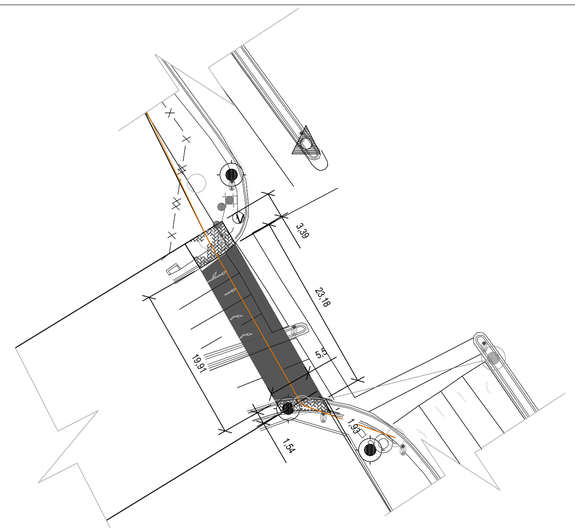
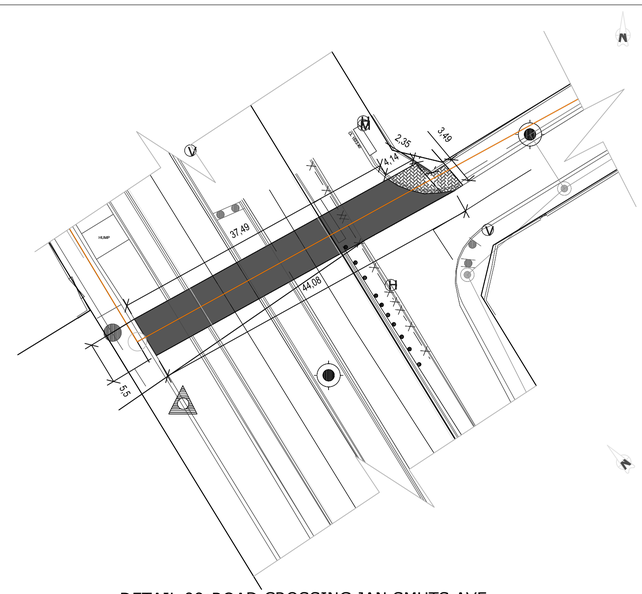
DETAIL 07: ROAD CROSSING SELKIRK & JAN SMUTS AVE

SCALE: AS SHOWN



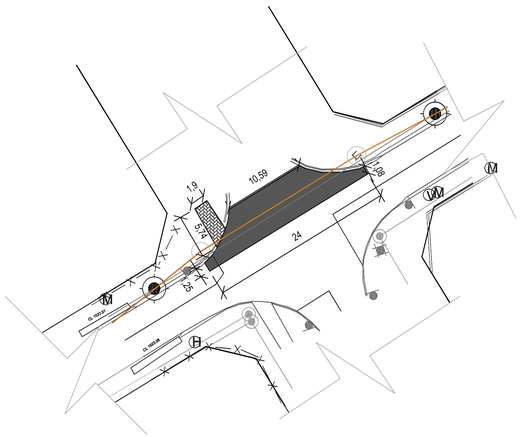
DETAIL 08:ROAD CROSSING REPUBLIC ROAD

SCALE: AS SHOWN



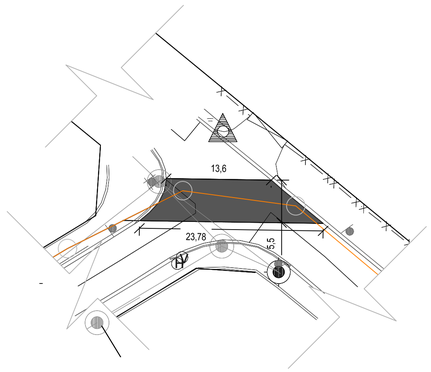
DETAIL 09:ROAD CROSSING JAN SMUTS AVE

SCALE: AS SHOWN



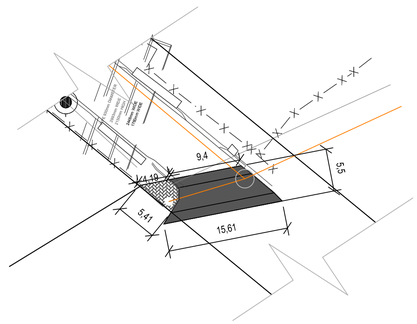
DETAIL 10:ROAD CROSSING VALLEY ROAD

SCALE: AS SHOWN



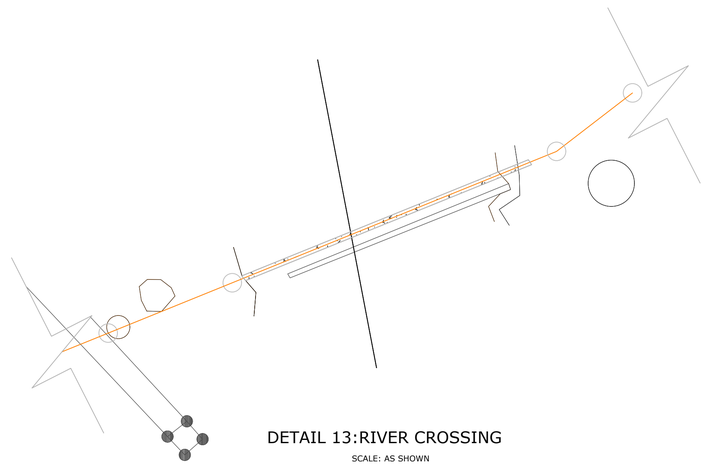
DETAIL 11:ROAD CROSSING GARDEN ROAD

SCALE: AS SHOWN



DETAIL 12:ROAD CROSSING GARDEN ROAD

SCALE: AS SHOWN



DETAIL 13:RIVER CROSSING

SCALE: AS SHOWN

ASSOCIATED DRAWINGS LEGEND	
DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

1. Drawings to be read in conjunction with all relevant Architect's, Consultant's, and Specialist's drawings and specifications.
2. All details and dimensions subject to confirmation on site. Any discrepancies must be brought to the engineer's attention prior to construction.
3. Drawings are not to be scaled.
4. All construction workmanship and materials to be in accordance with the relevant provisions of "The Application of the National Building Regulations" (SANS 10400), Building Standards act (Act103) and the relevant parts of SABS 1200.
5. The works will be inspected form time to time by the consulting engineer to ascertain that the contractor is carrying out the work in general conformity with the engineering drawings and documents. Such inspections are not for the contractors benefit and do not relieve him of the responsibility for the proper construction of the works in accordance with the engineering drawings, documents and good building practice.
6. The signed original copy of this drawing is kept at the engineer's office.

LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

SEWER LAYOUT PLAN:
MH 01 - CP

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: ROTHE MADZHADZHI
Scale: AS SHOWN	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 02	Sheet: 1/1

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	006	A

INFORMATION

SEWER SCHEDULE

Name	Y-Coord	X-Coord	Cover	Inlet	Length	Depth	Slope	Type	Size	Level In	Level Out
MH 01	99573.34	2887907.65	1599.18	1597.59		1.60					
					27.07		3.89 %	PVC-U	200 mm	1597.59	1596.53
MH 02	99546.30	2887908.87	1598.47	1596.53		1.94					
					73.20		4.73 %	PVC-U	200 mm	1596.53	1593.07
MH 03	99473.16	2887905.96	1596.10	1593.07		3.04					
					79.37		5.56 %	PVC-U	200 mm	1593.07	1588.65
MH 04	99393.85	2887902.84	1591.59	1588.65		2.94					
					78.40		5.51 %	PVC-U	200 mm	1588.65	1584.33
MH 05	99315.50	2887900.26	1586.87	1584.33		2.54					
					77.99		8.26 %	PVC-U	200 mm	1584.33	1577.89
MH 06	99237.52	2887898.71	1580.60	1577.89		2.71					
					43.03		6.31 %	PVC-U	200 mm	1577.89	1575.18
MH 07	99194.51	2887897.46	1577.09	1575.18		1.92					
					5.56		6.30 %	PVC-U	200 mm	1575.18	1574.83
MH 08	99191.11	2887901.85	1577.39	1574.83		2.56					
					12.33		6.59 %	PVC-U	200 mm	1574.83	1574.02
MH 09	99191.26	2887914.18	1576.96	1574.02		2.95					
					26.66		2.84 %	PVC-U	200 mm	1574.02	1573.26
MH 10	99176.42	2887936.32	1576.19	1573.26		2.93					
					23.14		3.02 %	PVC-U	200 mm	1573.26	1572.56
MH 11	99159.17	2887951.75	1574.37	1572.56		1.81					
					47.88		5.34 %	PVC-U	200 mm	1572.56	1570.00
MH 12	99130.63	2887990.20	1571.65	1570.00		1.64					
					64.15		6.30 %	PVC-U	200 mm	1570.00	1565.96
MH 13	99090.94	2888040.59	1567.47	1565.96		1.50					
					79.39		5.17 %	PVC-U	200 mm	1565.96	1561.86
MH 14	99046.54	2888106.42	1563.15	1561.86		1.30					
					52.24		6.00 %	PVC-U	200 mm	1561.86	1558.72
MH 15	99014.79	2888147.91	1559.97	1558.72		1.25					
					32.20		7.35 %	PVC-U	200 mm	1558.72	1556.35
MH 16	99000.84	2888176.93	1557.96	1556.35		1.61					
					24.61		7.79 %	PVC-U	200 mm	1556.35	1554.44
MH 17	98988.67	2888198.32	1556.42	1554.44		1.98					
					12.79		9.29 %	PVC-U	200 mm	1554.44	1553.25
MH 18	98976.60	2888202.54	1555.20	1553.25		1.95					
					43.63		4.95 %	PVC-U	200 mm	1553.25	1551.09
MH 19	98953.22	2888239.37	1552.08	1551.09		1.00					
					36.10		7.28 %	PVC-U	200 mm	1551.09	1548.46
MH 20	98936.45	2888271.34	1549.75	1548.46		1.29					
					27.65		8.38 %	PVC-U	200 mm	1548.46	1546.14
MH 21	98921.80	2888294.80	1547.61	1546.14		1.47					
					64.08		7.43 %	PVC-U	200 mm	1546.14	1541.38
MH 22	98888.28	2888349.41	1543.06	1541.38		1.68					
					66.46		7.35 %	PVC-U	200 mm	1541.38	1536.49
MH 23	98854.06	2888406.39	1537.89	1536.49		1.40					
					60.69		6.87 %	PVC-U	200 mm	1536.49	1532.32
MH 24	98822.86	2888458.44	1533.48	1532.32		1.16					
					43.32		3.20 %	PVC-U	200 mm	1532.32	1530.94
MH 25	98784.94	2888437.50	1532.76	1530.94		1.83					
					39.39		3.84 %	PVC-U	200 mm	1530.94	1529.42
MH 26	98750.38	2888418.61	1531.39	1529.42		1.97					
					65.74		3.39 %	PVC-U	200 mm	1529.42	1527.19
MH 27	98694.05	2888384.71	1529.16	1527.19		1.96					
					65.74		3.60 %	PVC-U	200 mm	1527.19	1524.83
MH 28	98637.72	2888350.82	1526.85	1524.83		2.02					
					73.40		4.70 %	PVC-U	200 mm	1524.83	1521.37
MH 29	98575.21	2888312.34	1523.51	1521.37		2.14					
					16.35		5.16 %	PVC-U	200 mm	1521.37	1520.53
MH 30	98562.49	2888302.08	1522.93	1520.53		2.40					
					23.66		4.50 %	PVC-U	200 mm	1520.53	1519.46
MH 31	98542.33	2888289.69	1522.21	1519.46		2.74					
					33.58		3.11 %	PVC-U	200 mm	1519.46	1518.42
MH 32	98512.71	2888273.87	1520.48	1518.42		2.06					
					74.25		4.18 %	PVC-U	200 mm	1518.42	1515.31
MH 33	98450.58	2888233.21	1517.33	1515.31		2.01					
					73.32		4.67 %	PVC-U	200 mm	1515.31	1511.89
MH 34	98388.05	2888194.92	1513.58	1511.89		1.69					
					72.65		2.43 %	PVC-U	200 mm	1511.89	1510.13
MH 35	98325.96	2888157.21	1512.03	1510.13		1.90					
					16.68		1.72 %	PVC-U	200 mm	1510.13	1509.84
MH 36	98311.04	2888149.73	1511.95	1509.84		2.11					
					14.76		4.12 %	PVC-U	315 mm	1509.84	1509.23
MH 37	98296.41	2888151.69	1511.08	1509.23		1.85					
					35.60		4.87 %	PVC-U	315 mm	1509.23	1507.50
MH 38	98269.07	2888174.50	1508.72	1507.50		1.22					
					37.59		3.88 %	PVC-U	315 mm	1507.50	1506.04
MH 39	98240.21	2888198.60	1507.74	1506.04		1.70					
					48.96		4.29 %	PVC-U	315 mm	1506.04	1503.94
MH 40	98195.77	2888178.07	1505.48	1503.94		1.54					
					27.39		2.49 %	PVC-U	315 mm	1503.94	1503.26
MH 41	98171.81	2888164.80	1505.03	1503.26		1.77					
					84.97		1.87 %	PVC-U	315 mm	1503.26	1501.67
MH 42	98086.86	2888166.63	1503.86	1501.67		2.19					
					79.67		2.50 %	PVC-U	315 mm	1501.67	1499.68
MH 43	98007.60	2888174.72	1501.55	1499.68		1.87					
					40.94		1.46 %	PVC-U	315 mm	1499.68	1499.08
MH 44	97986.25	2888209.65	1500.89	1499.08		1.81					
					40.94		1.58 %	PVC-U	315 mm	1499.08	1498.43
MH 45	97964.89	2888244.57	1500.05	1498.43		1.62					
					66.30		1.73 %	PVC-U	355 mm	1498.43	1497.29
MH 46	97937.49	2888304.94	1499.94	1497.29		2.65					
					12.90		2.20 %	PVC-U	355 mm	1497.29	1497.01
MH 47	97925.54	2888300.10	1498.83	1497.01		1.83					
					17.34		2.13 %	PVC-U	355 mm	1497.01	1496.64
MH 48	97909.47	2888293.59	1497.55	1496.64		0.92					
					45.29		0.53 %	PVC-U	355 mm	1496.64	1496.40
MH 49	97867.49	2888276.59	1498.21	1496.40		1.81					
					12.41		0.86 %	PVC-U	355 mm	1496.40	1496.29
CP	97857.65	2888269.03	1498.59	1496.29		2.30					

BENCHMARKS				
CO-ORDINATES		WG29		
	X+0.00	Y+0.00	Z	DESCRIPTION
BM1	99 157.187	2887 930.413	1574.534	12mm iron peg in paving
BM2	99 452.466	2887 966.265	1594.916	12mm iron peg in paving
BM3	99 601.422	2887 945.953	1600.235	12mm iron peg in paving
BM4	98 988.126	2888 164.510	1557.278	12mm iron peg in paving
BM5	98 816.925	2888 466.456	1532.846	Hole drilled in concrete
BM6	98 305.811	2888 142.072	1512.161	12mm iron peg in tarmac
BM7	97 855.913	2888 273.829	1498.818	12mm iron peg in concrete

ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

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LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO
JOHANNESBURG WATER MANAGEMENT COMPANY

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

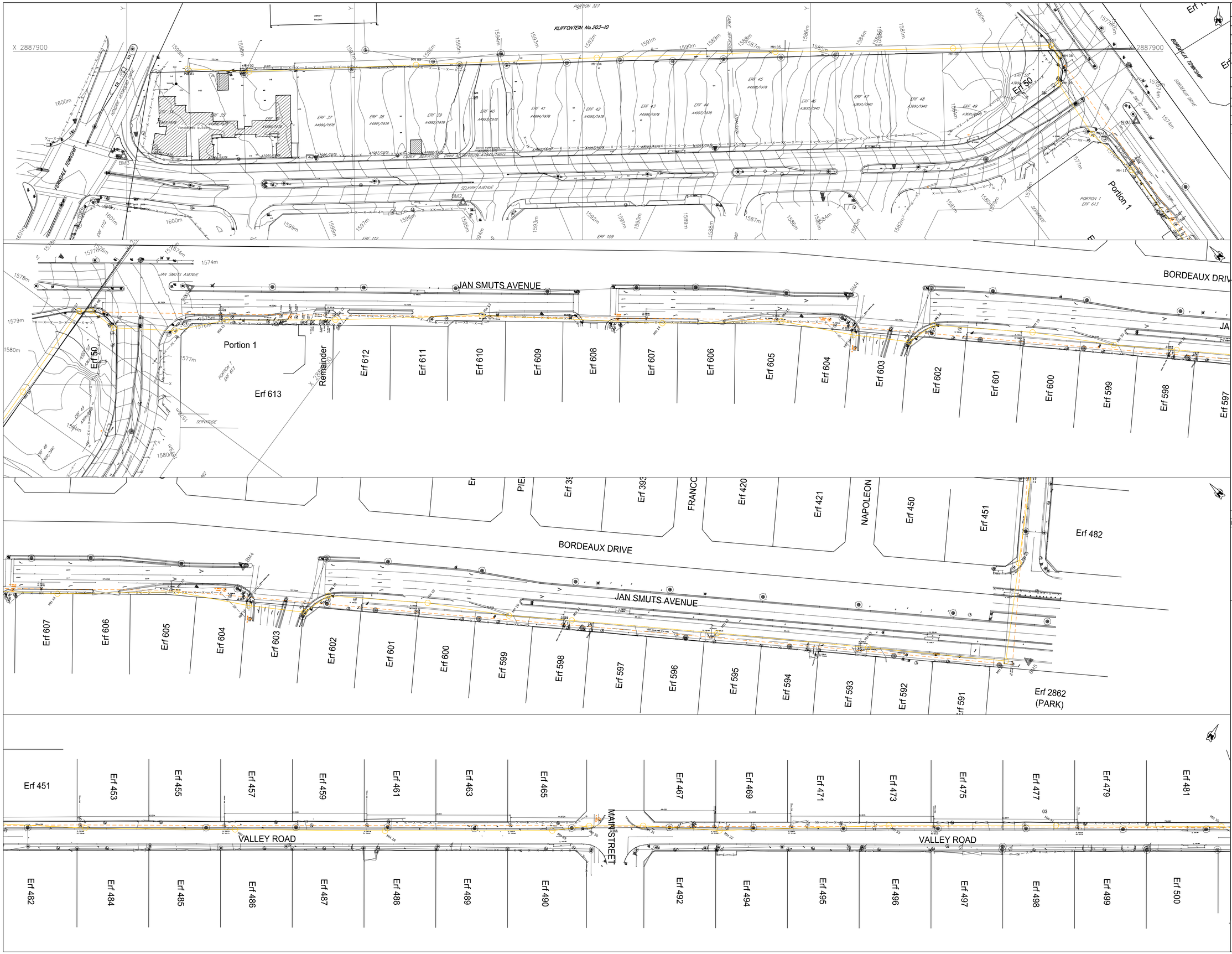
OVERALL SEWER LAYOUT PLAN

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	L. REDDY

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: GIVEN MASHABELA
Scale: 1:2500	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 1/3

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	002	0

INFORMATION



ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

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LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

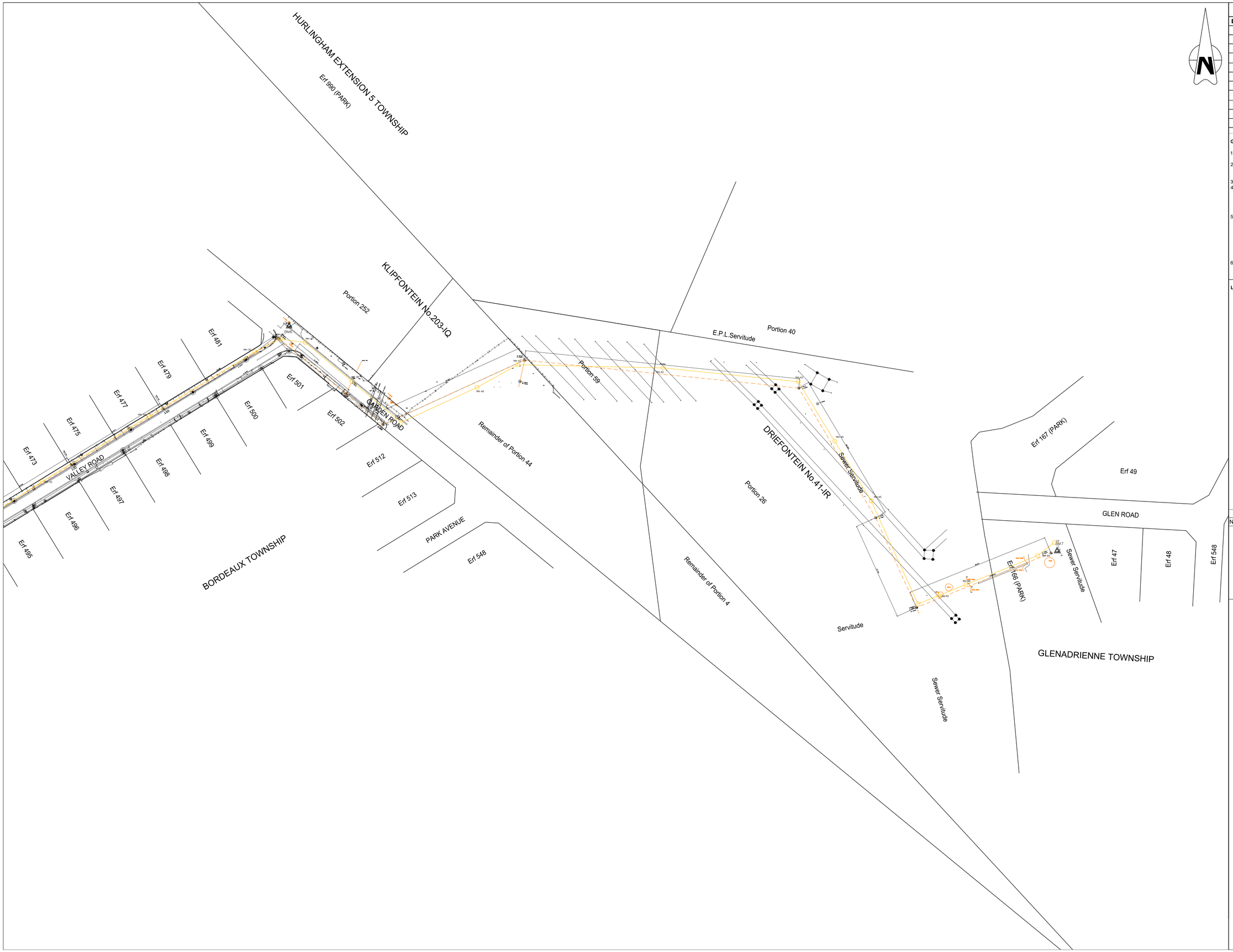
SEWER LAYOUT PLAN: MH 01 - MH 34

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: GIVEN MASHABELA
Scale: 1:750	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 2/3

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	003	0

INFORMATION


HURLINGHAM EXTENSION 5 TOWNSHIP
Erf 990 (PARK)
KLIPFONTEIN No.203-IQ
Portion 252
Portion 40
E.P.L.Servitude
Portion 59
Remainder of Portion 44
DRIEFONTEIN No.41-IR
Sewer Servitude
Portion 26
Remainder of Portion 4
Servitude
Sewer Servitude
GLENADRIENNE TOWNSHIP
Erf 167 (PARK)
Erf 49
GLEN ROAD
Erf 47
Erf 48
Erf 548
Erf 166 (PARK)
Sewer Servitude
BORDEAUX TOWNSHIP
Erf 473
Erf 475
Erf 477
Erf 479
Erf 481
Erf 495
Erf 496
Erf 497
Erf 498
Erf 499
Erf 500
Erf 501
Erf 502
Erf 512
Erf 513
Erf 548
VALLEY ROAD
GARDEN ROAD
PARK AVENUE
BM6
MH 35
MH 42
MH 43
MH 44
MH 45
MH 46
MH 47
MH 48
MH 49
MH 50
MH 51
MH 52
MH 53
MH 54
MH 55
MH 56
MH 57
MH 58
MH 59
MH 60
MH 61
MH

LEGEND

- Bench mark
- Bell
- Dust bin
- Embarkment
- Electricity pole
- Fence
- Gate
- Hydrant
- Marker
- Pole
- Power meter box/Transformer
- Paving
- Robot
- Sewer manhole
- Stormwater manhole
- Sign post
- Telephone pole
- Telkom manhole
- Telkom meter box
- Tree
- Street light pole
- Unknown manhole
- Valve
- Water meter
- Water tap
- Water manhole
- Electricity cables manhole
- Pylon

ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

1. Drawings to be read in conjunction with all relevant Architect's, Consultant's, and Specialist's drawings and specifications.
2. All details and dimensions subject to confirmation on site. Any discrepancies must be brought to the engineer's attention prior to construction.
3. Drawings are not to be scaled.
4. All construction workmanship and materials to be in accordance with the relevant provisions of "The Application of the National Building Regulations" (SANS 10400), Building Standards act (Act103) and the relevant parts of SABS 1200.
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6. The signed original copy of this drawing is kept at the engineer's office.

LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

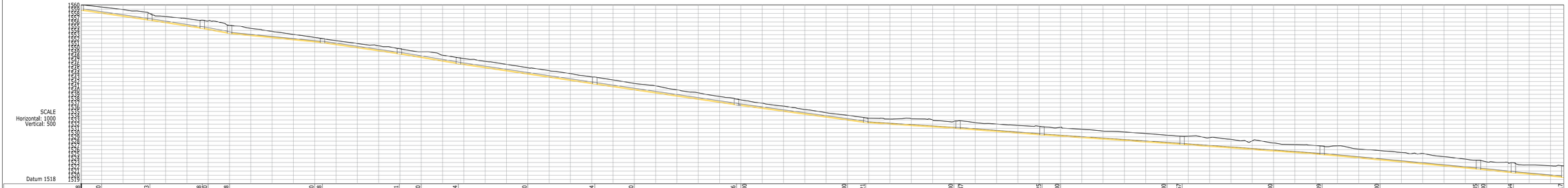
ROAD CROSSINGS LAYOUT PLAN

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: ROTHE MADZHADZHI
Scale: 1:2000	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 1/1

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	005	A

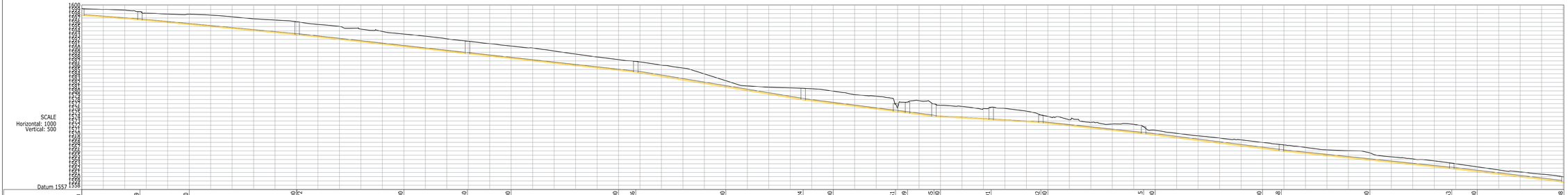
INFORMATION



CHAINAGE	690.408	700.000	722.613	747.718	760.000	760.008	800.000	803.638	839.741	850.000	867.394	900.000	931.474	950.000	958.621	1050.000	1097.936	1000.000	1058.621	1100.000	1101.337	1141.325	1150.000	1200.000	1207.067	1250.000	1272.809	1300.000	1346.205	1350.000	1362.554	1386.217
GROUND LEVEL	1559.972	1559.504	1557.960	1556.416	1556.231	1555.197	1552.266	1552.084	1546.746	1548.989	1547.612	1545.250	1543.060	1541.568	1534.082	1533.484	1532.651	1532.765	1533.101	1532.921	1531.392	1531.256	1529.128	1529.393	1529.155	1527.566	1526.846	1525.783	1523.511	1523.143	1522.929	1522.206
MANHOLE NAME	MH 15		MH 16	MH 17		MH 18		MH 19	MH 20		MH 21		MH 22			MH 23				MH 24		MH 25		MH 26			MH 27		MH 28		MH 29		MH 30	MH 31
INLET LEVEL / OUTLET LEVEL	1558.721	1558.016	1556.353	1556.353	1554.437	1554.337	1553.249	1553.249	1551.888	1551.088	1548.658	1548.458	1547.599	1546.142	1546.142	1543.719	1541.381	1541.381	1540.018	1536.493	1536.393	1536.351	1532.914	1532.221	1532.321	1531.388	1531.288	1530.936	1529.422	1529.322	1529.128	1527.433	1527.193	1527.193	1525.647	1524.925	1524.825	1523.546	1521.373	1521.273	1521.177	1520.530	1520.530	1518.664	1518.564
LINK TYPE / LINK SIZE	PVC-U 200 mm		PVC-U 200 mm	PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm	PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm			PVC-U 200 mm				PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm			PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm	PVC-U 200 mm
LENGTH / SLOPE	32.205 m 7.353 %		24.605 m 7.787 %	12.790 m 9.289 %		43.630 m 4.953 %		36.103 m 7.285 %	27.653 m 8.375 %		64.080 m 7.430 %		66.462 m 7.355 %			60.685 m 6.875 %				43.316 m 3.197 %		39.388 m 3.844 %		65.742 m 3.391 %			65.742 m 3.602 %		73.396 m 4.703 %		16.349 m 5.156 %		23.663 m 4.505 %	
FLOW	0.022 m³/s		0.022 m³/s	0.022 m³/s		0.022 m³/s		0.022 m³/s	0.022 m³/s		0.022 m³/s		0.022 m³/s			0.022 m³/s				0.023 m³/s		0.023 m³/s		0.023 m³/s			0.023 m³/s		0.023 m³/s		0.023 m³/s		0.023 m³/s	0.023 m³/s
CAPACITY	0.092 m³/s		0.095 m³/s	0.104 m³/s		0.076 m³/s		0.092 m³/s	0.098 m³/s		0.093 m³/s		0.092 m³/s			0.089 m³/s				0.061 m³/s		0.067 m³/s		0.063 m³/s			0.064 m³/s		0.074 m³/s		0.077 m³/s		0.072 m³/s	
VELOCITY	2.647 m/s		2.702 m/s	2.876 m/s		2.293 m/s		2.638 m/s	2.773 m/s		2.657 m/s		2.647 m/s			2.583 m/s				1.983 m/s		2.120 m/s		2.026 m/s			2.071 m/s		2.284 m/s		2.362 m/s		2.248 m/s	
HYDRAULIC ELEVATION	1559.140		1556.787	1554.916		1553.586		1551.504	1548.909		1546.563		1541.800			1536.896				1532.600		1531.240		1529.710			1527.488		1525.162		1521.726		1520.861	1519.741

LONGITUDINAL SECTION - MH 15 to MH 31

SCALE: AS SHOWN



CHAINAGE	0.000	27.069	50.000	100.000	100.272	150.000	179.640	200.000	250.000	258.036	300.000	336.024	350.000	379.051	379.051	384.609	386.835	395.035	423.591	445.372	450.000	494.615	500.000	550.000	558.768	600.000	638.163	650.000	693.408
GROUND LEVEL	1599.184	1598.469	1597.874	1596.122	1596.104	1593.250	1591.595	1590.451	1587.284	1586.869	1582.364	1580.603	1579.942	1577.093	1577.093	1577.391	1576.865	1575.935	1576.188	1574.370	1574.065	1571.646	1570.815	1567.980	1567.469	1565.535	1563.153	1562.296	1559.972
MANHOLE NAME	MH 01	MH 02		MH 03				MH 04		MH 05					MH 07	MH 08	MH 09		MH 10			MH 11		MH 12				MH 13			MH 14			MH 15
INLET LEVEL / OUTLET LEVEL	1597.585	1596.533	1596.533	1593.067	1593.067	1590.362	1588.654	1588.554	1587.532	1584.775	1584.332	1580.868	1577.894	1577.894	1577.012	1575.178	1575.178	1574.828	1574.828	1574.016	1574.016	1573.929	1573.260	1573.260	1572.560	1572.560	1572.386	1570.004	1570.004	1569.565	1566.517	1565.965	1565.965	1563.832	1561.857	1561.857	1561.146	1558.721	1558.721
LINK TYPE / LINK SIZE	PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm			PVC-U 200 mm			PVC-U 200 mm					PVC-U 200 mm								PVC-U 200 mm		PVC-U 200 mm			PVC-U 200 mm				PVC-U 200 mm			PVC-U 200 mm			PVC-U 200 mm		
LENGTH / SLOPE	27.069 m 3.886 %		73.203 m 4.735 %		79.368 m 5.560 %			78.396 m 5.513 %			77.988 m 8.255 %			43.027 m 6.312 %	5.558 m 6.297 %	12.326 m 6.588 %		26.656 m 2.836 %		23.141 m 3.025 %		47.883 m 5.338 %		64.153 m 6.296 %			79.395 m 5.174 %				52.245 m 6.002 %			
FLOW	0.015 m³/s		0.015 m³/s		0.015 m³/s			0.016 m³/s			0.016 m³/s			0.016 m³/s	0.017 m³/s	0.017 m³/s		0.017 m³/s		0.017 m³/s		0.017 m³/s		0.022 m³/s			0.022 m³/s				0.022 m³/s			
CAPACITY	0.067 m³/s		0.074 m³/s		0.080 m³/s			0.080 m³/s			0.098 m³/s			0.085 m³/s	0.085 m³/s	0.087 m³/s		0.057 m³/s		0.059 m³/s		0.079 m³/s		0.085 m³/s			0.077 m³/s				0.083 m³/s			
VELOCITY	1.910 m/s		2.048 m/s		2.170 m/s			2.174 m/s			2.516 m/s			2.285 m/s	2.345 m/s	2.384 m/s		1.761 m/s		1.802 m/s		2.214 m/s		2.501 m/s			2.329 m/s				2.458 m/s			
HYDRAULIC ELEVATION	1597.832	1596.804		1593.363			1588.951			1584.705			1578.214		1575.516	1575.173		1574.245		1573.495		1572.869		1570.386			1566.309				1562.230			1559.140

LONGITUDINAL SECTION - MH 01 to MH 15

SCALE: AS SHOWN

ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

1. Drawings to be read in conjunction with all relevant Architect's, Consultant's, and Specialist's drawings and specifications.
2. All details and dimensions subject to confirmation on site. Any discrepancies must be brought to the engineer's attention prior to construction.
3. Drawings are not to be scaled.
4. All construction workmanship and materials to be in accordance with the relevant provisions of "The Application of the National Building Regulations" (SANS 10400), Building Standards act (Act103) and the relevant parts of SABS 1200.
5. The works will be inspected form time to time by the consulting engineer to ascertain that the contractor is carrying out the work in general conformity with the engineering drawings and documents. Such inspections are not for the contractors benefit and do not relieve him of the responsibility for the proper construction of the works in accordance with the engineering drawings, documents and good building practice.
6. The signed original copy of this drawing is kept at the engineer's office.

LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO DEVELOPMENT AND INVESTMENT COMPANY

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

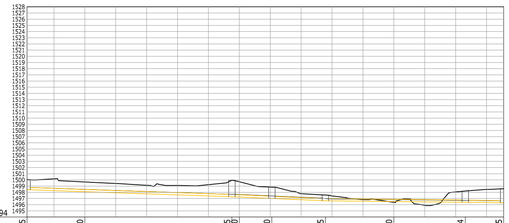
Drawing Title:

SEWER LAYOUT PLAN: MH 01 TO MH 31

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	L. REDDY
Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: GIVEN MASHABELA
Scale: 1:750	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 1/2

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	200	0

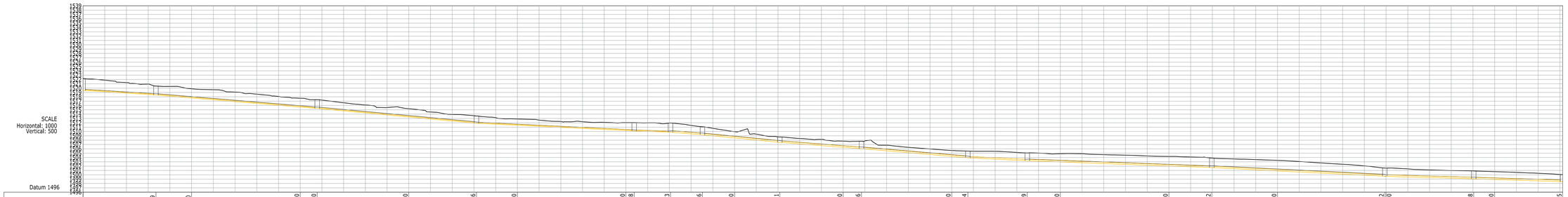
INFORMATION



CHAINAGE	0.000	700.000	747.605	750.000	760.500	777.835	800.000	823.124	835.535															
GROUND LEVEL	1500.050	1499.670	1499.936	1497.715	1498.833	1497.554	1496.387	1498.210	1498.598															
MANHOLE NAME	MH 45		MH 46		MH 47	MH 48		MH 49	CP															
INLET LEVEL / OUTLET LEVEL	1498.435	1498.112	1497.230	1497.230	1497.005	1496.637	1496.520	1496.397	1496.290															
LINK TYPE / LINK SIZE	PVC-U 355 mm			PVC-U 355 mm	PVC-U 355 mm		PVC-U 355 mm		PVC-U 355 mm															
LENGTH / SLOPE	66.300 m 1.727 %			12.895 m 2.202 %	17.335 m 2.129 %		45.289 m 0.530 %		12.411 m 0.862 %															
FLOW	0.077 m³/s			0.078 m³/s	0.078 m³/s		0.078 m³/s		0.078 m³/s															
CAPACITY	0.207 m³/s			0.233 m³/s	0.229 m³/s		0.114 m³/s		0.146 m³/s															
VELOCITY	2.131 m/s			2.342 m/s	2.312 m/s		1.373 m/s		1.655 m/s															
HYDRAULIC ELEVATION	1498.806		1497.703		1497.411	1496.934		1496.711	1496.604															

LONGITUDINAL SECTION - MH 45 to CP

SCALE: AS SHOWN



CHAINAGE	0.000	33.579	50.000	100.000	107.830	150.000	181.146	200.000	250.000	253.798	270.483	285.246	300.000	320.851	350.000	358.446	400.000	407.404	434.789	450.000	500.000	519.762	550.000	600.000
GROUND LEVEL	1522.206	1520.484	1519.859	1517.671	1517.328	1515.241	1513.580	1512.887	1512.035	1512.030	1511.848	1511.079	1509.555	1508.719	1507.767	1507.741	1505.606	1505.481	1505.031	1504.861	1504.238	1503.864	1503.325	1501.553
MANHOLE NAME	MH 31	MH 32			MH 33		MH 34		MH 35	MH 36		MH 37		MH 38	MH 39		MH 40		MH 41		MH 42		MH 43	
INLET LEVEL / OUTLET LEVEL	1519.464	1518.419	1517.732	1515.641	1515.313	1513.245	1511.891	1511.693	1511.433	1510.128	1509.841	1509.233	1508.514	1507.499	1506.569	1506.042	1504.258	1503.540	1503.258	1502.974	1502.041	1501.672	1500.916	1499.686
LINK TYPE / LINK SIZE	PVC-U 200 mm		PVC-U 200 mm			PVC-U 200 mm		PVC-U 200 mm		PVC-U 200 mm	PVC-U 315 mm		PVC-U 315 mm		PVC-U 315 mm		PVC-U 315 mm		PVC-U 315 mm		PVC-U 315 mm		PVC-U 315 mm	
LENGTH / SLOPE	33.579 m 3.112 %		74.251 m 4.183 %			73.316 m 4.667 %		72.652 m 2.427 %		16.685 m 1.720 %	14.763 m 4.118 %		35.605 m 4.870 %		37.595 m 3.876 %		48.958 m 4.293 %		27.385 m 2.490 %		84.973 m 1.866 %		79.670 m 2.500 %	
FLOW	0.023 m³/s		0.023 m³/s			0.023 m³/s		0.023 m³/s		0.023 m³/s	0.037 m³/s		0.037 m³/s		0.037 m³/s		0.040 m³/s		0.040 m³/s		0.077 m³/s		0.077 m³/s	
CAPACITY	0.060 m³/s		0.070 m³/s			0.073 m³/s		0.053 m³/s		0.045 m³/s	0.233 m³/s		0.253 m³/s		0.226 m³/s		0.238 m³/s		0.181 m³/s		0.157 m³/s		0.181 m³/s	
VELOCITY	1.964 m/s		2.188 m/s			2.278 m/s		1.790 m/s		1.575 m/s	2.400 m/s		2.544 m/s		2.349 m/s		2.506 m/s		2.059 m/s		2.199 m/s		2.451 m/s	
HYDRAULIC ELEVATION	1519.741	1518.736		1515.649			1512.141			1510.350	1510.213	1509.639		1507.859		1506.444		1504.250	1503.650		1502.112		1500.043	

LONGITUDINAL SECTION - MH 31 to MH 45

SCALE: AS SHOWN

ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

1. Drawings to be read in conjunction with all relevant Architect's, Consultant's, and Specialist's drawings and specifications.
2. All details and dimensions subject to confirmation on site. Any discrepancies must be brought to the engineer's attention prior to construction.
3. Drawings are not to be scaled.
4. All construction workmanship and materials to be in accordance with the relevant provisions of "The Application of the National Building Regulations" (SANS 10400), Building Standards act (Act103) and the relevant parts of SABS 1200.
5. The works will be inspected form time to time by the consulting engineer to ascertain that the contractor is carrying out the work in general conformity with the engineering drawings and documents. Such inspections are not for the contractors benefit and do not relieve him of the responsibility for the proper construction of the works in accordance with the engineering drawings, documents and good building practice.
6. The signed original copy of this drawing is kept at the engineer's office.

LEGEND

	Proposed Sewer Line
	Existing Sewer Line
MH	Manhole
CP	Connection Point

NO.	DATE	AMENDMENT

Client:

JOSHCO
JOHANNESBURG ROADS MANAGEMENT CONTRACT

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

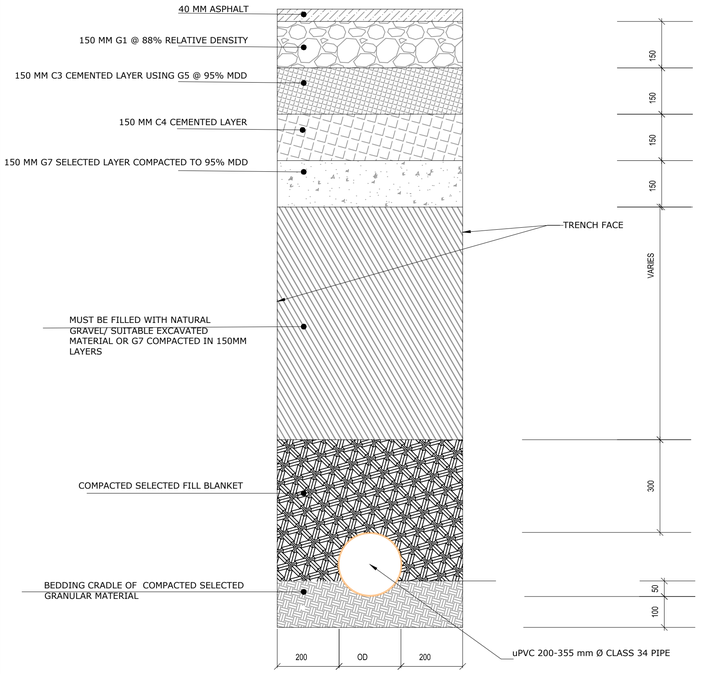
SEWER LAYOUT PLAN: MH 31 TO CP

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	L. REDDY

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: GIVEN MASHABELA
Scale: 1:750	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 2/2

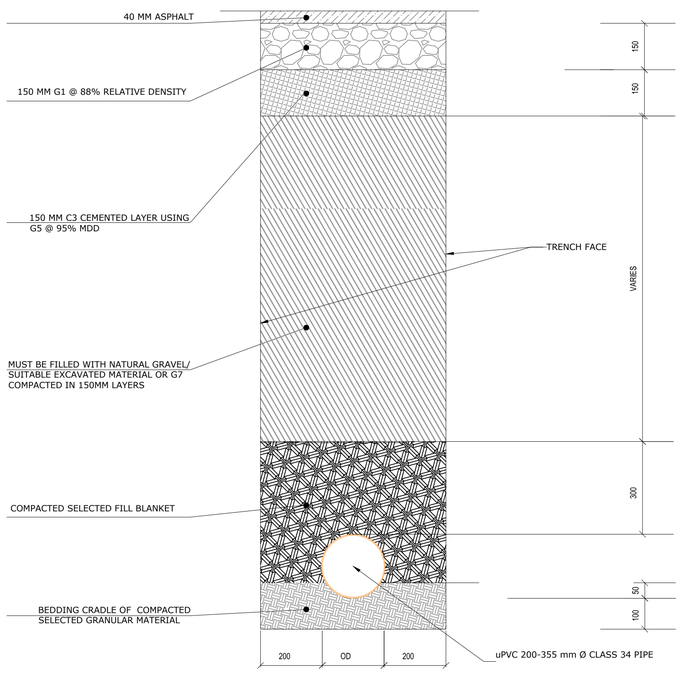
Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	201	0

INFORMATION



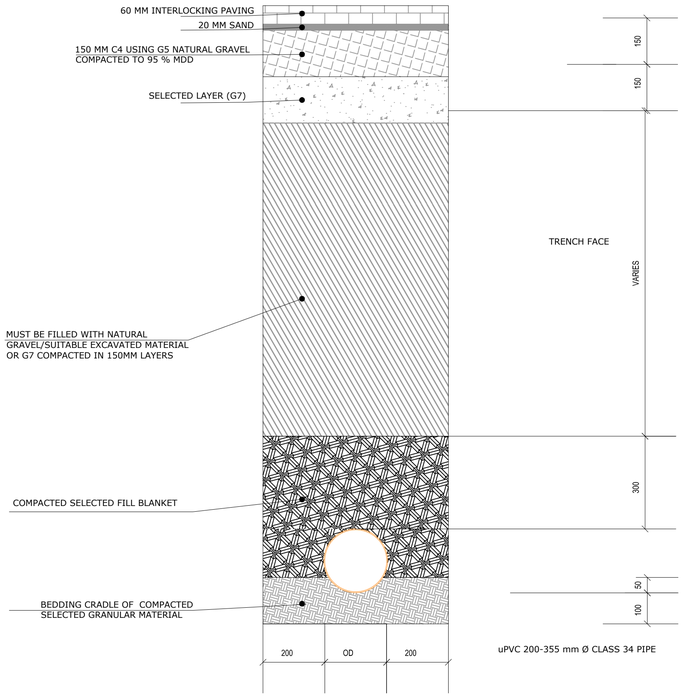
DETAIL 1: ROAD LAYERWORKS FOR SELKIRK AVE & JAN SMUTS ROAD CROSSINGS

SCALE 1: 10



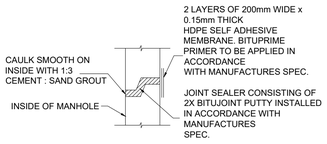
DETAIL 2: ROAD LAYERWORKS FOR VALLEY & GARDEN ROAD CROSSINGS

SCALE 1: 25



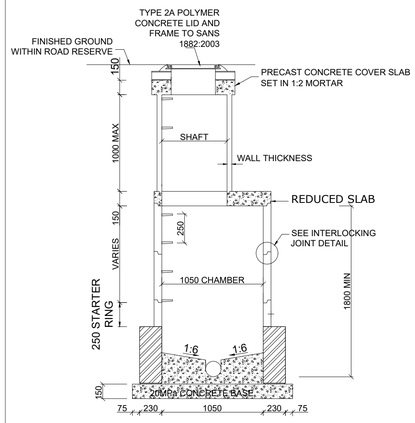
DETAIL 3: WALKWAY LAYERWORKS

SCALE 1: 25



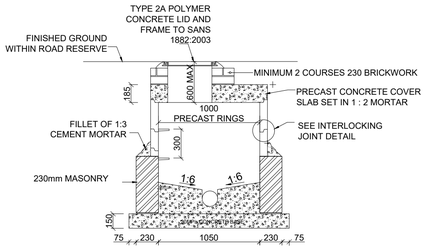
DETAIL 6:INTERLOCKING JOINT DETAIL

Scale 1:2



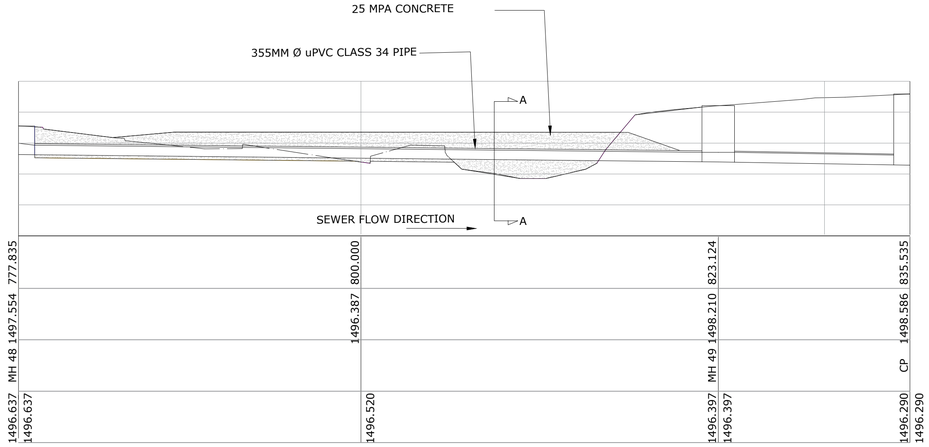
DETAIL 4: PRECAST SEWER MANHOLE >2m DEEP

Scale 1:2



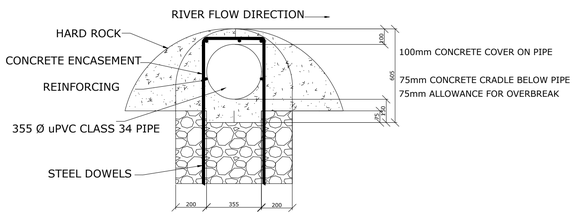
DETAIL 5:PRECAST SEWER MANHOLE <2m DEEP

Scale 1:2



DETAIL 13: RIVER CROSSING

SCALE: AS SHOWN



DETAIL 14
SECTION A-A: CROSS SECTION

SCALE : 1:10

ASSOCIATED DRAWINGS LEGEND

DRAWING NUMBER	DESCRIPTION

GENERAL NOTES

1. Drawings to be read in conjunction with all relevant Architect's, Consultant's, and Specialist's drawings and specifications.
2. All details and dimensions subject to confirmation on site. Any discrepancies must be brought to the engineer's attention prior to construction.
3. Drawings are not to be scaled.
4. All construction workmanship and materials to be in accordance with the relevant provisions of "The Application of the National Building Regulations" (SANS 10400), Building Standards act (Act103) and the relevant parts of SABS 1200.
5. The works will be inspected form time to time by the consulting engineer to ascertain that the contractor is carrying out the work in general conformity with the engineering drawings and documents. Such inspections are not for the contractors benefit and do not relieve him of the responsibility for the proper construction of the works in accordance with the engineering drawings, documents and good building practice.
6. The signed original copy of this drawing is kept at the engineer's office.
7. Manhole lid and frame to be type 2a polymer concrete according to sans 1882:2003.
8. "Calcamite" step irons to be provided in manhole >1.2m deep.
9. Step irons to be staggered at 300mm crs vertically and 200mm crs horizontally starting 500mm below cover level.
10. Bitujoint putty or similiar bitumen compound to be used as a joint sealant between manhole rings.
11. Opening in cover slabs to be offset to one side.
12. Benching to be min. 20mm thick using 1:3 cement mortar
13. Mortar and plaster on benching to be as per sabs 1200ld.
14. All concrete to be made with the approved concrete mix for the project.
15. All cover slabs to be reinforced with r12 bars at 150mm centres both ways with 30mm cover.
16. All brickwork shall be plastered internally and externally (minimum 13mm and sealed with 3 coats flintkote 3 and 1 coat silvakote (abe).
17. All manholes shall be water tight.
18. Cover levels to protrude 50mm above ngl in unpaved areas.
19. Concrete base: y12 bars @150mm c/c both directions with a minimum cover of 40mm.
20. Dowelling depth to be diameter of dowel x 50
21. Dowels and reinforcing to be y25
22. Allowance for overbreak = 100mm
23. Minimum cover of concrete = 60mm
24. Concrete to be grade 25/19
25. Engineer to inspect the excavation before dowling commences dowling commences
26. Overbrake above the allowed will be filled with concrete
27. 8mm thick rubber sheet, 300mm wide to be installed over pipe where pipe exits in concrete encasement 250mm inside concrete and 50mm outside

NO.	DATE	AMENDMENT

Client:

JOSHCO

Tel: +27(0) 114 067 300
www.joshco.co.za

Consultant:

csm

Tel: +27(0) 861 878 252

www.csmeng.co.za

CIVIL

Project:

JOSHCO SELKIRK SEWER UPGRADE

Drawing Title:

SEWER DETAILS

Prof. Registered Signature	Client Signature
PR.ENG 202101964	Client Name
G. MASHABELA	

Date: 2023/10/18	Designed: GIVEN MASHABELA
Size: A1	Drawn: ROTHE MADZHADZHI
Scale: AS SHOWN	Checked: LEON SAUNDERS
Building Occupancy: -	Climate Zone: -
Stage: 03	Sheet: 1/1

Project #:	Discipline:	Drawing #:	Rev:
6916507C	C	600	A

INFORMATION