

GENERAL NOTES:

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$2,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL ELEVATIONS ARE GEODETIC. THE SITE BENCHMARKS ARE THE FIRE HYDRANT TOP OF SPINDLE FOR THE 3 HYDRANTS AROUND THE CITIGATE DRIVE AND CROSSLAKE PLACE ROUNDABOUT (BM NO. 1 ELEV = 99.51, BM NO. 2 ELEV = 99.26, BM NO. 3 ELEV = 98.79). REFER TO ANNIS, O'SULLIVAN, VOLLEBEK LTD., TOPOGRAPHICAL PLAN OF SURVEY OF BLOCK 13, REGISTERED PLAN 4M-1533, CITY OF OTTAWA.
- REFER TO GEOTECHNICAL INVESTIGATION REPORT NO. P0328-1 (DATED APRIL 28, 2020) PREPARED BY PATERSON GROUP INC. FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
- REFER TO THE STORMWATER MANAGEMENT REPORT NO. R-2020-044, DATED JUNE 01, 2020 PREPARED BY NOVATECH.
- SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT IN THE POINTS AS PER CITY OF OTTAWA STANDARDS (R10 AND R25).

SEWER NOTES:

- SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
SANITARY STORM/CATCHBASIN MANHOLE (1200Ø)	701.010	OPSD
STORM MANHOLE (1500Ø)	701.011	OPSD
STORM MANHOLE (1800Ø)	701.012	OPSD
STORM MANHOLE (2400Ø)	701.013	OPSD
STORM MANHOLE (3000Ø)	701.014	OPSD
CATCHBASIN (600x600)	705.010	OPSD
CATCHBASIN FRAME AND COVER	400.020	OPSD
STORM/SANITARY WM FRAME	S25	CITY OF OTTAWA
SANITARY COVER	S24	CITY OF OTTAWA
STORM COVER (CLOSED)	S24.1	CITY OF OTTAWA
STORM COVER (OPEN)	S28.1	CITY OF OTTAWA
SEWER TRENCH	SV 6.57	CITY OF OTTAWA
STORM SEWER <400mmØ	PVC DR 35 (UNLESS SPECIFIED OTHERWISE)	CITY OF OTTAWA
STORM SEWER ≥450mmØ	CONC 650 (UNLESS SPECIFIED OTHERWISE)	CITY OF OTTAWA
SANITARY SEWER	PVC DR 35	CITY OF OTTAWA

- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM THE FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- ALL STORM AND SANITARY LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.1 OR S14.2.
- PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR GRAVELLED STONE AS A BEDDING IS NOT BE PERMITTED.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX, POSTIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
- ALL STORM MANHOLES MANHOLES WITH PIPE SIZES LESS THAN 900mm ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED. ALL STORM MANHOLES WITH PIPE SIZES 900mm AND LARGER ARE TO BE BENCHED.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS 300mm OR GREATER IN DIAMETER PRIOR TO BASE COURSE ASPHALT TO ENSURE THAT THEY ARE CLEAN AND OPERATIONAL. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES AND RE CCTV PRIOR TO ACCEPTANCE. OBTAIN APPROVAL FROM THE CITY'S SEWER OPERATIONS. PROVIDE THE CCTV INSPECTION AND REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL APPLICABLE SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND TOE ELEVATIONS, STRUCTURE LOCATIONS AND ANY ALIGNMENT CHANGES, ETC.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED BY THE SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
- INSULATE ALL STORM SEWERS THAT HAVE LESS THAN 1.5m COVER PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.

WATERMAIN NOTES:

- SUPPLY AND CONSTRUCT ALL WATERMAIN AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION BY OPEN STRUCTURES	W23	CITY OF OTTAWA
WATERMAIN	PVC DR 18	
- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARD AND SPECIFICATIONS. EXCAVATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

WATERMAIN NOTES ARE APPLICABLE FOR DOMESTIC SERVICES ONLY. REFER TO NOTES AND SPECIFICATIONS PREPARED BY CIVIL/EC CONSULTANTS INC. FOR FIRE PROTECTION WATERMAIN REQUIREMENTS.

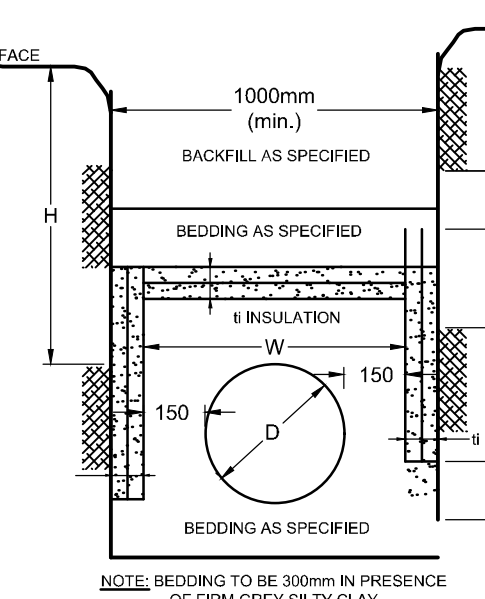
SEWER & WATERMAIN INSULATION NOTES:

- INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 1.5m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER OPSD 1109.030.
- THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER WITH 50mm MINIMUM (SEE TABLE).

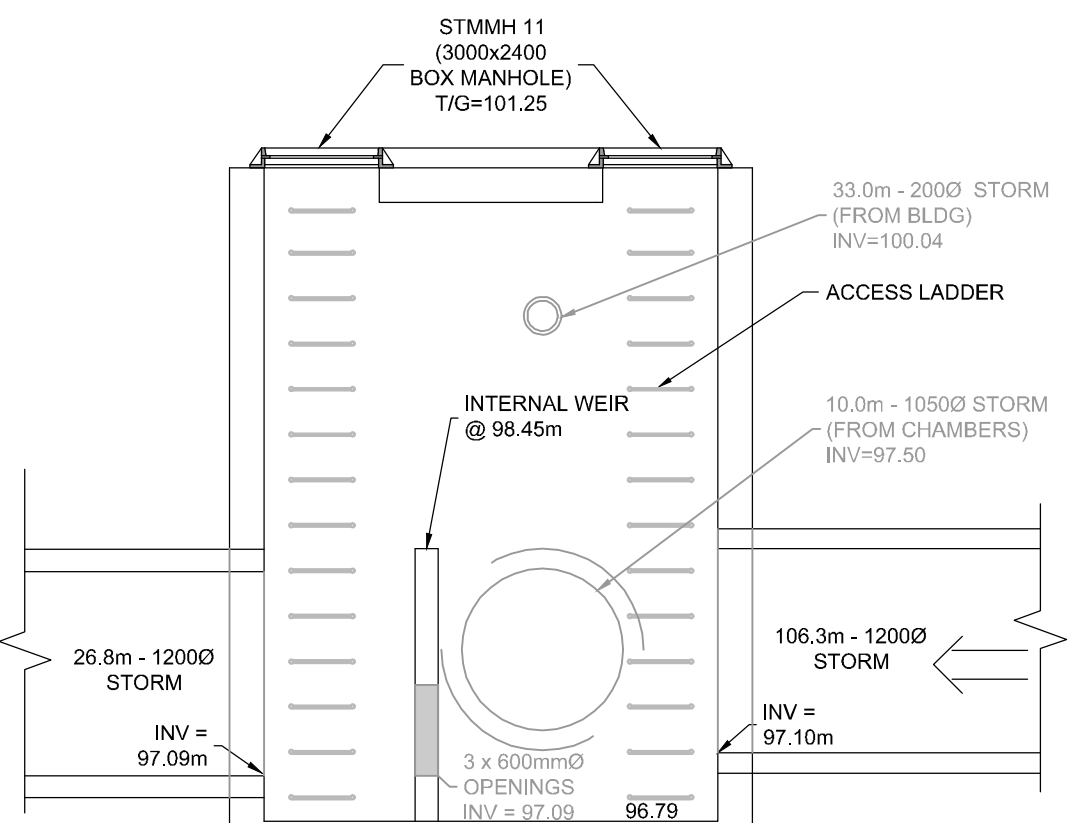
T = THICKNESS OF INSULATION (mm)
W = WIDTH OF INSULATION (mm)
W - D = 300 (1000 mm.)
D = O.D. OF PIPE (mm)

COVER SEWER / WATER	INSULATION THICKNESS (mm)
1500-1200 / 2400-2100	50
1200-900 / 2100-1800	75
900-600 / 1800-1500	100

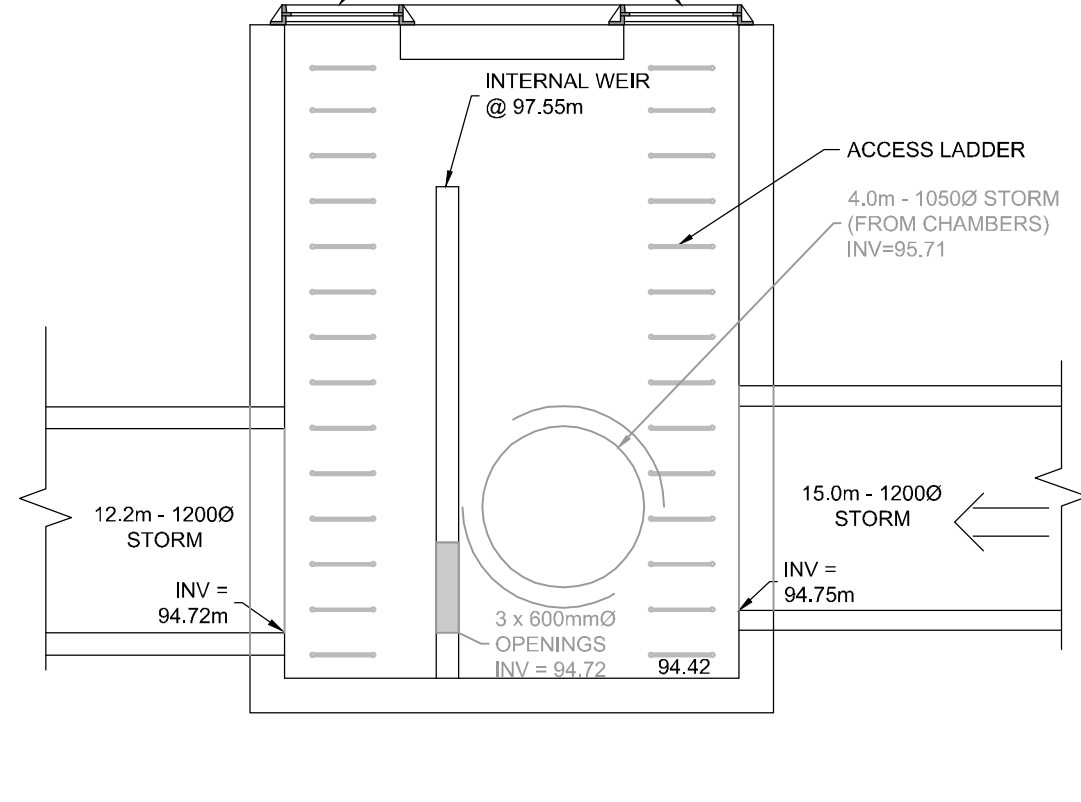
INSULATION DETAIL FOR SHALLOW SEWERS & WATERMAIN



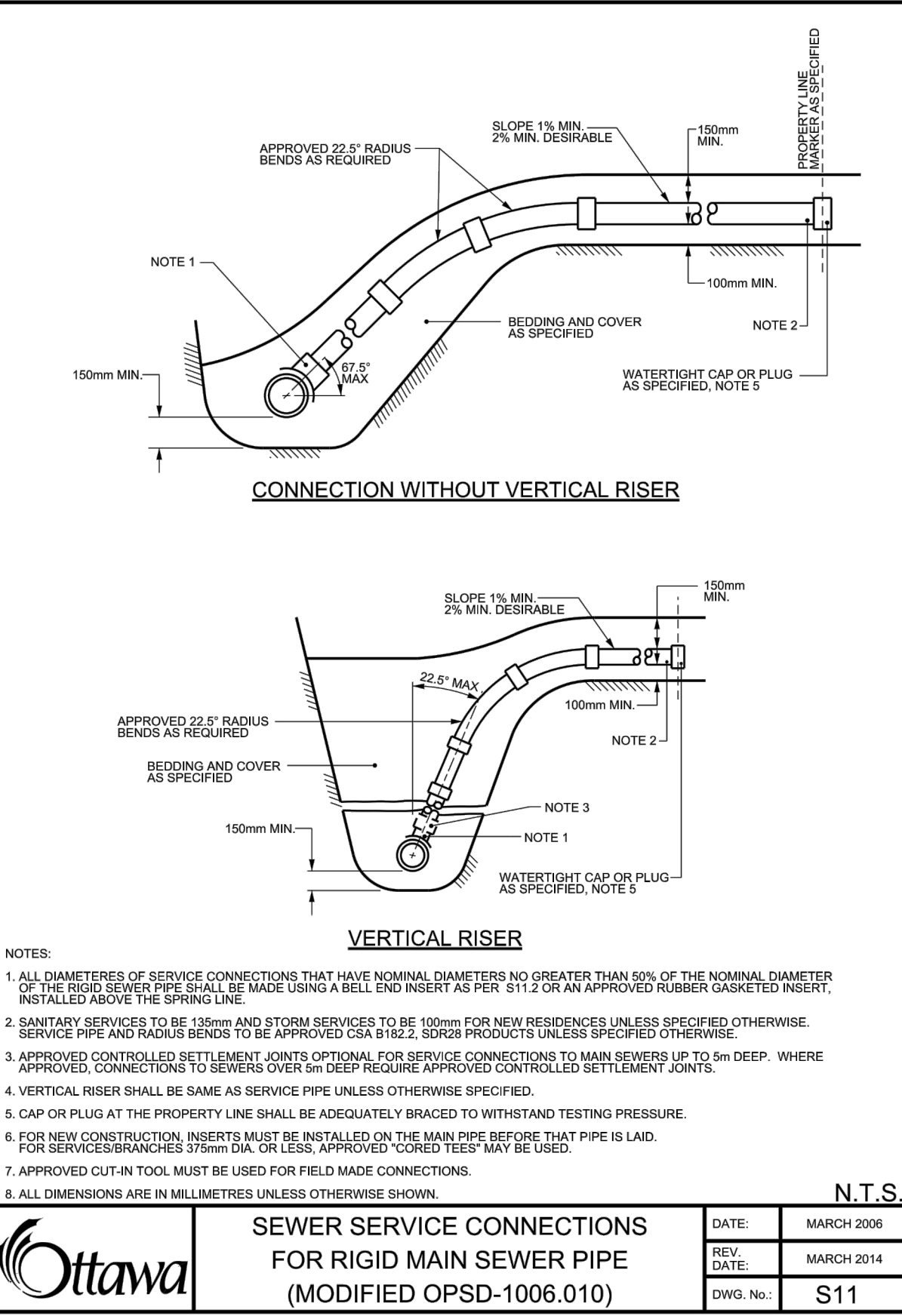
STMMH 11 DETAIL SCALE: N.T.S



STMMH 11 DETAIL SCALE: N.T.S



STMMH 01 DETAIL SCALE: N.T.S



SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE (MODIFIED OPSD-1006.010)

DATE	REVISION
MARCH 2009	
MARCH 2014	
	S11

INLET CONTROL DEVICE TABLE:

LOCATION	ICD SIZE
MH118	108mm
MH108	300mm
MH103	340mm
MH11*	3 x 600mm; 2.4m weir at 98.45
MH01*	3 x 600mm; 2.4m weir at 97.55

* REFER TO DETAILS FOR THEIR SPECIFICATIONS

CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
1	250mmØ SAN OBV = 99.27	250mmØ WM (F.P.) INV = 99.77	±0.50m
2	825mmØ STM OBV = 98.57	250mmØ STM INV = 99.42	±0.85m
3	825mmØ STM OBV = 98.60	250mmØ SAN INV = 99.01	±0.41m
4	150mmØ SAN OBV = 99.03	450mmØ STM INV = 99.48	±0.45m
5	825mmØ STM OBV = 98.77	250mmØ WM (F.P.) INV = 99.85	±1.08m
6	250mmØ WM (F.P.) OBV = 98.93	150mmØ STM INV = 99.19	±1.26m
7	250mmØ WM (F.P.) OBV = 100.33	200mmØ STM INV = 100.80	±0.57m
8	825mmØ STM OBV = 99.23	250mm WM (F.P.) INV = 99.78	±0.55m
9	250mmØ WM (F.P.) OBV = 99.62	300mmØ STM INV = 100.12	±0.50m
10	250mmØ WM (F.P.) OBV = 98.11	1200mmØ STM INV = 98.61	±1.50m
11	250mmØ WM (F.P.) OBV = 97.93	1200mmØ STM INV = 98.43	±0.50m
12	250mmØ WM (F.P.) OBV = 97.86	1200mmØ STM INV = 98.36	±0.50m
13	150mmØ SAN OBV = 98.73	600mmØ STM INV = 98.93	±0.40m
14	250mmØ SAN OBV = 98.19	200mm WM (F.P.) INV = 98.61	±1.19m
15	250mmØ SAN OBV = 98.18	200mm WM (F.P.) INV = 100.10	±1.92m
16	600mmØ STM OBV = 98.78	200mm WM (F.P.) INV = 100.06	±1.28m
17	600mmØ STM OBV = 98.76	200mm WM (F.P.) INV = 100.07	±1.31m
18	600mmØ STM OBV = 98.50	150mm SAN INV = 98.56	±0.06m
19	250mmØ SAN OBV = 97.94	250mm WM (F.P.) INV = 99.74	±1.80m
20	600mmØ STM OBV = 97.92	250mm WM (F.P.) INV = 99.72	±1.80m
21	1200mmØ STM OBV = 97.74	250mm WM (D.S.) INV = 99.19	±1.45m
22	250mmØ SAN OBV = 97.93	250mm WM (D.S.) INV = 99.14	±1.31m
23	1200mmØ STM OBV = 97.00	250mmØ SAN INV = 98.28	±1.31m
24	1200mmØ STM OBV = 96.75	250mmØ SAN INV = 97.38	±0.63m
25	600mmØ STM OBV = 97.50	250mm WM (D.S.) INV = 98.40	±0.50m
26	1200mmØ STM OBV = 98.35	250mm WM (F.P.) INV = 99.75	±1.40m
27	1200mmØ STM OBV = 98.39	100mm WM (D.S.) INV = 99.01	±0.62m
28	250mmØ WM (F.P.) OBV = 98.46	100mm WM (D.S.) INV = 98.96	±0.50m
29	100mmØ STM OBV = 98.77	250mm WM (F.P.) INV = 99.27	±0.50m
30	100mmØ STM OBV = 98.83	250mm WM (D.S.) INV = 99.33	±0.50m
31	1200mmØ STM OBV = 98.71	HYD. SERVICE INV = 99.21	±0.50m
32	1200mmØ STM OBV = 98.90	250mm WM (D.S.) INV = 99.40	±0.50m
33	250mmØ WM (F.P.) OBV = 98.39	250mm WM (D.S.) INV = 98.89	±0.50m
34	250mmØ WM (F.P.) OBV = 99.43	100mmØ STM INV = 99.93	±0.50m
35	1200mmØ STM OBV = 98.98	250mm WM (F.P.) INV = 99.48	±0.50m
36	250mmØ WM (F.P.) OBV = 99.18	100mmØ STM INV = 99.68	±0.50m
37	250mmØ WM (F.P.) OBV = 97.23	1200mm WM (D.S.) INV = 97.73	±1.44m
38	HYDRANT SERVICE OBV = 97.46	975mmØ STM INV = 97.96	±0.50m
39	250mmØ WM OBV = 95.56	200mmØ STM INV = 96.39	±0.83m
40	250mmØ SAN OBV = 94.04	200mmØ STM INV = 96.38	±2.32m
41	250mmØ SAN OBV = 97.68	200mm WM (F.P.) INV = 98.54	±0.86m
42	250mmØ SAN OBV = 94.28	200mmØ STM INV = 98.51	±4.23m
43	250mmØ WM OBV = 97.95	200mmØ STM INV = 98.81	±0.86m
44	250mmØ SAN OBV = 94.63	200mmØ STM INV = 98.78	±4.15m
45	250mmØ SAN OBV = 99.15	200mm WM (F.P.) INV = 99.15	±1.44m
46	250mmØ SAN OBV = 99.45	250mmØ STM INV = 100.42	±0.97m
47	250mmØ SAN OBV = 99.47	250mmØ STM INV = 100.47	±1.0m
48	200mmØ SAN OBV = 99.53	250mmØ STM INV = 100.52	±0.99m
49	250mmØ WM (F.P.) OBV = 99.39	250mmØ STM INV = 100.49	±0.50m
50	HYDRANT SERVICE OBV = 98.93	200mmØ SAN INV = 99.43	±0.50m
51	200mmØ SAN OBV = 99.65	250mmØ STM INV = 100.57	±0.92m
52	250mmØ WM (F.P.) OBV = 100.02	250mmØ STM INV = 100.54	±0.52m
53	200mmØ SAN OBV = 99.72	250mmØ STM INV = 100.62	±0.90m
54	250mmØ WM (F.P.) OBV = 100.08	250mmØ STM INV = 100.59	±0.51m
55	200mmØ SAN OBV = 99.78	250mmØ STM INV = 100.67	±0.89m
56	250mmØ WM (F.P.) OBV = 100.12	250mmØ STM INV = 100.64	±0.52m
57	200mmØ SAN OBV = 99.87	250mmØ STM INV = 100.59	±0.70m
58	250mmØ WM (F.P.) OBV = 99.93	250mmØ STM INV = 100.54	±0.61m
59	135mmØ SAN OBV = 101.19	250mmØ STM INV = 101.53	±0.34m
60	250mmØ WM (D.S.) OBV = 98.70	250mmØ WM INV = 99.20	±0.50m
61	250mmØ WM (F.P.) OBV = 99.26	250mmØ STM INV = 99.76	±0.50m
62	250mmØ WM (D.S.) OBV = 99.27	250mmØ STM INV = 99.87	±0.60m
63	250mmØ WM (F.P.) OBV = 99.02	375mmØ STM INV = 99.59	±0.57m
64	250mmØ WM (F.P.) OBV = 99.01	375mmØ STM INV = 99.59	±0.58m
65	250mmØ WM (F.P.) OBV = 99.00	375mmØ STM INV = 99.59	±0.58m
66	250mmØ SAN OBV = 98.10	200mmØ STM INV = 100.58	±2.46m
67	250mmØ SAN OBV = 97.99	200mmØ STM INV = 100.50	±2.51m
68	250mmØ SAN OBV = 97.84	200mmØ STM INV = 100.4	±2.20m
69	250mmØ SAN OBV = 97.77	200mmØ STM INV = 100.32	±2.03m
70	200mmØ STM OBV = 96.55	250mmØ SAN INV = 98.85	±0.30m
71	250mmØ SAN OBV = 96.30	200mmØ STM INV = 96.94	±0.64m
72	250mmØ SAN OBV = 93.34	200mmØ STM INV = 96.54	±3.20m
73	250mmØ WM (F.P.) OBV = 98.76	200mmØ STM INV = 98.33	±0.47m
74	250mmØ WM (D.S.) OBV = 98.66	200mmØ STM INV = 99.35	±0.69m
75	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
76	250mmØ WM (D.S.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
77	250mmØ WM (D.S.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
78	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
79	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
80	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
81	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
82	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
83	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
84	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
85	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
86	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
87	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
88	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
89	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
90	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
91	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
92	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
93	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
94	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
95	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
96	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
97	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
98	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
99	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m
100	250mmØ WM (F.P.) OBV = 98.98	375mmØ STM INV = 99.48	±0.50m

*INVERTS/VERTS ON CONCRETE PIPES ARE OUTSIDE DIAMETER

STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
1+000.0	98.10	95.64	CONNECTION TO EXISTING 250mmØ WM
1+013.7	97.86	95.56	CROSS BELOW 200mmØ STM AS PER CITY OF OTTAWA STANDARD W25 (±0.83 CLEARANCE)
1+024.9	98.59	96.19	22.5° HORIZONTAL BEND
1+030.9	98.91	96.51	11.25° HORIZONTAL BEND
1+072.3	100.08	97.68	CROSS BELOW 200mmØ STM AS PER CITY OF OTTAWA STANDARD W25 (±0.86 CLEARANCE)
1+099.0	100.70	98.30	22.5° HORIZONTAL BEND
1+114.4	100.86	98.46	22.5° HORIZONTAL BEND
1+166.6	100.35	97.95	CROSS BELOW 200mmØ STM AS PER CITY OF OTTAWA STANDARD W25 (±0.55 CLEARANCE)
1+213.4	99.22	96.82	250mmØ VALVE AND VALVE BOX
1+219.4	99.24	98.84	CAP

PROPOSED WATERMAIN (250mmØ DOMESTIC SERVICE) TABLE