

**ROAD P141-1**  
40m ROAD RESERVE

EXISTING ROAD P141-1

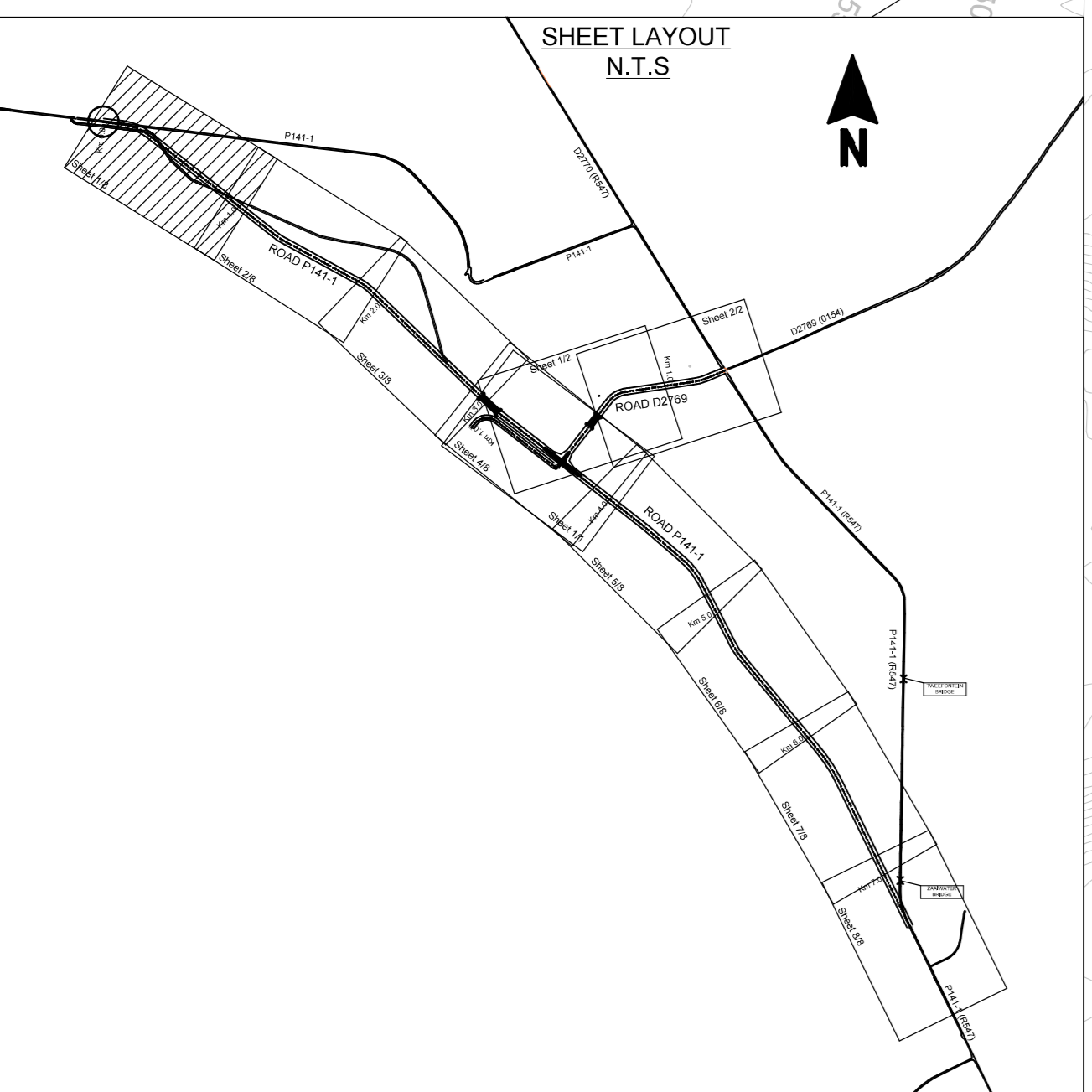
PROPOSED NEW HAUL ROAD

EXISTING HAUL ROAD

Road P141-1  
Curve 1- Left, Radius 350m  
Deflection 31°22'58"

PITS TO BE  
BACKFILLED PRIOR  
TO CONSTRUCTION

OGIES  
LIMIT OF CONSTRUCTION  
KM 0.000/0.000



**LEGEND**

- FENCE & GATE
- POWER LINES
- TELEPHONE LINES
- DIRECTION OF TRAFFIC MOVEMENT
- BUILDINGS
- WATER PIPE LINES
- CLVERT NOTATION
- CADASTRAL INTERSECTION/BOUNDARY
- EXISTING ROAD
- EXISTING RAILWAY
- FUTURE RAILWAY

Centre line Co-ordinates  
Road P141-1 (Lo 29°)

Chainage km	Y-Coord +0.000	X-Coord +0.000
0.000	-14803.058	2878794.380
116.336	-14918.541	2878808.440 BC1
308.043	-15093.281	2878881.295 EC1
500.000	-15243.874	2879000.330
1000.000	-15636.130	2879310.386

HORIZONTAL CURVE DATA Road P141-1 (Lo 29°)

Curve	Description	Curve Length	Curve Radius	Point	Distance km	Y-Coord 0.000	X-Coord 0.000
No 1	Right Hand Circular	191.707	350.000	BC 1	116.336	-14918.541	2878808.440
				PI 1		-15016.144	2878820.323
				EC 1	308.043	-15093.281	2878881.295

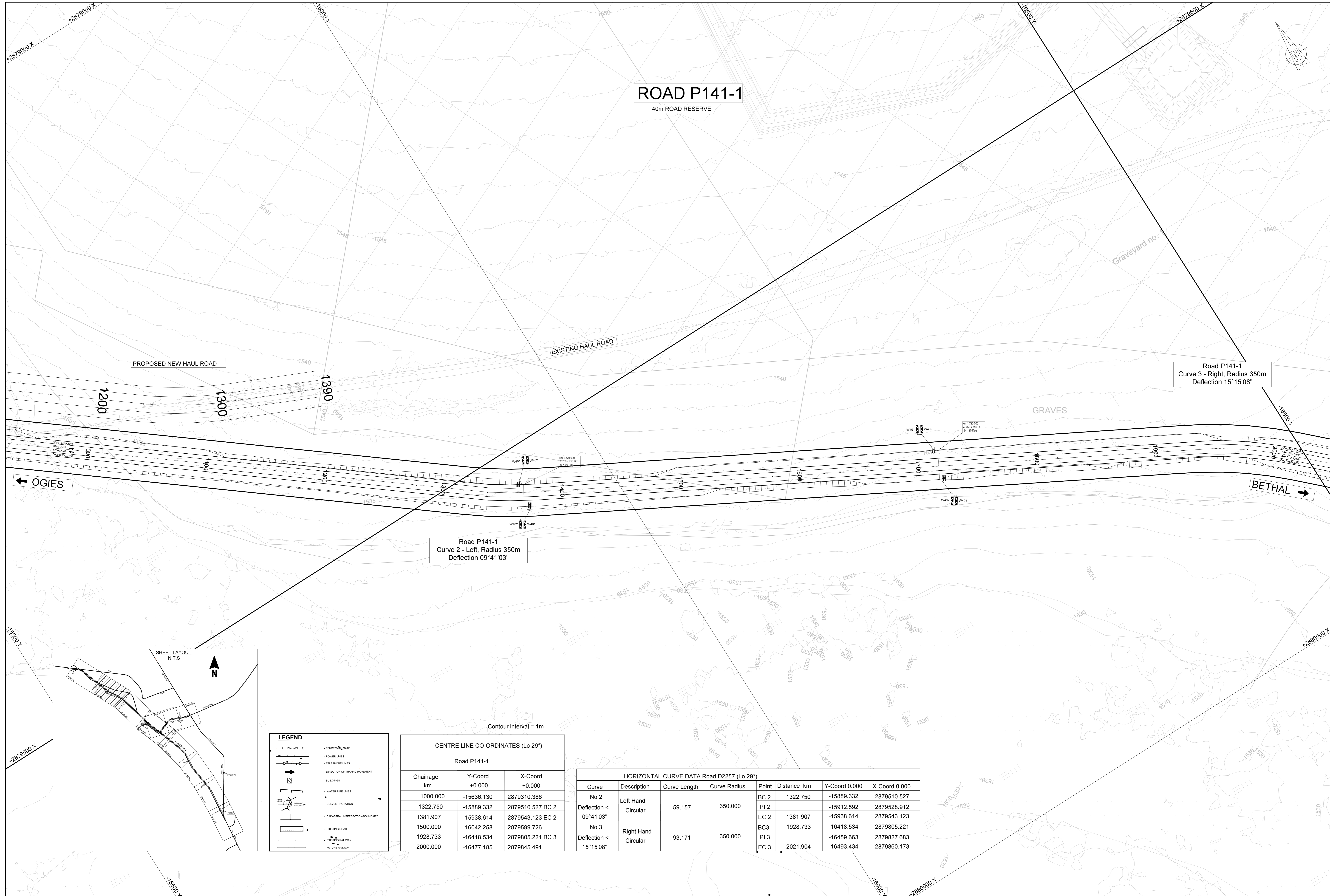
FOR INFORMATION ONLY

No	DATUM DATE	WYSIGINGS / AMENDMENTS	rms Hoof v. Dept. for Head of Dept.	DATUM DATE	HANDTEK / SIGNTR.	DATUM / DATE	ONTWERP DEUR / DESIGNED BY <b>TWEEFONTEIN PROJECT</b> XSTRATA COAL SA	ONTWERP DEUR / DESIGNED BY <b>JEFFARES &amp; GREEN PTY (Lid)</b> ENGINEERING AND ENVIRONMENTAL CONSULTING	ONTWERP DEUR / DESIGNED BY <b>GOEDGEKEUR GOEDGEKEUR</b> DESIGN APPROVED	GOEDGEKEUR DEUR / APPROVED BY rms Hoof van Departement for Head of Department	ONTWERP DEUR / DESIGNED BY NAGESIEN DEUR / CHECKED BY GETEKEN DEUR / DRAWN BY NAGESIEN DEUR / CHECKED BY	MPUMALANGA REGERING OPENBARE WERKE PAAIE EN VERVOER <b>MPUMALANGA</b> REALIGNMENT OF PROVINCIAL ROADS	MPUMALANGA GOVERNMENT PUBLIC WORKS, ROADS AND TRANSPORT	SKAAL / SCALE 1:1000	LEÛR Nr / FILE No -	DISTRIK / DISTRICT NKANGALA	PROVINSE PLAN Nr / PROVINCE PLAN No <b>MRS 06/--/01Lyn</b>
							ONTWERP DEUR / DESIGNED BY <b>Xstrata</b>	ONTWERP DEUR / DESIGNED BY <b>Jeffares &amp; Green</b>	ONTWERP DEUR / DESIGNED BY rms Raadgewende Ingenieur for Consulting Engineers	ONTWERP DEUR / DESIGNED BY rms Hoof van Departement for Head of Department	ONTWERP DEUR / DESIGNED BY NAGESIEN DEUR / CHECKED BY CCLR	REALIGNMENT OF PROVINCIAL ROADS <b>ROAD P141/1 LAYOUT KM 0.000 TO 1.000</b>	MPUMALANGA GOVERNMENT PUBLIC WORKS, ROADS AND TRANSPORT	TYPE ONTWERP / TYPE OF PLANNING PRELIMINARY DESIGN	PAD Nr / ROAD No P141/1 & D2769	PROVINSE PLAN Nr / PROVINCE PLAN No XSTRATA COAL PLAN Nr / PLAN No <b>TOP-J&amp;G-5003-CV-01-1100</b>	

W:002268 - Tweefonlein Re-alignment (CC in Road) Drawing/Working Drawing/Alternative 2012/Preliminary Design/Rev A/B

PROVINSE PLAN No  
XSTRATA COAL PLAN No  
MRS 06/--/01Lyn  
TOP-J&G-5003-CV-01-1100





**ROAD P141-1**  
40m ROAD RESERVE

Road P141-1  
Curve 3 - Right, Radius 350m  
Deflection 15°15'08"

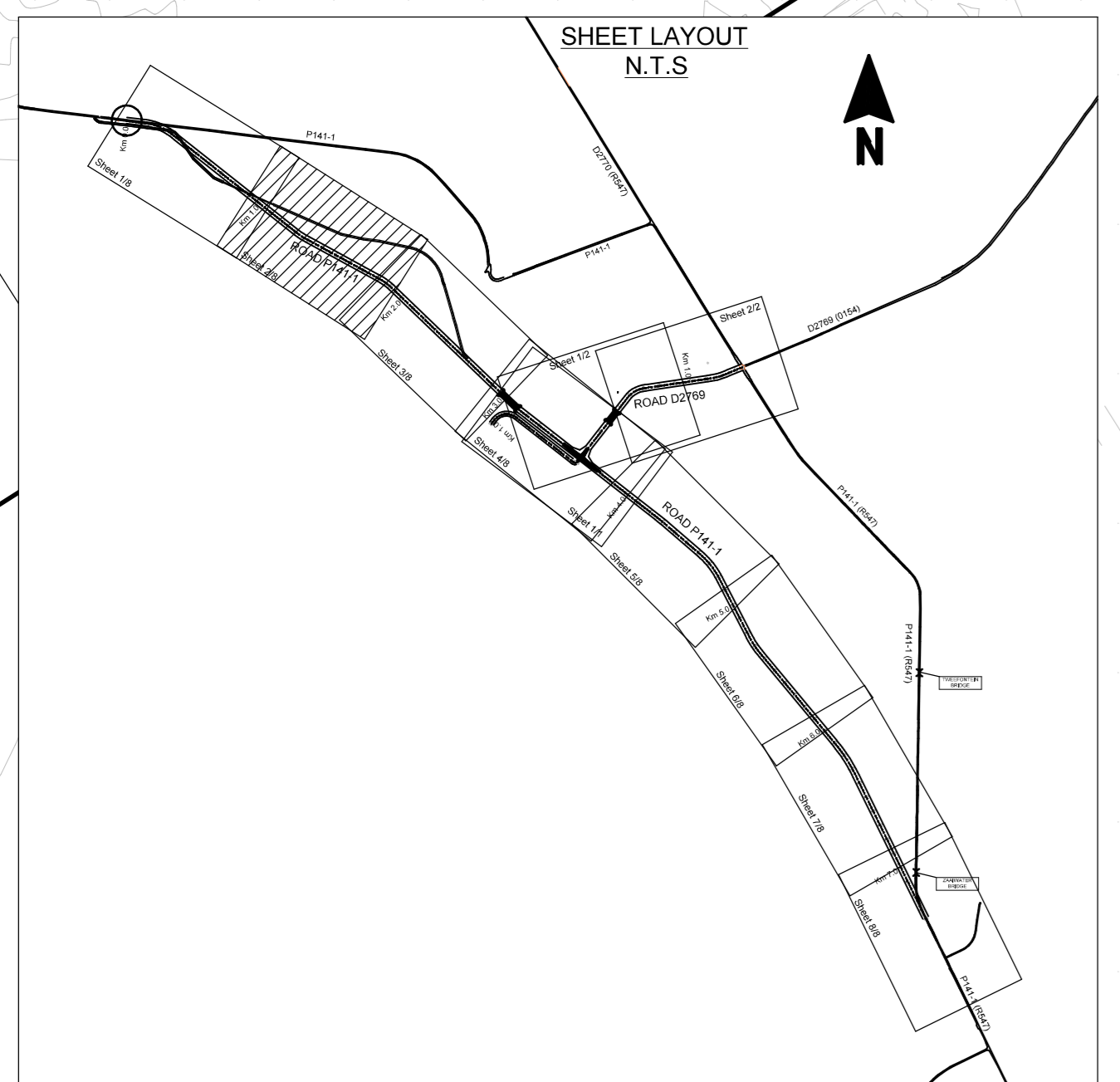
Road P141-1  
Curve 2 - Left, Radius 350m  
Deflection 09°41'03"

PROPOSED NEW HAUL ROAD

EXISTING HAUL ROAD

OGIES ←

BETHAL →



**LEGEND**

- FENCE & GATE
- POWER LINES
- TELEPHONE LINES
- DIRECTION OF TRAFFIC MOVEMENT
- BUILDINGS
- WATER PIPE LINES
- CULVERT NOTATION
- CADASTRAL INTERSECTION BOUNDARY
- EXISTING ROAD
- EXISTING RAILWAY
- FUTURE RAILWAY

Contour interval = 1m

CENTRE LINE CO-ORDINATES (Lo 29°)		
Road P141-1		
Chainage km	Y-Coord +0.000	X-Coord +0.000
1000.000	-15636.130	2879310.386
1322.750	-15889.332	2879510.527 BC 2
1381.907	-15938.614	2879543.123 EC 2
1500.000	-16042.258	2879599.726
1928.733	-16418.534	2879805.221 BC 3
2000.000	-16477.185	2879845.491

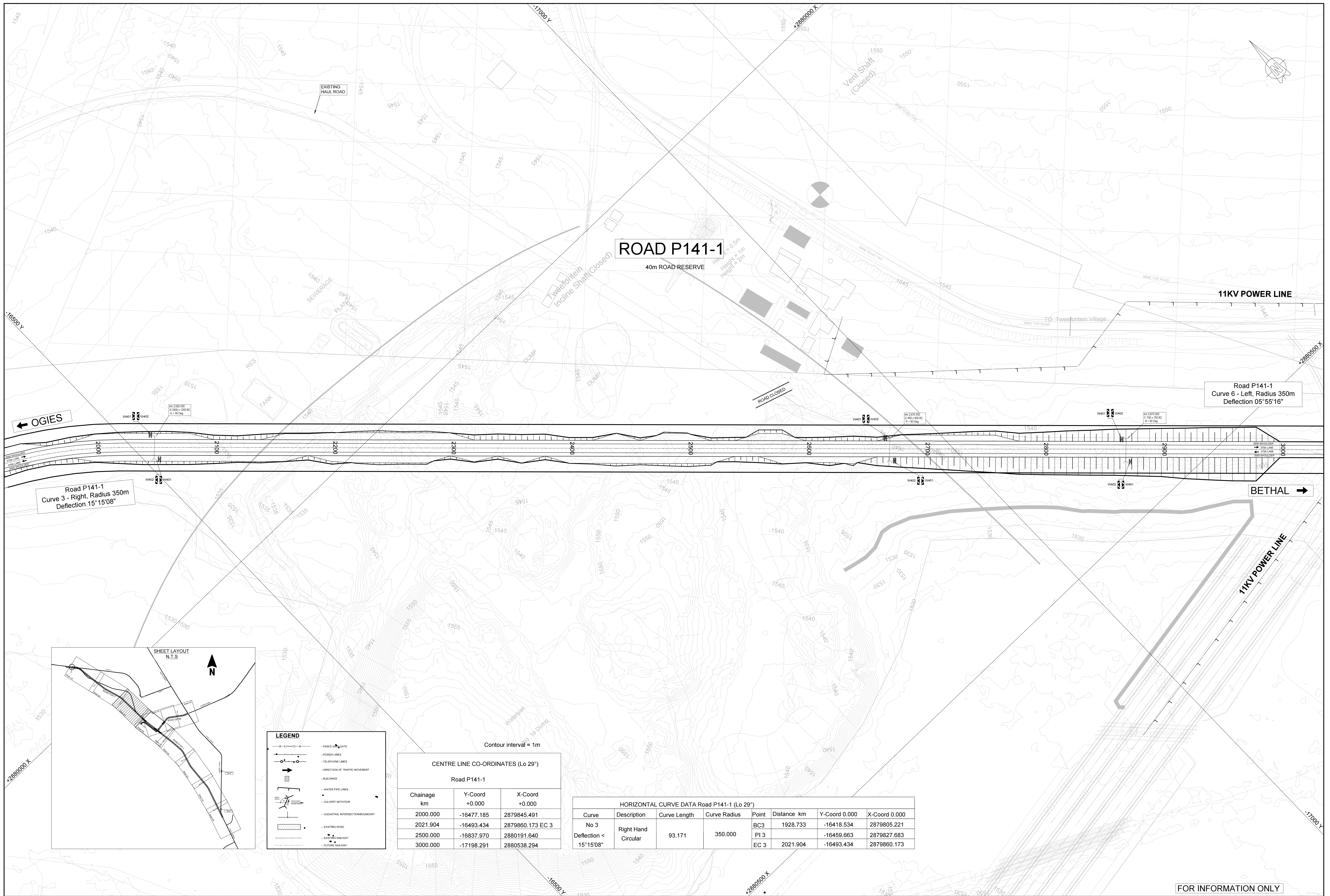
HORIZONTAL CURVE DATA Road D2257 (Lo 29°)							
Curve	Description	Curve Length	Curve Radius	Point	Distance km	Y-Coord 0.000	X-Coord 0.000
No 2 Deflection < 09°41'03"	Left Hand Circular	59.157	350.000	BC 2	1322.750	-15889.332	2879510.527
				PI 2		-15912.592	2879528.912
				EC 2	1381.907	-15938.614	2879543.123
No 3 Deflection < 15°15'08"	Right Hand Circular	93.171	350.000	BC3	1928.733	-16418.534	2879805.221
				PI 3		-16459.663	2879827.683
				EC 3	2021.904	-16493.434	2879860.173

No	DATUM DATE	WYSIGINGS / AMENDMENTS	rms Hoof v. Dept. for Road of Dept.	DATUM DATE	HANDTEK / SIGNTR. DATUM / DATE	SURVEYED BY: LIDAR SURVEY NOVEMBER 2011 PROVIDED BY XSTRATA	ONTWERP DEUR / DESIGNEER FOR <b>TWEEFONTEIN PROJECT</b> XSTRATA COAL SA	ONTWERP DEUR / DESIGNED BY <b>JEFFARES &amp; GREEN PTY (Lid)</b> ENGINEERING AND ENVIRONMENTAL CONSULTING	ONTWERP GOEDGEKUR DESIGN APPROVED	GOEDGEKUR DEUR APPROVED BY	ONTWERP DEUR DESIGNED BY NAGESIEN DEUR CHECKED BY GETEMEN DEUR DRAWN BY NAGESIEN DEUR CHECKED BY	JIN CCLR LN CCLR	MPUMALANGA REGERING OPENBARE WERKE PABE BY WERKER <b>MPUMALANGA</b> MPUMALANGA GOVERNMENT PUBLIC WORKS, ROADS AND TRANSPORT	SKAAL / SCALE 1:1000	LÉER Nr / FILE No -	DISTRIK / DISTRICT <b>NKANGALA</b>	PROVINISIE PLAN Nr / PROVINCE PLAN No <b>MRS 06/-/02Lyn</b>

V002268 - Tweefontein Re-alignment ICC to Road/03 Drawings/Working Drawings/Alternative 2012/Preliminary Design/Rev All

PROVINCE PLAN No  
 XSTRATA COAL PLAN No  
 MRS 06/-/02Lyn  
 TOP-J&G-5003-CV-01-1101





Road P141-1  
Curve 3 - Right, Radius 350m  
Deflection 15°15'08"

Road P141-1  
Curve 6 - Left, Radius 350m  
Deflection 05°55'16"

**ROAD P141-1**  
40m ROAD RESERVE

**LEGEND**

- FENCE WITH GATE
- POWER LINES
- TELEPHONE LINES
- DIRECTION OF TRAFFIC MOVEMENT
- BUILDINGS
- WATER PIPE LINES
- CULVERT NOTATION
- CADASTRAL INTERSECTION/BOUNDARY
- EXISTING ROAD
- EXISTING RAILWAY
- FUTURE RAILWAY

Centre line interval = 1m

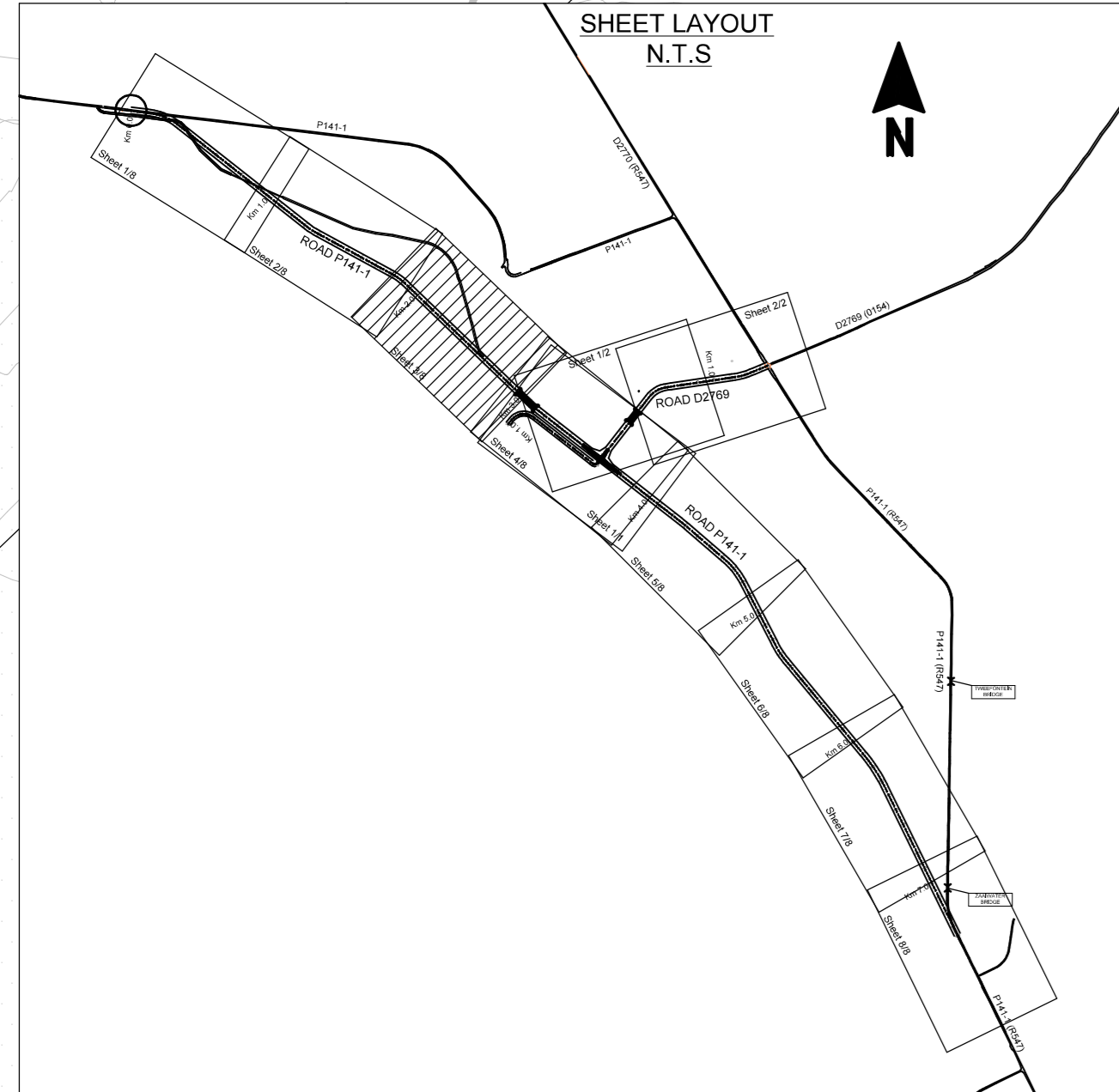
**CENTRE LINE CO-ORDINATES (Lo 29°)**

Road P141-1

Chainage km	Y-Coord +0.000	X-Coord +0.000
2000.000	-16477.185	2879845.491
2021.904	-16493.434	2879860.173 EC 3
2500.000	-16837.970	2880191.640
3000.000	-17198.291	2880538.294

**HORIZONTAL CURVE DATA Road P141-1 (Lo 29°)**

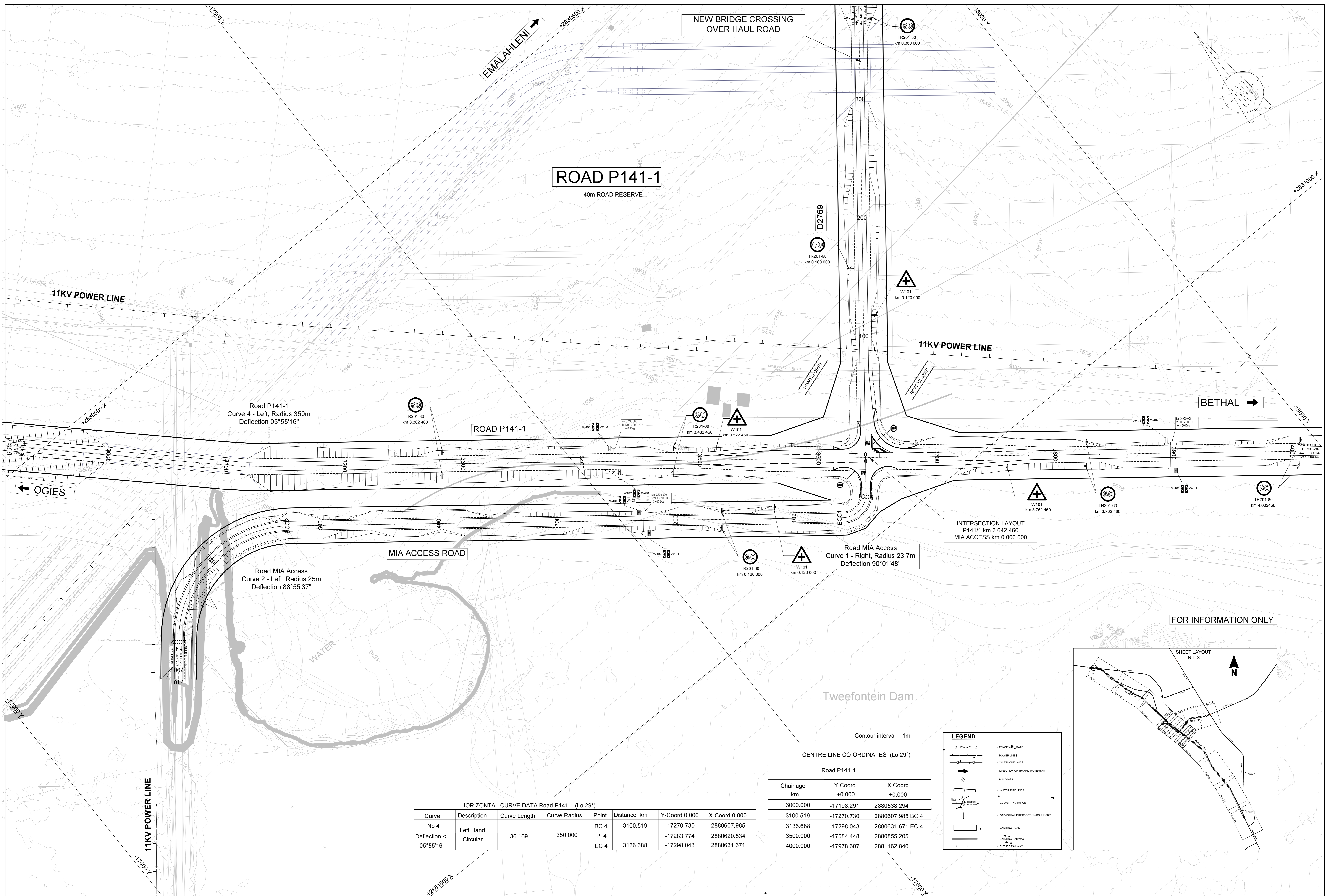
Curve	Description	Curve Length	Curve Radius	Point	Distance km	Y-Coord 0.000	X-Coord 0.000
No 3	Right Hand Circular	93.171	350.000	BC 3	1928.733	-16418.534	2879805.221
Deflection < 15°15'08"				PI 3		-16459.663	2879827.683
				EC 3	2021.904	-16493.434	2879860.173



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No	DATUM DATE	WYSIGINGS / AMENDMENTS	nms Hoof v. Dept. for Head of Dept.	DATUM DATE	HANDTEK / SIGNTR. DATUM / DATE	SURVEYED BY: LIDAR SURVEY NOVEMBER 2011 PROVIDED BY XSTRATA	TWEETFONTEIN PROJECT XSTRATA COAL SA	ONTWERP DEUR / DESIGNED BY: JEFFARES & GREEN PTY (LTD) ENGINEERING AND ENVIRONMENTAL CONSULTING	ONTWERP GOEDGEKEUR / DESIGN APPROVED nms Raadgeverde Ingenieur for Consulting Engineers	GOEDGEKEUR DEUR / APPROVED BY: nms Hoof van Departement for Head of Department	ONTWERP DEUR / DESIGNED BY: JN CCLR TB NAGESEN DEUR / CHECKED BY: CCLR	MPUMALANGA REGERING OPENBARE WERKE PABLIEN VERVOER <b>MPUMALANGA</b> REALIGNMENT OF PROVINCIAL ROADS	MPUMALANGA GOVERNMENT PUBLIC WORKS, ROADS AND TRANSPORT		SKAAL / SCALE	LEER N° / FILE No	DISTRIK / DISTRICT	PROVINSIE PLAN N° / PROVINCE PLAN No
	1:1000			--											NKANGALA	MRS 06/-/03Lyn		
												TIPPE ONTWERP / TYPE OF PLANNING		PAD N° / ROAD No		XSTRATA COAL PLAN N° / PLAN No		
												PRELIMINARY DESIGN		P141/1 & D2769		TOP-J&G-5003-CV-01-1102		





Road P141-1  
Curve 4 - Left, Radius 350m  
Deflection 05°55'16"

Road MIA Access  
Curve 2 - Left, Radius 25m  
Deflection 68°55'37"

Road MIA Access  
Curve 1 - Right, Radius 23.7m  
Deflection 90°01'48"

INTERSECTION LAYOUT  
P141/1 km 3.642 460  
MIA ACCESS km 0.000 000

HORIZONTAL CURVE DATA Road P141-1 (Lo 29°)

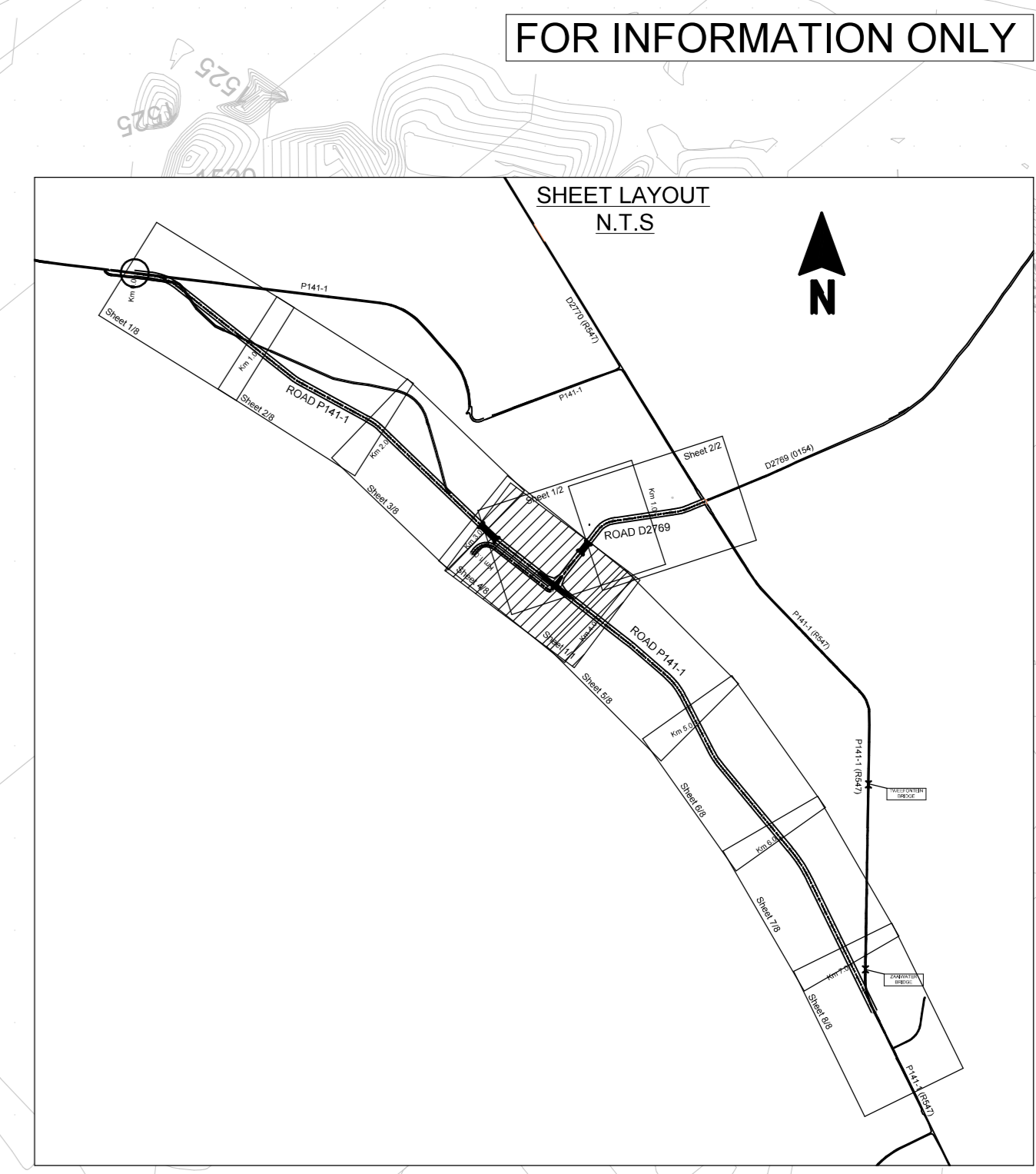
Curve	Description	Curve Length	Curve Radius	Point	Distance km	Y-Coord 0.000	X-Coord 0.000
No 4	Left Hand Circular	36.169	350.000	BC 4	3100.519	-17270.730	2880607.985
				PI 4	3136.688	-17283.774	2880620.534
				EC 4	3136.688	-17298.043	2880631.671

CENTRE LINE CO-ORDINATES (Lo 29°)

Chainage km	Y-Coord +0.000	X-Coord +0.000
3000.000	-17198.291	2880538.294
3100.519	-17270.730	2880607.985 BC 4
3136.688	-17298.043	2880631.671 EC 4
3500.000	-17584.448	2880855.205
4000.000	-17978.607	2881162.840

**LEGEND**

- FENCE WITH GATE
- POWER LINES
- TELEPHONE LINES
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- BUILDINGS
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- CULVERT NOTATION
- CADASTRAL INTERSECTION BOUNDARY
- EXISTING ROAD
- EXISTING RAILWAY
- FUTURE RAILWAY



No	DATUM DATE	WYSIGINGS / AMENDMENTS	nms Hoof v. Dept. for head of Dept.	DATUM DATE	HANDTEK / SKINTR. DATUM / DATE	SURVEYED BY: LIDAR SURVEY NOVEMBER 2011 PROVIDED BY XSTRATA	ONTWERP DEUR / DESIGNEER BY: TWEEFONTAIN PROJECT XSTRATA COAL SA	ONTWERP DEUR / DESIGNED BY: JEFFARES & GREEN PTY (Ltd) ENGINEERING AND ENVIRONMENTAL CONSULTING	GOEDGEKEUR DEUR / APPROVED BY: nms Hoof van Departement for head of Department	ONTWERP DEUR / DESIGNED BY: NAGESIEN DEUR CHECKED BY: GETEKEN DEUR DRAWN BY: NAGESIEN DEUR CHECKED BY:	LN	MPUMALANGA REGERING OPENBARE WERKE PAAIE EN VERVOER	MPUMALANGA GOVERNMENT PUBLIC WORKS, ROADS AND TRANSPORT	SKAAL / SCALE 1:1000	LEER Nr / FILE No --	DISTRIK / DISTRICT NKANGALA	PROVINSIE PLAN Nr / PROVINCE PLAN No MRS 06/-/04Lyn
	OCLR										REALIGNMENT OF PROVINCIAL ROADS		TIPPE ONTWERP / TYPE OF PLANNING PRELIMINARY DESIGN				

W:\002358 - Tweekfontein Re-alignment\CC-16\Drawings\Working Drawings\Alternative 2012\Preliminary Design\Draw AB

PROVINCE PLAN No  
XSTRATA COAL PLAN No  
MRS 06/-/04Lyn  
TOP-J&G-5003-CV-01-1103