

VOLUME 1



SENQU LOCAL MUNICIPALITY

TECHNICAL SERVICES

PROJECT NO.

FOR

**REPAIRING OF 6 KM GRAVEL ROADS AND
STORMWATER CHANNELS IN Ward 4:Sunduza,
Bensonville, Jozana Nek**

VOLUME 1

TENDER DRAWINGS

FEBRUARY 2025

DRAWINGS COMPILED FOR:

THE MUNICIPAL MANAGER

SENQU LOCAL MUNICIPALITY
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DRAWING LIST

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REVISIONS

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

PROJECT NAME

REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek

TITLE

DRAWING LIST

PROJECT STATUS:

TENDER

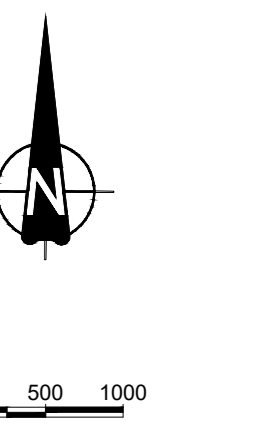
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2025-02-23	N.T.S.	1 OF 1	0	A1

DWG NO

P-SM01-PMO-GR-WD4-T-0

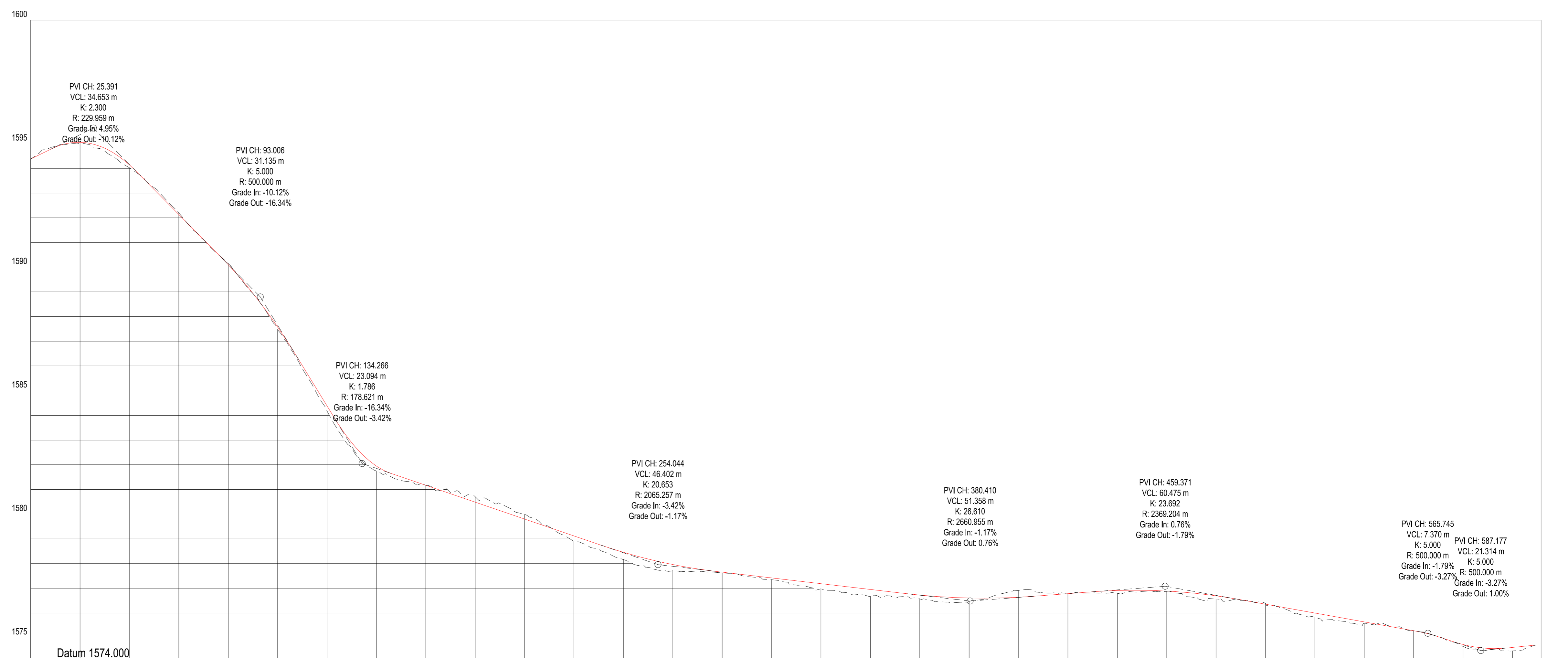
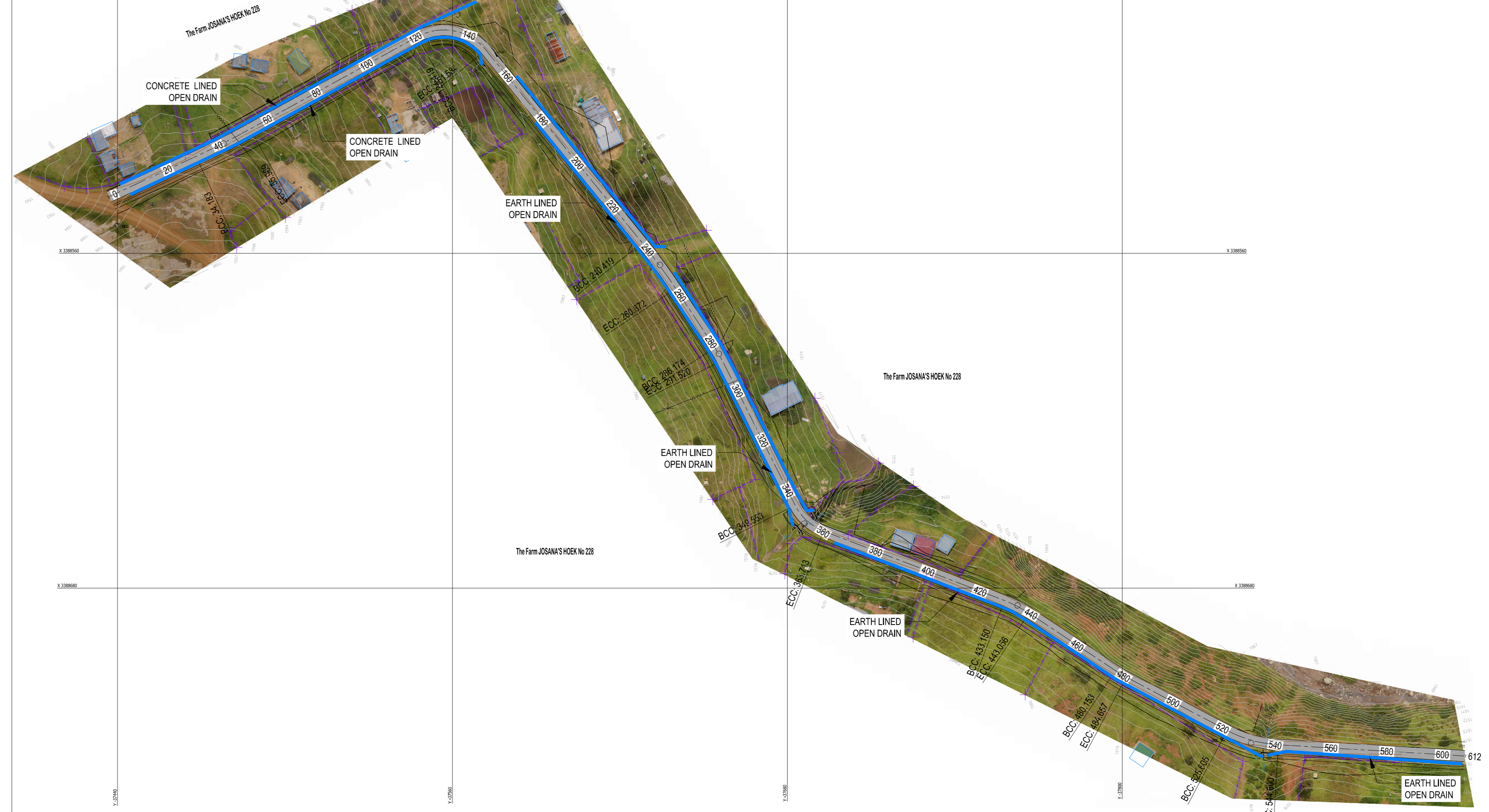
- LEGEND**
- CENTRELINE
 - ESKOMTELKOM POLE
 - EXISTING POWER LINE
 - 4% ROAD CROSS FALL
 - ✕ FENCE
 - EXISTING TREE
 - ▭ BUILDING

COORDINATE LIST
 W5 -34289.62 3366735.50 1439.84 12mm round iron peg
 W6 -34113.18 3365414.52 1430.49 8mm iron peg in sheetrock
 W7 -33927.13 3365175.34 1411.98 8mm iron peg in sheetrock

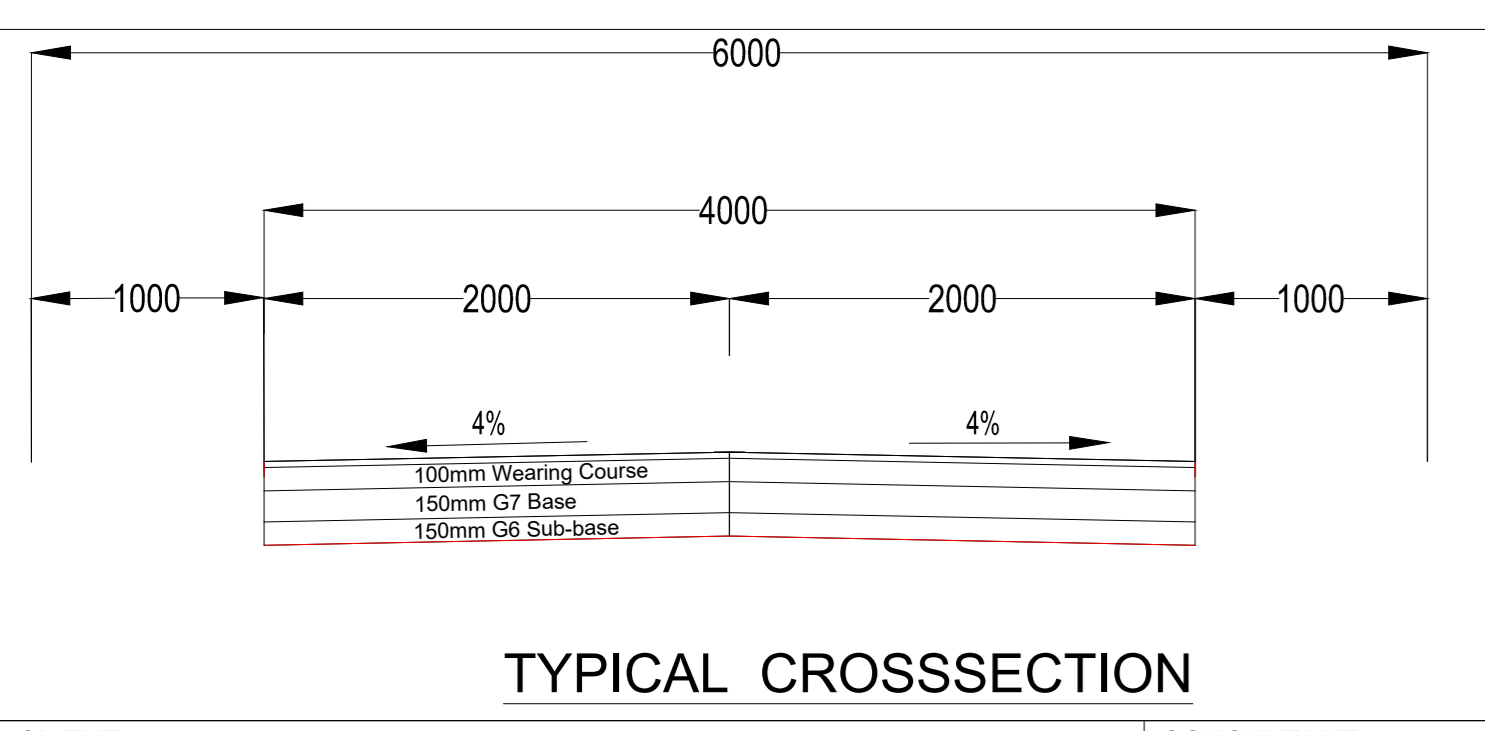


ABBREVIATIONS

- 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 CHANGE
- PI POINT OF INTERSECTION



VERTICAL PROFILE GRADES		FINAL DESIGN ROAD LEVELS		GROUND LEVELS ON CL		HORIZONTAL ALIGNMENT		DISTANCE (m)	
BVC	VCL=34.653m K=2.300	EVC	1594.977	1595.018	DIRECTION	BVC	20	40	60
K=2	42.717	1594.959	1595.057	1595.025	245°08'40"	ECC	40	80	100
	-10.118%	1594.140	1595.052	1595.132	241°06'40"	ECC	80	120	140
BVC	VCL=51.135m K=5.000	1594.025	1595.052	1595.102	241°06'40"	ECC	120	160	180
K=5	77.438	1594.059	1595.021	1595.132	241°06'40"	ECC	160	200	220
	93.006	1594.140	1595.021	1595.132	241°06'40"	ECC	200	240	260
BVC	VCL=23.094m K=1.786	1594.059	1595.021	1595.132	320°59'50"	ECC	240	280	300
K=1.786	1588.793	1594.140	1595.021	1595.132	320°59'50"	ECC	280	320	340
	-16.345%	1594.140	1595.021	1595.132	320°59'50"	ECC	320	360	380
BVC	VCL=46.402m K=20.853	1594.140	1595.021	1595.132	333°19'40"	ECC	360	400	420
K=20.853	145.813	1594.140	1595.021	1595.132	333°19'40"	ECC	400	440	460
	254.044	1594.140	1595.021	1595.132	291°00'40"	ECC	440	480	500
BVC	VCL=51.359m K=26.610	1594.140	1595.021	1595.132	291°00'40"	ECC	480	520	540
K=26.610	354.231	1594.140	1595.021	1595.132	303°38'10"	ECC	520	560	580
	254.044	1594.140	1595.021	1595.132	303°38'10"	ECC	560	600	612
BVC	VCL=60.475m K=23.692	1594.140	1595.021	1595.132	297°53'40"	ECC	600	612	
K=23.692	498.089	1594.140	1595.021	1595.132	297°53'40"	ECC			
	459.371	1594.140	1595.021	1595.132	1-285°39'50"	ECC			
BVC	VCL=587.177m K=5.000	1594.140	1595.021	1595.132	273°28'00"	ECC			
K=5.000	567.834	1594.140	1595.021	1595.132	273°28'00"	ECC			
	567.834	1594.140	1595.021	1595.132		ECC			



TYPICAL CROSSSECTION

<p>CLIENT:</p> <p>19 Murray Street Lady Grey 9755 Tel: (051) 603 1449 Email: vanzyh@senqu.gov.za</p>	<p>CONSULTANT:</p> <p>THEWO & SMMMS - JV 58 Brebner Road Westdene Bloemfontein 9301 Sigodi Marah Martin Management Support Development & Engineering Consultant</p>	<p>PROFESSIONAL ENGINEER: L. MARAH PROF. Reg.No: 920281 DATE: SIGNATURE:</p>	<p>DESIGN BY: R.DHLIWAYO DRAWN BY: R.DHLIWAYO CHECKED BY: L. MARAH APPROVED BY: L. MARAH</p>	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				REV	DATE	DESCRIPTION	BY									<p>PROJECT NAME REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduza, Bensonville, Jozana Nek</p> <p>TITLE SUNDUZA ROAD 1 LONGSECTION</p>	<p>PROJECT STATUS: FOR TENDER</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>SCALE</th> <th>SHEET</th> <th>REV</th> <th>A1</th> </tr> </thead> <tbody> <tr> <td>2025-02-21</td> <td>N.T.S</td> <td>1 OF 1</td> <td>0</td> <td>A1</td> </tr> </tbody> </table> <p>DWG NO P-SM01-PMO-GR-S-T-01</p>	DATE	SCALE	SHEET	REV	A1	2025-02-21	N.T.S	1 OF 1	0	A1
				REV	DATE	DESCRIPTION	BY																								
DATE	SCALE	SHEET	REV	A1																											
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<p>DATE: 2025-02-21</p>																															

LEGEND

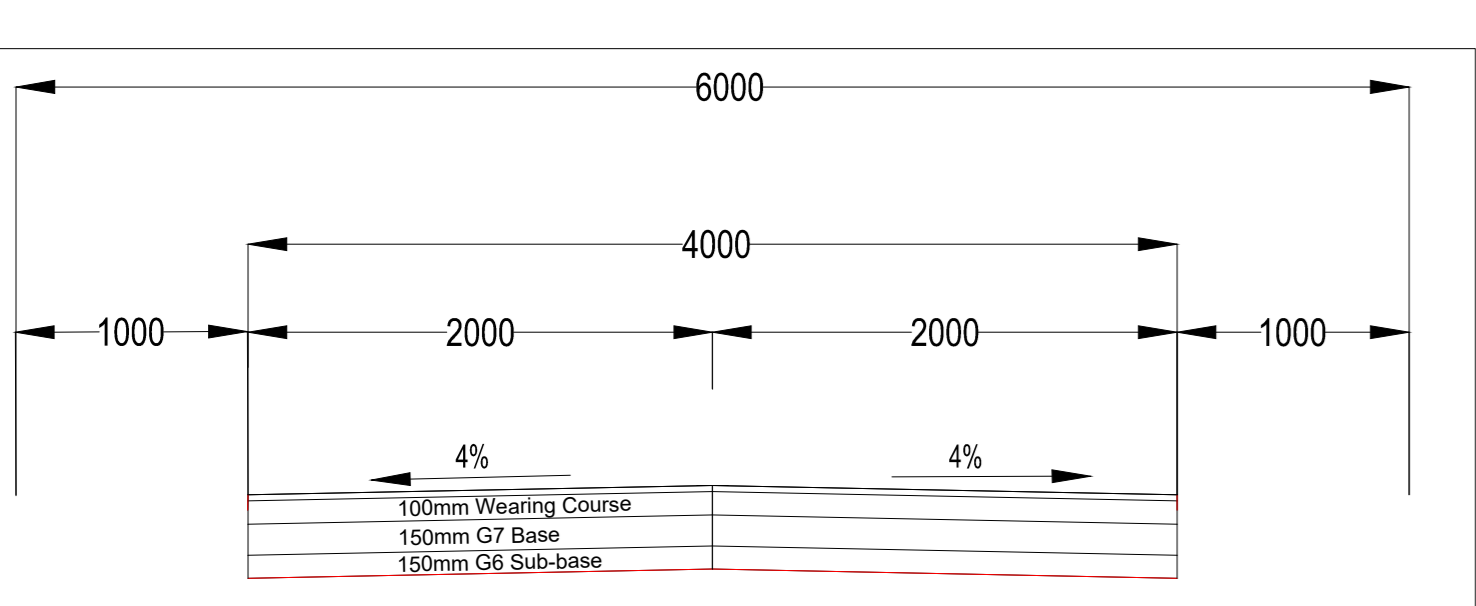
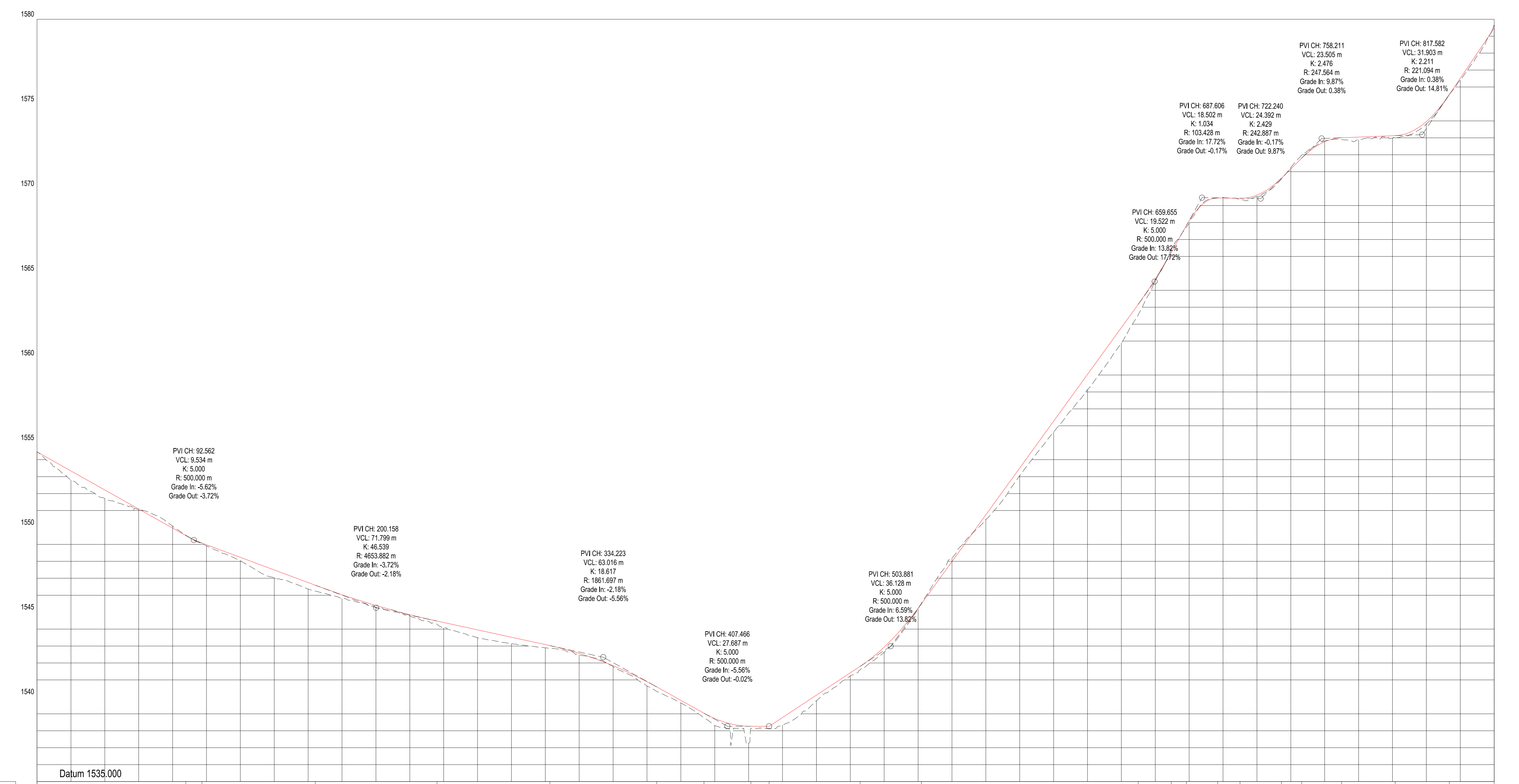
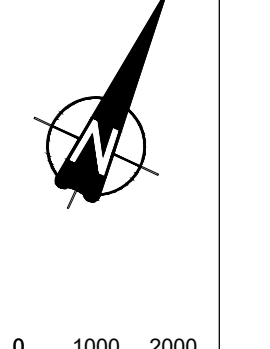
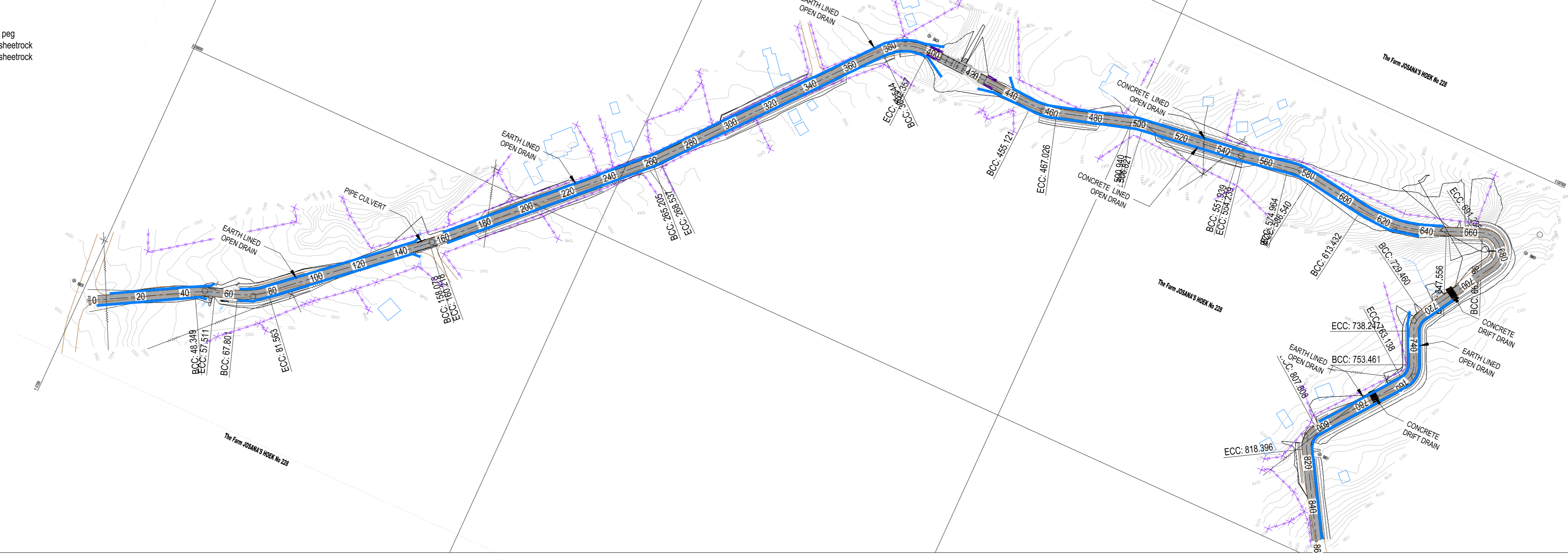
- - - CENTRELINE
- ESKOMTELKOM POLE
- EXISTING POWER LINE
- 4% ROAD CROSS FALL
- x FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

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 W6 -34113.16 3365444.62 1430.49 8mm iron peg in sheetrock
 W7 -33927.13 3365175.34 1411.98 8mm iron peg in sheetrock



TYPICAL CROSSSECTION

VERTICAL PROFILE GRADES		
BVC	VCL=71.799m	EVC
184.258	K=47	238.057
-3.718%		
BVC	VCL=43.016m	EVC
302.715	K=19	421.310
-2.175%		
BVC	VCL=36.128m	EVC
485.817	K=5	521.945
6.591%		
BVC	VCL=19.522m	EVC
648.893	K=5	833.553
13.817%		
BVC	VCL=24.392m	EVC
769.963	K=2	833.553
0.380%		

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 9301
 THEWO ENGINEERING
 Sigodi Maran Martin
 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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduza, Bensonville, Jozana Nek

TITLE:
 SUNDUZA ROAD 2 LONGSECTION

PROJECT STATUS:
 FOR TENDER

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

DWG NO: P-SM01-PMO-GR-S-02

LEGEND

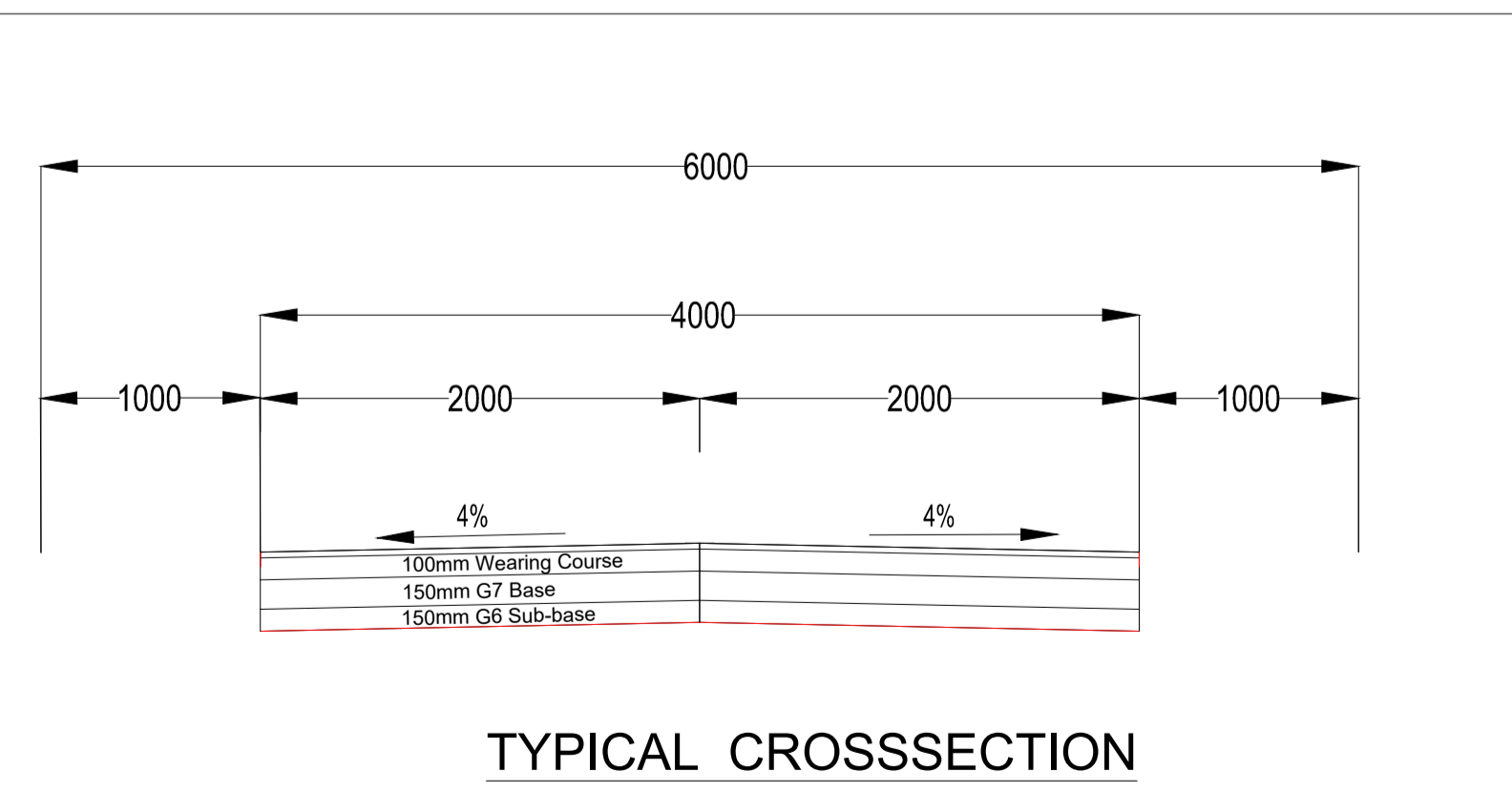
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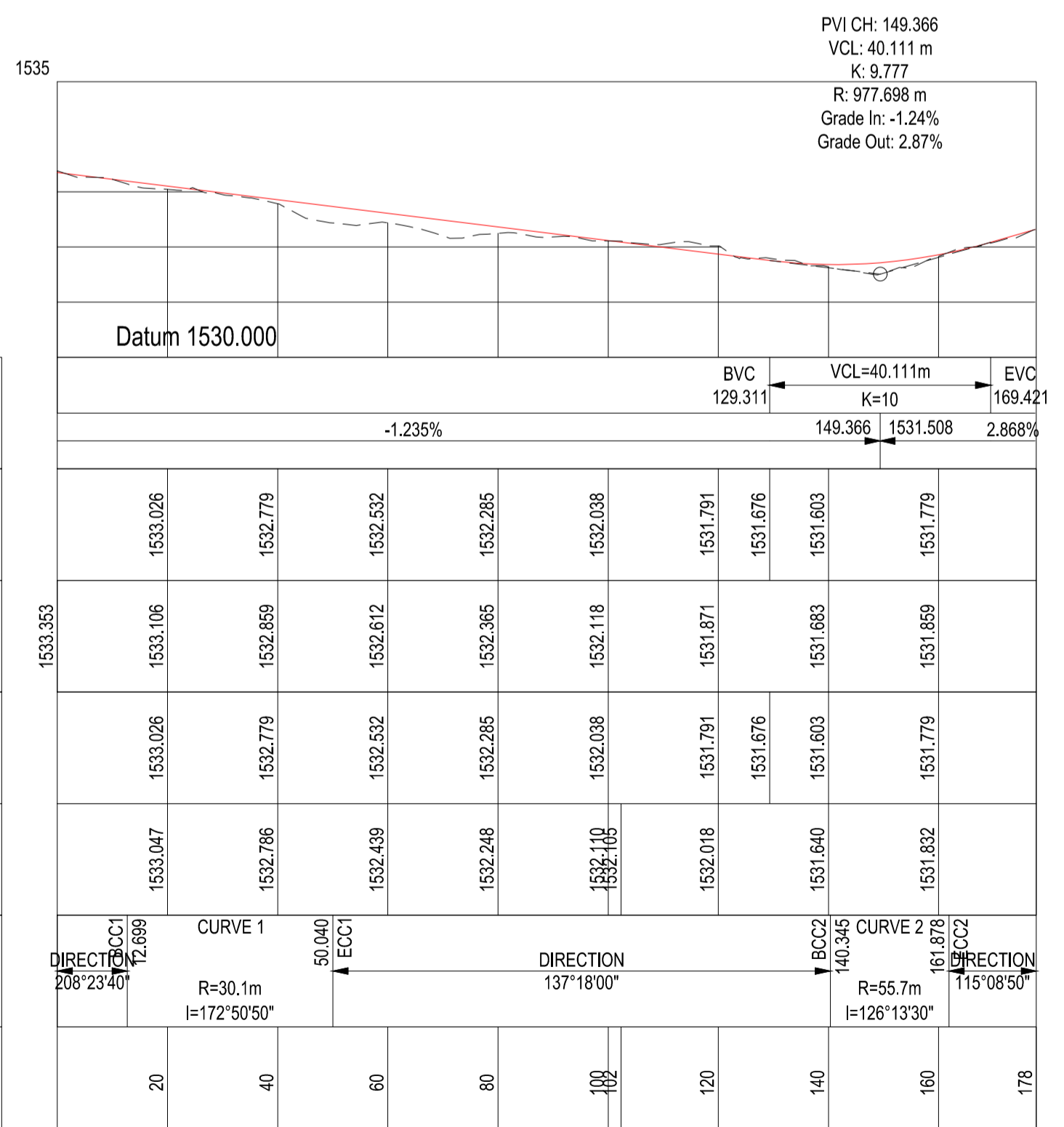
COORDINATE LIST

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)	



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

CONSULTANT: THEWO & SMMMS - JV. 58 Brebner Road, Westdene, Bloemfontein 9301. Sigodi Marah Martin, Management Support, Environmental & 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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek

TITLE: SUNDUZA 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-S-T-03

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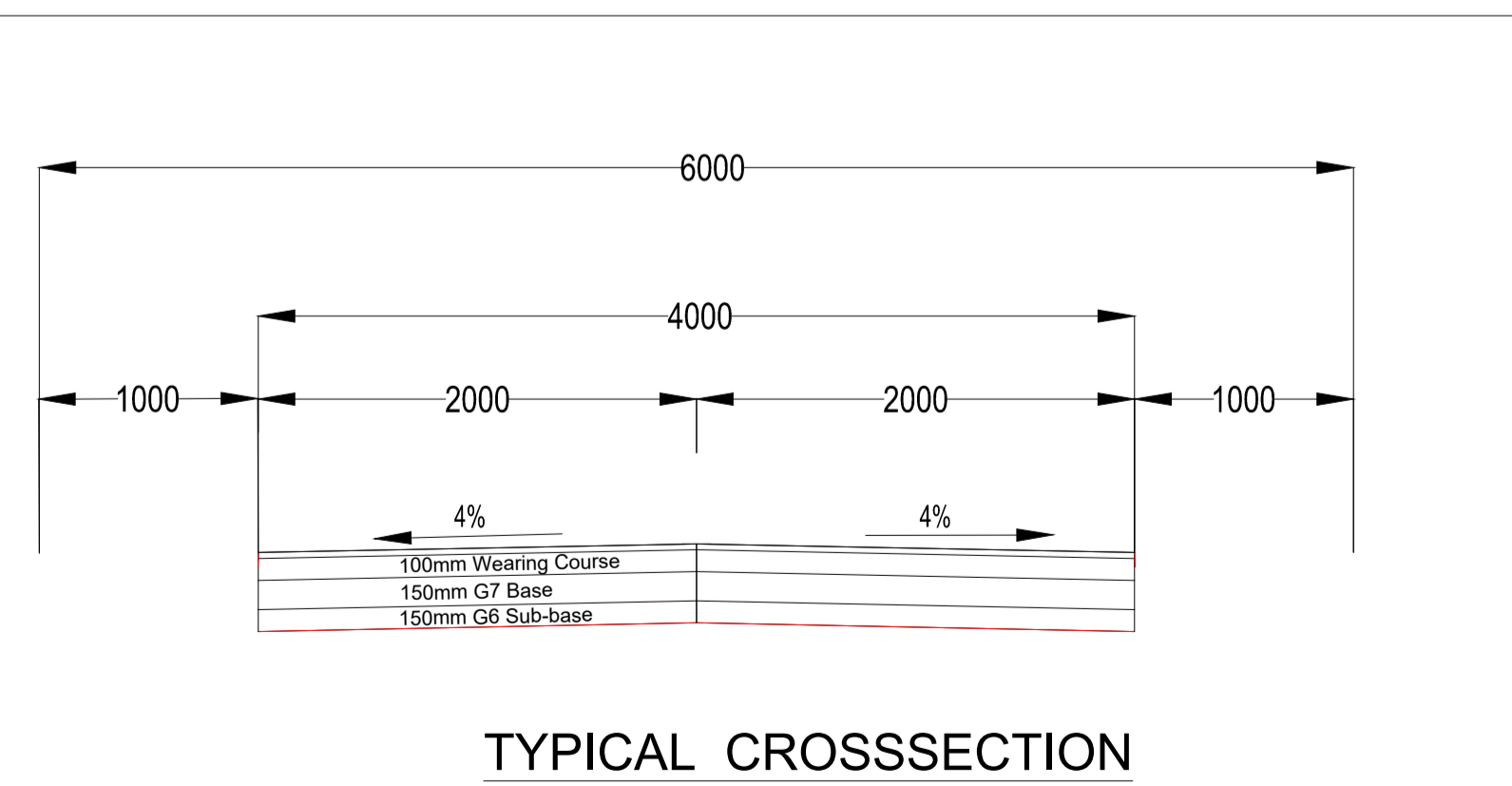
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- ROAD CROSS FALL
- FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

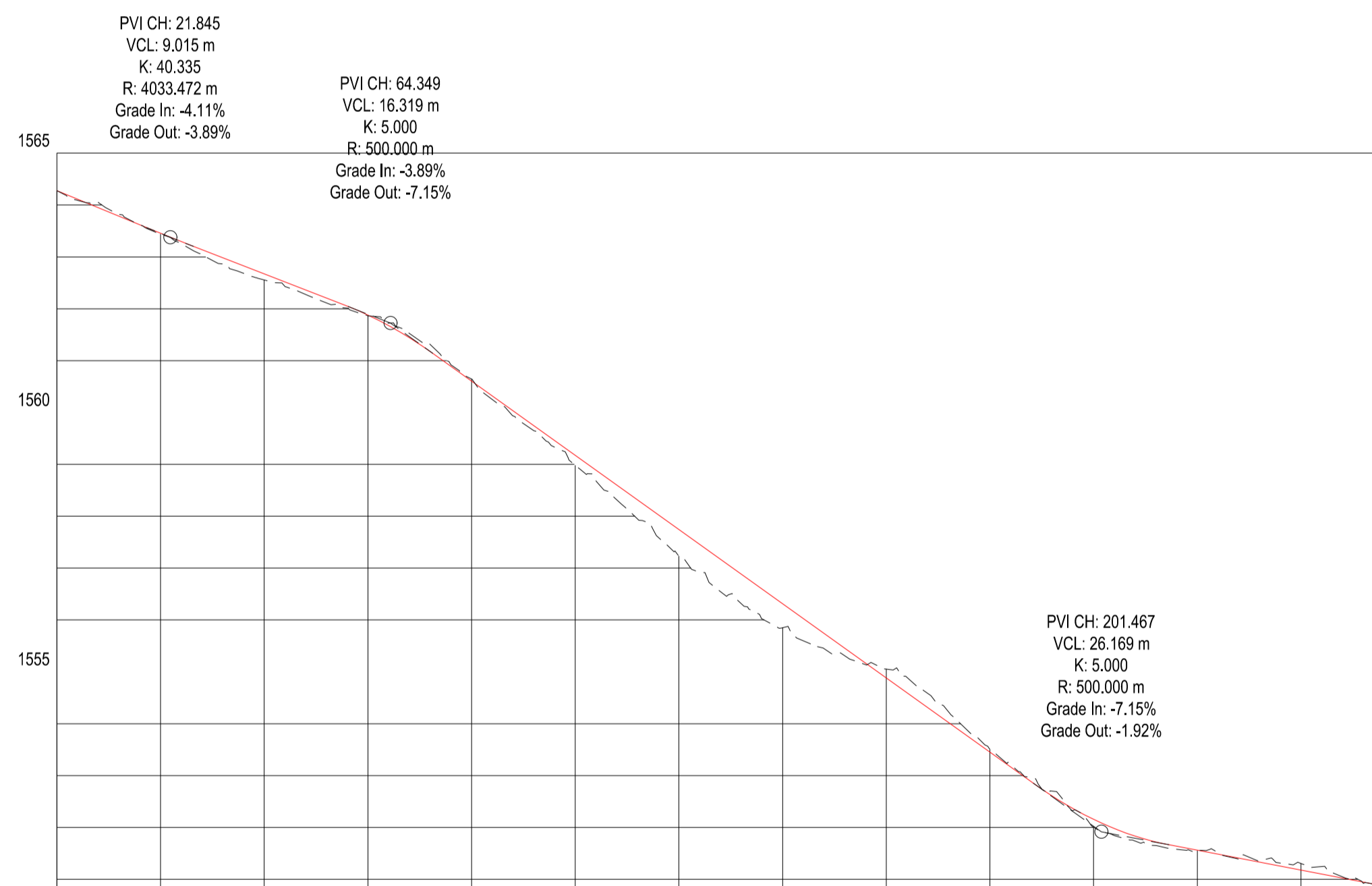
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BM57 -43168.25 3384280.01 1632.59
 BM58 -43133.53 3384417.41 1634.99



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)	

Datum 1550.000														
BVC	VCL	EVC	BVC	VCL	EVC	BVC	VCL	EVC						
17.337	9.015	26.352	56.190	16.319	72.509	188.363	26.169	214.552						
K=40			K=5			K=5								
-4.11%			-3.890%			-7.153%								
1563.376			1562.592			1552.077								
20	40	60	80	100	120	140	160	180	200	220	240			
1564.277	1563.376	1562.592	1561.808	1560.526	1559.095	1557.230	1555.224	1554.803	1553.372	1552.774	1552.077	1551.481	1551.097	1550.900
1563.376	1562.592	1561.808	1560.526	1559.095	1557.230	1555.224	1554.803	1553.372	1552.774	1552.077	1551.481	1551.097	1550.900	
1563.376	1562.592	1561.808	1560.526	1559.095	1557.230	1555.224	1554.803	1553.372	1552.774	1552.077	1551.481	1551.097	1550.900	
DIRECTION 55°46'20"			DIRECTION 62°33'50"			DIRECTION 35°10'20"			DIRECTION 27°12'50"					
R=50.0m I=59°10'00"			R=50.0m I=48°52'00"			R=18.8m I=48°52'00"			R=18.8m I=31°11'30"					

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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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek

TITLE: SUNDUZA ROAD 4 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-S-T-04

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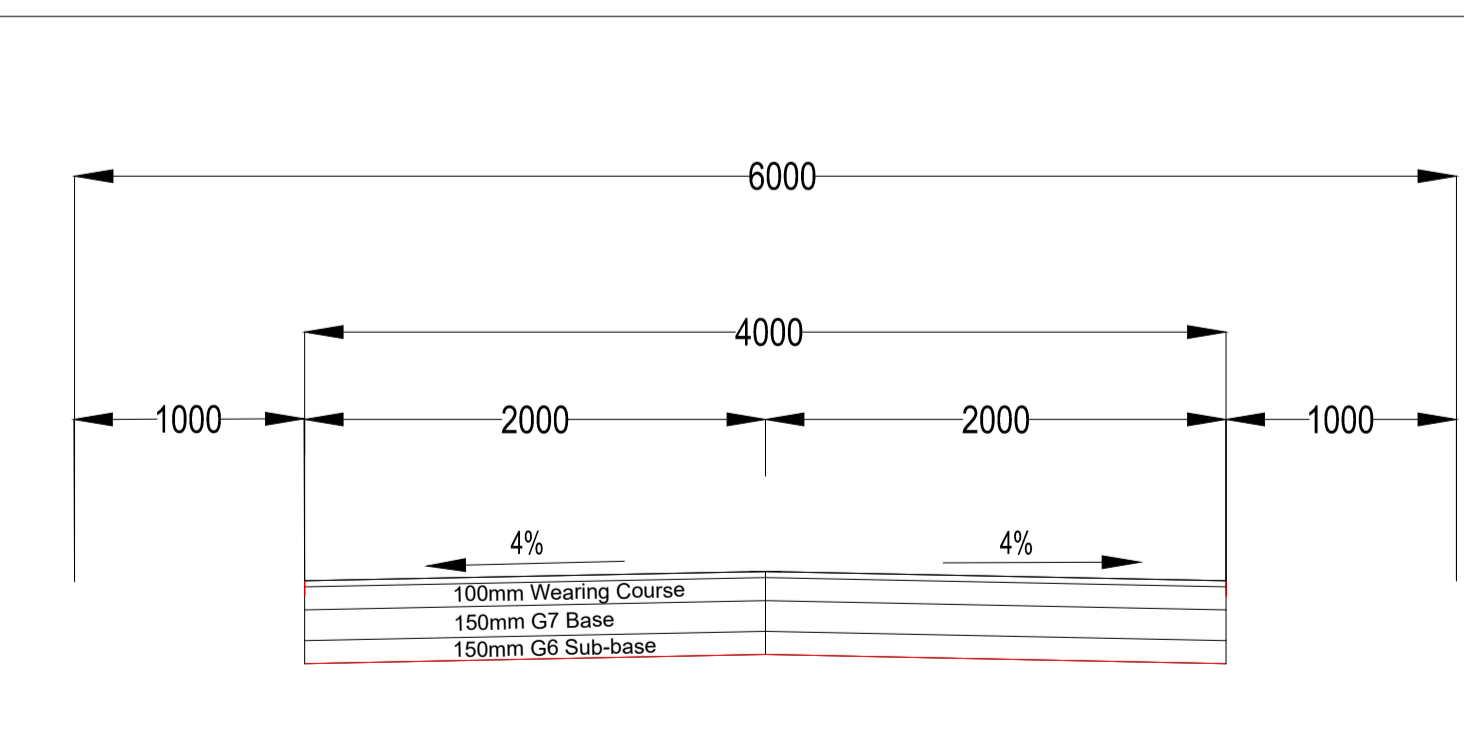
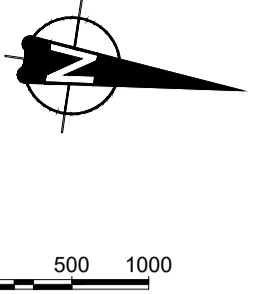
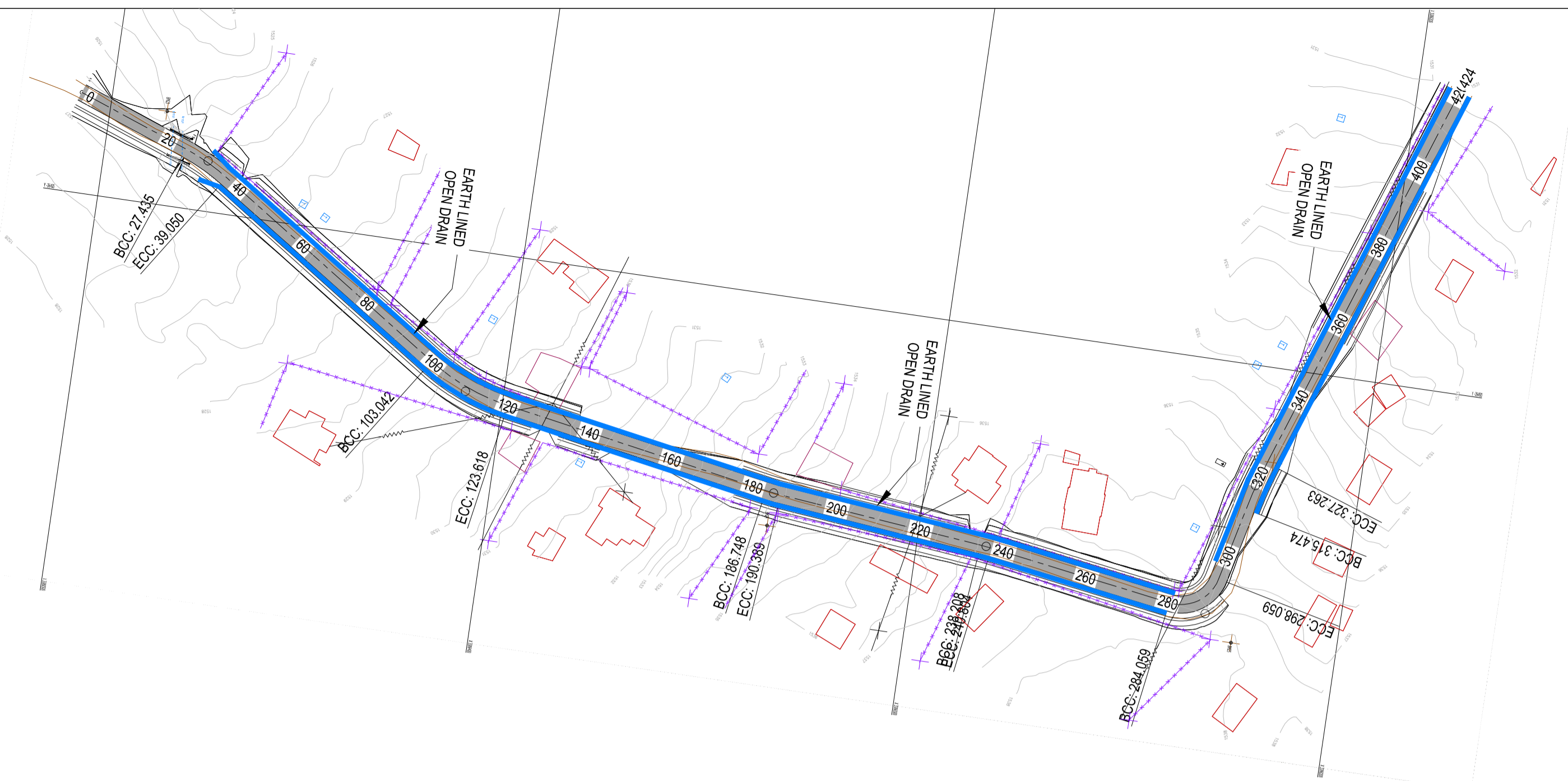
- CENTRELINE
- ⊙ ESKOM/TELKOM POLE
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- 4% ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

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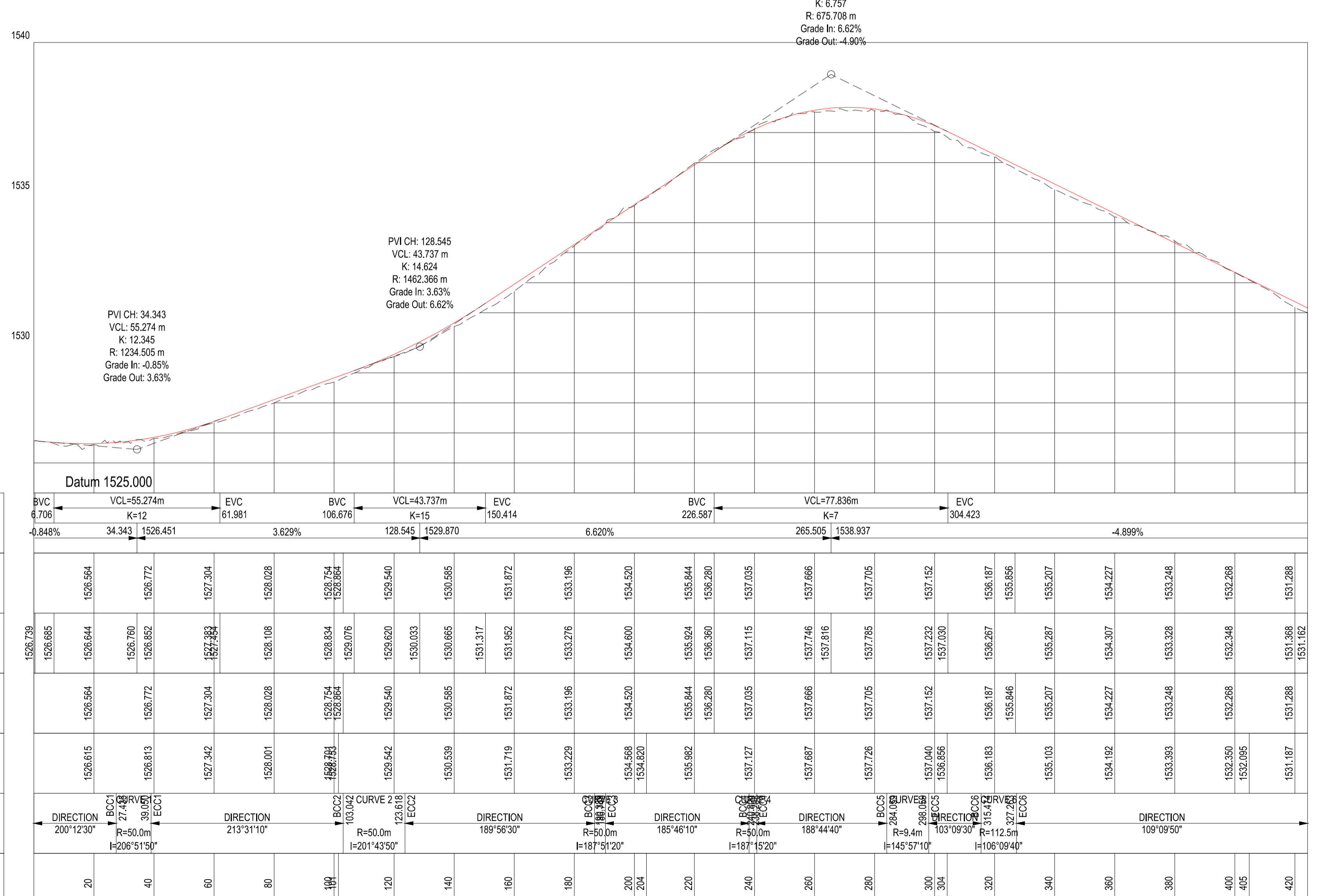
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BM57 -43168.25 3384280.01 1632.59
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TYPICAL CROSSSECTION

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



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

REV	DATE	DESCRIPTION	BY

PROJECT NAME
REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek




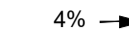



TITLE
SUNDUZA ROAD 5 LONGSECTION

PROJECT STATUS: **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-S-T-05

LEGEND

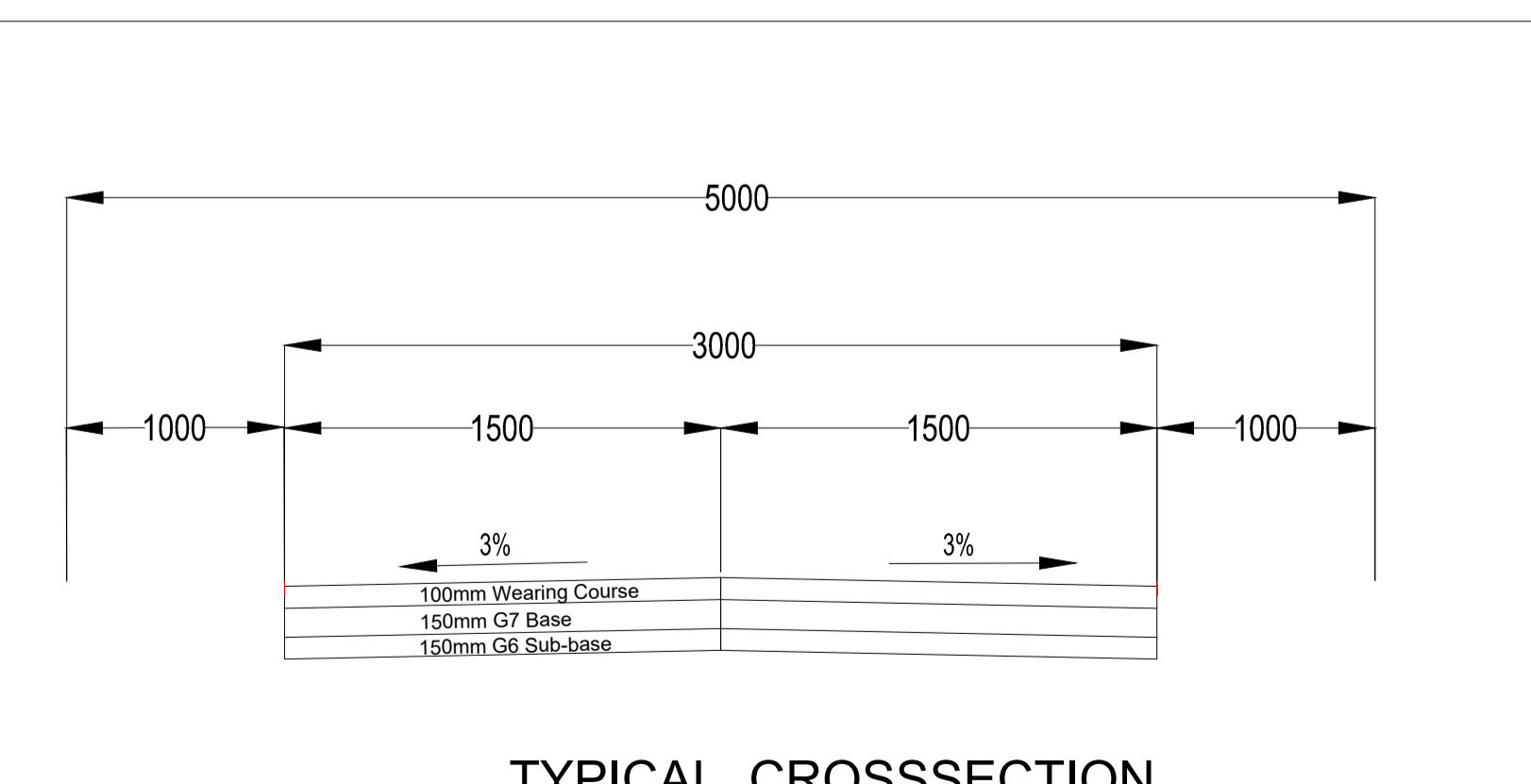
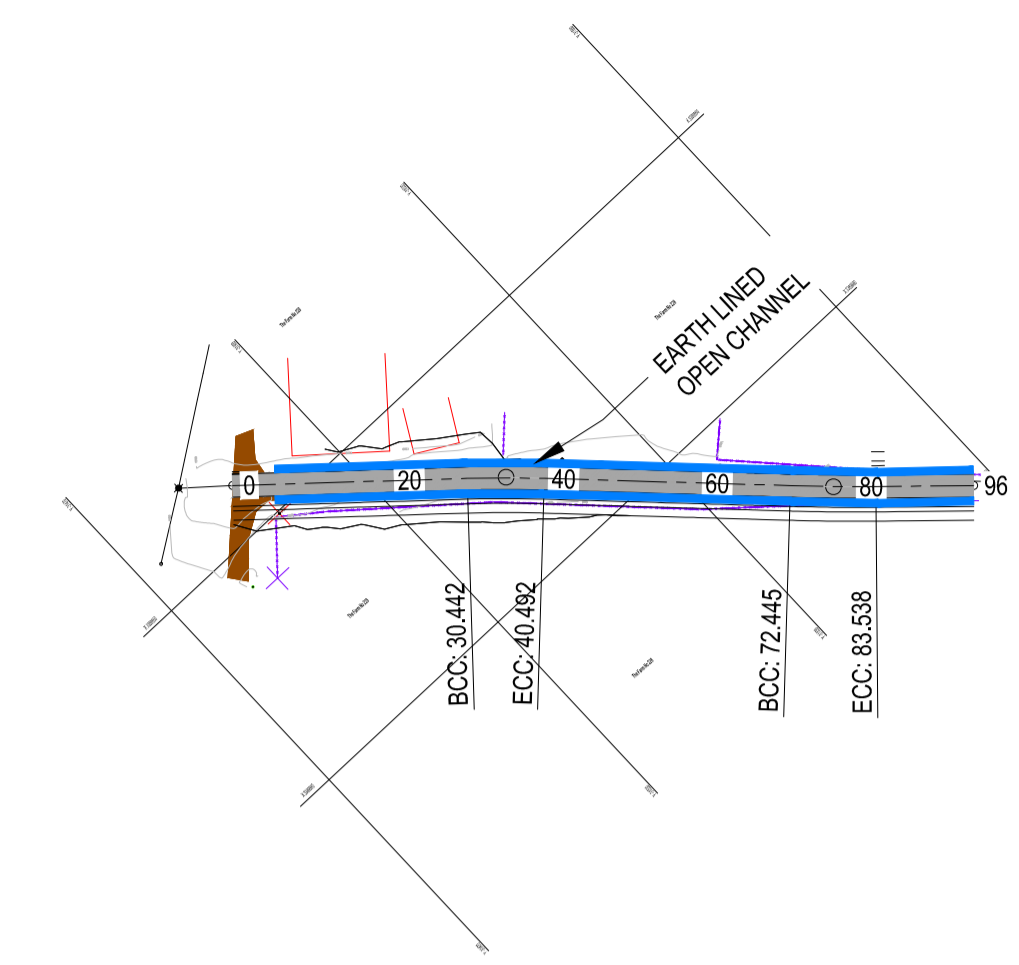
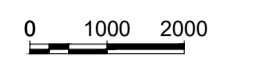
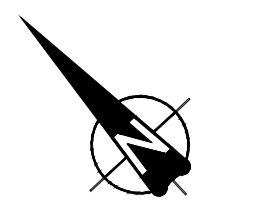
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-  BUILDING

ABBREVIATIONS

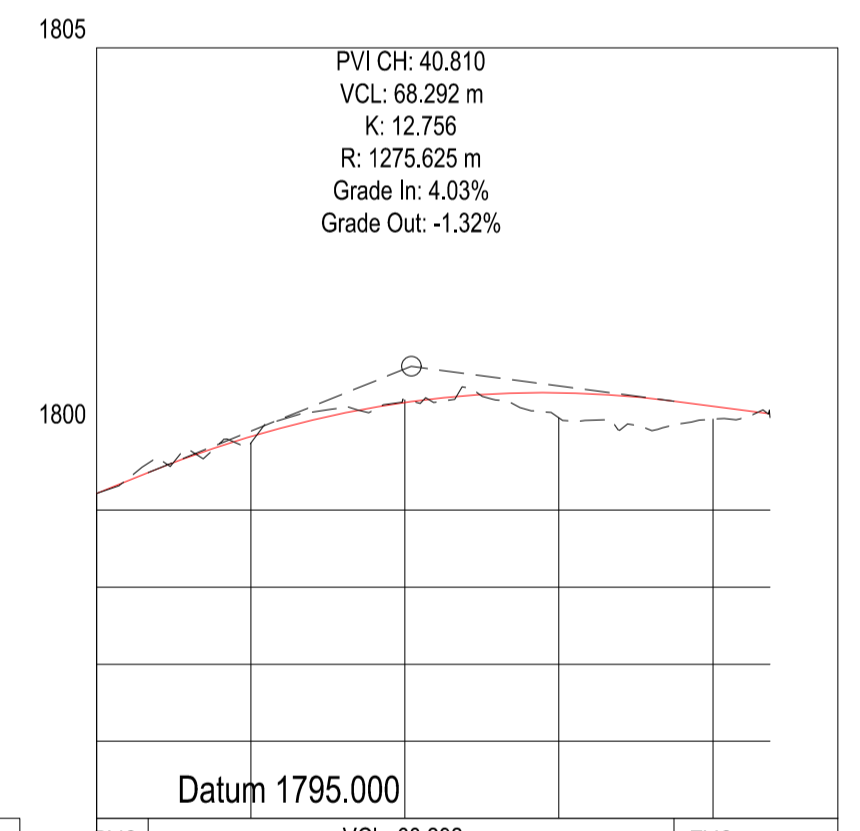
- N.G.L. NATURAL GROUND LEVEL
- CL CENTRELINE
- m METERS (UNIT)
- HL LEFT HAND
- HR RIGHT HAND
- BCC BEGINNING OF CURVE CENTRELINE
- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

BM102 -31487.81 3389850.17 1800.12 15



TYPICAL CROSSSECTION



VERTICAL PROFILE GRADES		BVC	VCL	EVC
		6.664	68.292	74.956
		4.035%	K=13	-1.319%
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1799.910	1800.352	1800.479
	CENTRE LINE (CL)	1799.487	1800.415	1800.251
	RIGHT EDGE (HR)	1799.910	1800.352	1800.303
GROUND LEVELS ON CL		1799.872	1800.431	1800.182
HORIZONTAL ALIGNMENT		BVC 30.440 ECC 40.810 BVC 72.445 EVC 80.538 DIRECTION 311°14'40" R=167.1m DIRECTION 314°41'30" R=291.5m DIRECTION 312°30'40" I=812'58"00" I=913'36"00"		
DISTANCE (m)		20	40	60

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

REVISIONS			
REV	DATE	DESCRIPTION	BY

PROJECT NAME
REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduzza, Bensonville, Jozana Nek

TITLE
JOZANA SNEK ROAD 1 LONGSECTION

PROJECT STATUS:

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-JZN-T-01

LEGEND

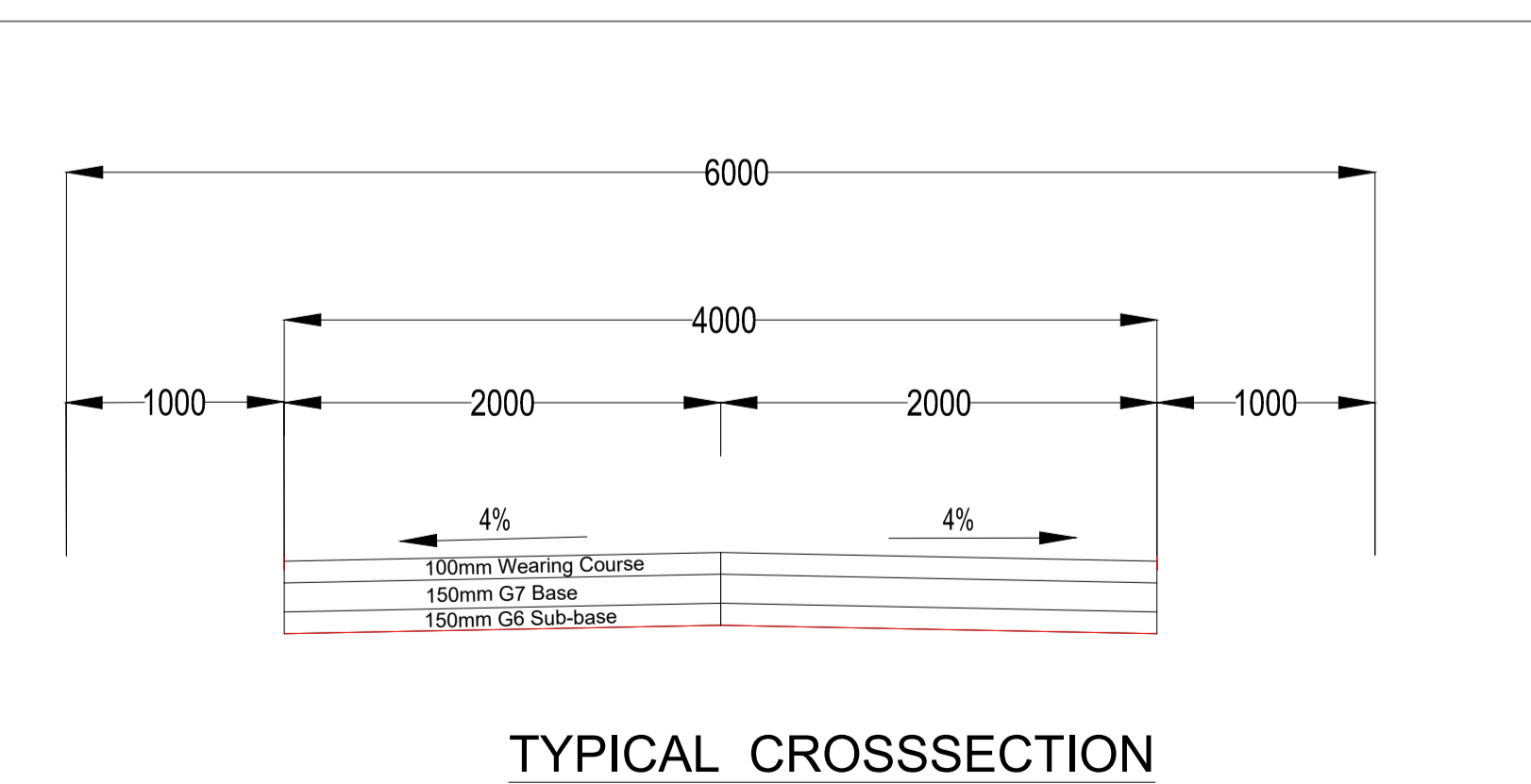
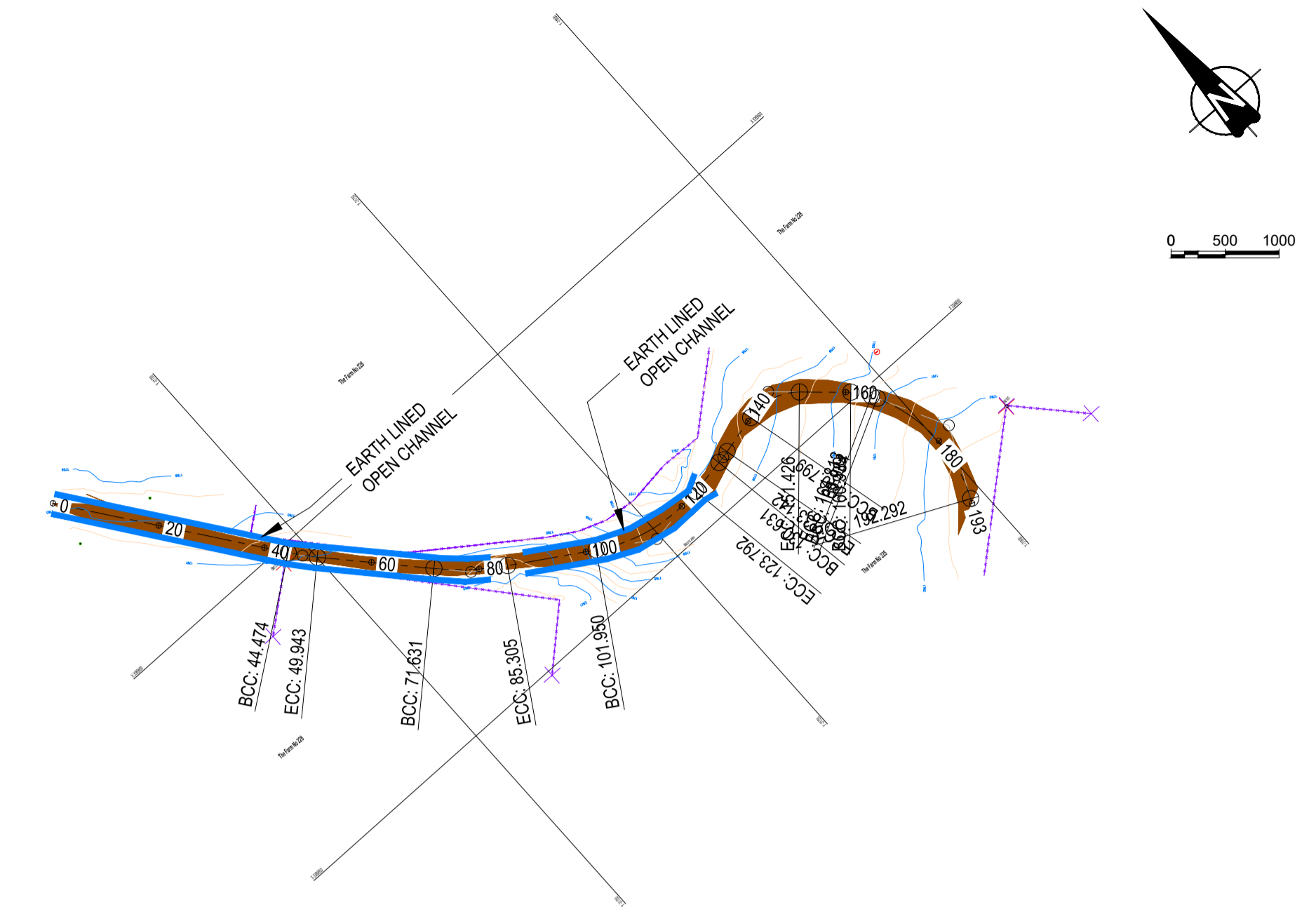
- CENTRELINE
- ESKOM/TELKOM POLE
- EXISTING POWER LINE
- ROAD CROSS FALL
- FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

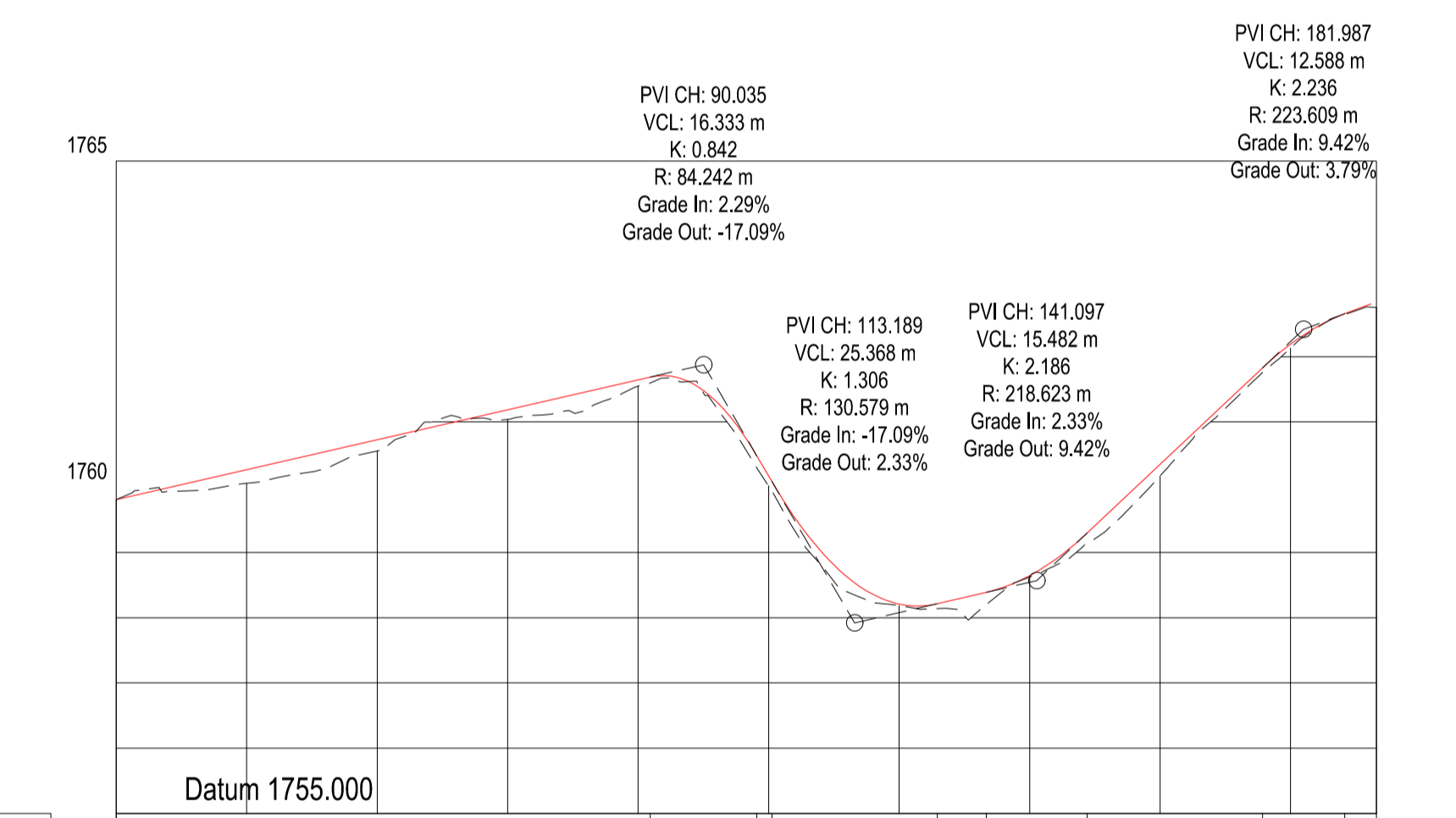
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- ECC END OF CURVE CENTRELINE
- BVC BEGINNING OF VERTICAL CURVE
- EVC END OF VERTICAL CURVE
- R RADIUS
- CH. CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

15mm Peg:
 BM100 -31813.81 3389669.88 1762.57
 BM101 -31694.78 3389602.52 1761.15



TYPICAL CROSSECTION



VERTICAL PROFILE GRADES		VERTICAL CURVE DATA											
		BVC	ECC	PVI	EVC	BVC	ECC	PVI	EVC	BVC	ECC	PVI	EVC
		81.868	100.506	113.189	133.257	148.838	175.693	188.281	181.987	176.280	176.280	176.280	176.280
		2.295%		90.035	113.189	141.097	158.570	175.693	181.987	176.280	176.280	176.280	176.280
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL)	1760.224	1760.883	1761.142	1761.601	1761.601	1758.164	1758.600	1760.304	1762.146	1762.810	1762.810	1762.810
	CENTRE LINE (CL)	1760.269	1760.728	1761.187	1761.646	1761.646	1758.214	1758.650	1760.349	1762.191	1762.855	1762.855	1762.855
	RIGHT EDGE (HR)	1760.224	1760.883	1761.142	1761.601	1761.601	1758.164	1758.600	1760.304	1762.146	1762.810	1762.810	1762.810
GROUND LEVELS ON CL		1760.061	1760.553	1761.039	1761.550	1761.600	1758.184	1758.623	1760.172	1762.134	1762.798	1762.798	1762.798
HORIZONTAL ALIGNMENT		DIRECTION 323°35'20" I=320°27'20" I=309°29'10" I=281°15'40" I=258°31'40" I=284°07'20" I=322°14'40" I=358°46'40"											
DISTANCE (m)		20	40	60	80	100	120	140	160	180			

CLIENT:
 19 Murray Street, Lady Grey 9755. Tel: (051) 803 1449. Email: vanzytli@senqu.gov.za

CONSULTANT:
 THEWO & SMMMS - JV. 58 Brehner Road, Westdene, Bloemfontein 9301. Sigodi Marah Martin, Management & 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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek

TITLE: JOZANA SNEK ROAD 2 LONGSECTION

PROJECT STATUS: TENDER

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

DWG NO: P-SM01-PMO-GR-JZN-T-02

LEGEND

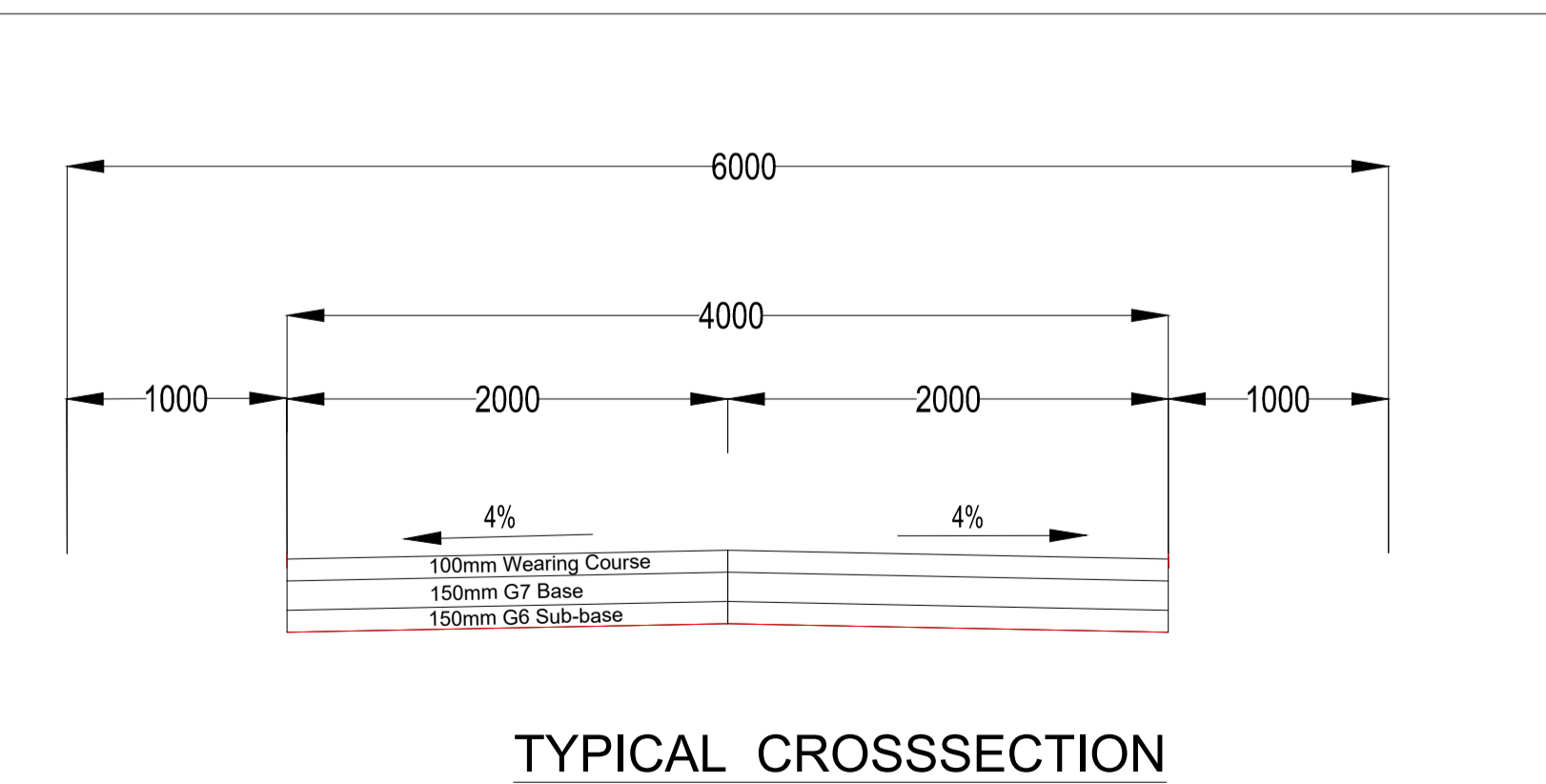
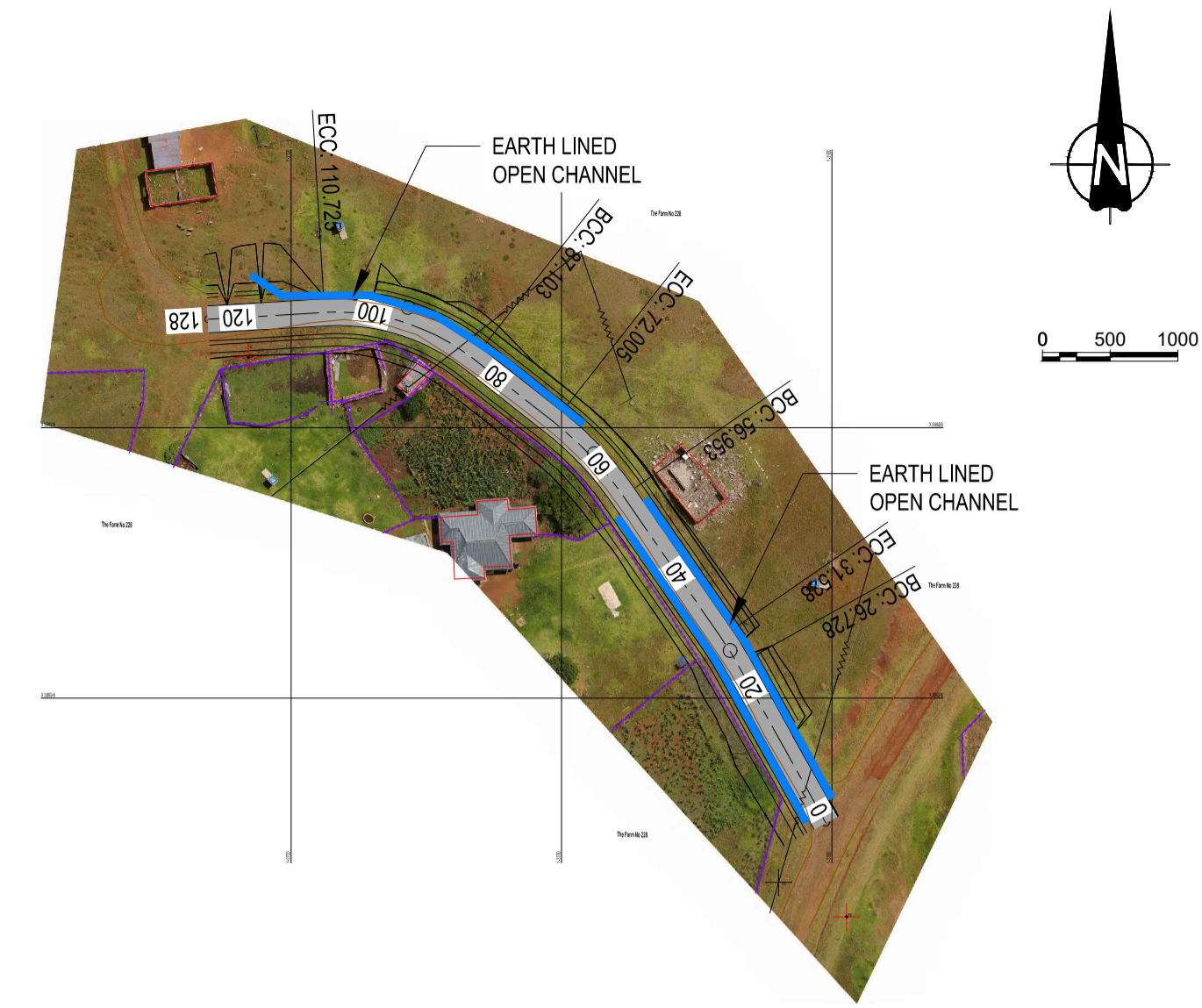
- +— CENTRELINE
- ⊙ ESKOM/TELKOM POLE
- — — EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

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

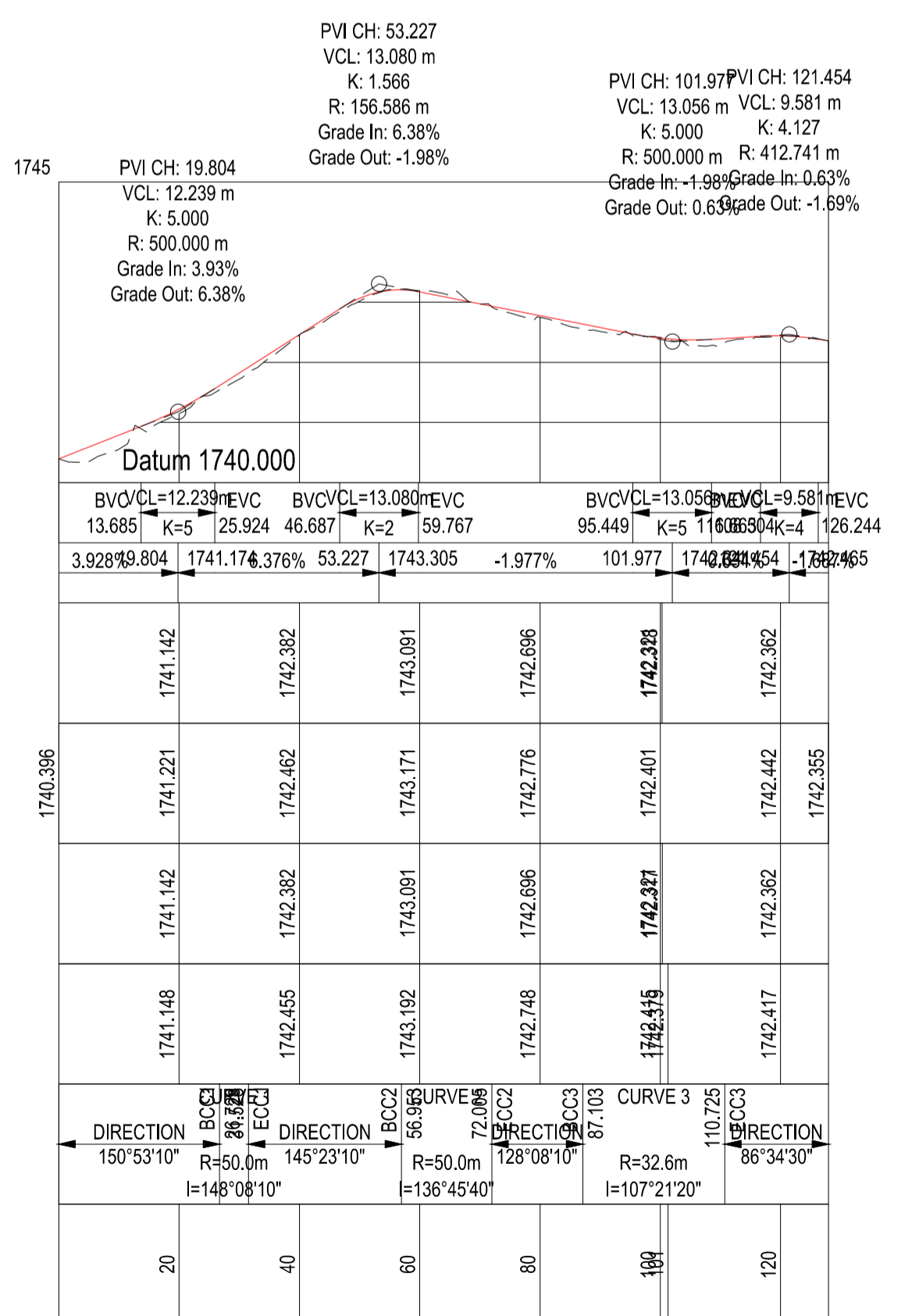
COORDINATE LIST

8mm peg
 BM1 -31713.64 3389189.61 1742.62
 BM2 -31802.16 3389272.35 1741.70



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)	



CLIENT:

19 Murray Street
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 9755
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 vanzyti@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

REVISIONS			
REV	DATE	DESCRIPTION	BY

PROJECT NAME
 REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS
 IN Ward 4:Sunduzza, Bensonville, Jozana Nek

TITLE
 JOZANA SNEK ROAD 3 LONGSECTION

PROJECT STATUS:
TENDER

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

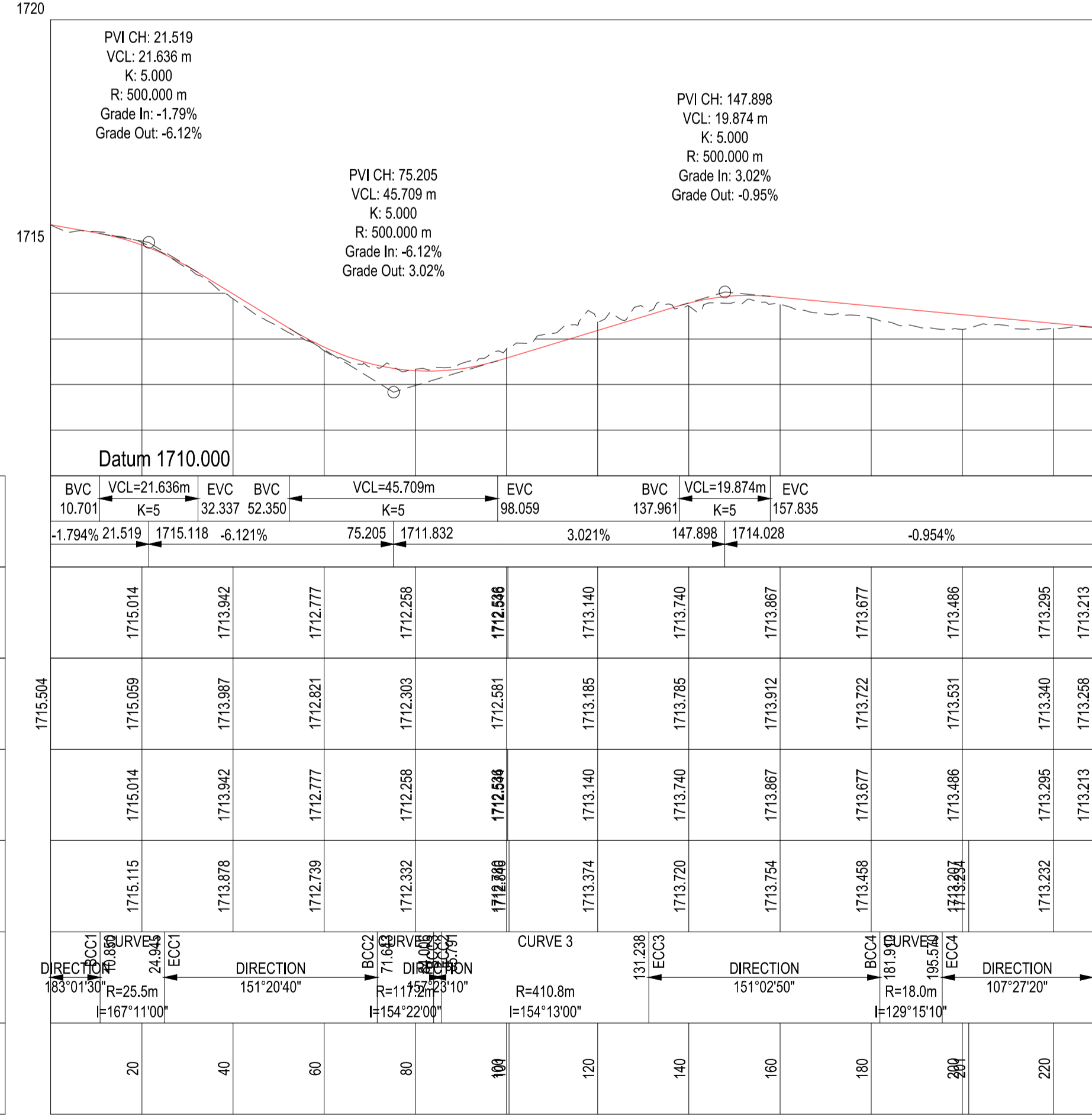
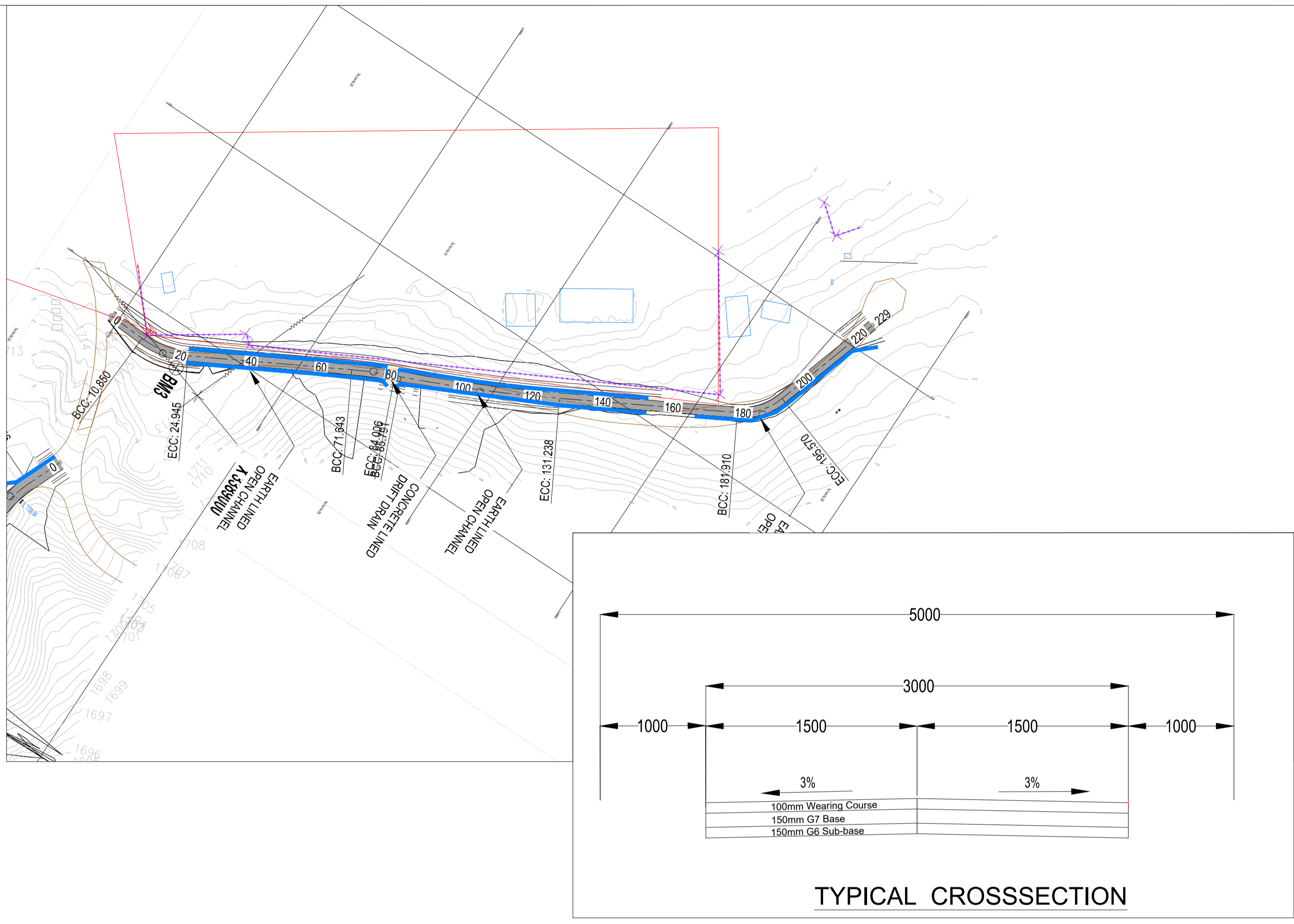
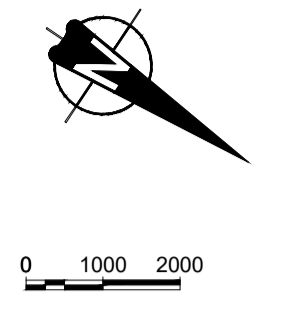
DWG NO
 P-SM01-PMO-GR-JZN-T-03

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



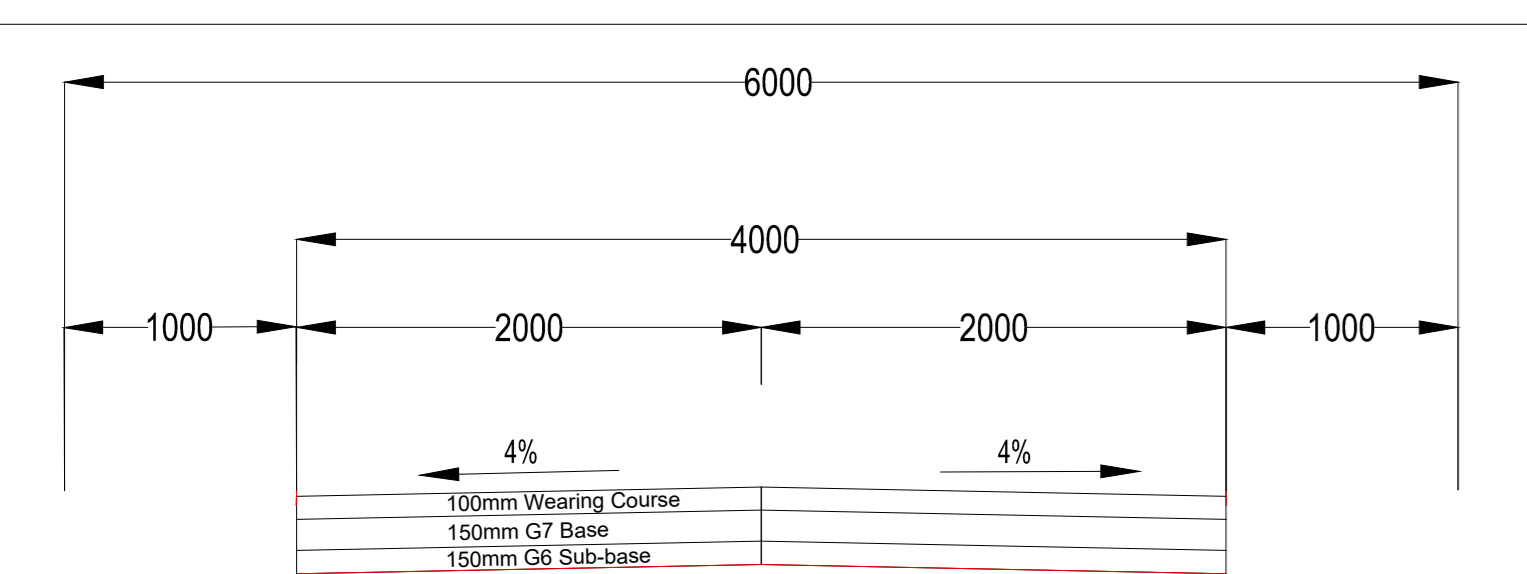
VERTICAL PROFILE GRADES	
FINAL DESIGN ROAD LEVELS	LEFT EDGE (HL), CENTRE LINE (CL), RIGHT EDGE (HR)
GROUND LEVELS ON CL	
HORIZONTAL ALIGNMENT	
DISTANCE (m)	

<p>CLIENT:</p> <p>19 Murray Street Lady Grey 9755 Tel: (051) 803 1449 Email: vanrensburg@senqu.gov.za</p>	<p>CONSULTANT:</p> <p>THEWO & SMMS - JV</p> <p> </p> <p>Thewo Engineering 58 Bretoner Road Wesdene Bloemfontein 9301</p>	<p>PROFESSIONAL ENGINEER:</p> <p>L. MARAH</p> <p>PROF. Reg.No: 920281</p> <p>DATE:</p> <p>SIGNATURE:</p>	<p>DESIGN BY:</p> <p>R DHLIWAYO</p> <p>DRAWN BY:</p> <p>R DHLIWAYO</p> <p>CHECKED BY:</p> <p>L. MARAH</p> <p>APPROVED BY:</p> <p>L. MARAH</p>	<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY																	<p>PROJECT NAME</p> <p>REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek</p> <p>TITLE</p> <p>JOZANA SNEK ROAD 4 LONGSECTION</p>	<p>PROJECT STATUS:</p> <p>TENDER</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DATE</td> <td>SCALE</td> <td>SHEET</td> <td>REV</td> <td> </td> </tr> <tr> <td>2025-02-21</td> <td>N.T.S</td> <td>1 OF 1</td> <td>A</td> <td>A1</td> </tr> </table> <p>DWG NO</p> <p>P-SM01-PMO-GR-JZN-T-04</p>	DATE	SCALE	SHEET	REV		2025-02-21	N.T.S	1 OF 1	A	A1
REV	DATE	DESCRIPTION	BY																																	
DATE	SCALE	SHEET	REV																																	
2025-02-21	N.T.S	1 OF 1	A	A1																																

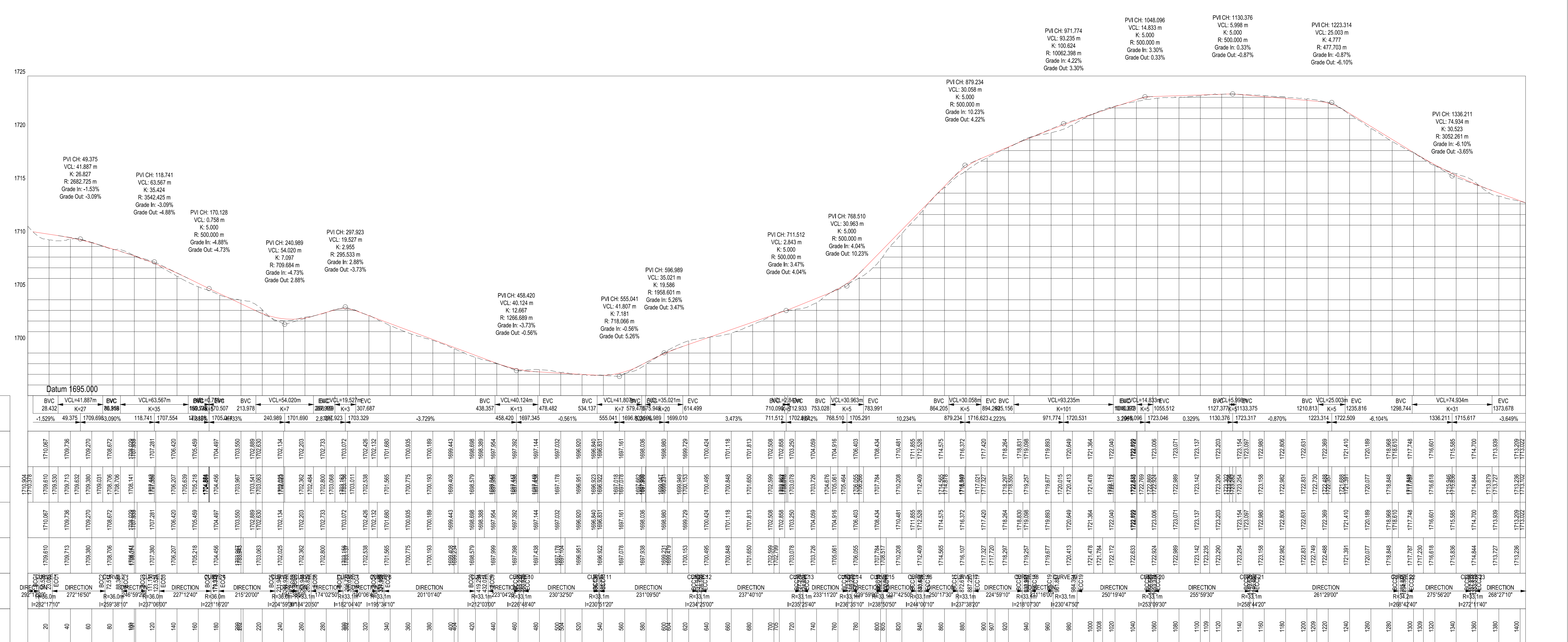
- LEGEND**
- CENTRELINE
 - ESKOMTELKOM POLE
 - EXISTING POWER LINE
 - ROAD CROSS FALL
 - FENCE
 - EXISTING TREE
 - BUILDING
- ABBREVIATIONS**
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 - R RADIUS
 - CH CHAINAGE
 - PI POINT OF INTERSECTION

COORDINATE LIST

- BM6 -4279.70 3384253.35 1640.26
- BM54 -42728.11 3384198.07 1638.93
- BM55 -42719.63 3384449.10 1650.95
- BM56 -42811.82 3384440.80 1640.20
- BM91 -42816.53 3384316.06 1640.93



TYPICAL CROSSECTION



CLIENT:

19 Murray Street
Lady Grey
9755
Tel: (051) 603 1449
Email: vanzyl@sengu.gov.za

CONSULTANT:

THEWO & SMMS - JV
58 Brebner Road
Westdene
Blenheimfontein
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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS
IN Ward 4:Sunduz, Bensonville, Jozana Nek

TITLE:
JOZANA SNEK ROAD 5 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-JZN-T-05

LEGEND

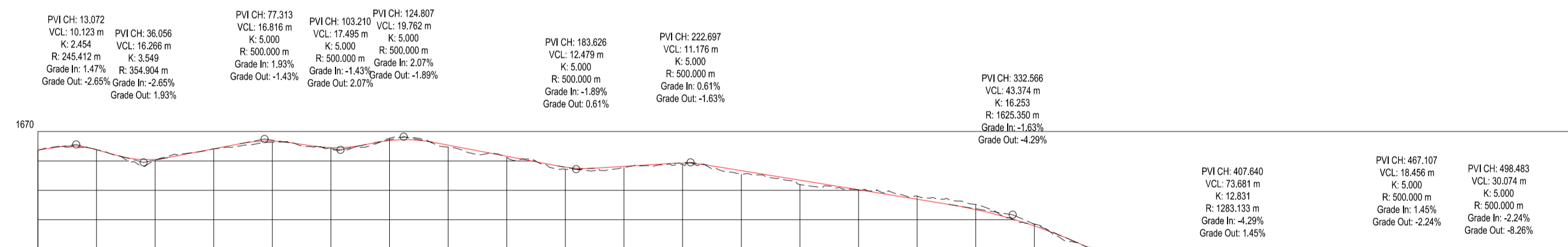
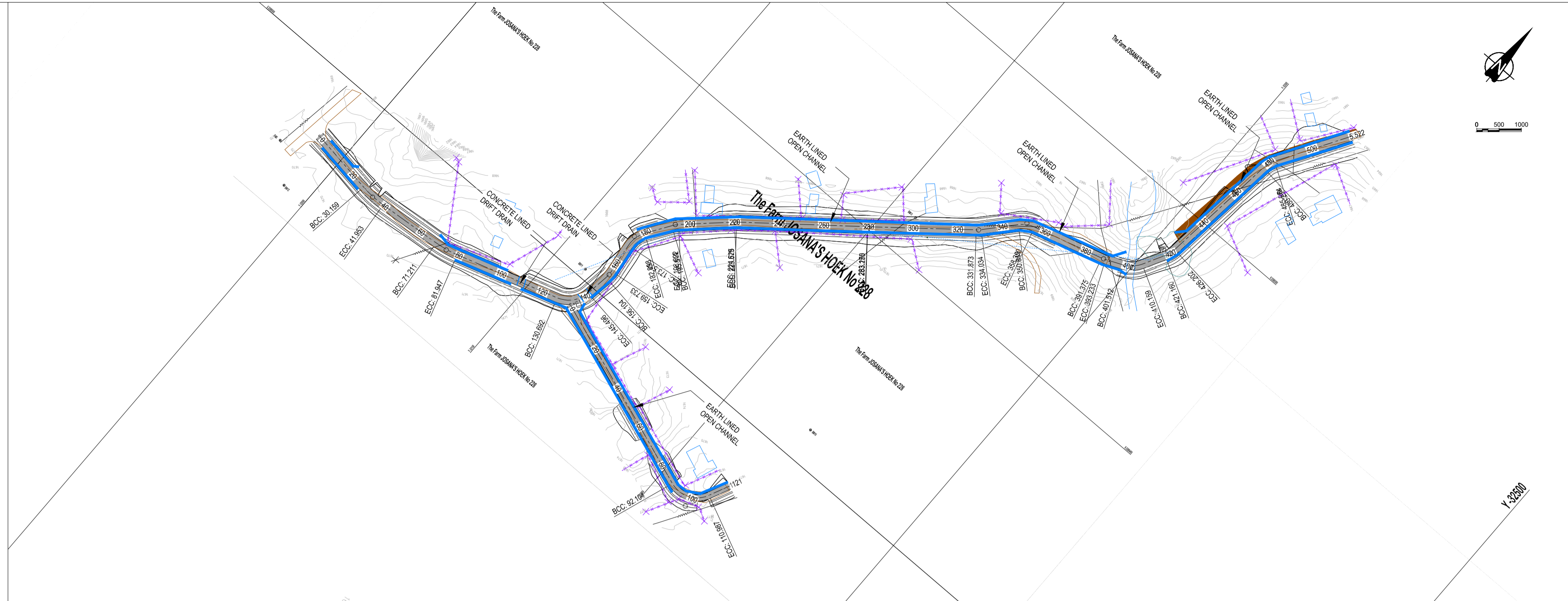
- CENTRELINE
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- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- EXISTING TREE
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ABBREVIATIONS

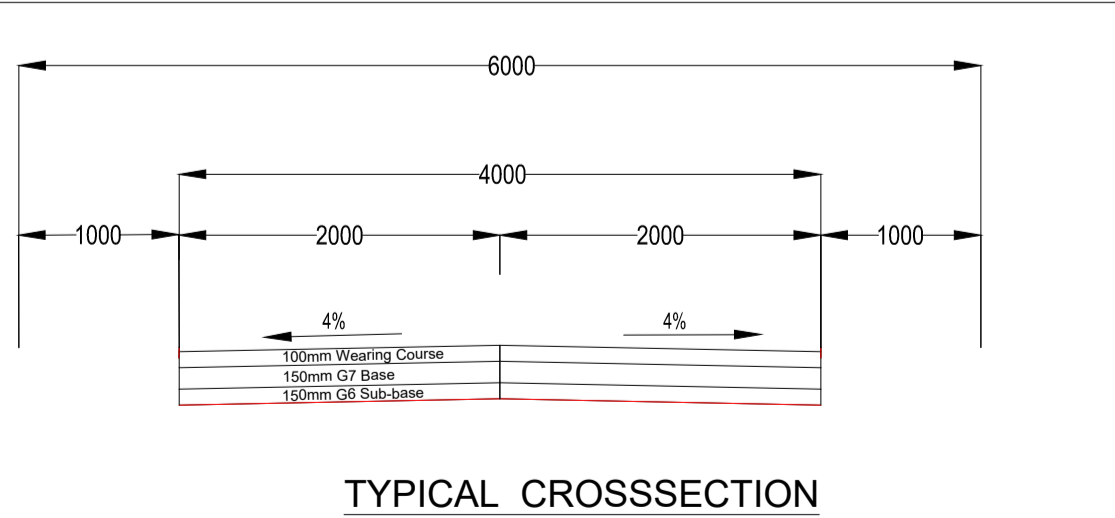
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COORDINATE LIST

- BM5 -31973.54 3388540.89 1670.45
- BM10 -32226.16 3388444.88 1677.76
- BM11 -32114.86 3388496.74 1669.03
- BM12 -31987.52 3388555.03 1670.85
- BM13 -32217.03 3388382.13 1667.52
- BM14 -32312.30 3388292.74 1664.58



VERTICAL PROFILE GRADES																																																																
FINAL DESIGN ROAD LEVELS	<table border="1"> <tr> <td>LEFT EDGE (HL)</td> <td>1659.398</td> <td>1659.297</td> <td>1659.297</td> <td>1659.333</td> <td>1659.472</td> <td>1659.611</td> <td>1659.751</td> <td>1659.891</td> <td>1659.930</td> <td>1659.969</td> <td>1659.969</td> <td>1659.907</td> <td>1659.794</td> <td>1659.682</td> <td>1659.570</td> <td>1659.458</td> <td>1659.346</td> <td>1659.234</td> <td>1659.122</td> <td>1659.010</td> </tr> <tr> <td>CENTRE LINE (CL)</td> <td>1659.398</td> <td>1659.377</td> <td>1659.352</td> <td>1659.323</td> <td>1659.286</td> <td>1659.241</td> <td>1659.187</td> <td>1659.125</td> <td>1659.054</td> <td>1658.974</td> <td>1658.884</td> <td>1658.784</td> <td>1658.674</td> <td>1658.554</td> <td>1658.424</td> <td>1658.284</td> <td>1658.134</td> <td>1657.974</td> <td>1657.804</td> <td>1657.624</td> </tr> <tr> <td>RIGHT EDGE (HR)</td> <td>1659.398</td> <td>1659.297</td> <td>1659.297</td> <td>1659.333</td> <td>1659.472</td> <td>1659.611</td> <td>1659.751</td> <td>1659.891</td> <td>1659.930</td> <td>1659.969</td> <td>1659.969</td> <td>1659.907</td> <td>1659.794</td> <td>1659.682</td> <td>1659.570</td> <td>1659.458</td> <td>1659.346</td> <td>1659.234</td> <td>1659.122</td> <td>1659.010</td> </tr> </table>	LEFT EDGE (HL)	1659.398	1659.297	1659.297	1659.333	1659.472	1659.611	1659.751	1659.891	1659.930	1659.969	1659.969	1659.907	1659.794	1659.682	1659.570	1659.458	1659.346	1659.234	1659.122	1659.010	CENTRE LINE (CL)	1659.398	1659.377	1659.352	1659.323	1659.286	1659.241	1659.187	1659.125	1659.054	1658.974	1658.884	1658.784	1658.674	1658.554	1658.424	1658.284	1658.134	1657.974	1657.804	1657.624	RIGHT EDGE (HR)	1659.398	1659.297	1659.297	1659.333	1659.472	1659.611	1659.751	1659.891	1659.930	1659.969	1659.969	1659.907	1659.794	1659.682	1659.570	1659.458	1659.346	1659.234	1659.122	1659.010
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GROUND LEVELS ON CL	<table border="1"> <tr> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> <td>1659.398</td> </tr> </table>	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398																																										
1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398	1659.398																																												
HORIZONTAL ALIGNMENT	<table border="1"> <tr> <td>20</td> <td>40</td> <td>60</td> <td>80</td> <td>100</td> <td>120</td> <td>140</td> <td>160</td> <td>180</td> <td>200</td> <td>220</td> <td>240</td> <td>260</td> <td>280</td> <td>300</td> <td>320</td> <td>340</td> <td>360</td> <td>380</td> <td>400</td> <td>420</td> <td>440</td> <td>460</td> <td>480</td> <td>500</td> </tr> <tr> <td>DIRECTION</td> <td>278°31'40"</td> <td>295°00'50"</td> <td>255°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> <td>252°42'40"</td> </tr> </table>	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	DIRECTION	278°31'40"	295°00'50"	255°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"	252°42'40"													
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DISTANCE (m)	0	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																																						



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CONSULTANT:
 THEWO & SMMS - JV

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 Bloemfontein
 9301
 Sigodi Mareh Martin
 Management Support
 Development & Engineering Solutions

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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduza, Bensonville, Jozana Nek

TITLE
 JOZANA SNEK ROAD 6 LONGSECTION

PROJECT STATUS:
TENDER

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

DWG NO
 P-SM01-PMO-GR-JZN-T-06

LEGEND

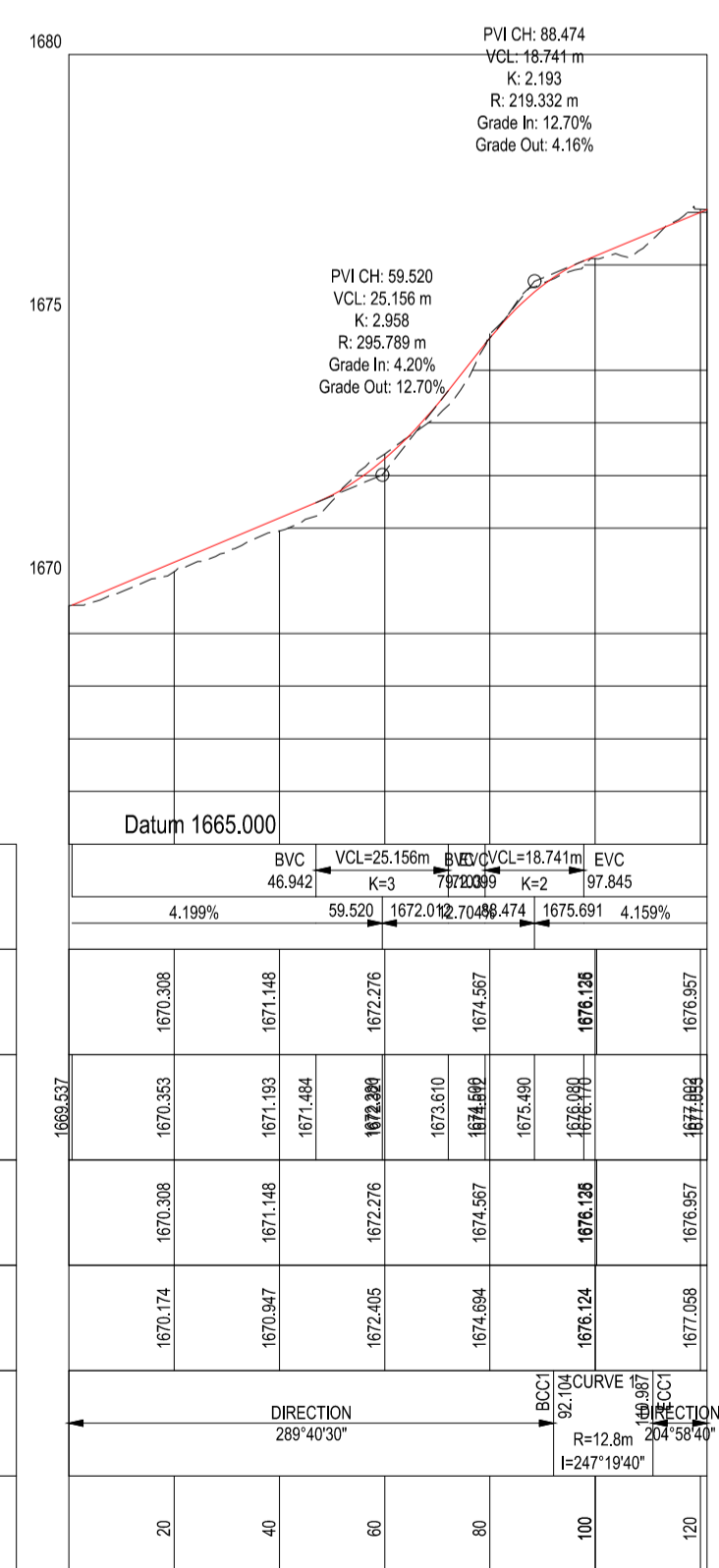
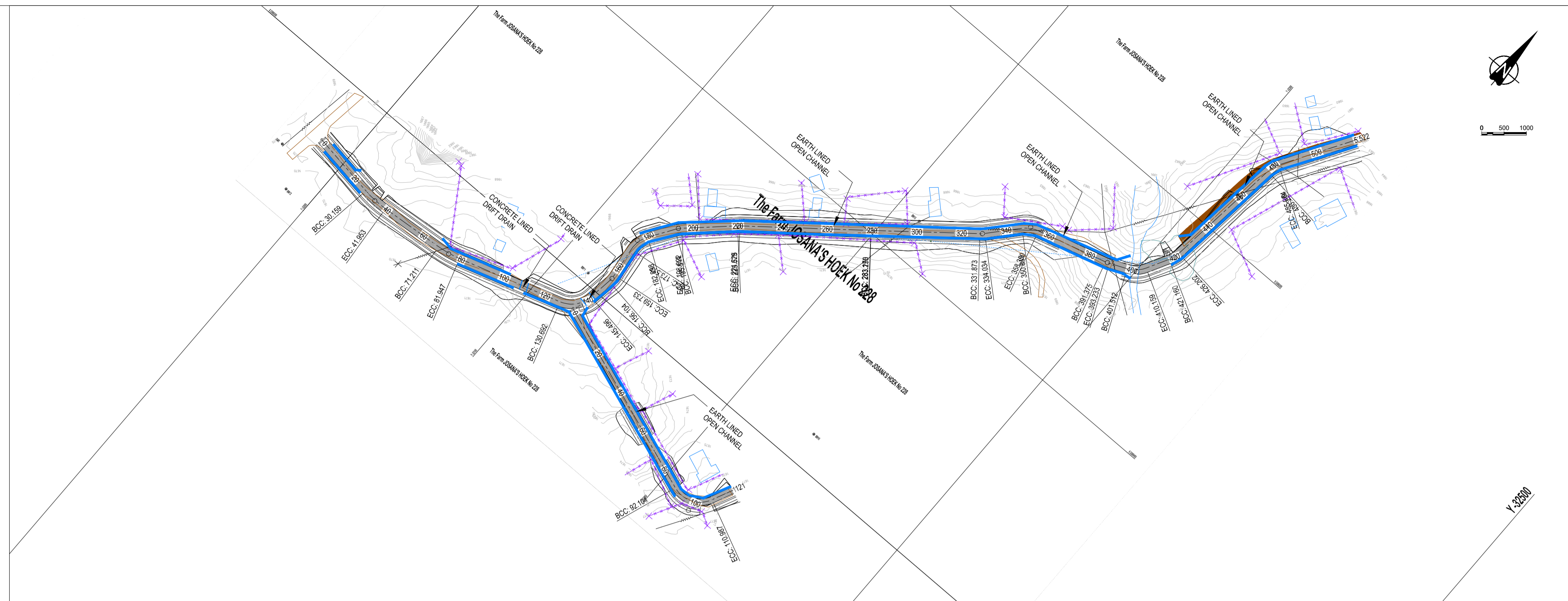
- CENTRELINE
- ESKOMTELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- EXISTING TREE
- BUILDING

ABBREVIATIONS

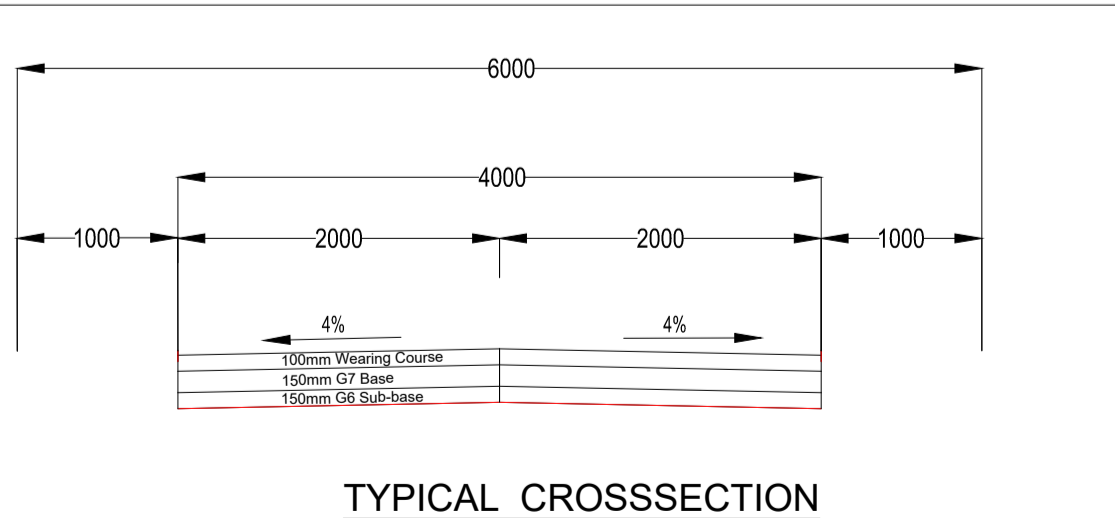
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- m METERS (UNIT)
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- B/V BEGINNING OF VERTICAL CURVE
- E/V END OF VERTICAL CURVE
- R RADIUS
- CH CHANGE
- PI POINT OF INTERSECTION

COORDINATE LIST



- BM5 -31973.54 3388540.89 1670.45
- BM10 -32228.18 3388484.89 1677.78
- BM11 -32114.89 3388495.74 1660.03
- BM12 -31987.82 3388555.03 1670.85
- BM13 -32212.03 3388382.13 1667.52
- BM14 -32312.30 3388290.74 1664.58



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



TYPICAL CROSSSECTION

<p>CLIENT:</p>  <p>19 Murray Street Lady Grey 9755 Tel: (051) 603 1449 Email: vancy@senqu.gov.za</p>	<p>CONSULTANT:</p>  <p>THEWO & SMMS - JV 58 Brebner Road Westdene Bloemfontein 9301 Sigodi Marah Martin Management Support Development & Engineering Consultants</p>	<p>PROFESSIONAL ENGINEER: L. MARAH PROF. Reg No: 920281 DATE: SIGNATURE:</p>	<p>DESIGN BY: R. DHLIWAYO DRAWN BY: R. DHLIWAYO CHECKED BY: L. MARAH APPROVED BY: L. MARAH</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY																	<p>PROJECT NAME: REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduza, Bensonville, Jozana Nek</p> <p>TITLE: JOZANA SNEK ROAD 7 LONGSECTION</p>	<p>PROJECT STATUS: TENDER</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DATE 2025-02-21</td> <td>SCALE N.T.S</td> <td>SHEET 1 OF 1</td> <td>REV A</td> <td>A1</td> </tr> </table> <p>DWG NO: P-SM01-PMO-GR-JZN-T-07</p>	DATE 2025-02-21	SCALE N.T.S	SHEET 1 OF 1	REV A	A1
REV	DATE	DESCRIPTION	BY																												
DATE 2025-02-21	SCALE N.T.S	SHEET 1 OF 1	REV A	A1																											

LEGEND

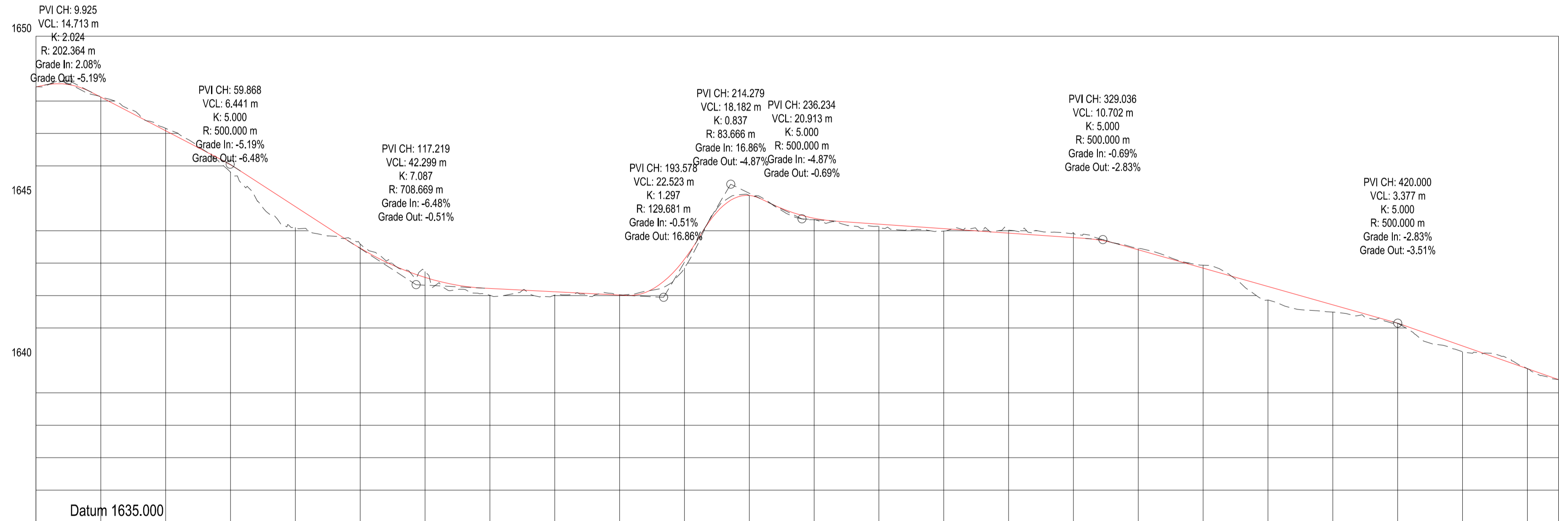
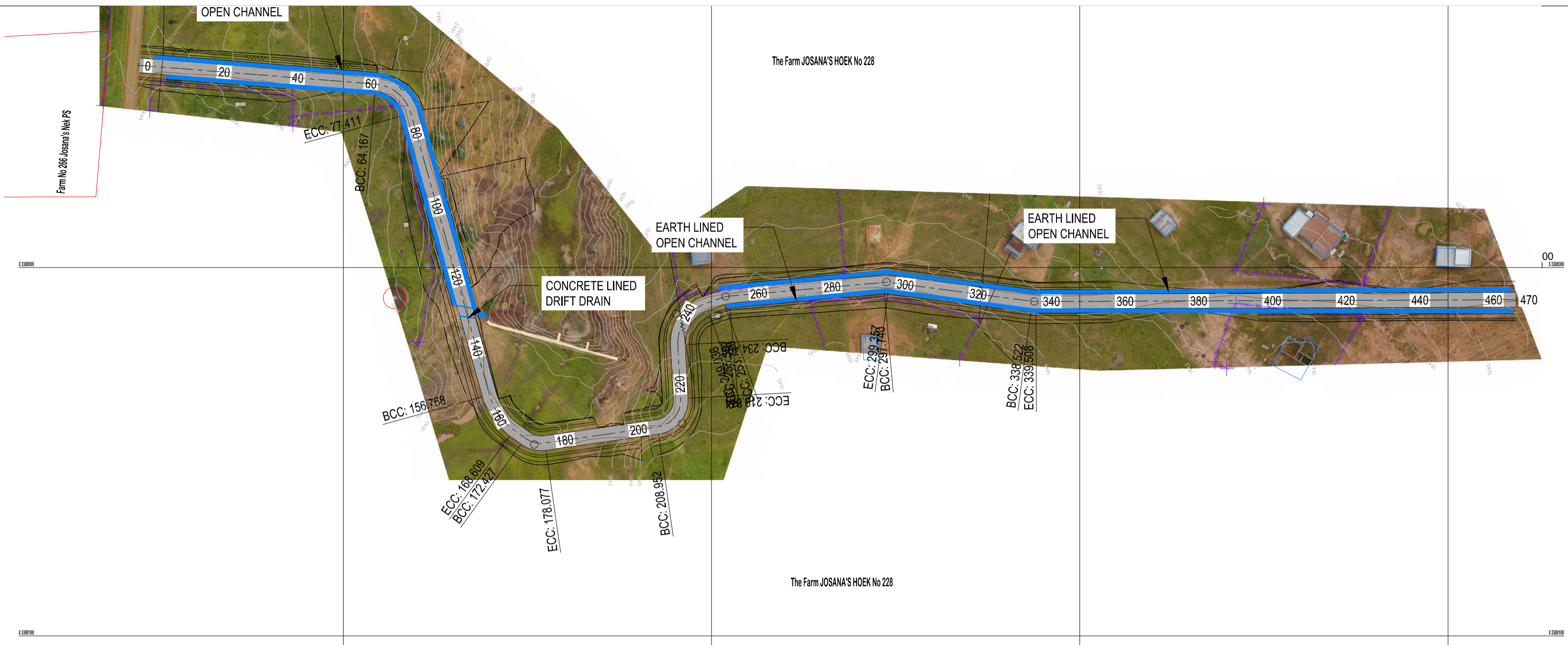
- +— CENTRELINE
- ⊙ ESKOM/TELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

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
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- R RADIUS
- CH CHAINAGE
- PI POINT OF INTERSECTION

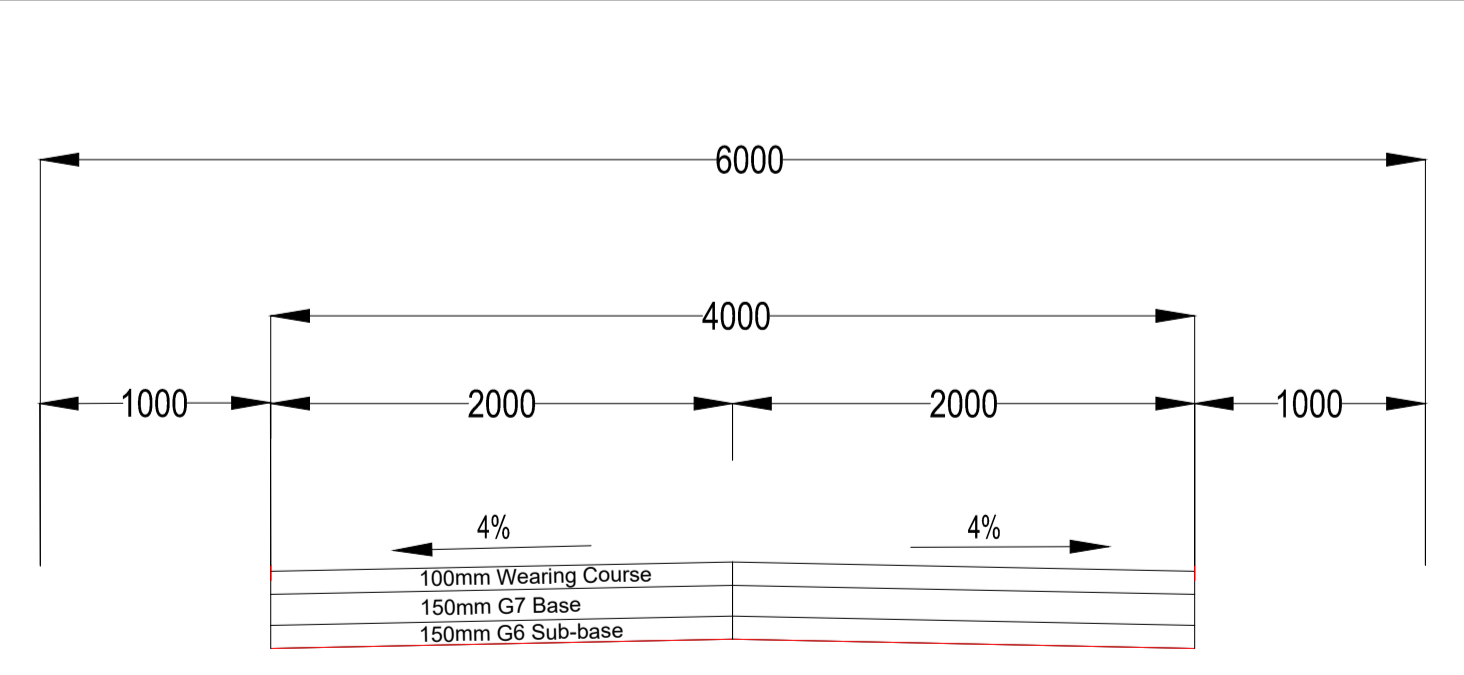
COORDINATE LIST

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- BM4 -32433.71 3388024.06 1642.75
- BM15 -32153.15 3387933.40 1648.18
- BM16 -32269.86 3388036.21 1642.45
- BM17 -32427.73 3388016.05 1642.40
- BM18 -32585.32 3387947.22 1634.52



VERTICAL PROFILE GRADES

BVC/CL=14.713m/EVC	BVC/CL=6.441m/EVC	BVC	VCL=42.299m	EVC	BVC	VCL=22.523m	VCL=18.182m	VCL=20.913m	EVC	BVC/CL=10.702m/EVC	BVC/CL=3.377m/EVC								
2.568 K=2	17.281 K=5	56.647	63.089 K=7	96.069	182.317	164.168	164.168	204.849	223.369	323.685 K=5	334.387 K=5								
2.08%	1648.643	-5.191%	59.868	1646.050	-6.479%	117.219	1642.335	-0.510%	193.578	1641.629	1643.234	1644.365	-0.691%	329.036	1643.724	-2.831%	420.000	1641.148	-3.507%



TYPICAL CROSSECTION

FINAL DESIGN ROAD LEVELS	GROUND LEVELS ON CL	HORIZONTAL ALIGNMENT	DISTANCE (m)
1648.436	1648.130		20
1648.509	1648.040		40
1648.261	1647.157		60
1648.120	1646.806		80
1647.882	1646.097		100
1645.952	1643.888		120
1645.218	1642.740		140
1645.074	1642.010		160
1644.746	1642.013		180
1644.666	1642.025		200
1643.389	1643.848		220
1642.479	1645.090		240
1642.139	1644.340		260
1642.037	1644.139		280
1641.935	1643.989		300
1641.935	1643.844		320
1642.354	1643.786		340
1643.118	1643.706		360
1644.941	1643.681		380
1645.088	1643.695		400
1645.088	1643.572		420
1644.815	1643.413		440
1644.474	1643.333		460
1644.384	1642.767		
1644.293	1642.201		
1644.201	1641.635		
1644.063	1641.148		
1643.983	1640.47		
1643.844	1639.666		
1643.786	1639.746		
1643.706	1639.749		
1643.681	1639.409		
1643.681			
1643.695			
1643.572			
1643.413			
1643.333			
1642.767			
1642.201			
1641.635			
1641.148			
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1639.749			
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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 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4:Sunduzza, Bensonville, Jozana Nek

TITLE: JOZANA SNEK ROAD 8 LONGSECTION

PROJECT STATUS: TENDER

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

DWG NO: P-SM01-PMO-GR-JZN-T-08

LEGEND

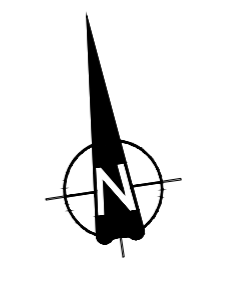
- CENTRELINE
- ⊙ ESKOMTELKOM POLE
- EXISTING POWER LINE
- 4% → ROAD CROSS FALL
- ✕ FENCE
- ⊕ EXISTING TREE
- ▭ BUILDING

ABBREVIATIONS

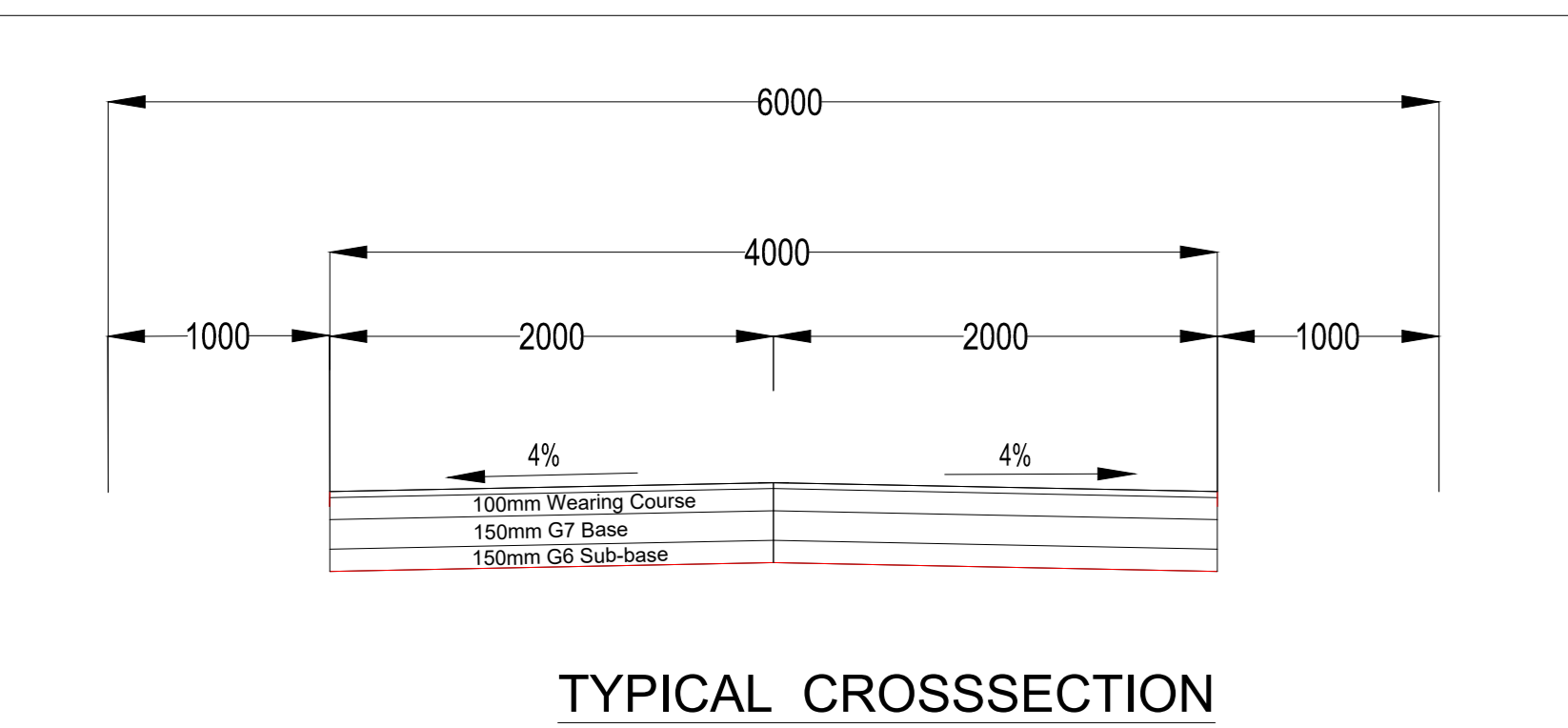
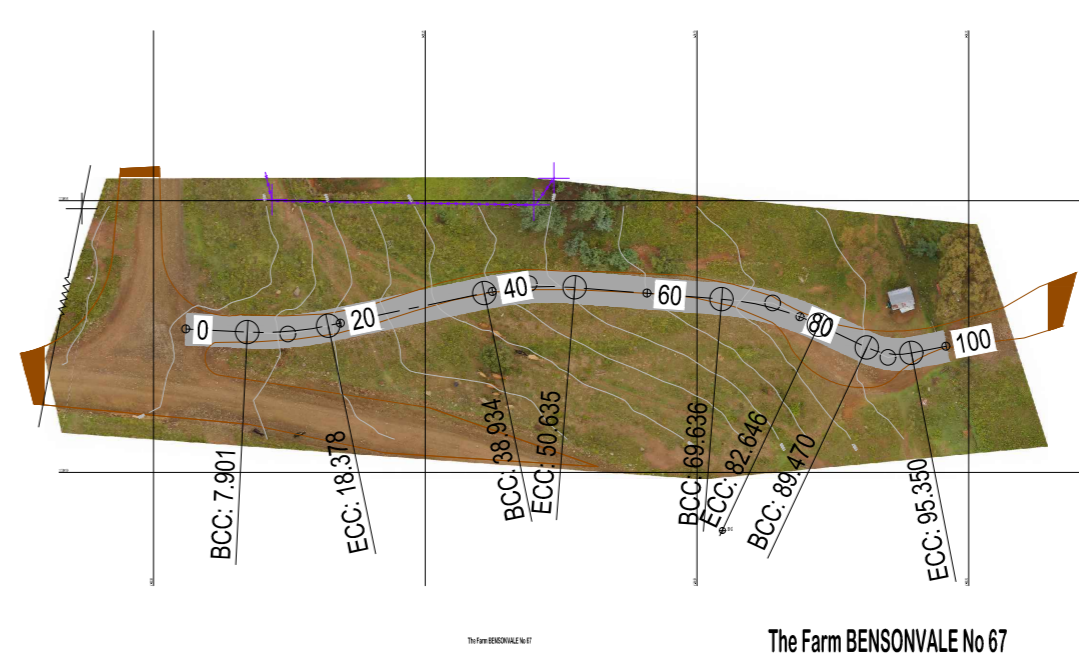
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- CH CHAINAGE
- PI POINT OF INTERSECTION

COORDINATE LIST

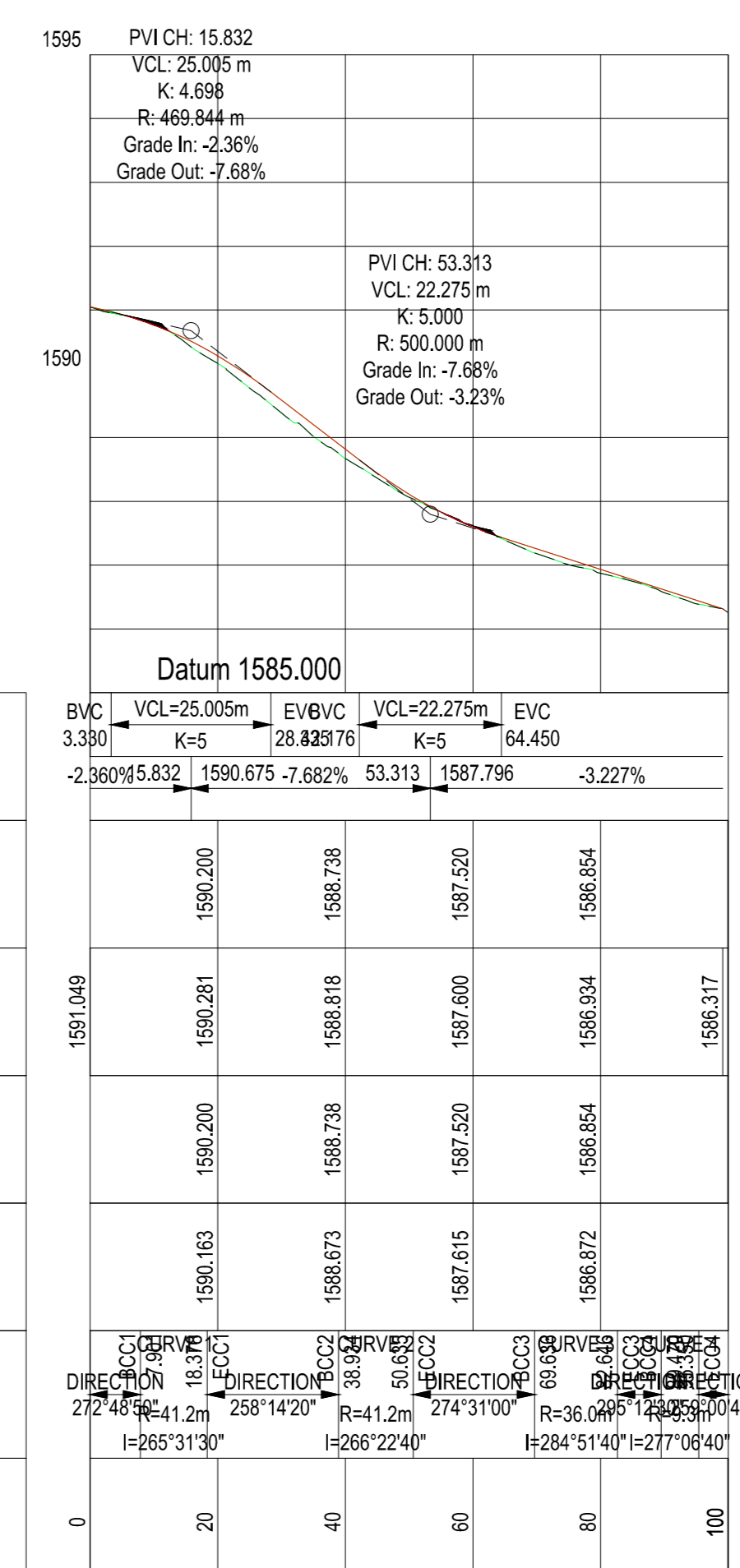
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- BM45 -38788.72 3384311.84 1666.44
- BM46 -38887.31 3384152.35 1670.73
- BM47 -39151.79 3384029.79 1672.35
- V07 -38592.48 3384294.20 1657.88




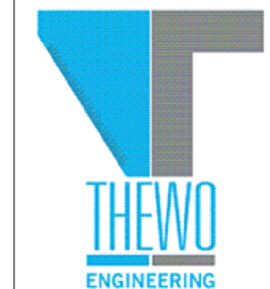
0 500 1000



TYPICAL CROSSSECTION



VERTICAL PROFILE GRADES		FINAL DESIGN ROAD LEVELS		GROUND LEVELS ON CL		HORIZONTAL ALIGNMENT		DISTANCE (m)	
Left Edge (HL)	1590.200	1590.281	1590.183	217.48	217.48	20	40	80	100
Centre Line (CL)	1588.738	1588.818	1588.873	217.48	217.48	20	40	80	100
Right Edge (HR)	1587.276	1587.356	1587.411	217.48	217.48	20	40	80	100

CLIENT:  19 Murray Street Lady Grey 9755 Tel: (051) 603 1449 Email: vanzyt@senqu.gov.za	CONSULTANT:  THEWO & SMMS - JV Sigodi Marah Martin Management Support Services & Engineering Consultants	58 Brestner 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 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	DESCRIPTION	BY																					PROJECT NAME REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek TITLE BENSONVILLE ROAD 1 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-BSN-T-01
						REV	DATE	DESCRIPTION	BY																						

LEGEND

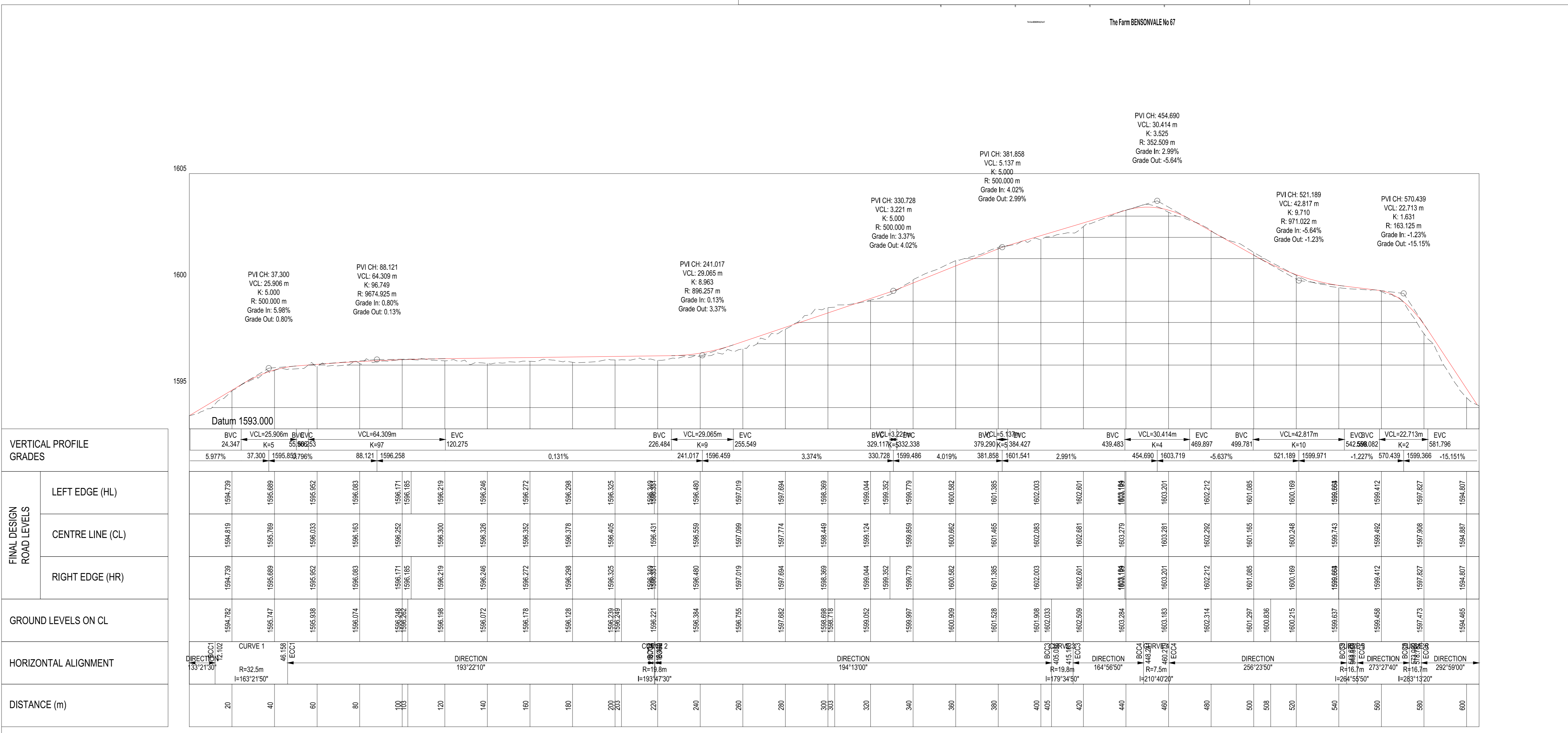
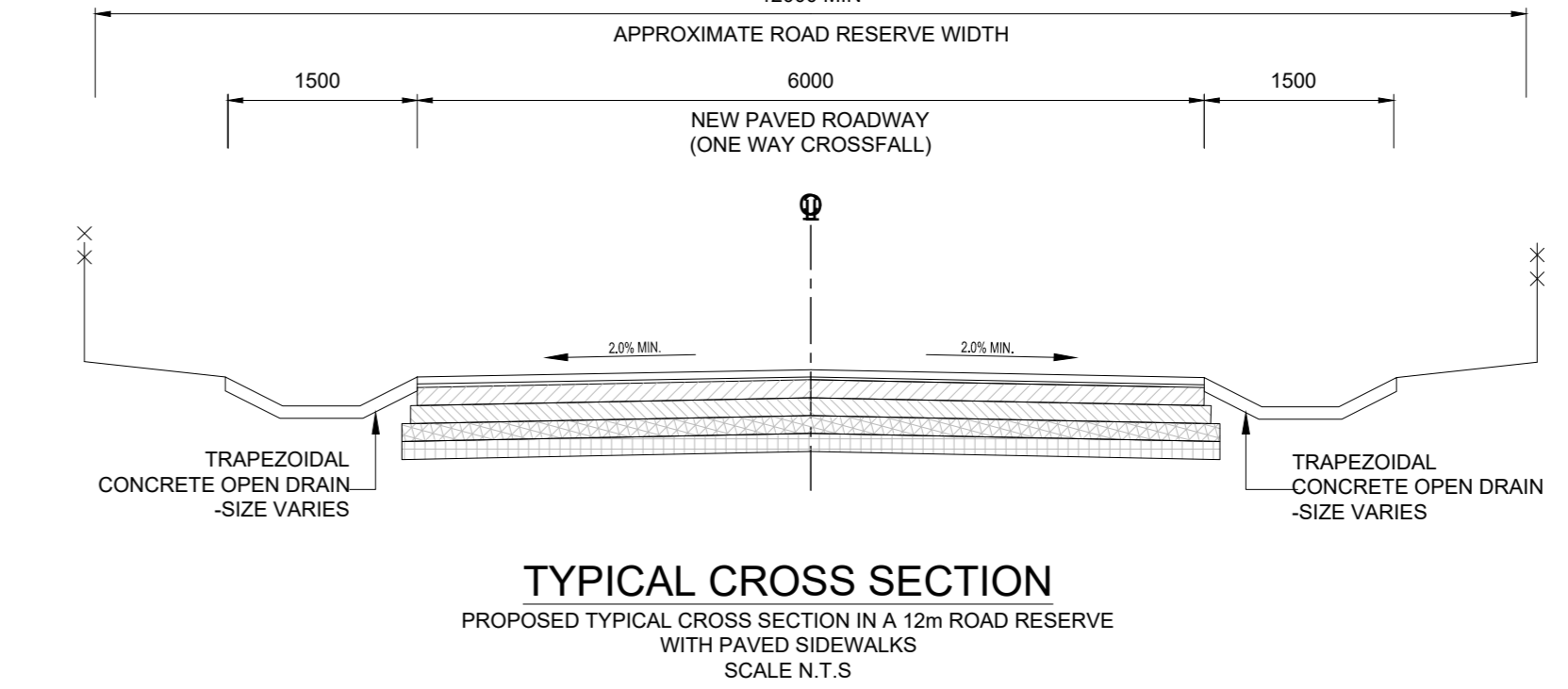
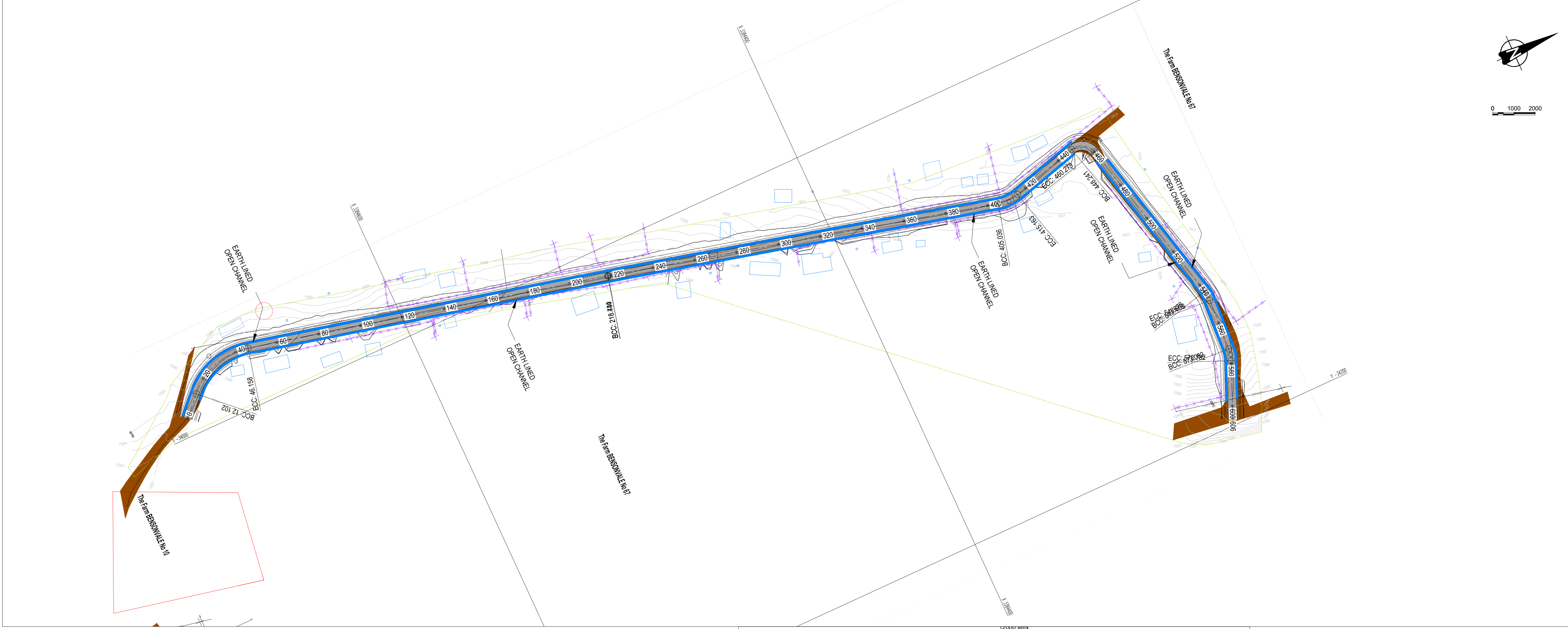
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 CHECKED BY:
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REV	DATE	DESCRIPTION	BY

PROJECT NAME
REPAIRING OF 6 KM GRAVEL ROADS AND STORMWATER CHANNELS IN Ward 4: Sunduza, Bensonville, Jozana Nek
 TITLE
SUNDUZA ROAD 5 LONGSECTION

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