Johannesburg Water (SOC) Ltd

Johannesburg Water

VOLUME 4

DRAWINGS

CONTRACT No. JW 14302
CONSTRUCTION OF 20ML CARLSWALD RESERVOIR

13214 - CARLSWALD 20M/l RESERVOIR - DRAWING LIST

DRAWING NUMBER	DESCRIPTION
Section 01 - General Arrangement	
13214-73-01-000	DRAWING LIST
13214-73-01-001	LAYOUT OF PROPOSED RESERVOIR
13214-73-01-002	STRUCTURE AND FENCE SETTING OUT
Section 02 -Terracing, Stormwater & Fencing	
13214-73-02-001	LAYOUT & SETTING OUT OF PIPEWORK
13214-73-02-002	LEAK DETECTION & SCOUR PIPING LONGSECTIONS
13214-73-02-003	INLET & OUTLET PIPING LONGSECTIONS
13214-73-02-301	FENCE LAYOUT & DETAILS
Section 03 - Site Services	
13214-73-03-001	PROPOSED SEWER NETWORK LAYOUT
Section 04 - Reservoir	
13214-73-04-001	GENERAL ARRANGEMENT & DETAILS
13214-73-04-002	LEAK DETECTION, CATLADDERS & ACCESS HATCH DETAILS
13214-73-04-003	PIPING DETAILS
13214-73-04-004	FLOWMETER CHAMBERS - 3D VIEWS
13214-73-04-005	FLOWMETER CHAMBERS - LAYOUT, SECTIONS & DETAILS
13214-73-04-006	VALVE CHAMBER - 3D VIEWS
13214-73-04-007	VALVE CHAMBER - LAYOUT, SECTIONS & DETAILS
13214-73-04-010	SCOUR BOX- 3D VIEWS
13214-73-04-011	SCOUR BOX - LAYOUT & SECTIONS
13214-73-04-012	INTERCONNECTING PIPING LAYOUT
13214-73-04-013	PIPE AND VALVE SCHEDULE
Section 05 - Buildings	
13214-73-05-001	TELEMETRY BUILDING LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS
13214-73-05-002	GUARD HOUSE 3D VIEWS
13214-73-05-003	GUARD HOUSE LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS
13214-73-05-004	VALVE BUILDING - 3D VIEWS
13214-73-05-005	VALVE BUILDING - LAYOUT & ELEVATIONS
13214-73-05-006	VALVE BUILDING - SECTIONS & DETAILS
Section 06 - Electrical	
13214-73-06-001	ELECTRICAL CABLE ROUTES
13214-73-06-002	EARTHING LAYOUT
13214-73-06-003	SINGLE LINE DIAGRAM
13214-73-06-004	TYPICAL LOOP DIAGRAM LEVEL SENSOR
13214-73-06-005	TYPICAL LOOP DIAGRAM MAGNETIC FLOW METER
13214-73-06-006	TYPICAL LOOP DIAGRAM OPEN CLOSE ACTUATOR
13214-73-06-007	TYPICAL LOOP DIAGRAM MODULATING ACTUATOR
13214-73-06-008	GUARD HUT POWER AND LIGHTING LAYOUT
13214-73-06-009	TELEMETRY HUT
13214-73-06-010	TYPICAL FIELD JB'S
13214-73-06-011	TYPICAL FIELD PLC
13214-73-06-012	EARTHING AND LIGHTING SYMBOLS.
13214-73-06-013	EXTERIOR LIGHTING LAYOUT

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	N.G
DRAWN	D.P
CHECKED	N.G
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
GENERAL ARRANGEMENT
DRAWING LIST

DESIGN MANAGER

DATE

SCALE

N.T.S

AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-01-000

FILE No.

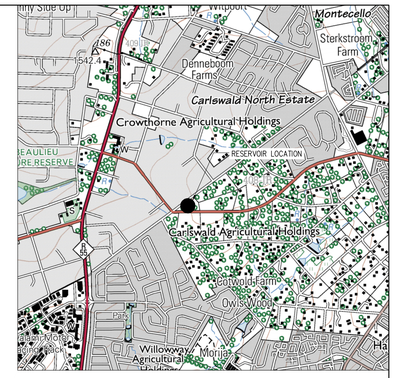
T 0 0

Y 2 874 900
Y 2 874 950
Y 2 875 000
Y 2 875 050
Y - 91 250
Y - 91 200
Y - 91 150
Y - 91 100
Y - 91 050

N

ERF 1552
ERF 1550
ERF 1548

HIGH DENSITY ANTI-CLIMBING AND ANTI-CUT PRESSED MESH PANEL FENCING
8m SERVITUDE
2m BUILDING LINE
FUTURE 10ML RESERVOIR
LEAK DETECTION BOXES
TELEMETRY BUILDING
20ML RESERVOIR
2m BUILDING LINE
5m BUILDING LINE
VALVE CHAMBERS
OUTLET FLOW METER CHAMBER
INTERNAL ACCESS ROAD
PARKING BAYS
1
2
VALVE BUILDING
SCOUR BOX
LEAK DETECTION BOXES
GUARD HUT
INLET FLOW METER CHAMBER
2m BUILDING LINE
4.15m SERVITUDE
2m BUILDING LINE
HIGH DENSITY ANTI-CLIMBING AND ANTI-CUT PRESSED MESH PANEL FENCING
600mm ØPIPE OUTLET PIPE
500mm ØPIPE INLET PIPE
EXISTING TELEPHONE LINE
EXISTING POWER LINE
EXISTING TELEPHONE LINE
EXISTING POWER LINE
EXISTING POWER LINE
ROAD ℄
WALTON ROAD
ROAD ℄
WALTON ROAD
ROAD ℄
NEW PIPING TO TIE INTO EXISTING NETWORK
EXISTING 600mm ØPIPE
EXISTING 500mm ØPIPE
EXISTING 500mm ØPIPE



LOCALITY
1:20000

LEGEND
- FENCE LINE
- BUILDING LINE
- PIPE CENTER
- POWER LINE
- CONCRETE ACCESS ROAD
- ACCESS ROAD CONSTRUCTION JOINTS
- ACCESS ROAD EXPANSION JOINTS
- FUTURE 10ML RESERVOIR

DEPARTMENT	APPROVED	DESIGNATION	DATE

GENERAL ARRANGEMENT
1:250

CONSULTING ENGINEERS

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
GENERAL ARRANGEMENT
LAYOUT OF RESERVOIR

DESIGN MANAGER

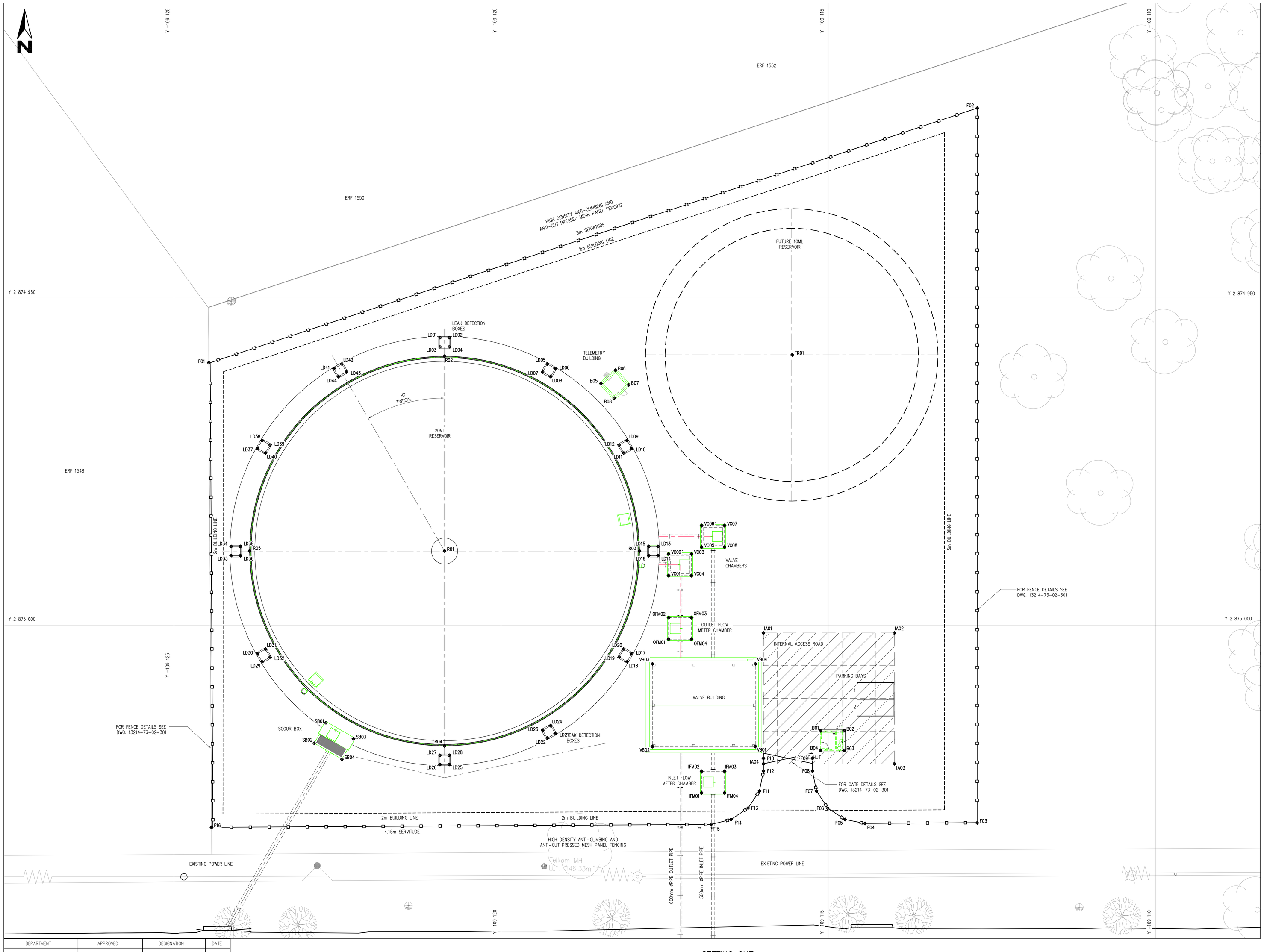
DATE

SCALE
1:250

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTRENAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTRENAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER
JW NUMBER
JW14302
CONSULTANT'S NUMBER
13214-73-01-001
FILE No
T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-01-(001-T02) - GENERAL ARRANGEMENT LAYOUT OF PROPOSED RESERVOIR.dwg Aug 18, 2023 - 2:39pm



COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
IFM01	91169.345	2875025.670
IFM02	91169.345	2875022.370
IFM03	91165.845	2875022.370
IFM04	91165.845	2875025.670

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
OFM01	91174.396	2875002.172
OFM02	91174.381	2874998.872
OFM03	91170.896	2874998.872
OFM04	91170.896	2875002.172

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
FR01	91155.496	2874958.709

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
VC01	91174.396	2874992.458
VC02	91174.396	2874989.158
VC03	91170.896	2874989.158
VC04	91170.896	2874992.458
VC05	91169.345	2874988.106
VC06	91169.345	2874984.806
VC07	91165.845	2874984.806
VC08	91165.845	2874988.106

LEGEND

- FENCE LINE
- BUILDING LINE
- PIPE CENTER
- POWER LINE
- CONCRETE ACCESS ROAD
- ACCESS ROAD CONSTRUCTION JOINTS
- ACCESS ROAD EXPANSION JOINTS

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
R01	91208.628	2874988.706
R02	91208.628	2874958.906
R03	91178.828	2874988.706
R04	91208.628	2875018.506
R05	91238.428	2874988.706

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
B01	91151.186	2875016.177
B02	91147.586	2875016.177
B03	91147.586	2875019.177
B04	91151.186	2875019.177
B05	91184.725	2874963.095
B06	91182.506	2874961.077
B07	91180.488	2874963.297
B08	91182.708	2874965.314

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
F01	91244.652	2874959.916
F02	91127.221	2874920.992
F03	91127.232	2875030.244
F04	91144.376	2875030.332
F05	91147.440	2875029.728
F06	91150.060	2875028.009
F07	91151.794	2875025.388
F08	91152.403	2875022.327
F09	91152.396	2875020.387
F10	91159.896	2875020.387
F11	91160.505	2875025.388
F12	91159.896	2875022.327
F13	91162.239	2875027.983
F14	91164.858	2875029.728
F15	91167.896	2875030.481
F16	91244.236	2875030.929

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
LD01	91209.330	2874956.095
LD02	91207.930	2874956.093
LD03	91209.328	2874957.495
LD04	91207.928	2874957.493
LD05	91192.930	2874960.113
LD06	91191.717	2874960.811
LD07	91193.628	2874961.327
LD08	91192.414	2874962.024
LD09	91180.736	2874971.792
LD10	91180.034	2874973.003
LD11	91181.245	2874973.705
LD12	91181.947	2874972.494
LD13	91176.014	2874988.007
LD14	91176.014	2874989.407
LD15	91177.414	2874988.007
LD16	91177.414	2874989.407
LD17	91180.030	2875004.402
LD18	91180.730	2875005.615
LD19	91181.943	2875004.915
LD20	91181.243	2875003.702
LD21	91191.714	2875016.600
LD22	91192.926	2875017.301
LD23	91193.627	2875016.089
LD24	91192.415	2875015.388
LD25	91207.923	2875021.318
LD26	91209.323	2875021.322
LD27	91209.327	2875019.922
LD28	91207.927	2875019.918
LD29	91236.520	2875005.620
LD30	91237.221	2875004.408
LD31	91236.009	2875003.707
LD32	91235.308	2875004.919
LD33	91241.239	2874989.408
LD34	91241.241	2874988.008
LD35	91239.841	2874988.006
LD36	91239.839	2874989.406
LD37	91237.216	2874973.000
LD38	91236.518	2874971.787
LD39	91235.304	2874972.485
LD40	91236.003	2874973.699
LD41	91225.541	2874960.815
LD42	91224.330	2874960.114
LD43	91223.628	2874961.325
LD44	91224.840	2874962.027

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
IA01	91159.896	2875001.222
IA02	91139.896	2875001.222
IA03	91139.896	2875021.222
IA04	91159.896	2875021.223

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
VB01	91161.131	2875018.585
VB02	91176.861	2875018.585
VB03	91176.861	2875005.955
VB04	91161.131	2875005.955

COORDINATE LIST
WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
SB01	91226.762	2875014.957
SB02	91228.559	2875018.076
SB03	91222.538	2875017.391
SB04	91224.313	2875020.522

DEPARTMENT	APPROVED	DESIGNATION	DATE

SETTING OUT
1:200

CONSULTING ENGINEERS

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SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
GENERAL ARRANGEMENT
STRUCTRE & FENCE
SETTING OUT

DESIGN MANAGER

DATE

SCALE

	AMENDMENTS	APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2023
T02	ISSUED FOR TENDER	J.S	18.08.2023

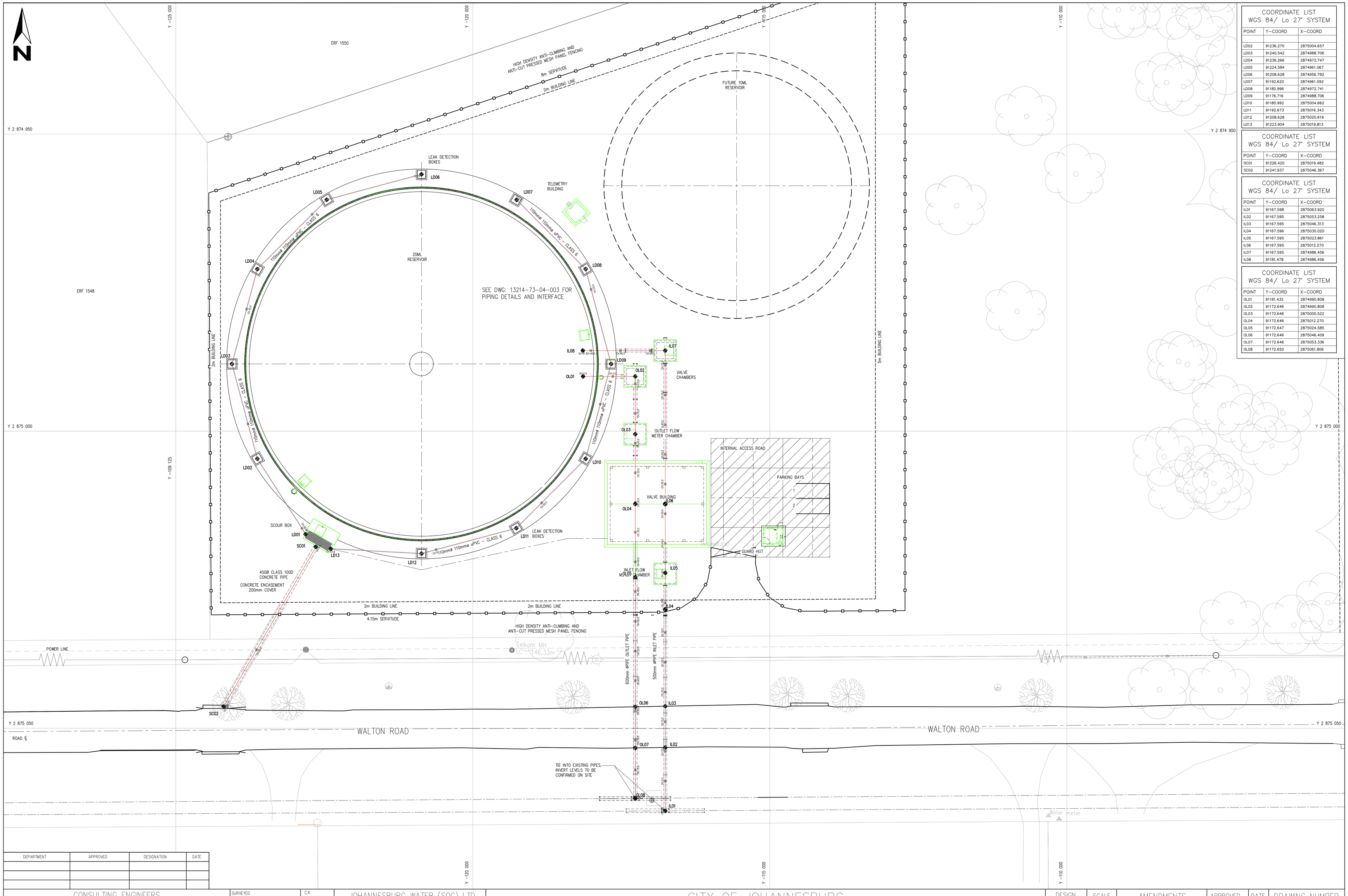
DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-01-002

FILE No
T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-01-(002-T02) - GENERAL ARRANGEMENT STRUCTURE AND FENCE SETTING OUT.dwg Aug 18, 2023 - 2:40pm



COORDINATE LIST WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
LD02	91236.270	2875004.657
LD03	91240.542	2874988.706
LD04	91236.266	2874972.747
LD05	91224.584	2874961.067
LD06	91208.628	2874956.792
LD07	91192.620	2874961.092
LD08	91180.996	2874972.741
LD09	91176.716	2874988.706
LD10	91180.992	2875004.662
LD11	91192.673	2875016.343
LD12	91208.628	2875020.619
LD13	91223.904	2875019.813

COORDINATE LIST WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
SC01	91226.420	2875019.482
SC02	91241.937	2875046.367

COORDINATE LIST WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
IL01	91167.598	2875063.920
IL02	91167.595	2875053.258
IL03	91167.595	2875046.313
IL04	91167.596	2875030.020
IL05	91167.595	2875023.861
IL06	91167.595	2875012.270
IL07	91167.595	2874986.456
IL08	91181.478	2874986.456

COORDINATE LIST WGS 84/ Lo 27° SYSTEM

POINT	Y-COORD	X-COORD
OL01	91181.432	2874990.808
OL02	91172.646	2874990.808
OL03	91172.646	2875000.522
OL04	91172.646	2875012.270
OL05	91172.647	2875024.585
OL06	91172.646	2875046.409
OL07	91172.646	2875053.336
OL08	91172.650	2875061.806

DEPARTMENT	APPROVED	DESIGNATION	DATE

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CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, STORMWATER & FENCING
LAYOUT & SETTING OUT
OF PIPEWORK

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	22.01.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-02-001

FILE No
T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-02-(001-T02)-(002-T02)-(003-T02) - LAYOUT & SETTING OUT OF PIPEWORK.dwg Aug 18, 2023 - 2:44pm

NOTE:

1. CONTRACTOR TO CONFIRM INVERT LEVEL AT KERB INLET (SC02) BEFORE CONSTRUCTION COMMENCES.
2. THE CONTRACTOR SHALL IMMEDIATELY MAKE THE ENGINEER AWARE IF THE INVERT LEVEL OF THE KERB INLET DIFFERS FROM THE INVERT LEVEL SHOWN ON THE DRAWING.

FGL
PIPE

SCALES:
Horizontal 1:200
Vertical 1:100
Datum : 1542

CHAINAGE (m)	LD-06			LD-05					LD-04					LD-03					LD-02					LD-01
	0.000	5.000	10.000	15.000	16.519	20.000	25.000	30.000	33.038	35.000	40.000	45.000	49.560	50.000	55.000	60.000	65.000	68.073	70.000	75.000	80.000	81.169
FINAL GROUND LEVEL m.a.m.s.l	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570	1547.570
PIPE CROWN LEVEL m.a.m.s.l	1546.676	1546.626	1546.576	1546.526	1546.515	1546.476	1546.426	1546.376	1546.349	1546.345	1546.326	1546.276	1546.226	1546.184	1546.180	1546.175	1546.126	1546.076	1546.038	1546.019	1546.015	1546.009	1545.978	1545.930	1545.883	1545.072
PIPE INVERT LEVEL m.a.m.s.l	1546.560	1546.510	1546.460	1546.410	1546.400	1546.360	1546.310	1546.260	1546.235	1546.230	1546.210	1546.160	1546.110	1546.070	1546.064	1546.059	1546.010	1545.959	1545.909	1545.903	1545.899	1545.895	1545.861	1545.811	1545.760	1545.748
DEPTH TO CROWN (m)	0.894	0.944	0.994	1.044	1.055	1.094	1.144	1.194	1.221	1.225	1.244	1.294	1.344	1.386	1.390	1.395	1.444	1.494	1.544	1.551	1.555	1.561	1.592	1.640	1.687	1.698
DEPTH TO INVERT (m)	1.010	1.060	1.110	1.160	1.170	1.210	1.260	1.310	1.335	1.340	1.360	1.410	1.460	1.500	1.506	1.510	1.560	1.611	1.661	1.667	1.671	1.675	1.709	1.759	1.810	1.822
PIPE SLOPE&LENGTH	1:100.0 (1.0%) 15.600m			1:100.0 (1.0%) 15.601m					1:100.0 (1.0%) 15.603m					1:100.0 (1.0%) 15.596m					1:100.0 (1.0%) 14.637m						
BEDDING TYPE	CLASS B			CLASS B					CLASS B					CLASS B					CLASS B						
PIPE DATA	110mmø uPVC – CLASS 6			110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6						

LONGSECTION CHAINAGE 0.0 – 81.169 LD–06 TO LD–01

FGL
PIPE

SCALES:
Horizontal 1:200
Vertical 1:100
Datum : 1544

CHAINAGE (m)	LD-07			LD-08					LD-09					LD-10					LD-11					LD-12					LD-13
	0.000	5.000	10.000	15.000	15.932	16.457	16.882	20.000	25.000	30.000	32.469	33.000	33.510	35.000	40.000	45.000	48.979	49.504	50.029	55.000	60.000	65.000	66.003	66.548	70.000	75.000	80.000	82.016	82.541	83.066	85.000	90.000	95.000	97.836
FINAL GROUND LEVEL m.a.m.s.l	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1548.500	1547.575	1547.423	1547.268	1547.228	1547.214	1547.122	1546.974	1546.904	1546.857	1546.845	1546.827	1546.738	1546.632	1546.549	1546.502
PIPE CROWN LEVEL m.a.m.s.l	1546.880	1546.840	1546.790	1546.740	1546.730	1546.720	1546.690	1546.640	1546.590	1546.565	1546.555	1546.540	1546.490	1546.440	1546.400	1546.394	1546.389	1546.339	1546.289	1546.239	1546.229	1546.224	1546.189	1546.139	1546.089	1546.063	1546.058	1546.033	1545.983	1545.970	1545.936	1545.906	1545.870	1545.760
PIPE INVERT LEVEL m.a.m.s.l	1546.774	1546.724	1546.674	1546.624	1546.615	1546.604	1546.574	1546.524	1546.474	1546.449	1546.439	1546.424	1546.374	1546.324	1546.284	1546.278	1546.274	1546.224	1546.174	1546.124	1546.114	1546.108	1546.074	1546.024	1545.974	1545.954	1545.948	1545.942	1545.918	1545.857	1545.795	1545.765	1545.760	1545.742
DEPTH TO CROWN (m)	1.610	1.660	1.710	1.760	1.770	1.780	1.810	1.860	1.910	1.935	1.945	1.960	2.010	2.060	2.100	2.106	2.111	2.161	2.211	2.261	2.271	2.276	2.311	2.361	2.411	2.431	2.437	2.442	2.458	2.473	2.543	2.627	2.709	2.742
DEPTH TO INVERT (m)	1.726	1.776	1.826	1.876	1.885	1.896	1.926	1.976	2.026	2.051	2.061	2.076	2.126	2.176	2.216	2.221	2.226	2.276	2.326	2.376	2.386	2.391	2.426	2.476	2.526	2.546	2.552	2.557	2.573	2.588	2.658	2.742	2.824	2.857
PIPE SLOPE&LENGTH	1:100.0 (1.0%) 15.592m			1:100.0 (1.0%) 15.610m					1:100.0 (1.0%) 15.601m					1:100.0 (1.0%) 15.601m					1:100.0 (1.0%) 15.600m					1:80.0 (1.2%) 14.837m								
BEDDING TYPE	CLASS B			CLASS B					CLASS B					CLASS B					CLASS B					CLASS B								
PIPE DATA	110mmø uPVC – CLASS 6			110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6					110mmø uPVC – CLASS 6								

LONGSECTION CHAINAGE 0.0 – 97.836 LD–07 TO LD–13

FGL
PIPE

SCALES:
Horizontal 1:200
Vertical 1:100
Datum : 1542

CHAINAGE (m)	SC-01						SC-02
	0.00	5.000	10.000	15.000	20.000	25.000	30.000	31.042
FINAL GROUND LEVEL m.a.m.s.l	1547.467	1546.231	1546.089	1545.823	1545.560	1545.301	1545.038	1544.992
PIPE CROWN LEVEL m.a.m.s.l	1546.467	1545.453	1545.312	1545.171	1545.030	1544.889	1544.748	1544.982
PIPE INVERT LEVEL m.a.m.s.l	1545.179	1545.034	1544.893	1544.752	1544.611	1544.470	1544.329	1544.300
DEPTH TO CROWN (m)	0.129	0.778	0.777	0.652	0.530	0.412	0.290	0.149
DEPTH TO INVERT (m)	0.662	1.197	1.196	1.071	0.949	0.831	0.709	0.662
PIPE SLOPE&LENGTH	1:35.5 (2.8%) 31.054m							
BEDDING TYPE	CLASS B				CONCRETE ENCASEMENT			
PIPE DATA	450ø CLASS 100D CONCRETE PIPE							

CONCRETE ENCASEMENT 200mm COVER
SCOUR BOX
KERB INLET

LONGSECTION CHAINAGE 0.0 – 31.042 SC01 TO SC02

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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DESIGNED	N.G
DRAWN	D.P
CHECKED	N.G
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, STORMWATER & FENCING
LEAK DETECTION & SCOUR PIPING LONGSECTIONS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
100	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
101	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
102	ISSUED FOR TENDER	J.S	18.08.2023

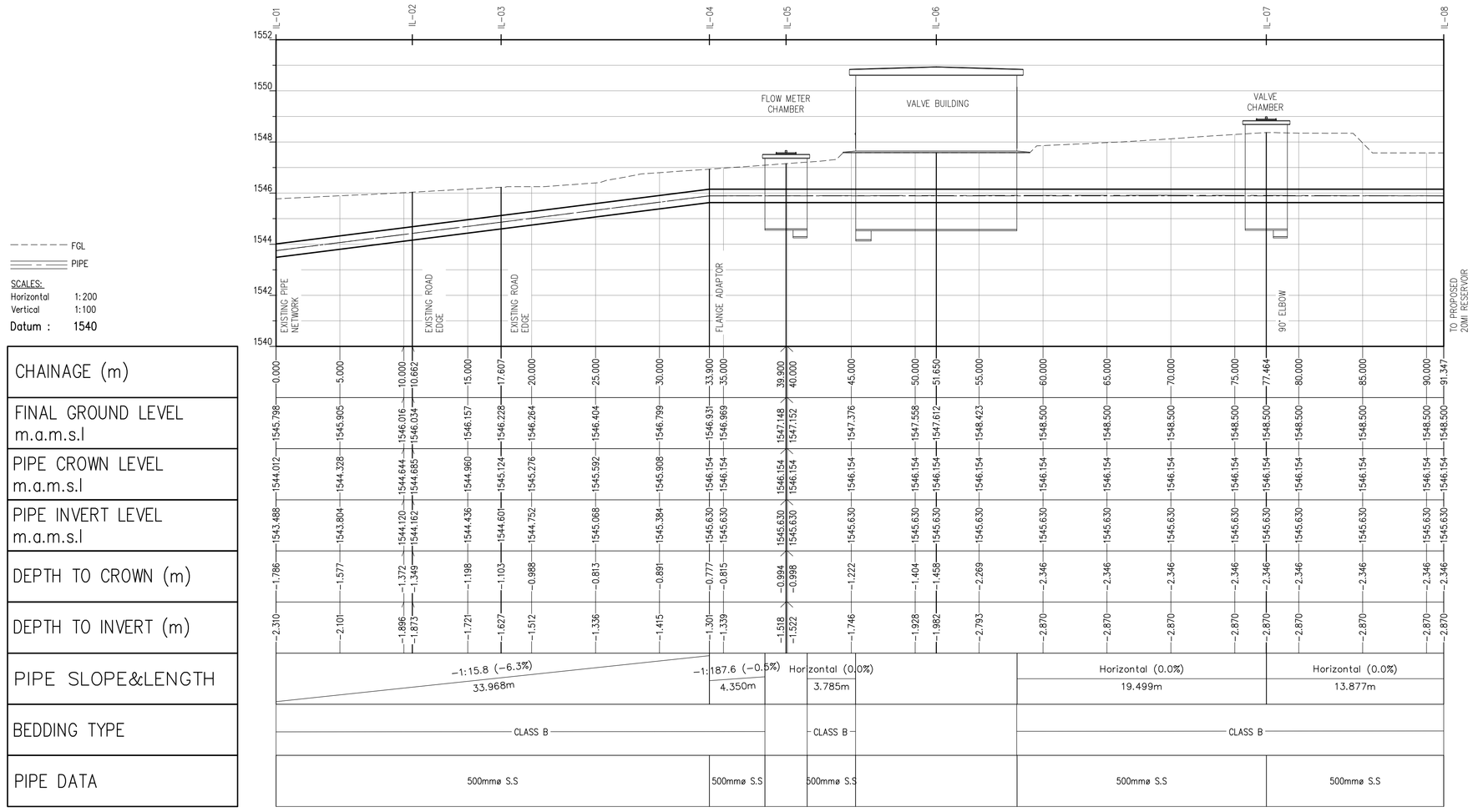
DRAWING NUMBER

JW NUMBER
JW14302

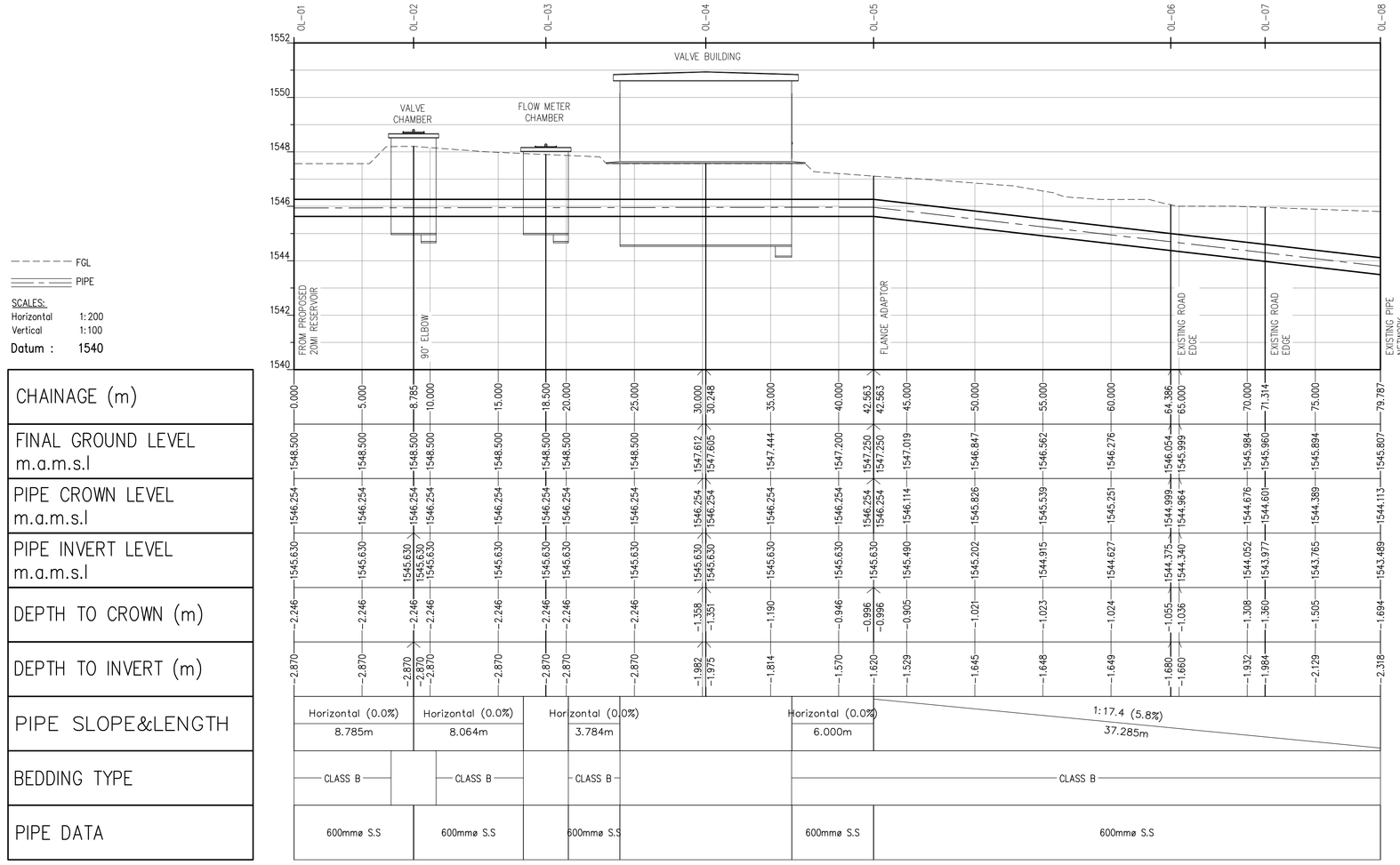
CONSULTANT'S NUMBER
13214-73-02-002

FILE No
T02

Z:\Projects\13214 – Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-02-(001-T02)-(002-T02)-(003-T02) – LAYOUT & SETTING OUT OF PIPEWORK.dwg Aug 18, 2023 – 2:42pm



LONGSECTION 500Ø S.S INLET PIPELINE

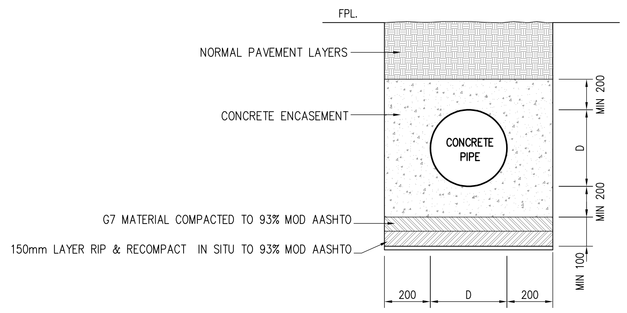


LONGSECTION 600Ø S.S OUTLET PIPELINE

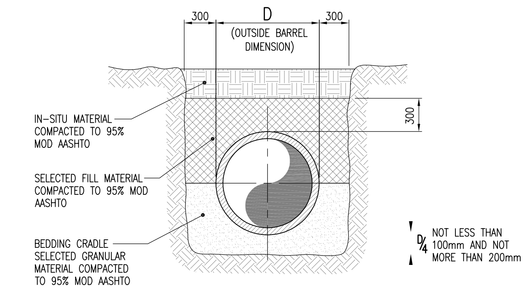
NOTE:

1. CONTRACTOR TO CONFIRM INVERT LEVEL AT NETWORK INLET AND OUTLET BEFORE CONSTRUCTION COMMENCES.
2. THE CONTRACTOR SHALL IMMEDIATELY MAKE THE ENGINEER AWARE IF THE INVERT LEVELS OF THE NETWORK INLET & OUTLET DIFFERS FROM THE INVERT LEVEL SHOWN ON THE DRAWING.

NOTE:
ALL BEDDING SURROUND AND BACKFILL MATERIALS SHALL AFTER COMPACTION BE LESS PERMEABLE THAN THE IN-SITU SURROUNDING SOIL



PIPELINE – TYPICAL CONCRETE ENCASEMENT
1:20



BEDDING CLASS "B" TO SABS 1200 LB

DETAIL 1 / 1:50

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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DESIGNED	N.G
DRAWN	D.P
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SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, STORMWATER & FENCING
INLET & OUTLET PIPING LONGSECTIONS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01 ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02 ISSUED FOR TENDER	J.S	18.08.2022

DRAWING NUMBER

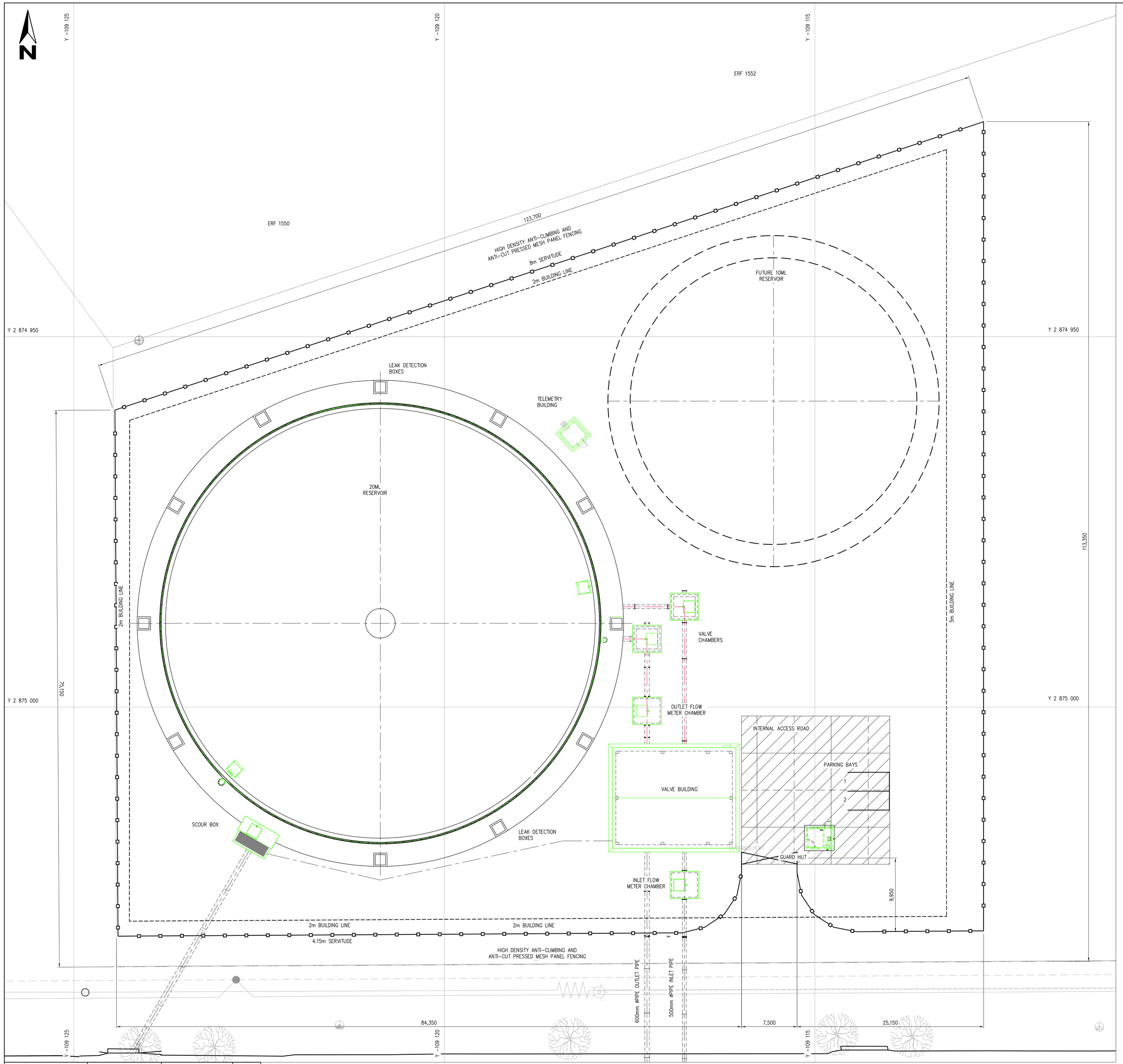
JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-02-003

FILE No

T 0 2

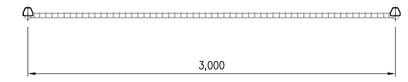
Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-02-(001-T02)-(002-T02)-(003-T02) - LAYOUT & SETTING OUT OF PIPEWORK.dwg Aug 18, 2023 - 2:41pm



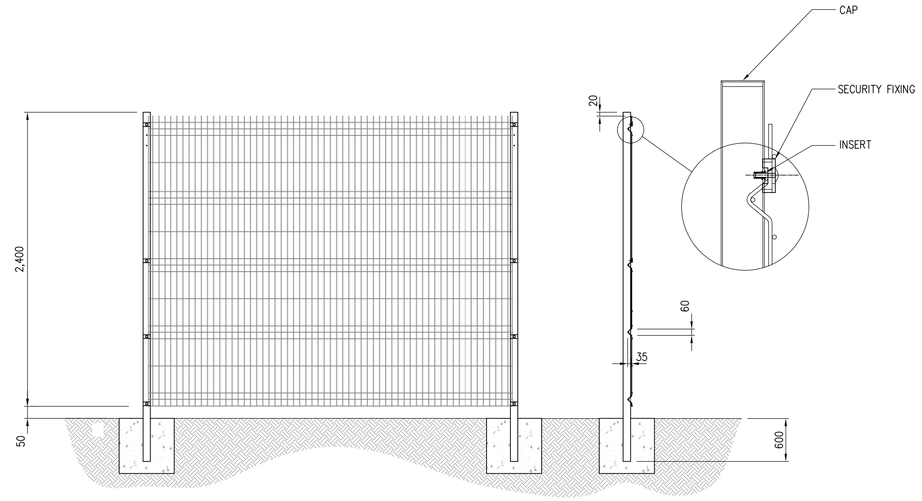
FENCE LAYOUT
1:200

LEGEND

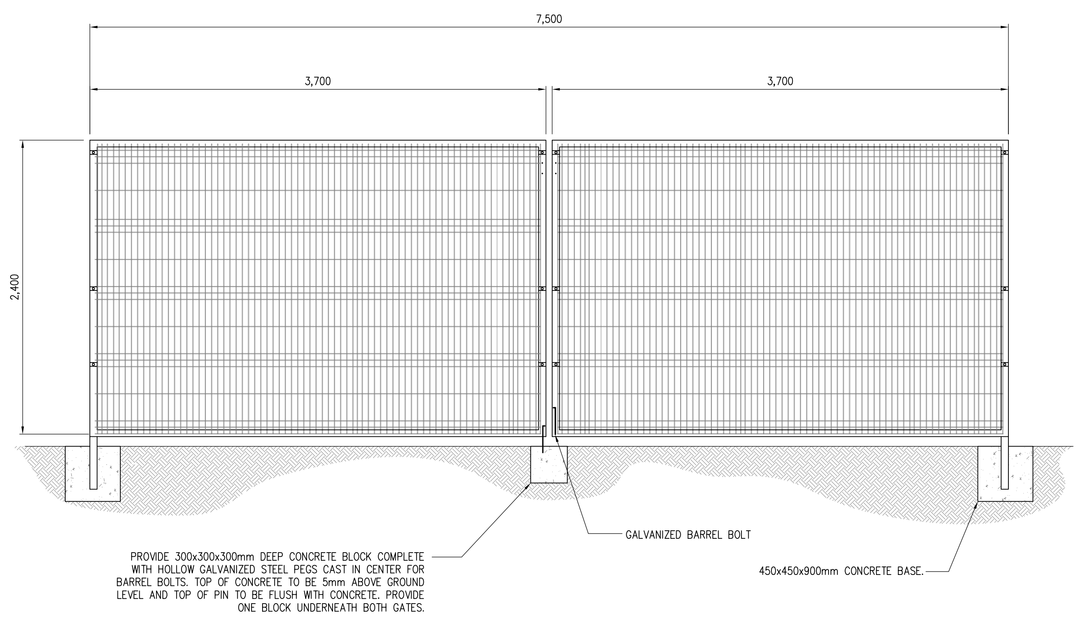
- FENCE LINE
- BUILDING LINE
- PIPE CENTER
- POWER LINE
- CONCRETE ACCESS ROAD
- ACCESS ROAD CONSTRUCTION JOINTS
- ACCESS ROAD EXPANSION JOINTS



PLAN VIEW OF HIGH DENSITY MESH PANEL
1:50



ELEVATION OF HIGH DENSITY MESH PANEL
1:50



ELEVATION OF ACCESS DOUBLE SWING GATE
1:50

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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DESIGNED	N.G
DRAWN	D.P
CHECKED	N.G
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, STORMWATER & FENCING
FENCE LAYOUT & DETAILS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M.	22.07.2022
T02	ISSUED FOR TENDER	J.S.	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-02-301

FILE No.

T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-02-(301-T02) - FENCE LAYOUT & DETAILS.dwg Aug 18, 2023 - 2:45pm

BEDDING CLASS "B" TO SABS 1200 LB

TYPICAL BEDDING DETAIL
1:50

LOCALITY
1:20000

SEWER NETWORK LAYOUT
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	N.G
DRAWN	D.P
CHECKED	N.G
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
SITE SERVICES
SEWER NETWORK LAYOUT

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

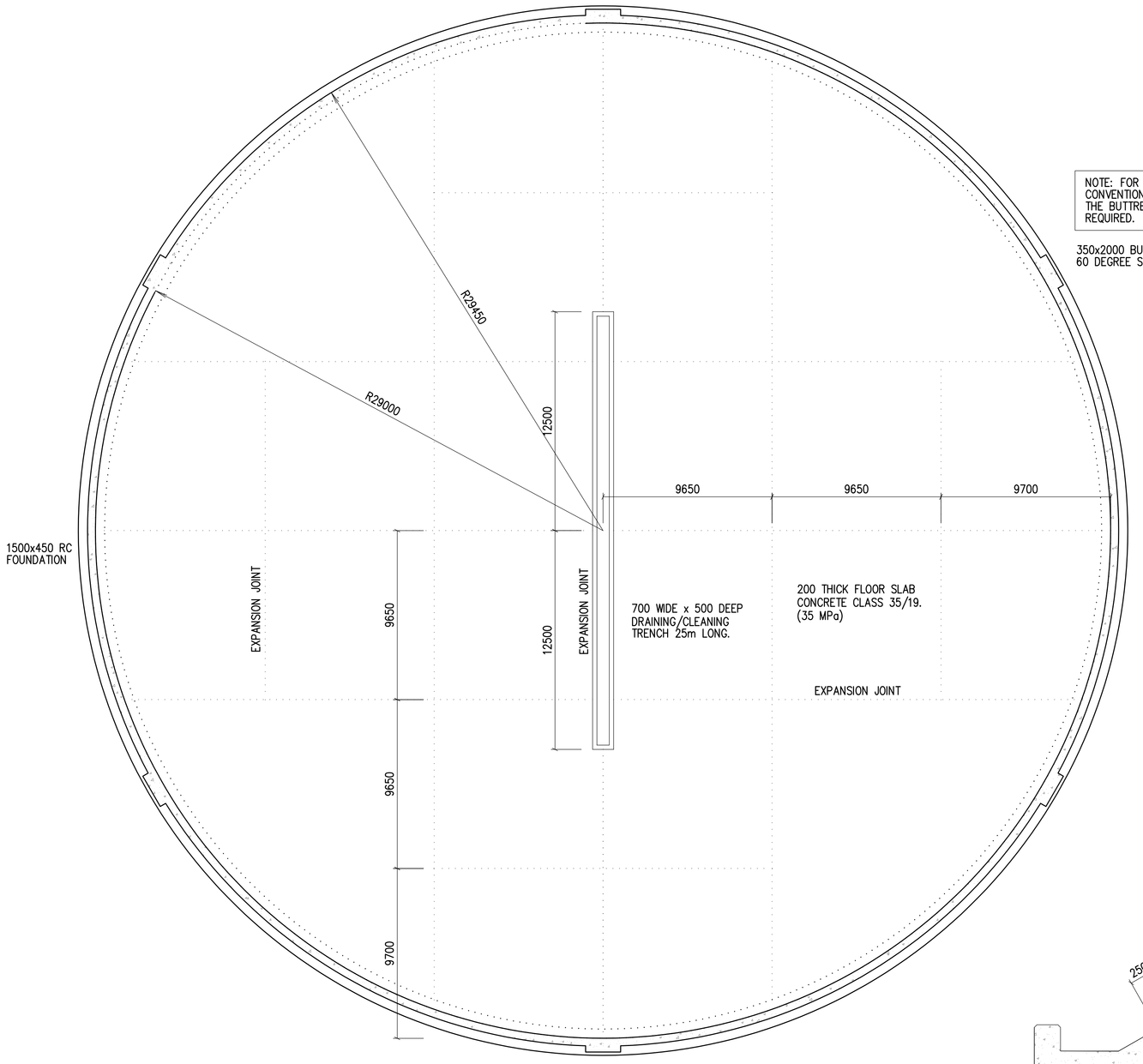
DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-03-001

FILE No
T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-03-(001-T02) - PROPOSED SEWER NETWORK LAYOUT.dwg Aug 18, 2023 - 2:46pm



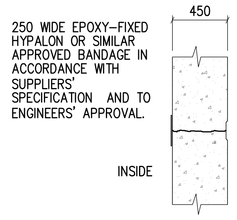
PLAN ON FLOOR
1:150

NOTE: FOR THE CONVENTIONAL RC WALL, THE BUTTRESSES ARE NOT REQUIRED.

350x2000 BUTTRESSES AT 60 DEGREE SPACING.

GENERAL REQUIREMENTS: CONSTRUCTION JOINTS

1. AT CONSTRUCTION JOINTS IN FLOOR SLABS, THE CONCRETE SHALL NOT BE ALLOWED TO RUN TO A FEATHER EDGE.
2. THE SURFACE OF THE FIRST POUR SHALL BE ROUGHENED WITHOUT DISTURBING THE COARSE AGGREGATE BY SPRAYING THE JOINT SUR-FACE TWO TO FOUR HOURS AFTER THE CONCRETE HAS BEEN PLACED WITH A FINE SPRAY OF WATER AND BRUSHING WITH A STIFF BRUSH.
3. IF THE SURFACE HAS NOT BEEN ROUGHENED UNTIL THE CONCRETE HAS HARDENED, THE COARSE AGGREGATE NEAR THE SURFACE SHALL BE EXPOSED BY SAND BLASTING OR A SCALING HAMMER. THE JOINT SURFACE MUST BE CLEAN AND FREE OF LOOSE PARTICLES, AND DAMPENED BEFORE FRESH CONCRETE IS PLACED AGAINST IT.
4. THE CONCRETE AT THE JOINT MUST BE FULLY COMPACTED AND DENSE.

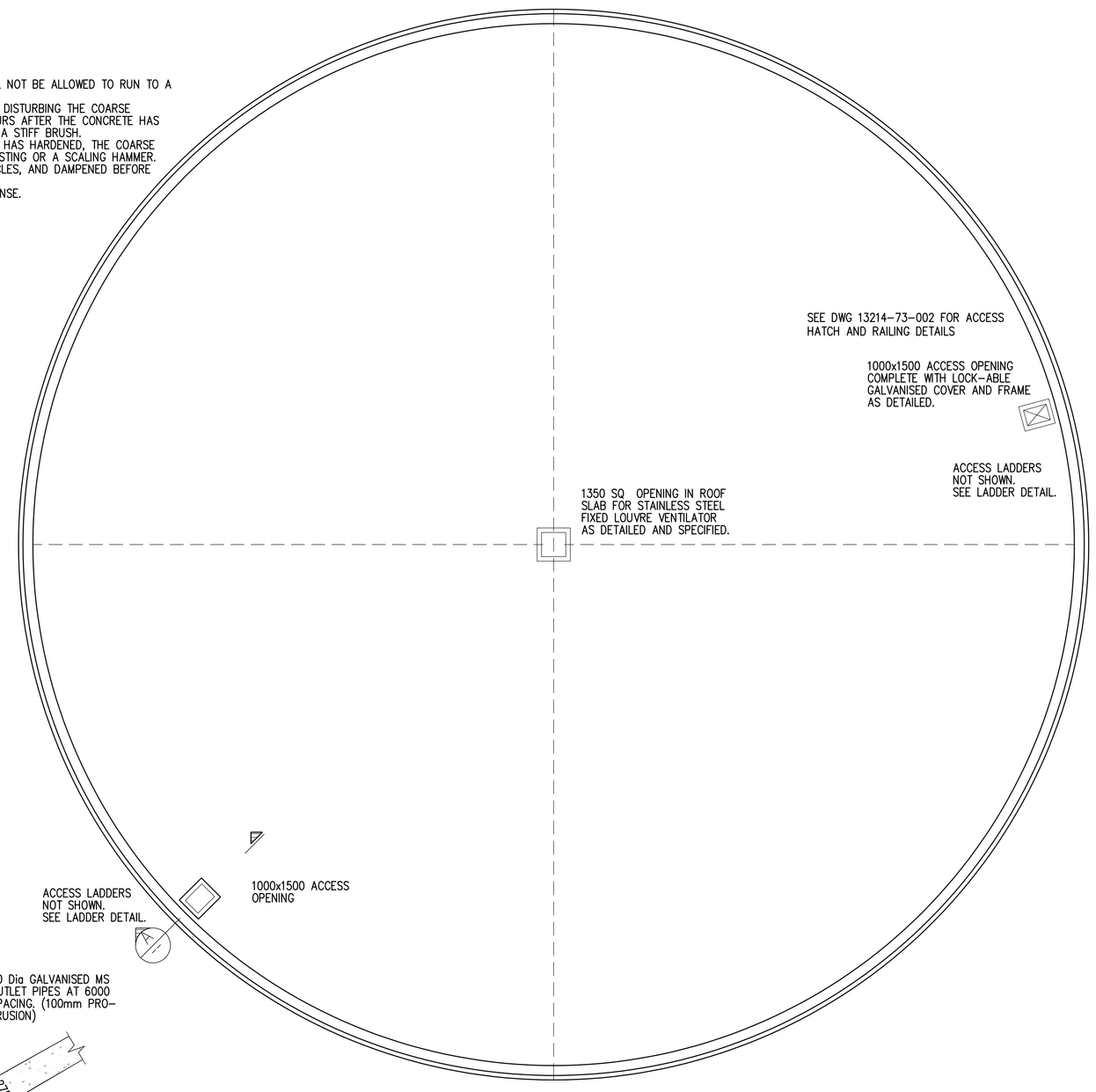


NOTE:

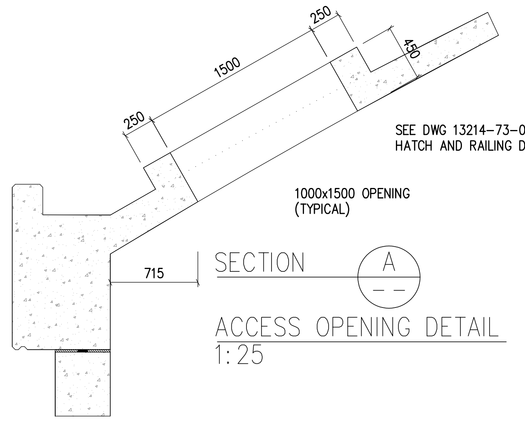
1. ONLY HORIZONTAL JOINTS WILL BE PERMITTED IN THE RESERVOIR WALLS.
2. VERTICAL SPACING OF CONSTRUCTION JOINTS MUST BE SUCH THAT EACH LIFT CAN BE POURED WITHOUT INTERRUPTION DURING NORMAL WORKING HOURS.
3. CONCRETING MUST BE CARRIED OUT FROM A POINT ON THE CIRCUMFERENCE OF THE WALL SIMULTANEOUSLY IN BOTH DIRECTIONS SO AS TO CLOSE THE GAP WITH FRESH CONCRETE.

CONSTRUCTION JOINT
1:25

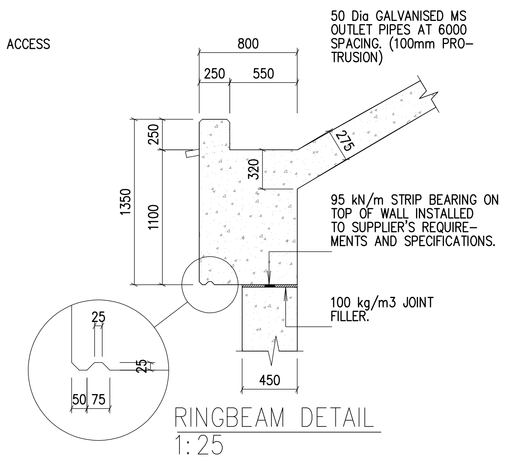
HORIZONTAL CONSTRUCTION JOINTS SHALL BE EQUALLY SPACED UNLESS OTHERWISE APPROVED



PLAN ON ROOF
1:150

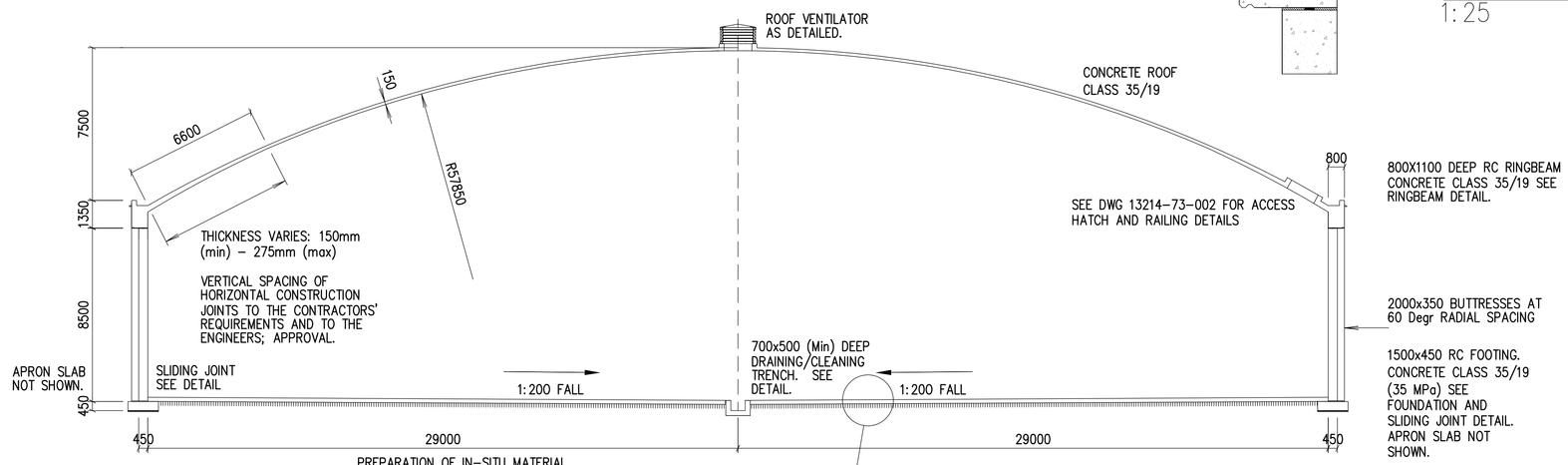


ACCESS OPENING DETAIL
1:25

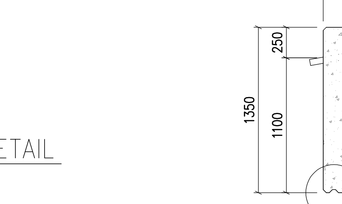


RINGBEAM DETAIL
1:25

ROOF VENTILATOR DETAIL
1:20

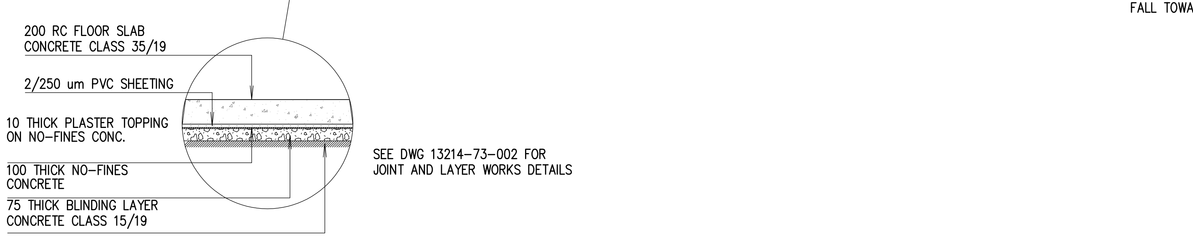


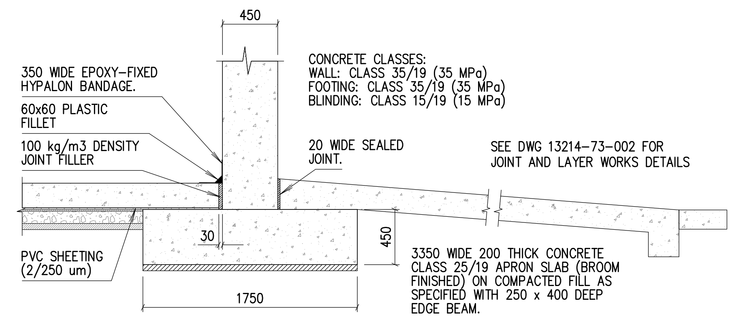
TYPICAL SECTION
1:150



DRAINING/CLEANING TRENCH
1:25

NOTE:
TRENCH FLOOR TO HAVE 1:200 FALL TOWARDS OUTLET PIPE.





CONVENTIONAL RC WALL FOUNDATION DETAIL
1:25

GENERAL NOTES AND SPECIFICATIONS.

(i) ALL DIMENSIONS AND LEVELS MUST BE CHECKED AND CONFIRMED ON SITE.
(ii) ALL EXPOSED CONCRETE CORNERS TO HAVE A 25mm CHAMFER UNLESS OTHERWISE NOTED.
(iii) ALL EXCAVATIONS, REINFORCEMENT AND FORM WORK MUST BE INSPECTED AND APPROVED IN WRITING BEFORE ANY CONCRETE IS PLACED.
(iv) THE METHOD OF CURING THE CONCRETE SHALL BE APPROVED BY THE ENGINEER.
(v) REBAR PLACING LEGEND:
EF EACH FACE
T1 HIGHEST OF TOP LAYERS
T2 SECOND HIGHEST OF TOP LAYERS
B1 LOWEST OF BOTTOM LAYERS
B2 SECOND LOWEST OF BOTTOM LAYERS
CRS CENTRE TO CENTRE PLACING OF BARS
ALT ALTERNATE
IF INSIDE FACE
OF OUTSIDE FACE
NF NEAR FACE
FF FAR FACE
EW EACH WAY
ABR ALTERNATE BARS REVERSED
(vi) COVER TO REINFORCEMENT FOUNDATIONS: 50mm
COLUMN, SLABS, BEAMS: 40mm
(vii) CONCRETE CLASSES:
BLINDING LAYER:
CLASS 15/20 (15 MPa)
STRUCTURAL CONCRETE:
CLASS 35/19 (35 MPa)

DEPARTMENT	APPROVED	DESIGNATION	DATE

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
GENERAL ARRANGEMENT & DETAILS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-04-001

FILE No
T02

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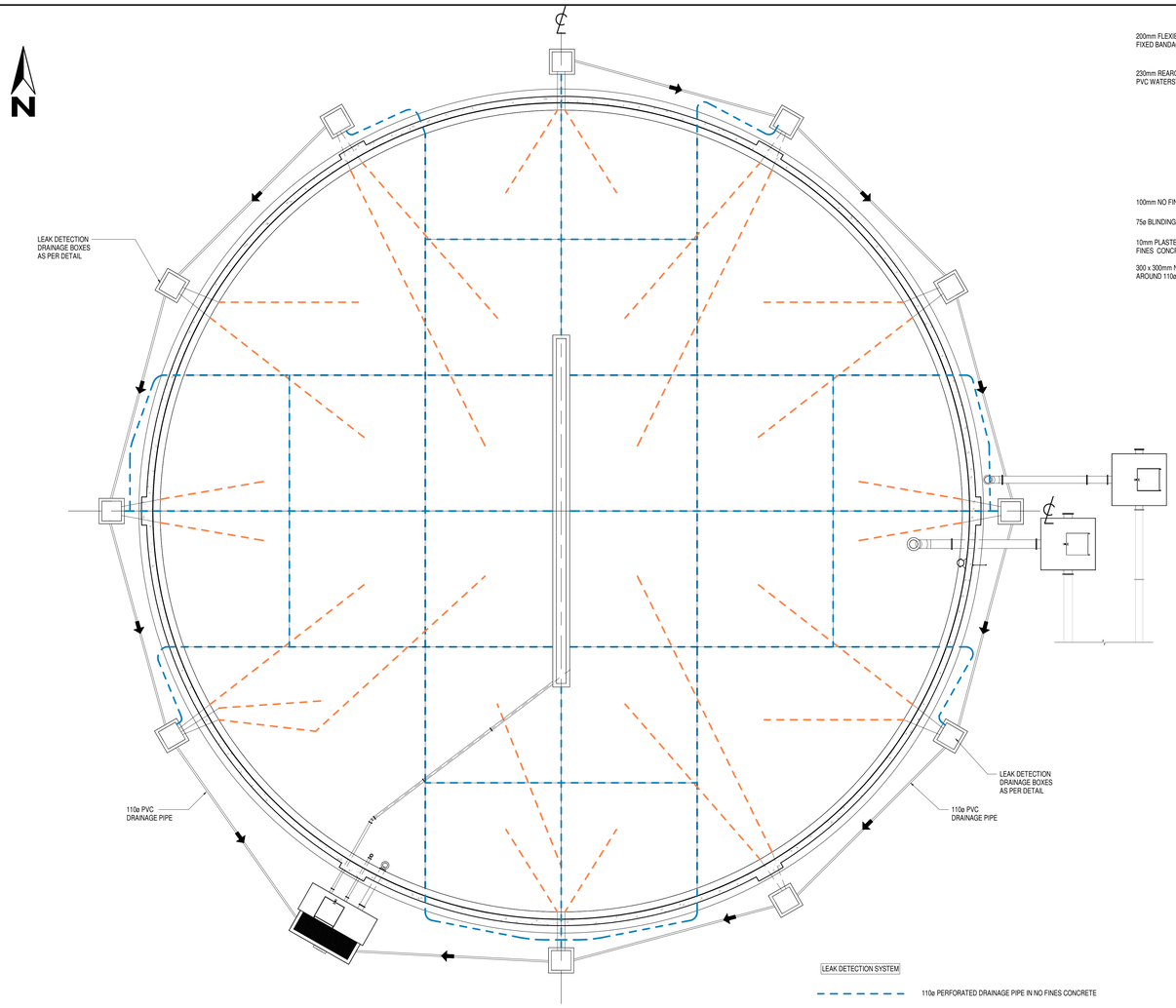
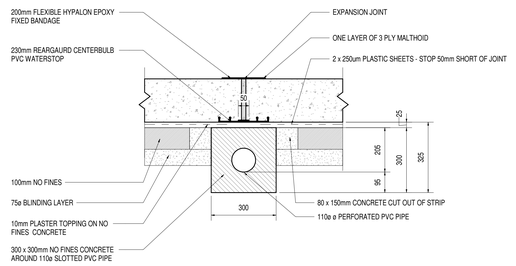


LEAK DETECTION LAYOUT
1 : 150



LEAK DETECTION UNDER EXPANSION JOINTS
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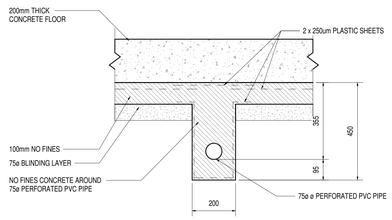

LEAK DETECTION UNDER SLAB
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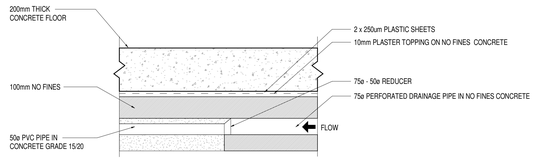

CONNECTION BETWEEN 50ø & 75ø PERFORATED DRAINAGE PIPE
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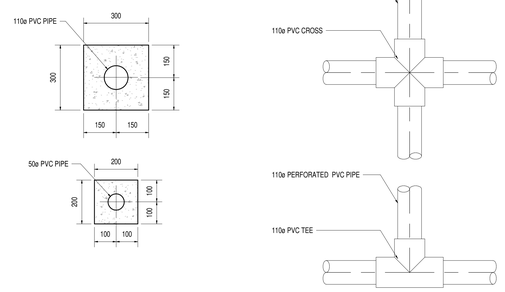
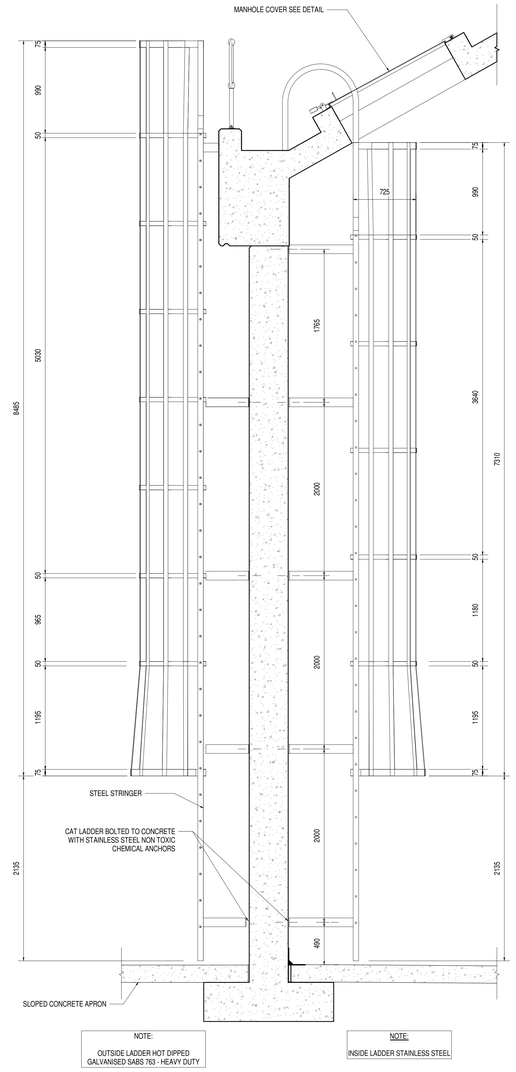




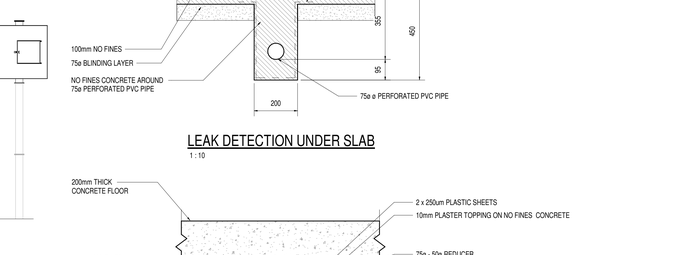
TYPICAL CAT LADDER DETAIL
1 : 25

TYPICAL VIEW THROUGH DRAINAGE BOX
1 : 20

PLAN OF LEAK DETECTION BOX
1 : 20

TYPICAL CONCRETE ENCASEMENT SECTIONS
1 : 10

TYPICAL CROSS & T CONNECTION
1 : 10



ACCESS HATCH DETAIL
1 : 10

PLAN ON ACCESS HATCH
1 : 10

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
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DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
LEAK DETECTION, CAT LADDERS & ACCESS HATCH DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	NG	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	SM	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-002

FILE NUMBER

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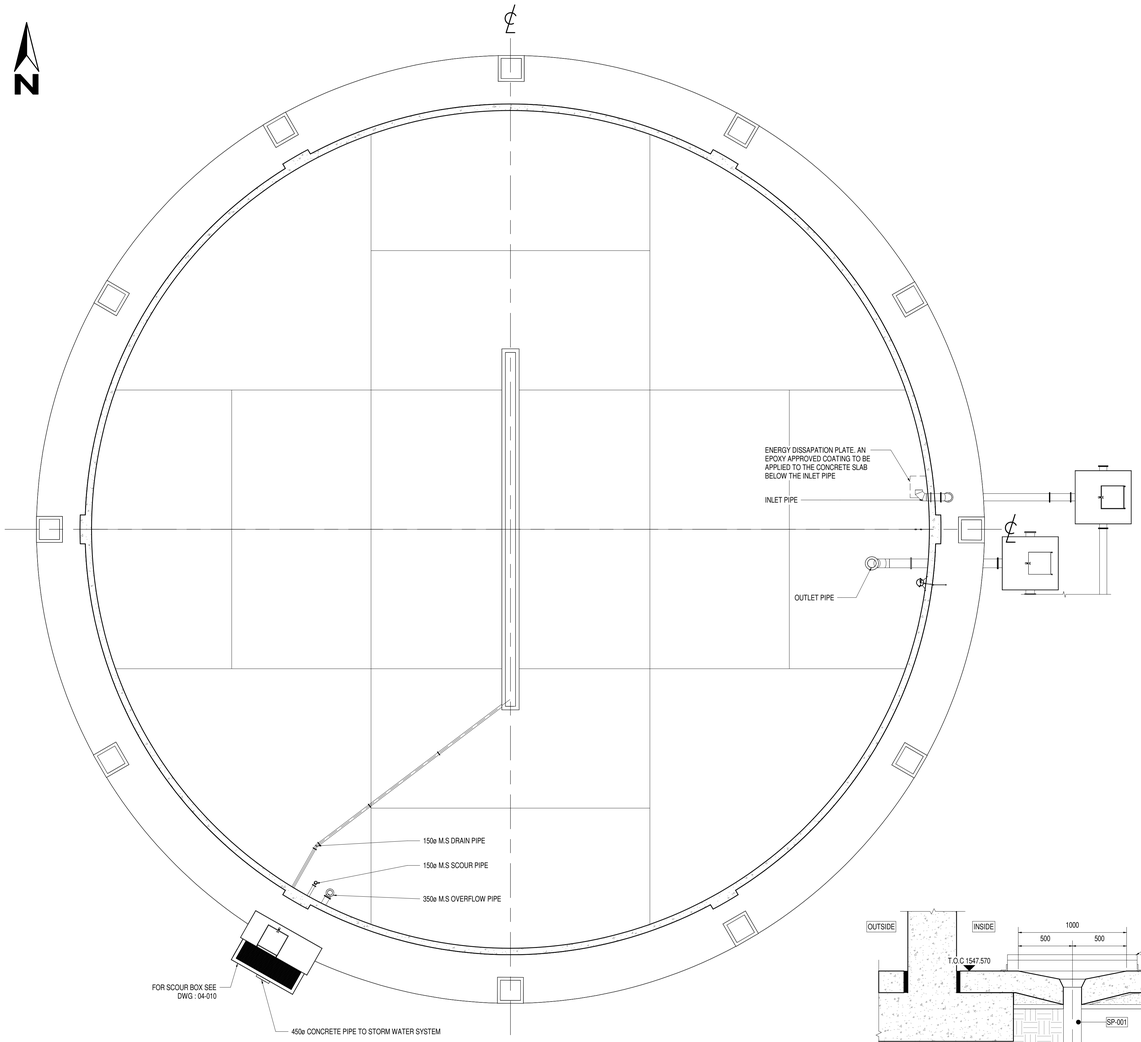


PIPEWORK LAYOUT
1 : 150

PIPE CORROSION SPECIFICATIONS.

COATED MILD STEEL PIPES:

MATERIAL TO BE USED SHALL BE A TWO-COMPONENT, HIGH SOLIDS, SOLVENT-BASED, EPOXY COATING SUITABLE FOR PERMANENT IMMERSION IN WATER.

- PREPARE INTERNAL & EXTERNAL SURFACES AS SPECIFIED IN CLAUSE 10.5.1 OR 10.5.2 AS APPROPRIATE, TO ACHIEVE A BLAST CLEANED SURFACE OF CLEANLINESS SA3, A PROFILE OF 50-100 MICRONS, DUST QUANTITY RATING OF NO GREATER THAN 2 (FIGURE 1 - ISO 8502-3:1992) AND SOLUBLE SALTS NOT MORE THAN 100MG/M2 (WEBER RIELLY TEST).
- MIX BASE AND CURING AGENT INDIVIDUALLY UNTIL HOMOGENEOUS, THEN MIX TOGETHER IN THE PROPORTIONS SUPPLIED OR SPECIFIED BY THE MANUFACTURER AND AGAIN MIX UNTIL HOMOGENEOUS. SPLIT PACKS, I.E. THE USE OF PART CONTAINERS IS NOT PERMITTED.
- APPLY TWO OR THREE COATS OF THE MIXED MATERIAL AS REQUIRED TO GIVE A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 300 MICRONS NOR GREATER THAN 450 MICRONS.

  THE COATING SHALL BE APPLIED AT THE CORRECT SPRAYING VISCOSITY AND BY THE EQUIPMENT RECOMMENDED BY THE MANUFACTURER TO MINIMISE THE POROSITY OF THE APPLIED FILM.

  EACH COAT SHALL DIFFER IN COLOUR FROM THE PRECEDING COAT.

  EACH COAT SHALL BE APPLIED TO A THICKNESS NOT LESS THAN THE MINIMUM NOR GREATER THAN THE MAXIMUM RECOMMENDED BY THE MANUFACTURER.

  THE TIME INTERVAL BETWEEN COATS SHALL BE NOT LESS THAN THE MINIMUM NOR GREATER THAN THE MAXIMUM RECOMMENDED BY THE MANUFACTURER FOR THE PREVAILING AMBIENT TEMPERATURES THE OVERCOAT TIME BE EXCEEDED, THE SURFACE SHALL BE PREPARED AS SPECIFIED UNDER REPAIR BEFORE OVER-COATING.

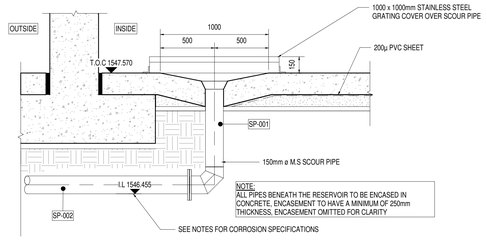
STAINLESS STEEL PIPES

GRADE AND WELDING TECHNIQUES

- THE GRADE OF STAINLESS STEEL TO BE USED SHALL BE AS SPECIFIED IN THE APPROPRIATE SECTION OF THE SPECIFICATION OR DRAWINGS. WHERE WELDING IS NECESSARY, THE APPROPRIATE "L" GRADE (LOW CARBON CONTENT) SHALL BE USED. PLATE USED IN FABRICATION SHALL BE SUPPLIED AS NO.1 FINISH IN ACCORDANCE WITH BS EN 10151
- WELDING PROCEDURES SHALL BE ONLY THOSE RECOMMENDED BY THE STAINLESS-STEEL MANUFACTURER OR BY THE SOUTH AFRICAN INSTITUTE OF WELDING. ONLY WELDERS CODED TO ASME IX, 2004 SHALL BE EMPLOYED WELDS SHALL BE SMOOTH AND FREE FROM BLOWHOLES, UNDERCUTS, SHARP PROJECTIONS AND SIMILAR VISUAL DEFECTS
- FABRICATION OF STAINLESS-STEEL COMPONENTS SHALL BE CARRIED OUT IN CLEAN WORKPLACES WHERE THERE IS NO CONTAMINATION BY MILD STEEL. GRINDING AND POLISHING EQUIPMENT SHALL BE DEDICATED AND SHALL NOT BE CONTAMINATED WITH IRON OR MILD STEEL
- STAINLESS STEEL SHALL BE SUITABLY HANDLED TO AVOID SCRATCHING THE SURFACE

PICKLING AND PASSIVATION

- CUT EDGES, WELDS AND HEAT AFFECTED SURFACES SHALL BE PICKLED AND PASSIVATED TO REMOVE ALL DISCOLOURATION
- PROPRIETARY PICKLING AND PASSIVATING PASTES SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN NOT TO EXCEED THE MAXIMUM CONTACT TIME RECOMMENDED. NO HEAT DISCOLOURATION SHALL REMAIN AFTER COMPLETION OF PICKLING AND PASSIVATING AFTER PASSIVATION, SURFACES SHALL BE VERY THOROUGHLY WASHED WITH CLEAN POTABLE WATER TO REMOVE ALL TRACES OF ACID.
- THE SURFACE SHALL BE ALLOWED TO DRY, THEN POLISHED WERE NECESSARY, USING POLISHING COMPOUNDS RECOMMENDED BY THE STAINLESS-STEEL MANUFACTURERS OR THE SOUTH AFRICAN STAINLESS STEEL DEVELOPMENT ASSOCIATION



SCOUR PIPE DETAIL
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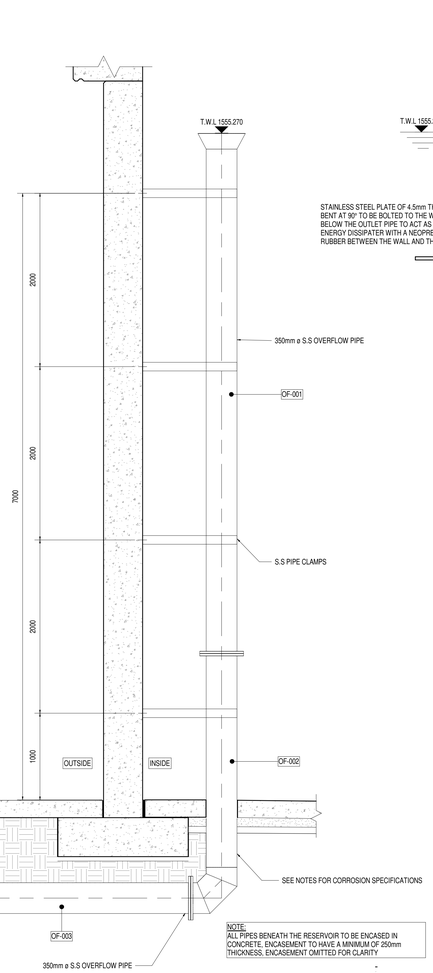

OVERFLOW PIPING DETAILS
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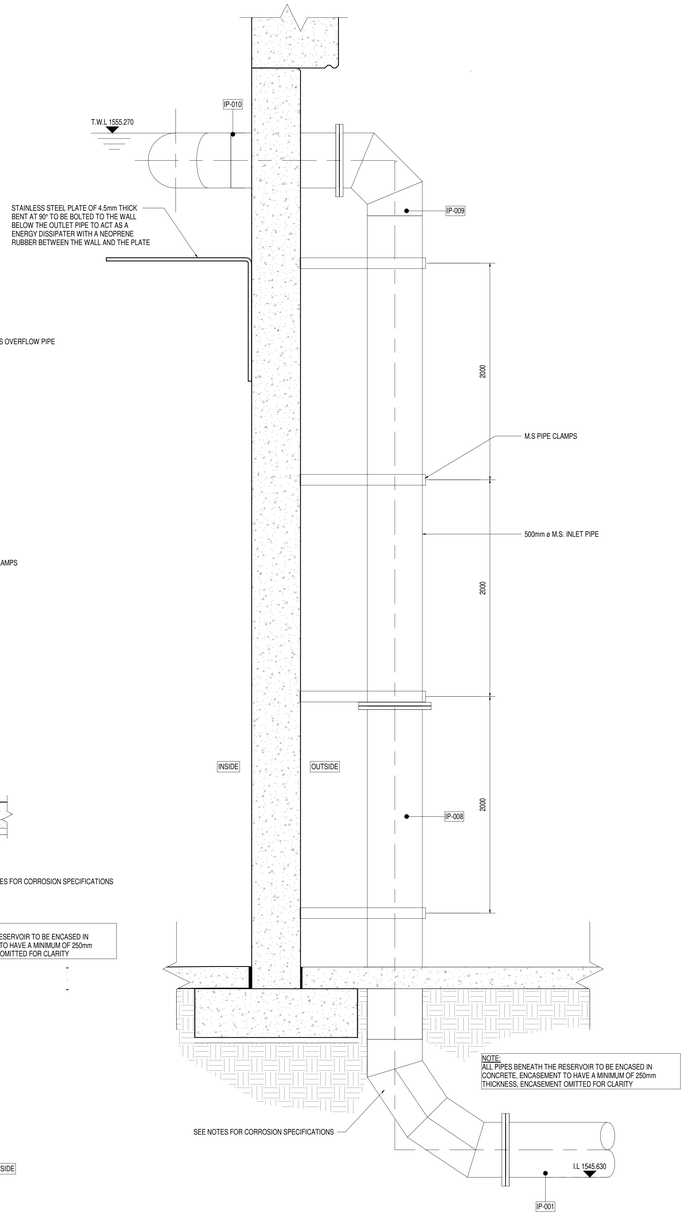
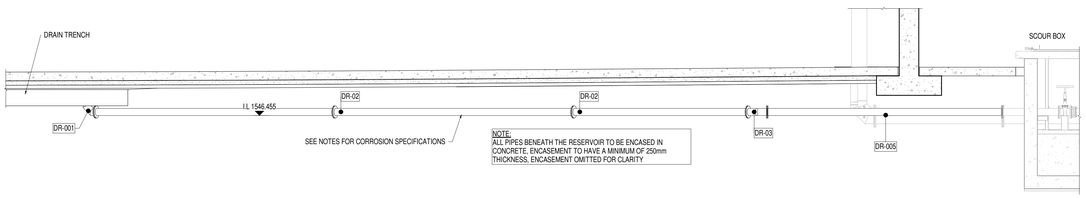


INLET PIPE DETAIL
1 : 20



DRAIN PIPING DETAIL
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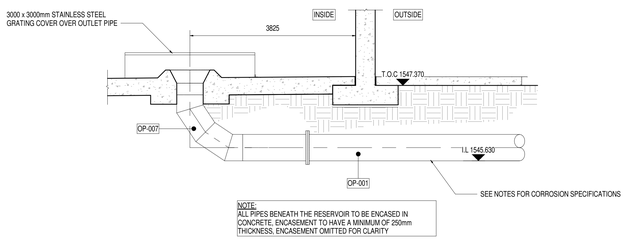

OUTLET PIPE DETAIL
1 : 50

DEPARTMENT	APPROVED	DESIGNATION	DATE

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
PIPING DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	NG	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	SM	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-003

FILE NUMBER

T 0 2

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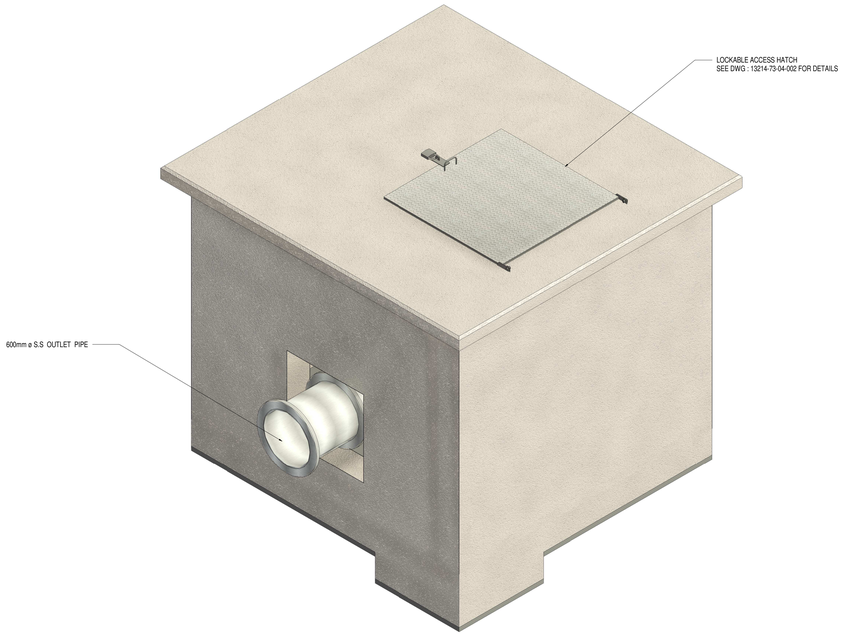
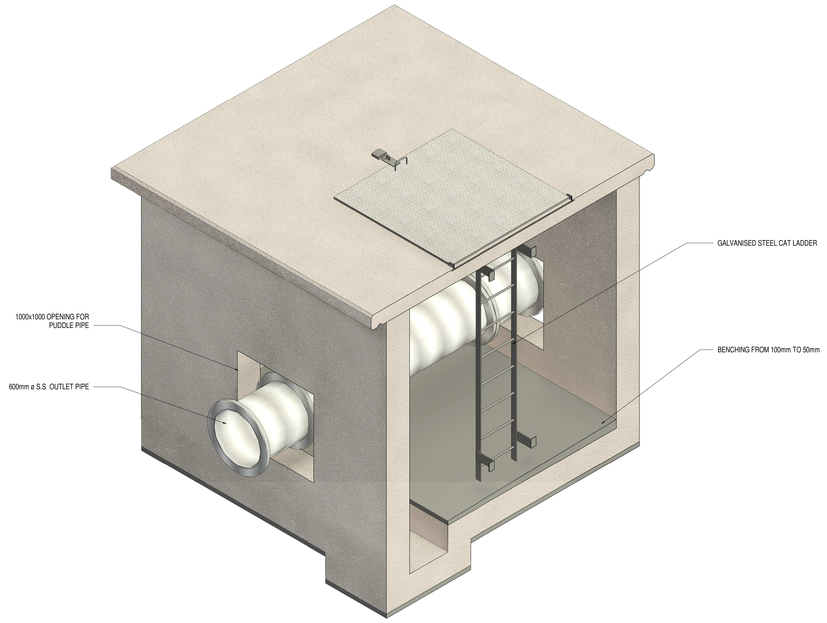
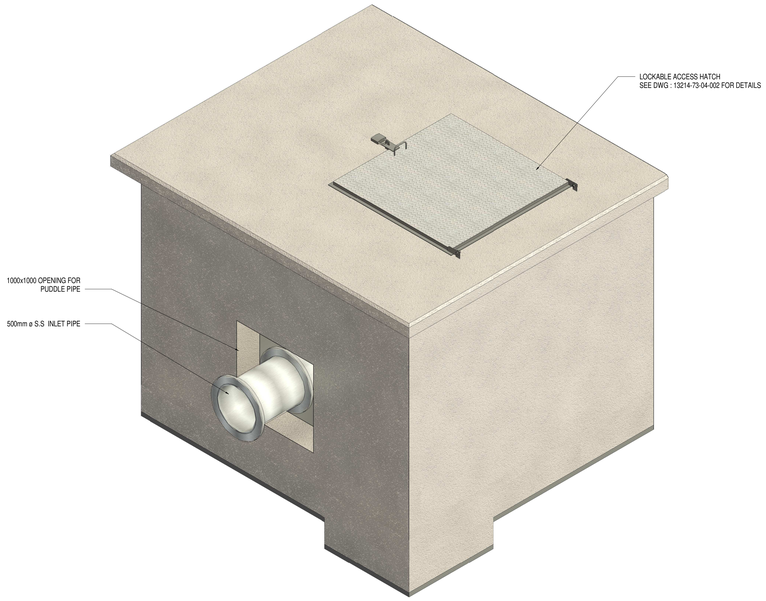


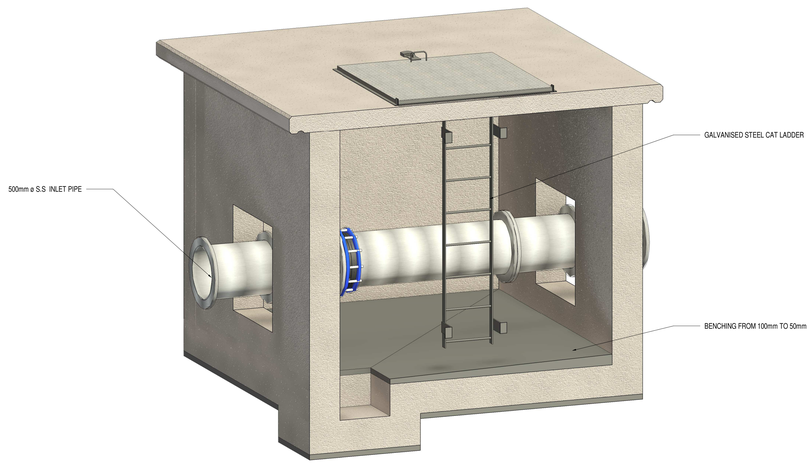
NORTH WESTERN 3D VIEW OUTLET FLOWMETER CHAMBER



OUTLET FLOW METER CHAMBER NORTH WESTERN 3D SECTION



NORTH WESTERN 3D VIEW INLET FLOWMETER CHAMBER



INLET FLOW METER CHAMBER SOUTH EASTERN 3D SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
FLOWMETER CHAMBERS
3D VIEWS

DESIGN MANAGER

DATE

SCALE: N.T.S

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-004

FILE NUMBER: T01

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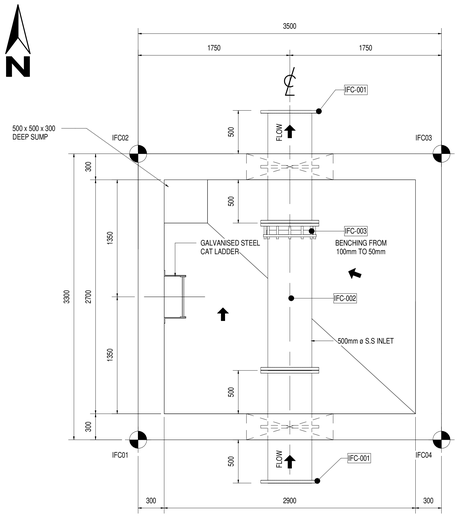
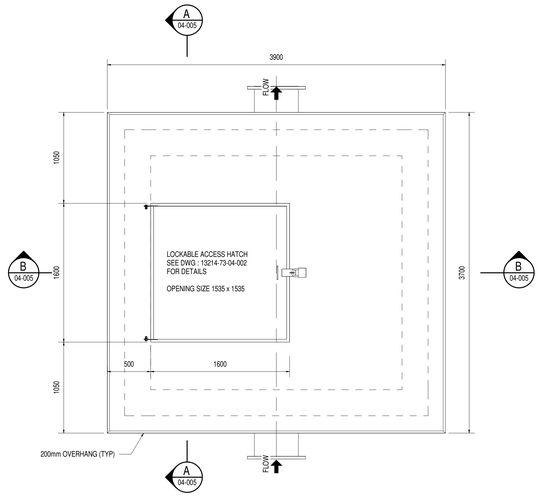


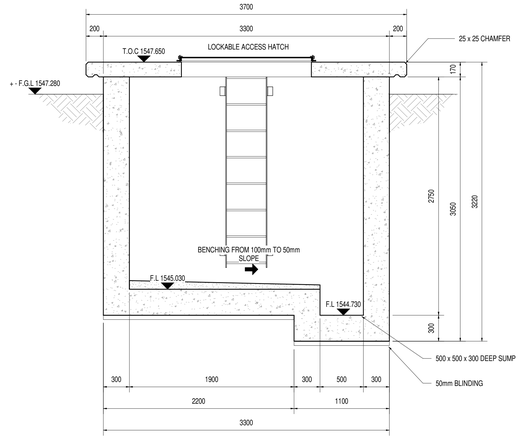
PLAN OF INLET FLOW METER CHAMBER

1 : 25



LAYOUT OF INLET FLOW METER CHAMBER

1 : 25



SECTION A

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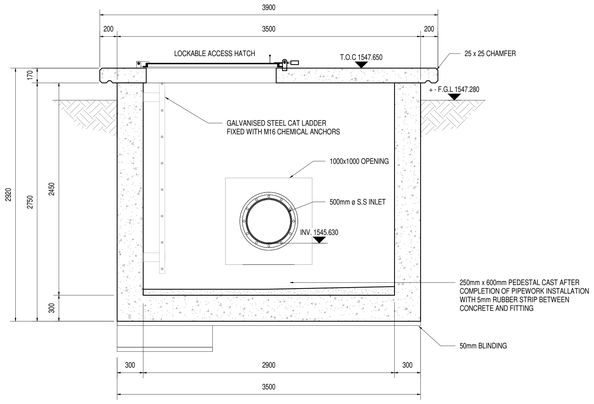

SECTION B

1 : 25 — 04-005

PLAN OF OUTLET FLOW METER CHAMBER

1 : 25

LAYOUT OF OUTLET FLOW METER CHAMBER

1 : 25

SECTION C

1 : 25 — 04-005

SECTION D

1 : 25 — 04-005

DETAIL 1

1 : 5 — 04-005

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML CARLSWALD RESERVOIR

FLOWMETER CHAMBERS

LAYOUT, SECTIONS & DETAILS

DESIGN MANAGER

DATE

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JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-005

FILE NUMBER

DRAWING NUMBER: T 0 1

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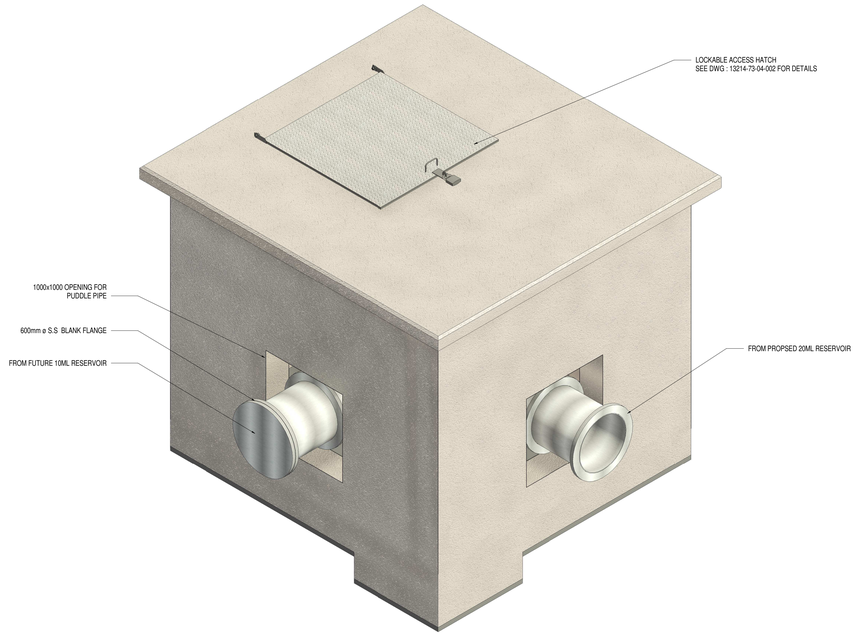
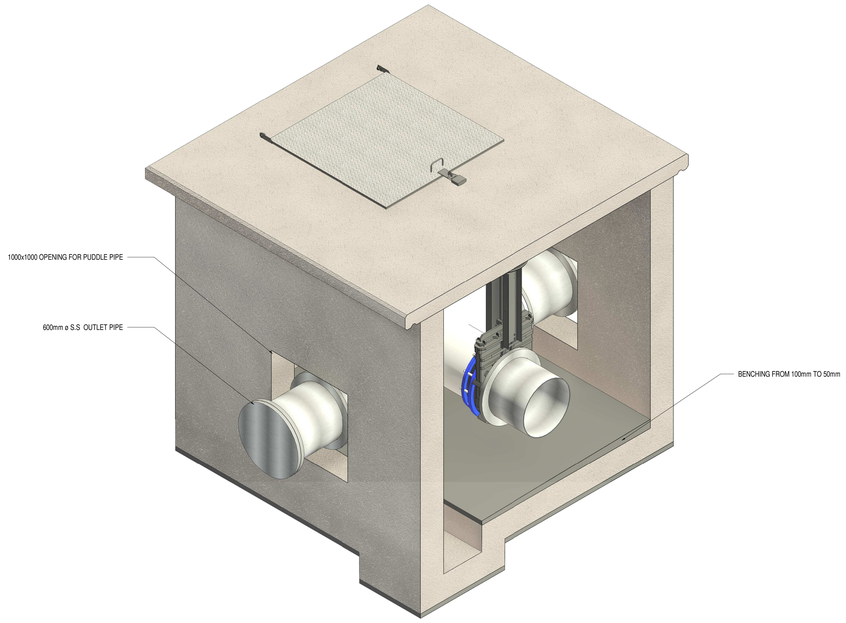
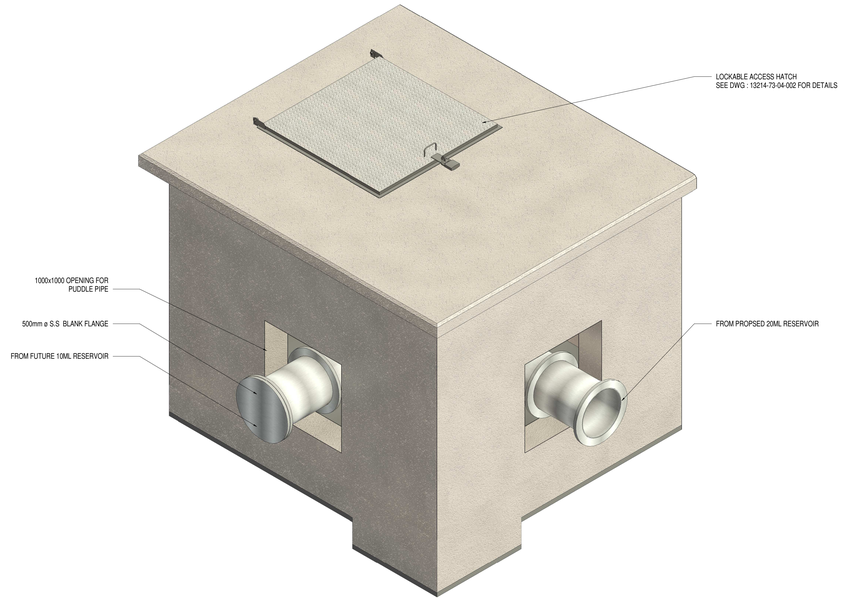


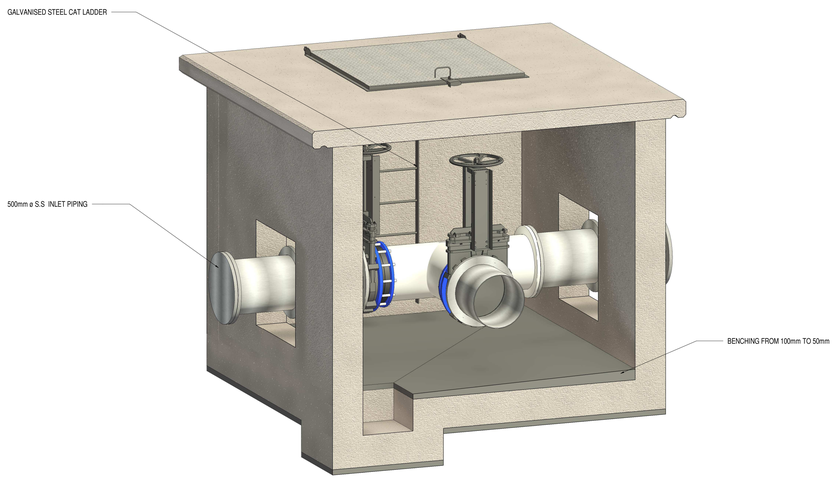
NORTH WESTERN 3D VIEW OUTLET VALVE CHAMBER



OUTLET VALVE CHAMBER NORTH WESTERN 3D SECTION



NORTH WESTERN 3D VIEW INLET VALVE CHAMBER



INLET VALVE CHAMBER SOUTH EASTERN 3D SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

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Pr. Eng. No.	860169
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
VALVE CHAMBERS
3D VIEWS

DESIGN MANAGER

DATE

SCALE: N.T.S

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-04-006

FILE NUMBER
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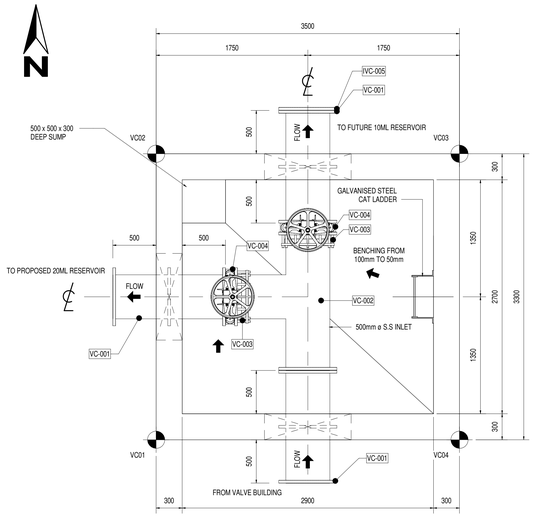

PLAN OF INLET VALVE CHAMBER

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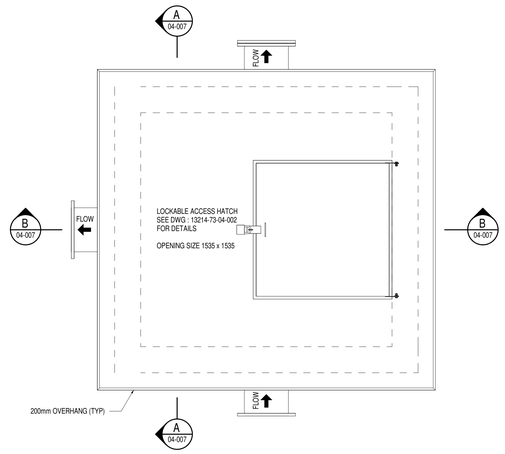
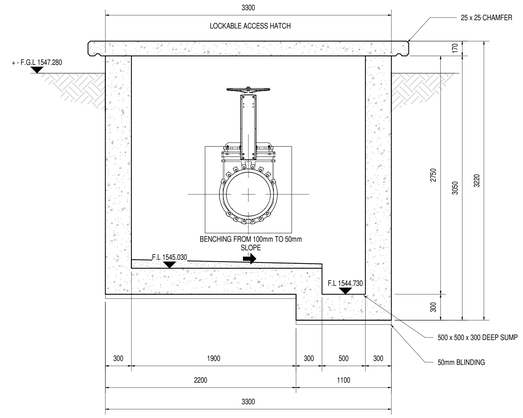


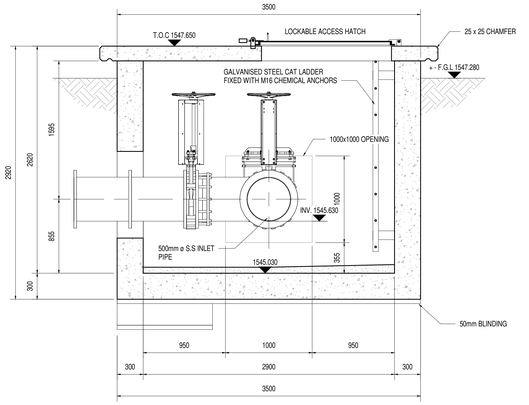
LAYOUT OF INLET VALVE CHAMBER

1 : 25



SECTION A

1 : 25



SECTION B

1 : 25

PLAN OF OUTLET VALVE CHAMBER

1 : 25

LAYOUT OF OUTLET VALVE CHAMBER

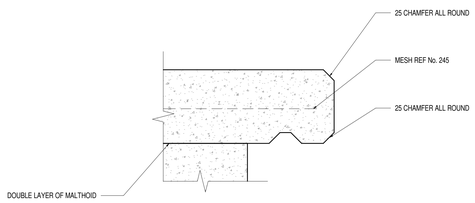
1 : 25

SECTION C

1 : 25

SECTION D

1 : 25



DETAIL 1

1 : 5

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML CARLSWALD RESERVOIR

VALVE CHAMBERS

LAYOUT, SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-007

FILE NUMBER

DRAWING NUMBER: T 0 1

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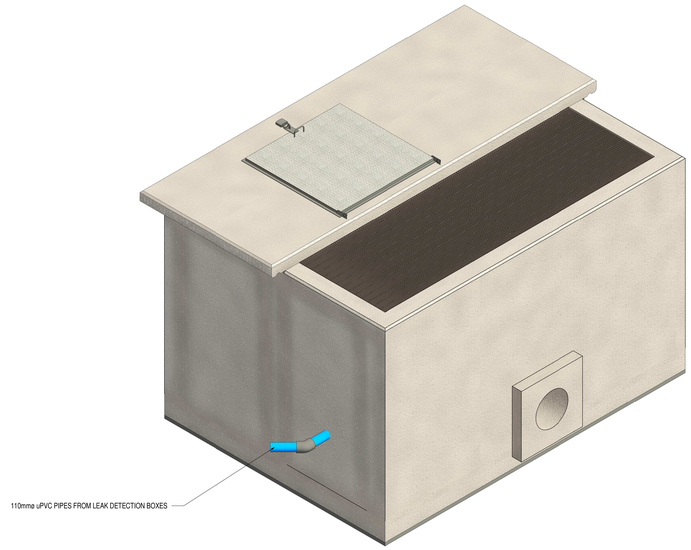
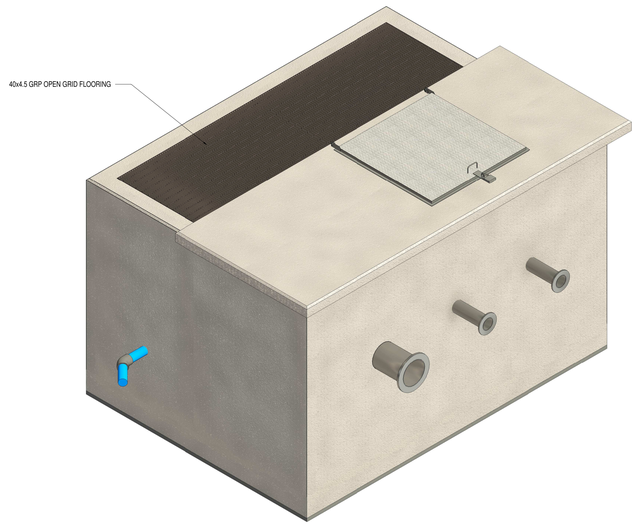
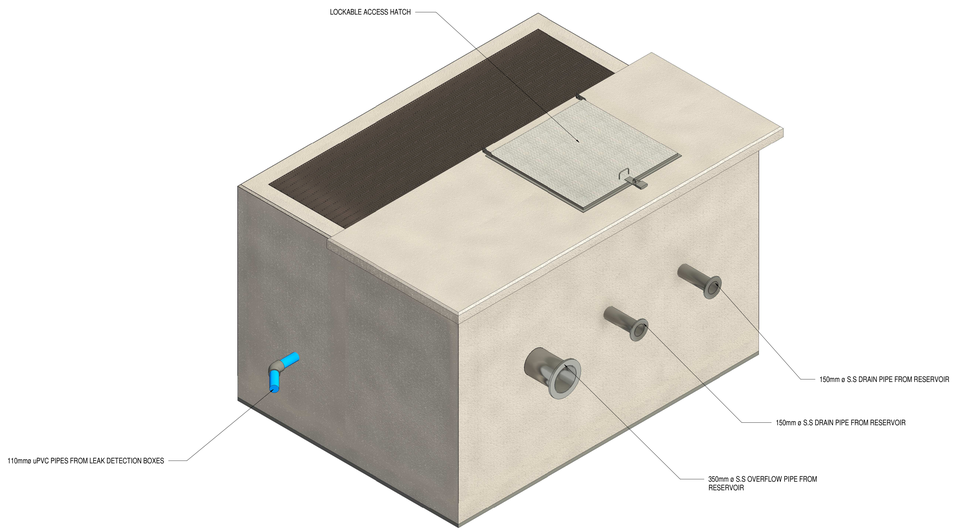


SCOUR BOX SOUTH WESTERN 3D VIEW



SCOUR BOX SOUTH EASTERN 3D VIEW



SCOUR BOX NORTH EASTERN 3D VIEW

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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APPROVED	I. SWART
Pr. Eng. No.	860169
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
SCOUR BOX
3D VIEWS

DESIGN MANAGER

DATE

SCALE

N.T.S

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G.	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-04-010

FILE NUMBER

T 0 1

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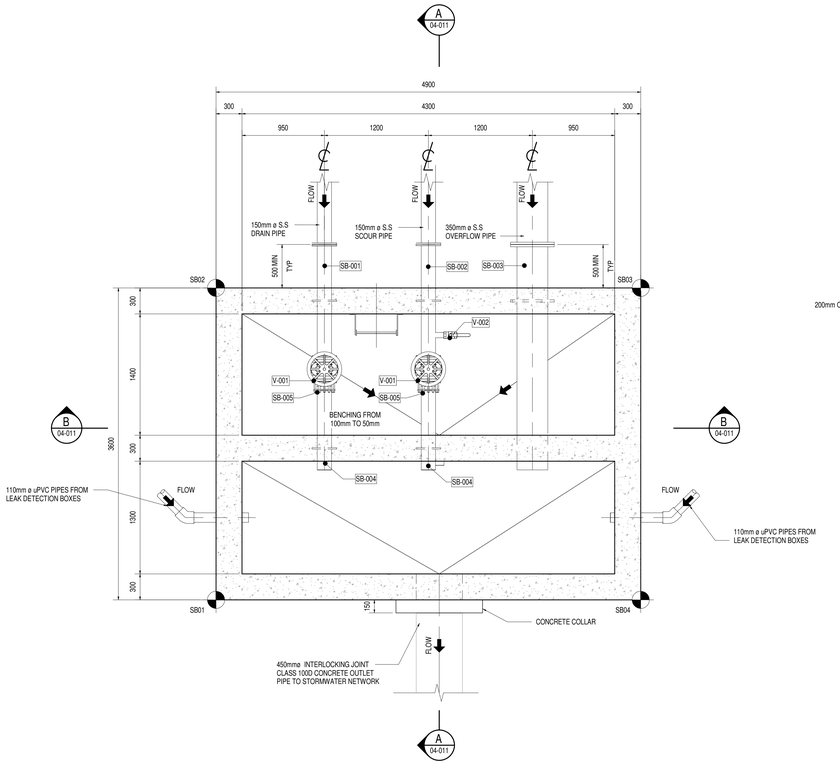
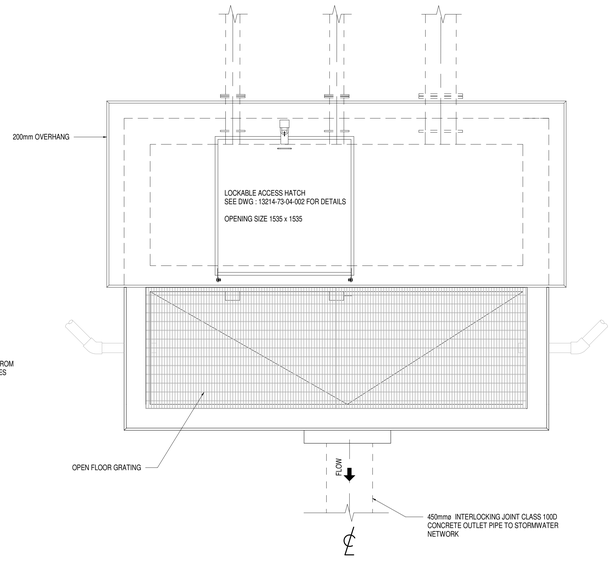


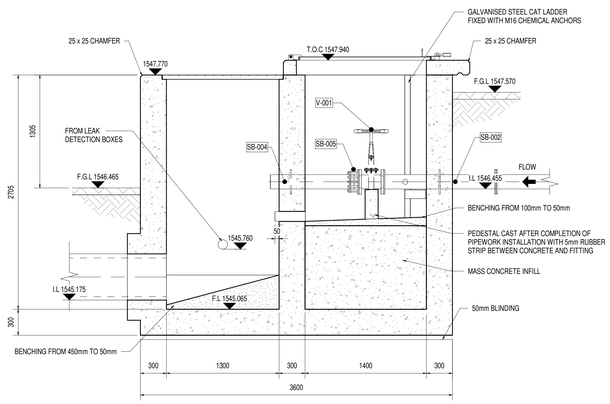
PLAN VIEW ON SCOUR BOX

1 : 25

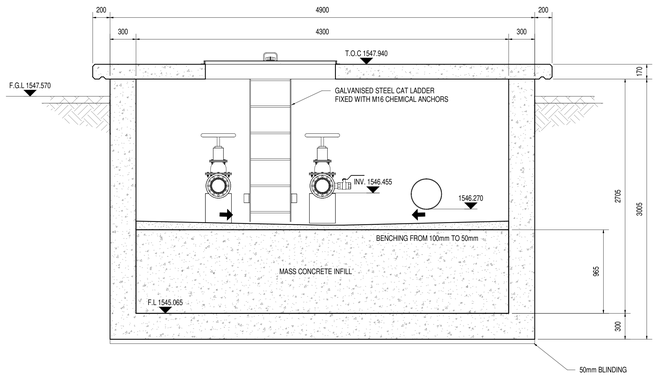


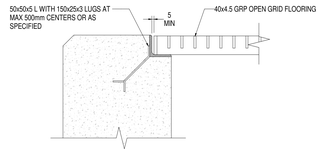
SCOUR BOX LAYOUT

1 : 25



SECTION A
1 : 25
A
04-011





TYPICAL DETAIL OF OPEN GRID FLOORING

SECTION B
1 : 25
B
04-011

DEPARTMENT	APPROVED	DESIGNATION	DATE

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APPROVED	I. SWART		
Pr. Eng. No.	860169		
DATE	18.08.2023		

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
SCOUR BOX
LAYOUT & SECTIONS

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-04-011

FILE NUMBER

T 0 1

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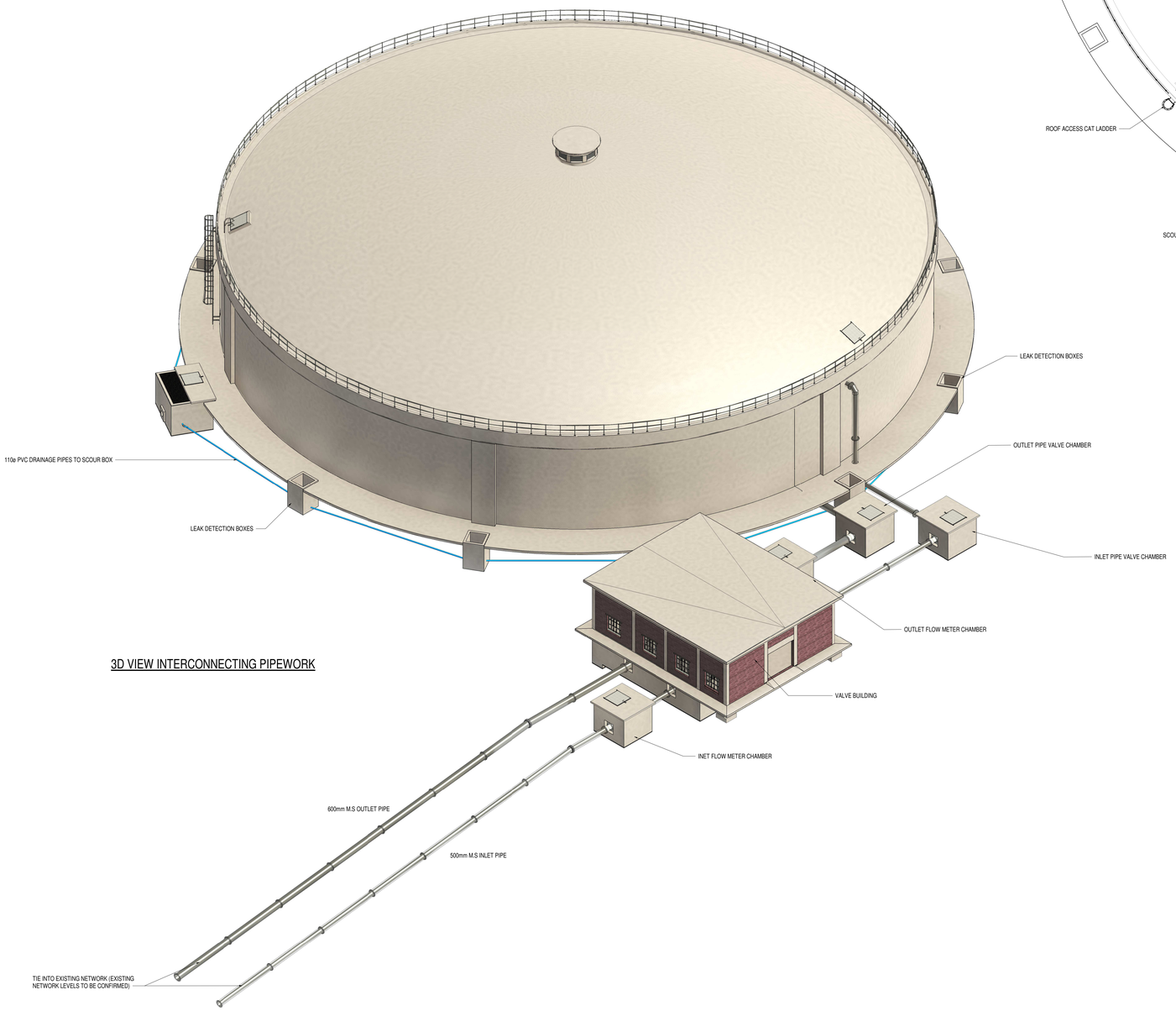
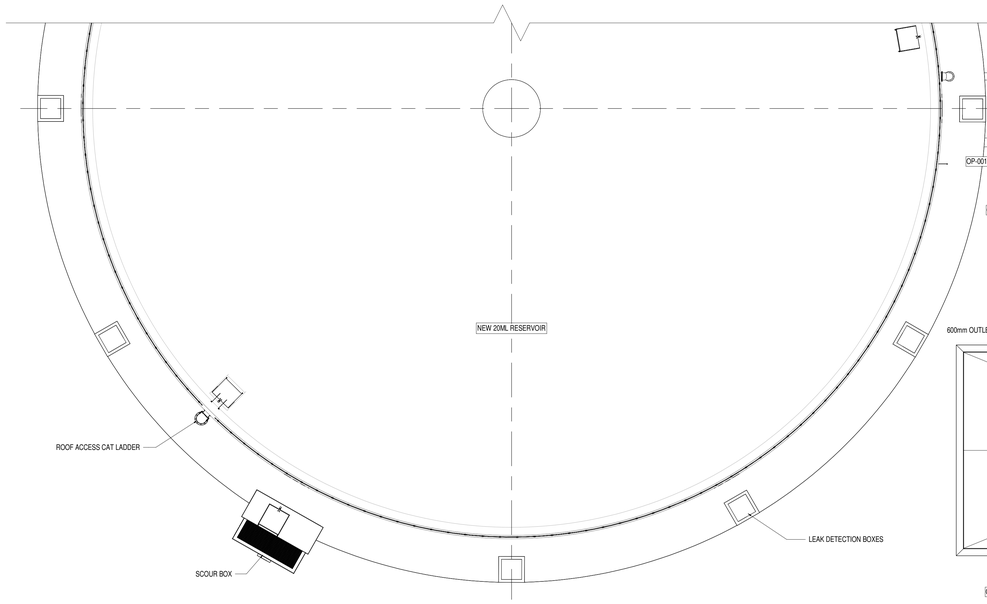
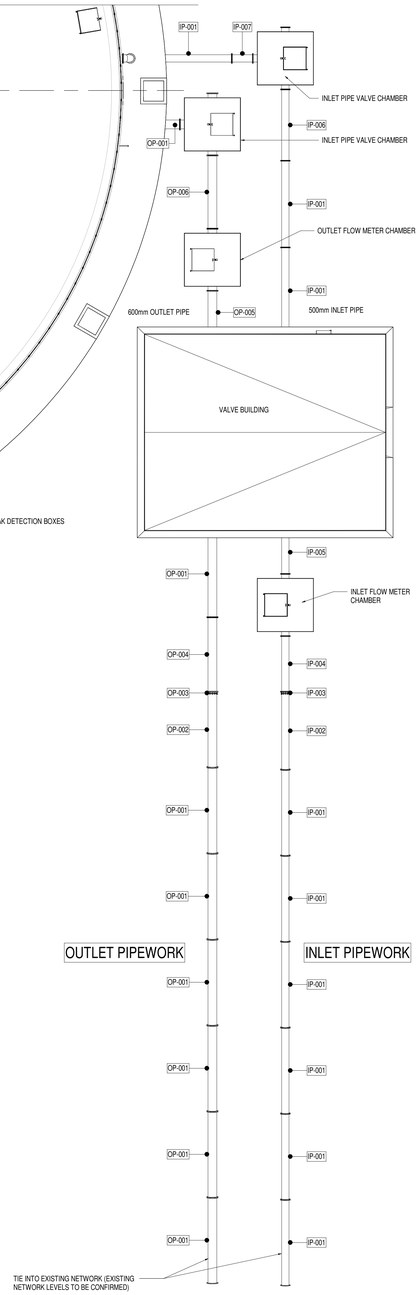


3D VIEW INTERCONNECTING PIPEWORK



INTERCONNECTING PIPING LAYOUT
1 : 150



DEPARTMENT	APPROVED	DESIGNATION	DATE

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GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML CARLSWALD RESERVOIR RESERVOIR INTERCONNECTING PIPING LAYOUT

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	NG	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	SM	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-04-012

FILE NUMBER: T02

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OVERFLOW PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OF-001	350	SS 304 3mm w.t	FLANGED BELLMOUTH, O.A. 6000mm, BELLMOUTH 550mm DIA.	550, 6000	1		
OF-002	350	SS 304 3mm w.t	FLANGED 90° SHORT RADIUS BEND. ONE END 360mm C. to F. OTHER END 2635mm C. to F.	2635, 360	1		
OF-003	350	SS 304 3mm w.t	FLANGED PIPE, O.A. 2950mm	2950	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SP-001	150	SS 304 3mm w.t	90° SHORT RADIUS BEND ONE END 230mm C. TO F. AND FLANGED, OTHER END 960mm C. to F. WITH BELLMOUTH OD OF 245mm	960, 230	1		
SP-002	150	SS 304 3mm w.t	FLANGED PIPE O.A.3200mm	3200	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

DRAIN PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
DR-001	150	SS 304 3mm w.t	90° SHORT RADIUS BEND ONE END FLANGED 230mm C. to F. OTHER END PLAIN 395mm C. to F. WITH P.F. 100mm FROM PLAIN END	100, 395, 230	1		
DR-002	150	SS 304 3mm w.t	FLANGED PIPE O.A 6000mm	6000	2		
DR-003	150	SS 304 3mm w.t	FLANGED PIPE O.A 4380mm	4380	1		
DR-004	150	SS 304 3mm w.t	FLANGED 24° MEDIUM RADIUS BEND 230mm C. to F	230, 230, 24°	1		
DR-005	150	SS 304 3mm w.t	FLANGED PIPE O.A.5430mm	5430	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR BOX

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SB-001	150	SS 304 3mm w.t	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	1		
SB-002	150	SS 304 3mm w.t	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END AND 50mm BOSS 250mm FROM OTHER END	650, 250, 1300	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR BOX

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SB-003	350	SS 304 3mm w.t	PUDDLE PIPE 0.A 2600mm. ONE END FLANGED WITH P.F. 650mm FROM FLANGED END.	650, 2600	1		
SB-004	150	SS 304 3mm w.t	PUDDLE PIPE 0.A 1020mm. BOTH ENDS PLAIN WITH P.F.D 250mm FROM END.	250, 1020	2		
SB-005	150	COATED M.S	FLANGE ADAPTOR		2		
V-001	150	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS		2		
V-002	50	SS 304	BALL VALVE		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IFC-001	500	SS 304 3mm w.t	PUDDLE PIPE O.A. 1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
~~IFC-001~~	~~500~~	SS 304 3mm w.t	FLANGED PIPE O.A. 2100mm	2100	1		
IFC-003	500	COATED M.S	FLANGE ADAPTOR		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OFC-001	500	SS 304 3mm w.t	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	2		
OFC-002	500	SS 304 3mm w.t	PIPE O.A.2100mm, ONE END FLANGED OTHER END PLAIN	2100	1		
OFC-003	500	COATED M.S	FLANGE ADAPTOR		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-001	600	SS 304 5mm w.t	PUDDLE PIPE O.A.900mm BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-002	600	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1265mm C to F. MAIN PIPE 320mm C. to F. WITH 50mm BOSS 320mm FROM MAIN FLANGED END	1265, 45°, 90°, 45°, 320	1		
VB-003	600	COATED M.S.	STANDARD D.F 45° SHORT RADIUS BEND, 610mm C TO F.	610, 45°, 610	4		
VB-004	600	COATED M.S.	FLANGED PIPE O.A.730mm WITH 25mm BOSS 250mm FROM ONE END	730, 250	2		
VB-005	600	COATED M.S.	FLANGE ADAPTOR		2		
VB-006	600	COATED M.S.	UN-EQUAL TEE, ONE END FLANGED 610mm C.to F. OTHER END PLAIN 2790mm C. to F. WITH FLANGED ENDED BRANCH 610mm C. to F.WITH 25MM BOSS 250MM FROM PLAIN END	610, 250, 610, 2790, 3400	2		
VB-007	100 x 600	COATED M.S.	600□ BLANK FLANGE DRILLED FOR 100□ PIPE O.A.335mm WITH FLANGED END	100o FLANGE 600o FLANGE, 335	2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-008	600	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1265mm C to F. MAIN PIPE 320mm C. to F.	1265, 45°, 90°, 45°, 320	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-009	500	COATED M.S.	FLANGED PIPE O.A. 1940mm	1940	1		
VB-010	500	SS 304 4mm w.t.	D.F. PUDDLE PIPE O.A.1300mm. WITH P.F. 650mm FROM ONE END.	650, 1300	2		
VB-011	500	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1100mm C. to F. MAIN PIPE 300mm C. to F. WITH 50mm BOSS 300mm FROM FLANGED END.	1100, 45°, 90°, 45°, 300	1		
VB-012	500	COATED M.S.	D.F 45° SHORT RADIUS BEND 510mm C. TO F.	510, 45°, 510	4		
VB-013	500 x 300	COATED M.S.	FLANGED ECCENTRIC 500mm to 300mm REDUCER AND 300mm DIA. PIPE O.A.1110mm	1110	2		
VB-014	300	COATED M.S.	FLANGE ADAPTOR		4		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-015	300	COATED M.S	PIPE ONE END FLANGED O.A.800mm	800	2		
VB-016	300	COATED M.S	PIPE ONE END FLANGED 0.A. 2000mm.	2000	2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-017	500	COATED M.S	FLANGED 90° Y-PIECE, BRANCHES 1100mm C. to F. MAIN PIPE 300mm C. to F. WITH 50mm THREADED ENDED BOSS 300mm FROM FLANGED END AT THE BOTTOM AND A 100mm DIA. FLANGED ENDED BOSS AT THE TOP.	1100, 45°, 90°, 45°, 300	1		
V-005	600	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, GEARBOX OPERATED COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS, O.A. 600mm		2		
V-006	100	SS 304	FLANGED BALL VALVE		2		
V-007	100	SS 304	DOUBLE ORIFICE AIR RELEASE AND VACUUM BREAKER VALVE WITH ANTI SHOCK MECHANISM		2		
V-008	600	D.I	FLANGED TILITING DISC NON-RETURN VALVE		2		
V-009	300	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, GEARBOX OPERATED COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS, O.A. 380MM		4		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
V-010	300	D.I	HYDRAULIC CONTROL VALVE INCLUDING 20mm SS BI-LEVEL CONTROL PILOT INSIDE RESERVOIR WITH 15mm SS CONNECTION PIE		2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
V-011	300	COATED M.S	FLANGED BASKET STRAINER, O.A. 800mm		2		
V-012	50	COATED M.S	THREADED BALL VALVE		2		
V-013	50	SS 304	DOUBLE ORIFICE AIR RELEASE AND VACUUM BREAKER VALVE WITH ANTI SHOCK MECHANISM		1		
V-014	600	D.I	WAFER TYPE KNIFE GATE VALVE, PN 10, STAINLESS STEEL BLADE AND SPINDLE, O.A. 10mm		4		
V-015	300	D.I	WAFER TYPE KNIFE GATE VALVE, PN 10, STAINLESS STEEL BLADE AND SPINDLE, O.A. 10mm		4		
V-016	25	S.S	THREADED BALL VALVE		2		

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ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-001	500	COATED M.S	FLANGED PIPE O.A.6000mm	6000	9		
IP-002	500	COATED M.S	PIPE PME EMD FLANGED O.A.6000mm	6000	1		
IP-003	500	COATED M.S	FLANGE ADAPTOR		1		
IP-004	500	COATED M.S	FLANGED PIPE O.A.3850mm	3850	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-005	500	COATED M.S	FLANGED PIPE O.A.3000mm	3000	1		
IP-006	500	COATED M.S	FLANGED PIPE O.A.4950mm	4950	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-007	500	COATED M.S	FLANGED PIPE O.A.1450mm	1450	1		
IP-008	500	COATED M.S	FLANGED 90° MEDIUM RADIUS BEND. ONE END 1020mm c. TO F. OTHER END 4100mm C. TO F.	1020, 90°, 4100	1		
IP-009	500	COATED M.S	FLANGED 90° SHORT RADIUS BEND. ONE END 5035mm C. TO F. OTHER END 510mm C. TO F.	5035, 510	1		
IP-010	500	SS 304 4mm w.t.	UNEQUAL 90° SHORT RADIUS BEND, ONE END PLAIN 510mm C. to F. OTHER END FLANGED 1510 C. to F. WITH P.F. 690mm FROM FLANGED END	690, 510, 1510	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OP-001	600	COATED M.S	FLANGED PIPE O.A.6000mm	6000	8		
OP-002	600	COATED M.S	PIPE ONE END FLANGED O.A.5300mm	5300	1		
OP-003	600	COATED M.S	FLANGE ADAPTOR		1		
OP-004	600	COATED M.S	FLANGED PIPE O.A.5150mm	5150	1		
OP-005	600	COATED M.S	FLANGED PIPE O.A 3000mm	3000	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OP-006	600	COATED M.S	FLANGED PIPE O.A 5100mm	5100	1		
OP-007	600	SS 304 5mm w.t.	UNEQUAL 90° MEDIUM RADIUS BEND, ONE END FLANGED 2715mm C. to F. OTHER END WITH BELLMOUTH 1790mm C. to F.	2715, 90°, 1790	1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VC-001	500	SS 304 4mm w.t	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	3		
VC-002	500	SS 304 4mm w.t	UN-EQUAL TEE, PLAIN ENDED BRANCH 810mm C. to F. 850mm C. to F. FROM FLANGED END, OTHER END PLAIN 715mm C. to F.	810, 850, 715	1		
VC-003	500	Coated M.S.	FLANGE ADAPTOR		2		
VC-004	500	D.I	WAFER TYPE KNIFE GATE VALVE WITH STAINLESS STEEL BLADE AND SPINDLE, PN10, O.A. 100mm		2		
VC-005	600	SS 304 5mm w.t	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.	650, 1300	3		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VC-006	600	SS 304 5mm w.t	UN-EQUAL TEE, PLAIN ENDED BRANCH 800mm C. to F. 850mm C. to F. FROM FLANGED END, OTHER END PLAIN 700mm C. to F.	800, 850, 700	1		
VC-007	600	COATED M.S	FLANGE ADAPTOR		2		
VC-008	600	D.I	WAFER TYPE KNIFE GATE VALVE WITH STAINLESS STEEL BLADE AND SPINDLE, PN10, O.A. 110mm		2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

BOLTS, NUTS, WASHERS AND GASKET SCHEDULE.

	DESCRIPTION	NO.
01	M24 X 90 BOLT NUT AND 2 WASHERS G.M.S	860
02	M24 X 90 BOLT NUT AND 2 WASHERS S.S 304	460
03	M20 X 90 BOLT NUT AND 2 WASHERS S.S 304	168
04	3mm 600O BS 2815 GRADE "A" RING TYPE GASKET	41
05	3mm 500O BS 2815 GRADE "A" RING TYPE GASKET	37
06	3mm 300O BS 2815 GRADE "A" RING TYPE GASKET	14

PIPE SCHEDULE ABBREVIATIONS:

MAT	-	MATERIAL.
DIA	-	DIAMETER.
D.F	-	DOUBLE FLANGED.
P.F	-	PUDDLE FLANGE.
O.A	-	OVERALL.
C.TO.F	-	CENTRE TO FACE.
F.TO.F	-	FACE TO FACE.
C.I	-	CAST IRON.
D.I	-	DUCTILE IRON.
M.S	-	MILD STEEL.
S.S	-	STAINLESS STEEL.
G.M.S	-	GALVANISED MILD
W.T	-	WALL THICKNESS.
N.B	-	NOMINAL BORE.
E.M	-	END MACHINED.
M.T.S	-	MACHINED TO SUITE.

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	N.G
DRAWN	D.P
CHECKED	N.G
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	
Pr. Eng. No.	
DATE	

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML CARLSWALD RESERVOIR

RESERVOIR
PIPE & VALVE SCHEDULE

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
T00	ISSUED FORE INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-04-013

FILE No
T 0 2

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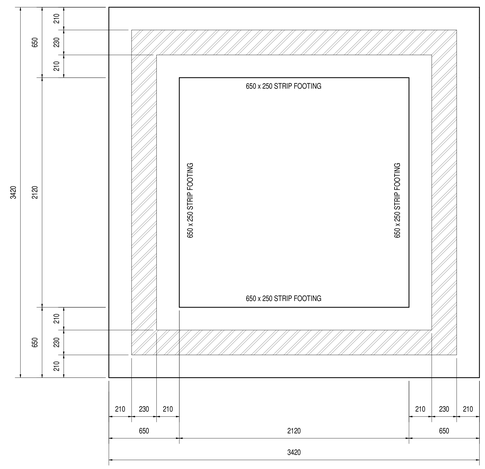
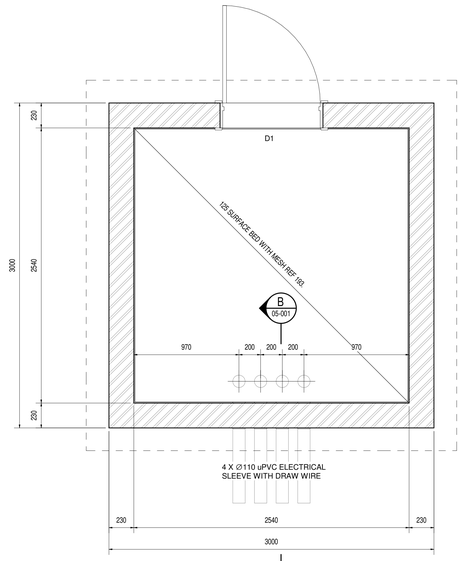
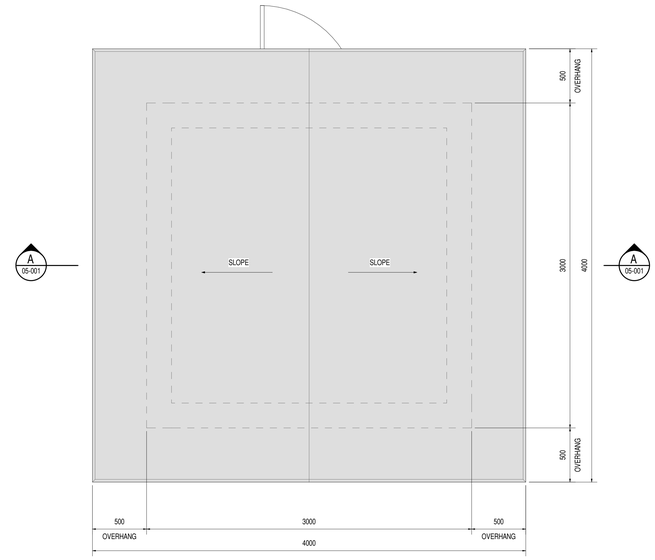


FOUNDATION LAYOUT
1 : 20

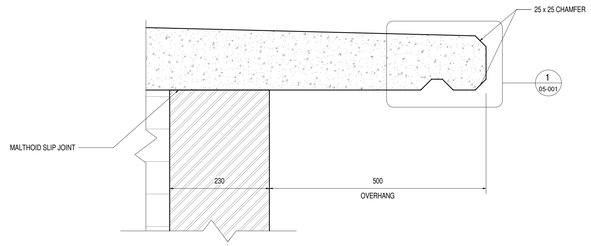


B
05-001

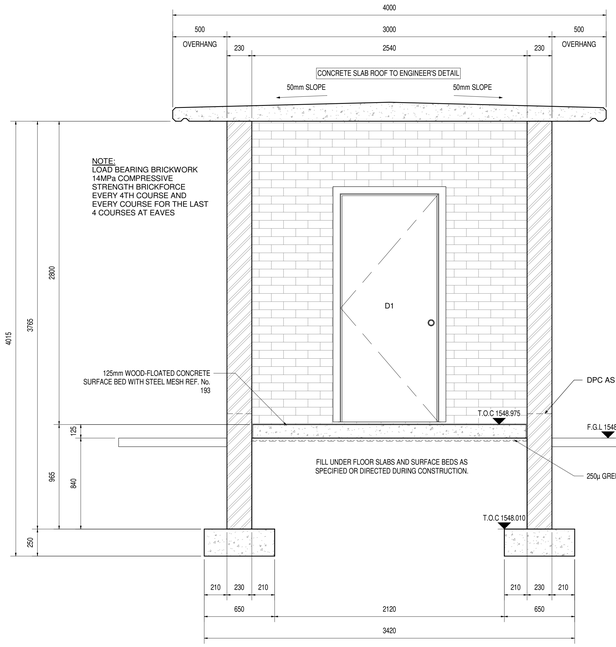
FLOOR LAYOUT
1 : 20



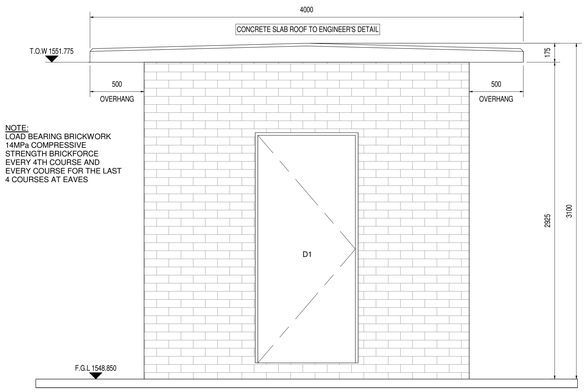
ROOF LAYOUT
1 : 20



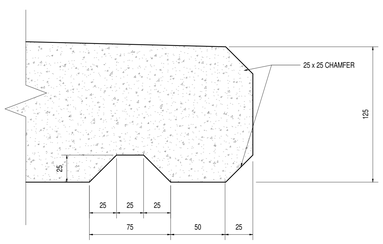
DRIP GROOVE DETAIL
1 : 5



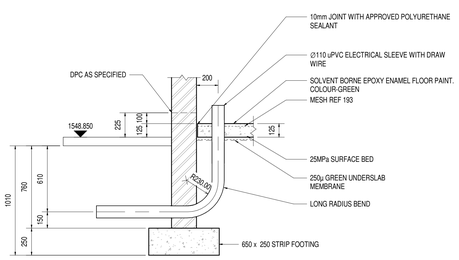
SECTION A
1 : 20
A
05-001



NORTHERN ELEVATION
1 : 20

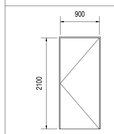


DETAIL 1
1 : 2
1
05-001



SECTION B
1 : 20
B
05-001

DOORS

	DESCRIPTION	QTY
	D1 : 900mm x 2100mm HIGH SINGLE PANEL STEEL COMBINATION DOOR & FRAME WITH EXTERNAL SECURITY GATE.	1

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
TELEMETRY BUILDING LAYOUTS, ELEVATIONS,
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-05-001

FILE NUMBER: T 0 1

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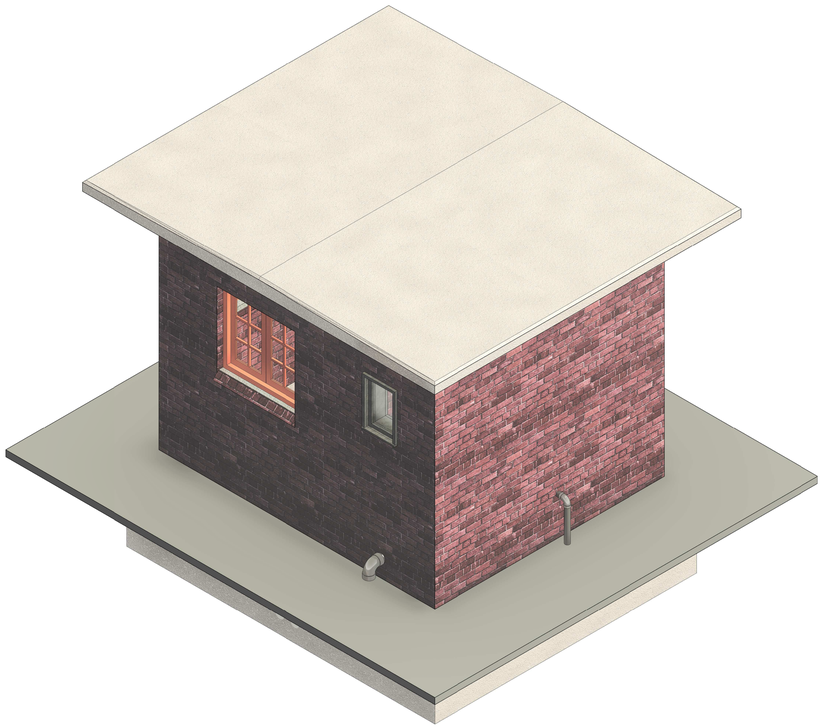
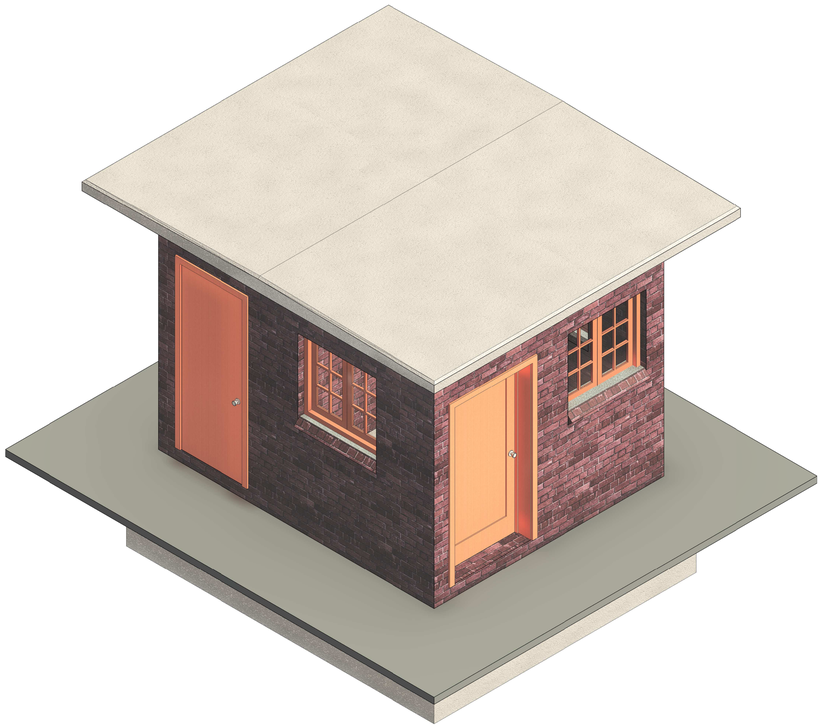
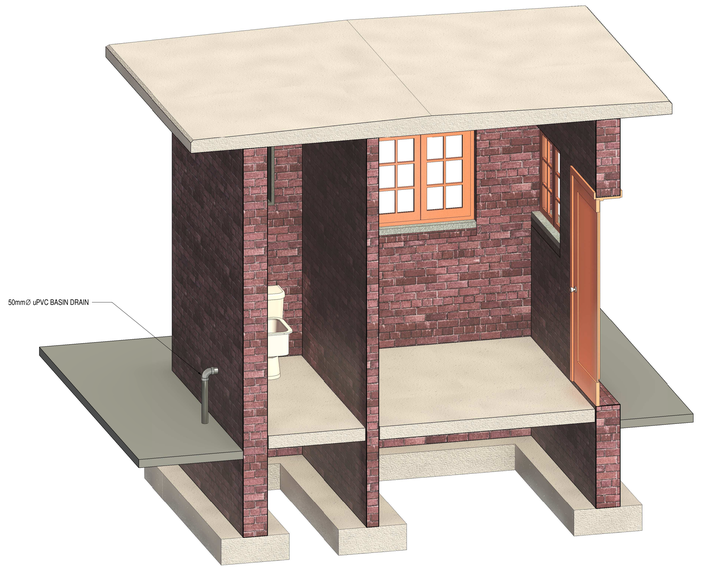


SOUTH EASTERN 3D VIEW



NORTH WESTERN 3D VIEW



SECTION 3D VIEW

DEPARTMENT	APPROVED	DESIGNATION	DATE

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
GUARD HOUSE
3D VIEWS

DESIGN MANAGER

DATE

SCALE: N.T.S

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.S	12.11.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT'S NUMBER: 18056-73-05-002

FILE NUMBER: T 0 1

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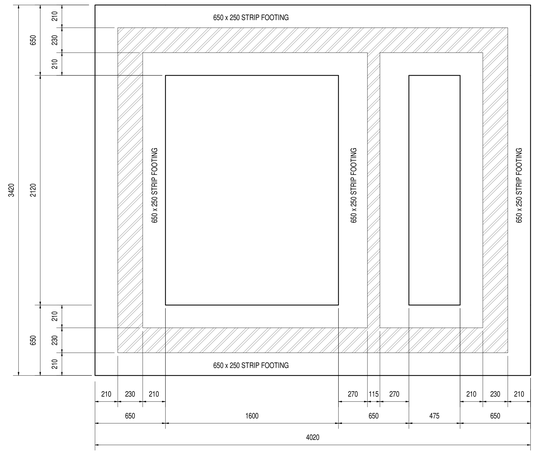
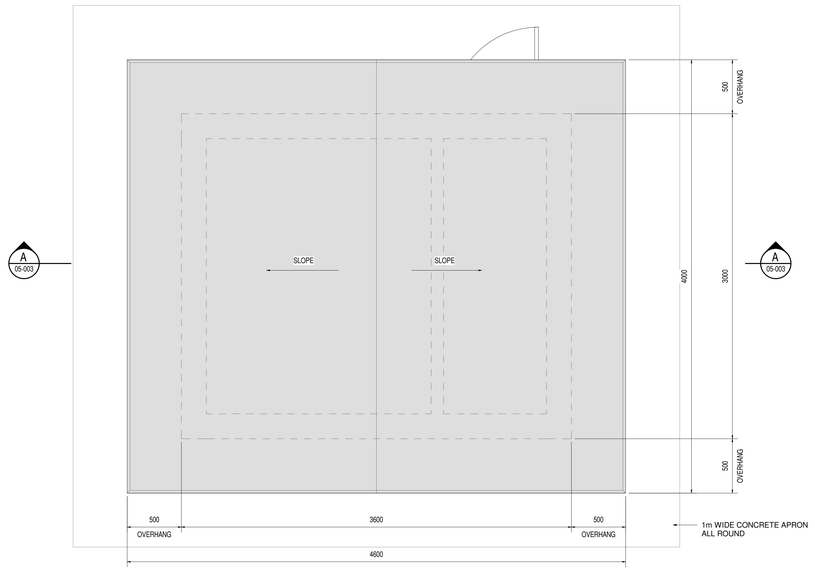
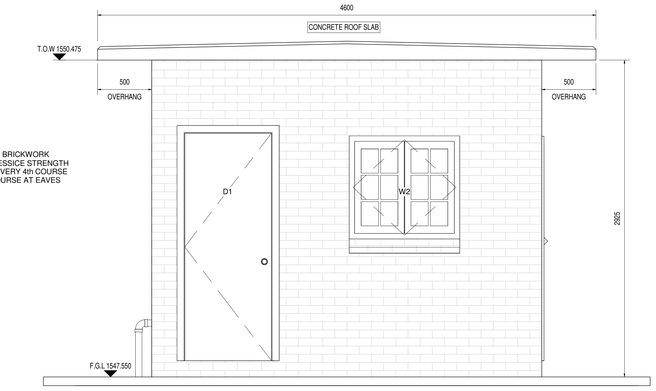


FOUNDATION LAYOUT
1 : 20



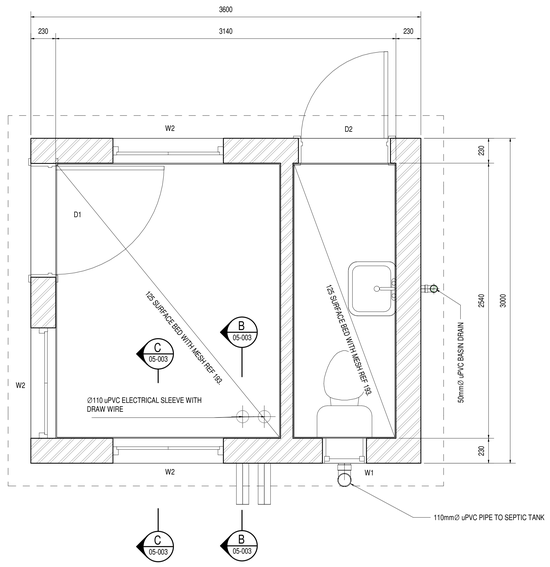
ROOF LAYOUT
1 : 20



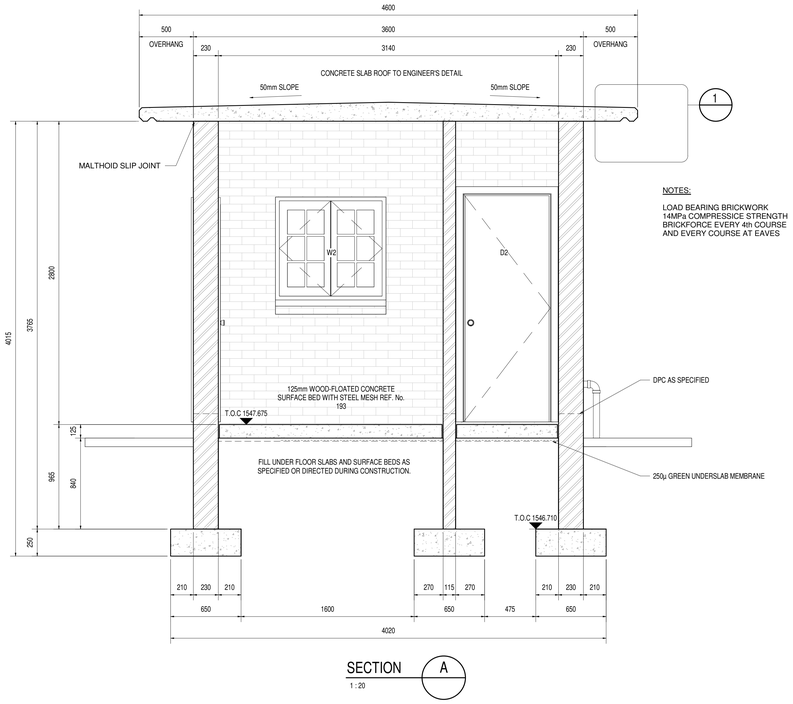
NOTES:

LOAD BEARING BRICKWORK
14MPa COMPRESSICE STRENGTH
BRICKFORCE EVERY 4th COURSE
AND EVERY COURSE AT EAVES

NORTHERN ELEVATION
1 : 20



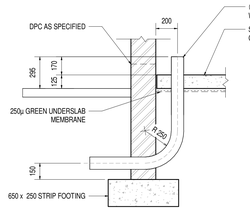
FLOOR LAYOUT
1 : 20



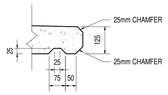
NOTES:

LOAD BEARING BRICKWORK
14MPa COMPRESSICE STRENGTH
BRICKFORCE EVERY 4th COURSE
AND EVERY COURSE AT EAVES

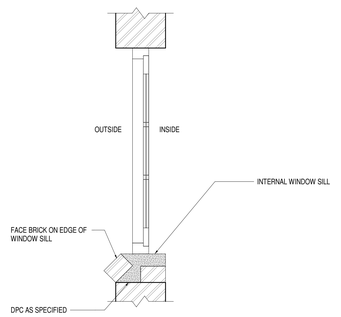
SECTION A
1 : 20



SECTION B
1 : 20

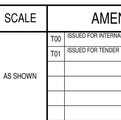
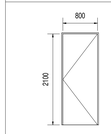


DETAIL 1
1 : 10

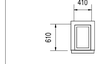
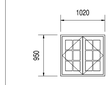


SECTION C
1 : 10

DOORS

	DESCRIPTION	QTY
	D1 : 1000mm x 2000mm HIGH SINGLE PANEL STEEL COMBINATION DOOR & FRAME WITH EXTERNAL SECURITY GATE.	1
	D2 : 800mm x 2100mm HIGH STANDARD SEMI-SOLID DOOR TO BE SUPPLIED WITH FRAME. CABIN HOOK AND A LEVEL 3 LOCK SET COMPLETE WITH TWO KEYS. ALL FITTINGS, DOOR RESTRAINTS AND HINGES SOLID BRASS	1

WINDOWS

	DESCRIPTION	QTY
	W1 - SS43 - INDUSTRIAL TYPE WINDOW: 410mm x 610mm - M FIXED WITH TRIM. INCLUDING 12mm DIA MS BURGLAR PROOFING ON FULL FACE OF WINDOW, GLAZED AND PAINTED TO SYSTEM A2.	1
	W2 - SS43 - INDUSTRIAL TYPE WINDOW: 1020mm x 950mm- DOUBLE SHUTTER WITH MULLION. ALUMINUM WINDOW WITH HORIZONTAL PIVOT HUNG VENTILATOR INCLUDING 12mm DIA MS BURGLAR PROOFING ON FULL FACE OF WINDOW, GLAZED AND PAINTED TO SYSTEM A2.	3

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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P.O.BOX 6002
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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERWITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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65 NTEMI PILISO STREET
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
GUARD HOUSE, LAYOUTS, ELEVATIONS,
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.S	12.11.2021
T01	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER: JW14302

CONSULTANT`S NUMBER: 18056-73-05-003

FILE NUMBER: T01

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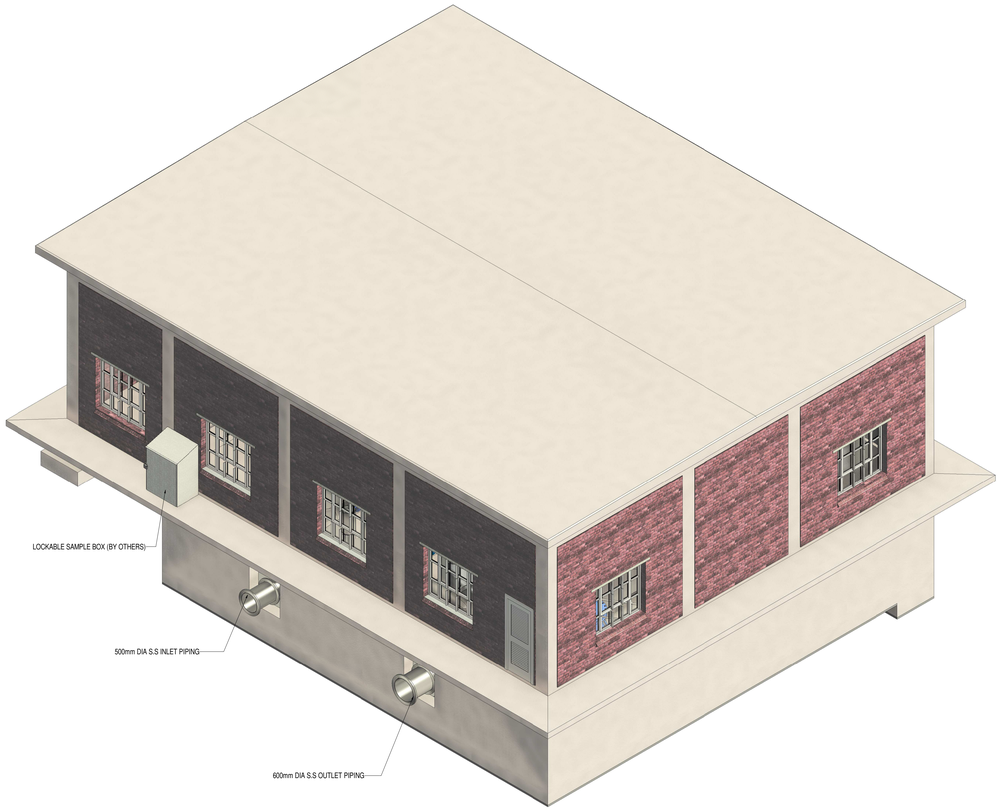
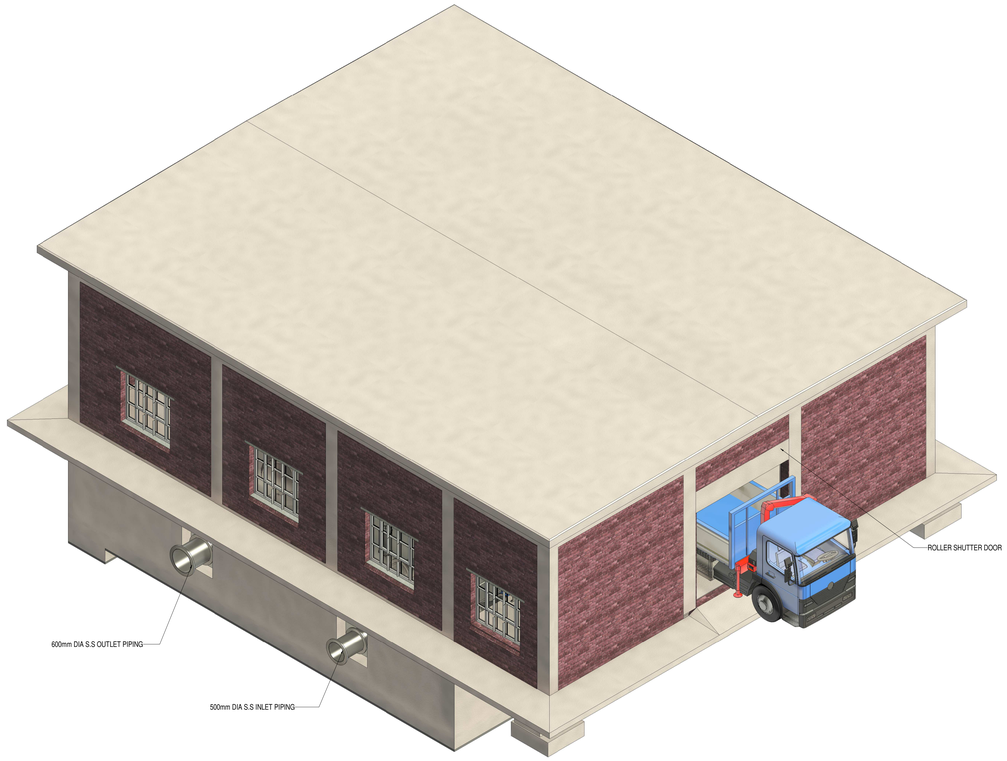
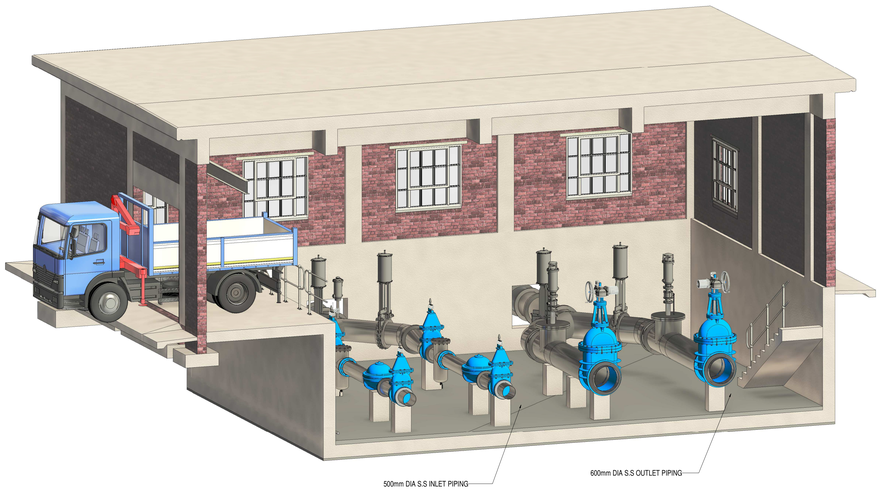


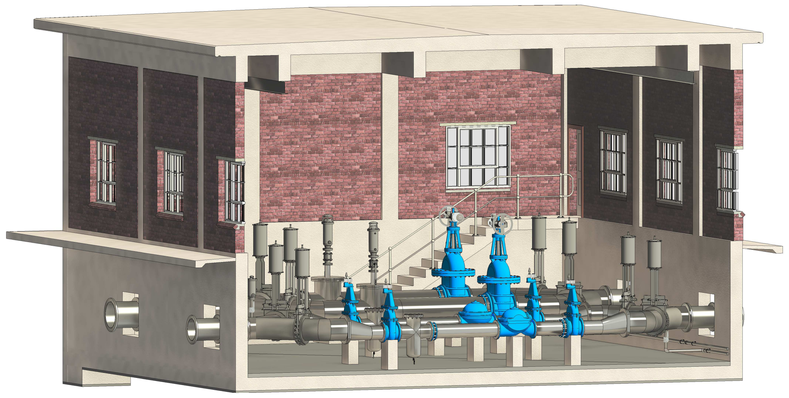
NORTH WESTERN 3D VIEW



SOUTH EASTERN 3D VIEW



NORTH EASTERN 3D SECTION



SOUTH EASTERN 3D SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	I. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
VALVE BUILDING
3D VIEWS

DESIGN MANAGER

DATE

SCALE

N.T.S

AMENDMENTS

		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-05-004

FILE NUMBER
T 0 2

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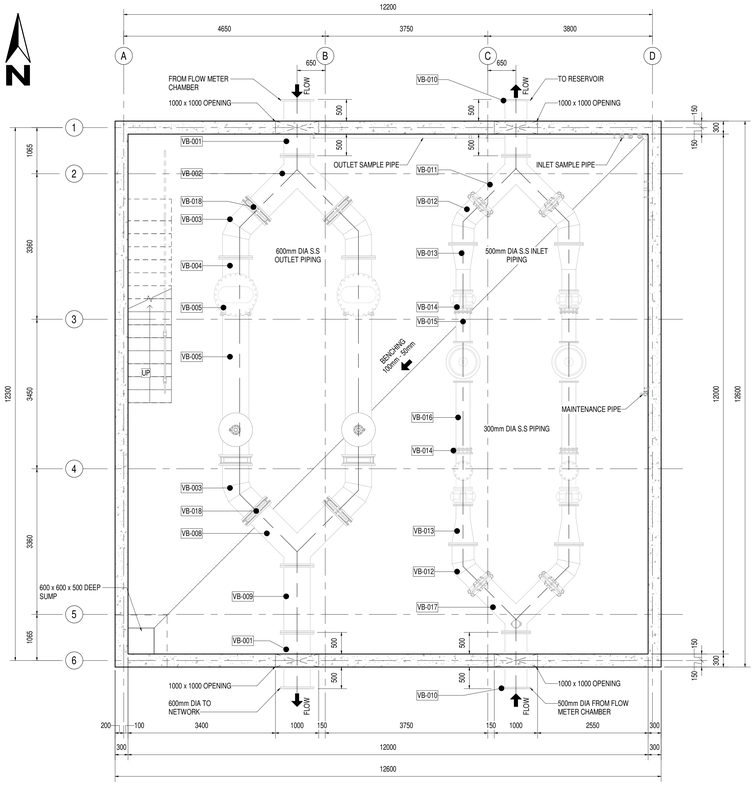
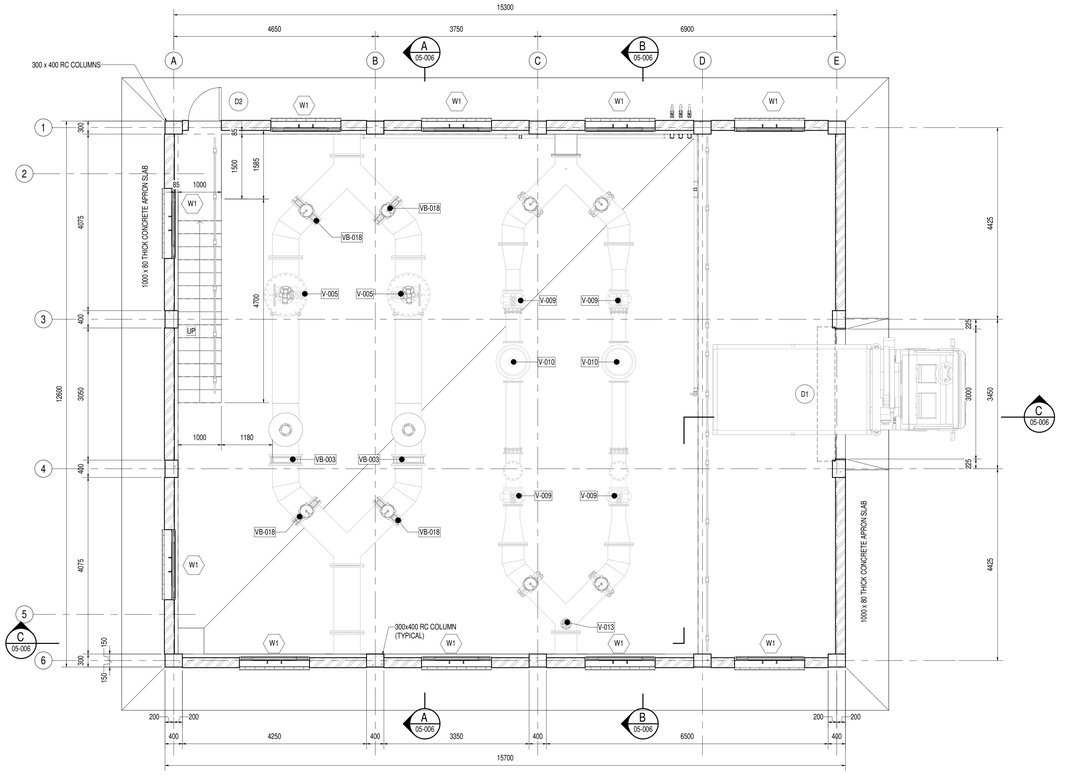
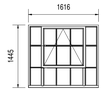
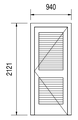




WINDOWS

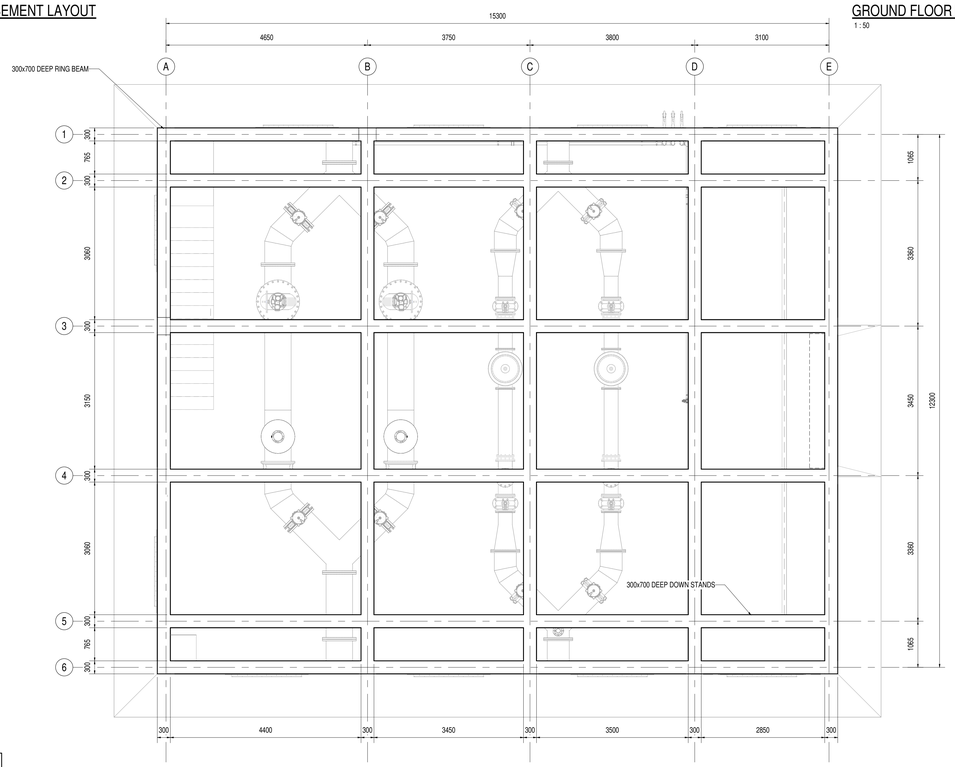
	DESCRIPTION	QTY
	W1 - SS43 - INDUSTRIAL TYPE WINDOW: 1616x1445mm- TYPE ALUMINIUM WINDOW WITH HORIZONTAL PIVOT HUNG VENTILATOR INCLUDING 12mm DIA MS BURGLAR PROOFING ON FULL FACE OF WINDOW, GLAZED AND PAINTED TO SYSTEM A2.	10

DOORS

	DESCRIPTION	QTY
	D1 - SINGLE LOUVERED DOOR: APPROVED SINGLE LOUVERED DOOR TYPE B.V. WITH VENT AT BOTTOM. OUTWARD OPENING DOOR SUPPLIED COMPLETE WITH STEEL FRAME , PADLOCK, LATCH AND DOOR RESTRAINTS. PAINTED TO SYSTEM A2	1
	D2 - ROLLER SHUTTER DOOR 2110mm x 3000mm HIGH	1

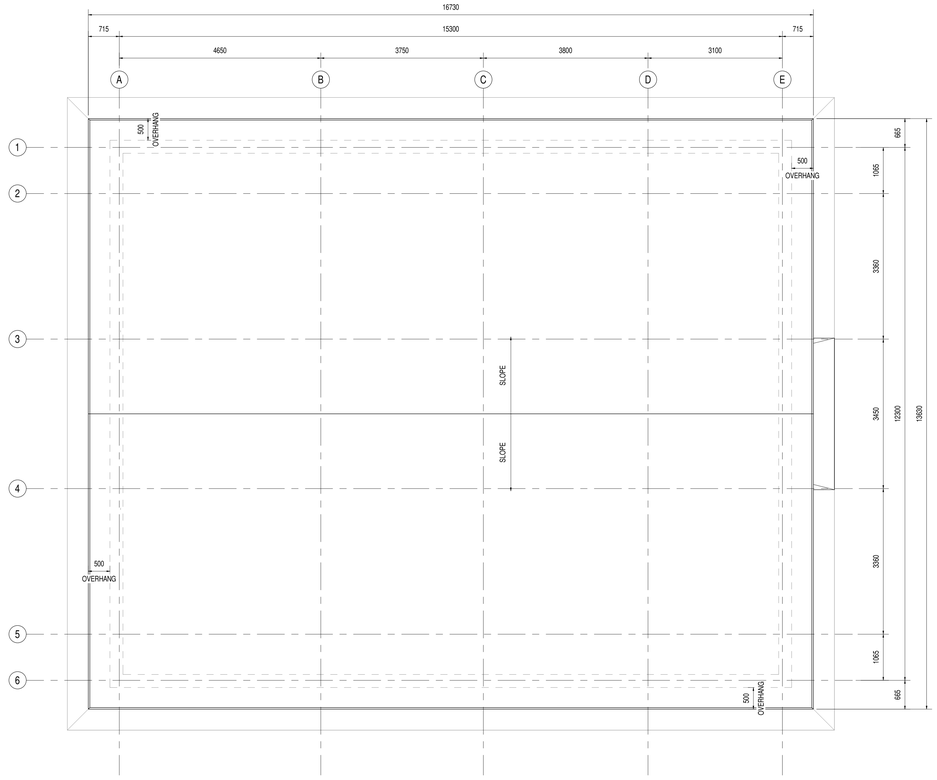
BASEMENT LAYOUT

1 : 50



GROUND FLOOR LAYOUT

1 : 50



GENERAL NOTES AND SPECIFICATION'S:

1. ALL DIMENSIONS AND LEVELS MUST BE CHECKED ON SITE. ANY DISCREPANCIES ON THE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER TO RECTIFY.
2. THE CONSTRUCTION OF ALL CONCRETE WORK MUST COMPLY WITH THE REQUIREMENTS OF SANS 2001:2007 PART CC1: CONCRETE WORKS (STRUCTURAL) AND PART CC2: CONCRETE WORKS (MINOR WORKS).
3. THE CONSTRUCTION OF ALL MASONRY WORK MUST COMPLY WITH SANS 2001-CM1:2007 MASONRY WALLING.
4. THE CONSTRUCTION OF ALL STRUCTURAL STEELWORK MUST COMPLY WITH SANS 2001-CS:2005 STRUCTURAL STEELWORK.
5. THE SIZE, POSITION AND LEVEL OF ALL OPENINGS FOR PIPEWORK TO BE CAST-IN AND VALVE PLINTHS & PIPE SUPPORTS SHOWN ON THE CIVIL AND STRUCTURAL DRAWINGS ARE PROVISIONAL AND MUST BE CONFIRMED AND APPROVED BY THE MECHANICAL SUPPLIER IN WRITING BEFORE CONSTRUCTION COMMENCES.
6. CONCRETE CLASSES (UNLESS OTHERWISE SPECIFIED IN THE PROJECT SPECIFICATIONS):
   1. STRUCTURAL CONCRETE: CLASS 35/19 (35 MPa)
   2. BENCHING: CLASS 20/19 (20 MPa)
   3. BLINDING: CLASS 15/19 (15 MPa)
7. CONCRETE COVER TO REINFORCEMENT SHALL BE 50mm UNLESS OTHERWISE SHOWN OR SPECIFIED.
8. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 25mm CHAMFER UNLESS OTHERWISE INDICATED OR SPECIFIED.
9. THE POSITIONS OF CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS, OR AS AGREED UPON BETWEEN THE ENGINEER AND THE CONTRACTOR BEFORE CONSTRUCTION COMMENCES. NO DEVIATION FROM THE CONSTRUCTION JOINT POSITIONS SHOWN ON THE DRAWINGS SHALL BE PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
10. STEEL FORMWORK/SHUTTERING SHALL BE USED IN THE CONSTRUCTION OF ALL CONCRETE STRUCTURES UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.
11. FORMED SURFACE REQUIREMENTS SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATION'S.
12. THE DEGREE OF ACCURACY SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS. THE DEGREE OF ACCURACY OF FINISHES SPECIFIED FOR FLOATED CONCRETE FINISHES IN PARTICULAR MUST BE STRICTLY COMPLIED WITH.
13. NO CONCRETE SHALL BE CAST WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER

RING BEAM LAYOUT

1 : 50

ROOF LAYOUT

1 : 50

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
VALVE BUILDING
LAYOUT & ELEVATIONS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

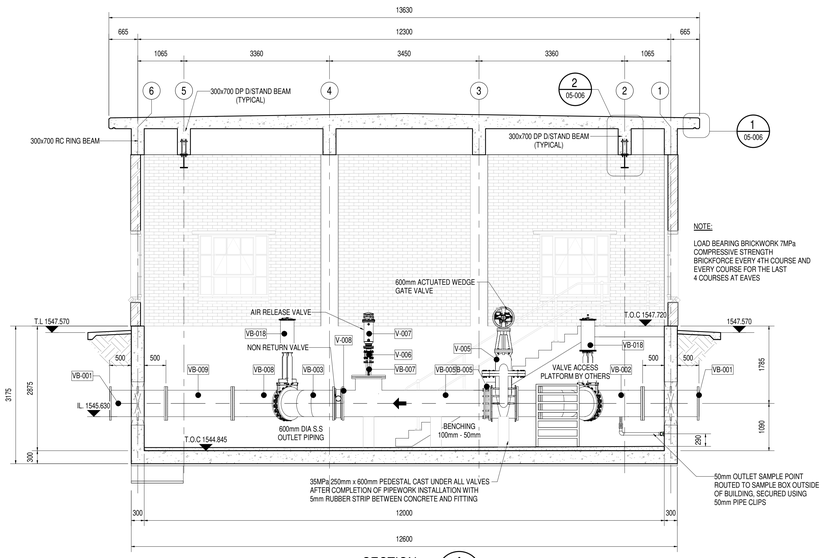
JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-05-005

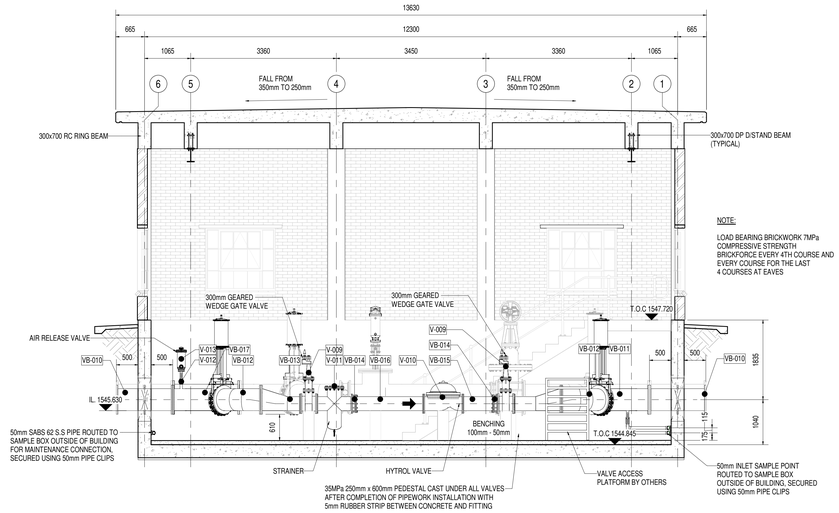
FILE NUMBER

T 0 2

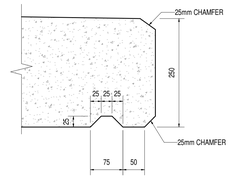
Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-05-(004-T02)-(005-T02)-(006-T02) - VALVE BUILDING.rvt



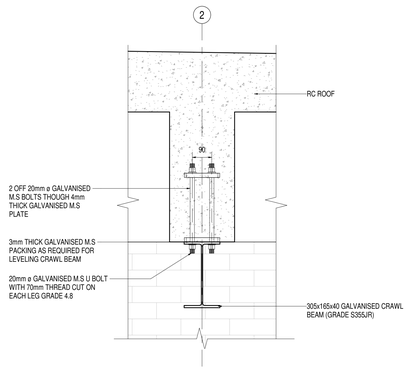
SECTION A
1 : 50
05-005



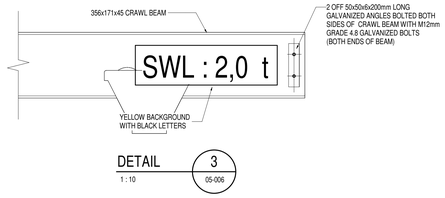
SECTION B
1 : 50
05-005



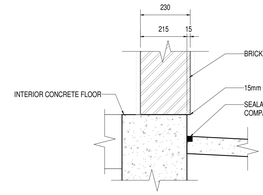
DETAIL 1
1 : 5
05-006



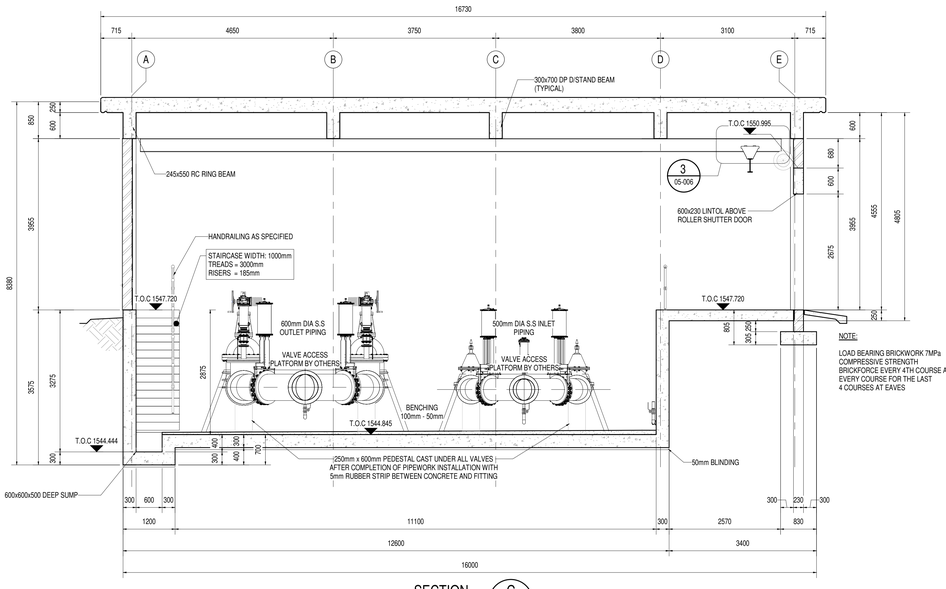
DETAIL 2
1 : 10
05-006



DETAIL 3
1 : 10
05-006

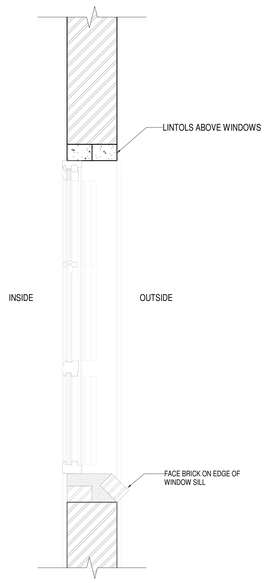


TYPICAL WALL TO FLOOR DETAIL
1 : 10



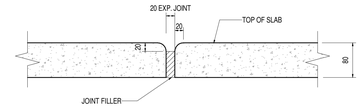
SECTION C
1 : 50
05-005

ELEVATION SHOWING MAINTENANCE PIPING
1 : 50

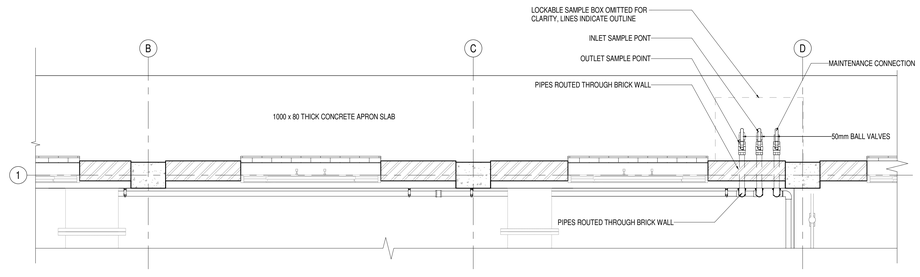


TYPICAL WINDOW DETAIL
1 : 10

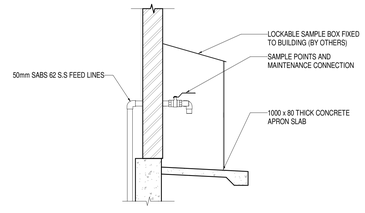
NOTE:
EXPANSION JOINTS IN APRON SLAB EVERY 2m MAX. SPACING



TYPICAL APRON JOINT DETAIL
1 : 5



LAYOUT OF SAMPLE & MAINTENANCE POINTS
1 : 25



SECTION THROUGH SAMPLE BOX
1 : 25

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERWITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
VALVE BUILDING
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	N.G	08.10.2021
T01	ISSUED FOR INTERNAL REVIEW	S.M	27.07.2022
T02	ISSUED FOR TENDER	J.S	18.08.2023

DRAWING NUMBER

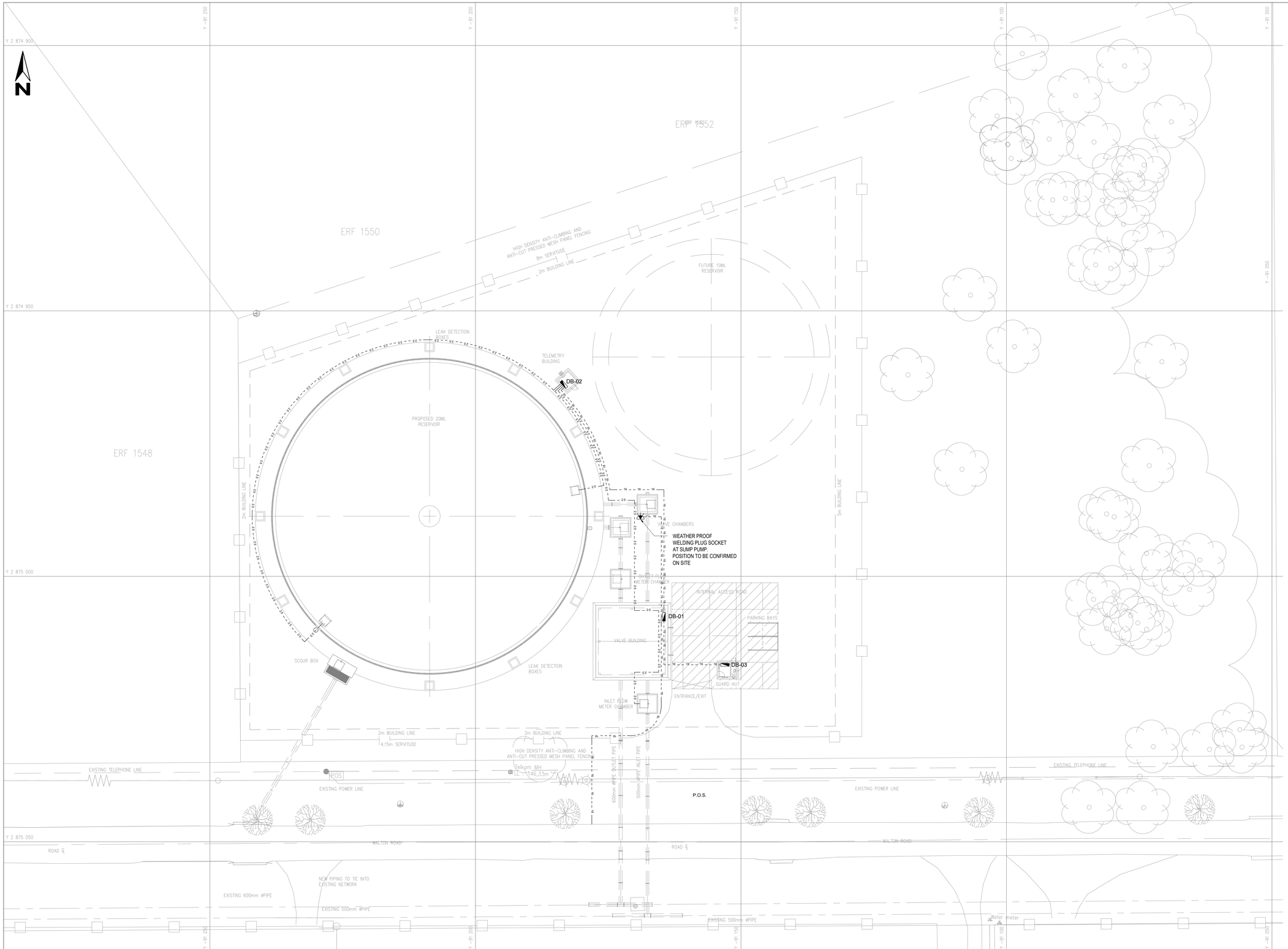
JW NUMBER: JW14302

CONSULTANT'S NUMBER: 13214-73-05-006

FILE NUMBER: T 0 2

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\TENDER\13214-73-05-(004-T02)-(005-T02)-(006-T02) - VALVE BUILDING.rvt

CABLE LEGEND	
— – 2.5 – – 2.5 —	2.5mm² 3C CABLE
— – 16 – – 16 —	16mm² 3C CABLE
– – – 16 – – – 16 –	16mm² 4C CABLE
DB-MAIN	MAIN DISTRIBUTION BOARD



CABLE ROUTES
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

CABLE ROUTES

DESIGN MANAGER

DATE

SCALE: AS SHOWN

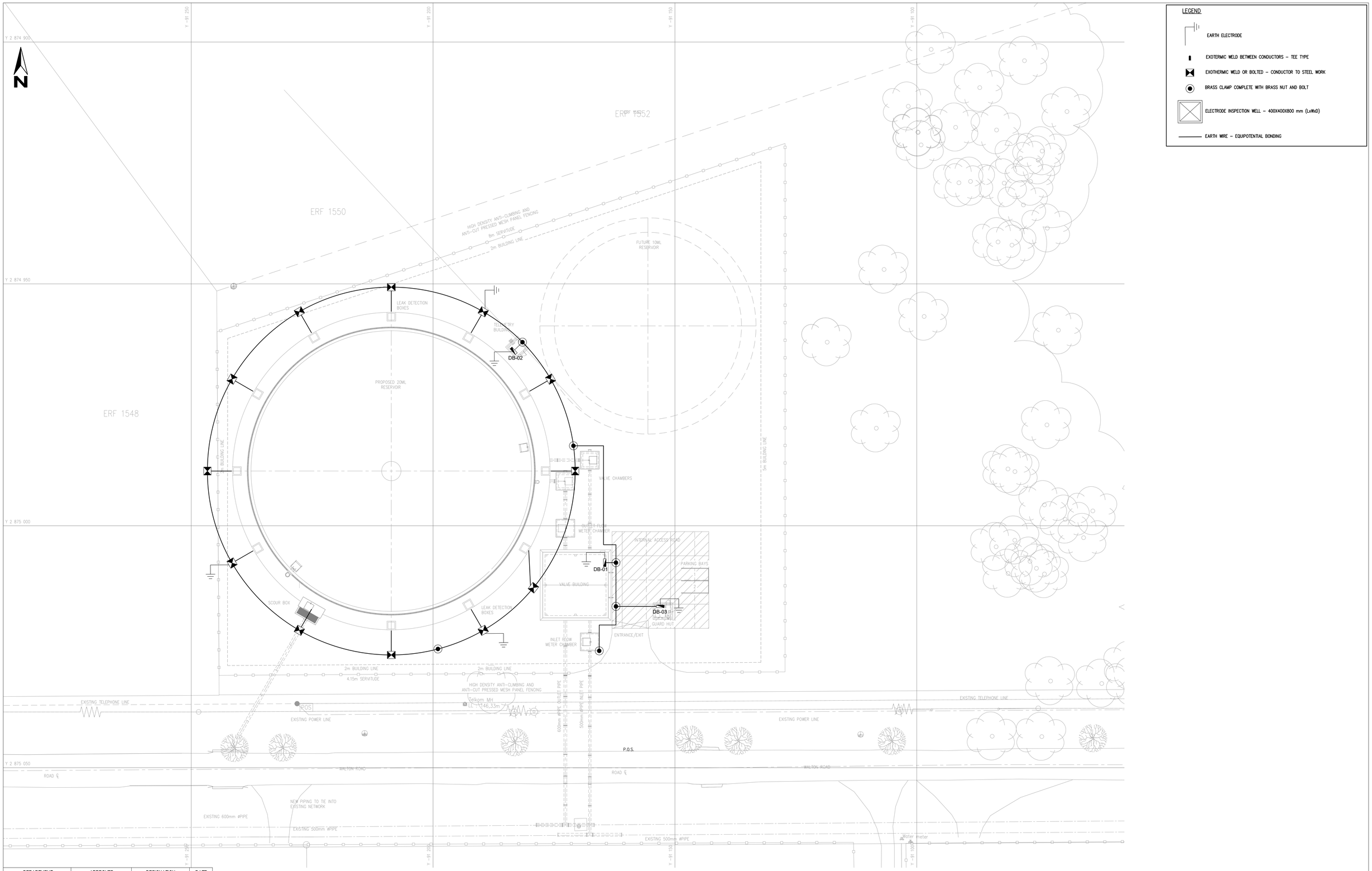
AMENDMENTS			
T00	ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01	ISSUED FOR TENDER	J.v.T	18.08.2023

DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-001

FILE No
T 0 1



EARTHING LAYOUT
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C.
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

EARTHING LAYOUT

DESIGN MANAGER

DATE

SCALE: AS SHOWN

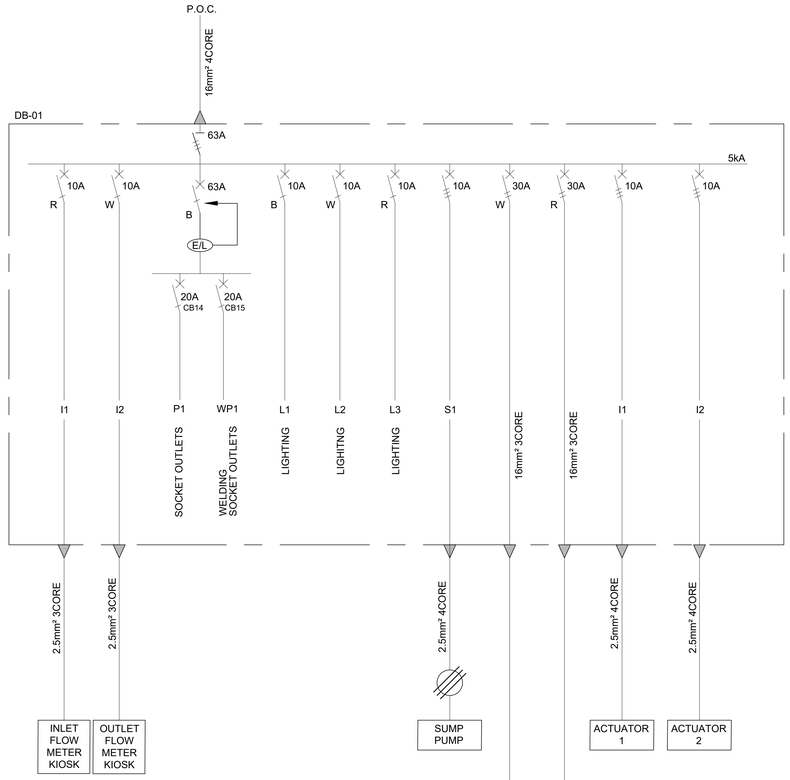
AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.v.T	08.10.2021
T01	ISSUED FOR TENDER	J.v.T	18.08.2023

DRAWING No.

JW NUMBER
JW13521

CONSULTANT'S NUMBER
13214-73-06-002

FILE No
T 0 1



SINGLE LINE DIAGRAM
N.T.S.

LEGEND

SYMBOL	DESCRIPTION
xA SP	SINGLE POLE CIRCUIT BREAKER.
xA TP	THREE POLE CIRCUIT BREAKER.
xA SP	SINGLE POLE ISOLATOR.
xA TP	THREE POLE ISOLATOR.
* xA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
xA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
xA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
xA SP	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

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DESIGNED	J.vT
DRAWN	L.C
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SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

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CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
SINGLE LINE DIAGRAM

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR INTERNAL REVIEW	J.v.T	08.10.2021
T01 ISSUED FOR TENDER	J.v.T	18.08.2023

A0
DO NOT SCALE

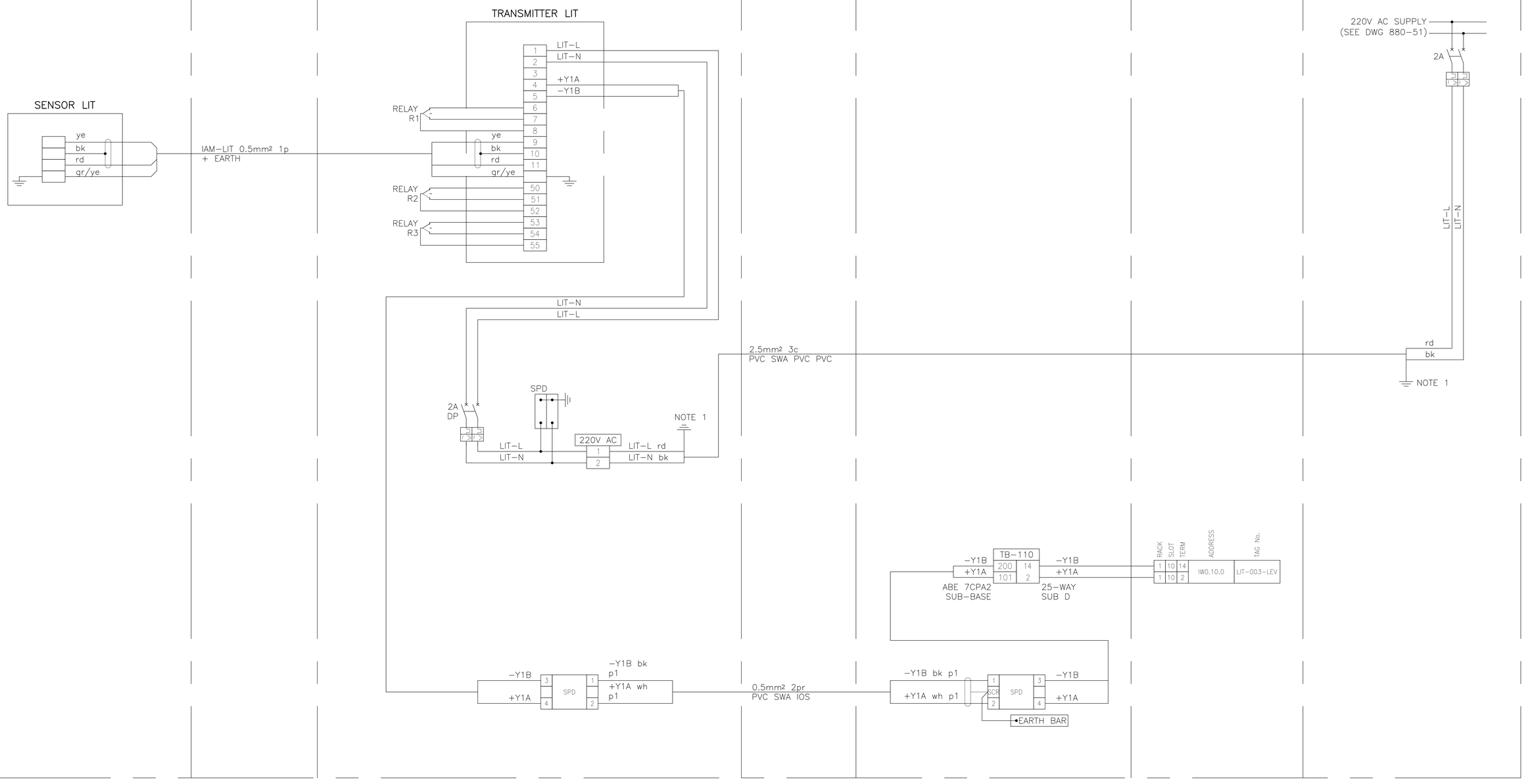
DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-003

FILE No
T01

ULTRASONIC LEVEL LRANSMITTER				PLC/TELEMETRY PANEL		MCC
FIELD	CABLE No.	INSTRUMENT JUNCTION BOX ICP	CABLE No.	MARSHALLING	I/O CARD	MARSHALLING



DEPARTMENT	APPROVED	DESIGNATION	DATE

LOOP DIAGRAM
N.T.S.

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
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306 Fresia St, Lynnwood Ridge, Pretoria, 0081
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Tel: +27 12 349 1105
e-mail: mail@djc.co.za

SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD
Johannesburg Water
TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN
TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM LEVEL SENSOR

DESIGN MANAGER

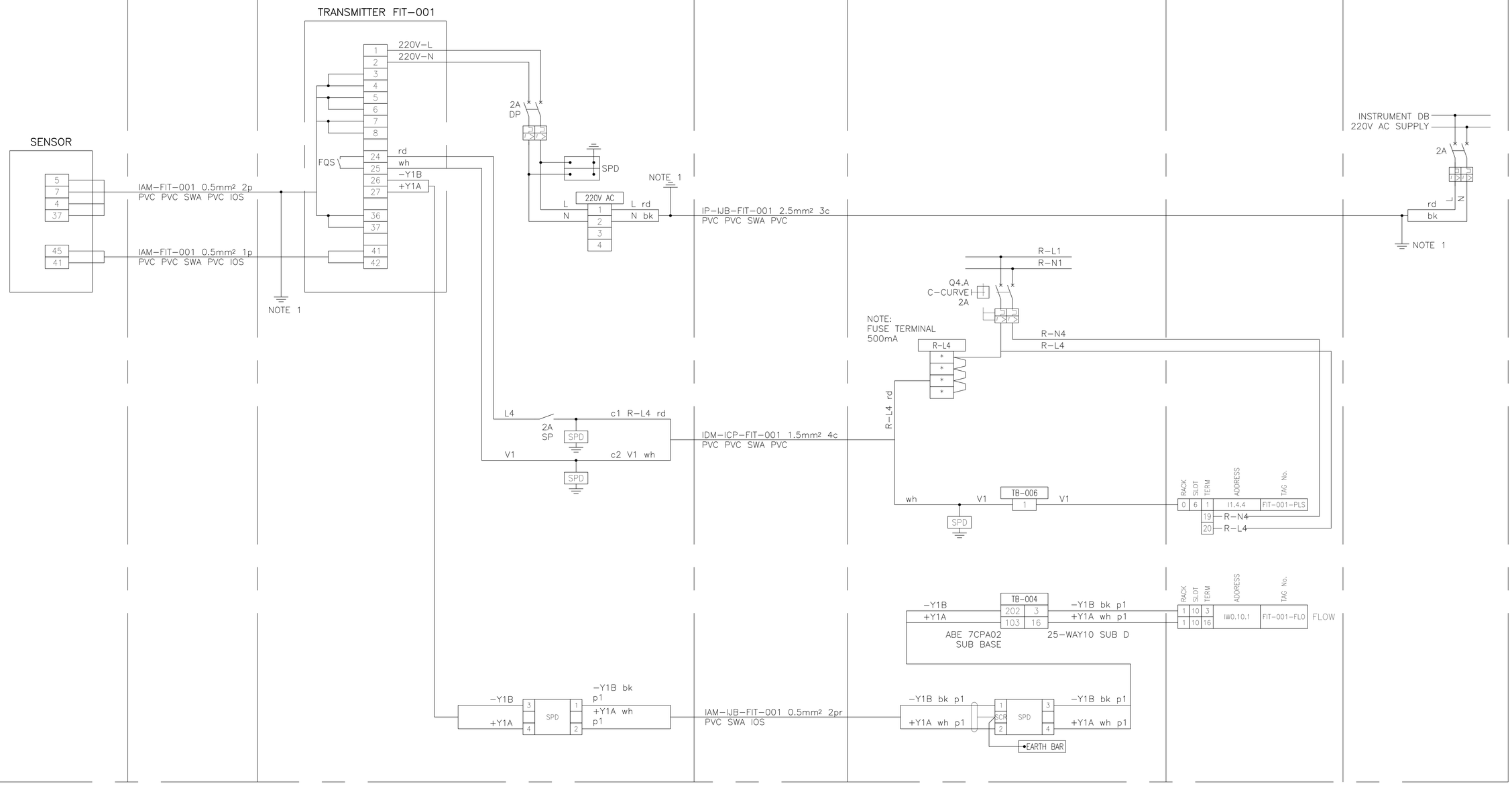
DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.v.T	08.10.2021
T01	ISSUED FOR TENDER	J.v.T	18.08.2023

DRAWING No.
JW NUMBER
JW14302
CONSULTANT'S NUMBER
13214–73–06–004
FILE No
T 0 1

MAG FLOW TRANSMITTER				PLC/TELEMETRY PANEL		MCC
FIELD	CABLE No.	INSTRUMENT JUNCTION BOX IJB	CABLE No.	MARSHALLING	I/O CARD	MCC MARSHALLING



DEPARTMENT	APPROVED	DESIGNATION	DATE

LOOP DIAGRAM
N.T.S.

A0
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SERVITUDES	
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Pr. Eng. No.	970379
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JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM MAGNETIC FLOW METER

DESIGN MANAGER

DATE

SCALE
AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01	ISSUED FOR TENDER	J.vT	19.08.2023

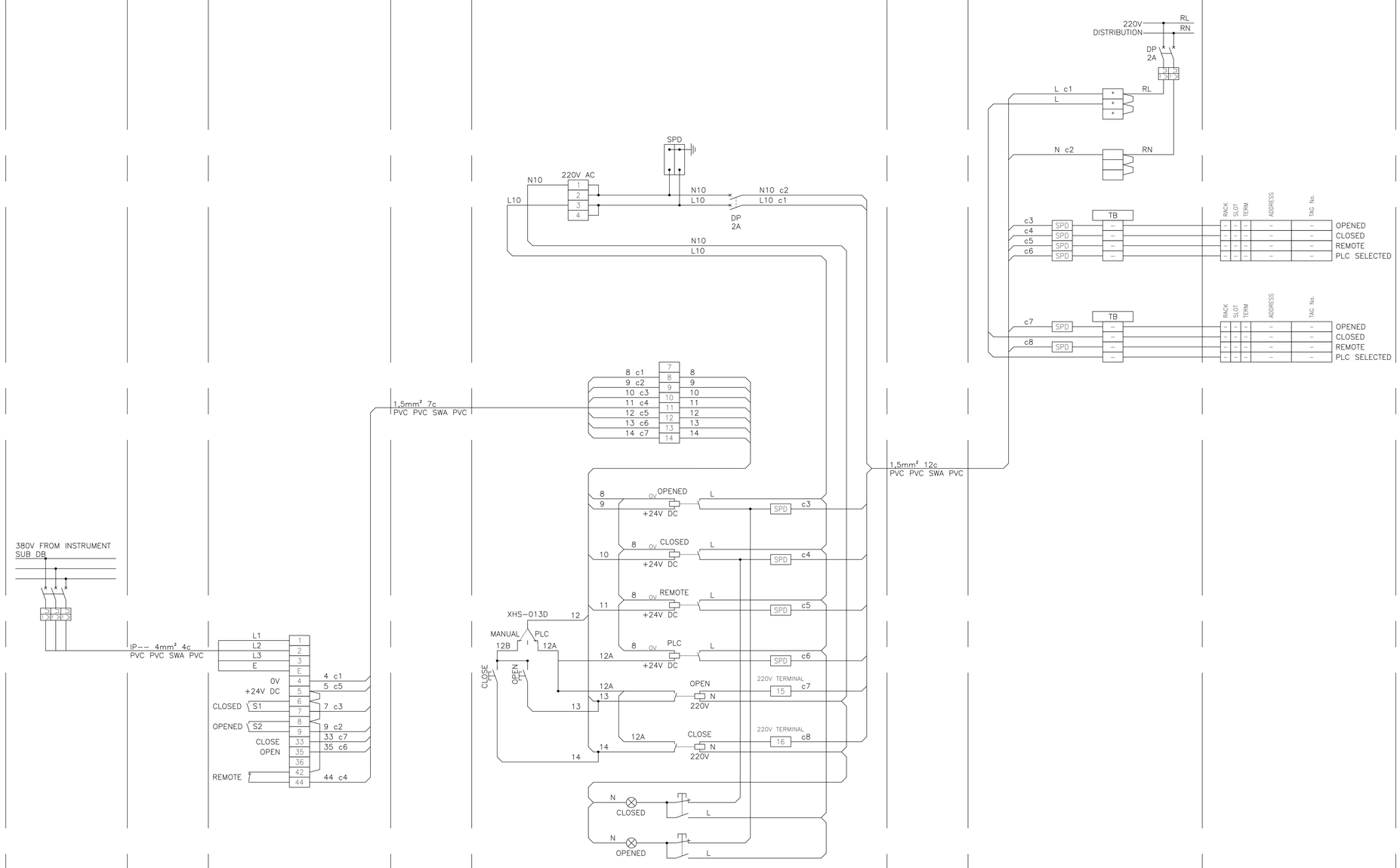
DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-005

FILE No
T 0 1

ON/OFF VALVE						PLC/TELEMETRY PANEL	
MCC	CABLE No.	FILELD	CABLE No.	INSTRUMENT JUNCTION BOX ICP	CABLE No.	MARSHALLING	I/O CARD



DEPARTMENT	APPROVED	DESIGNATION	DATE

LOOP DIAGRAM
N.T.S.

A0
DO NOT SCALE

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SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM OPEN/CLOSE ACTUATOR

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01 ISSUE FOR TENDER	J.v.T	18.08.2023

DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-006

FILE No

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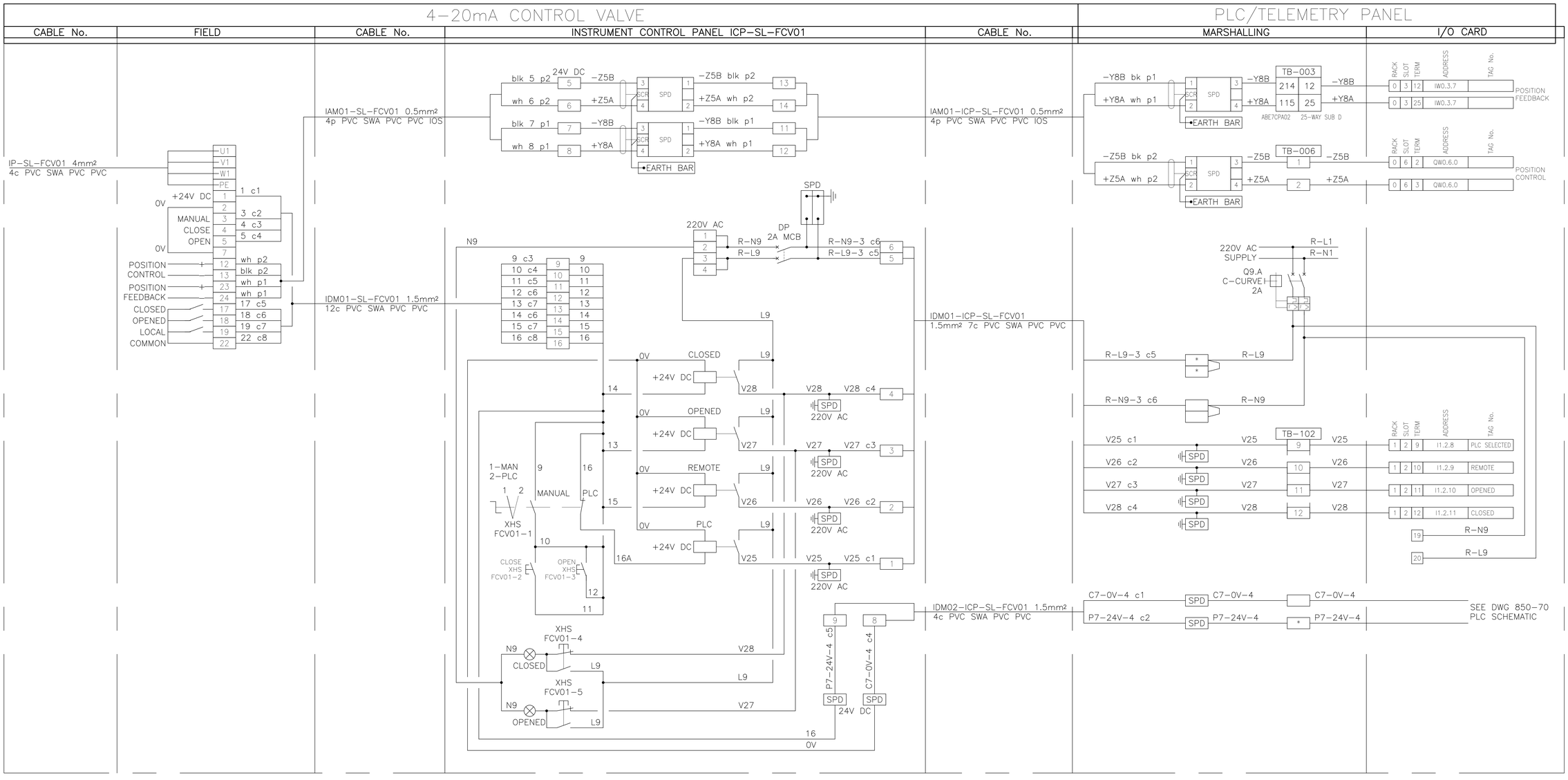

LOOP DIAGRAM
N.T.S.

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

CONSULTING ENGINEERS

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Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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NEWTOWN

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
TYPICAL LOOP DIAGRAM MODULATING ACTUATOR

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01	ISSUED FOR TENDER	J.vT	18.08.2023

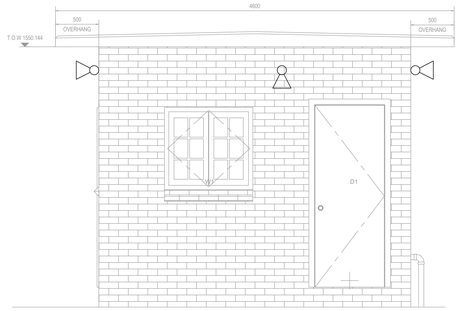
DRAWING No.

JW NUMBER
JW14302

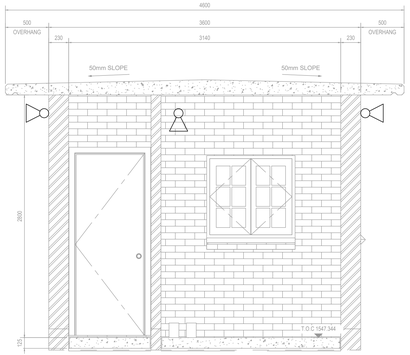
CONSULTANT'S NUMBER
13214–73–06–007

FILE No

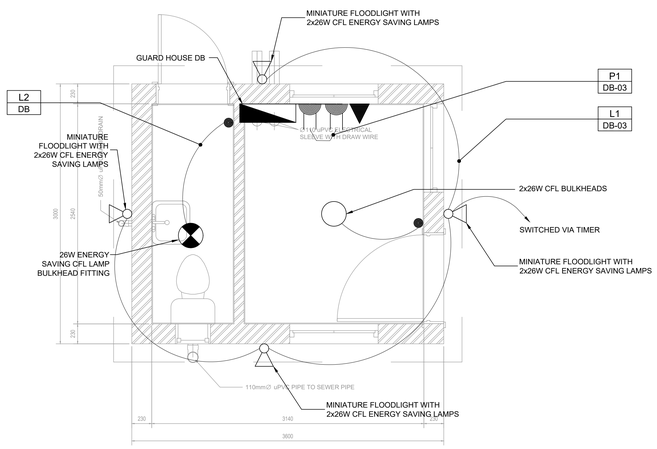
T 0 1



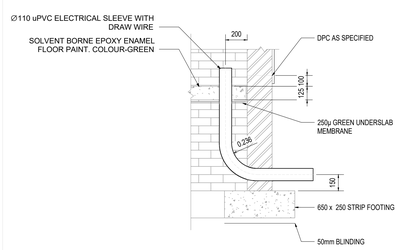
NORTH ELEVATION
SCALE 1: 25



EAST ELEVATION
SCALE 1: 25

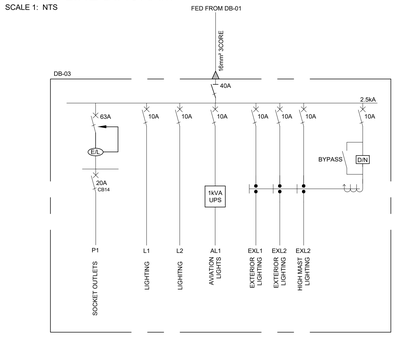


FLOOR PLAN
SCALE 1: 25



STRIP FOUNDATION DETAILS
SCALE 1: 20

SINGLE LINE DIAGRAM
SCALE 1: NTS



ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD

NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

SYMBOL	DESCRIPTION
xA SP	SINGLE POLE CIRCUIT BREAKER.
xA TP	THREE POLE CIRCUIT BREAKER.
xA SP	SINGLE POLE ISOLATOR.
xA TP	THREE POLE ISOLATOR.
* xA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
xA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
xA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
xA 30	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

GUARD HUT POWER AND LIGHTING LAYOUT

DESIGN MANAGER

DATE

SCALE
AS SHOWN

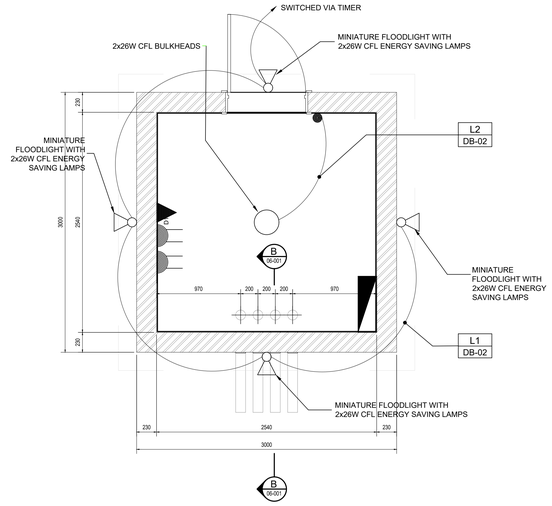
AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01 ISSUED FOR TENDER	J.vT	18.08.2023

DRAWING No.

JW NUMBER
JW14302

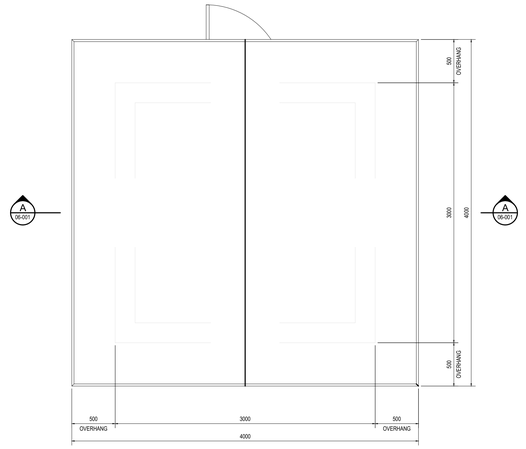
CONSULTANT'S NUMBER
13214-73-06-008

FILE No
T 0 1

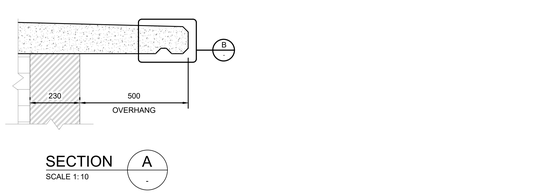


REFER TO DRAWING ../402
FOR ELECTRICAL LAYOUT

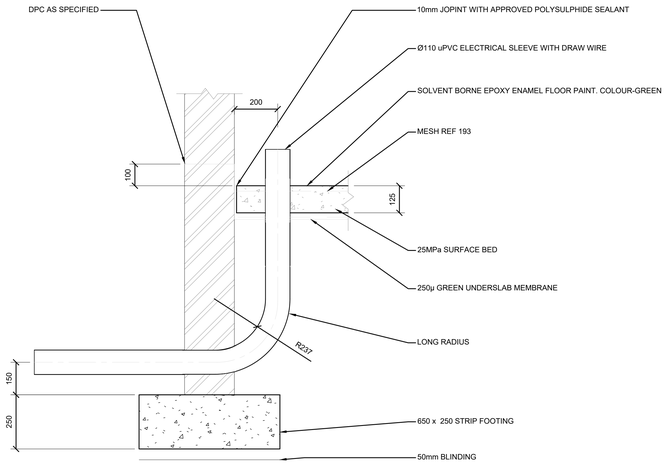
FLOOR PLAN
SCALE 1: 25



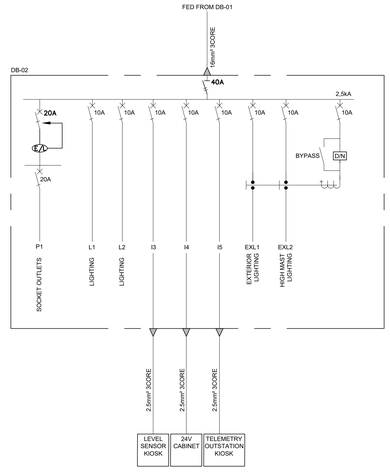
ROOF PLAN
SCALE 1: 25



SECTION A
SCALE 1: 10



SECTION B
SCALE 1: 10



SINGLE LINE DIAGRAM
SCALE 1: NTS

ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD

NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

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XA SP	SINGLE POLE CIRCUIT BREAKER.
XA TP	THREE POLE CIRCUIT BREAKER.
XA SP	SINGLE POLE ISOLATOR.
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	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
XA SP	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

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CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
TELEMETRY HUT

DESIGN MANAGER

DATE

SCALE
AS SHOWN

AMENDMENTS	APPROVED	DATE
T00 ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01 ISSUE FOR TENDER	J.vT	18.08.2023

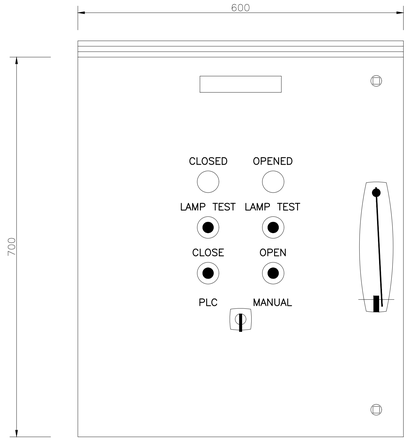
DRAWING No.

JW NUMBER
JW14302

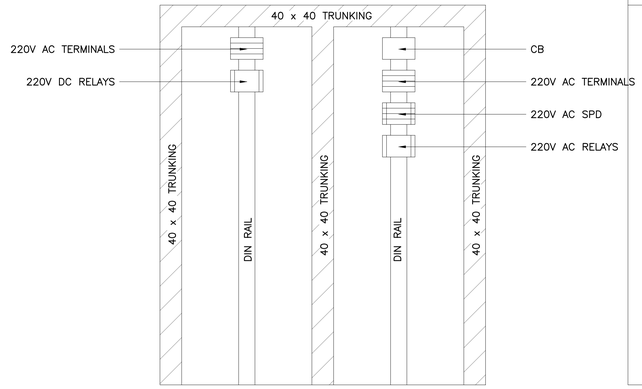
CONSULTANT'S NUMBER
13214-73-06-009

FILE No

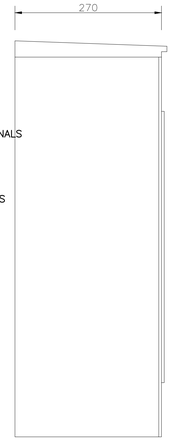
T 0 1



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

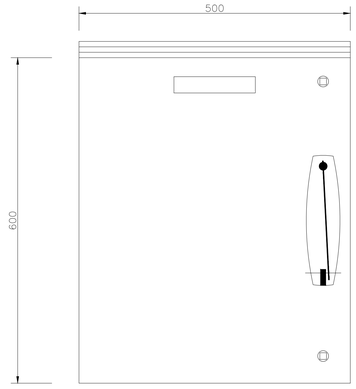
1) ACCESS: FRONT ONLY
2) DOUBLE DOOR
3) PROTECTION: IP65
4) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
5) COLOUR ELECTRIC ORANGE B26
6) CABLE ENTRY: BOTTOM VIA GLANDPLATE
7) DEPTH: 270mm

EQUIPMENT

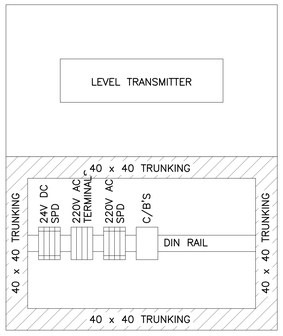
1) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
2) 9 x SPD 220V AC – PHOENIX CONTACT
3) 4 x SWITCHES – SCHNEIDER
4) 2 x LIGHTS – SCHNEIDER
5) 1 x SELECTOR SWITCH – SCHNEIDER
6) 4 x TERMINALS 220V AC – WEIDMULLER
7) 8 x TERMINALS 24 DC – WEIDMULLER
8) 4 x RELAYS 24V DC – OMRON
9) 2 x RELAYS 220V AC ORMON
10) EARTH BAR FULL LENGHT

MODULATING VALVE CONTROL PANEL

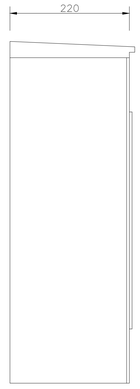
SCALE 1 : 5



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

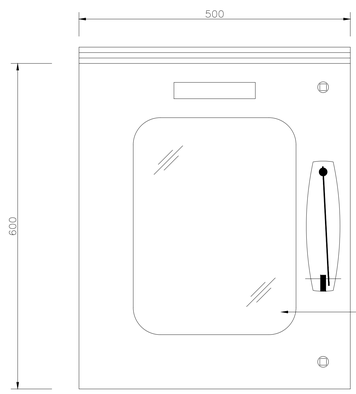
1) ACCESS: FRONT ONLY
2) PROTECTION: IP65
3) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
4) COLOUR ELECTRIC ORANGE B26
5) CABLE ENTRY: BOTTOM VIA GLANDPLATE
6) DEPTH: 220mm

EQUIPMENT

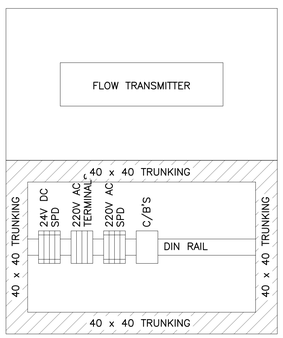
1) 1 x SPD 220V AC – PHOENIX CONTACT
2) 1 x SPD 24V DC – PHOENIX CONTACT
3) 2 x TERMINALS – WEIDMULLER
4) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
5) 1 x 1 POLE 2A CIRCUIT BREAKER – SCHNEIDER
6) EARTH BAR FULL LENGHT

PRESSURE TRANSMITTER JUNCTION BOX

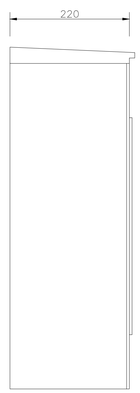
SCALE 1 : 5



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

1) ACCESS: FRONT ONLY
2) PROTECTION: IP65
3) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
4) COLOUR ELECTRIC ORANGE B26
5) CABLE ENTRY: BOTTOM VIA GLANDPLATE
6) DEPTH: 220mm

EQUIPMENT

1) 1 x SPD 220V AC – PHOENIX CONTACT
2) 1 x SPD 24V DC – PHOENIX CONTACT
3) 2 x TERMINALS – WEIDMULLER
4) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
5) 1 x 1 POLE 2A CIRCUIT BREAKER – SCHNEIDER
6) EARTH BAR FULL LENGHT

FLOW TRANSMITTER JUNCTION BOX

SCALE 1 : 5

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O. BOX 6002
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1685
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FAX: (086) 674 6121
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306 Freesia St, Lynnwood Ridge, Pretoria, 0081
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Tel: +27 12 349 1105
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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL FIELD JB'S

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.vT	08.10.2021
T01	ISSUE FOR TENDER	J.vT	18.08.2023

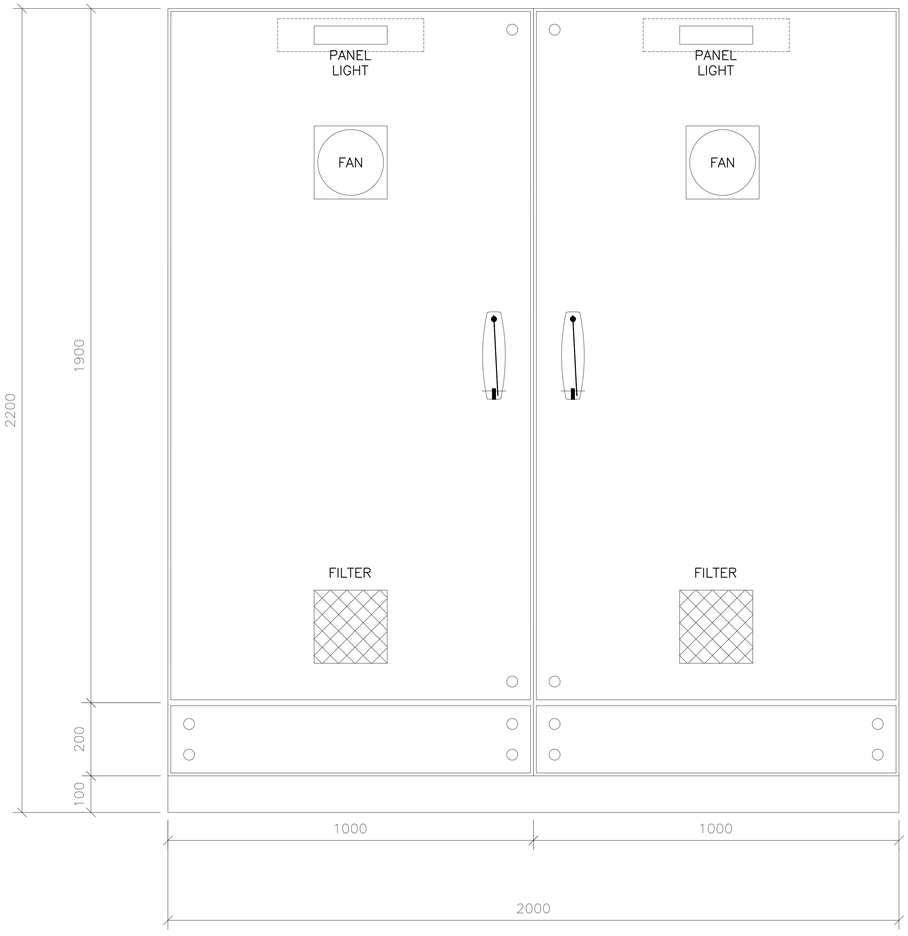
DRAWING No.

JW NUMBER
JW14302

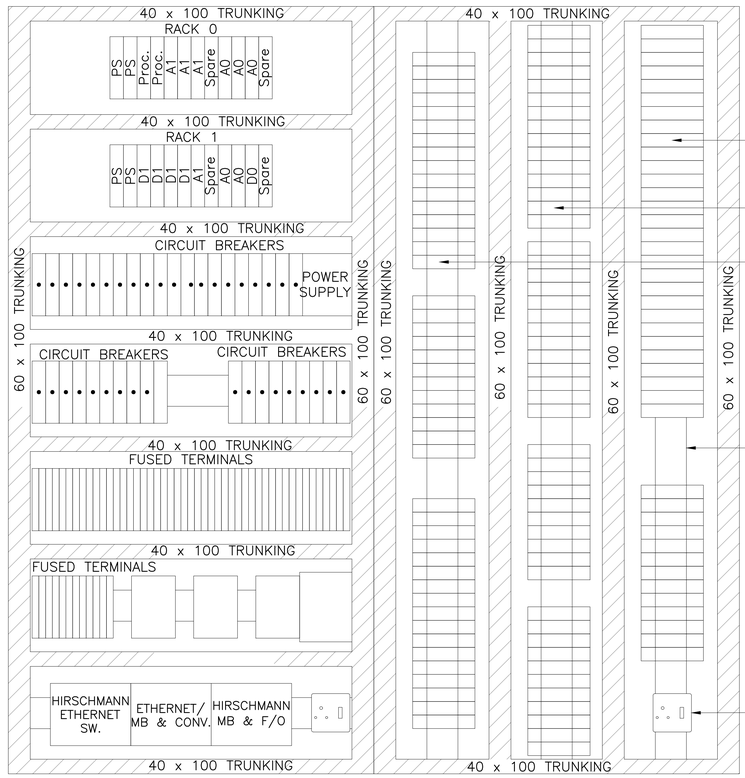
CONSULTANT'S NUMBER
13214-73-06-010

FILE No

T 0 1



FRONT VIEW



CHASSIS LAYOUT

SIDE VIEW

NOTE

1) ACCESS: FRONT ONLY
2) CABLE ENTRY: BOTTOM
3) ENVIRONMENTAL PROTECTION: IP55
4) MATERIAL:2mm MILD STEEL
5) BASE 100mm x 50mm CHANNEL IRON
6) COLOUR ELECTRIC ORANGE B26
   (POWDER COATED)
7) DEPTH: 400mm

PLC PANEL

SCALE 1 : 10

DEPARTMENT	APPROVED	DESIGNATION	DATE

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL FIELD PLC

A0
DO NOT SCALE

DESIGN MANAGER

DATE

SCALE: AS SHOWN

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T01	ISSUED FOR TENDER	J.vT	18.08.2023

DRAWING No.

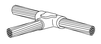
JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-011

FILE No
T01

GROUND ROD.

CABLE CONNECTION



TEE SPLICE

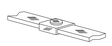
PIPE BONDING

COPPER BRAID FOR GROUND BONDING JUMPER.

CABLE CROSS CONNECTION

DOUBLE CABLE CONNECTION

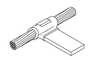
SHEET METAL BONDING



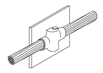
COPPER STRAP
CONNECTION,HORIZONTAL

COPPER STRAP
CONNECTION VERTICAL

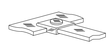
COPPER STRAP TO CABLE



CABLE TO COPPER STRAP



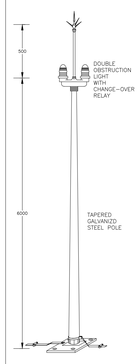
SHEET METAL BONDING



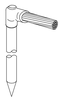
COPPER STRAP
TEE SPLICE HORIZONTAL

COPPER STRAP
TEE SPLICE VERTICAL

AIR TERMINAL SADDLE

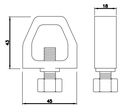


OBSTRUCTION LIGHT

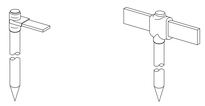


CABLE TO GROUND ROD

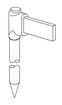
CABLE TO GROUND ROD



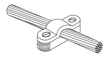
CLAMP



COPPER BAR TO GROUND ROD



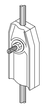
COPPER BAR TO GROUND ROD



COPPER STRAP CLAMP

COPPER TAPE BONDED
TO STEEL PLATE

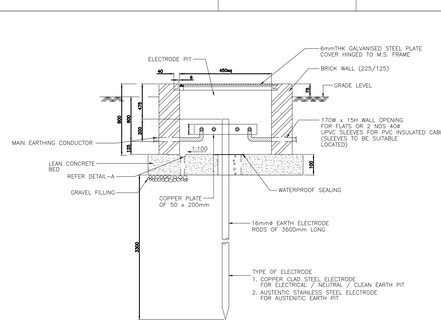
CONDUIT GROUND BUSHING

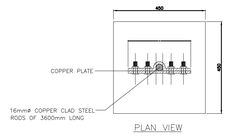


TEST CLAMP

COPPER STRAP CLAMP

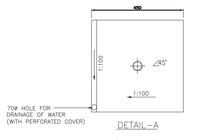
EXOTHERMIC WELDING DETAIL



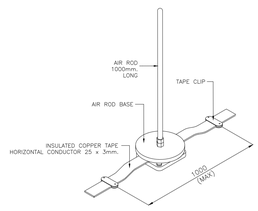


PLAN VIEW

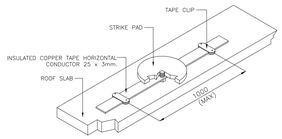
TYPICAL EARTH PIT
ELECTRICAL, CLEAN, NEUTRAL, AUSTENTIC EARTH PIT



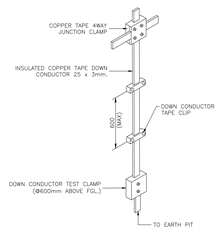
DETAIL-A
PLAN VIEW
FOR DRAINAGE OF WATER



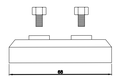
LIGHTNING PROTECTION - ROOF
MOUNTED AIR TERMINAL



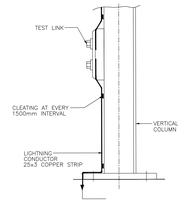
LIGHTNING PROTECTION - ROOF
MOUNTED STRIKE PAD

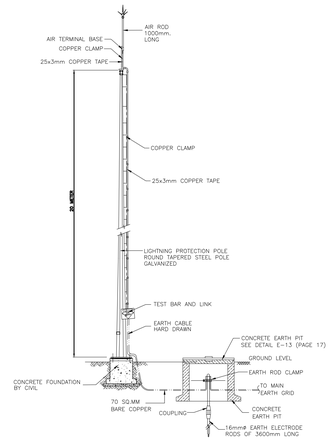


LIGHTNING PROTECTION - DOWN
CONDUCTOR WITH TEST CLAMP

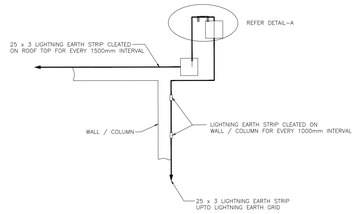


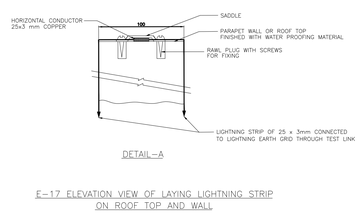
E-16 TYPICAL TEST LINK





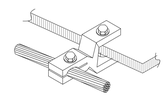
LIGHTNING PROTECTION POLE



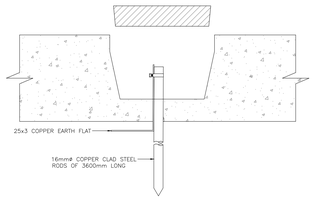


DETAIL-A

E-17 ELEVATION VIEW OF LAYING LIGHTNING STRIP
ON ROOF TOP AND WALL

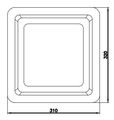


SUPPORT CLAMP

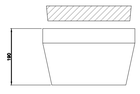


ELEVATION

LIGHTNING EARTH PIT



CONCRETE EARTH HOUSING PLAN



CONCRETE EARTH HOUSING SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
DO NOT SCALE

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CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
EARTHING AND LIGHTINING SYSMBOLS

DESIGN MANAGER

DATE

SCALE
AS SHOWN

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DRAWING No.
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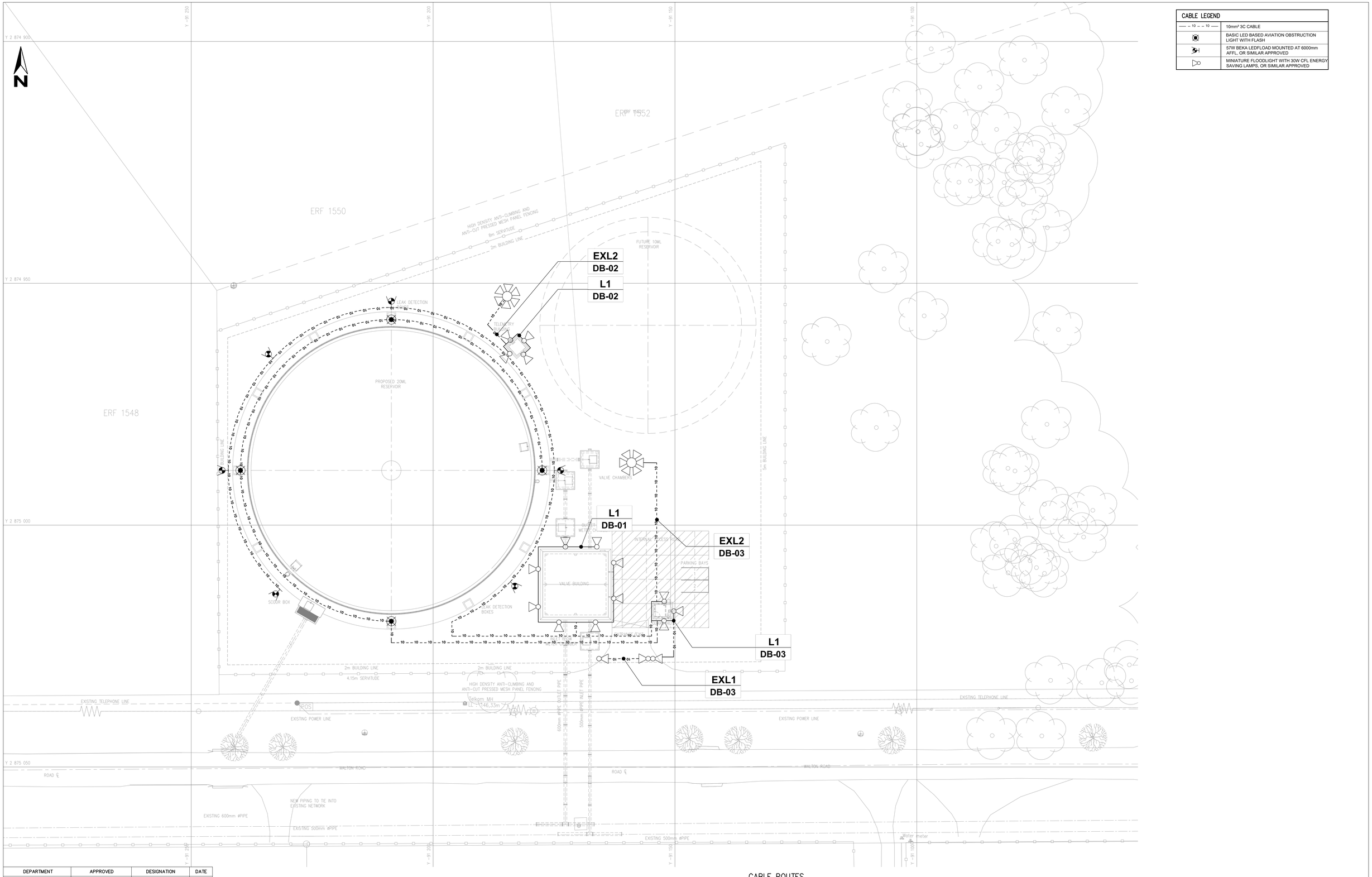
JW14302
CONSULTANT'S NUMBER
13214-73-06-012
FILE No
T01

CABLE LEGEND	
—— – 10 – – 10 – ——	10mm² 3C CABLE
	BASIC LED BASED AVIATION OBSTRUCTION LIGHT WITH FLASH
	57W BEKA LEDFLOAD MOUNTED AT 6000mm AFFL, OR SIMILAR APPROVED
	MINIATURE FLOODLIGHT WITH 30W CFL ENERGY SAVING LAMPS, OR SIMILAR APPROVED



CABLE ROUTES
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
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Pr. Eng. No.	970379
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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

EXTERIOR LIGHTING LAYOUT

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
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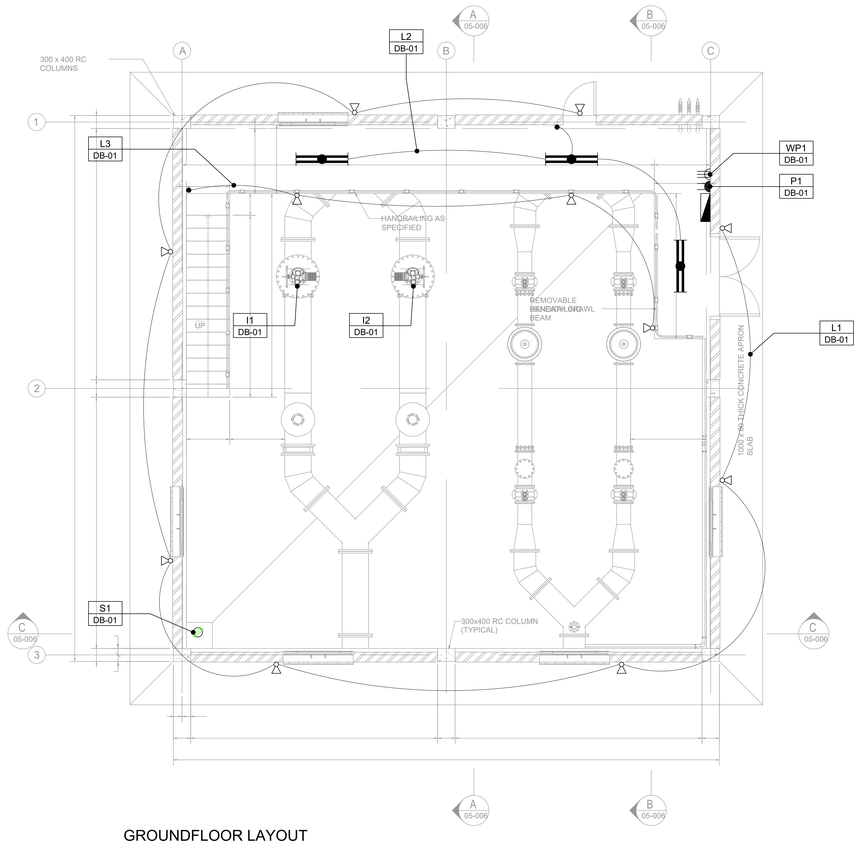
DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-013

FILE No

T 0 1

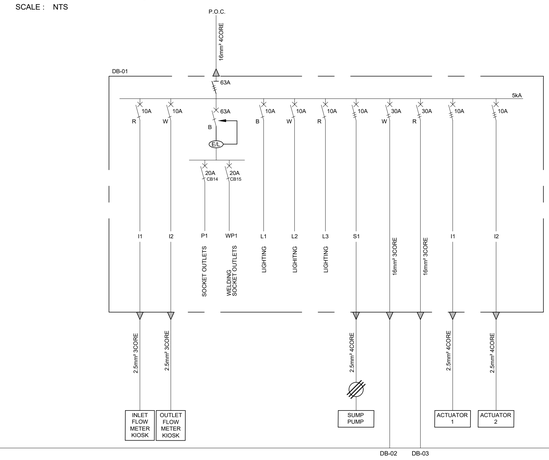


GROUNDFLOOR LAYOUT

SCALE : 50

SINGLE LINE DIAGRAM

SCALE : NTS



ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- WELDING PLUG OUTLET
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- 1200mm OPEN CHANNEL FLUORESCENT (2 x 28W)
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD
- 3-PHASE ISOLATOR

NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

SYMBOL	DESCRIPTION
xA SP	SINGLE POLE CIRCUIT BREAKER.
xA TP	THREE POLE CIRCUIT BREAKER.
xA SP	SINGLE POLE ISOLATOR.
xA TP	THREE POLE ISOLATOR.
xA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
xA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
xA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
xA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
xA SP	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

A0
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e-mail: mail@djjc.co.za

SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C.
CHECKED	JJ.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

VALVE BUILDING POWER AND LIGHTING LAYOUT

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS

		APPROVED	DATE
T00	ISSUED FOR INTERNAL REVIEW	J.v.T	08.10.2021
T01	ISSUED FOR TENDER	J.v.T	18.08.2023

DRAWING No.

JW NUMBER
JW14302

CONSULTANT'S NUMBER
13214-73-06-014

FILE No
T01