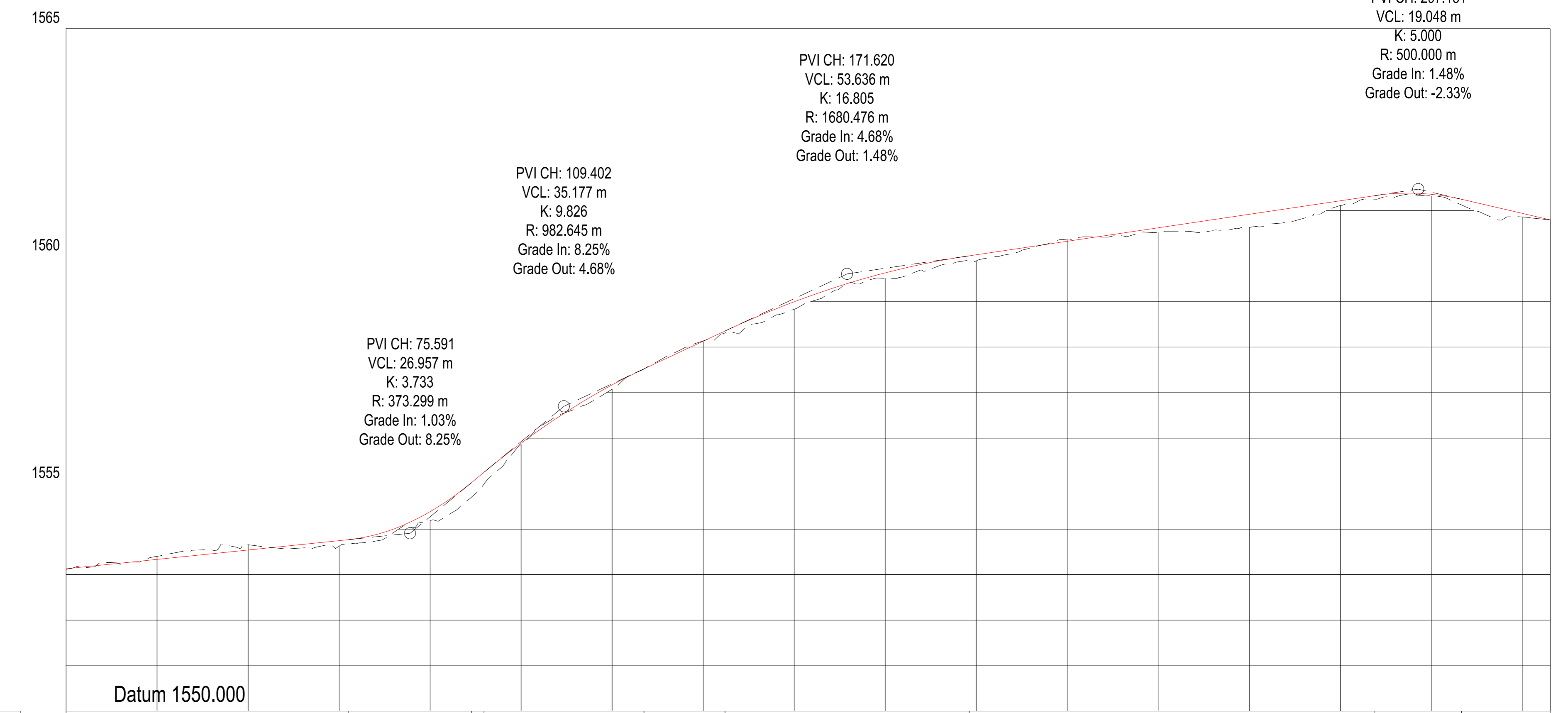
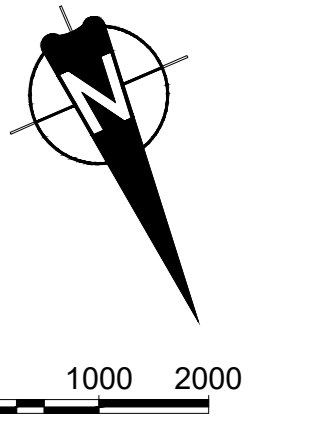
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH CHAINAGE
- PI POINT OF INTERSECTION

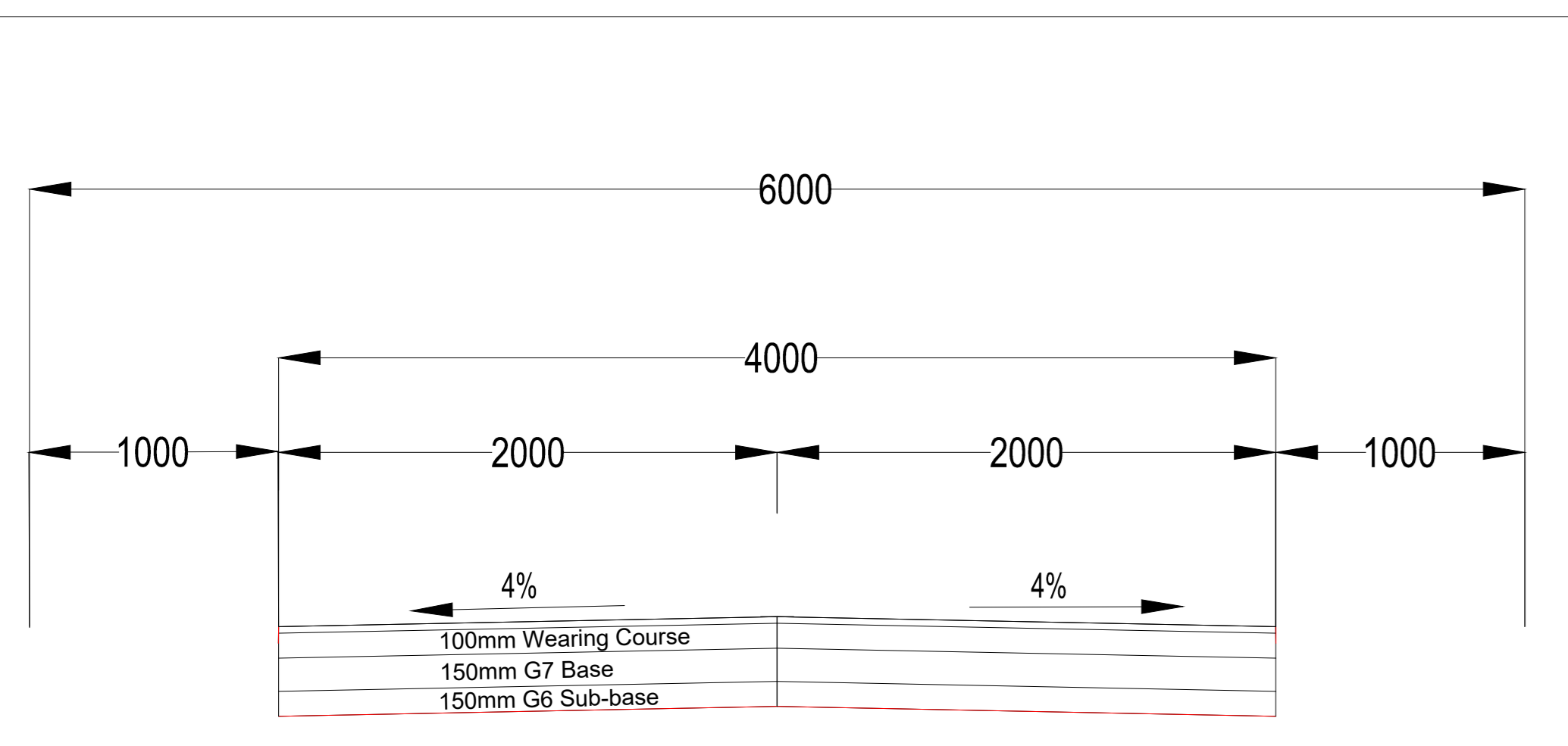
COORDINATE LIST

BM57 -43168.25 3384280.01 1632.59
 BM58 -43133.53 3384417.41 1634.99



VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

Distance (m)	HL	CL	HR	Ground Level (m)	Direction
20	1553.285	1553.335	1553.255	1553.403	167°33'10"
40	1553.462	1553.542	1553.462	1553.658	
60	1553.688	1553.748	1553.688	1553.628	
80	1554.304	1554.384	1554.304	1554.190	
100	1555.810	1555.880	1555.810	1555.861	
120	1557.091	1557.171	1557.091	1557.076	
140	1558.051	1558.131	1558.051	1558.137	
160	1558.916	1558.997	1558.916	1558.833	
180	1559.552	1559.632	1559.552	1559.513	
200	1559.950	1560.030	1559.950	1559.895	
220	1560.247	1560.327	1560.247	1560.356	
240	1560.543	1560.623	1560.543	1560.526	
260	1560.840	1560.920	1560.840	1560.631	
280	1561.137	1561.217	1561.137	1561.110	
300	1561.434	1561.514	1561.434	1561.326	
304	1561.514	1561.594	1561.514	1561.239	
320	1560.859	1560.939	1560.859	1560.859	



TYPICAL CROSSSECTION

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 9301
 Sigodi Marah Martin
 Management Support
 Development & Engineering Consultants

PROFESSIONAL ENGINEER:
 L. MARAH
 PROF. Reg.No: 920281
 DATE: _____
 SIGNATURE: _____

DESIGN BY: R. DHLIWAYO
DRAWN BY: R. DHLIWAYO
CHECKED BY: L. MARAH
APPROVED BY: L. MARAH

REV	DATE	DESCRIPTION	BY

PROJECT NAME: REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefola, Bikizana and Mbobo (Ward 1)

TITLE: MBOBO ROAD 3 LONGSECTION

PROJECT STATUS: TENDER

DATE: 2025-02-21
SCALE: N.T.S
SHEET: 1 OF 1
REV: 0
A1

DWG NO: P-SM01-PMO-GR-MB-T-03

LEGEND

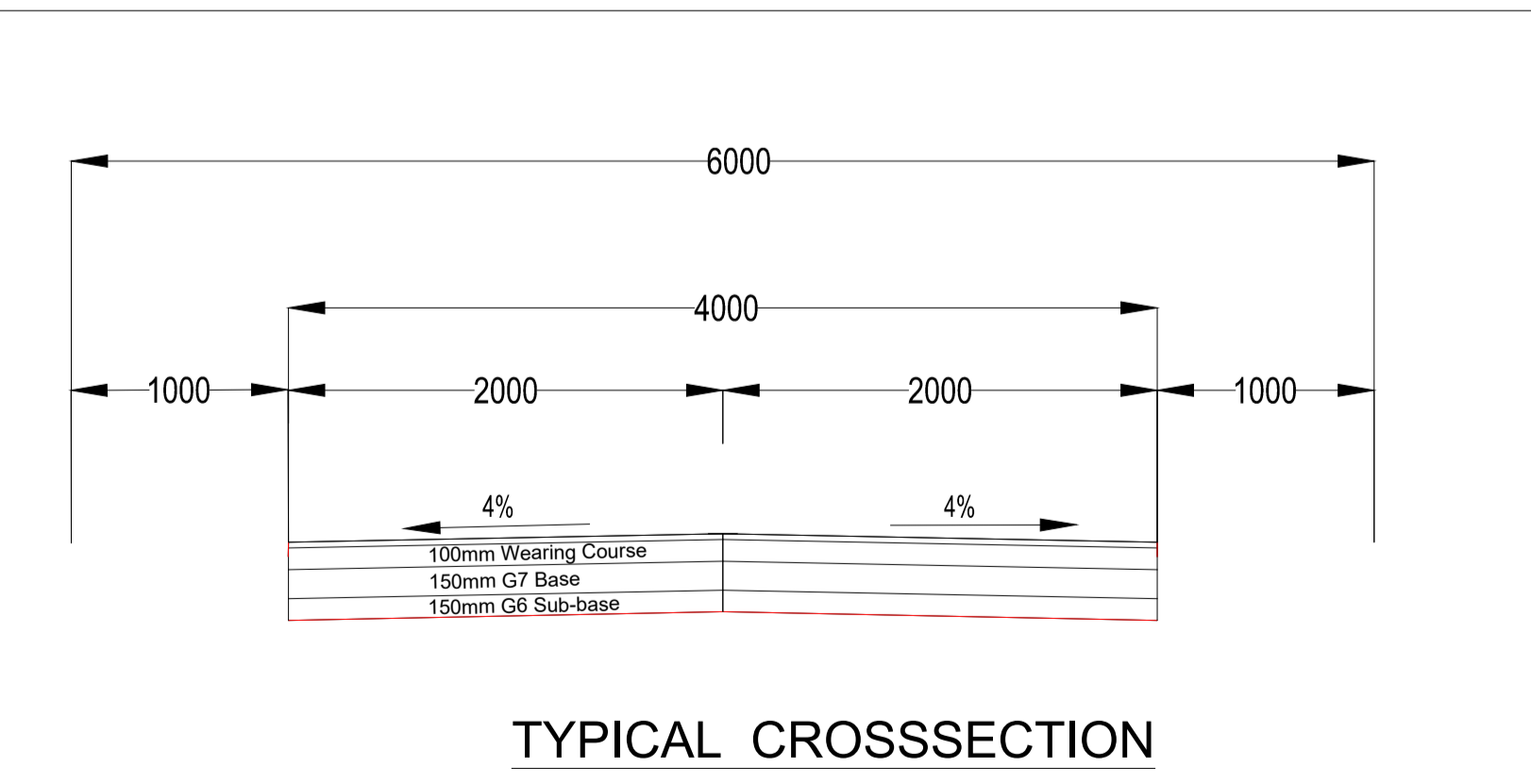
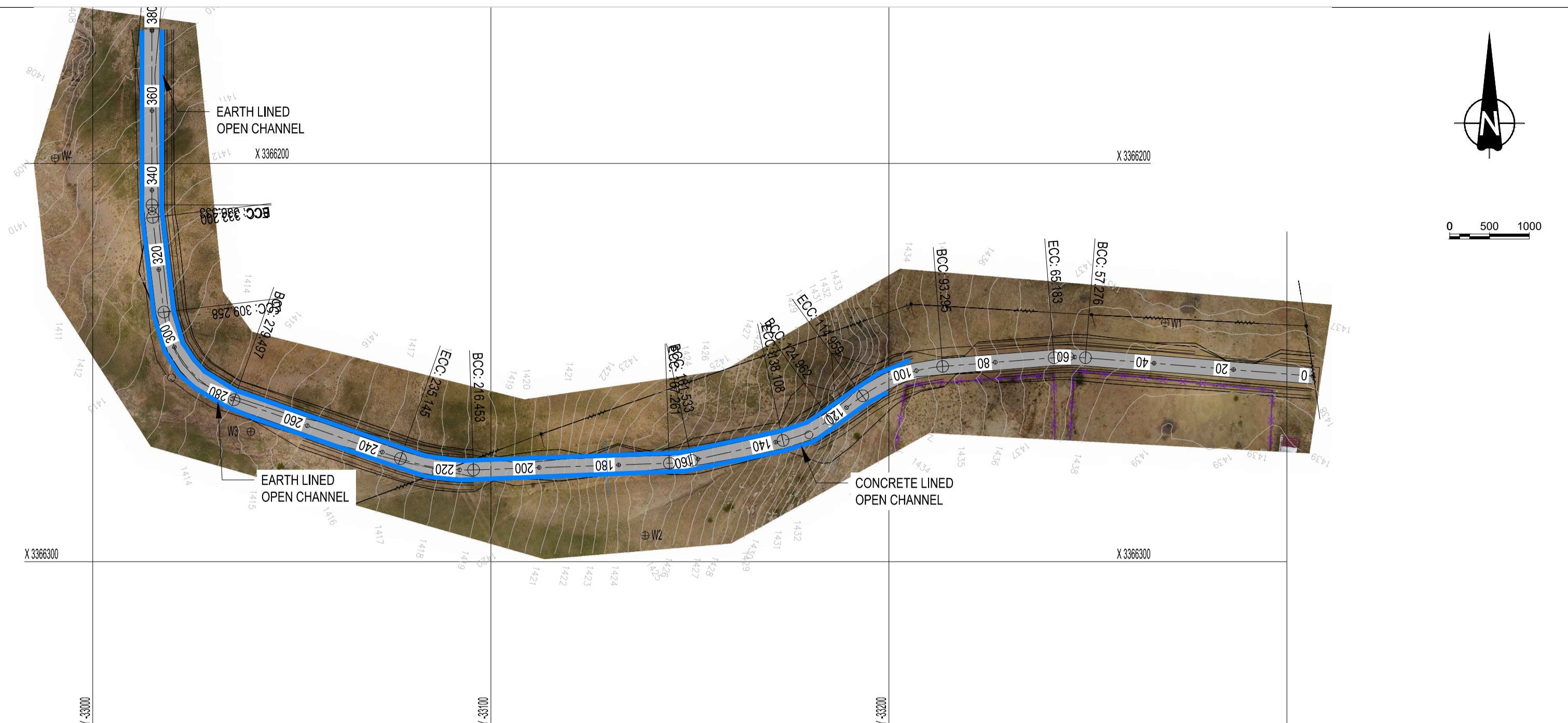
- CENTRELINE
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- EXISTING POWER LINE
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ABBREVIATIONS

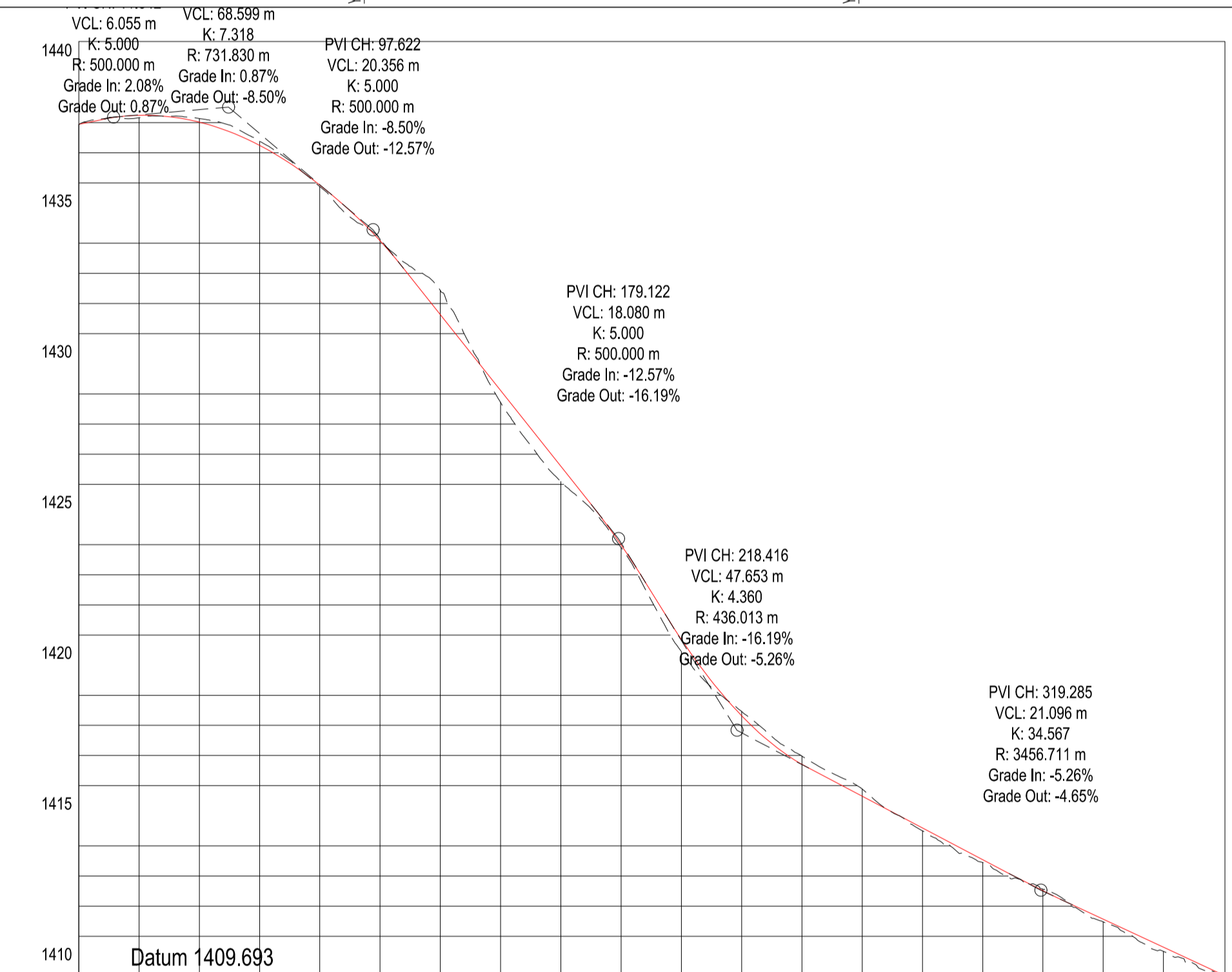
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BM57 -43168.25 3384280.01 1632.59
 BM58 -43133.53 3384417.41 1634.99



TYPICAL CROSSECTION



VERTICAL PROFILE GRADES	
FINAL DESIGN	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

Distance (m)	Final Design HL	Final Design CL	Final Design HR	Ground Level CL	Horizontal Alignment
20	1438.198	1438.243	1438.198	1438.163	94°36'10"
40	1437.973	1438.018	1437.973	1438.139	R=50.0m
60	1437.202	1437.247	1437.202	1437.386	I=90°04'20"
80	1435.884	1435.930	1435.884	1435.878	I=69°46'10"
100	1434.088	1434.083	1434.088	1434.061	I=65°51'10"
120	1431.584	1431.628	1431.584	1432.331	I=82°52'20"
140	1429.070	1429.115	1429.070	1428.718	I=88°02'10"
160	1426.556	1426.601	1426.556	1426.092	I=98°44'50"
180	1423.943	1423.988	1423.943	1423.902	I=141°22'00"
200	1421.429	1421.474	1421.429	1421.461	I=173°16'32.7m
220	1418.915	1418.960	1418.915	1418.881	I=180°00'00"
240	1416.401	1416.446	1416.401	1416.389	
260	1413.887	1413.932	1413.887	1413.863	
280	1411.373	1411.418	1411.373	1411.347	
300	1408.859	1408.904	1408.859	1408.833	
320	1406.345	1406.390	1406.345	1406.319	
340	1403.831	1403.876	1403.831	1403.805	
360	1401.317	1401.362	1401.317	1401.291	
380	1398.803	1398.848	1398.803	1398.777	

CLIENT:
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 9755
 Tel: (051) 603 1449
 Email: vanzyk@senqu.gov.za

CONSULTANT:
 THEWO & SMMS - JV
 58 Brebner Road
 Westdene
 Bloemfontein
 9301
 Sigodi Marah Martin
 Management Support
 Development & Engineering Consultants

PROFESSIONAL ENGINEER:
 L. MARAH
 PROF. Reg.No:
 920281
 DATE:
 SIGNATURE:

DESIGN BY:
 R. DHLIWAYO
 DRAWN BY:
 R. DHLIWAYO
 CHECKED BY:
 L. MARAH
 APPROVED BY:
 L. MARAH

REVISIONS		
REV	DATE	DESCRIPTION

PROJECT NAME: **REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefela, Bikizana and Mboho (Ward 1)**

TITLE: **WALAZA ROAD 1 LONGSECTION**

PROJECT STATUS: **TENDER**

DATE: 2025-02-21	SCALE: N.T.S	SHEET: 1 OF 1	REV: 0	A1
DWG NO: P-SM01-PMO-GR-W-T-01				

LEGEND

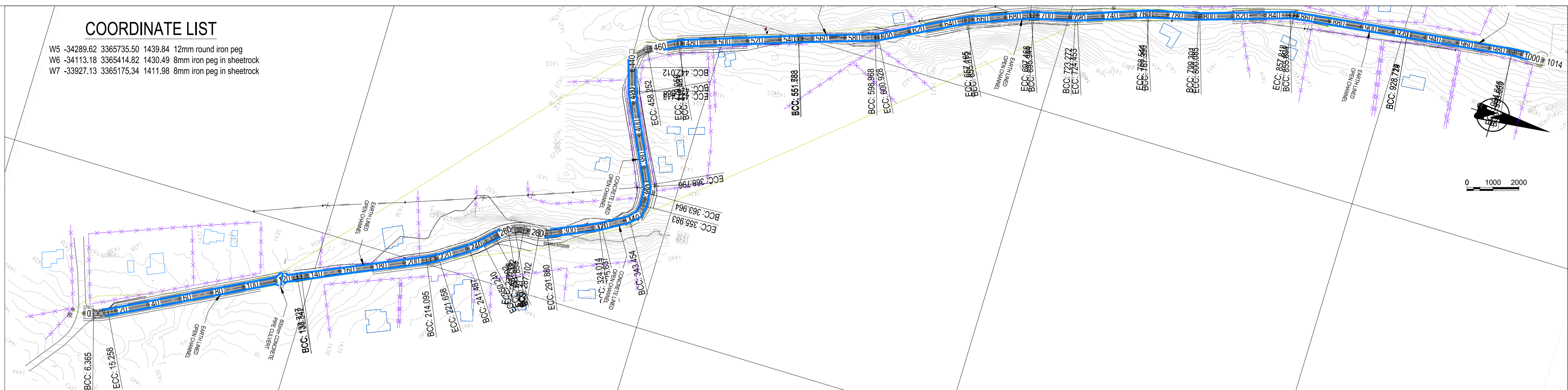
- CENTRELINE
- ⊙ ESKOM/TELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

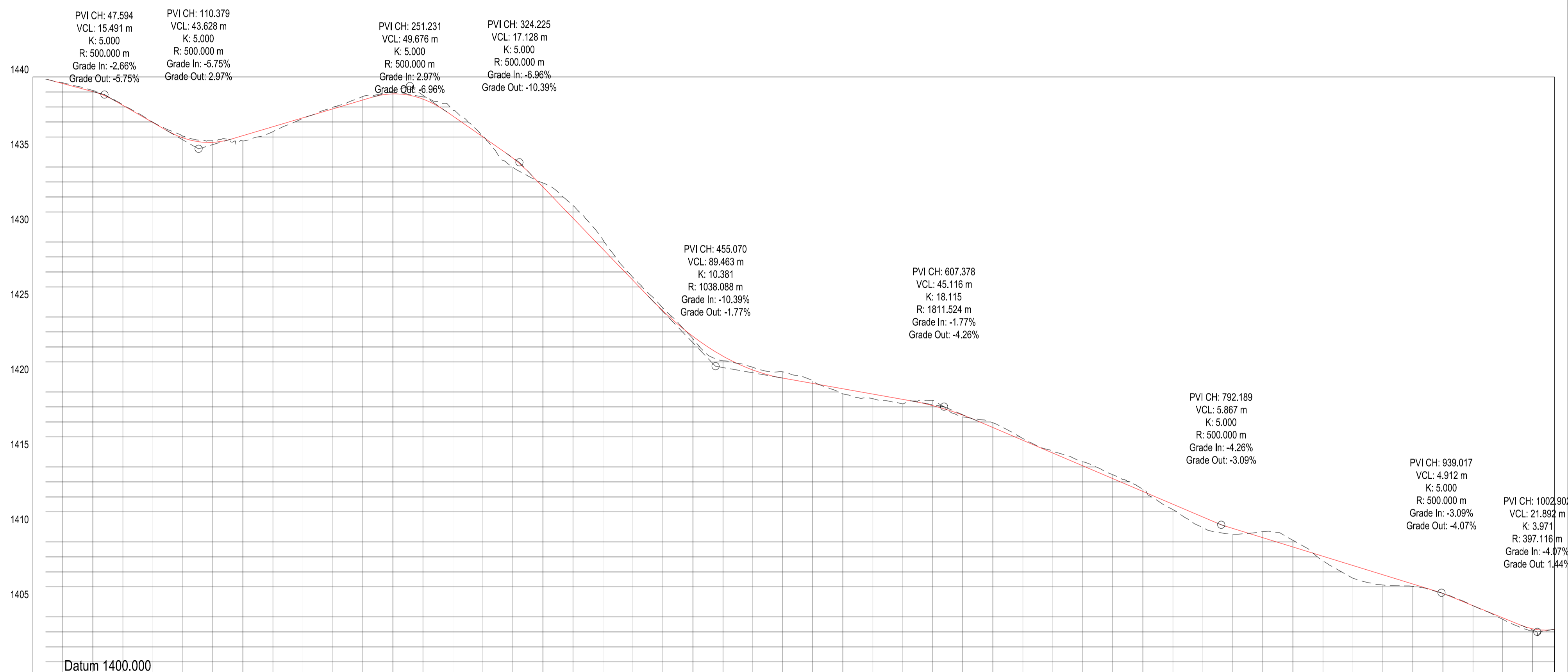
- N.G.L NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

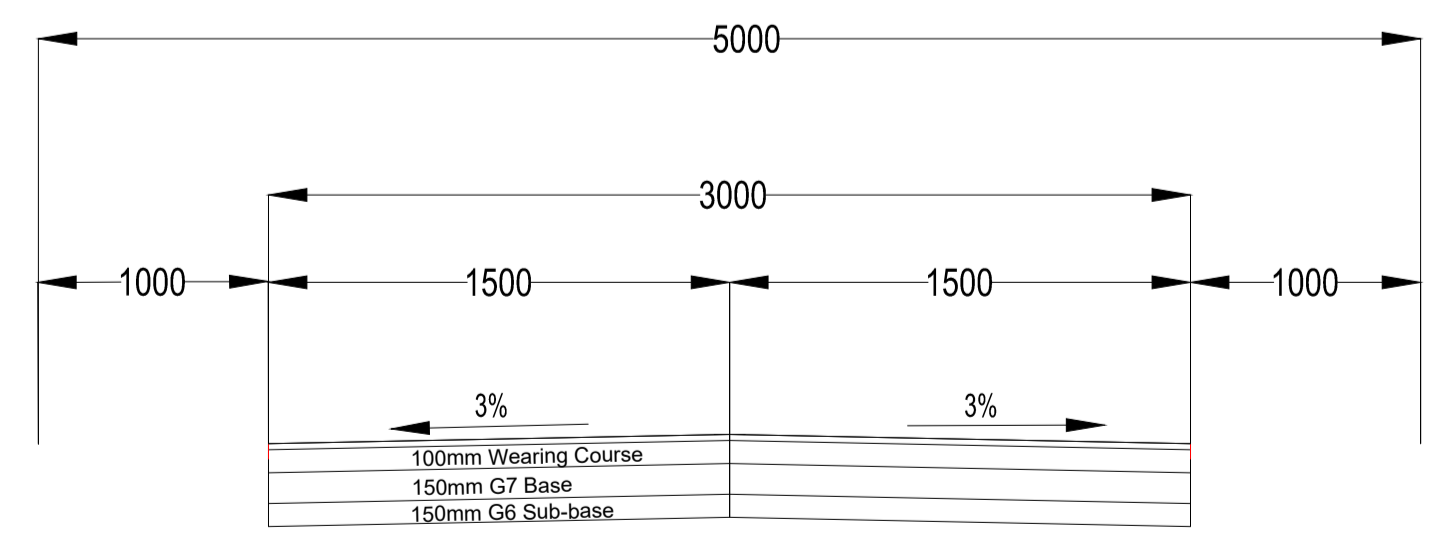
W5 -34289.62 3365735.50 1439.84 12mm round iron peg
 W6 -34113.18 3365414.82 1430.49 8mm iron peg in sheetrock
 W7 -33927.13 3365175.34 1411.98 8mm iron peg in sheetrock




0 1000 2000




VERTICAL PROFILE GRADES		FINAL DESIGN ROAD LEVELS		GROUND LEVELS ON CL		HORIZONTAL ALIGNMENT		DISTANCE (m)	
BVC	15.49	BVC	1439.505	1439.802	163°34'00"	158°17'20"	0	20	
EVC	132.193	CL	1439.974	1439.899	152°35'30"	154°16'00"	20	40	
BVC	226.393	CL	1438.058	1438.126	R=44.7m	I=151°05'50"	40	60	
EVC	132.193	CL	1436.908	1436.822	R=44.7m	I=155°56'30"	60	80	
BVC	226.393	CL	1435.888	1435.666	R=44.7m	I=151°05'50"	80	100	
EVC	132.193	CL	1435.594	1435.44	R=44.7m	I=155°56'30"	100	120	
BVC	226.393	CL	1435.039	1435.14	R=44.7m	I=151°05'50"	120	140	
EVC	132.193	CL	1436.634	1436.78	R=44.7m	I=155°56'30"	140	160	
BVC	226.393	CL	1437.228	1437.231	R=44.7m	I=151°05'50"	160	180	
EVC	132.193	CL	1437.822	1437.805	R=44.7m	I=155°56'30"	180	200	
BVC	226.393	CL	1438.416	1438.385	R=44.7m	I=151°05'50"	200	220	
EVC	132.193	CL	1438.825	1438.876	R=44.7m	I=155°56'30"	220	240	
BVC	226.393	CL	1438.475	1438.872	R=44.7m	I=151°05'50"	240	260	
EVC	132.193	CL	1437.341	1437.806	R=44.7m	I=155°56'30"	260	280	
BVC	226.393	CL	1435.948	1435.04	R=44.7m	I=151°05'50"	280	300	
EVC	132.193	CL	1434.536	1435.58	R=44.7m	I=155°56'30"	300	320	
BVC	226.393	CL	1432.622	1433.977	R=44.7m	I=151°05'50"	320	340	
EVC	132.193	CL	1430.544	1432.936	R=44.7m	I=155°56'30"	340	360	
BVC	226.393	CL	1428.496	1429.147	R=44.7m	I=151°05'50"	360	380	
EVC	132.193	CL	1426.388	1426.635	R=44.7m	I=155°56'30"	380	400	
BVC	226.393	CL	1424.355	1424.988	R=44.7m	I=151°05'50"	400	420	
EVC	132.193	CL	1422.656	1422.847	R=44.7m	I=155°56'30"	420	440	
BVC	226.393	CL	1421.343	1421.074	R=44.7m	I=151°05'50"	440	460	
EVC	132.193	CL	1420.414	1420.841	R=44.7m	I=155°56'30"	460	480	
BVC	226.393	CL	1419.870	1420.395	R=44.7m	I=151°05'50"	480	500	
EVC	132.193	CL	1419.516	1420.087	R=44.7m	I=155°56'30"	500	520	
BVC	226.393	CL	1419.162	1419.719	R=44.7m	I=151°05'50"	520	540	
EVC	132.193	CL	1418.807	1418.869	R=44.7m	I=155°56'30"	540	560	
BVC	226.393	CL	1418.453	1418.548	R=44.7m	I=151°05'50"	560	580	
EVC	132.193	CL	1418.035	1418.003	R=44.7m	I=155°56'30"	580	600	
BVC	226.393	CL	1417.402	1417.754	R=44.7m	I=151°05'50"	600	620	
EVC	132.193	CL	1416.578	1416.945	R=44.7m	I=155°56'30"	620	640	
BVC	226.393	CL	1415.725	1415.892	R=44.7m	I=151°05'50"	640	660	
EVC	132.193	CL	1414.873	1415.050	R=44.7m	I=155°56'30"	660	680	
BVC	226.393	CL	1414.020	1414.332	R=44.7m	I=151°05'50"	680	700	
EVC	132.193	CL	1413.168	1413.473	R=44.7m	I=155°56'30"	700	720	
BVC	226.393	CL	1412.315	1412.508	R=44.7m	I=151°05'50"	720	740	
EVC	132.193	CL	1411.463	1411.156	R=44.7m	I=155°56'30"	740	760	
BVC	226.393	CL	1410.611	1409.956	R=44.7m	I=151°05'50"	760	780	
EVC	132.193	CL	1409.850	1409.517	R=44.7m	I=155°56'30"	780	800	
BVC	226.393	CL	1409.232	1409.822	R=44.7m	I=151°05'50"	800	820	
EVC	132.193	CL	1408.614	1409.106	R=44.7m	I=155°56'30"	820	840	
BVC	226.393	CL	1407.997	1407.732	R=44.7m	I=151°05'50"	840	860	
EVC	132.193	CL	1407.379	1406.580	R=44.7m	I=155°56'30"	860	880	
BVC	226.393	CL	1406.761	1406.122	R=44.7m	I=151°05'50"	880	900	
EVC	132.193	CL	1406.143	1405.078	R=44.7m	I=155°56'30"	900	920	
BVC	226.393	CL	1405.513	1405.63	R=44.7m	I=151°05'50"	920	940	
EVC	132.193	CL	1404.702	1404.746	R=44.7m	I=155°56'30"	940	960	
BVC	226.393	CL	1403.887	1403.938	R=44.7m	I=151°05'50"	960	980	
EVC	132.193	CL	1403.155	1403.065	R=44.7m	I=155°56'30"	980	1000	
BVC	226.393	CL	1403.121	1403.66	R=44.7m	I=151°05'50"	1000	1014	



TYPICAL CROSSSECTION

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CONSULTANT:
 THEWO & SMMS - JV

 56 Brebner Road
 Westdene
 Bloemfontein
 9301

PROFESSIONAL ENGINEER:
 L. MARAH
 PROF. Reg.No:
 920281
 DATE:
 SIGNATURE:

DESIGN BY:
 R. DHLIWAYO
 DRAWN BY:
 R. DHLIWAYO
 CHECKED BY:
 L. MARAH
 APPROVED BY:
 L. MARAH

REVISIONS			
REV	DATE	DESCRIPTION	BY

PROJECT NAME: **REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefola, Bikzana and Mbofo (Ward 1)**

TITLE: **WALAZA ROAD 2 LONGSECTION**

PROJECT STATUS: **TENDER**

DATE	SCALE	SHEET	REV
2025-02-21	N.T.S	1 OF 1	0

DWG NO: **P-SM01-PMO-GR-W-T-02**

LEGEND

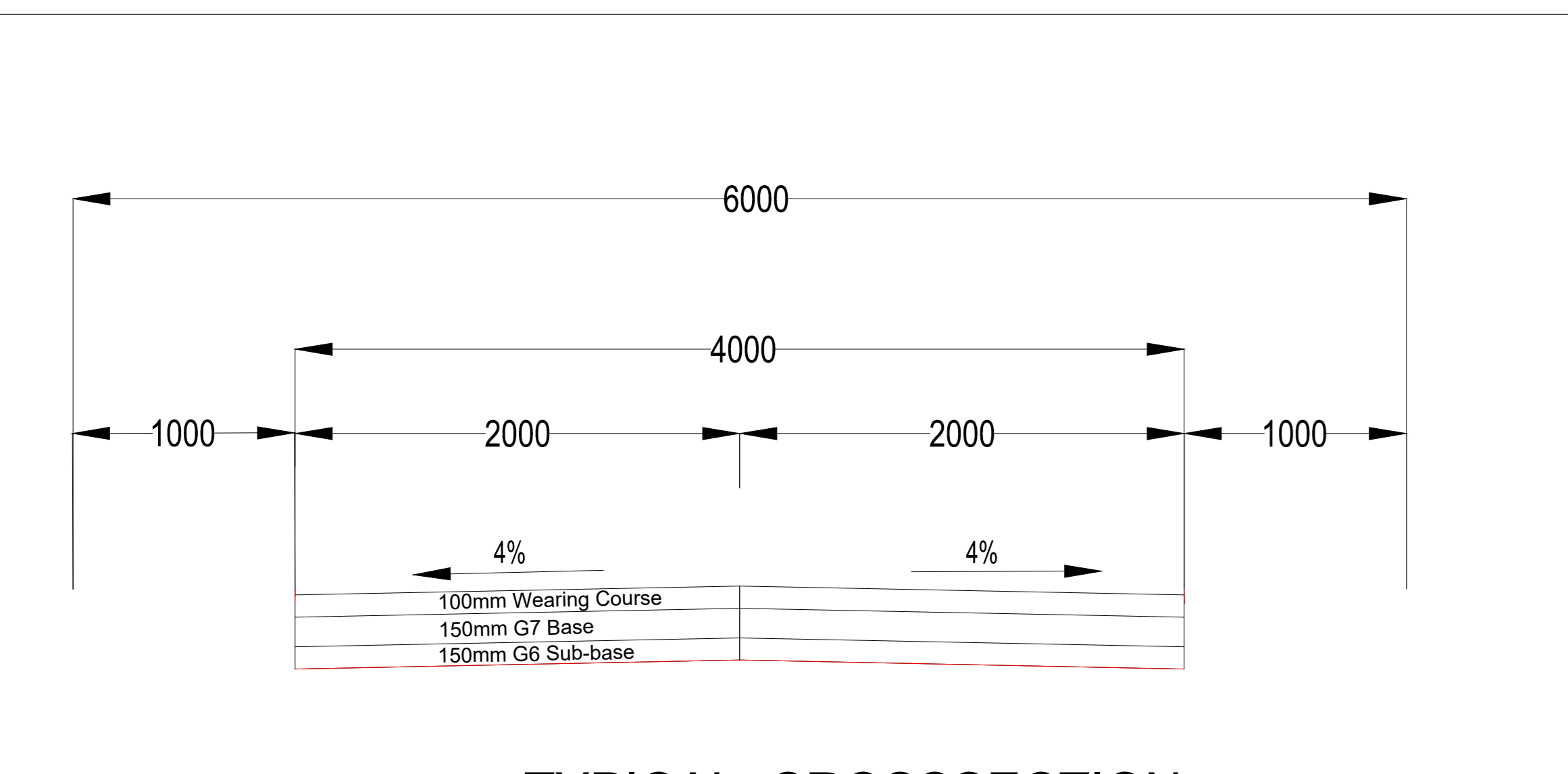
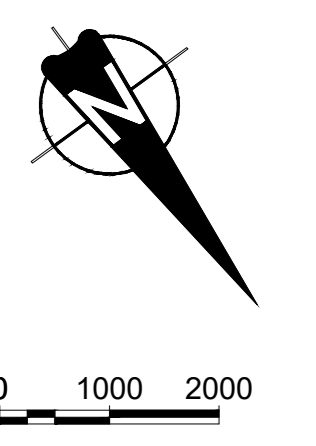
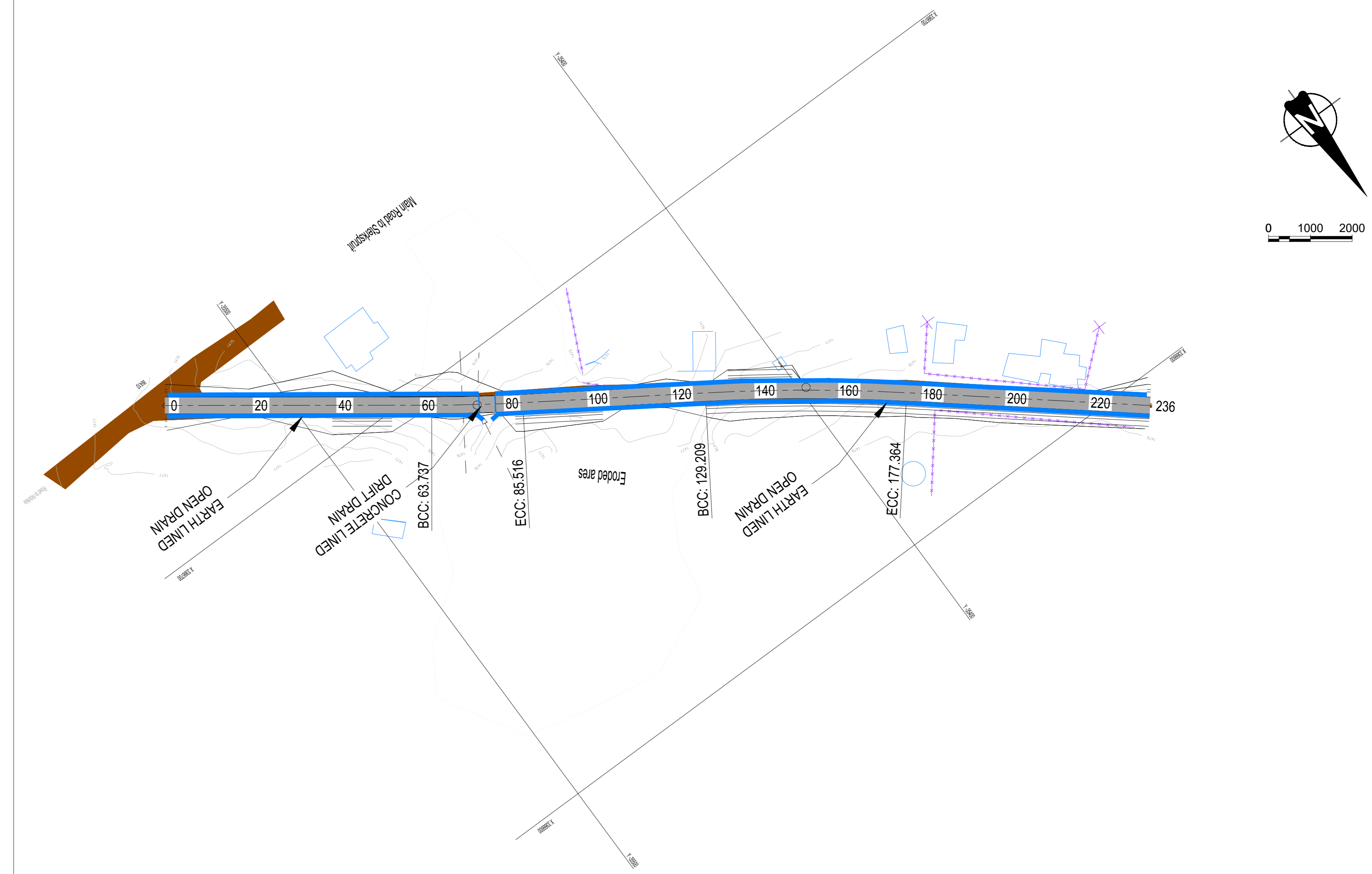
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

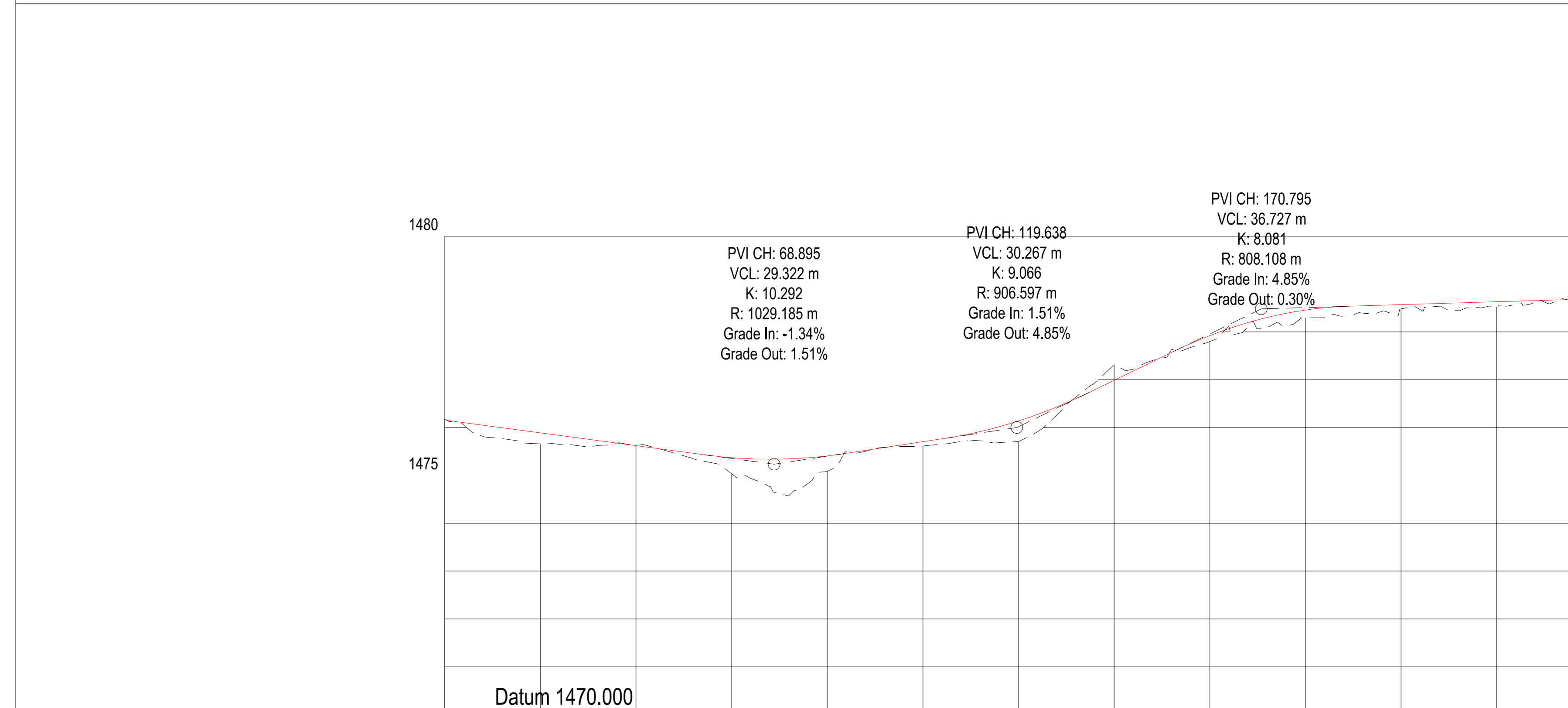
- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

BM102 -31487.81 3389850.17 1800.12 15




TYPICAL CROSSSECTION



VERTICAL PROFILE GRADES		Datum 1470.000												
		BVC	VCL=29.322m	EVC	BVC	VCL=30.267m	EVC	BVC	VCL=36.727m	EVC				
		54.234	K=10	83.556	104.505	K=9	134.772	142.431	K=8	189.158				
		-1.339%		1.510%		4.849%		0.304%						
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1475.810	1475.542	1475.291	1475.329	1475.624	1475.692	1476.059	1476.908	1477.842	1478.377	1478.490	1478.551	1478.595
	CENTRE LINE (CL)	1475.890	1475.622	1475.370	1475.409	1475.704	1475.692	1476.139	1476.998	1477.932	1478.457	1478.570	1478.631	1478.675
	RIGHT EDGE (HR)	1475.810	1475.542	1475.291	1475.329	1475.624	1475.692	1476.059	1476.908	1477.843	1478.377	1478.490	1478.551	1478.595
GROUND LEVELS ON CL		1475.661	1475.625	1475.033	1475.084	1475.616	1475.660	1475.705	1477.314	1477.799	1478.294	1478.481	1478.429	1478.518
HORIZONTAL ALIGNMENT		DIRECTION 126°24'20"		BCC1 63.701	CURVE 1 R=411.1m l=124°53'20"	ECC1 85.516	DIRECTION 123°22'10"		BCC2 129.209	CURVE 2 R=452.4m l=126°25'10"	ECC2 177.364	DIRECTION 129°28'10"		
DISTANCE (m)		20	40	60	80	100	105	120	140	160	180	200	205	220


CLIENT:



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Email: vanzyt@senqu.gov.za

CONSULTANT:

THEWO & SMMS - JV



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Bloomfontein
9301

PROFESSIONAL ENGINEER:
L. MARAH
PROF. Reg.No:
920281
DATE:
SIGNATURE:

DESIGN BY: R. DHLIWAYO
DRAWN BY: R. DHLIWAYO
CHECKED BY: L. MARAH
APPROVED BY: L. MARAH

REVISIONS				
REV	DATE	DESCRIPTION	BY	

PROJECT NAME: **REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefola, Bikizana and Mbofo (Ward 1)**

TITLE: **WALAZA ROAD 3 LONGSECTION**

PROJECT STATUS: **TENDER**

DATE	SCALE	SHEET	REV
2025-02-21	N.T.S	1 OF 1	0

DWG NO: **P-SM01-PMO-GR-W-T-03**

LEGEND

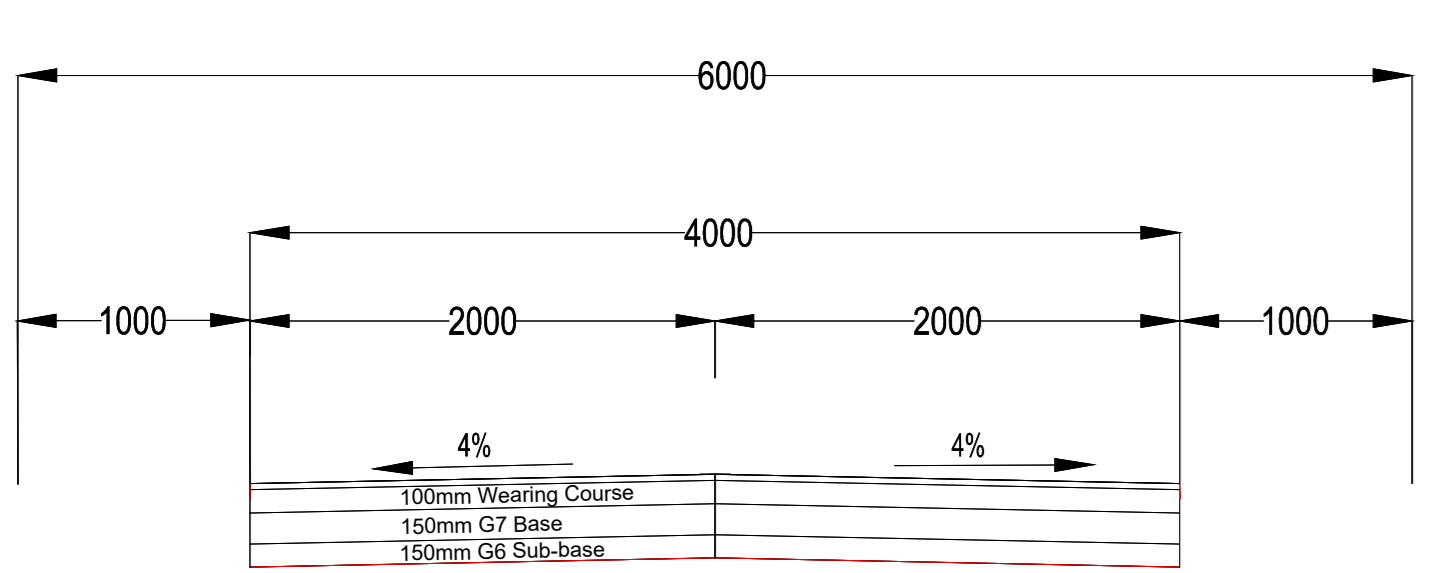
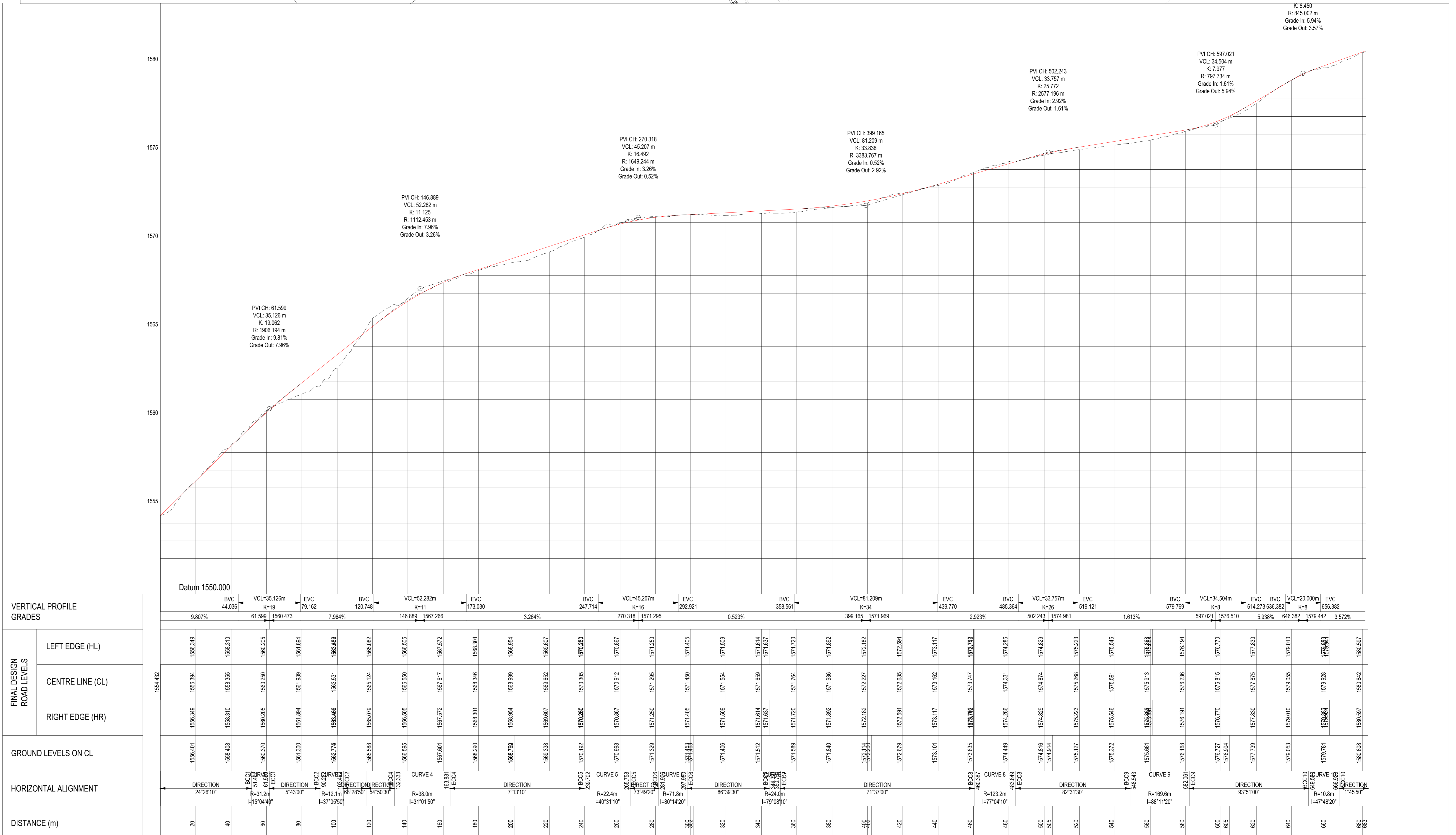
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- 4% ROAD CROSS FALL
- ✕ FENCE
- EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

- BM44 -38624.29 3384291.20 1659.18
- BM45 -38780.72 3384311.54 1686.44
- BM46 -38987.31 3384152.35 1670.73
- BM47 -39151.79 3384029.79 1672.35
- VDY -38592.48 3384294.20 1657.88



TYPICAL CROSSSECTION

CLIENT: 19 Murray Street, Lady Grey 9755. Tel: (051) 603 1449. Email: vandyh@senqu.gov.za

CONSULTANT: THEWO & SMMMS - JV. 58 Brehner Road, Westdene, Bloemfontein 9501. Sigodi Marah Martin, Mechanical & Engineering Consultants.

PROFESSIONAL ENGINEER: L. MARAH. PROF. Reg No: 920281. DATE: SIGNATURE:








DESIGN BY: R. DHLIWAYO. DRAWN BY: R. DHLIWAYO. CHECKED BY: L. MARAH. APPROVED BY: L. MARAH.

REV	DATE	DESCRIPTION	BY

PROJECT NAME: REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefela, Bikizana and Mboho (Ward 1). TITLE: BIKIZANA ROAD 1 LONGSECTION.

PROJECT STATUS: FOR TENDER. DATE: 2025-02-21. SCALE: N.T.S. SHEET: 1 OF 1. REV: 0. DWG NO: P-SM01-PMO-GR-BK-T-02.

LEGEND

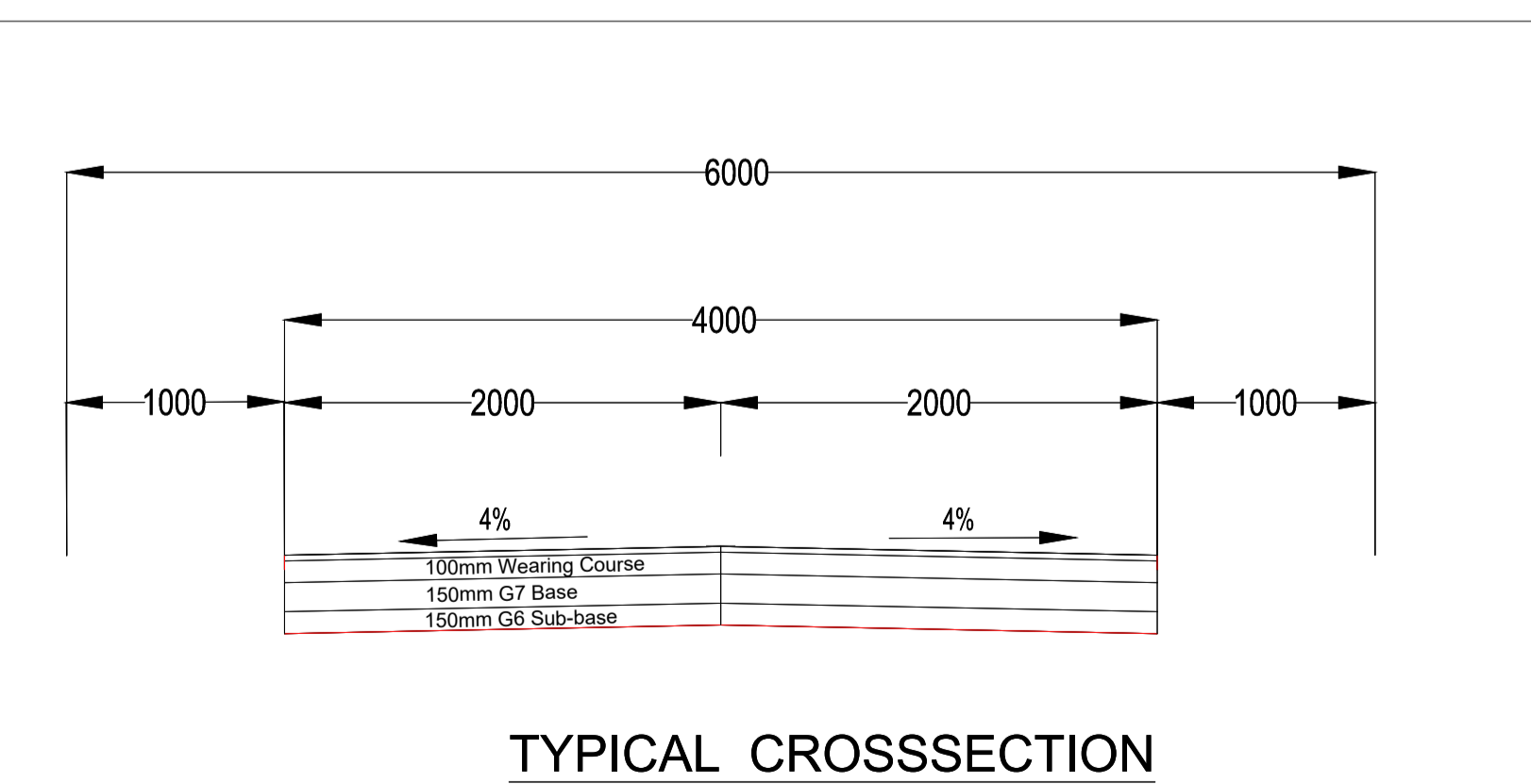
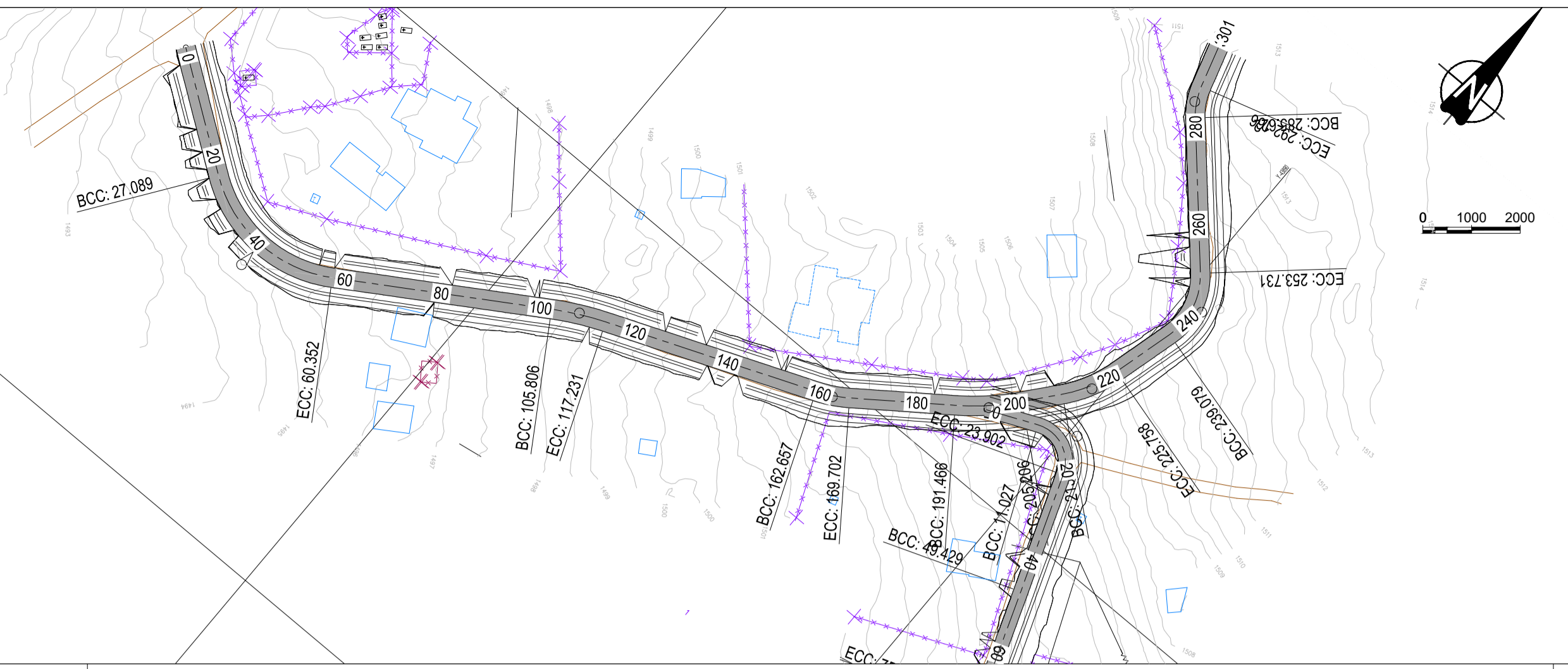
-  CENTRELINE
-  ESKOM/TELEKOM POLE
-  EXISTING POWER LINE
-  ROAD CROSS FALL
-  FENCE
-  EXISTING TREE
-  BUILDING

ABBREVIATIONS

- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

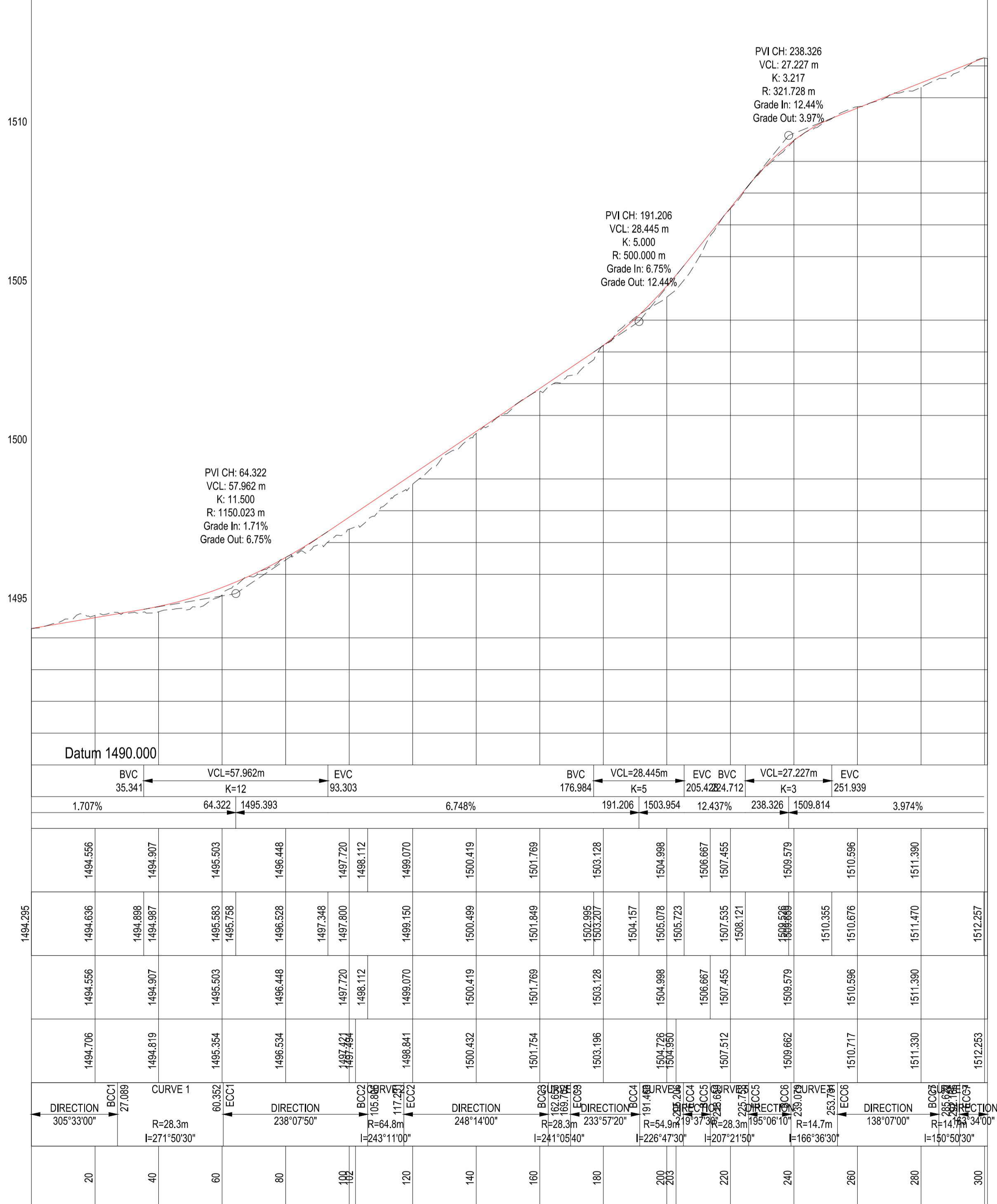
COORDINATE LIST

BM57 -43168.25 3384280.01 1632.59
 BM58 -43133.53 3384417.41 1634.99






TYPICAL CROSSSECTION

VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)
	CENTRE LINE (CL)
	RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	



REV	DATE	DESCRIPTION	BY

CLIENT:  19 Murray Street, Lady Grey 9755. Tel: (051) 603 1449. Email: vanzyll@senqu.gov.za

CONSULTANT: THEWO & SMMS - JV. 58 Dreibner Road, Westdene, Bloemfontein 9301.  

PROFESSIONAL ENGINEER: L. MARAH
 PROF. Reg.No: 920281
 DATE: _____
 SIGNATURE: _____

DESIGN BY: R. DHLIWAYO
DRAWN BY: R. DHLIWAYO
CHECKED BY: L. MARAH
APPROVED BY: L. MARAH

REV	DATE	DESCRIPTION	BY

PROJECT NAME: REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ndefela, Bikizana and Mbobo (Ward 1)
TITLE: BIKIZANA ROAD 2 LONGSECTION

PROJECT STATUS: TENDER
 DATE: 2025-02-21
 SCALE: N.T.S.
 SHEET: 1 OF 1
 REV: 0
 A1
 DWG NO: P-SM01-PMO-GR-BK-T-02

LEGEND

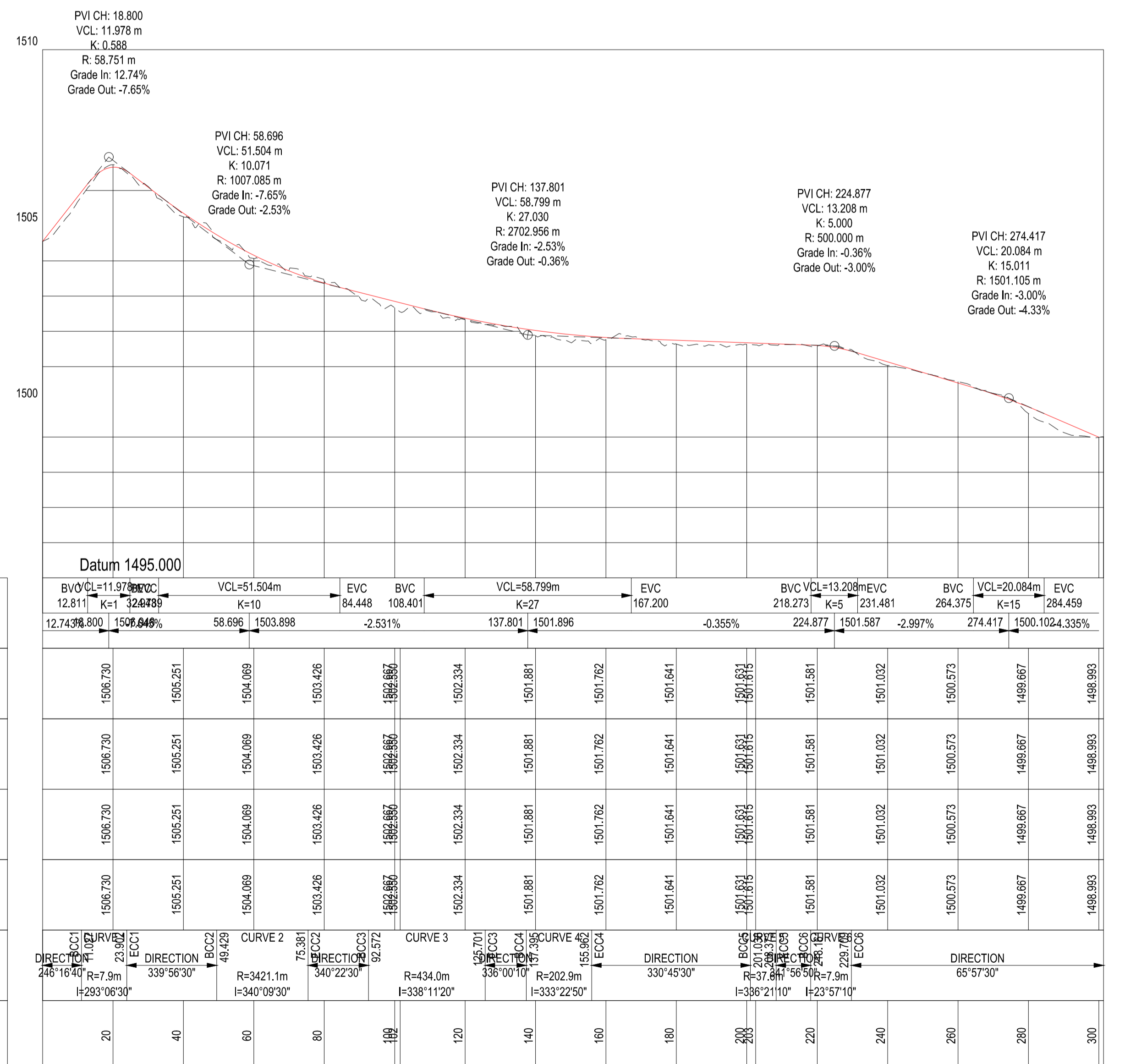
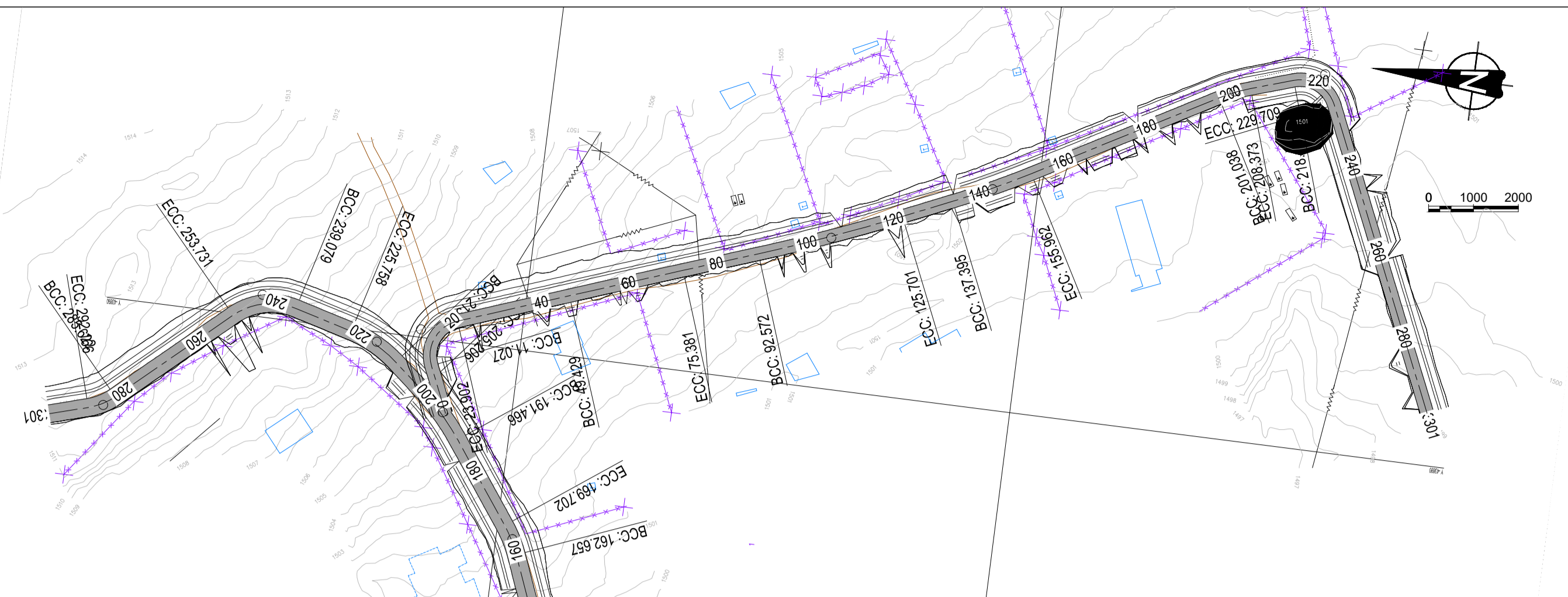
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- ROAD CROSS FALL
- FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

- N.G.L NATURAL GROUND LEVEL
- CL CENTRELINE
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- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

BM57 43168.25 3384280.01 1632.59
 BM58 43133.53 3384417.41 1634.99



VERTICAL PROFILE GRADES

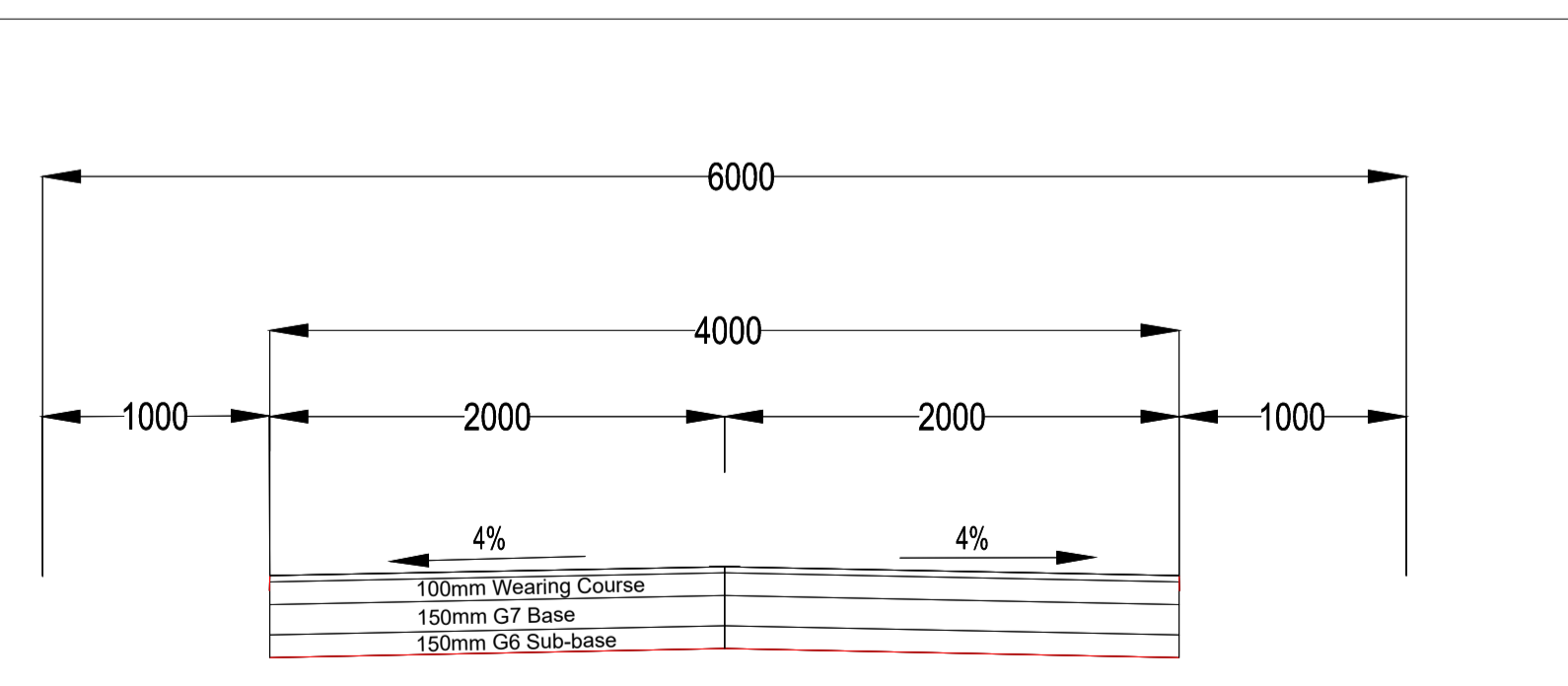
FINAL DESIGN ROAD LEVELS

GROUND LEVELS ON CL

HORIZONTAL ALIGNMENT

DISTANCE (m)

Distance (m)	Final Design Road Level (HL)	Final Design Road Level (CL)	Final Design Road Level (HR)	Ground Level on CL
20	1506.730	1506.730	1506.730	1506.730
40	1505.251	1505.251	1505.251	1505.251
60	1504.069	1504.069	1504.069	1504.069
80	1503.426	1503.426	1503.426	1503.426
100	1502.867	1502.867	1502.867	1502.867
120	1502.334	1502.334	1502.334	1502.334
140	1501.881	1501.881	1501.881	1501.881
160	1501.762	1501.762	1501.762	1501.762
180	1501.641	1501.641	1501.641	1501.641
200	1501.631	1501.631	1501.631	1501.631
220	1501.581	1501.581	1501.581	1501.581
240	1501.032	1501.032	1501.032	1501.032
260	1500.573	1500.573	1500.573	1500.573
280	1499.667	1499.667	1499.667	1499.667
300	1498.993	1498.993	1498.993	1498.993



TYPICAL CROSSECTION

CLIENT: 19 Murray Street, Lady Grey 9755. Tel: (051) 603 1449. Email: vanzyll@senqu.gov.za

CONSULTANT: THEWO & SMMS - JV. 58 Brebner Road, Westdene, Bloemfontein 9301.

PROFESSIONAL ENGINEER: L. MARAH. PROF. Reg.No: 920281. DATE: SIGNATURE: _____

DESIGN BY: R. DHLIWAYO. **DRAWN BY:** R. DHLIWAYO. **CHECKED BY:** L. MARAH. **APPROVED BY:** L. MARAH.

REV	DATE	DESCRIPTION	BY

PROJECT NAME: REPAIRING OF 5.2 KM GRAVEL ROADS AND STORMWATER CHANNELS IN NDOFELA, BIKIZANA AND MBOBO (WARD 1)

TITLE: BIKIZANA ROAD 3 LONGSECTION

PROJECT STATUS: TENDER

DATE: 2025-02-21. SCALE: N.T.S. SHEET: 1 OF 1. REV: 0. DWG NO: P-SM01-PMO-GR-BK-T-03.