

COORDINATE LIST		
SETTING OUT COORDINATES		
POINT	Y COORD	X COORD
CONST:		
SW1	90154.859	2948019.010
SW2	90098.739	2947923.879
SW3	89908.409	2947898.928
SW4	89816.586	2947886.890
SW5	89699.742	2947967.354
SW6	89690.623	2948020.861
SW7	89757.868	2948121.645
SW8	89901.898	2948031.589

DO NOT SCALE

REV	DR	CH	DATE	REVISIONS
A	MCOO	MOKT	28/07/2011	ISSUED FOR COMMENTS AND APPROVAL

REFERENCE DRAWINGS	
430918/002	TYPICAL SECTIONS AND DETAILS

NOTES

Datum:
Central Meridian / Zone:

**srk consulting**

SRK HOUSE  
265 Oxford Road, Boksburg  
2106, Johannesburg

PO Box 50291  
Fouriesburg  
2116 South Africa

e-Mail: [pharisaiburg@srk.co.za](mailto:pharisaiburg@srk.co.za)  
www.srk.co.za

Tel: +27 (0) 11 441 1111  
Fax: +27 (0) 11 480 9086

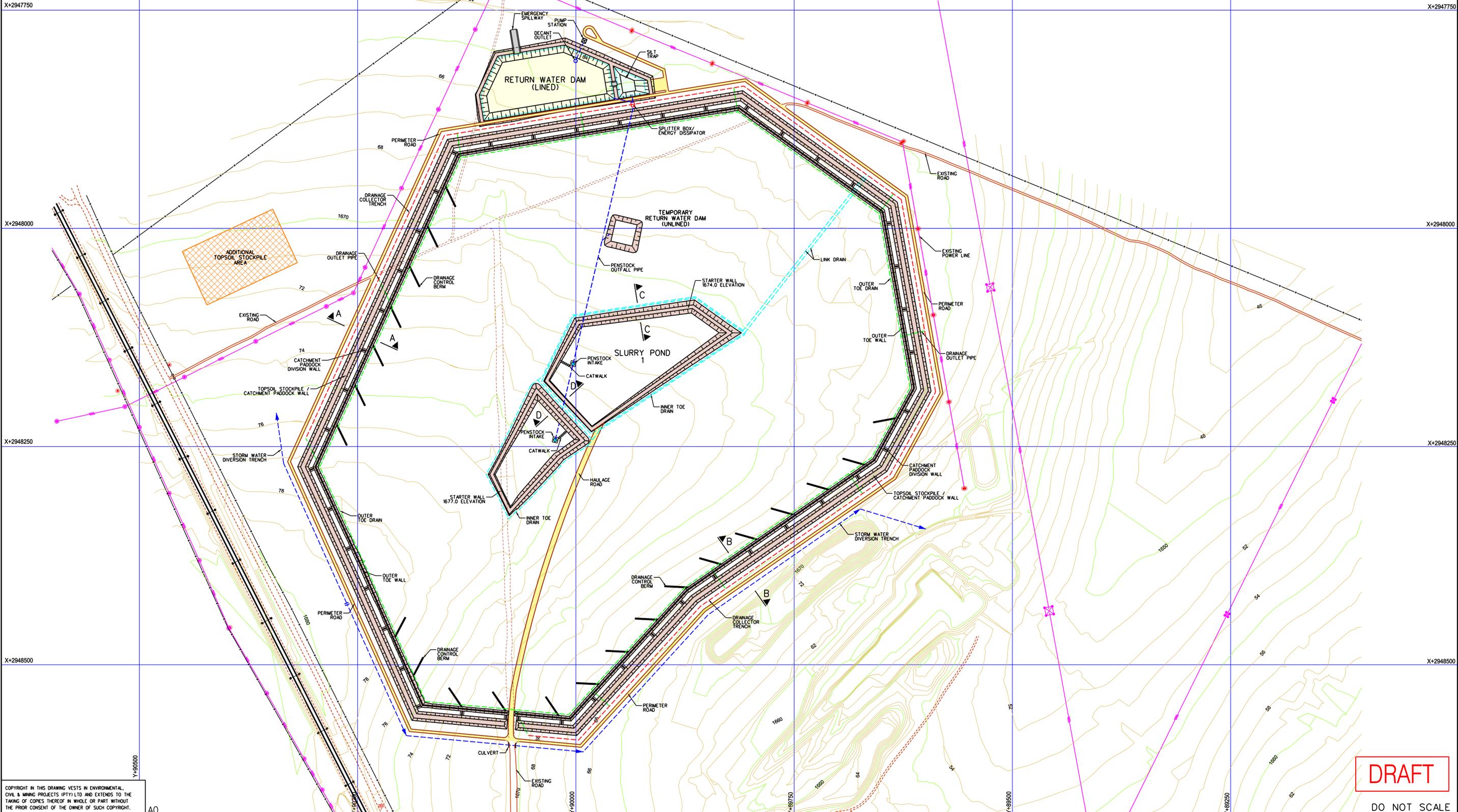
**CESA**  
Construction Engineering & Surveying Association of South Africa

TITLE
<b>MOOIPLAATS COLLIERY</b> CONTINUATION REPORT GENERAL ARRANGEMENT SHOWING LAYOUT AT STARTER WALL

ISSUED FOR COMMENTS AND APPROVAL			
DESIGNED	MOCKT	DATE	CHECKED
DRAWN	MCOO	DATE	MCOO
SCALE	SCALE	SCALE	SCALE
A0		1:1000	
CUSTOMER	CLIENT	DWG NO.	REV.
MOOIPLAATS COLLIERY	MOOIPLAATS COLLIERY	430918/001	A







**DRAFT**

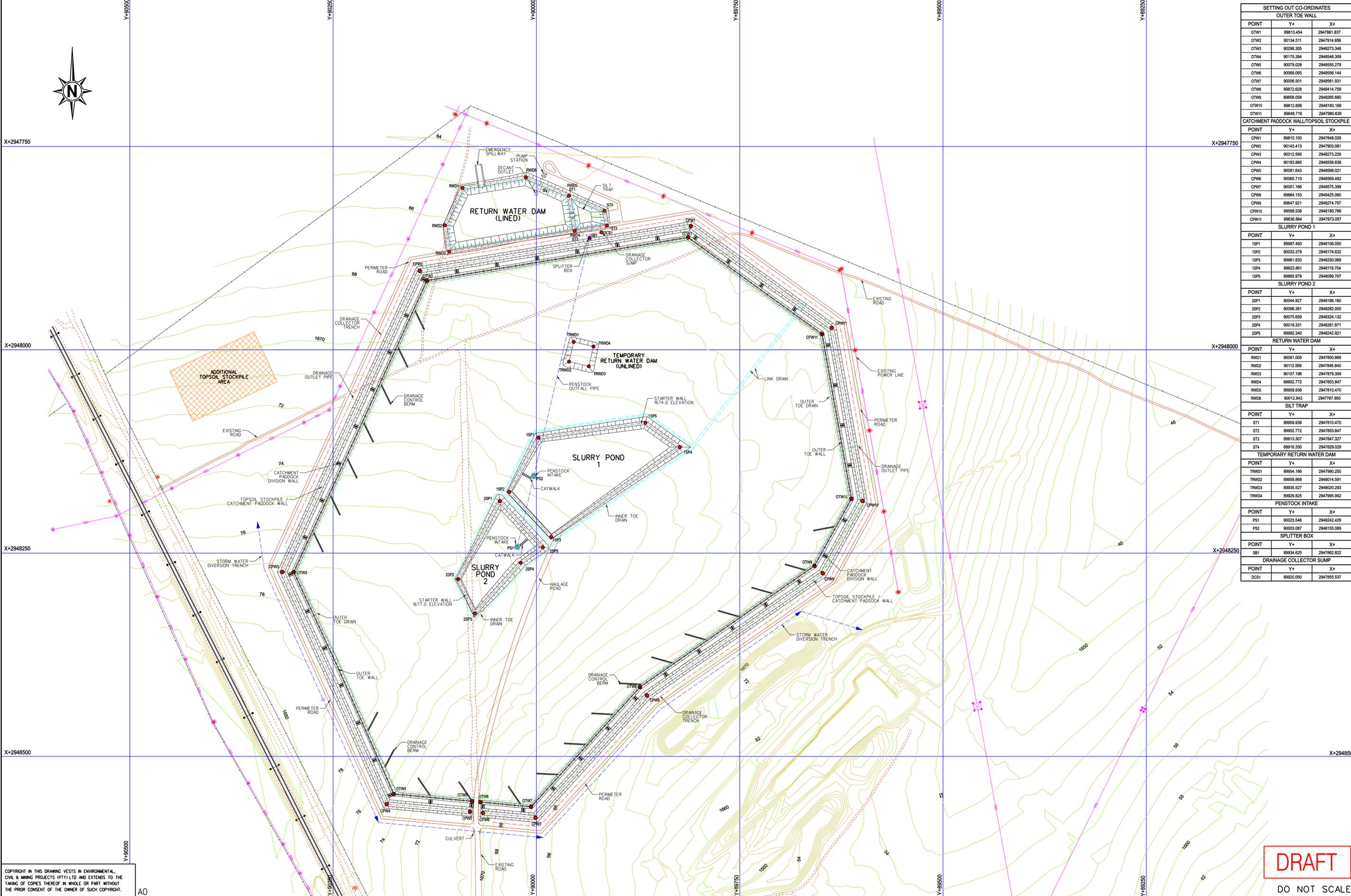
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REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
B	NS	01-04-09	DUMP FOOTPRINT ADJUSTED TO SUIT POWER LINES	002	SETTING OUT CO-ORDINATES	008	PENSTOCK OUTFALL PIPELINE DETAILS
				003	EARTHWORKS SECTIONS & DETAILS	009	CATWALK DETAILS
				004	DRAINAGE DETAILS	010	DRAINAGE PIPE DETAILS
				005	RETURN WATER DAM & SILT TRAP LAYOUT		
				006	RETURN WATER DAM & SILT TRAP DETAILS		
				007	RETURN WATER DAM SPILLWAY & TEMPORARY RETURN WATER DAM DETAILS		

**ECMP**  
 Environmental, Civil & Mining Projects (Pty) Ltd  
 Box 783697 Sandton 2146  
 Tel. (011) 705 1111  
 Fax. (011) 705 1908

CLIENT <b>BADGER MINING &amp; CONSULTING (PTY) LTD</b>		BY	DATE
TITLE <b>MOOIPLAATS COAL DISCARD DUMP GENERAL ARRANGEMENT</b>		N.S.	MAR.09
DESIGNED	DRAWN	S.A.	MAR.09
CHECKED			
SCALE 1:1500	DRAWING No.	REVISION	
	<b>T994-001</b>	<b>B</b>	



SETTING OUT CO-ORDINATES		
OUTER TOE WALL		
POINT	Y+	X+
OTW1	89813.454	2947861.837
OTW2	90134.511	2947914.856
OTW3	90298.305	2948273.348
OTW4	90175.394	2948546.309
OTW5	90079.028	2948555.279
OTW6	90069.065	2948556.144
OTW7	90006.501	2948561.931
OTW8	89872.628	2948414.759
OTW9	89658.058	2948265.880
OTW10	89612.606	2948183.168
OTW11	89648.718	2947980.639
CATCHMENT PADDOCK WALL/TOPSOIL STOCKPILE		
POINT	Y+	X+
CPW1	89810.193	2947848.029
CPW2	90143.413	2947903.081
CPW3	90312.595	2948273.228
CPW4	90183.985	2948558.638
CPW5	90081.643	2948568.021
CPW6	90065.710	2948569.482
CPW7	90001.186	2948575.399
CPW8	89864.153	2948425.060
CPW9	89647.921	2948274.757
CPW10	89598.938	2948185.766
CPW11	89636.864	2947973.057
SLURRY POND 1		
POINT	Y+	X+
1SP1	89997.493	2948108.050
1SP2	90033.379	2948174.632
1SP3	89981.833	2948230.069
1SP4	89823.861	2948119.704
1SP5	89865.979	2948089.707
SLURRY POND 2		
POINT	Y+	X+
2SP1	90044.927	2948186.180
2SP2	90096.361	2948282.005
2SP3	90075.659	2948324.132
2SP4	90019.331	2948261.871
2SP5	89992.340	2948242.921
RETURN WATER DAM		
POINT	Y+	X+
RWD1	90091.005	2947800.869
RWD2	90112.569	2947848.840
RWD3	90107.196	2947878.359
RWD4	89952.772	2947853.847
RWD5	89959.936	2947810.470
RWD6	90012.843	2947787.955
SILT TRAP		
POINT	Y+	X+
ST1	89959.938	2947810.470
ST2	89952.772	2947853.847
ST3	89913.307	2947847.327
ST4	89916.330	2947829.029
TEMPORARY RETURN WATER DAM		
POINT	Y+	X+
TRWD1	89954.166	2947990.250
TRWD2	89959.888	2948014.591
TRWD3	89935.527	2948020.283
TRWD4	89929.825	2947995.962
PENSTOCK INTAKE		
POINT	Y+	X+
PS1	90023.546	2948242.429
PS2	90003.087	2948155.089
SPLITTER BOX		
POINT	Y+	X+
SBI	89934.625	2947862.822
DRAINAGE COLLECTOR SUMP		
POINT	Y+	X+
DCS1	89920.050	2947855.537

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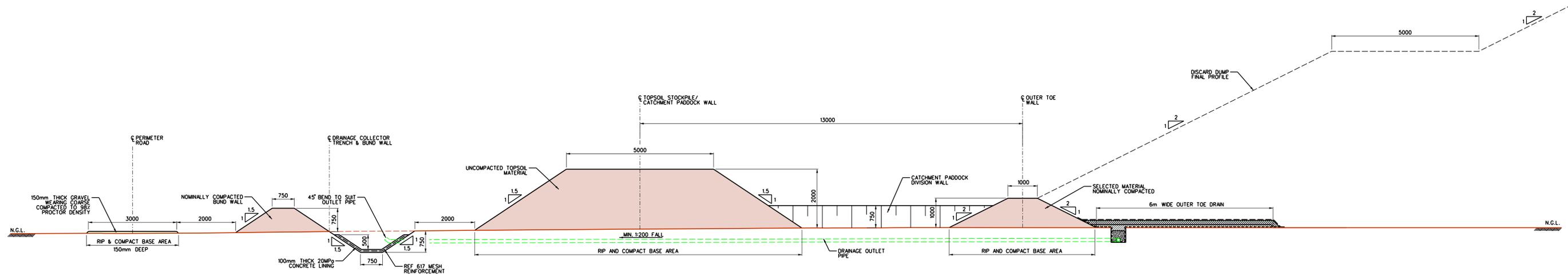
REV	BY	DATE	DESCRIPTION
B	NS	02-04-09	DUMP FOOTPRINT ADJUSTED TO SUIT POWER LINES

DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
001	GENERAL ARRANGEMENT		

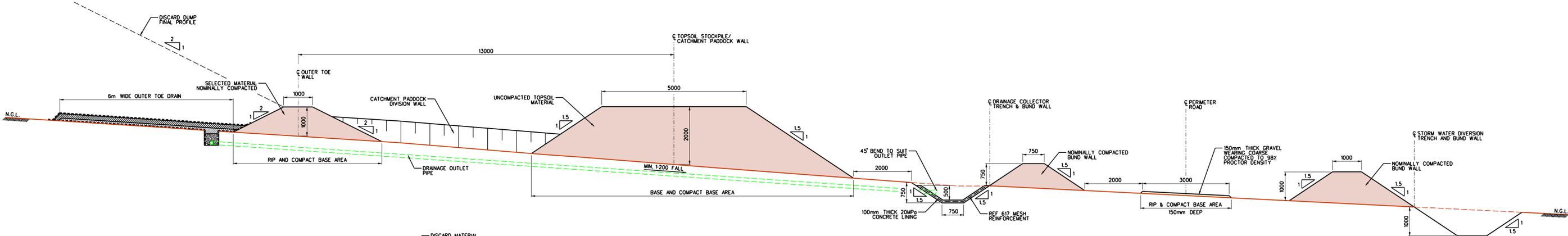
**ECMP**  
 Environmental, Civil & Mining Projects (Pty) Ltd  
 Box 783697 Sandton 2146  
 Tel. (011) 705 1111  
 Fax. (011) 705 1908

CLIENT: BADGER MINING & CONSULTING (PTY) LTD  
 TITLE: MOOPLAATS COAL DISCARD DUMP SETTING OUT CO-ORDINATES  
 DESIGNED: N.S. MAR.09  
 DRAWN: S.A. MAR.09  
 CHECKED: .  
 SCALE: 1:1500  
 DRAWING No.: T994-002  
 REVISION: B

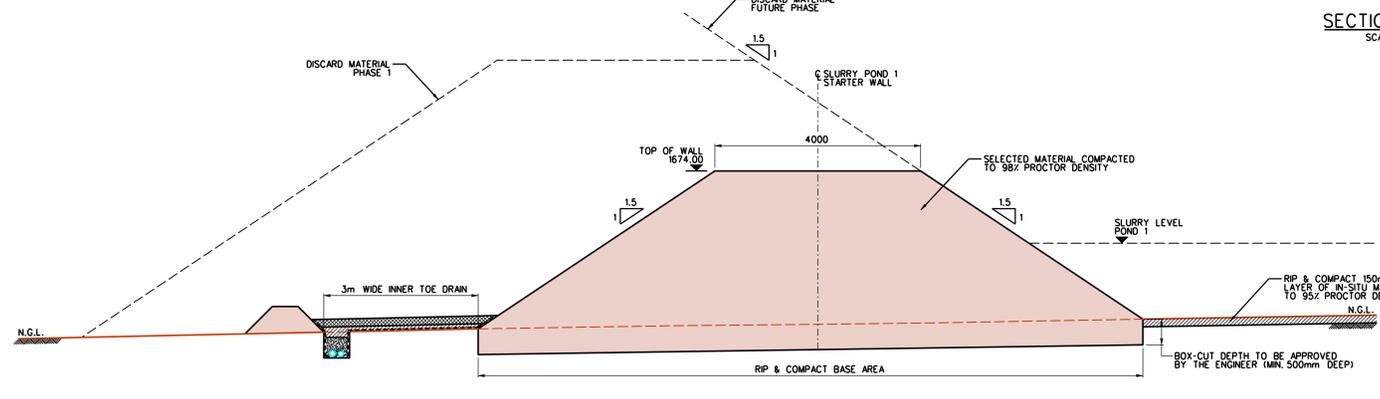
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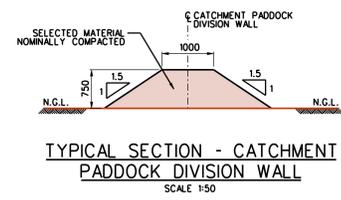
SECTION A - A  
SCALE 1:50



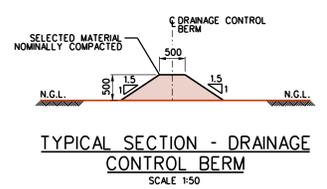
SECTION B - B  
SCALE 1:50



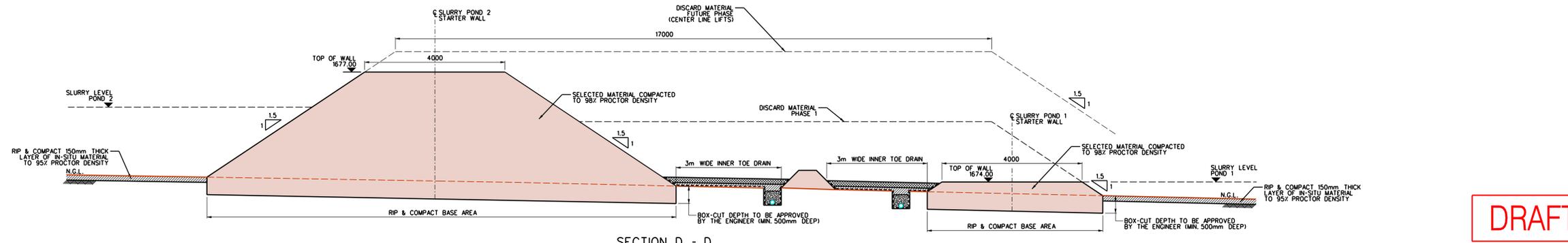
SECTION C - C  
SLURRY POND 1 STARTER WALL  
SCALE 1:50



TYPICAL SECTION - CATCHMENT Paddock DIVISION WALL  
SCALE 1:50



TYPICAL SECTION - DRAINAGE CONTROL BERM  
SCALE 1:50



SECTION D - D  
SCALE 1:50

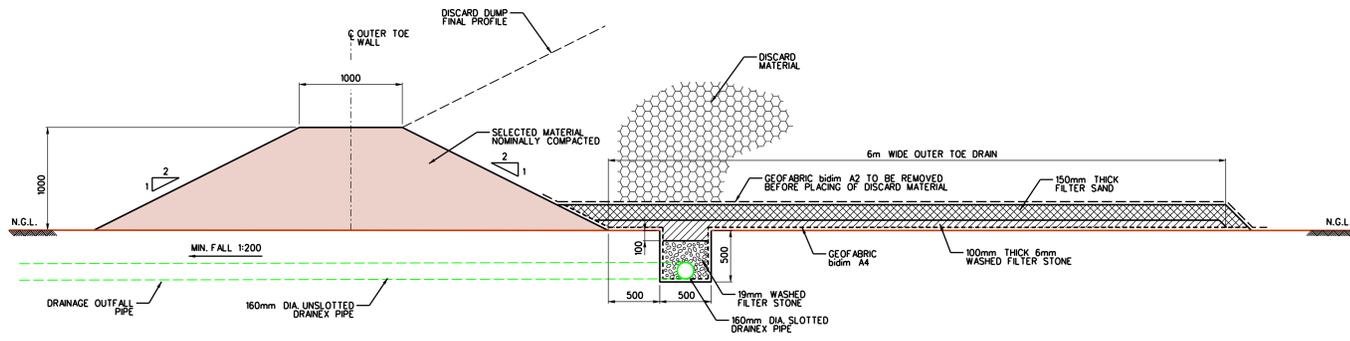
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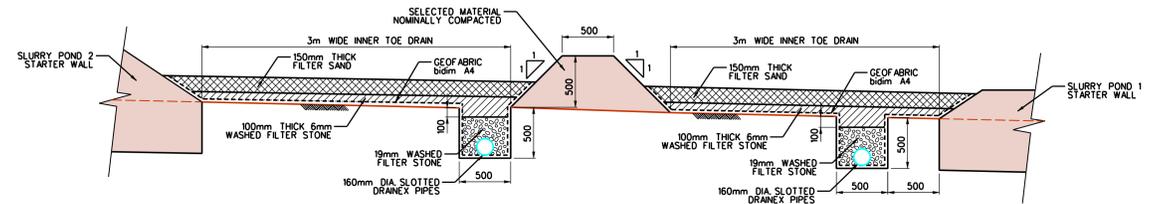
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B	NS	02-04-09	DETAILS ADDED	001	GENERAL ARRANGEMENT		
				004	DRAINAGE DETAILS		

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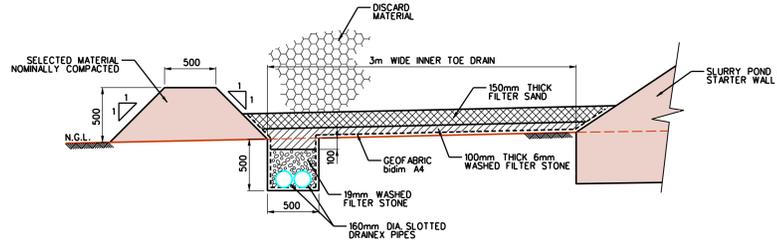
CLIENT	BADGER MINING & CONSULTING (PTY) LTD	BY	N.S.	DATE	MAR.09
TITLE	MOOIPLAATS COAL DISCARD DUMP EARTHWORKS SECTIONS & DETAILS	DRAWN	N.S.	CHECKED	
SCALE	A0-1:50	DRAWING No.	T994-003	REVISION	B



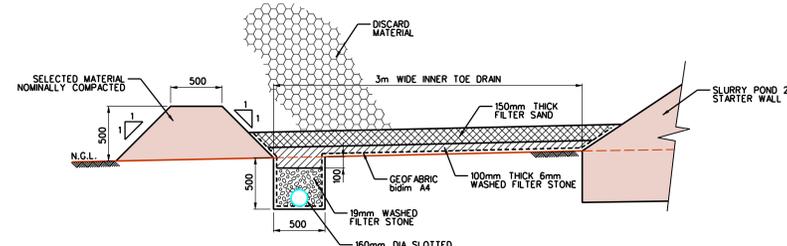
SECTION - OUTER TOE DRAIN  
SCALE 1:25



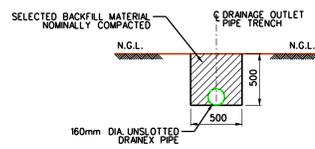
SECTION - INNER TOE DRAINS BETWEEN  
SLURRY POND 1 & 2  
SCALE 1:25



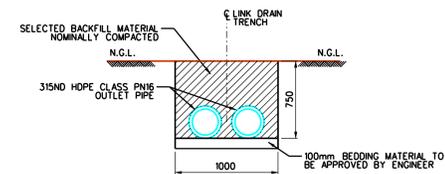
SECTION - INNER TOE DRAIN ALONG  
SLURRY POND 1 PERIMETER  
SCALE 1:25



SECTION - INNER TOE DRAIN ALONG  
SLURRY POND 2 PERIMETER  
SCALE 1:25



SECTION - DRAINAGE OUTLET PIPE  
SCALE 1:25



SECTION - LINK DRAIN  
SCALE 1:25

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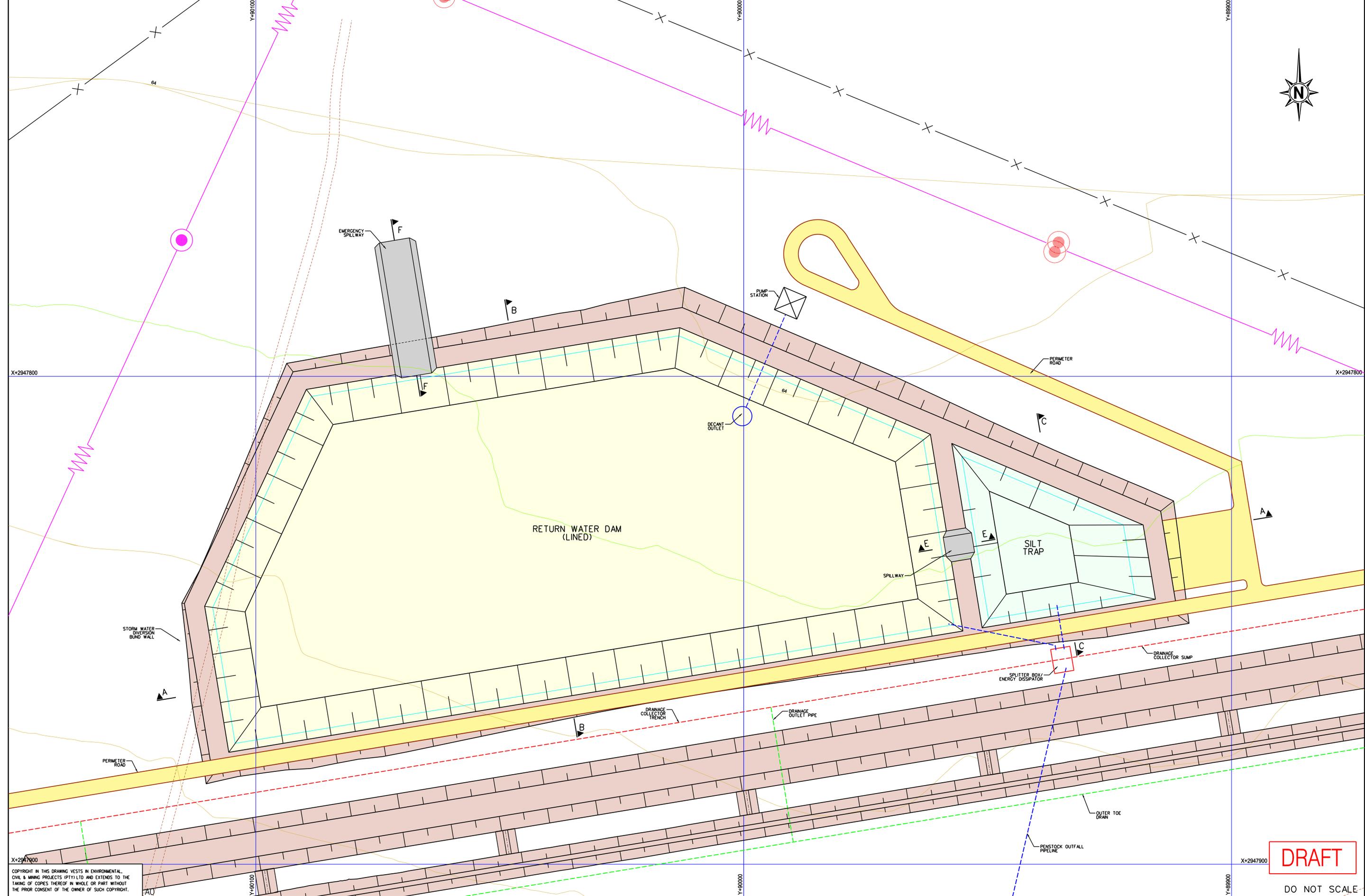
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REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
-	-	-	-	001	GENERAL ARRANGEMENT		
-	-	-	-	003	EARTHWORKS & DETAILS		
-	-	-	-	010	DRAINAGE PIPE DETAILS		

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CLIENT BADGER MINING & CONSULTING (PTY) LTD	DESIGNED	BY N.S.	DATE APR.09
TITLE MOOIPLAATS COAL DISCARD DUMP DRAINAGE DETAILS	DRAWN	N.S.	APR.09
CHECKED	SCALE A0-1:25	DRAWING No. T994-004	REVISION A

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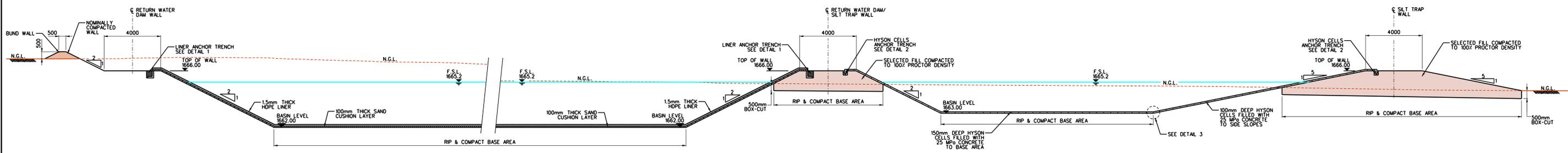
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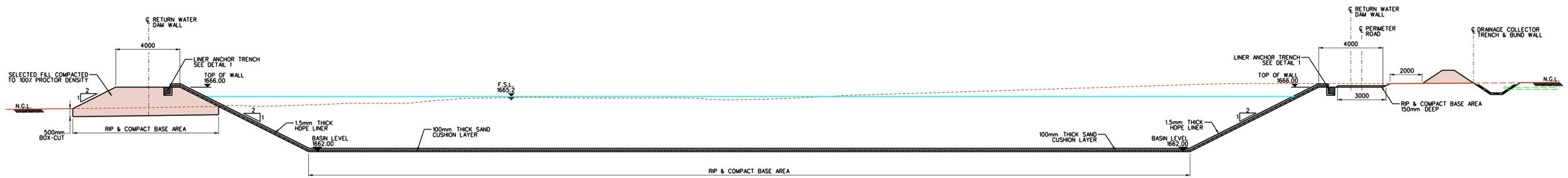
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B	SA	06-04-09	DUMP FOOTPRINT ADJUSTED TO SUIT POWER LINES	001	GENERAL ARRANGEMENT		
				006	RETURN WATER DAM & SILT TRAP DETAILS		
				007	RETURN WATER DAM SPILLWAY & TEMPORARY RETURN WATER DAM DETAILS		

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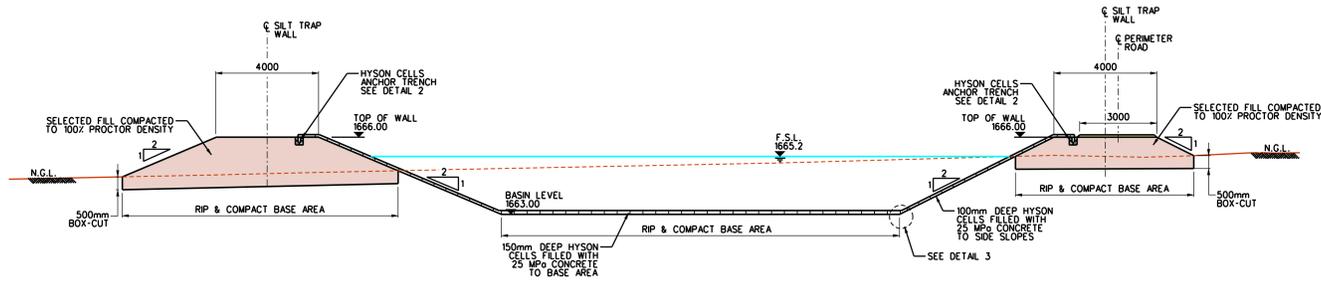
CLIENT	BADGER MINING & CONSULTING (PTY) LTD	BY	N.S.	DATE	MAR.09
TITLE	MOOPLAATS COAL DISCARD DUMP RETURN WATER DAM AND SILT TRAP LAYOUT	DRAWN	S.A.	REVISION	
		CHECKED			
		SCALE	1:500		
		DRAWING No.	T994-005		



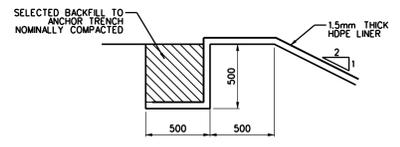
SECTION A - A  
SCALE 1:100



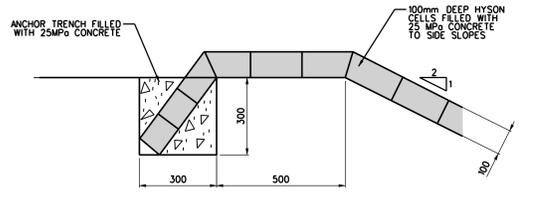
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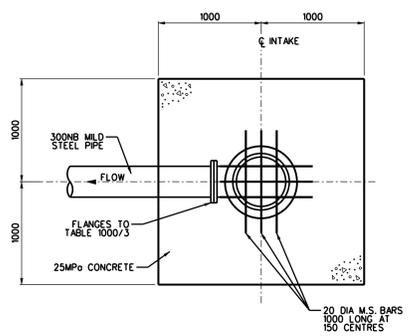
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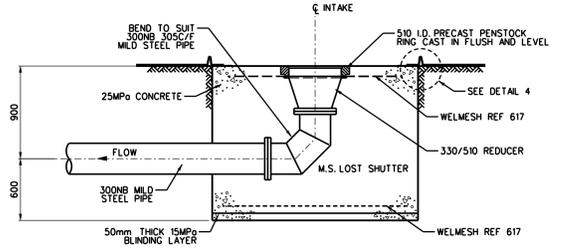
DETAIL 1  
SCALE 1:20



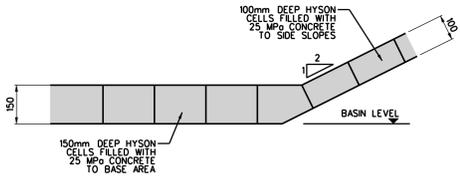
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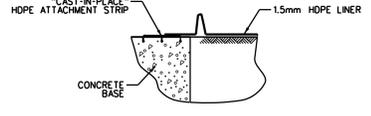
PLAN  
RETURN WATER DAM DECANT OUTLET STRUCTURE  
SCALE 1:25



SECTION  
RETURN WATER DAM DECANT OUTLET STRUCTURE  
SCALE 1:25



DETAIL 3  
SCALE 1:10



DETAIL 4  
N.T.S.

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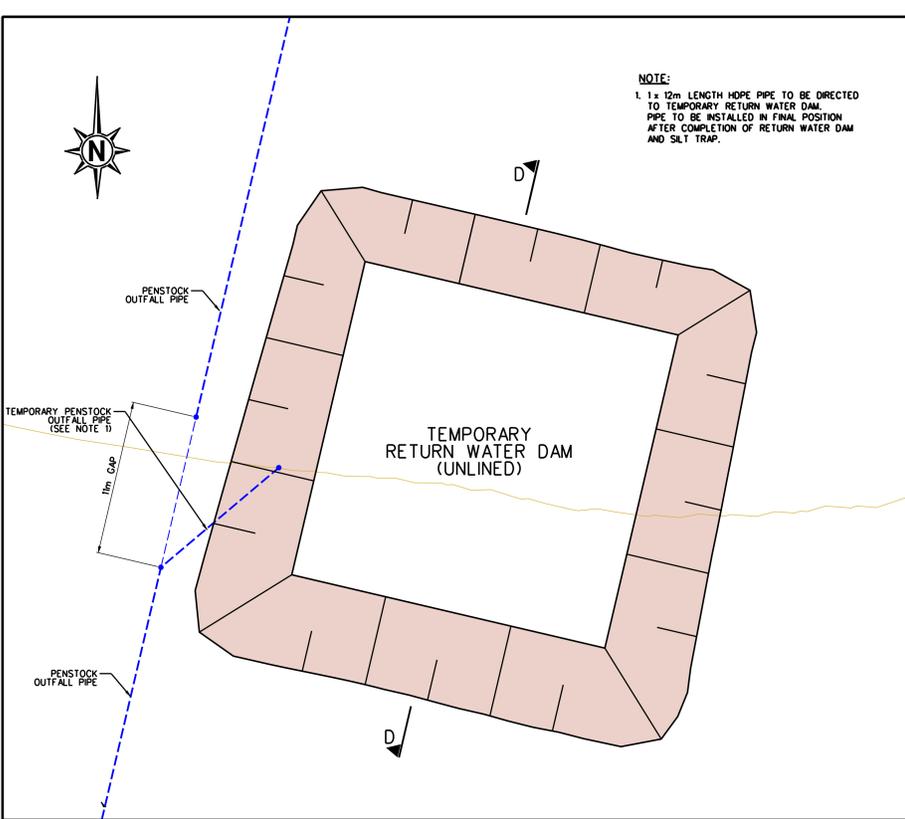
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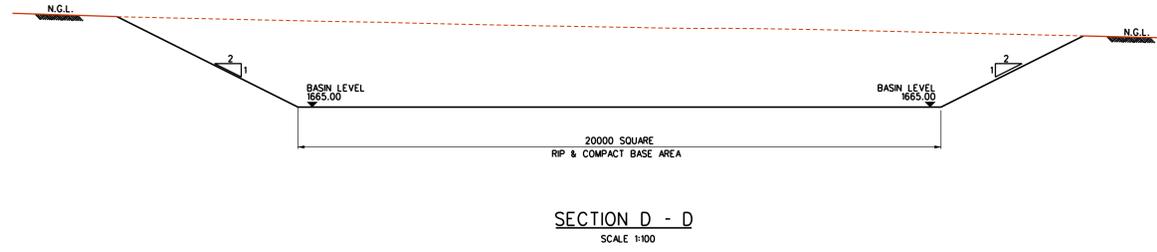
REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
				001	GENERAL ARRANGEMENT		
				005	RETURN WATER DAM & SILT TRAP LAYOUT		
				007	RETURN WATER DAM SPILLWAY & TEMPORARY RETURN WATER DAM DETAILS		

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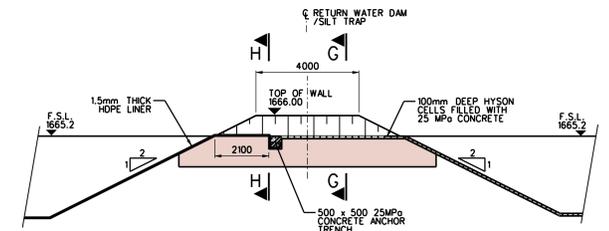
CLIENT <b>BADGER MINING &amp; CONSULTING (PTY) LTD</b>	DESIGNED N.S.	DATE APR.09
TITLE <b>MOOPLAATS COAL DISCARD DUMP RETURN WATER DAM AND SILT TRAP DETAILS</b>	DRAWN S.A.	APR.09
	CHECKED	
	SCALE AS SHOWN	
DRAWING No. <b>T994-006</b>	REVISION <b>A</b>	



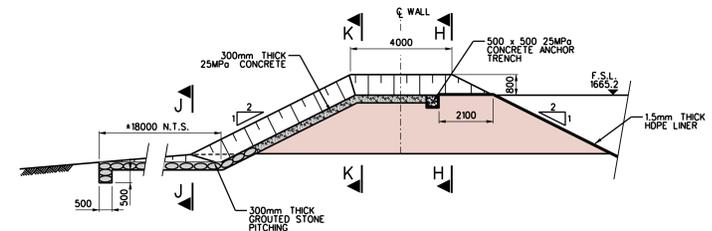
PLAN  
TEMPORARY RETURN WATER DAM (UNLINED)  
SCALE 1:200



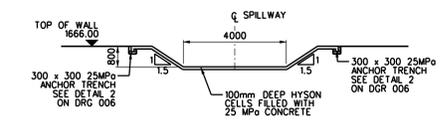
SECTION D - D  
SCALE 1:100



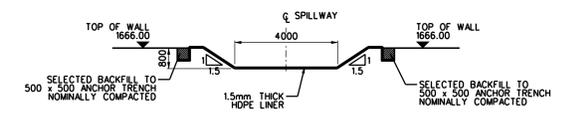
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SILT TRAP SPILLWAY  
SCALE 1:100



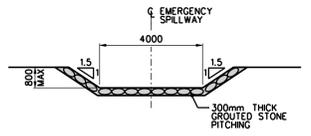
SECTION F - F  
EMERGENCY SPILLWAY  
SCALE 1:100



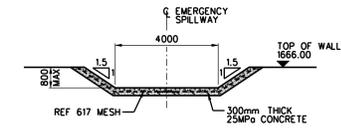
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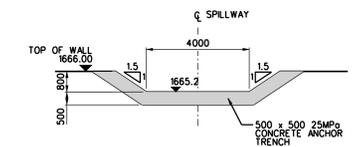
SECTION H - H  
SCALE 1:100



SECTION J - J  
SCALE 1:100



SECTION K - K  
SCALE 1:100



TYPICAL SECTION THROUGH  
CONCRETE ANCHOR TRENCH  
SCALE 1:100

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REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS	CLIENT	DESIGNED	BY	DATE
				001	GENERAL ARRANGEMENT			BADGER MINING & CONSULTING (PTY) LTD		N.S.	APR.09
				005	RETURN WATER DAM & SILT TRAP LAYOUT				DRAWN	S.A.	APR.09
				006	RETURN WATER DAM & SILT TRAP DETAILS				CHECKED		
									SCALE	AS SHOWN	
									DRAWING No.	T994-007	REVISION
											A

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Tel. (011) 705 1111  
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CLIENT  
BADGER MINING & CONSULTING (PTY) LTD

TITLE  
MOOPLAATS COAL DISCARD DUMP  
RETURN WATER DAM SPILLWAY  
AND TEMPORARY RETURN WATER DAM  
DETAILS

DESIGNED  
BY  
DATE

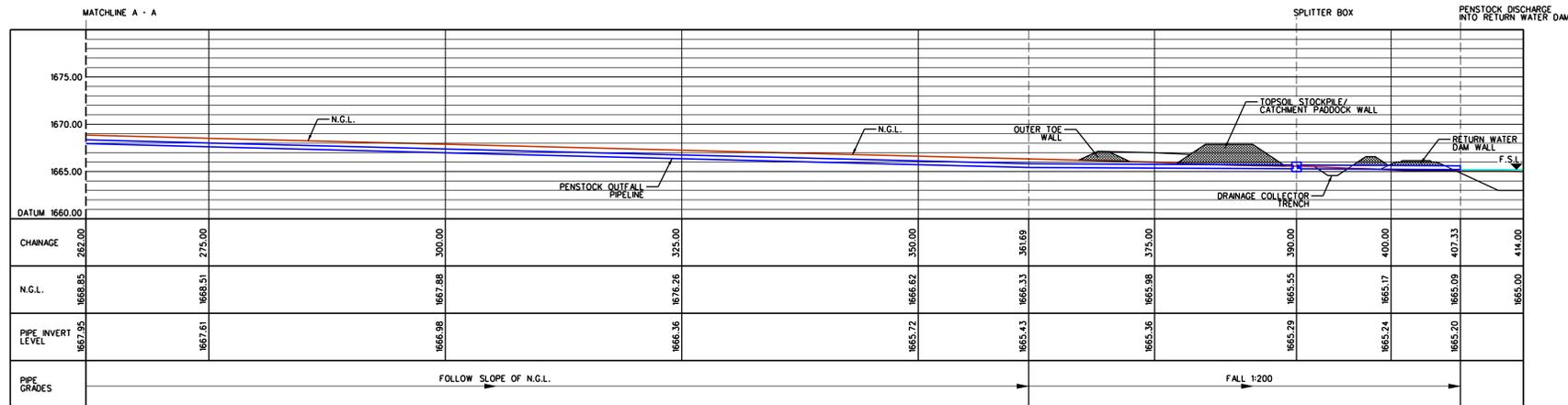
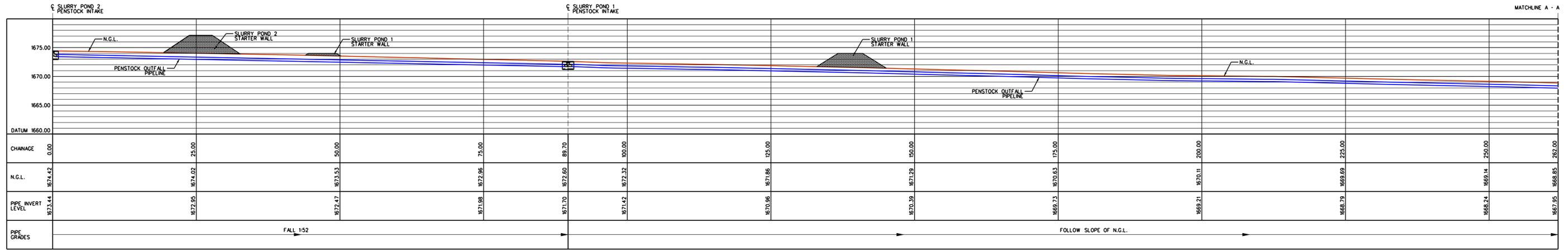
DRAWN  
S.A.  
APR.09

CHECKED

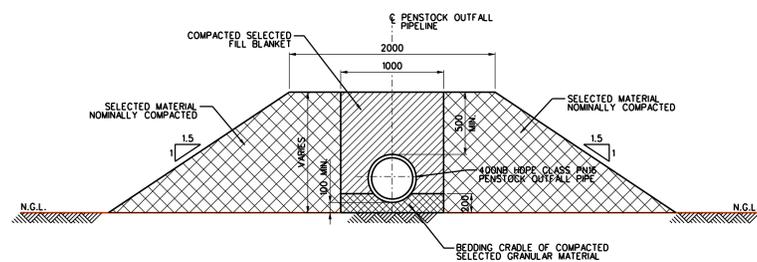
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DRAWING No. T994-007

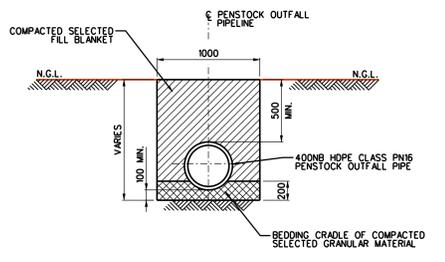
REVISION  
A



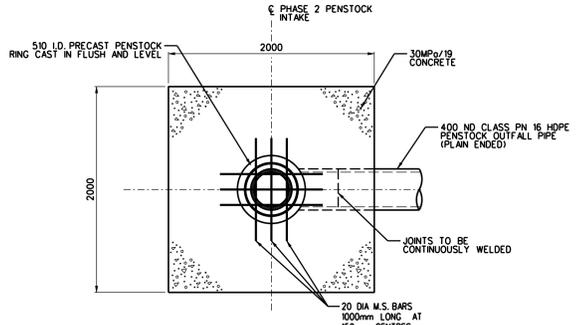
LONGITUDINAL SECTION - PENSTOCK OUTFALL PIPELINE  
SCALE 1:250



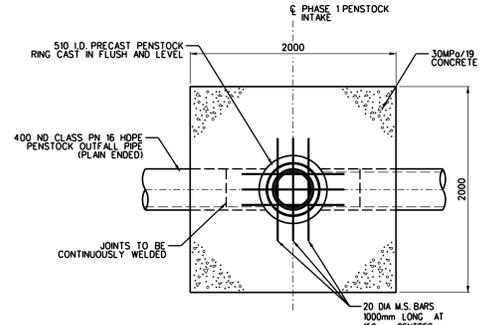
TYPICAL SECTION - PENSTOCK OUTFALL PIPELINE ABOVE N.G.L. (CLASS C BEDDING)  
SCALE 1:25



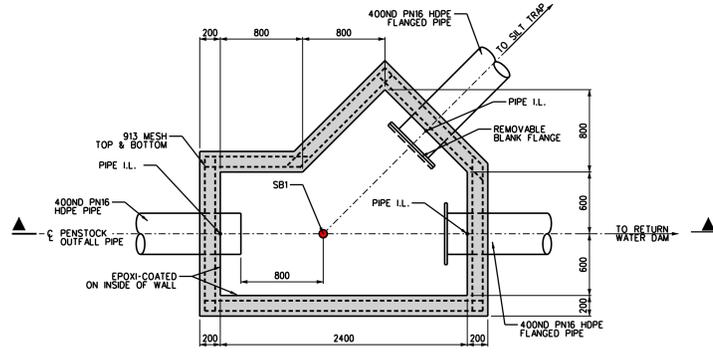
TYPICAL SECTION - PENSTOCK OUTFALL PIPELINE BELOW N.G.L. (CLASS C BEDDING)  
SCALE 1:25



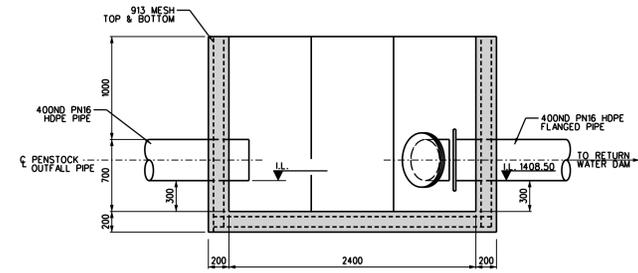
PLAN - SLURRY POND 2 PENSTOCK INTAKE  
SCALE 1:25



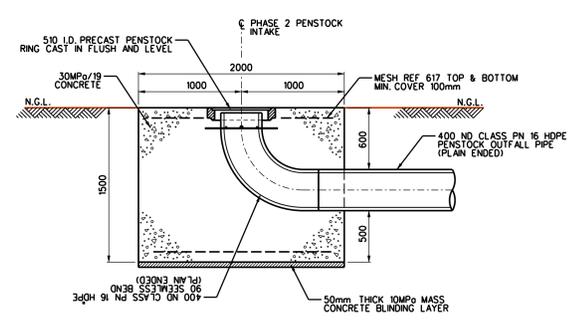
PLAN - SLURRY POND 1 PENSTOCK INTAKE  
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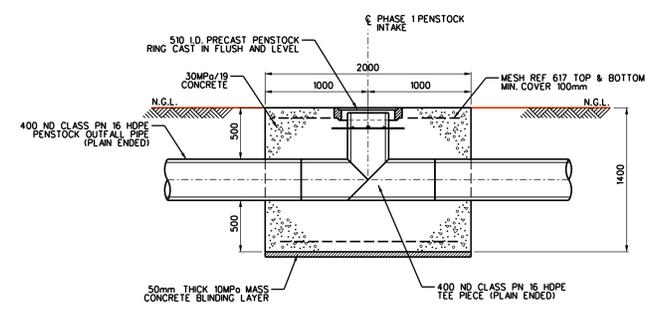
PLAN OF SPLITTER BOX  
SCALE 1:25



SECTION - SPLITTER BOX  
SCALE 1:25



SECTION - SLURRY POND 2 PENSTOCK INTAKE  
SCALE 1:25



SECTION - SLURRY POND 1 PENSTOCK INTAKE  
SCALE 1:25

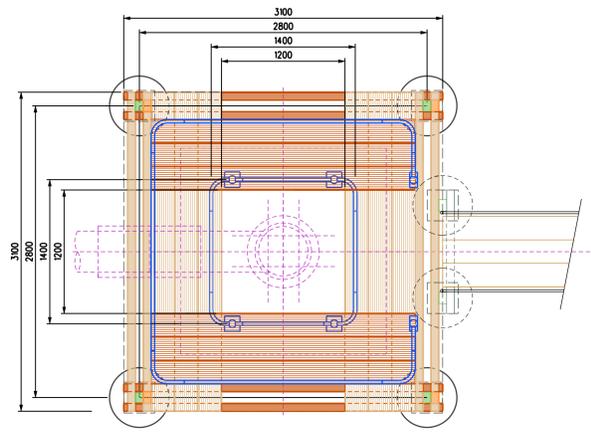
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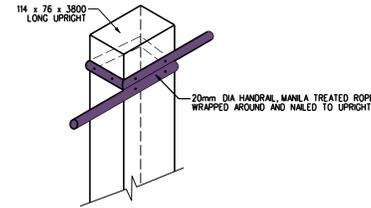
REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
				001	GENERAL ARRANGEMENT		

**ECMP**  
Environmental, Civil & Mining Projects (Pty) Ltd  
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Tel. (011) 705 1111  
Fax. (011) 705 1908

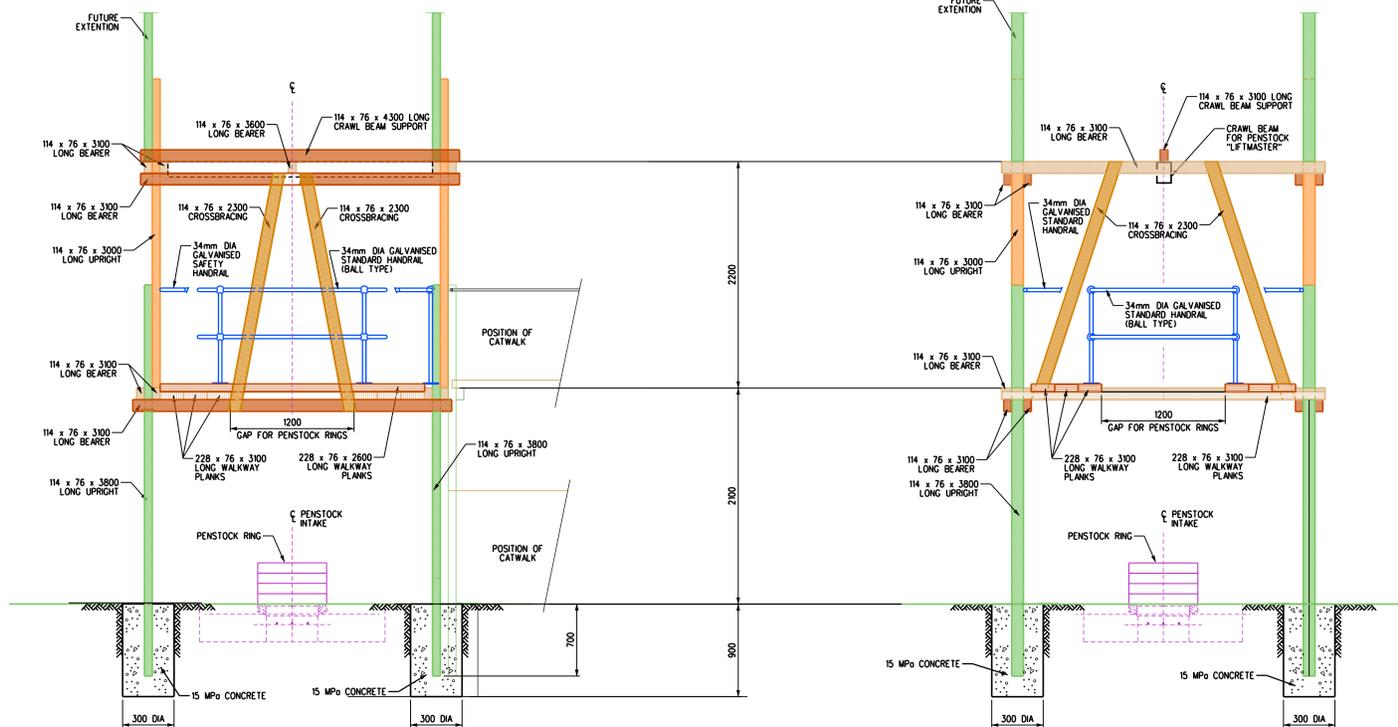
CLIENT <b>BADGER MINING &amp; CONSULTING (PTY) LTD</b>	DESIGNED N.S.	BY N.S.	DATE MAR.09
TITLE <b>MOOIPLAATS COAL DISCARD DUMP PENSTOCK OUTFALL PIPELINE DETAILS</b>	DRAWN N.S.	CHECKED	REVISION B
SCALE AS SHOWN	DRAWING No. T994-008		



PLAN - PLATFORM  
AT SINGLE PENSTOCK INTAKE  
SCALE 1:25

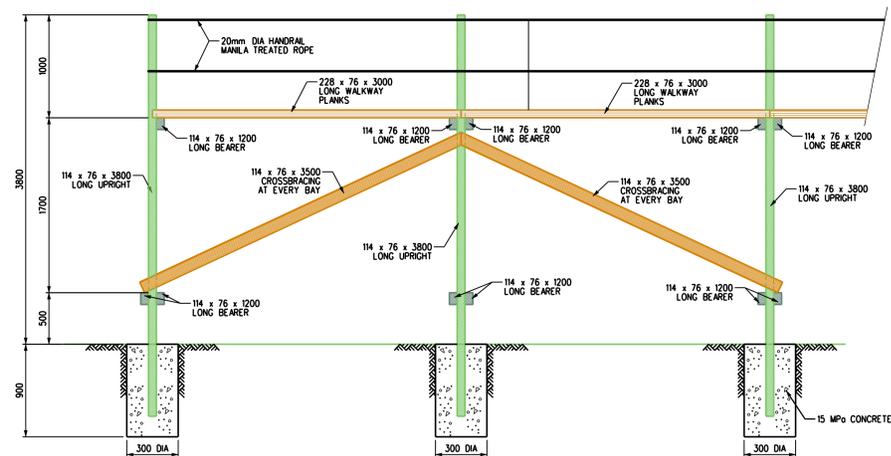


DETAIL 1  
SHOWING ROPE HANDRAIL AT UPRIGHT  
N.T.S.

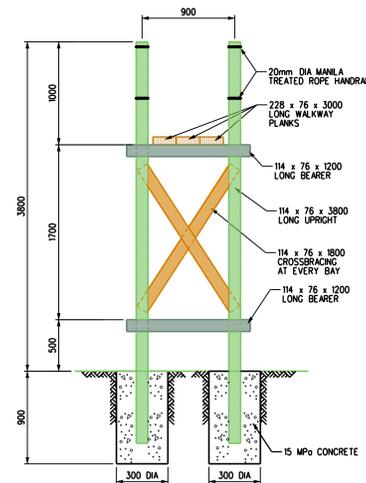


TYPICAL ELEVATION THROUGH PLATFORM  
AT SINGLE PENSTOCK INTAKE  
SCALE 1:25

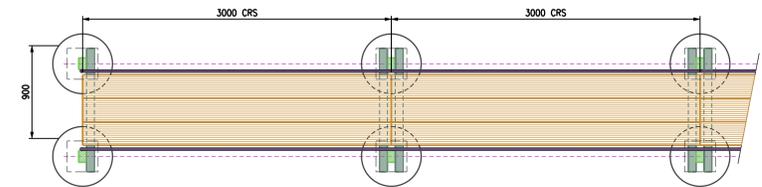
SECTION THROUGH PLATFORM  
AT SINGLE PENSTOCK INTAKE  
SCALE 1:25



SIDE ELEVATION - CATWALK  
SCALE 1:25



TYPICAL SECTION THROUGH CATWALK  
SCALE 1:25



PLAN - CATWALK  
SCALE 1:25

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REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
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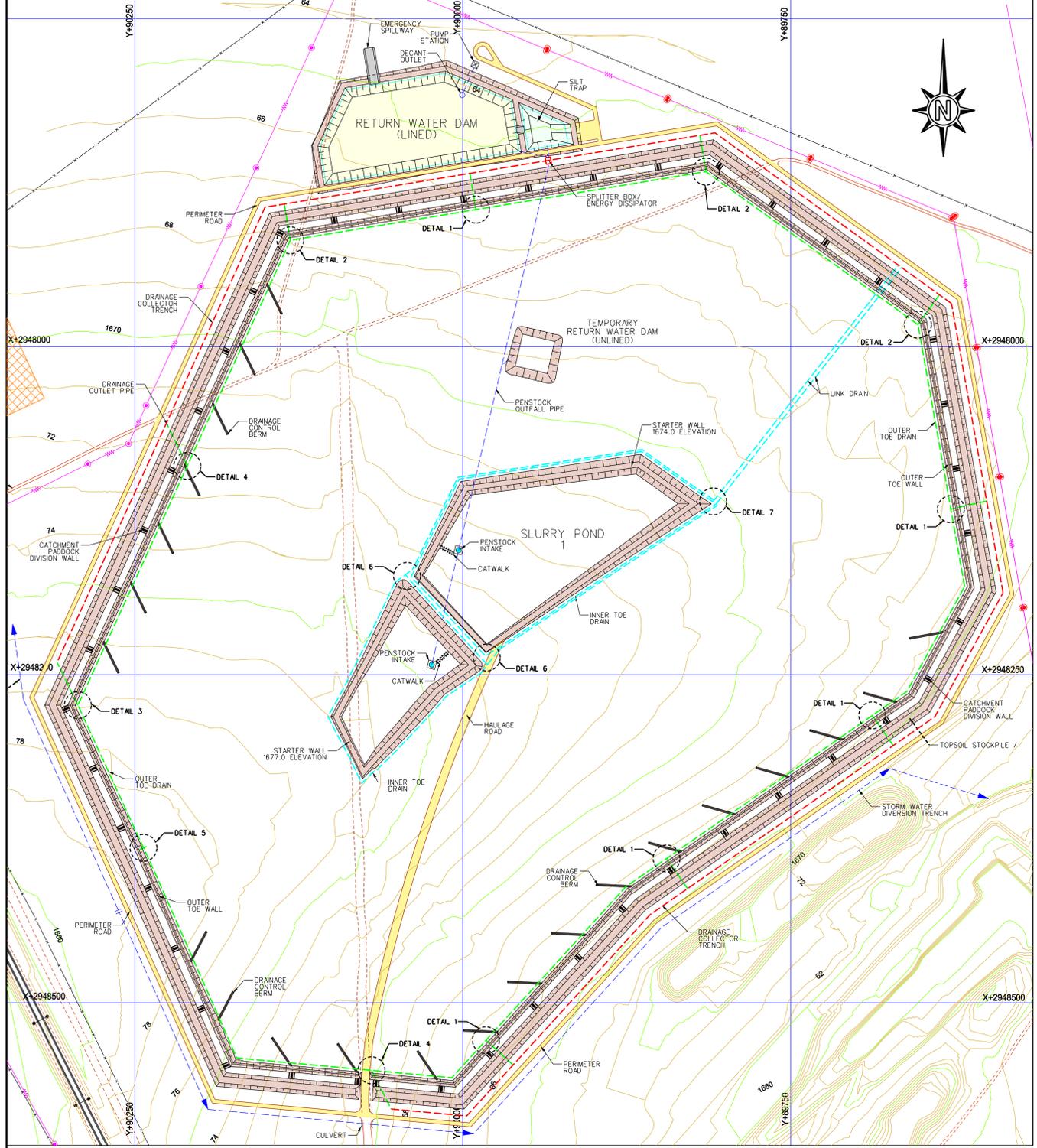
**ECMP**

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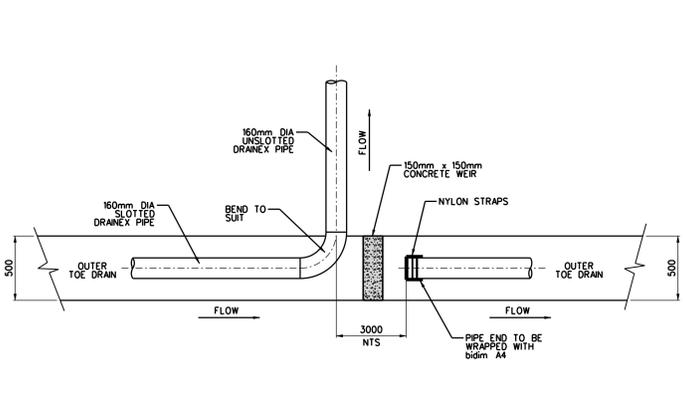
CLIENT  
BADGER MINING & CONSULTING (PTY) LTD

TITLE  
MOOPLAATS COAL  
DISCARD DUMP  
CATWALK DETAILS

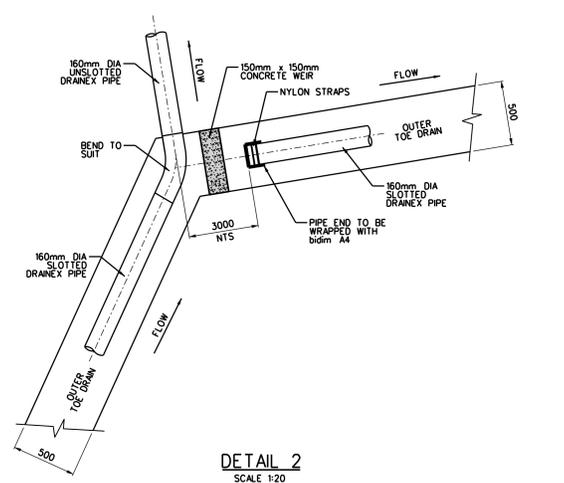
DESIGNED	BY	DATE
	N.S.	MAR.09
DRAWN	BY	DATE
	S.A.	MAR.09
CHECKED		
SCALE	AS SHOWN	
DRAWING No.	T994-009	REVISION
		A



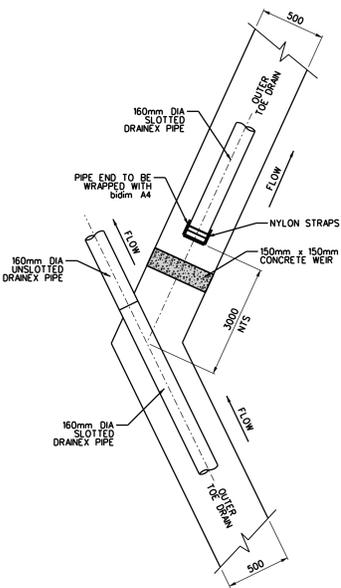
PLAN  
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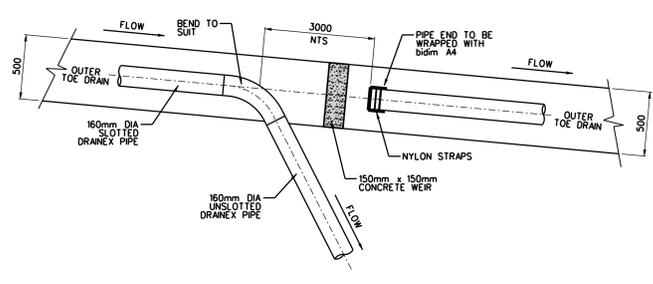
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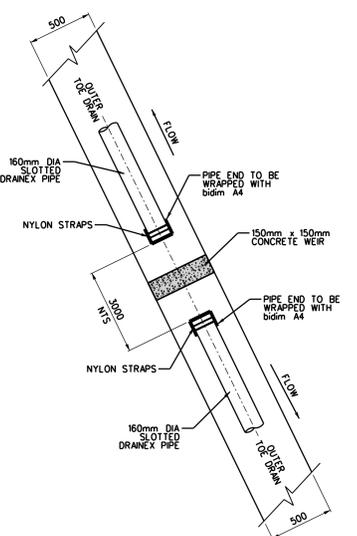
DETAIL 2  
SCALE 1:20



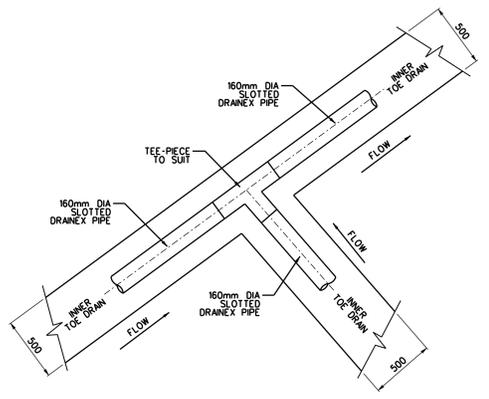
DETAIL 3  
SCALE 1:20



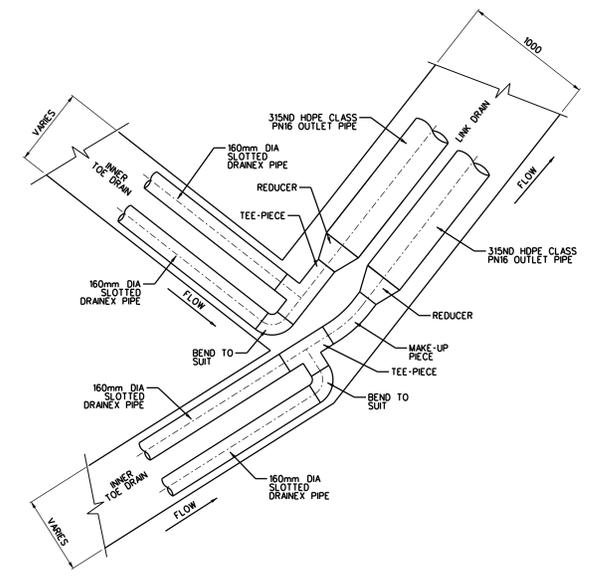
DETAIL 4  
SCALE 1:20



DETAIL 5  
SCALE 1:20



DETAIL 6  
SCALE 1:20



DETAIL 7  
SCALE 1:20

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REV	BY	DATE	DESCRIPTION	DRG.No.	REFERENCE DRAWINGS	DRG.No.	REFERENCE DRAWINGS
				001	GENERAL ARRANGEMENT		
				004	DRAINAGE DETAILS		

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CLIENT <b>BADGER MINING &amp; CONSULTING (PTY) LTD</b>	DESIGNED N.S.	DATE MAR.09
TITLE <b>MOOPLAATS COAL DISCARD DUMP DRAINAGE PIPE DETAILS</b>	DRAWN N.S.	
	CHECKED	
	SCALE A0-150	
DRAWING No. T994-010	REVISION A	

Mooiplaats Coal Discard Dump - Design Parameters

**INPUT REQUIRED** (Required for each Mine/Colliery contributing to the Coal Discard dump)

PHASE 1 (Discard dump 1)

Name of Mine	R.O.M.				Coal Production			Balance (Discard + Slurry) (tpm)	Discard deposition						Slurry deposition					
	Duration (Months)	Duration (Years)	R.O.M. (tpa)	R.O.M. (tpm)	Coal %	Coal (tpa)	Coal (tpm)		Discard (% of balance)	Discard (tpa)	Discard (tpm)	Discard dry density (t/m³)	Discard volume (m³/mnth)	Discard volume (m³/a)	Slurry (% of balance)	Slurry (tpa)	Slurry (tpm)	Slurry dry density (t/m³)	Slurry volume (m³/mnth)	Slurry volume (m³/a)
Mooiplaats Phase 1	18	1.50	1,533,600.00	127,800.00	78.25%	1,200,000.00	100,000.00	27,800.00	83.81%	279,600.00	23,300.00	1.60	14,562.50	174,750.00	16.19%	54,000.00	4,500.00	1.00	4,500.00	54,000.00
<b>Total over phase duration</b>	<b>18</b>			<b>2,300,400.00</b>			<b>1,800,000.00</b>			<b>419,400.00</b>			<b>262,125.00</b>			<b>81,000.00</b>		<b>81,000.00</b>		

PHASE 2 (Discard dump 1)

Name of Mine	R.O.M.				Coal Production			Balance (Discard + Slurry) (tpm)	Discard deposition						Slurry deposition					
	Duration (Months)	Duration (Years)	R.O.M. (tpa)	R.O.M. (tpm)	Coal %	Coal (tpa)	Coal (tpm)		Discard (% of balance)	Discard (tpa)	Discard (tpm)	Discard dry density (t/m³)	Discard volume (m³/mnth)	Discard volume (m³/a)	Slurry (% of balance)	Slurry (tpa)	Slurry (tpm)	Slurry dry density (t/m³)	Slurry volume (m³/mnth)	Slurry volume (m³/a)
Mooiplaats Phase 2	123	10.25	3,067,200.00	255,600.00	78.25%	2,400,000.00	200,000.00	55,600.00	83.81%	559,200.00	46,600.00	1.60	29,125.00	349,500.00	16.19%	108,000.00	9,000.00	1.00	9,000.00	108,000.00
<b>Total over phase duration</b>	<b>123</b>			<b>31,438,800.00</b>			<b>24,600,000.02</b>			<b>5,731,799.98</b>			<b>3,582,374.99</b>			<b>1,107,000.00</b>		<b>1,107,000.00</b>		
<b>Total over life of project</b>	<b>141</b>	<b>11.75</b>		<b>33,739,200.00</b>			<b>26,400,000.02</b>			<b>6,151,199.98</b>			<b>3,844,499.99</b>			<b>1,188,000.00</b>		<b>1,188,000.00</b>		

PHASE 3 (Discard dump 2)

Name of Mine	R.O.M.				Coal Production			Balance (Discard + Slurry) (tpm)	Discard deposition						Slurry deposition					
	Duration (Months)	Duration (Years)	R.O.M. (tpa)	R.O.M. (tpm)	Coal %	Coal (tpa)	Coal (tpm)		Discard (% of balance)	Discard (tpa)	Discard (tpm)	Discard dry density (t/m³)	Discard volume (m³/mnth)	Discard volume (m³/a)	Slurry (% of balance)	Slurry (tpa)	Slurry (tpm)	Slurry dry density (t/m³)	Slurry volume (m³/mnth)	Slurry volume (m³/a)
Mooiplaats Phase 3	108	9.00	1,680,000.00	140,000.00	71.43%	1,200,000.00	100,000.00	40,000.00	90.00%	432,000.00	36,000.00	1.60	22,500.00	270,000.00	10.00%	48,000.00	4,000.00	1.00	4,000.00	48,000.00
<b>Total over phase duration</b>	<b>108</b>			<b>15,120,000.00</b>			<b>10,800,000.00</b>			<b>3,888,000.00</b>			<b>2,430,000.00</b>			<b>432,000.00</b>		<b>432,000.00</b>		

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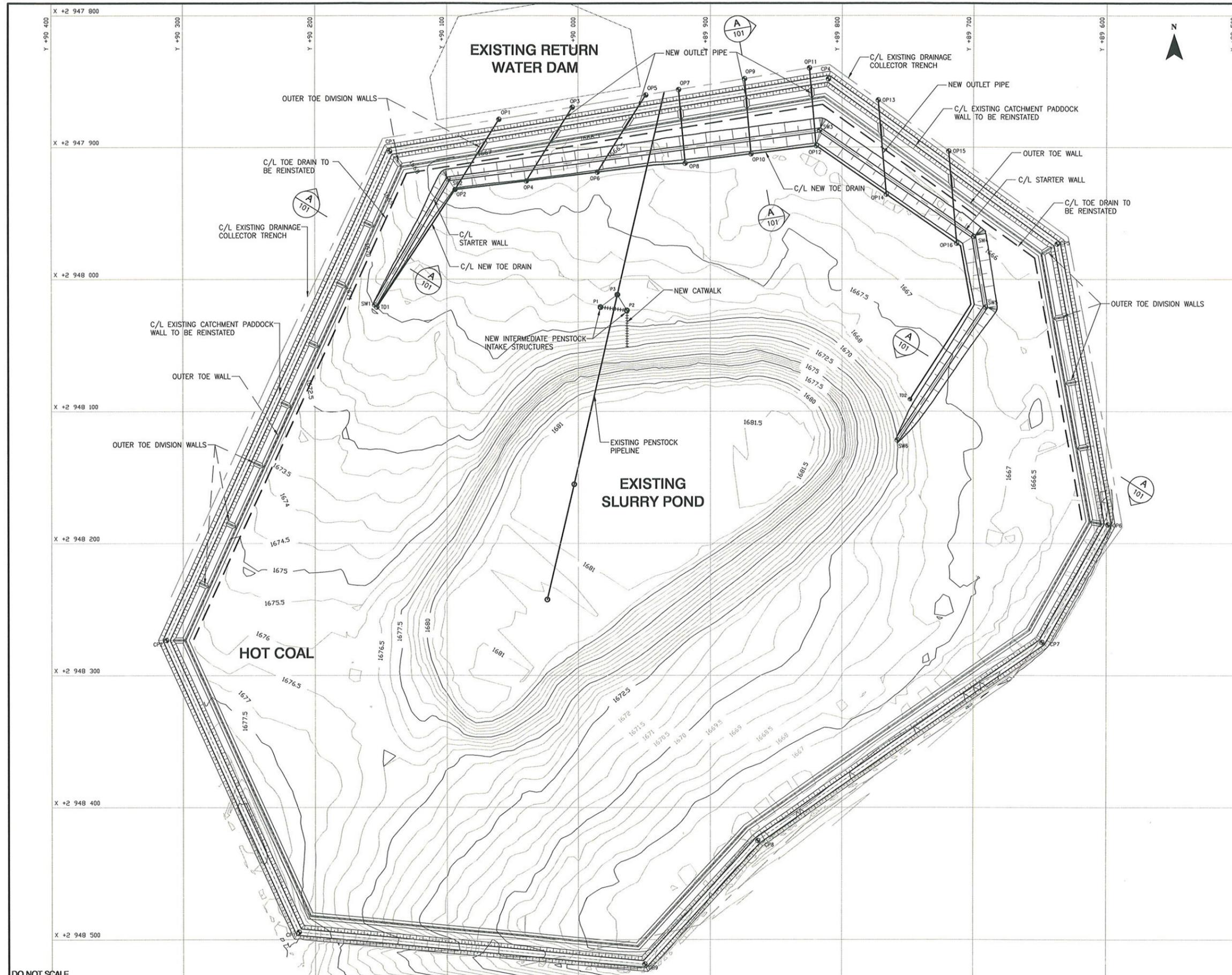
CAPACITY ANALYSIS									
Mooiplaats Coal Discard Dump 1: Coarse Discard									
DRY DENSITY:		1.60 t/m <sup>3</sup>							
Deposition rate (tpm)	Vertical height (m)	Elevation (mamsl)	Volume (m <sup>3</sup> )	Acc. volume (m <sup>3</sup> )	Acc. tonnage (tonnes)	Time (months)	Acc. time (months)	Acc. time (years)	Rate of rise (m/y)
46,600	0	1666	0	0	0	0.0	0.0	0.00	0.00
46,600	48	1714	3,900,000	3,900,000	6,240,000	133.9	133.9	11.16	4.30

CAPACITY ANALYSIS									
Mooiplaats Coal Discard Dump 1: Slurry									
DRY DENSITY:		1.00 t/m <sup>3</sup>							
Deposition rate (tpm)	Vertical height (m)	Elevation (mamsl)	Volume (m <sup>3</sup> )	Acc. volume (m <sup>3</sup> )	Acc. tonnage (tonnes)	Time (months)	Acc. time (months)	Acc. time (years)	Rate of rise (m/y)

SW	4,500	0	1670	0	0	0	0.0	0.00	0.00
	4,500	1	1671	117	117	117	0.0	0.00	459.72
	4,500	2	1672	3,596	3,714	3,714	0.8	0.07	15.02
	4,500	3	1673	9,522	13,236	13,236	2.1	0.25	5.67
	4,500	4	1674	13,673	26,909	26,909	3.0	0.50	3.95
1	4,500	5	1675	14,860	41,769	41,769	3.3	0.77	3.63
	4,500	6	1676	15,539	57,308	57,308	3.5	1.06	3.48
	4,500	7	1677	16,227	73,535	73,535	3.6	1.36	3.33
	4,500	8	1678	16,925	90,460	90,460	3.8	1.68	3.19
	9,000	9	1679	17,632	108,092	108,092	2.0	1.84	6.13
2	9,000	10	1680	18,348	126,441	126,441	2.0	2.01	5.89
	9,000	11	1681	19,074	145,515	145,515	2.1	2.18	5.66
	9,000	12	1682	19,809	165,323	165,323	2.2	2.37	5.45
	9,000	13	1683	20,553	185,876	185,876	2.3	2.56	5.25
	9,000	14	1684	21,306	207,182	207,182	2.4	2.76	5.07
3	9,000	15	1685	22,068	229,250	229,250	2.5	2.96	4.89
	9,000	16	1686	22,840	252,091	252,091	2.5	3.17	4.73
	9,000	17	1687	23,621	275,712	275,712	2.6	3.39	4.57
	9,000	18	1688	24,411	300,123	300,123	2.7	3.62	4.42
	9,000	19	1689	25,211	325,334	325,334	2.8	3.85	4.28
4	9,000	20	1690	26,020	351,354	351,354	2.9	4.09	4.15
	9,000	21	1691	26,838	378,191	378,191	3.0	4.34	4.02
	9,000	22	1692	27,665	405,856	405,856	3.1	4.60	3.90
	9,000	23	1693	28,501	434,357	434,357	3.2	4.86	3.79
	9,000	24	1694	29,347	463,704	463,704	3.3	5.13	3.68
5	9,000	25	1695	30,202	493,906	493,906	3.4	5.41	3.58
	9,000	26	1696	31,066	524,973	524,973	3.5	5.70	3.48
	9,000	27	1697	31,940	556,912	556,912	3.5	5.99	3.38
	9,000	28	1698	32,822	589,735	589,735	3.6	6.30	3.29
	9,000	29	1699	33,714	623,449	623,449	3.7	6.61	3.20
6	9,000	30	1700	34,616	658,065	658,065	3.8	6.93	3.12
	9,000	31	1701	35,526	693,591	693,591	3.9	7.26	3.04
	9,000	32	1702	36,446	730,036	730,036	4.0	7.60	2.96
	9,000	33	1703	37,375	767,411	767,411	4.2	7.94	2.89
	9,000	34	1704	38,313	805,724	805,724	4.3	8.30	2.82
7	9,000	35	1705	39,260	844,984	844,984	4.4	8.66	2.75
	9,000	36	1706	40,217	885,201	885,201	4.5	9.03	2.69
	9,000	37	1707	41,183	926,384	926,384	4.6	9.42	2.62
	9,000	38	1708	42,158	968,543	968,543	4.7	9.81	2.56
	9,000	39	1709	43,143	1,011,685	1,011,685	4.8	10.21	2.50
8	9,000	40	1710	44,136	1,055,822	1,055,822	4.9	10.61	2.45
	9,000	41	1711	45,139	1,100,961	1,100,961	5.0	11.03	2.39
	9,000	42	1712	46,151	1,147,112	1,147,112	5.1	11.46	2.34
	9,000	43	1713	47,173	1,194,285	1,194,285	5.2	11.90	2.29

CAPACITY ANALYSIS									
Mooiplaats Coal Discard Dump 2: Coarse Discard									
DRY DENSITY:		1.60		t/m <sup>3</sup>					
Deposition rate (tpm)	Vertical height (m)	Elevation (mamsl)	Volume (m <sup>3</sup> )	Acc. volume (m <sup>3</sup> )	Acc. tonnage (tonnes)	Time (months)	Acc. time (months)	Acc. time (years)	Rate of rise (m/y)
36,000	0	1674	0	0	0	0.0	0.0	0.00	0.00
36,000	40	1714	2,627,903	2,627,903	4,204,645	116.8	116.8	9.73	4.11

CAPACITY ANALYSIS									
Mooiplaats Coal Discard Dump 2: Slurry									
DRY DENSITY:		1.00		t/m <sup>3</sup>					
Deposition rate (tpm)	Vertical height (m)	Elevation (mamsl)	Volume (m <sup>3</sup> )	Acc. volume (m <sup>3</sup> )	Acc. tonnage (tonnes)	Time (months)	Acc. time (months)	Acc. time (years)	Rate of rise (m/y)
SW	4,000	0	1674	0	0	0.0	0.0	0.00	0.00
	4,000	1	1675	1,964	1,964	0.5	0.5	0.04	24.44
	4,000	2	1676	4,038	6,002	1.0	1.5	0.13	11.89
	4,000	3	1677	5,056	11,058	1.3	2.8	0.23	9.49
	4,000	4	1678	5,480	16,538	1.4	4.1	0.34	8.76
	4,000	5	1679	5,881	22,419	1.5	5.6	0.47	8.16
	4,000	6	1680	6,293	28,713	1.6	7.2	0.60	7.63
1	4,000	7	1681	6,716	35,429	1.7	8.9	0.74	7.15
	4,000	8	1682	7,149	42,578	1.8	10.6	0.89	6.71
	4,000	9	1683	7,593	50,171	1.9	12.5	1.05	6.32
	4,000	10	1684	8,047	58,218	2.0	14.6	1.21	5.96
2	4,000	11	1685	8,512	66,730	2.1	16.7	1.39	5.64
	4,000	12	1686	8,987	75,717	2.2	18.9	1.58	5.34
	4,000	13	1687	9,473	85,190	2.4	21.3	1.77	5.07
	4,000	14	1688	9,970	95,160	2.5	23.8	1.98	4.81
	4,000	15	1689	10,477	105,637	2.6	26.4	2.20	4.58
3	4,000	16	1690	10,994	116,631	2.7	29.2	2.43	4.37
	4,000	17	1691	11,523	128,154	2.9	32.0	2.67	4.17
	4,000	18	1692	12,061	140,215	3.0	35.1	2.92	3.98
	4,000	19	1693	12,611	152,825	3.2	38.2	3.18	3.81
4	4,000	20	1694	13,171	165,996	3.3	41.5	3.46	3.64
	4,000	21	1695	13,741	179,737	3.4	44.9	3.74	3.49
	4,000	22	1696	14,322	194,059	3.6	48.5	4.04	3.35
	4,000	23	1697	14,914	208,973	3.7	52.2	4.35	3.22
	4,000	24	1698	15,516	224,488	3.9	56.1	4.68	3.09
5	4,000	25	1699	16,128	240,617	4.0	60.2	5.01	2.98
	4,000	26	1700	16,752	257,368	4.2	64.3	5.36	2.87
	4,000	27	1701	17,386	274,754	4.3	68.7	5.72	2.76
	4,000	28	1702	18,030	292,784	4.5	73.2	6.10	2.66
	4,000	29	1703	18,685	311,469	4.7	77.9	6.49	2.57
6	4,000	30	1704	19,350	330,819	4.8	82.7	6.89	2.48
	4,000	31	1705	20,027	350,846	5.0	87.7	7.31	2.40
	4,000	32	1706	20,713	371,559	5.2	92.9	7.74	2.32
	4,000	33	1707	21,410	392,970	5.4	98.2	8.19	2.24
7	4,000	34	1708	22,118	415,088	5.5	103.8	8.65	2.17
	4,000	35	1709	22,837	437,924	5.7	109.5	9.12	2.10
	4,000	36	1710	23,566	461,490	5.9	115.4	9.61	2.04
	4,000	37	1711	24,305	485,795	6.1	121.4	10.12	1.97
	4,000	38	1712	25,055	510,850	6.3	127.7	10.64	1.92
	4,000	39	1713	25,816	536,666	6.5	134.2	11.18	1.86



COORDINATE LIST		
WGS 84 Lo31		
POINT	Y COORD	X COORD
CONST:		
STARTER WALL		
SW1	90154.859	2948019.010
SW2	90098.739	2947923.879
SW3	89816.586	2947886.890
SW4	89699.742	2947967.354
SW5	89690.623	2948020.861
SW6	89757.868	2948121.645
PENSTOCK INTAKES		
P1	89982.877	2948020.829
P2	89962.876	2948023.392
P3	89970.022	2948011.494
TOE DRAIN		
TD1	90153.407	2948020.957
TD2	89748.144	2948090.726
CATCHMENT PADDOCK WALL		
CP1	90212.407	2948494.436
CP2	90312.595	2948273.226
CP3	90143.413	2947903.081
CP4	89810.193	2947848.029
CP5	89636.854	2947973.057
CP6	89598.838	2948185.765
CP7	89647.921	2948274.757
CP8	89964.153	2948425.060
CP9	89949.437	2948518.639
OUTLET DRAIN PIPES		
OD1	90060.157	2947878.685
OD2	90093.498	2947931.933
OD3	90004.387	2947869.470
OD4	90038.930	2947925.658
OD5	89948.618	2947860.256
OD6	89985.151	2947918.603
OD7	89923.754	2947856.148
OD8	89918.826	2947911.963
OD9	89874.281	2947847.974
OD10	89869.252	2947904.943
OD11	89824.808	2947839.801
OD12	89819.376	2947898.785
OD13	89772.464	2947864.146
OD14	89766.157	2947935.588
OD15	89718.856	2947902.813
OD16	89712.699	2947972.558

**DO NOT SCALE**

REV	DR	CH	DATE	REVISIONS
A	MCOO	MCOO	28.07.2011	ISSUED FOR COMMENTS AND APPROVAL
B	GOSK	REVR	11.08.2011	ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS	
400916/01	TYPICAL SECTIONS AND DETAILS

NOTES

Datum: WGS 84
Projection: UTM
Central Meridian / Zone: 1831
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**srk consulting**

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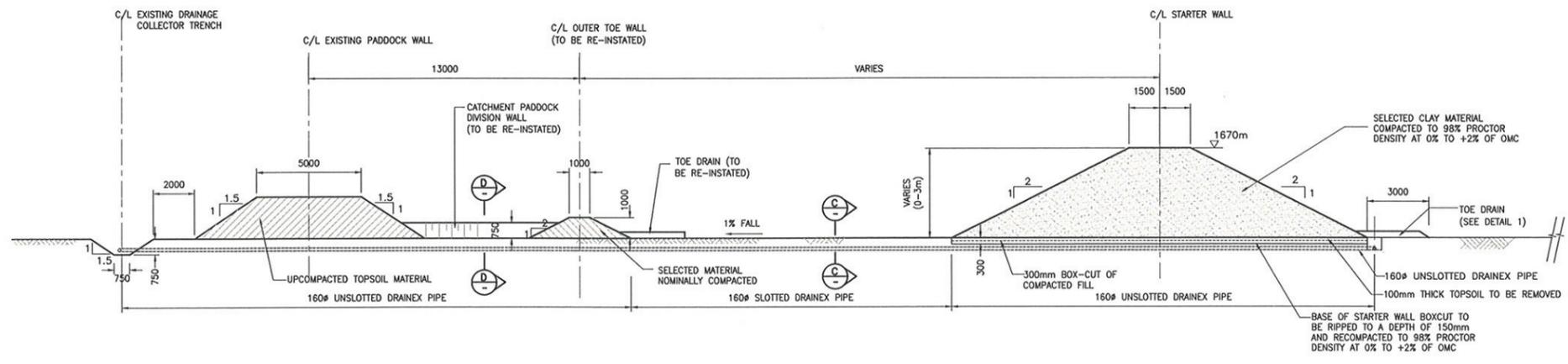
PO Box 50261  
Northridge  
2116 South Africa

Phone: +27 (0) 11 441 1111  
Fax: +27 (0) 11 680 9398

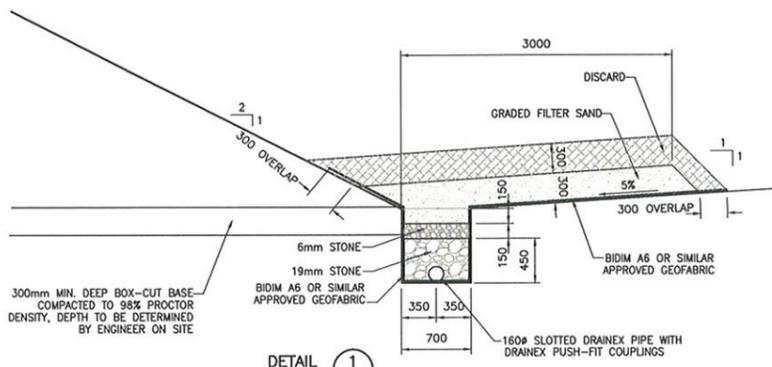
www.srk.co.za

**CESA**

CLIENT: MOOIPLAATS COLLIERY	
TITLE: MOOIPLAATS COLLIERY GENERAL ARRANGEMENT SHOWING LAYOUT AT STARTER WALL	
DATE: 28.07.2011	CHECKED: MCOO
DATE: 28.07.2011	CHECKED: MCOO
SCALE: 1:1000	REV: 0
DRG No: 430918/100	

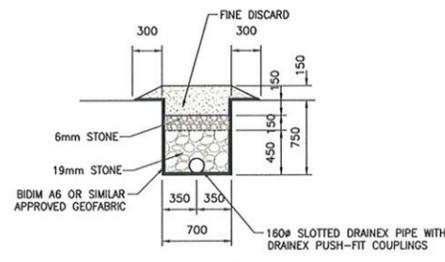


TYPICAL SECTION A  
SCALE 1:100



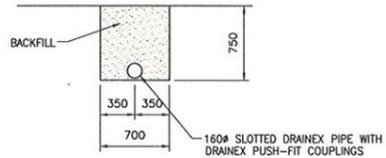
DETAIL 1  
SCALE :25

TOE DRAIN (COMPACTED STARTER WALL OVER 1m HIGH)



SECTION C  
SCALE :25

DRAIN OUTLET DETAILS



SECTION D  
SCALE :25

DO NOT SCALE

REV	DR	CH	DATE	REVISIONS
A	MOOD	MOOD	28.07.2011	ISSUED FOR COMMENTS AND APPROVAL
0	GOSK	RVCB	11.08.2011	ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS	
430918/100	GENERAL ARRANGEMENT SHOWING LAYOUT AT STARTER WALL

NOTES

Datum:	
Projection:	
Central Meridian / Zone:	
Copyright:	

**srk consulting**

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**CESA**

TITLE	MOOIPLAATS COLLIERY		
	SECTIONS AND DETAILS FOR STARTER WALL		
CLIENT	MOOIPLAATS COLLIERY		

FOR CONSTRUCTION			
DESIGNED	MOOD	DATE	CHECKED
		28.07.2011	MOOD
		28.07.2011	MOOD

DRG NO: 430918/101  
SCALE: AS SHOWN  
REV: 0