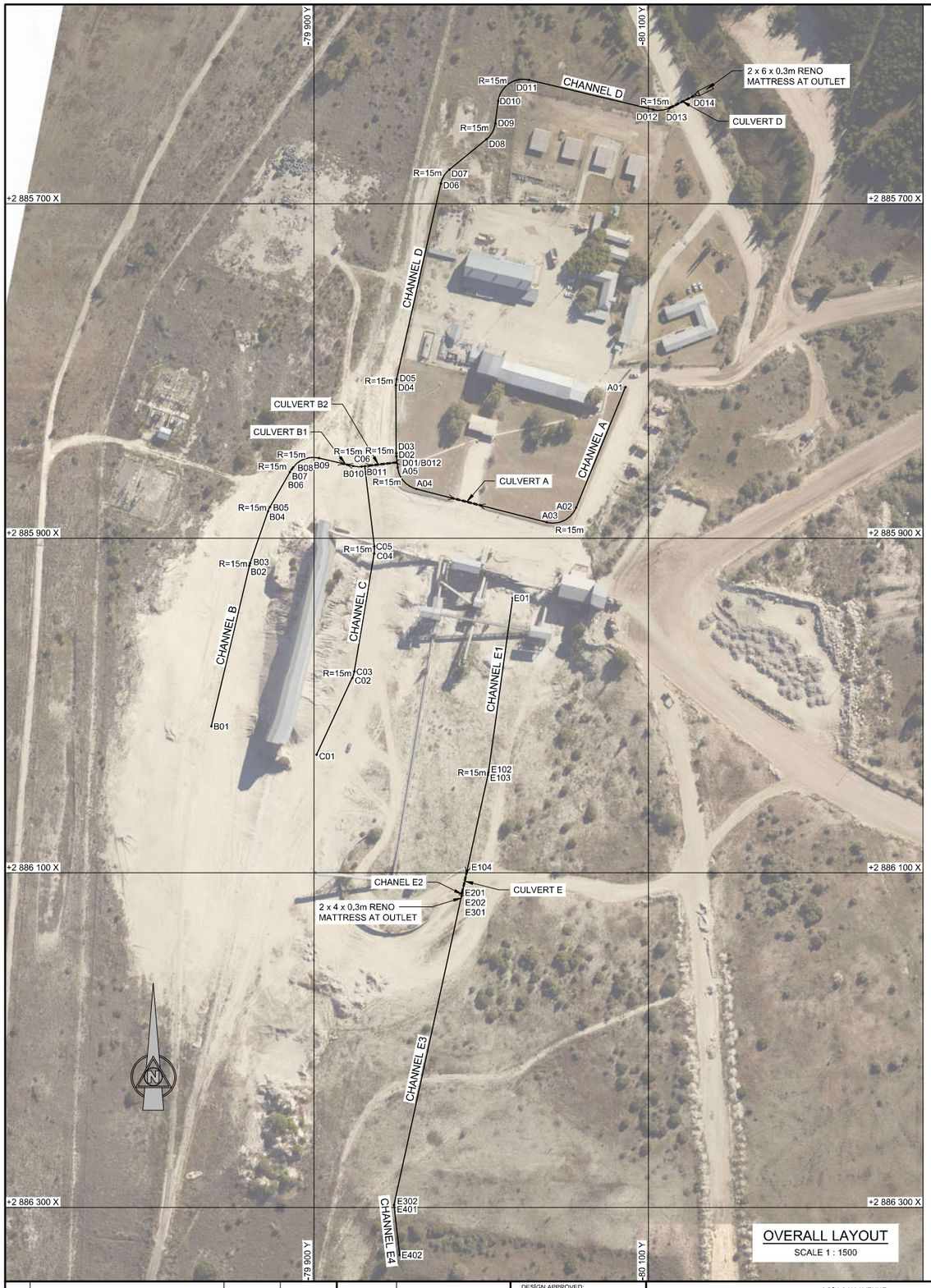
ANNEXURE D - DRAWINGS



OVERALL LAYOUT
SCALE 1 : 1500

CHANNEL A					
WGS 84 - Lo 25					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
A01	START	0,000	-80 086,190	+2 885 809,639	1441,400
A02	BC	77,749	-80 056,754	+2 885 881,601	1441,206
A03	EC	99,248	-80 039,149	+2 885 890,453	1441,152
A04	BC	179,722	-79 961,192	+2 885 870,485	1440,951
A05	EC	197,737	-79 950,020	+2 885 857,736	1440,905
A06	END	200,854	-79 949,649	+2 885 854,641	1440,900

CHANNEL B					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B01	START	0,000	-79 838,621	+2 886 012,416	1441,470
B02	BC	98,710	-79 861,379	+2 885 916,366	1441,223
B03	EC	100,196	-79 861,792	+2 885 914,939	1441,220
B04	BC	132,949	-79 872,459	+2 885 883,971	1441,138
B05	EC	135,768	-79 873,621	+2 885 881,408	1441,131
B06	BC	159,937	-79 885,623	+2 885 860,429	1441,070
B07	EC	161,805	-79 886,649	+2 885 858,869	1441,066
B08	BC	163,309	-79 887,552	+2 885 857,666	1441,062
B09	EC	180,669	-79 902,977	+2 885 852,072	1441,018
B10	BC	201,556	-79 923,310	+2 885 856,849	1440,966
B11	EC	206,783	-79 928,502	+2 885 857,143	1440,953
B12	END	228,046	-79 949,649	+2 885 854,641	1440,900

CHANNEL C					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
C01	START	0,000	-79 901,516	+2 886 029,349	1441,720
C02	BC	50,586	-79 922,878	+2 885 983,495	1441,567
C03	EC	54,623	-79 924,073	+2 885 979,651	1441,555
C04	BC	126,134	-79 935,948	+2 885 909,133	1441,339
C05	EC	130,403	-79 936,053	+2 885 904,880	1441,326
C06	END	178,697	-79 930,379	+2 885 856,921	1441,060

CHANNEL D					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
D01	START	0,000	-79 949,649	+2 885 854,641	1440,900
D02	BC	3,720	-79 949,207	+2 885 850,947	1440,888
D03	EC	5,459	-79 949,101	+2 885 849,213	1440,884
D04	BC	46,243	-79 948,972	+2 885 808,429	1440,782
D05	EC	49,620	-79 949,340	+2 885 805,079	1440,774
D06	BC	169,671	-79 975,774	+2 885 687,974	1440,473
D07	EC	179,611	-79 980,903	+2 885 679,671	1440,449
D08	BC	208,180	-80 003,007	+2 885 661,572	1440,377
D09	EC	219,458	-80 008,372	+2 885 651,953	1440,349
D10	BC	232,930	-80 010,157	+2 885 638,600	1440,315
D11	EC	258,017	-80 028,511	+2 885 625,998	1440,252
D12	BC	334,382	-80 102,785	+2 885 643,744	1440,061
D13	EC	344,853	-80 112,978	+2 885 642,572	1440,035
D14	END	366,254	-80 132,121	+2 885 633,005	1439,848

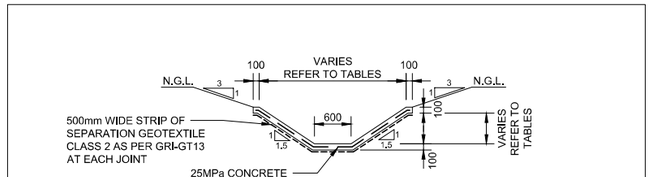
CHANNEL E1					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E101	START	0,000	-80 018,747	+2 885 935,704	1441,700
E102	BC	105,604	-80 004,238	+2 886 040,307	1441,015
E103	EC	106,766	-80 004,034	+2 886 041,451	1441,007
E104	END	165,300	-79 991,527	+2 886 098,633	1440,628

CHANNEL E2					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E201	START	0,000	-79 988,660	+2 886 111,743	1440,541
E202	END	2,000	-79 988,233	+2 886 113,697	1440,528

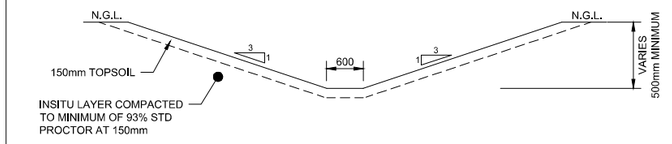
CHANNEL E3					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E301	START	0,000	-79 988,233	+2 886 113,697	1440,528
E302	END	189,280	-79 947,791	+2 886 298,606	1439,300

CHANNEL E4					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E401	START	0,000	-79 947,791	+2 886 298,606	1439,300
E402	END	30,000	-79 951,229	+2 886 328,421	1438,000

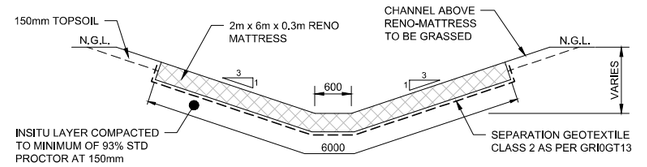
DETAILS OF INFRASTRUCTURE				
CHANNEL NAME	CHANNEL TYPE	CHANNEL GRADIENT (m/m)	CHANNEL HEIGHT/ DEPTH (m)	CHANNEL TOP WIDTH (m)
A	CONCRETE LINED TRAPEZOIDAL	-0.0025	0.3	1.50
B	CONCRETE LINED TRAPEZOIDAL	-0.0025	0.3	1.50
C	CONCRETE LINED TRAPEZOIDAL	-0.0025	0.3	1.50
D	CONCRETE LINED TRAPEZOIDAL	-0.0025	0.5	2.10
E1	CONCRETE LINED TRAPEZOIDAL	-0.0065	0.45	1.95
E2	EARTH, GABION LINED TRAPEZOIDAL	-0.0065	0.7	4.80
E3	EARTH, GRASSED TRAPEZOIDAL	-0.0065	0.5	3.60
E4	EARTH, GABION LINED TRAPEZOIDAL	-0.0433	0.7	4.80



TYPICAL CROSS SECTION
SCALE 1 : 50



TYPICAL CROSS SECTION
FOR CHANNEL E3
GRASS LINED
SCALE 1 : 50



TYPICAL CROSS SECTION
FOR CHANNEL E2 & E4
RENO MATTRESS LINING
SCALE 1 : 50

CULVERTS						
CULVERT NAME	TYPE	No. OF OPENINGS	DIMENSIONS/ OPENING	LENGTH (m)	DEPTH, INVERT TO NGL (m)	INFRASTRUCTURE CROSSED
CULVERT A	BOX	1	0.6 m WIDE x 0.45 m DEEP	15 x 1.22 m = 18.3 m	0.9	ROAD
CULVERT B1	BOX	1	0.45 m WIDE x 0.3 m DEEP	3 x 1.22 m = 3.66 m	0.8	RAIL
CULVERT B2	BOX	3	0.45 m WIDE x 0.3 m DEEP	13 x 1.22 m = 16.2 m	0.65	RAIL & ROAD
CULVERT D	PIPE (100D)	1	0.75 m ND	9 x 2.44 m = 21.96 m	2.55	ROAD
CULVERT E	BOX	3	0.45 m WIDE x 0.3 m DEEP	11 x 1.22 m = 13.42 m	0.62	ROAD

NOTE:
1. ALL THE CONCRETE CHANNELS WILL BE 100mm THICK 25MPa CONCRETE WITH MESH REF 395 IN THE CENTRE. PANELS ARE TO BE CAST IN MAX 3m LONG LENGTHS WITH 10mm THICK SOFTBOARD JOINTS AND A 500mm WIDE STRIP OF SEPARATION GEOTEXTILE, CLASS 2, AS PER GRI-GT13 BELOW EVERY JOINT.
2. THE SOFTBOARD WILL BE SEALED WITH 10mm THICK POLY-SULPHIDE SEALANT. THE TOP OF THE SEALANT WILL BE 5mm BELOW THE CONCRETE SURFACE

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	T. BAIER

DESIGNED	T. BAIER
CHECKED	G. ROBERTSON
DRAWN	B. NEWTON
CHECKED	T. BAIER

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
SIGNATURE
DATE -

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DESIGN APPROVED:
CLIENT
NAME Uneysa Taljard
SIGNATURE
DATE 14/12/2022

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PROJECT
LAFARGE LICHTENBURG WULA SPECIALIST STUDIES AND PCD DESIGN

DRAWING TITLE
LAFARGE TSWANA QUARRY STORMWATER CHANNELS
GENERAL LAYOUT & DETAILS

PRELIMINARY DESIGN

SHEET 1 of 1	SCALE AS SHOWN	SIZE A1

CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LTQ-CI-1001

REVISION A

Newton® 04.05.2022

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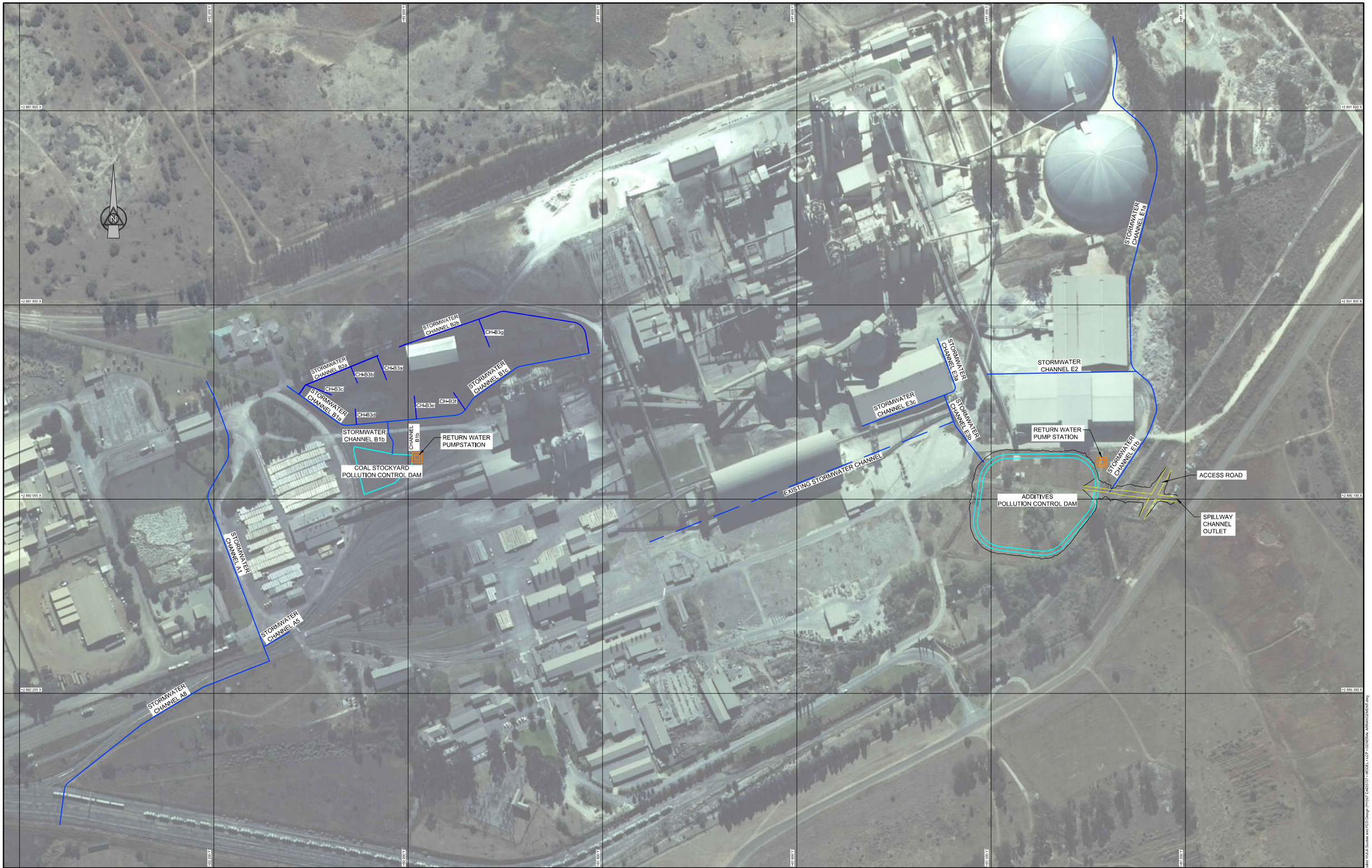

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
SIGNATURE
-
DATE

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CLIENT
Uneysa Taljard
NAME
SIGNATURE
14/12/2022
DATE

CLIENT
LAFARGE
Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
STORMWATER MANAGEMENT AND POLLUTION CONTROL DAMS
GENERAL ARRANGEMENT

PRELIMINARY DESIGN

SHEET 1 of 1	SCALE 1 : 1750	SIZE A1

CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LCP-GA-0001

REVISION A

Newton® 04-05-2022

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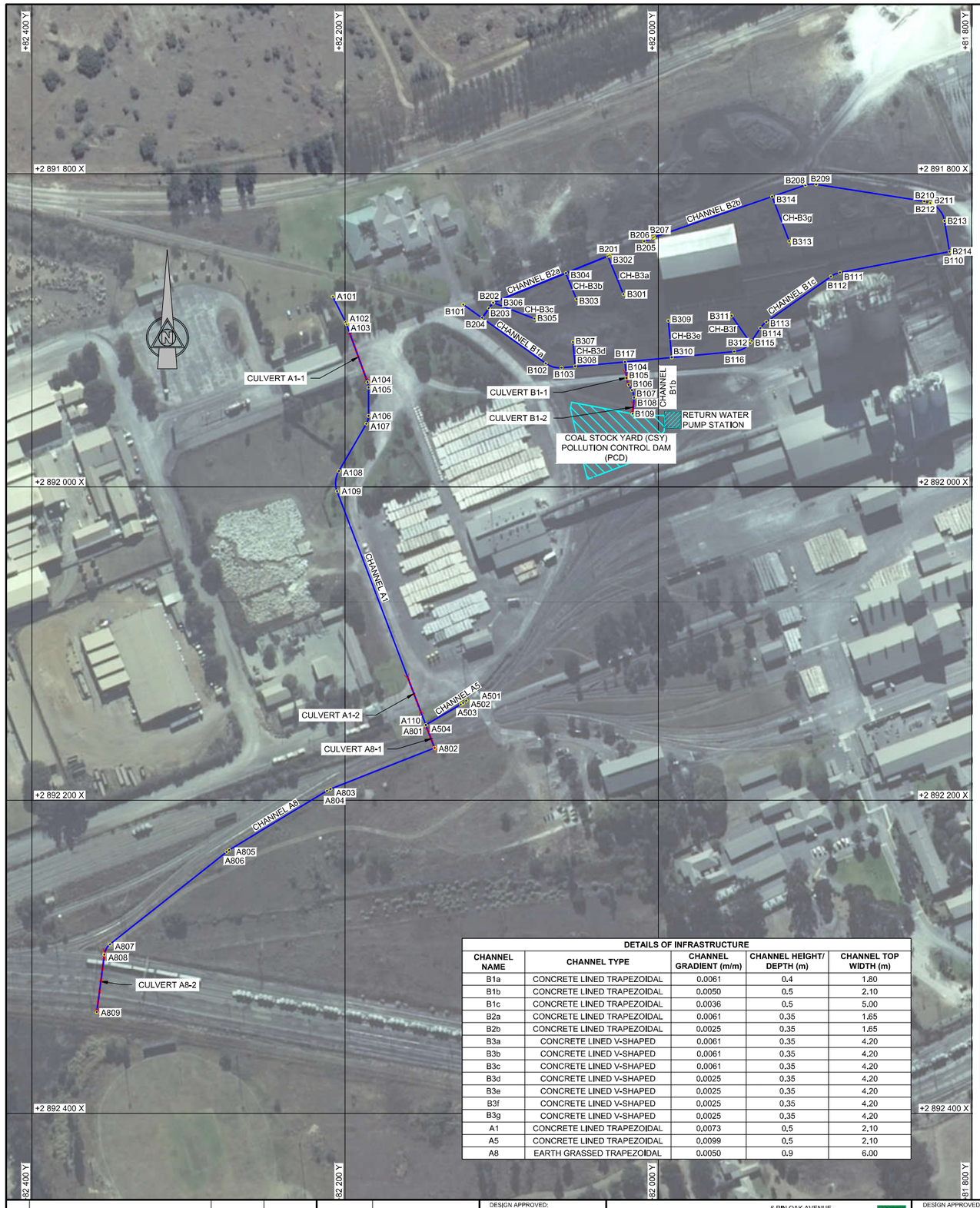
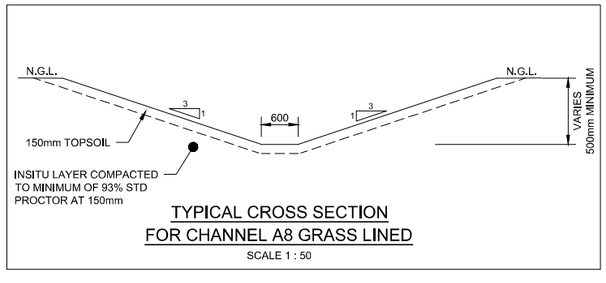


CULVERTS						
CULVERT NAME	TYPE	No. OF OPENINGS	DIMENSIONS/ OPENING	LENGTH (m)	DEPTH, INVERT TO NGL (m)	INFRASTRUCTURE CROSSED
CULVERT A1-1	BOX	1	0.45 m WIDE x 0.3 m DEEP	24 x 1.22 m = 29.28 m	0.7	ROAD
CULVERT A1-2	BOX	1	0.6 m WIDE x 0.6 m DEEP	19 x 1.22 m = 23.18 m	1.1	ROAD
CULVERT A8-1	BOX	3	0.45 m WIDE x 0.6 m DEEP	10 x 1.22 m = 12.2 m	0.74	RAIL
CULVERT A8-2	BOX	3	0.45 m WIDE x 0.90 m DEEP	31 x 1.22 m = 37.8 m	1.05	RAIL
CULVERT B1-1	BOX	2	0.45 m WIDE x 0.45 m DEEP	6 x 1.22 m = 7.32 m	0.83	RAIL
CULVERT B1-2	BOX	2	0.45 m WIDE x 0.45 m DEEP	5 x 1.22 m = 6.10 m	0.65	RAIL

SETTING OUT POINTS FOR STORMWATER CHANNELS					
WGS 84 - Lo 27					
CHANNEL B1a					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B101	START	0.000	+82 124.609	+2 891 883.485	1489.709
B102	BC	64.791	+82 071.851	+2 891 921.094	1489.315
B103	EC	75.452	+82 061.774	+2 891 923.817	1489.250
B104	END	116.164	+82 021.233	+2 891 920.098	1489.003
CHANNEL B1b					
B104	START	0.000	+82 021.233	+2 891 920.098	1489.003
B105	BC	10.493	+82 020.274	+2 891 930.547	1488.950
B106	EC	14.926	+82 018.920	+2 891 934.730	1488.927
B107	BC	18.960	+82 016.864	+2 891 938.200	1488.907
B108	EC	25.281	+82 015.515	+2 891 944.268	1488.875
B109	END	34.351	+82 016.396	+2 891 953.295	1488.83
CHANNEL B1c					
B110	START	0.000	+81 813.997	+2 891 849.657	1489.826
B111	BC	71.248	+81 883.968	+2 891 863.090	1489.567
B112	EC	77.615	+81 889.783	+2 891 865.562	1489.544
B113	BC	128.063	+81 931.014	+2 891 894.632	1489.36
B114	EC	133.579	+81 934.843	+2 891 898.559	1489.34
B115	BC	143.621	+81 940.421	+2 891 906.909	1489.303
B116	EC	156.936	+81 951.483	+2 891 913.511	1489.255
B117	END	226.996	+82 021.233	+2 891 920.098	1489
CHANNEL A1					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
A101	START	0.000	+82 207.787	+2 891 878.448	1489.000
A102	BC	18.442	+82 199.567	+2 891 894.956	1488.865
A103	EC	19.578	+82 199.119	+2 891 896.000	1488.857
A104	BC	59.046	+82 185.647	+2 891 933.098	1488.568
A105	EC	62.516	+82 185.046	+2 891 936.497	1488.543
A106	BC	80.584	+82 185.021	+2 891 954.565	1488.410
A107	EC	85.877	+82 186.383	+2 891 959.617	1488.372
A108	BC	120.897	+82 204.024	+2 891 989.869	1488.116
A109	EC	134.256	+82 205.090	+2 892 002.746	1488.018
A110	END	293.878	+82 148.463	+2 892 151.986	1486.850
CHANNEL A5					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
A501	START	0.000	+82 122.605	+2 892 136.478	1487.150
A502	BC	2.609	+82 124.711	+2 892 138.018	1487.124
A503	EC	4.150	+82 125.999	+2 892 138.862	1487.109
A504	END	30.247	+82 148.532	+2 892 152.027	1486.850
CHANNEL A8					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
A801	START	0.000	+82 148.532	+2 892 152.027	1486.850
A802	BC	22.689	+82 140.224	+2 892 173.140	1486.735
A803	BC	93.655	+82 206.235	+2 892 199.193	1486.374
A804	EC	96.194	+82 208.507	+2 892 200.320	1486.361
A805	BC	168.238	+82 270.107	+2 892 237.679	1485.995
A806	EC	170.125	+82 271.655	+2 892 238.756	1485.986
A807	BC	256.319	+82 339.163	+2 892 292.348	1485.548
A808	EC	264.017	+82 342.861	+2 892 298.883	1485.508
A809	END	299.714	+82 347.488	+2 892 334.280	1485.327

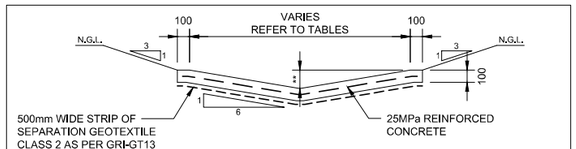
CHANNEL B2a					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B201	START	0.000	+82 031.248	+2 891 852.109	1490.181
B202	BC	75.965	+82 101.614	+2 891 880.734	1489.718
B203	EC	84.429	+82 108.168	+2 891 885.910	1489.666
B204	END	91.998	+82 112.567	+2 891 892.069	1489.620
CHANNEL B2b					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B205	START	0.000	+82 009.012	+2 891 843.065	1490.333
B206	BC	5.962	+82 003.490	+2 891 840.819	1490.318
B207	EC	6.783	+82 002.721	+2 891 840.530	1490.316
B208	BC	108.601	+81 906.447	+2 891 807.390	1490.061
B209	EC	115.911	+81 899.237	+2 891 806.755	1490.043
B210	BC	185.928	+81 830.068	+2 891 817.618	1489.868
B211	EC	189.686	+81 826.467	+2 891 818.658	1489.858
B212	BC	190.092	+81 826.094	+2 891 818.818	1489.857
B213	EC	205.100	+81 817.223	+2 891 830.149	1489.820
B214	END	224.872	+81 813.997	+2 891 849.656	1489.770
CHANNEL B3a					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B301	START	0.000	+82 022.230	+2 891 876.933	1490.336
B302	END	28.391	+82 032.174	+2 891 852.486	1490.175
CHANNEL B3b					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B303	START	0.000	+82 052.254	+2 891 880.088	1490.308
B304	END	18.000	+82 059.036	+2 891 863.414	1490.198
CHANNEL B3c					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B305	START	0.000	+82 079.059	+2 891 892.474	1489.866
B306	END	28.208	+82 105.351	+2 891 882.255	1489.694
CHANNEL B3d					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B307	START	0.000	+82 054.532	+2 891 907.266	1489.695
B308	END	15.821	+82 053.074	+2 891 923.019	1489.598
CHANNEL B3e					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B309	START	0.000	+81 993.646	+2 891 893.829	1489.834
B310	END	23.559	+81 991.475	+2 891 917.288	1489.775
CHANNEL B3f					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B311	START	0.000	+81 953.244	+2 891 890.585	1490.009
B312	END	21.147	+81 941.198	+2 891 907.965	1489.956
CHANNEL B3g					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
B313	START	0.000	+81 916.396	+2 891 843.106	1490.193
B314	END	30.552	+81 927.351	+2 891 814.586	1490.116

DETAILS OF INFRASTRUCTURE				
CHANNEL NAME	CHANNEL TYPE	CHANNEL GRADIENT (m/m)	CHANNEL HEIGHT/ DEPTH (m)	CHANNEL TOP WIDTH (m)
B1a	CONCRETE LINED TRAPEZOIDAL	0.0061	0.4	1.80
B1b	CONCRETE LINED TRAPEZOIDAL	0.0050	0.5	2.10
B1c	CONCRETE LINED TRAPEZOIDAL	0.0036	0.5	5.00
B2a	CONCRETE LINED TRAPEZOIDAL	0.0061	0.35	1.65
B2b	CONCRETE LINED TRAPEZOIDAL	0.0025	0.35	1.65
B3a	CONCRETE LINED V-SHAPED	0.0061	0.35	4.20
B3b	CONCRETE LINED V-SHAPED	0.0061	0.35	4.20
B3c	CONCRETE LINED V-SHAPED	0.0061	0.35	4.20
B3d	CONCRETE LINED V-SHAPED	0.0025	0.35	4.20
B3e	CONCRETE LINED V-SHAPED	0.0025	0.35	4.20
B3f	CONCRETE LINED V-SHAPED	0.0025	0.35	4.20
B3g	CONCRETE LINED V-SHAPED	0.0025	0.35	4.20
A1	CONCRETE LINED TRAPEZOIDAL	0.0073	0.5	2.10
A5	CONCRETE LINED TRAPEZOIDAL	0.0099	0.5	2.10
A8	EARTH GRASSED TRAPEZOIDAL	0.0050	0.9	6.00



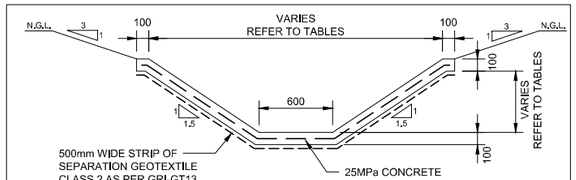
TYPICAL CROSS SECTION
FOR CHANNEL A8 GRASS LINED
SCALE 1 : 50

NOTE:
1. ALL THE CONCRETE CHANNELS WILL BE 100mm THICK 25MPa CONCRETE WITH MESH REF 395 IN THE CENTRE. PANELS ARE TO BE CAST IN MAX 3m LONG LENGTHS WITH 10mm THICK SOFTBOARD JOINTS AND A 500mm WIDE STRIP OF SEPARATION GEOTEXTILE, CLASS 2, AS PER GRI-GT13 BELOW EVERY JOINT.
2. THE SOFTBOARD WILL BE SEALED WITH 10mm THICK POLY-SULPHIDE SEALANT. THE TOP OF THE SEALANT WILL BE 5mm BELOW THE CONCRETE SURFACE



TYPICAL CROSS SECTION
FOR CHANNELS B3a - B3g
SCALE 1 : 25

** DEPTH VARIES REFER TO TABLES



TYPICAL CROSS SECTION
FOR CHANNELS B1a-B1c & A1 & A5
SCALE 1 : 25

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	T.B.

DESIGNED	T. BAIER
CHECKED	G. ROBERTSON
DRAWN	B. NEWTON
CHECKED	T. BAIER

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
J.C. NORRIS
NAME
SIGNATURE
-
DATE

6 PIN OAK AVENUE
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DESIGN APPROVED:
CLIENT
Uneysa Taljard
NAME
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14/12/2022
DATE

CLIENT
LAFARGE
Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
STORMWATER MANAGEMENT
STORMWATER DRAINAGE
GENERAL LAYOUT & DETAILS

PRELIMINARY DESIGN

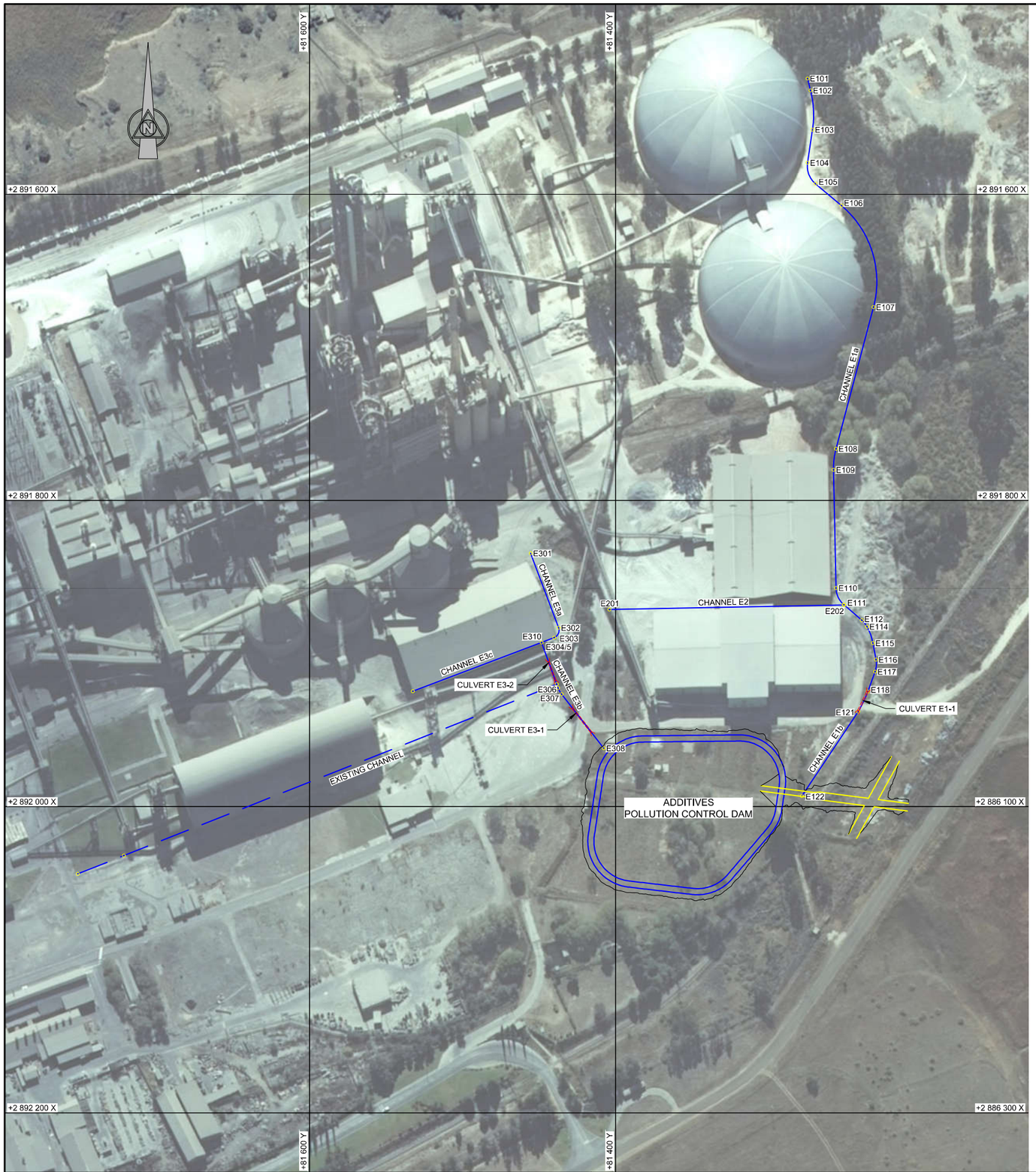
SHEET 1 of 2	SCALE AS SHOWN	SIZE A1

CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LCP-CI-1001

REVISION
A

NewtonB 04.05.2022

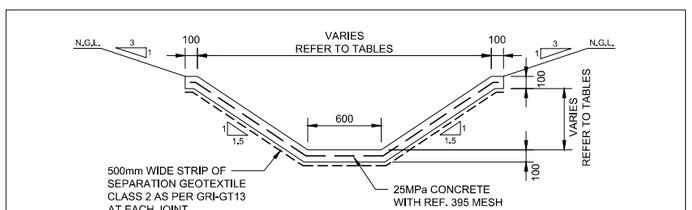


DETAILS OF INFRASTRUCTURE				
CHANNEL NAME	CHANNEL TYPE	CHANNEL GRADIENT (m/m)	CHANNEL HEIGHT/ DEPTH (m)	CHANNEL TOP WIDTH (m)
E1a	CONCRETE LINED TRAPEZOIDAL	0.0056	0.3	1.50
E1b	CONCRETE LINED TRAPEZOIDAL	0.0025	0.6	2.40
E2	CONCRETE LINED TRAPEZOIDAL	0.0050	0.4	1.80
E3a	CONCRETE LINED TRAPEZOIDAL	0.0489	0.3	1.50
E3a	CONCRETE LINED TRAPEZOIDAL	0.0050	0.3	1.50
E3b	CONCRETE LINED TRAPEZOIDAL	0.0050	0.4	1.80
E3c	CONCRETE LINED TRAPEZOIDAL	0.0050	0.4	1.80

NOTE:
1. ALL THE CONCRETE CHANNELS WILL BE 100mm THICK 25MPa CONCRETE WITH MESH REF 395 IN THE CENTRE. PANELS ARE TO BE CAST IN MAX 3m LONG LENGTHS WITH 10mm THICK SOFTBOARD JOINTS AND A 500mm WIDE STRIP OF SEPARATION GEOTEXTILE, CLASS 2, AS PER GRI-GT13 BELOW EVERY JOINT.
2. THE SOFTBOARD WILL BE SEALED WITH 10mm THICK POLY-SULPHIDE SEALANT. THE TOP OF THE SEALANT WILL BE 5mm BELOW THE CONCRETE SURFACE

SETTING OUT POINTS FOR STORMWATER CHANNELS					
WGS 84 - Lo 27					
CHANNEL E1					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E101	START	0.000	+81 274.653	+2 891 524.392	1489.000
E102	BC	8.043	+81 272.670	+2 891 532.186	1488.955
E103	EC	33.883	+81 271.377	+2 891 557.824	1488.812
E104	BC	55.696	+81 274.601	+2 891 579.398	1488.691
E105	EC	70.977	+81 269.435	+2 891 593.084	1488.606
E106	BC	93.172	+81 252.465	+2 891 607.389	1488.482
E107	EC	166.544	+81 231.521	+2 891 673.699	1488.075
E108	BC	262.232	+81 255.977	+2 891 766.208	1487.543
E109	EC	276.180	+81 257.628	+2 891 780.012	1487.485
E110	BC	353.419	+81 256.044	+2 891 857.235	1487.291
E111	EC	365.658	+81 250.995	+2 891 867.995	1487.260
E112	BC	381.336	+81 239.144	+2 891 878.260	1487.221
E113	EC	386.498	+81 235.895	+2 891 882.238	1487.208
E114	BC	386.702	+81 235.795	+2 891 882.416	1487.208
E115	EC	398.217	+81 231.882	+2 891 893.191	1487.179
E116	BC	409.199	+81 229.874	+2 891 903.988	1487.151
E117	EC	417.190	+81 230.525	+2 891 911.858	1487.131
E118	-	-	-	-	-
E119	-	-	-	-	-
E120	BC	440.650	+81 239.155	+2 891 933.656	1487.072
E121	EC	445.479	+81 241.502	+2 891 937.871	1487.060
E122	BC	511.916	+81 278.390	+2 891 993.126	1486.894
E123	EC	517.644	+81 282.392	+2 891 997.175	1486.880
E124	END	526.231	+81 289.478	+2 892 002.026	1486.858
CHANNEL E2					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E201	START	0.000	+81 404.053	+2 891 871.223	1488.557
E202	END	153.446	+81 250.635	+2 891 868.308	1487.789
CHANNEL E3a					
POINT	DESCRIPTION	CHAINAGE (m)	Y	X	Z
E301	START	0.000	+81 455.528	+2 891 834.520	1490.4
E302	BC	51.961	+81 437.270	+2 891 883.168	1489.174
E303	EC	59.786	+81 440.167	+2 891 889.596	1489.134
E304	END	68.598	+81 448.399	+2 891 892.740	1489.09
CHANNEL E3b					
E305	START	0.000	+81 448.399	+2 891 892.740	1489.09
E306	BC	31.610	+81 437.611	+2 891 922.452	1488.93
E307	EC	36.333	+81 435.332	+2 891 926.566	1488.906
E308	END	81.157	+81 407.738	+2 891 961.890	1488.68
CHANNEL E3c					
E309	START	0.000	+81 532.573	+2 891 924.678	1489.541
E310	END	90.028	+81 448.400	+2 891 892.740	1489.09

CULVERTS						
CULVERT NAME	TYPE	No. OF OPENINGS	DIMENSIONS/ OPENING	LENGTH (m)	DEPTH, INVERT TO NGL (m)	INFRASTRUCTURE CROSSED
CULVERT E1-1	BOX	1	0.9 m WIDE x 0.6 m DEEP	10 x 1.22 m = 12.2 m	1.4	ROAD
CULVERT E3-1	BOX	3	0.45 m WIDE x 0.3 m DEEP	13 x 1.22 m = 15.86 m	0.6	ROAD
CULVERT E3-2	BOX	3	0.6 m WIDE x 0.45 m DEEP	11 x 1.22 m = 13.42 m	1.0	ROAD



TYPICAL CROSS SECTION
FOR CHANNELS B1a-B1c & A1 & A5
SCALE 1 : 25

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	T.B.

DESIGNED	T. BAIER
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DRAWN	B. NEWTON
CHECKED	T. BAIER

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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
STORMWATER MANAGEMENT
STORMWATER DRAINAGE
GENERAL LAYOUT & DETAILS

PRELIMINARY DESIGN

SHEET 2 of 2 | SCALE 1 : 1500 / AS SHOWN | SIZE A1

CLIENT DRAWING No. -

JG AFRIKA (Pty) Ltd. DRAWING No 5707-JGA-P-LCP-CI-1002 | REVISION A

Newton® 04-05-2022

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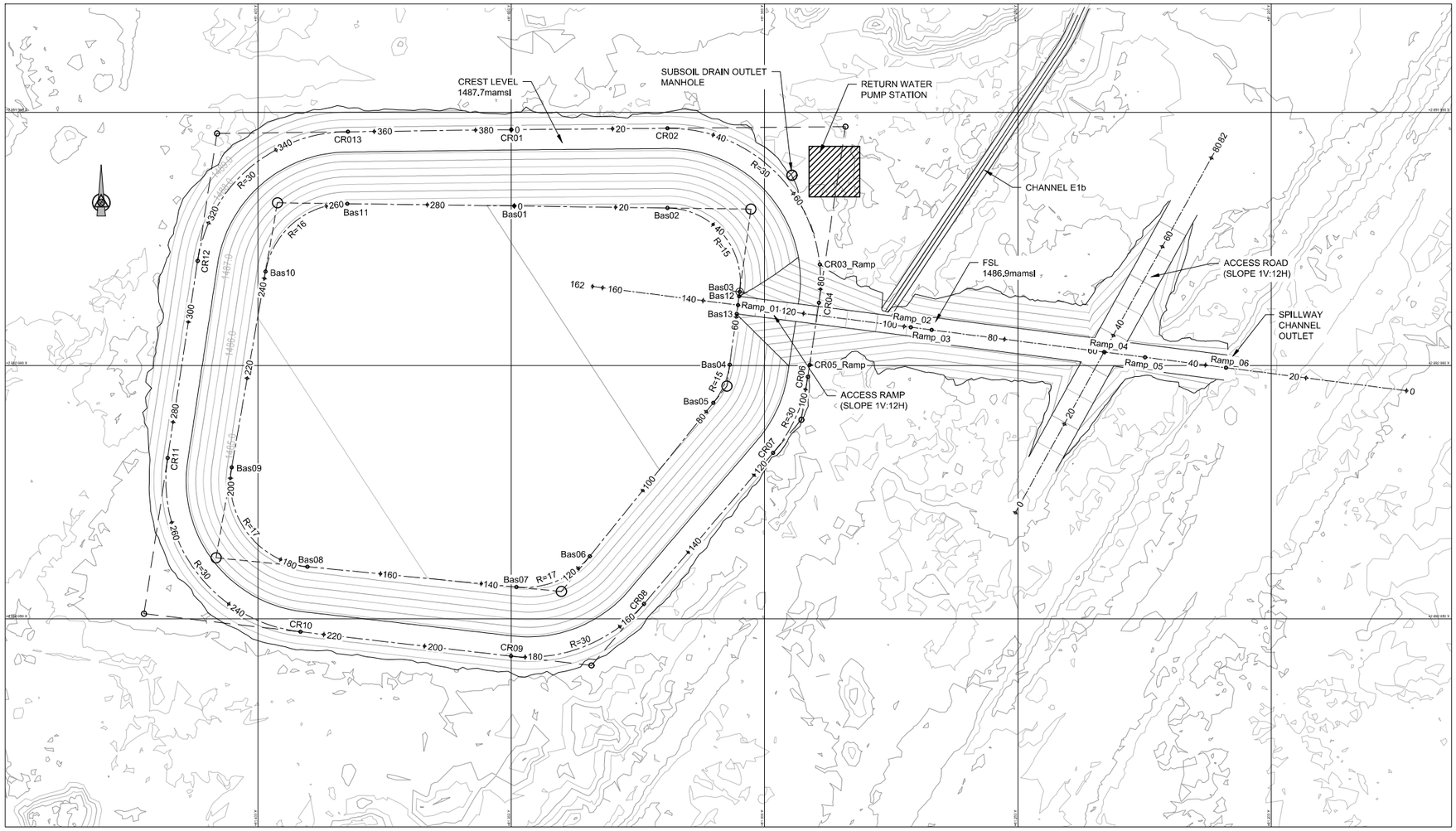
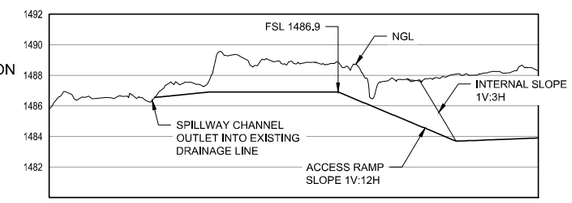


ADDITIVES PCD SETTING OUT POINTS				
WGS84 Lo 27				
CHAINAGE (m)	POINT	Y	X	Z
CREST SETTING OUT POINTS				
0,000	CR01	+81 293,806	+2 891 978,641	1487,710
30,828	CR02_rad_30	+81 319,204	+2 891 953,163	1487,710
75,114	CR03_ramp	+81 289,099	+2 891 980,062	1487,710
82,700	CR04-rad_30	+81 289,271	+2 891 987,626	1487,710
95,100	CR05_ramp	+81 291,117	+2 891 999,888	1487,710
97,463	CR06-rad_30	+81 291,468	+2 892 002,224	1487,710
114,191	CR07_rad_30	+81 298,324	+2 892 017,246	1487,710
153,416	CR08_rad_30	+81 323,803	+2 892 047,070	1487,710
182,782	CR09_rad_30	+81 350,056	+2 892 057,386	1487,710
224,637	CR10_rad_30	+81 391,634	+2 892 052,582	1487,710
272,838	CR11_rad_30	+81 417,849	+2 892 018,269	1487,710
312,208	CR12_rad_30	+81 411,929	+2 891 979,347	1487,710
354,413	CR13_rad_30	+81 382,660	+2 891 953,861	1487,710
ACCESS RAMP SETTING OUT POINTS				
CHAINAGE (m)	POINT	Y	X	Z
133,032	Ramp_01	+81 305,233	+2 891 988,080	1483,700
98,648	Ramp_02	+81 271,128	+2 891 992,451	1486,566
94,648	Ramp_03	+81 267,161	+2 891 992,960	1486,900
60,185	Ramp_04	+81 232,978	+2 891 997,346	1486,900
52,000	Ramp_05	+81 224,859	+2 891 998,383	1486,900
35,921	Ramp_06	+81 208,910	+2 892 000,427	1486,600
BASIN SETTING OUT POINTS				
CHAINAGE (m)	POINT	Y	X	Z
0,000	Bas01	+81 349,433	+2 891 968,500	1483,960
30,251	Bas02_rad_14.592	+81 319,185	+2 891 968,907	1483,720
54,950	Bas03_rad_14.592	+81 304,923	+2 891 985,466	1483,700
55,832	Bas12_ramp	+81 305,042	+2 891 986,340	1483,700
59,332	Bas13_ramp	+81 305,514	+2 891 989,808	1483,700
69,470	Bas04_rad_15.290	+81 306,882	+2 891 999,854	1483,770
77,771	Bas05_rad_15.290	+81 310,126	+2 892 007,384	1483,800
116,655	Bas06_rad_16.550	+81 334,522	+2 892 037,662	1484,210
133,035	Bas07_rad_16.550	+81 349,015	+2 892 043,750	1484,410
174,477	Bas08_rad_16.825	+81 390,262	+2 892 039,731	1484,690
202,154	Bas09_rad_16.825	+81 405,209	+2 892 020,116	1484,710
241,400	Bas10_rad_16.142	+81 398,517	+2 891 981,445	1484,440
264,207	Bas11_rad_16.142	+81 382,394	+2 891 968,057	1484,230

LONGITUDINAL SECTION
ACCESS RAMP

SCALES:
Horizontal 1:1000
Vertical 1:200

DATUM 1480.000



DISTANCE (m)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160
GROUND LEVEL	1485,766	1486,945	1486,489	1486,478	1486,528	1486,629	1486,553	1486,657	1486,659	1487,521	1487,536	1487,315	1488,410	1488,968	1489,035	1488,935	1488,780	1488,849	1488,707	1488,757	1488,729	1486,551	1487,618	1487,719	1487,652	1487,789	1487,898	1488,009	1488,095	1488,238	1488,153	1488,624	1488,286
DESIGN LEVEL	1485,766	1486,945	1486,489	1486,478	1486,528	1486,629	1486,553	1486,657	1486,659	1486,759	1486,859	1486,899	1486,899	1486,896	1486,898	1486,898	1486,899	1486,898	1486,898	1486,870	1486,453	1486,037	1485,620	1485,203	1484,787	1484,370	1483,953	1483,702	1483,745	1483,783	1483,821	1483,859	1483,897

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	G. ROBERTSON	
CHECKED	J.C. NORRIS	
DRAWN	B. NEWTON	
CHECKED	G. ROBERTSON	

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
ADDITIVES POLLUTION CONTROL DAM
LAYOUT PLAN & SECTIONS

PRELIMINARY DESIGN

SHEET 1 of 1 | SCALE 1 : 500 / AS SHOWN | SIZE A1

CLIENT DRAWING No. -

JG AFRIKA (Pty) Ltd. DRAWING No 5707-JGA-P-LCP-CI-2001 | REVISION A

Newton® 22.04.2022

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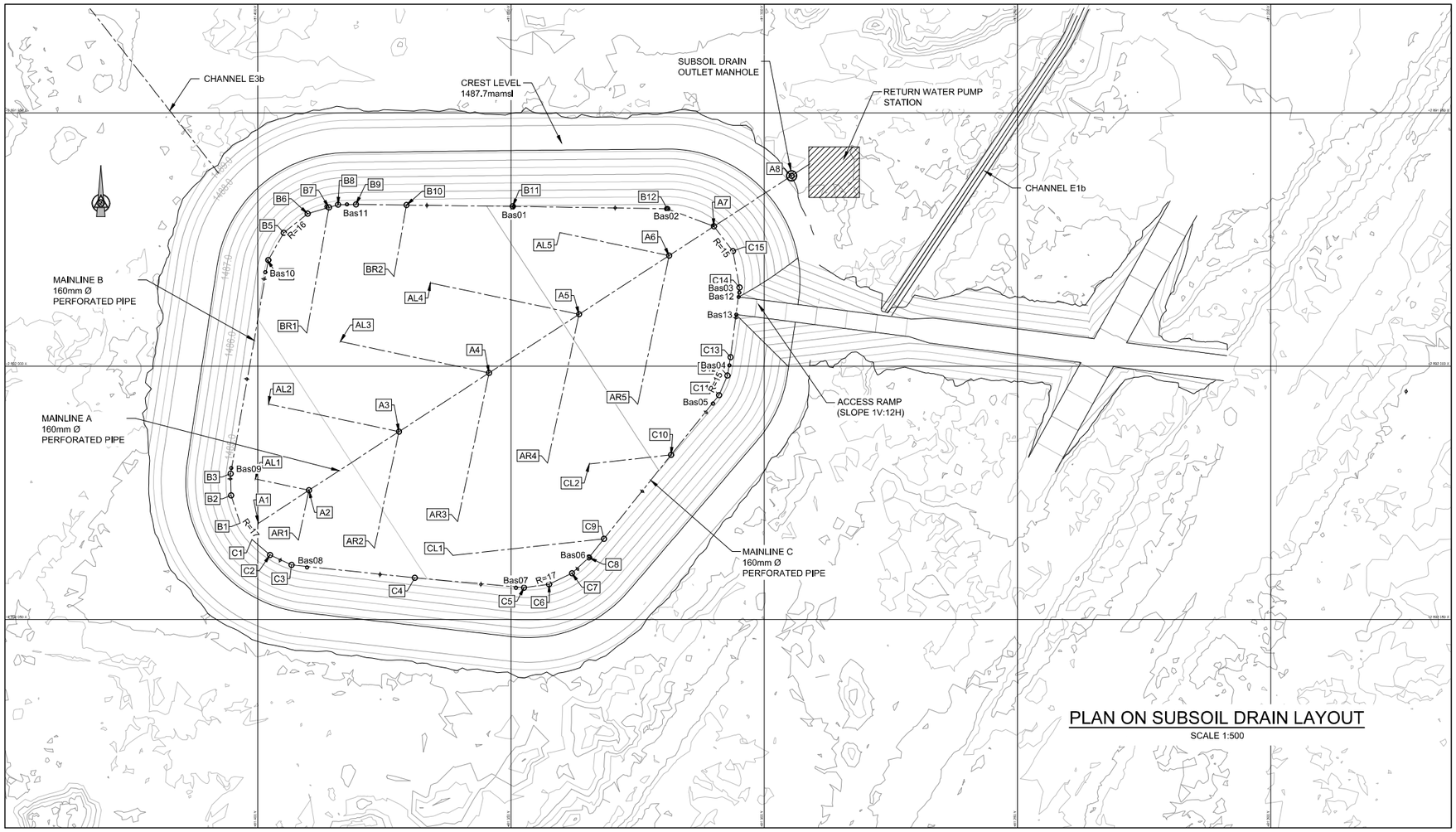
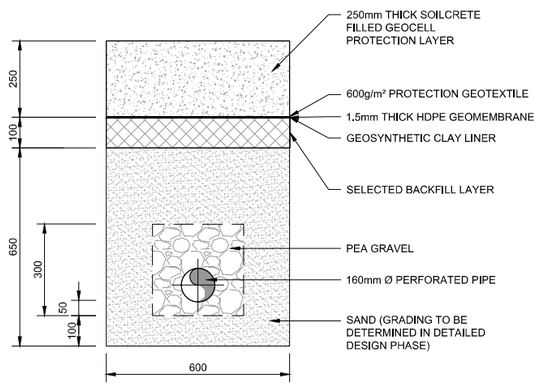


PLAN ON SUBSOIL DRAIN LAYOUT

SCALE 1:500



TYPICAL DAM LINER & SUBSOIL DRAIN

SCALE 1:10

ADDITIVE PCD SUBSOIL DRAIN SETTING OUT POINTS

WGS84 Lo 27

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	A1	+81 399.874	+2 892 031.009	1483.869
11.927	A2	+81 389.881	+2 892 024.499	1483.750
33.14	A3	+81 372.106	+2 892 012.919	1483.538
54.353	A4	+81 354.332	+2 892 001.340	1483.326
75.566	A5	+81 336.558	+2 891 989.761	1483.114
96.78	A6	+81 318.784	+2 891 978.182	1482.902
107.364	A7	+81 309.915	+2 891 972.405	1482.796
125.643	A8	+81 294.599	+2 891 962.427	1482.613

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	B1	+81 403.484	+2 892 030.973	1483.899
5.738	B2	+81 405.245	+2 892 025.512	1483.856
10.019	B3	+81 405.353	+2 892 021.233	1483.823
52.85	B4	+81 397.917	+2 891 979.052	1483.500
59.041	B5	+81 394.860	+2 891 973.669	1483.454
65.068	B6	+81 390.145	+2 891 969.913	1483.408
69.463	B7	+81 385.932	+2 891 968.666	1483.375
71.329	B8	+81 384.142	+2 891 968.136	1483.361
74.873	B9	+81 380.598	+2 891 968.080	1483.334
84.854	B10	+81 370.618	+2 891 968.200	1483.259
105.827	B11	+81 349.647	+2 891 968.451	1483.101
136.309	B12	+81 319.169	+2 891 968.943	1482.871
146.189	A7	+81 309.915	+2 891 972.405	1482.796

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	C1	+81 401.127	+2 892 034.212	1483.899
4.686	C2	+81 397.582	+2 892 037.276	1483.864
9.378	C3	+81 393.319	+2 892 039.238	1483.828
33.843	C4	+81 368.987	+2 892 041.780	1483.644
55.484	C5	+81 347.433	+2 892 043.723	1483.481
60.468	C6	+81 342.494	+2 892 043.060	1483.443
65.51	C7	+81 337.949	+2 892 040.877	1483.405
70.078	C8	+81 334.606	+2 892 037.763	1483.371
74.805	C9	+81 331.651	+2 892 034.074	1483.335
96.018	C10	+81 318.387	+2 892 017.519	1483.175
111.135	C11	+81 308.934	+2 892 005.722	1483.061
115.344	C12	+81 307.277	+2 892 001.853	1483.030
119.019	C13	+81 306.653	+2 891 998.231	1483.002
132.896	C14	+81 304.878	+2 891 984.468	1482.897
140.178	C15	+81 306.191	+2 891 977.305	1482.842
146.333	A7	+81 309.915	+2 891 972.405	1482.796

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	AL1	+81 400.458	+2 892 022.266	-0.850
10.81	A2	+81 389.881	+2 892 024.499	1483.750
0	AL2	+81 397.852	+2 892 007.486	-0.850
26.313	A3	+81 372.106	+2 892 012.919	1483.538
0	AL3	+81 383.685	+2 891 995.145	-0.850
30	A4	+81 354.332	+2 892 001.340	1483.326
0	AL4	+81 365.911	+2 891 983.566	-0.850
30	A5	+81 336.558	+2 891 989.761	1483.114
0	AL5	+81 340.351	+2 891 973.630	-0.850
22.043	A6	+81 318.784	+2 891 978.182	1482.902

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	AR1	+81 391.960	+2 892 034.353	-0.850
10.072	A2	+81 389.881	+2 892 024.499	1483.750
0	AR2	+81 376.962	+2 892 035.925	-0.850
23.513	A3	+81 372.106	+2 892 012.919	1483.538
0	AR3	+81 360.527	+2 892 030.694	-0.850
30	A4	+81 354.332	+2 892 001.340	1483.326
0	AR4	+81 342.753	+2 892 019.115	-0.850
30	A5	+81 336.558	+2 891 989.761	1483.114
0	AR5	+81 324.979	+2 892 007.536	-0.850
30	A6	+81 318.784	+2 891 978.182	1482.902

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	BR1	+81 390.308	+2 891 993.492	-0.850
25.209	B7	+81 385.932	+2 891 968.666	1483.375
0	BR2	+81 373.101	+2 891 982.282	-0.850
14.3	B10	+81 370.618	+2 891 968.200	1483.259

CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	CL1	+81 361.470	+2 892 037.365	-0.850
30	C9	+81 331.651	+2 892 034.074	1483.335
0	CL2	+81 334.526	+2 892 019.301	-0.850
16.238	C10	+81 318.387	+2 892 017.519	1483.175

REV	NATURE OF REVISION	DATE	SIGNED
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CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

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J.C. NORRIS
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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
ADDITIVES POLLUTION CONTROL DAM
SUB-SOIL DRAINS
LAYOUT & SETTING OUT DETAILS

PRELIMINARY DESIGN

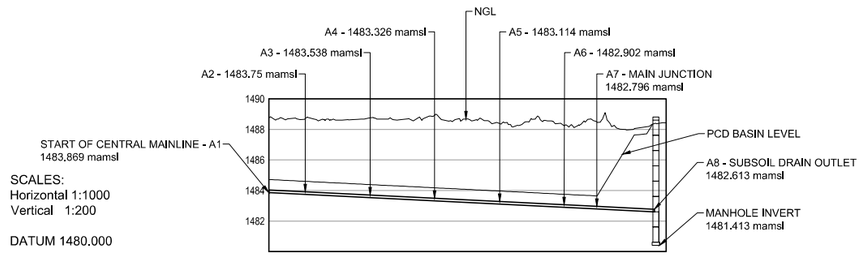
SHEET 1 of 1 | SCALE 1 : 500 | SIZE A1

CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LCP-CI-2002

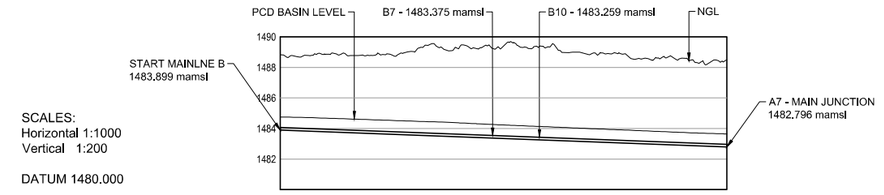
REVISION A

NewtonB 22.04.2022



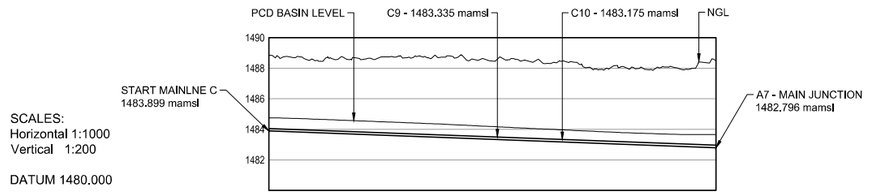
DISTANCE (m)		10	20	30	40	50	60	70	80	90	100	110	120	130
GROUND LEVEL	1488.758	1488.553	1488.601	1488.674	1488.716	1488.623	1488.511	1488.633	1488.170	1488.365	1488.128	1489.074	1488.066	1488.433
PCD DESIGN LEVELS	1484.719	1484.619	1484.519	1484.419	1484.319	1484.219	1484.119	1484.019	1483.919	1483.819	1483.719	1484.497	1487.637	
SUBSOIL DRAIN INVERT LEVELS		1483.769	1483.669	1483.569	1483.469	1483.369	1483.269	1483.169	1483.069	1482.970	1482.870	1482.770	1482.670	

LONGITUDINAL SECTION
SUBSOIL - CENTRE MAIN
FROM 0.000 TO 130.024



DISTANCE (m)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	146
GROUND LEVEL	1488.820	1488.769	1488.869	1488.772	1488.920	1489.557	1489.474	1489.210	1489.339	1489.406	1488.894	1488.923	1488.566	1488.472	1488.243	1488.465	
PCD DESIGN LEVELS	1484.749	1484.712	1484.644	1484.575	1484.507	1484.439	1484.355	1484.257	1484.172	1484.089	1484.006	1483.922	1483.840	1483.757	1483.662	1483.650	
SUBSOIL DRAIN INVERT LEVELS	1483.899	1483.824	1483.748	1483.673	1483.597	1483.522	1483.446	1483.371	1483.295	1483.220	1483.144	1483.069	1482.994	1482.918	1482.843	1482.796	

LONGITUDINAL SECTION
SUBSOIL - LEFT MAIN
FROM 0.000 TO 146.189



DISTANCE (m)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	146
GROUND LEVEL	1488.847	1488.755	1488.673	1488.565	1488.753	1488.757	1488.772	1488.622	1488.627	1488.295	1488.384	1487.922	1487.969	1488.073	1488.129	1488.485	
PCD DESIGN LEVELS	1484.749	1484.705	1484.627	1484.549	1484.471	1484.392	1484.309	1484.210	1484.115	1484.020	1483.925	1483.830	1483.753	1483.688	1483.650	1483.650	
SUBSOIL DRAIN INVERT LEVELS	1483.899	1483.824	1483.748	1483.673	1483.597	1483.522	1483.447	1483.371	1483.296	1483.221	1483.145	1483.070	1482.994	1482.919	1482.844	1482.796	

LONGITUDINAL SECTION
SUBSOIL - RIGHT MAIN
FROM 0.000 TO 146.333

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
J.C. NORRIS
NAME
SIGNATURE
-
DATE

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P.O. BOX 794
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FACSIMILE +27 33 343 6701
E-MAIL pietermaritzburg@jgafrika.com

DESIGN APPROVED:
CLIENT
Uneysa Taljard
NAME
SIGNATURE
14/12/2022
DATE

CLIENT
LAFARGE
Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
Tel: +27 21 633 3011
Email: uneysa.taljard@lafargeholcim.com

PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
ADDITIVES POLLUTION CONTROL DAM
SUB-SOIL DRAINS
LONGITUDINAL SECTIONS

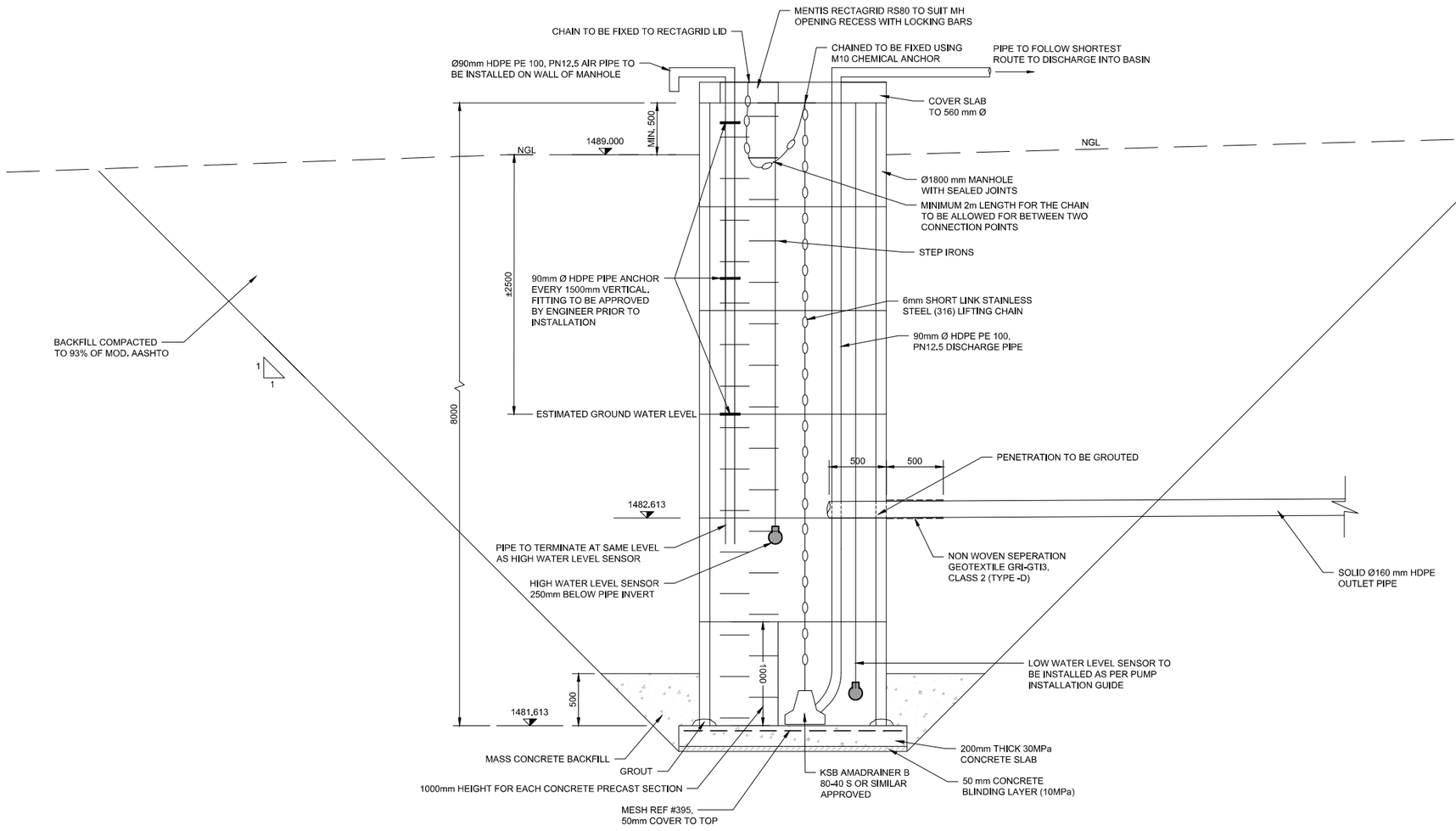
PRELIMINARY DESIGN

SHEET	SCALE	SIZE
1 of 1	AS SHOWN	A1

CLIENT DRAWING No.
-

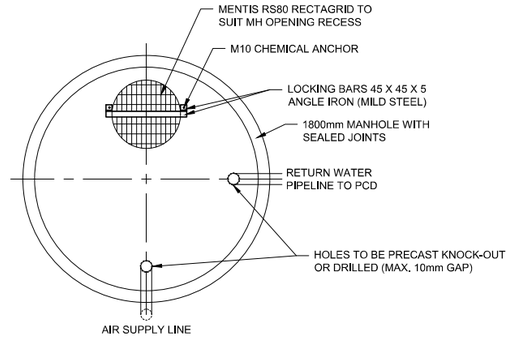
JG AFRIKA (Pty) Ltd. DRAWING No	REVISION
5707-JGA-P-LCP-CI-2003	A

Newton® 22-04-2022



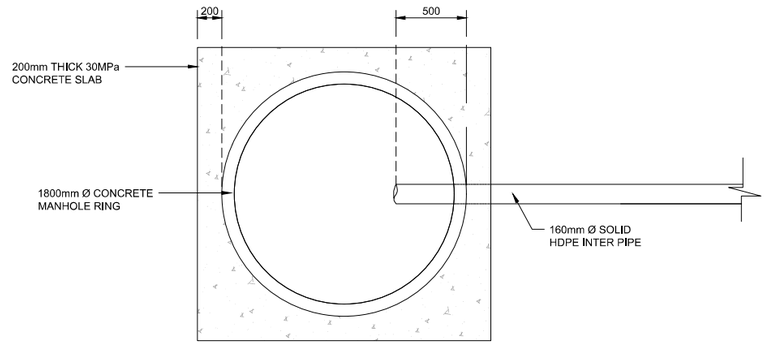
ADDITIVES PCD MANHOLE DETAIL

SCALE 1:25



TYPICAL MANHOLE COVER DETAIL

SCALE 1:25



TYPICAL MANHOLE PLAN VIEW

SCALE 1:25

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED: JG AFRIKA (Pty) Ltd
NAME: J.C. NORRIS
SIGNATURE
DATE: -

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E-MAIL pietermaritzburg@jgafrika.com

DESIGN APPROVED: CLIENT
NAME: Uneysa Taljard
SIGNATURE
DATE: 14/12/2022

CLIENT: LAFARGE

Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
Tel: +27 21 633 3011
Email: uneysa.taljard@lafargeholcim.com

PROJECT: LAFARGE CEMENT PLANT

DRAWING TITLE: ADDITIVES POLLUTION CONTROL DAM
SUB-SOIL DRAINS
MANHOLE DETAILS

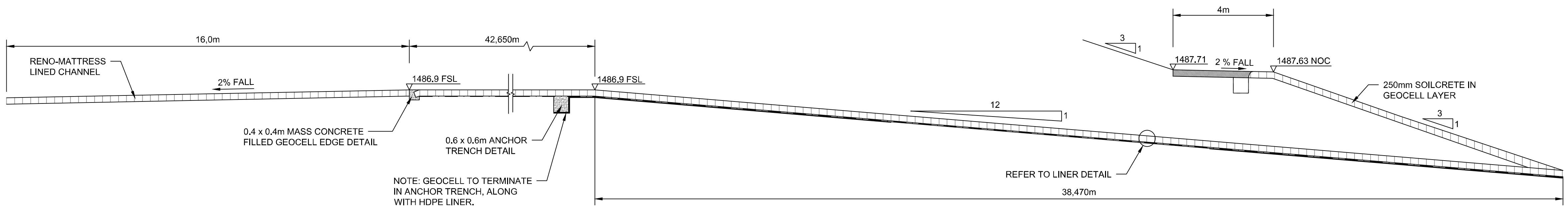
PRELIMINARY DESIGN

SHEET 1 of 1 | SCALE 1 : 25 | SIZE A1

CLIENT DRAWING No. -

JG AFRIKA (Pty) Ltd. DRAWING No 5707-JGA-P-LCP-CI-2004 | REVISION A

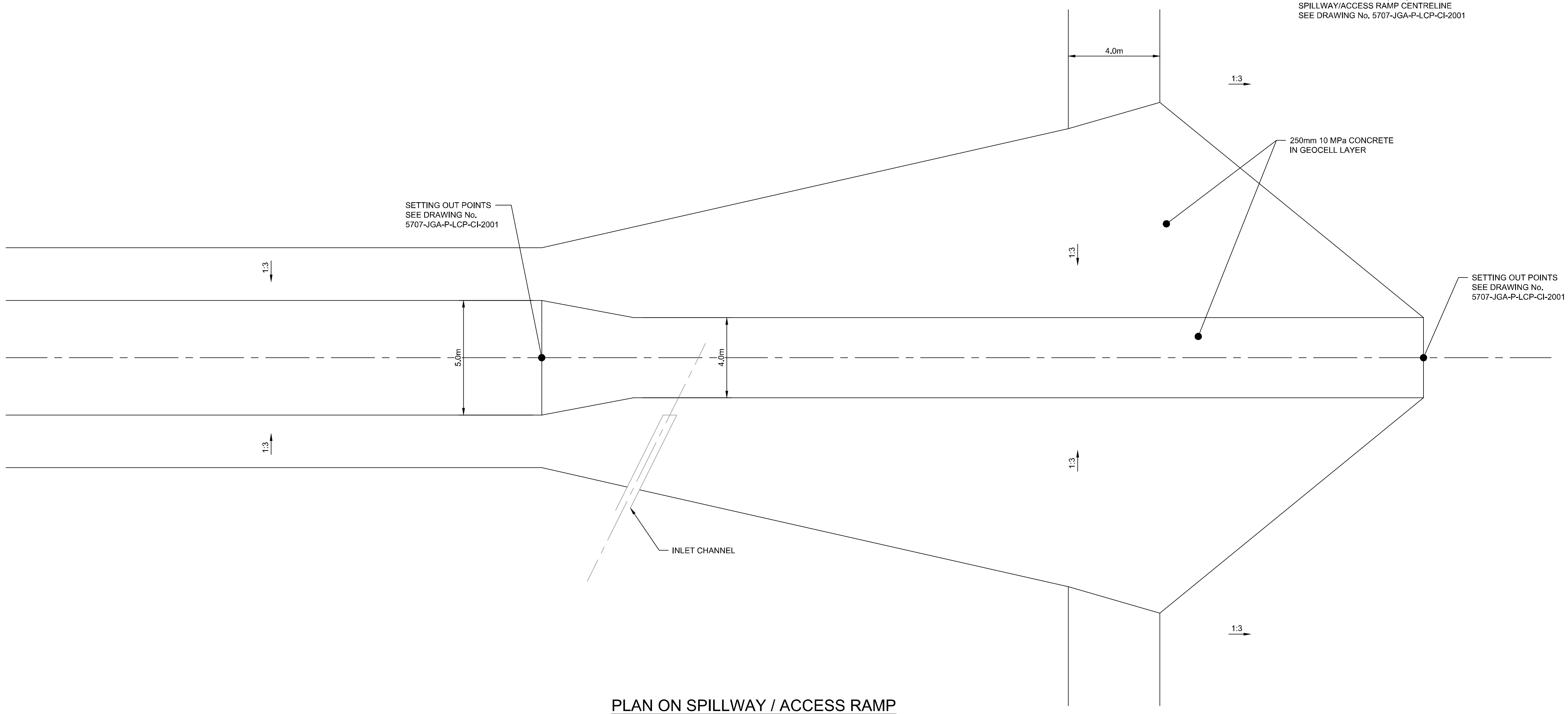
Newton® 04.05.2022



TYPICAL SECTION THROUGH SPILLWAY / ACCESS RAMP

SCALE 1:100m

NOTE:
SETTING OUT POINTS (SOP) ALONG
SPILLWAY/ACCESS RAMP CENTRELINE
SEE DRAWING No. 5707-JGA-P-LCP-CI-2001



PLAN ON SPILLWAY / ACCESS RAMP

SCALE 1:100m

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	M. MUVHALI
CHECKED	G. ROBERTSON
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
J.C. NORRIS
NAME
SIGNATURE
-
DATE

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E-MAIL pietermaritzburg@jgafrika.com

DESIGN APPROVED:
CLIENT
Uneysa Taljard
NAME
SIGNATURE
14/12/2022
DATE

CLIENT
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Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
Tel: +27 21 633 3011
Email: uneysa.taljard@lafargeholcim.com

PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
ADDITIVES POLLUTION CONTROL DAM
SPILLWAY / ACCESS RAMP DETAILS

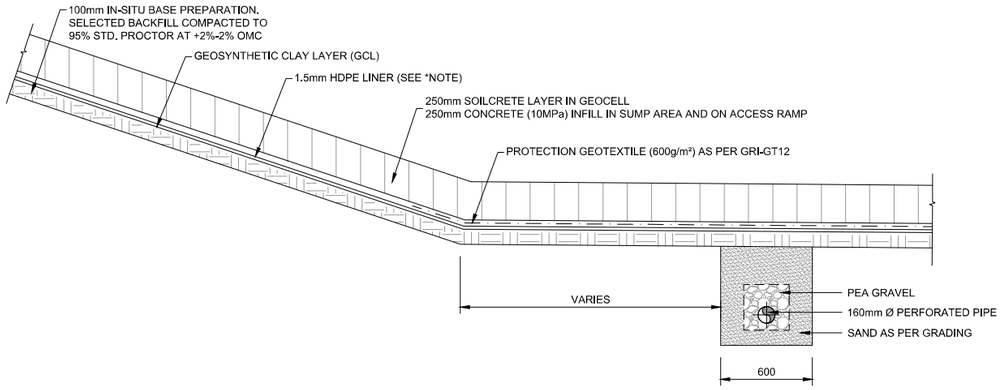
PRELIMINARY DESIGN

SHEET 1 of 1	SCALE AS SHOWN	SIZE A1

CLIENT DRAWING No. -

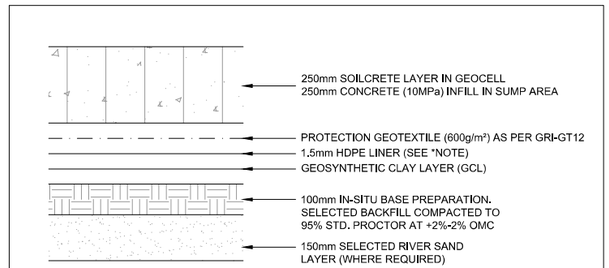
JG AFRIKA (Pty) Ltd. DRAWING No 5707-JGA-P-LCP-CI-2005
REVISION A

NewtonB 22.04.2022



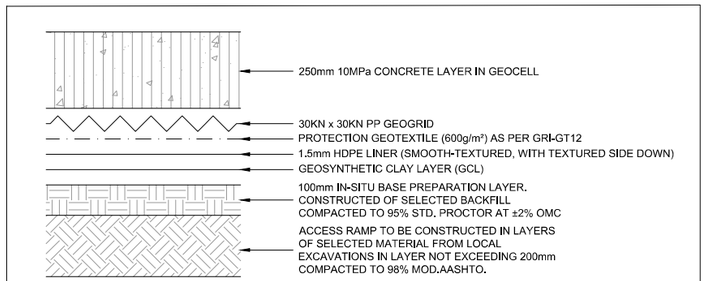
TYPICAL SECTION THROUGH BASIN FLOOR

SCALE 1:20

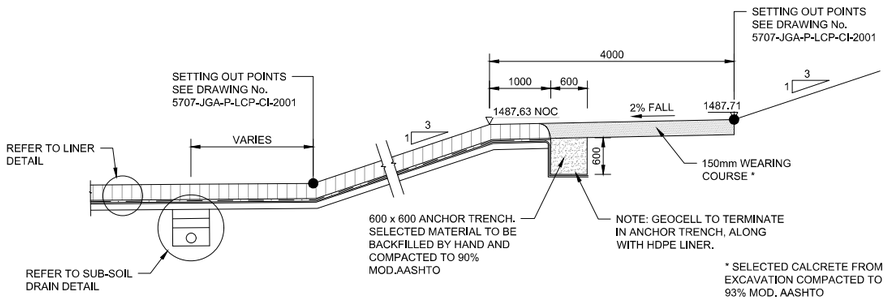


LINER DETAIL CLASS C AS PER GN 636

*NOTE:
1. 1.5mm HDPE LINER IS TO BE SMOOTH-SMOOTH ON BASIN.
2. 1.5mm HDPE LINER IS TO BE SMOOTH-TEXTURED, WITH TEXTURED SIDE PLACED DOWN, ON SIDE SLOPES.



LINER DETAIL FOR ACCESS RAMP



TYPICAL SECTION THROUGH EMBANKMENT CREST

SCALE 1:20

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	08-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
SIGNATURE
DATE -

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E-MAIL pietermaritzburg@jgafrika.com

DESIGN APPROVED:
CLIENT
Uneysa Taljard
NAME
SIGNATURE
14/12/2022
DATE

CLIENT
LAFARGE
Lafarge Industries South Africa (PTY) LTD Lichtenburg
1 Manana Road, Industrial Site, 2740
Tel: +27 21 633 3011
Email: uneysa.taljard@lafargeholcim.com

PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
ADDITIVES POLLUTION CONTROL DAM
TYPICAL SECTIONS & DETAILS

PRELIMINARY DESIGN

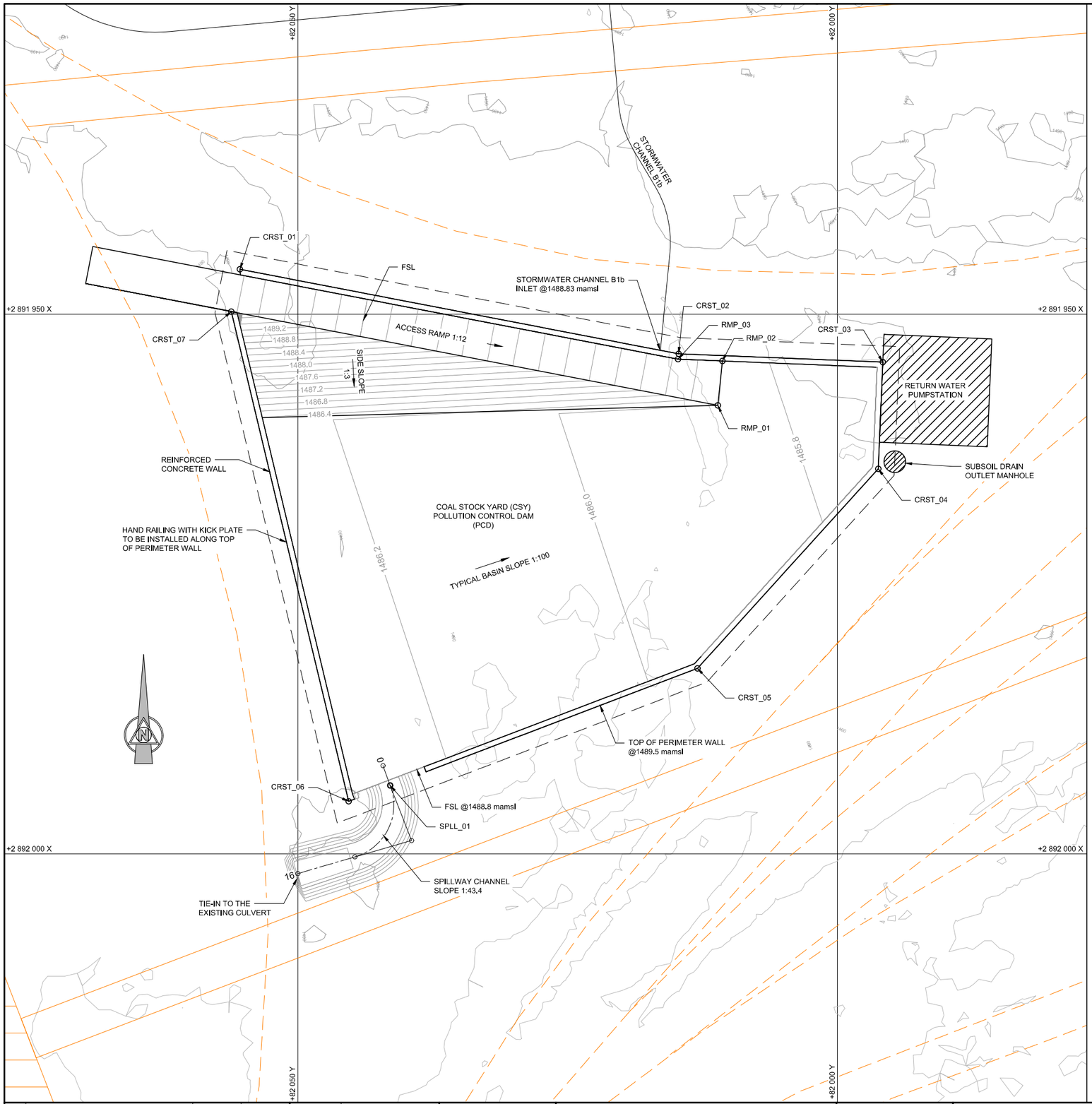
SHEET	SCALE	SIZE
1 of 1	AS SHOWN	A1

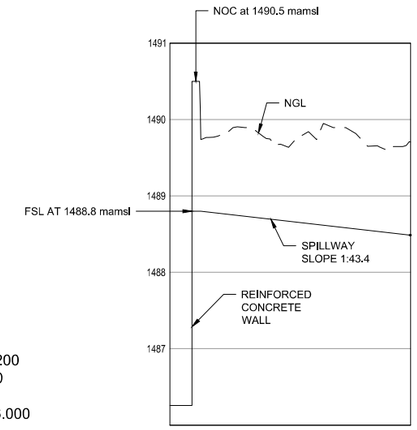
CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LCP-CI-2006

REVISION
A

Newton® 22.04.2022





SCALES:
Horizontal 1:200
Vertical 1:40

DATUM 1486.000

DISTANCE (m)	0	2	4	6	8	10	12	14	16
GROUND LEVEL	1486.258	1490.022	1489.871	1489.795	1489.688	1489.526	1489.835	1489.617	1489.703
DESIGN LEVEL		1488.800	1488.755	1488.708	1488.662	1488.616	1488.570	1488.524	1488.485
CUT / FILL		1.222	1.117	1.086	1.026	1.310	1.265	1.093	1.218

LONGITUDINAL SECTION
COAL STOCKYARD SPILLWAY
FROM 0.000 TO 15.759

COAL STOCKYARD PCD SETTING OUT POINTS

WGS84 Lo 27

POINT	Y	X	LEVEL (mamsl)
Crst_01	+82 055.359	+2 891 945.839	1490.500
Crst_02	+82 014.711	+2 891 953.667	1490.500
Crst_03	+81 995.794	+2 891 954.437	1490.500
Crst_04	+81 996.219	+2 891 964.323	1490.500
Crst_05	+82 012.964	+2 891 982.808	1490.500
Spll_01	+82 041.437	+2 891 993.659	1488.800
Crst_06	+82 045.283	+2 891 995.124	1490.500
Crst_07	+82 056.159	+2 891 949.759	1490.500
Rmp_01	+82 011.075	+2 891 958.444	1485.936
Rmp_02	+82 010.657	+2 891 954.337	1486.000
Rmp_03	+82 014.769	+2 891 954.166	1486.357

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	13-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
SIGNATURE
DATE -

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E-MAIL pietermaritzburg@jgafrika.com

DESIGN APPROVED:
CLIENT
Uneysa Taljard
NAME
SIGNATURE
14/12/2022
DATE

CLIENT
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1 Manana Road, Industrial Site, 2740
Tel: +27 21 633 3011
Email: uneysa.taljard@lafargeholcim.com

PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
COAL STOCKYARD POLLUTION CONTROL DAM
LAYOUT PLAN & SECTIONS

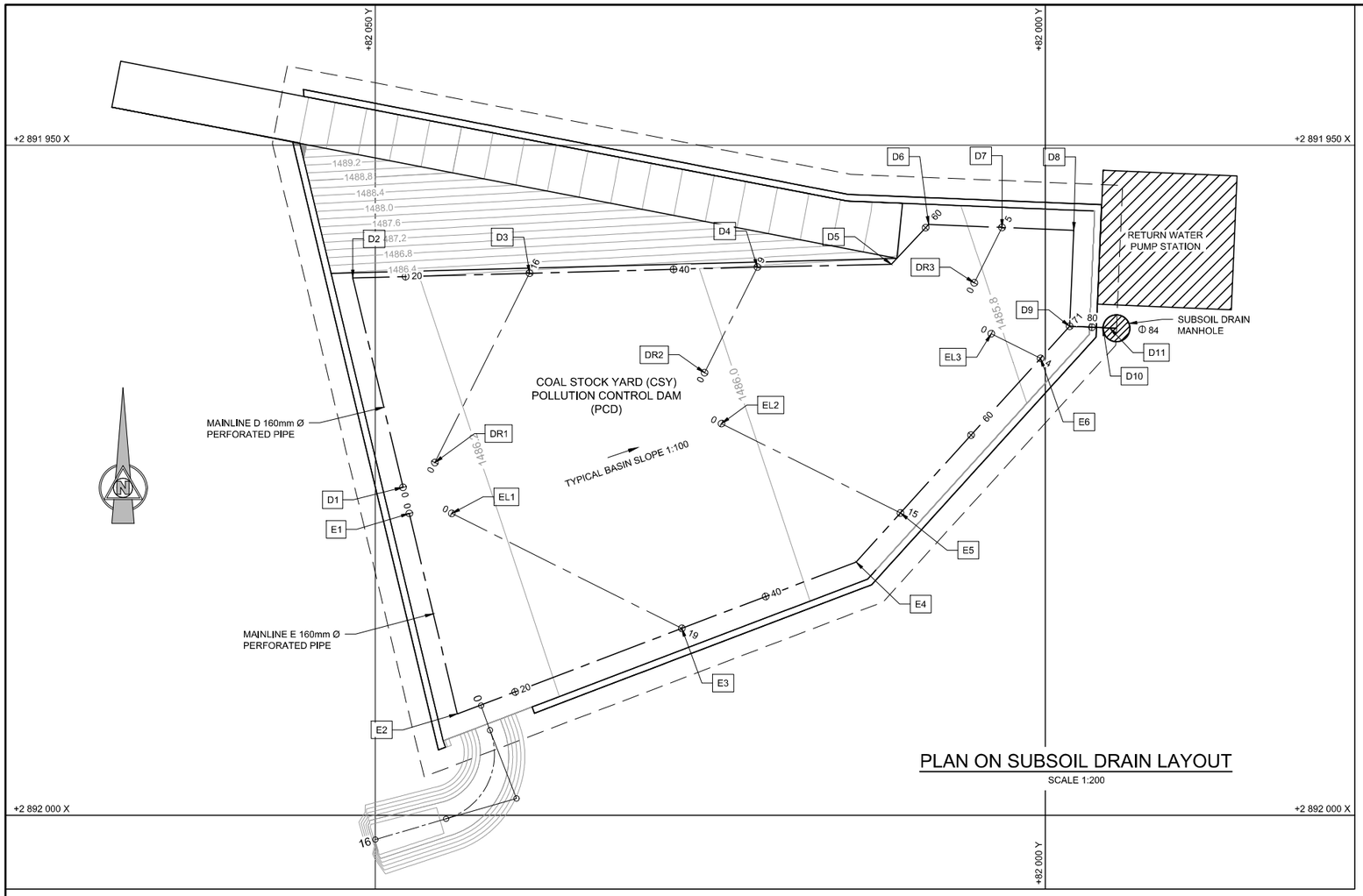
PRELIMINARY DESIGN

SHEET 1 of 1 | SCALE 1 : 200 / AS SHOWN | SIZE A1

CLIENT DRAWING No. -

JG AFRIKA (Pty) Ltd. DRAWING No 5707-JGA-P-LCP-CI-3001 | REVISION A

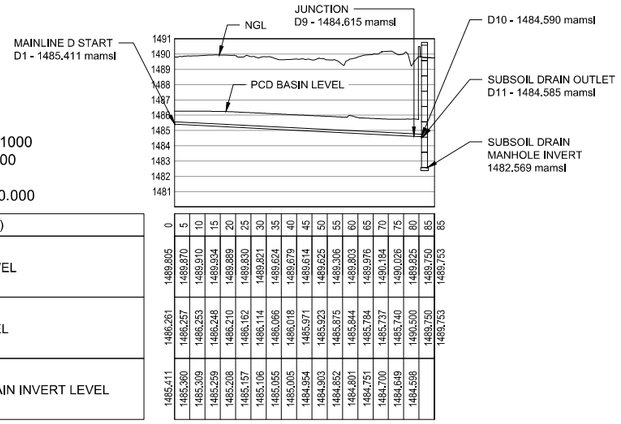
Newton® 04.05.2022



PLAN ON SUBSOIL DRAIN LAYOUT

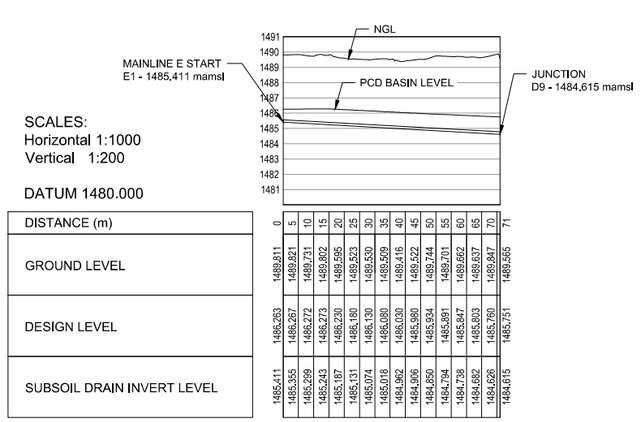
SCALE 1:200

COAL STOCKYARD PCD - SUB-SOIL DRAIN SETTING OUT POINTS				
WGS84 Lo 27				
CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	D1	+82 047.923	+2 891 975.530	1485.411
16.065	D2	+82 051.667	+2 891 959.908	1485.248
29.254	D3	+82 038.483	+2 891 959.553	1485.114
46.26	D4	+82 021.483	+2 891 959.096	1484.941
56.252	D5	+82 011.493	+2 891 958.891	1484.839
60.328	D6	+82 008.709	+2 891 955.913	1484.798
65.81	D7	+82 003.231	+2 891 956.136	1484.742
71.168	D8	+81 997.878	+2 891 956.354	1484.688
78.336	D9	+81 998.186	+2 891 963.516	1484.615
80.826	D10	+81 995.699	+2 891 963.623	1484.590
81.326	D11	+81 995.200	+2 891 963.644	1484.585
CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	E1	+82 047.455	+2 891 977.482	1485.411
15.386	E2	+82 043.869	+2 891 992.445	1485.238
33.307	E3	+82 027.123	+2 891 986.063	1485.037
47.217	E4	+82 014.125	+2 891 981.110	1484.881
52.155	E5	+82 010.810	+2 891 977.451	1484.826
67.729	E6	+82 000.354	+2 891 965.908	1484.651
70.957	D9	+81 998.186	+2 891 963.516	1484.615
CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	DR1	+81 391.960	+2 892 034.353	1485.383
15.801	D3	+82 037.567	+2 891 957.721	1485.087
0	DR2	+81 376.962	+2 892 035.925	1485.171
8.814	D4	+82 020.565	+2 891 957.261	1484.917
0	DR3	+81 360.527	+2 892 030.694	1484.959
4.625	D7	+82 003.231	+2 891 956.136	1484.741
CHAINAGE (m)	POINT	Y	X	PIPE INVERT LEVEL (mamsl)
0	EL1	+81 390.308	+2 891 993.492	1485.383
19.189	E3	+82 027.123	+2 891 986.063	1485.037
0	EL2	+81 373.101	+2 891 982.282	1485.171
14.928	E5	+82 010.810	+2 891 977.451	1484.826
0	EL3	+81 373.101	+2 891 982.282	1484.959
4.116	E6	+82 000.354	+2 891 965.908	1484.651



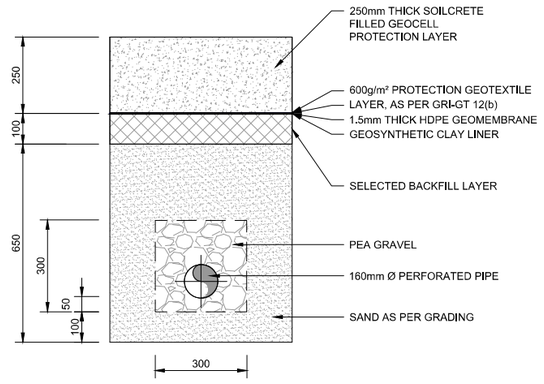
DISTANCE (m)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85
GROUND LEVEL	1489.805	1489.870	1489.910	1489.934	1489.889	1489.830	1489.821	1489.624	1489.679	1489.614	1489.625	1489.306	1489.803	1489.976	1490.184	1490.026	1489.825	1489.750	1489.753
DESIGN LEVEL	1486.261	1486.257	1486.253	1486.248	1486.210	1486.162	1486.114	1486.066	1486.018	1485.971	1485.923	1485.875	1485.844	1485.784	1485.737	1485.740	1490.500	1489.750	1489.753
SUBSOIL DRAIN INVERT LEVEL	1485.411	1485.360	1485.309	1485.259	1485.208	1485.157	1485.106	1485.055	1485.005	1484.954	1484.903	1484.852	1484.801	1484.751	1484.700	1484.649	1484.598		

LONGITUDINAL SECTION
COAL STOCKYARD SUBSOIL DRAIN - LEFT MAIN
FROM 0.000 TO 85.053



DISTANCE (m)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	71
GROUND LEVEL	1489.811	1489.821	1489.731	1489.802	1489.595	1489.523	1489.530	1489.509	1489.416	1489.522	1489.744	1489.701	1489.662	1489.637	1489.847	1489.565		
DESIGN LEVEL	1486.263	1486.267	1486.272	1486.273	1486.230	1486.180	1486.130	1486.080	1486.030	1485.980	1485.934	1485.891	1485.847	1485.803	1485.760	1485.751		
SUBSOIL DRAIN INVERT LEVEL	1485.411	1485.355	1485.299	1485.243	1485.187	1485.131	1485.074	1485.018	1484.962	1484.906	1484.850	1484.794	1484.738	1484.682	1484.626	1484.815		

LONGITUDINAL SECTION
COAL STOCKYARD SUB-SOIL DRAIN - RIGHT MAIN
FROM 0.000 TO 70.957



TYPICAL DAM LINER & SUBSOIL DRAIN DETAIL

SCALE 1:10

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	13-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

DESIGN APPROVED:
JG AFRIKA (Pty) Ltd
NAME J.C. NORRIS
SIGNATURE
DATE -

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SIGNATURE
DATE 14/12/2022

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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
COAL STOCKYARD POLLUTION CONTROL DAM
SUB-SOIL DRAINS
LAYOUT & SECTIONS

PRELIMINARY DESIGN

SHEET	SCALE	SIZE
1 of 1	AS SHOWN	A1

CLIENT DRAWING No.
-

JG AFRIKA (Pty) Ltd. DRAWING No
5707-JGA-P-LCP-CI-3002

REVISION
A

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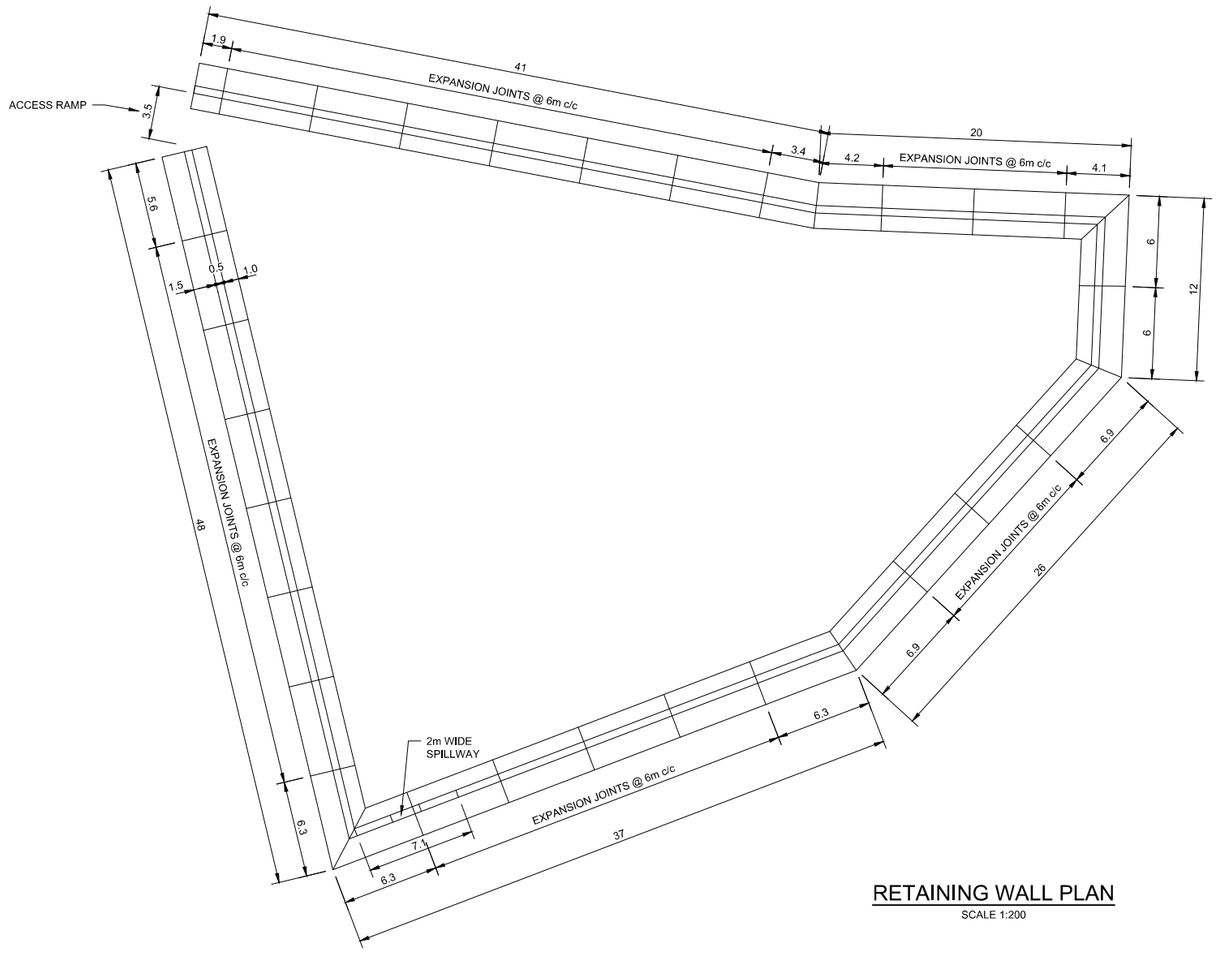
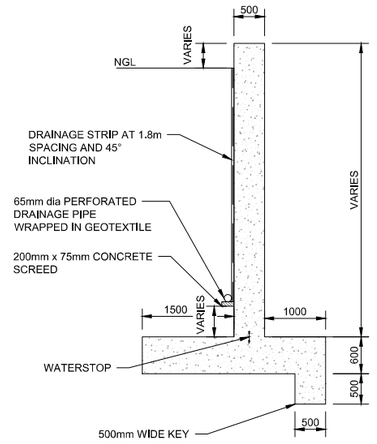


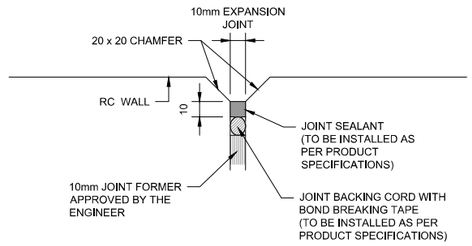
RETAINING WALL PLAN

SCALE 1:200



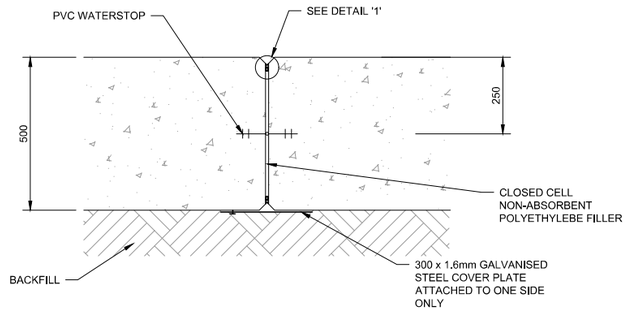
TYPICAL RETAINING WALL DETAIL

SCALE 1:50



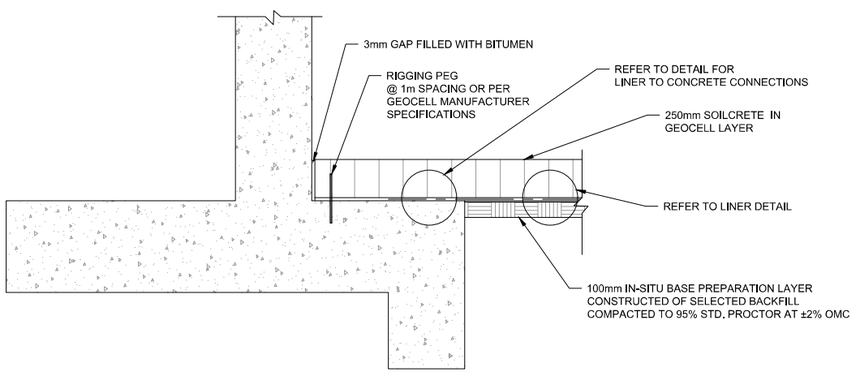
DETAIL '1'
SEALING JOINT

SCALE 1:2



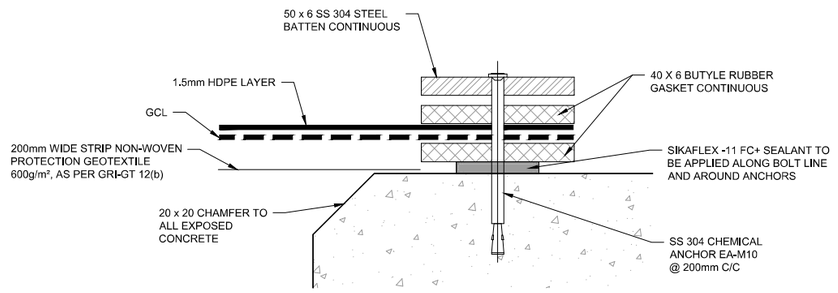
WALL EXPANSION JOINT DETAIL

SCALE 1:10



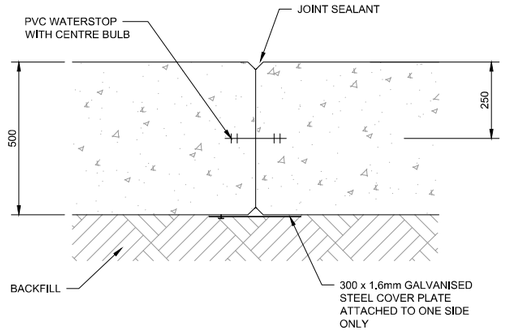
DETAIL FOR GEOCELL TO CONCRETE CONNECTIONS

SCALE 1:20



DETAIL FOR ALL LINER / CONCRETE CONNECTIONS

SCALE 1:1



WALL CONSTRUCTION JOINT DETAIL

SCALE 1:10

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	13-04-2022	G.R.

DESIGNED	M. MUVHALI	
CHECKED	G. PEARSON	
DRAWN	B. NEWTON	
CHECKED	G. ROBERTSON	

DESIGN APPROVED:
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NAME: J.C. NORRIS
SIGNATURE: J.C Norris
DATE: -

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CLIENT
Uneysa Taljard
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14/12/2022
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PROJECT
LAFARGE CEMENT PLANT

DRAWING TITLE
COAL STOCKYARD POLLUTION CONTROL DAM
PERIMETER RETAINING WALL DETAILS

PRELIMINARY DESIGN

SHEET	SCALE	SIZE
1 of 1	AS SHOWN	A1

CLIENT DRAWING No.: -

JG AFRIKA (Pty) Ltd. DRAWING No: 5707-JGA-P-LCP-CI-3003

REVISION: A

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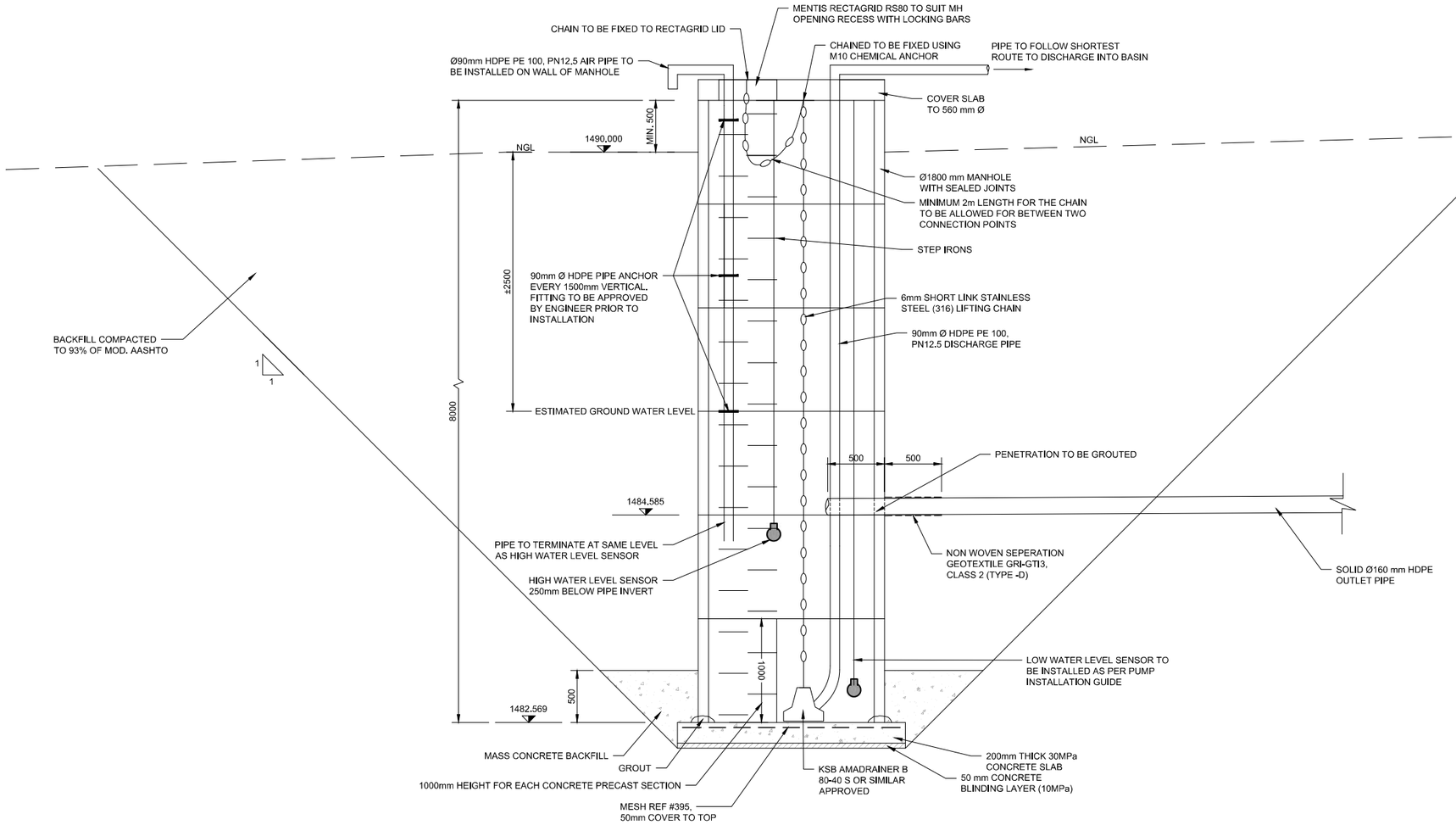
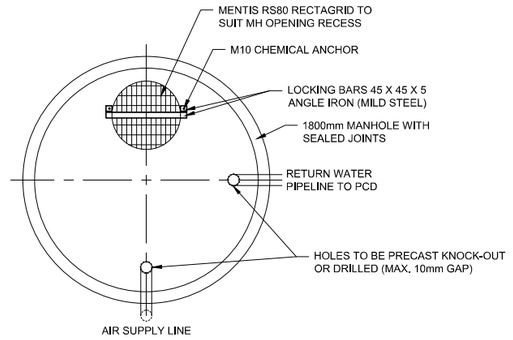


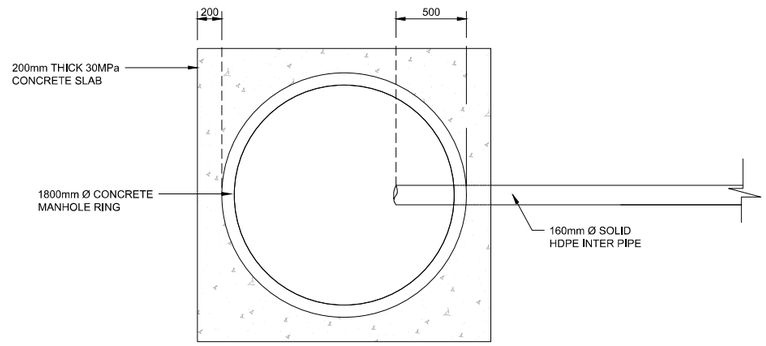
COAL STOCKYARD PCD MANHOLE DETAIL

SCALE 1:25



TYPICAL MANHOLE COVER DETAIL

SCALE 1:25



TYPICAL MANHOLE PLAN VIEW

SCALE 1:25

REV	NATURE OF REVISION	DATE	SIGNED
A	FOR DISCUSSION	13-04-2022	G.R.

DESIGNED	G. ROBERTSON
CHECKED	J.C. NORRIS
DRAWN	B. NEWTON
CHECKED	G. ROBERTSON

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DATE: 14/12/2022

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1 Manana Road, Industrial Site, 2740
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PROJECT: LAFARGE CEMENT PLANT

DRAWING TITLE: COAL STOCKYARD POLLUTION CONTROL DAM
SUB-SOIL DRAINS
MANHOLE DETAILS

PRELIMINARY DESIGN

SHEET 1 of 1 | SCALE 1 : 25 | SIZE A1

CLIENT DRAWING No.: -

JG AFRIKA (Pty) Ltd. DRAWING No: 5707-JGA-P-LCP-CI-3004 | REVISION A

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