

**NOTES:**  
**GENERAL**

- COORDINATES ARE IN MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-27 (ORIGINAL).
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA PRIOR TO STARTING CONSTRUCTION.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING.
- REFER TO "SITE SERVICING AND STORMWATER MANAGEMENT DESIGN BRIEF" PREPARED BY MORRISON HERSHFIELD.
- REFER TO GEOTECHNICAL INVESTIGATION REPORT (DEC 2019 GEOTECH REPORT AND JULY 2020 SUPPLEMENTARY MEMORANDUM) PREPARED BY WSP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT SHALL REVIEW EXCAVATIONS PRIOR TO THE PLACEMENT OF GRANULAR MATERIAL.
- CONTRACTOR TO VERIFY ALL EXISTING UTILITY ELEVATIONS AT CONNECTION AND CROSSING LOCATIONS PRIOR TO CONSTRUCTION AND ADVISE THE ENGINEER OF ANY DISCREPANCIES.
- UNLESS DIRECTED OTHERWISE ANY DAMAGED ASPHALT OR CURB (REGARDLESS OF WHETHER WITHIN OR EXTERNAL TO THE SITE) SHALL BE REINSTATED IN ACCORDANCE WITH CITY STD. DET. R10 AND S1.
- UNLESS DIRECTED OTHERWISE THE CONTRACTOR SHALL REINSTATE ALL SIGNS, LIGHTING AND OTHER STREET FURNITURE DISTURBED BY THE WORK.
- THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT TRAFFIC MANAGEMENT PLANS FOR WORK IN RIGHT OF WAY (INCLUDING CAMPUS ROADWAYS) IN ACCORDANCE WITH OTM BOOK 7. CLAY SEALS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL S8 AND SHALL BE INSTALLED WHERE SPECIFIED. CLAY SEAL TO EXTEND FULL TRENCH WIDTH AND FROM BOTTOM OF TRENCH EXCAVATION TO UNDERSIDE OF ROAD STRUCTURE, WITH A MINIMUM THICKNESS OF 1m ALONG PIPE.
- LOCATE AND CAP ALL EXISTING STORM, SANITARY AND WATER SERVICES AT THE PROPERTY LINE. ABANDON EXISTING SERVICES WITHIN THE R.O.W. PER STANDARD CITY OF OTTAWA DETAIL S11.4. (TYPICAL)
- REFER TO CCTV SEWER INSPECTION REPORT PREPARED BY CLEAN WATER WORKS INC. DATED NOVEMBER 19, 2019.
- TOPOGRAPHICAL SURVEY PREPARED BY FAIRHALL MOFFATT & WOODLAND LIMITED DATED NOVEMBER 21, 2019.
- CLASS S-3 CONCRETE IS REQUIRED FOR ANY CONCRETE WORKS PROPOSED 4M BELOW GRADE AS PER THE GEOTECHNICAL RECOMMENDATIONS.
- REFER TO C006 FOR PIPE CASING DETAIL.

**SEWERS**

- ALL STORM SEWERS, SANITARY SEWERS AND CATCH BASINS LEADS SHALL BE PVC DR 35 UNLESS OTHERWISE SPECIFIED.
- REFER TO DETAIL ON DRAWING C005 FOR SEWER INSTALLATION.
- MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES ON STORM SEWERS LESS THAN 900mm DIAMETER SHALL BE CONSTRUCTED WITH A 300mm SUMP. BENCHING SHALL BE INSTALLED IN MAINTENANCE HOLES ON STORM SEWERS 900mm AND ABOVE.
- CONTRACTOR SHALL MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS.
- ALL MAINTENANCE HOLES, CATCHBASINS AND CLEANOUTS SHALL BE ADJUSTED TO POST-CONSTRUCTION GRADE.
- CCTV INSPECTION OF ALL NEW SEWERS AND THE FIRST SEGMENT OF EXISTING SEWERS UPSTREAM AND DOWNSTREAM OF CONNECTION POINTS SHALL BE COMPLETED AS PER CITY OF OTTAWA SPECIFICATIONS PRIOR TO THE INSTALLATION OF BASE

COURSE ASPHALT.

**WATERMAINS**

- REFER TO DETAIL ON DRAWING C005 FOR WATERMAIN INSTALLATION.
- ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE 2019 EDITION OF THE CITY OF OTTAWA STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. PVC PIPE TO BE CLASS 150 DR18 TO LATEST EDITION OF A.W.W.A. SPECIFICATION C900 AND CSA B137.3 LATEST AMENDMENT WITH GASKETED BELL AND SPIGOT COUPLINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER PERMIT AS REQUIRED FROM THE CITY OF OTTAWA, AND COMPLYING WITH ALL CITY OF OTTAWA REQUIREMENTS. THE CITY MAY REQUIRE THAT CERTAIN ACTIVITIES (E.G. VALVE OPERATION, CONNECTION OF NEW WATER SERVICE TO EXISTING WATERMAIN, DISINFECTION) BE CARRIED OUT ONLY BY CITY FORCES.
- ALL VALVES 300mm DIAMETER AND SMALLER SHALL INCLUDE A VALVE BOX AS PER W24.
- THE NEW WATERMAIN IS TO BE INSTALLED WITH A MINIMUM OF 2.4m COVER (INCLUDING HYDRANT LEAD), WHERE 2.4m COVER IS NOT POSSIBLE, PROVIDE INSULATION IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAILS W25.3, W25.4, W25.5 AND W25.6.
- THRUST RESTRAINT SHALL BE PROVIDED BY BOTH RESTRAINING/RETAINING RINGS AND THRUST BLOCKS AT ALL DEAD END CAPS, PLUGS, VALVES, BENDS AND REDUCERS AS PER CITY OF OTTAWA STANDARD DETAILS W39, W40, W41, W42 AND W47. CATHODIC PROTECTION OF EXISTING WATERMAINS SHALL ALSO BE PROVIDED AT CONNECTIONS BETWEEN EXISTING AND NEW WATERMAINS.
- ADJUST ALL VALVE CHAMBERS, VALVE BOXES AND HYDRANTS TO FINISHED GRADE.
- WATERMAIN SHUTDOWNS SHALL BE SCHEDULED A MINIMUM OF 72 HOURS IN ADVANCE. TIMING SHALL BE SUBJECT TO THE APPROVAL OF CARLETON UNIVERSITY, WHO MAY REQUIRE SHUTDOWNS TO BE AT NIGHT OR OVER WEEKENDS.

**UTILITY NOTE**

- THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPORTING AND PROTECTING ANY EXISTING UTILITIES, AS REQUIRED, IN ACCORDANCE WITH THE UTILITY OWNERS' REQUIREMENTS. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES, IN ADVANCE OF EXCAVATION WORK, AND FORWARD COPIES OF THE LOCATES TO THE CONSULTANT AND THE OWNER PRIOR TO EXCAVATION.
- ALL CROSSING OF EX. UTILITIES TO BE IN ACCORDANCE WITH CITY STD. DET. S10

NEW STORM STRUCTURE							
STRUCTURE	STRUCTURE TYPE	COVER TYPE	TOP OF GRATE	INVERT	NORTHING	EASTING	NOTES
STMH101	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.42	59.25 (E) 62.03 (SW) 59.43 (N)	5027742.66	367628.90	SEE NOTE 2
STMH102	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.54	59.19 (W) 59.20 (SE)	5027738.68	367639.77	SEE NOTE 2
STMH103	701.010	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.28	59.14 (NW) 59.14 (SE) 59.66 (E)	5027716.30	367650.17	SEE NOTE 2
STMH104	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	64.78	59.00 (NW) 59.00 (S)	5027683.24	367665.54	SEE NOTE 2
STMH105	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	64.92	58.95 (N) 58.90 (S)	5027669.18	367663.12	SEE NOTE 2
STMH301	701.010	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.49	60.18 (SE) 60.20 (NW)	5027692.72	367584.91	SEE NOTE 2
CBMH302	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	62.93	59.48 (E) 59.58 (NW)* 59.52 (S)	5027662.01	367602.04	SEE NOTE 2 SEE NOTE 4
STMH303	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	62.93	59.35 (E) 59.35 (E) 61.39 (N) 60.80 (S)	5027662.65	367623.79	
STMH304	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	62.88	59.16 (W) 59.13 (SE) 59.49 (NW) 60.00 (N)	5027663.30	367645.10	SEE NOTE 1
STMH305	701.011	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	62.51	59.04 (NW) 59.04 (E) 60.45 (W) 60.49 (S)	5027657.22	367656.70	SEE NOTE 1
STMH401	701.010	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.42	62.60 (E) 60.80 (W) 60.77 (SE)	5027675.16	367638.74	SEE ICD TABLE SEE NOTE 1
STMH501	701.010	S24.1 OR OSPD 401.010 TYPE B (SEE NOTE 3)	65.54	63.42 (SE) 62.10 (NE)	5027737.22	367626.59	SEE NOTE 4

\* ESTIMATED INVERT: CONTRACTOR TO VERIFY BY TEST-PITTING PRIOR TO ORDERING STRUCTURE.  
NOTE 1: COVER FRAMES TO BE ANCHORED PER S.P. No. F-4070.  
NOTE 2: SAFETY PLATFORM TO BE INSTALLED IN STRUCTURE PER OPSD 404.020.  
NOTE 3: COVER TO INCLUDE 'STORM' TEXT OR FISH SYMBOL, AND 'DANGER' TEXT. NO 'OTTAWA' TEXT OR LOGO TO BE INCLUDED.  
NOTE 4: INCLUDE INSULATION BETWEEN STRUCTURES AND WATERMAIN AS PER W23.

NEW SANITARY STRUCTURE							
STRUCTURE	STRUCTURE TYPE	COVER TYPE	TOP OF GRATE	INVERT	NORTHING	EASTING	NOTES
SAMH01	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	65.43	59.45 (N)* 59.40 (SE)	5027740.90	367626.44	SEE NOTE 2 SEE NOTE 4
SAMH02	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	65.48	59.34 (W) 59.31 (SE)	5027736.69	367637.94	SEE NOTE 2
SAMH03	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	64.88	59.01 (NW) 58.98 (S)	5027683.12	367662.84	SEE NOTE 2 SEE NOTE 4
SAMH04	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	64.92	58.88 (N) 58.56 (S)*	5027670.69	367660.94	SEE NOTE 2
SAMH201	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	65.85	60.21 (SE) 60.20 (SW)*	5027695.27	367586.36	SEE NOTE 2
SAMH202	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	63.04	59.30 (NE) 59.33 (S)*	5027657.37	367598.79	SEE NOTE 5
SAMH203	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	63.04	58.92 (NW) 58.89 (E) 59.92 (SW)	5027663.55	367603.73	SEE NOTE 4 SEE NOTE 5
SAMH204	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	63.04	58.64 (W) 58.61 (SE)	5027664.75	367646.76	SEE NOTE 1 SEE NOTE 2
SAMH205	701.010	S24 OR OSPD 401.010 TYPE A (SEE NOTE 3)	64.21	58.25 (NW) 58.22 (N) 58.22 (S) UNK (W)*	5027655.98	367667.53	SEE NOTE 1 SEE NOTE 2

\* ESTIMATED INVERT: CONTRACTOR TO VERIFY BY TEST-PITTING PRIOR TO ORDERING STRUCTURE.  
NOTE 1: COVER FRAMES TO BE ANCHORED PER S.P. No. F-4070.  
NOTE 2: SAFETY PLATFORM TO BE INSTALLED IN STRUCTURE PER OPSD 404.020.  
NOTE 3: COVER TO INCLUDE 'SANITARY' TEXT OR TOILET SYMBOL, AND 'DANGER' TEXT. NO 'OTTAWA' TEXT OR LOGO TO BE INCLUDED.  
NOTE 4: INCLUDE INSULATION BETWEEN STRUCTURES AND WATERMAIN AS PER W23  
NOTE 5: WATERTIGHT PER OPSD 401.030

INLET CONTROL DEVICE DATA TABLE - STMH501						
DESIGN EVENT	ICD TYPE	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	WATER ELEVATION (m)	REQUIRED VOLUME (m³)	TOTAL VOLUME PROVIDED (m³)
1:5 YR	HYDROVEX 75VHV-2	250mmØ PVC	4.5	63.99	22.2	42
1:100 YR	HYDROVEX 75VHV-2	250mmØ PVC	6.0	64.55	40.7	42

REFER TO PLAN C005 FOR ICD SELECTION CHARTS

NEW 200mmØ WATERMAIN					
STATION	DESCRIPTION	NORTHING	EASTING	FINISHED GRADE	TOP OF WM
0+000.00	HYMAX (OR APPROVED EQUIVALENT) COUPLING & 22.5° BEND	5027663.64	367598.47	64.87	62.47*
0+001.00	11.25° BEND	5027664.48	367599.02	64.88	62.48
0+002.37	22.5° BEND	5027665.45	367599.98	64.89	62.49
0+002.50	STM CROSSING	5027665.50	367600.11	64.88	62.48
0+004.29	22.5° BEND	5027666.20	367601.76	64.91	62.51
0+007.53	SAN CROSSING	5027666.29	367604.96	64.92	62.52
0+034.62	200x200x150 TEE	5027667.10	367632.06	63.09	60.69
0+034.62	150mm VALVE AND VALVE BOX, W24	5027668.10	367632.05	63.31	60.91
0+034.62	HYDRANT, W20	5027668.46	367632.05	63.40	61.00
0+045.44	STM CROSSING	5027667.42	367642.89	63.43	61.01
0+047.56	STM CROSSING	5027667.49	367644.99	63.51	61.11
0+049.32	SAN CROSSING	5027667.54	367646.77	63.59	61.19
0+057.59	200mm VALVE AND VALVE BOX, W24	5027667.78	367655.02	64.28	61.88


\* DEPTH OF EXISTING WATERMAIN TO BE DETERMINED BY CONTRACTOR. USE 2x45° BENDS TO BRING NEW WATERMAIN TO 2.4m OF COVER.

NEW 400mmØ WATERMAIN					
STATION	DESCRIPTION	NORTHING	EASTING	FINISHED GRADE	TOP OF WM
1+000.00	HYMAX (OR APPROVED EQUIVALENT) COUPLING & 22.5° BEND	5027740.80	367622.38	65.33	62.93*
1+002.65	22.5° BEND	5027739.00	367624.33	65.28	62.88
1+005.44	STM CROSSING	5027738.05	367626.95	65.34	62.94
1+012.39	22.5° BEND	5027735.66	367633.49	65.54	63.14
1+017.56	22.5° BEND	5027732.16	367637.29	65.50	63.10
1+032.35	200x200x150 TEE	5027718.74	367643.52	65.54	63.14
1+032.35	150mm VALVE AND VALVE BOX, W24	5027718.88	367643.87	65.53	63.13
1+032.35	HYDRANT, W20	5027718.91	367643.87	65.52	63.12
1+042.37	200x200x200 TEE	5027709.66	367647.74	65.54	63.14
1+042.37	200mm VALVE AND VALVE BOX, W24	5027709.12	367646.58	65.57	63.17
1+042.37	CAP (1m FROM BUILDING)	5027708.22	367644.56	65.68	63.28
1+043.87	400mm VALVE AND VALVE CHAMBER, W2	5027708.30	367648.37	65.55	63.15
1+045.38	200x200x200 TEE	5027706.93	367649.01	65.55	63.15
1+045.38	200mm VALVE AND VALVE BOX, W24	5027706.48	367648.04	65.58	63.18
1+045.38	CAP (1m FROM BUILDING)	5027705.48	367645.84	65.69	63.29
1+071.22	22.5° BEND	5027683.49	367659.90	65.12	62.72
1+072.22	22.5° BEND	5027682.50	367659.94	65.14	62.74
1+079.55	STM CROSSING	5027675.65	367655.79	65.20	62.80
1+084.31	22.5° BEND	5027671.14	367655.80	65.56	63.16
1+086.53	400mm VALVE AND VALVE CHAMBER, W2	5027668.93	367655.92	64.92	62.52
1+087.88	400x400x400 TEE	5027667.79	367655.98	64.75	62.35
1+089.896	HYMAX (OR APPROVED EQUIVALENT) COUPLING & 22.5° BEND	5027665.67	367656.10	64.24	61.84

\* DEPTH OF EXISTING WATERMAIN TO BE DETERMINED BY CONTRACTOR. USE 4x22.5° BENDS TO BRING NEW WATERMAIN TO 2.4m OF COVER.

CATCH BASIN DATA								
NO.	COVER	STRUCT.	ELEVATION		NOTES	CB CONNECTION		
			T/FRAME	LOW/INV		DIA (mm)	TYPE	LENGTH (m)
CB1	S22	705.010B	65.55	63.32	SEE NOTE 1	250	PVC DR35	2.40
CB2	S22	705.010B	65.50	64.27	SEE NOTE 1	250	PVC DR35	2.00
CB3	S22	705.010A	64.25	63.02		250	PVC DR35	5.5
CB4	S19.1	705.010B	63.17	61.94	SEE NOTE 1	250	PVC DR35	2.50
DICB5	S19.1	705.010B	64.73	63.27	SEE NOTE 1	SEE PLAN		-
CB6	S19.1	705.010B	65.52	64.29	SEE NOTE 2	200	PVC DR35	
CB7	S19.1	705.010B	65.52	64.29	SEE NOTE 2	200	PVC DR35	
CB8	S19.1	705.010B	62.94	60.74	SEE NOTE 1	250	PVC DR35	3.70
CBMH9	S19.1	705.020	64.40	60.29		SEE PLAN		-
CBMH1	S19	701.010	65.50	59.48		SEE PLAN		-
CBMH302	S19	701.011	62.93	59.52		SEE PLAN		-

NOTE 1: INCLUDE INSULATION BETWEEN STRUCTURES AND WATERMAIN AS PER W23.  
NOTE 2: CB6 AND CB7 TO OUTLET TO STORM TANK BELOW.

  
**DOUGLAS JAMES, MCIP, RPP**  
MANAGER, DEVELOPMENT REVIEW - CENTRAL PLANNING, INFRASTRUCTURE & ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

**APPROVED**  
By Douglas James at 3:26 pm, Aug 24, 2021

PIPE CROSSING TABLE		
NO.	DESCRIPTION	DETAIL
1	600mmØ STM 0.26m CLEARANCE OVER 200mmØ SAN	STM INV=59.46, SAN OBV=59.20
2	200mmØ WM 1.25m CLEARANCE OVER 250mmØ SAN	WM INV=60.55, SAN OBV=59.29
3	200mmØ WM 1.38m CLEARANCE OVER 375mmØ STM	WM INV=61.40, STM OBV=60.02
4	300mmØ STM 1.26m CLEARANCE OVER 250mmØ SAN	STM INV=60.82, SAN OBV=59.56
5	300mmØ STM 0.76m CLEARANCE OVER 375mmØ STM	STM INV=60.92, STM OBV=60.15
6	250mmØ STM 2.33m CLEARANCE OVER 250mmØ SAN	STM INV=61.37, SAN OBV=59.03
7	250mmØ STM 1.87m CLEARANCE OVER 250mmØ SAN	STM INV=60.84, SAN OBV=58.97
8	200mmØ WM 0.40m CLEARANCE OVER 300mmØ STM	WM INV=60.65, STM OBV=60.24
9	300mmØ STM 0.72m CLEARANCE OVER 250mmØ SAN	STM INV=59.62, SAN OBV=58.90
10	200mmØ WM 1.81m CLEARANCE OVER 200mmØ SAN	WM INV=60.87, SAN OBV=59.06
11	250mmØ STM 1.73m CLEARANCE OVER 200mmØ SAN	STM INV=60.80, SAN OBV=59.06
12	600mmØ STM 0.42m CLEARANCE OVER 250mmØ SAN	STM INV=59.00, SAN OBV=58.58
13	400mmØ WM 0.39m CLEARANCE OVER 250mmØ STM	WM INV=62.73, STM OBV=62.33
14	250mmØ STM 2.40m CLEARANCE OVER 250mmØ SAN	STM INV=62.05, SAN OBV=59.64
15	200mmØ WM 1.79m CLEARANCE OVER 150mmØ STM	WM INV=61.70, STM OBV=59.90
16	250mmØ STM 1.76m CLEARANCE OVER 150mmØ STM	STM INV=62.23, STM OBV=60.47