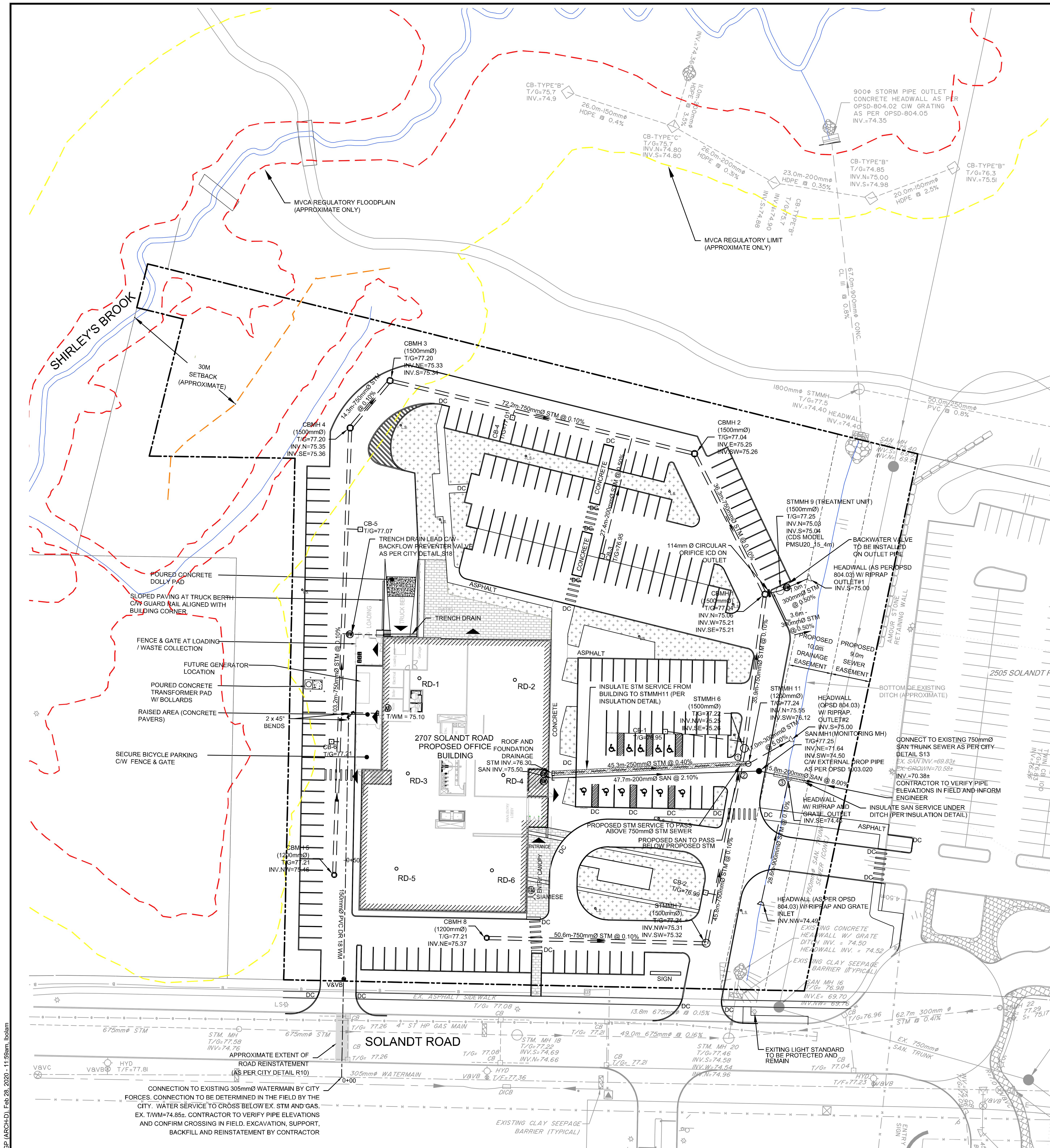
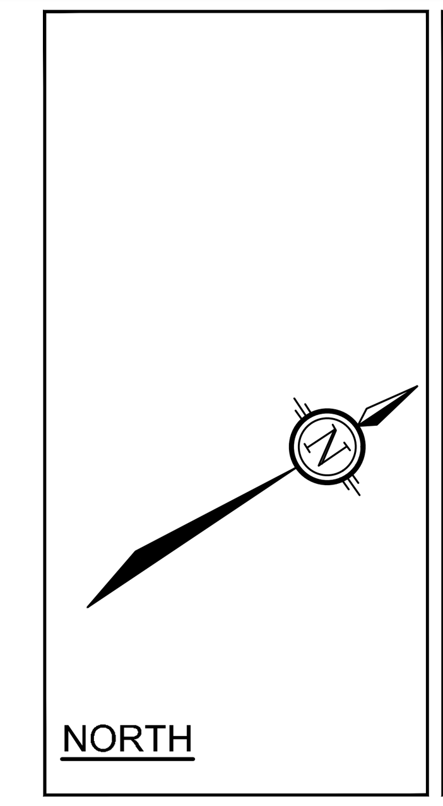
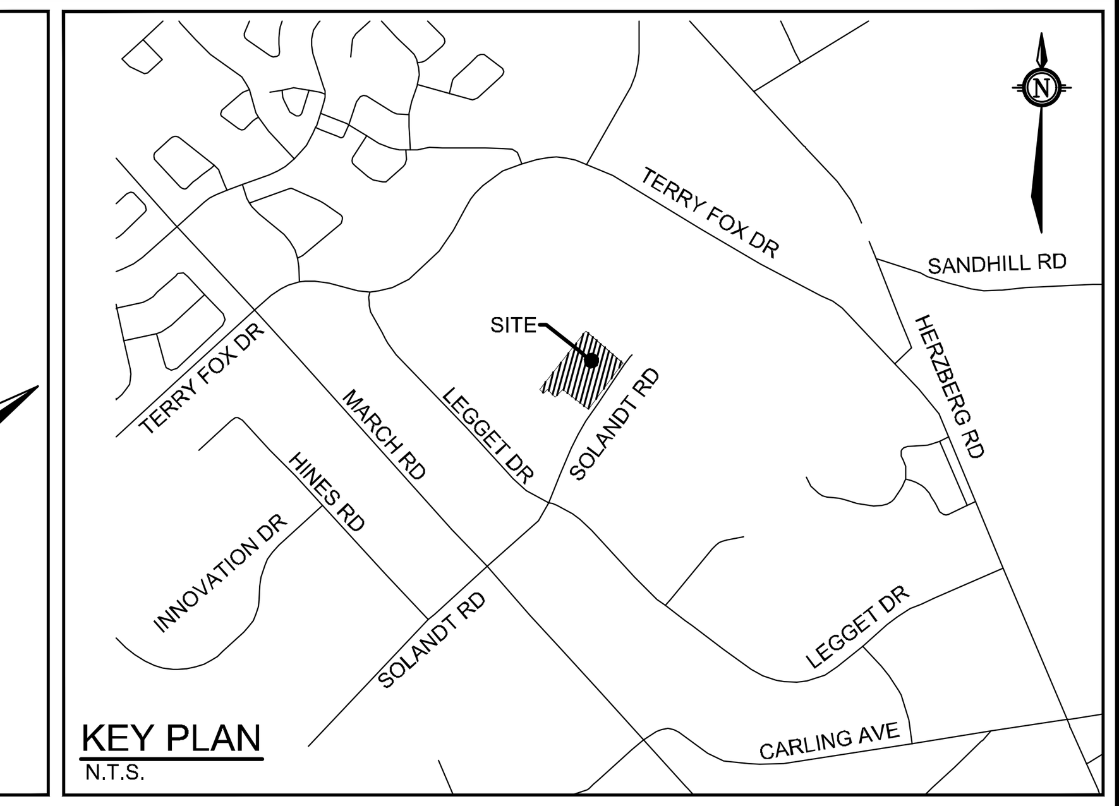






GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. 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.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA AND MVCA BEFORE COMMENCING CONSTRUCTION.
4. 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.
5. 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.
6. 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.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL REPORT (No. 18111016, DATED SEPTEMBER, 2019), PREPARED BY GOLDER 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.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
10. REFER TO THE 'SITE SERVICING AND STORMWATER MANAGEMENT REPORT' (R-2019-157) PREPARED BY NOVATECH.
11. SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
12. PROVIDE LINE/PARKING PAINTING.
13. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

SEWER NOTES:

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

ITEM	SPEC. No.	REFERENCE
STORM / SANITARY MANHOLE (1200Ø/1500Ø)	701.010	OPSD
CATCHBASIN MANHOLE (1200Ø/1500Ø)	701.011	OPSD
STORM / CBMH FRAME AND COVER	401.010	OPSD
WATERTIGHT SANITARY MH FRAME AND COVER	401.030	OPSD
CATCHBASIN (600x600)	705.010	OPSD
CATCHBASIN FRAME AND COVER	400.020	OPSD
CONCRETE HEADWALL	804.030	OPSD
STORM SEWER (≤ 450mm Ø / 750mm Ø)	PVC DR 35 / CONC. CLASS 65D	
SANITARY SEWER	PVC DR 35	
CATCHBASIN LEAD	PVC DR 35	
SUBDRAIN	HDPE PERF./NON-PERF. PIPE	
SEWER TRENCH	S6 / S7	CITY OF OTTAWA

3. ALL SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
4. ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.1 OR S14.2.
5. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
6. INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 1.5m COVER WITH HI-40 RIGID INSULATION AS PER INSULATION DETAIL. THE PROPOSED STORAGE PIPE DOES NOT REQUIRE INSULATION.
7. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
8. ALL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED, AND CATCHBASINS TO HAVE 600mm SUMPS.
9. CATCHBASIN MANHOLE WITH ICD TO BE INSTALLED (CBMH1) IS TO HAVE A 600mm SUMP UNLESS OTHERWISE SPECIFIED.
10. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS 200mmØ OR GREATER 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. OBTAIN APPROVAL FROM THE CITY'S SEWER OPERATIONS.
11. 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 ACCORDNCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL 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.

WATERMAIN NOTES:

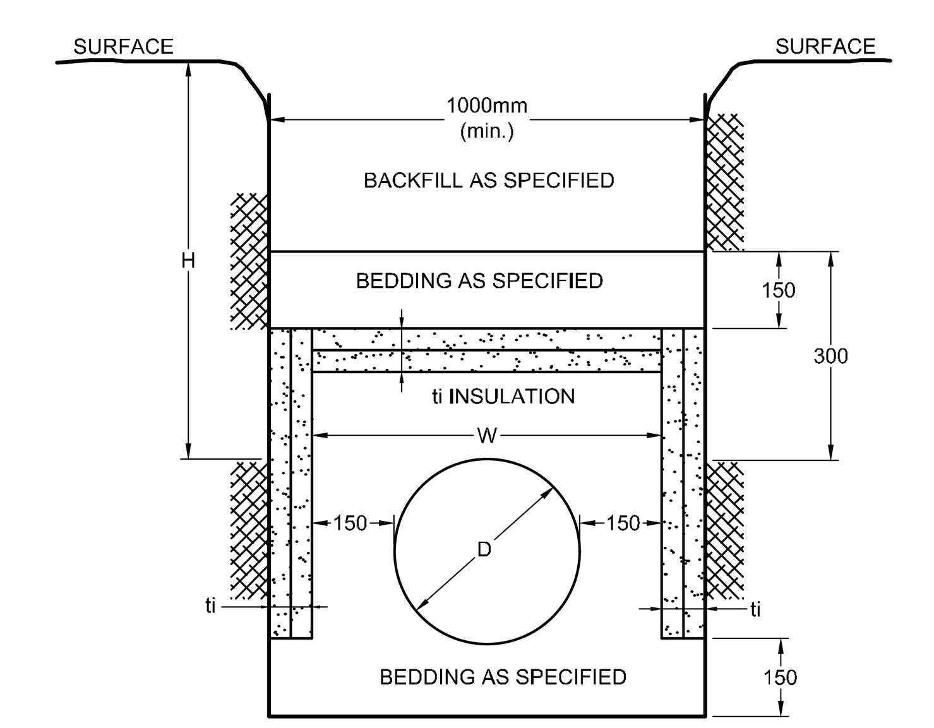
1. SUPPLY AND CONSTRUCT ALL WATERMAIN AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
2. SPECIFICATIONS:

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 CROSSING BELOW SEWERS	W25	CITY OF OTTAWA
WATERMAIN	PVC DR 18	

2. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION BY THE CONTRACTOR.
3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. OTHERWISE, THERMAL INSULATION IS REQUIRED AS PER STD DRAWING W22.
4. PROVIDE MINIMUM 0.50m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS WHEN WATERMAIN IS BELOW AND MINIMUM 0.25mm CLEARANCE WHEN WATERMAIN IS ABOVE.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

LEGEND

Proposed	Existing
PROPERTY LINE	EXISTING GAS METER
PROPOSED CURB	EXISTING CURB
DC — PROPOSED DEPRESSED CURB	300mmØ WM — EXISTING WATERMAIN
150mmØ — PROPOSED WATERMAIN	V&VB — EXISTING VALVE & VALVE BOX
V&VB — PROPOSED VALVE & VALVE BOX	HYD — EXISTING FIRE HYDRANT
11.25° — PROPOSED BEND & THRUSTBLOCK	SAN MH — EXISTING SANITARY MH & SEWER
M RM — PROPOSED WATER METER / REMOTE METER	STM MH — EXISTING STORM MH & SEWER
PROPOSED SIAMESE CONNECTION	CB — EXISTING CATCHBASIN C/W CB LEAD
PROPOSED CAP	CBMH — EXISTING CATCHBASIN MH
SANMH 1 — PROPOSED SANITARY MANHOLE & SEWER	EXISTING FENCE
CBMH 2 — PROPOSED CATCHBASIN MANHOLE & SEWER	LS — EXISTING LIGHT STANDARD
STMMH 1 — PROPOSED STORMWATER MANHOLE	MVCA REGULATORY FLOODPLAN (APPROXIMATE)
CB — PROPOSED CATCHBASIN	MVCA REGULATORY LIMIT (APPROXIMATE)
PROPOSED BUILDING ENTRANCE	THERMAL INSULATION
ICD — PROPOSED INLET CONTROL DEVICE	L.S. — PROPOSED LIGHT STANDARD
RD — PROPOSED ROOF DRAIN	BW — PROPOSED BACKWATER VALVE
FFE=77.70 — PROPOSED FINISHED FLOOR ELEVATION	



ti = THICKNESS OF INSULATION (mm)
h = DEPTH OF COVER
W = D + 300 (1000 min.)
W = WIDTH OF INSULATION (mm)
D = O.D OF PIPE (mm)

INSULATION NOTES:

1. THE THICKNESS OF SEWER INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER LESS THAN 1500mm (SEE TABLE).

COVER (mm)	INSULATION THICKNESS (mm)
1500-1200	50
1200-900	75
900-600	100
600-500	125

INSULATION DETAIL FOR SHALLOW SEWERS ONLY

NOT TO SCALE

150mmØ WATERMAIN TABLE

STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
0+00	77.40±	75.00± *	CONNECTION TO EXISTING 305mmØ WM
0+10.59	77.25±	74.23± **	CROSS UNDER EXISTING STM SEWER
0+13.08	77.25±	74.85±	CROSS UNDER EXISTING GAS
0+22.62	77.54±	75.14±	150mm V&VB @ PROPERTY LINE
0+83.12	77.41±	75.01±	45° HORIZONTAL BEND
0+84.50	77.40±	75.00±	45° HORIZONTAL BEND
0+90.46	77.59±	75.19±	CAP 1.0m FROM BUILDING FACE

* 150mmØ CONNECTION TO EXISTING 305mmØ WATERMAIN. EXACT ELEVATION TO BE FIELD DETERMINED.

** WATERMIAN CROSSING BELOW EX STM SEWER AS PER CITY OF OTTAWA DETAIL W25.

CRITICAL SEWER PIPE CROSSING TABLE

CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
1	750mmØ CONC. STM CROWN=76.12	250mm Ø STM INV.=76.12	0.00m *
2	200mm Ø SAN OBV.=74.79	750mm Ø STM INV=75.27	0.48m±
3	200mm Ø SAN OBV.=73.47	900mm Ø STM INV=74.46	0.99m

* HIGHER PIPE TO REST ON TOP OF LOWER PIPE.

ROOF DRAIN TABLE

ROOF DRAIN NO.	ROOF DRAIN AREA (m^2)	APPROX. 5 YEAR RELEASE RATE	APPROX. 5 YEAR PONDING DEPTH	100 YEAR RELEASE RATE	APPROX. 100 YEAR PONDING DEPTH	APPROX. 5 YEAR STORAGE VOLUME	APPROX. 100 YEAR STORAGE VOLUME
RD1	394	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	5 m3	13 m3
RD2	392	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	5 m3	13 m3
RD3	432	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	6 m3	15 m3
RD4	477	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	7 m3	17 m3
RD5	403	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	6 m3	13 m3
RD6	398	2.5 L/S	5-10 cm	MAX. 3.0 L/S	10 -15 cm	5 m3	13 m3
TOTAL	2,496	15.0 L/S	N/A	MAX. 18.0 L/S	N/A	N/A	N/A

* REFER TO THE 'SITE SERVICING AND SWM REPORT' (R-2019-157) PREPARED BY NOVATECH FOR STORMWATER MANAGEMENT DETAILS.

* CONTROLLED ROOF DRAIN ARE TO BE WATTS ADJUSTABLE FLOW CONTROL ROOF DRAINS SET ON THE FULLY EXPOSED WEIR OPENING (OR EQUIVALENT, SO THAT MAXIMUM 100-YEAR RELEASE RATES ABOVE ARE MET.) REVISED STORAGE CALCULATIONS TO BE COMPLETED AT DETAILED DESIGN).

INLET CONTROL DEVICE DATA - CBMH1

DESIGN EVENT	ICD	DIAMETER OF OUTLET PIPE	DESIGN FLOW	DESIGN HEAD	WATER ELEVATION
1:5 YR	114MM Ø PLUG	300mm Ø	38.2 L/s	1.86m	77.07m
1:100 YR			39.7 L/s	2.00m	77.21m

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
3.	REVISED PER CITY COMMENTS	FEB 28/2020	GJM
2.	REVISED PER CITY COMMENTS	JAN 17/2020	GJM
1.	ISSUED FOR SITE PLAN APPROVAL	OCT 09/2019	GJM

SCALE 1:500

DESIGN LGB/JAG | CHECKED GJM | DRAWN LGB | CHECKED JAG | APPROVED GJM

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER L. G. BOLAM 100523457 Feb-28-2020 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER G.J. MacDONALD Feb 28, 2020 PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
2707 SOLANDT ROAD

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 119110-00
REV REV # 3
DRAWING No. 119110-GP

CITY FILE NO. D07-12-19-0172

CITY PLAN NO. 18039

PLAN24x36.DWG - 914.4mmx609.6mm

M:\2019\119110\CAD\Design\119110-GP.dwg, GP (ARCH-D), Feb 28, 2020 - 11:59am, lbolam