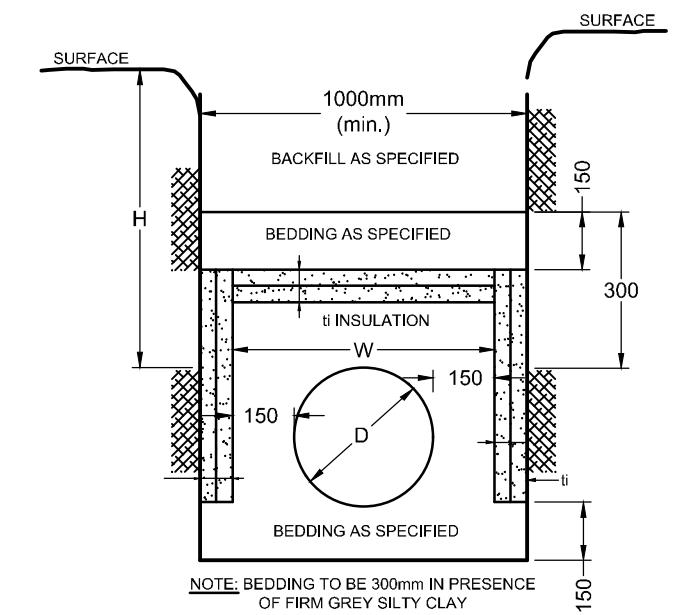


**SEWER & WATERMAIN INSULATION NOTES:**

- INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 2.0m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER CPSSD 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).

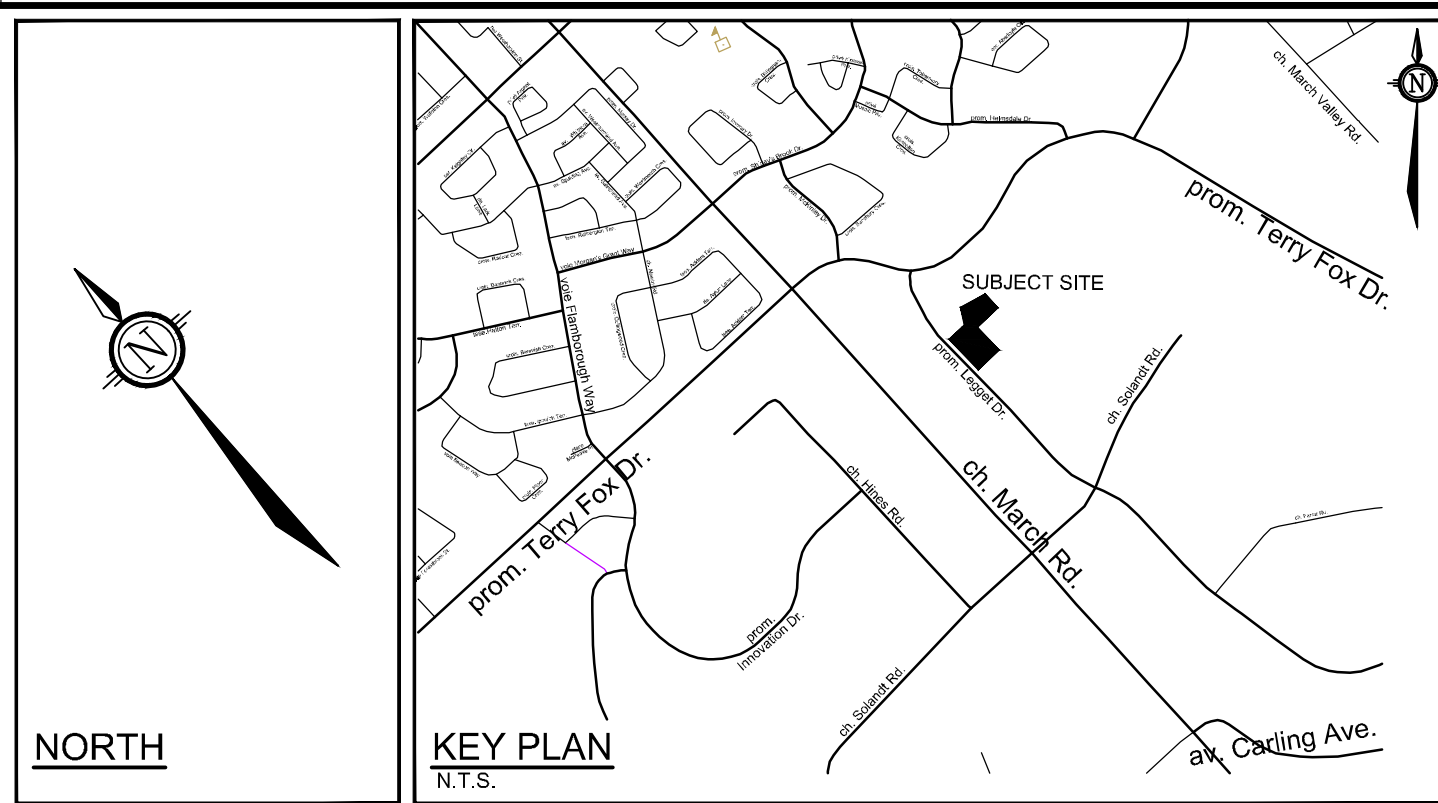
COVER SEWER/WATER (mm)	INSULATION THICKNESS (mm)
2000-1700 / 2400-2100	50
1700-1400 / 2100-1800	75
1400-1100 / 1800-1500	100

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



**INSULATION DETAIL FOR SHALLOW SEWERS & WATERMAIN**  
N.T.S.

PROPOSED WATERMAIN (1+000.0)			
STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
1+000.0	79.56	77.06	CAP AT PROPERTY LINE
1+002.6	79.54	77.14	200mmØ VALVE AND VALVE BOX
1+026.0	79.12	76.72	45 DEGREE BEND
1+030.0	79.10	76.70	45 DEGREE BEND
1+046.0	79.77	77.37	BUILDING CAP



**LEGEND**

- PROPERTY LINE
- PROPOSED CURB
- DC PROPOSED DEPRESSED CURB
- PROPOSED SIDEWALK
- PROPOSED TWISI
- PROPOSED DECK DRAIN
- PROPOSED CAP
- PROPOSED SANITARY SERVICE
- PROPOSED STORM SEWER
- PROPOSED WATER SERVICE
- V&VB PROPOSED VALVE AND VALVE BOX
- PROPOSED BIKE RACKS
- PROPOSED CROSSWALK PAINTING
- PROPOSED LINE PAINTING
- DIRECTION OF FLOW
- PROPOSED BOLLARDS
- TREE PROTECTION FENCING
- EXISTING UTILITY POLE CW GUY WIRES
- V&VC EXISTING WATERMAIN CW VALVE & VALVE CHAMBER
- EXISTING HYDRANT CW VALVE & LEAD
- SAN MV EXISTING SANITARY MANHOLE & SEWER
- STM MH EXISTING STORM MANHOLE & SEWER
- EXISTING CATCHBASIN
- EXISTING CULVERT
- EXISTING BUILDING SERVICES
- EXISTING GAS MAIN
- EXISTING HYDRO LINE
- EXISTING JOINT UTILITY TRENCH
- EXISTING STREETLIGHT
- EXISTING ROAD SIGNAGE
- EXISTING PONDING LIMITS
- EXISTING TREE

**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 \$500,000. 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 THE CITY OF OTTAWA AND ENGINEER.
- 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 DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
- ALL ELEVATIONS ARE GEODETIC (CGVD08). THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV = 80.45), LOCATED AT THE SOUTHWEST CORNER OF THE EXISTING ENTREE OFF LEGGET DRIVE. REFER TO THE FAIRHALL, MOFFATT & WOODLAND LIMITED TOPOGRAPHIC SURVEY OF PART OF LOT 6 CONCESSION 4, GEOGRAPHIC TOWNSHIP OF MARCH, CITY OF OTTAWA.
- 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 HARDSURFACE AREAS AND DIMENSIONS.
- REFER TO SERVING AND STORMWATER MANAGEMENT REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD. R-2024-083 (DATED JANUARY 15, 2025).
- SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE/PARKING PAINTING.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVING 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, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
- CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.

**WATERMAIN NOTES:**

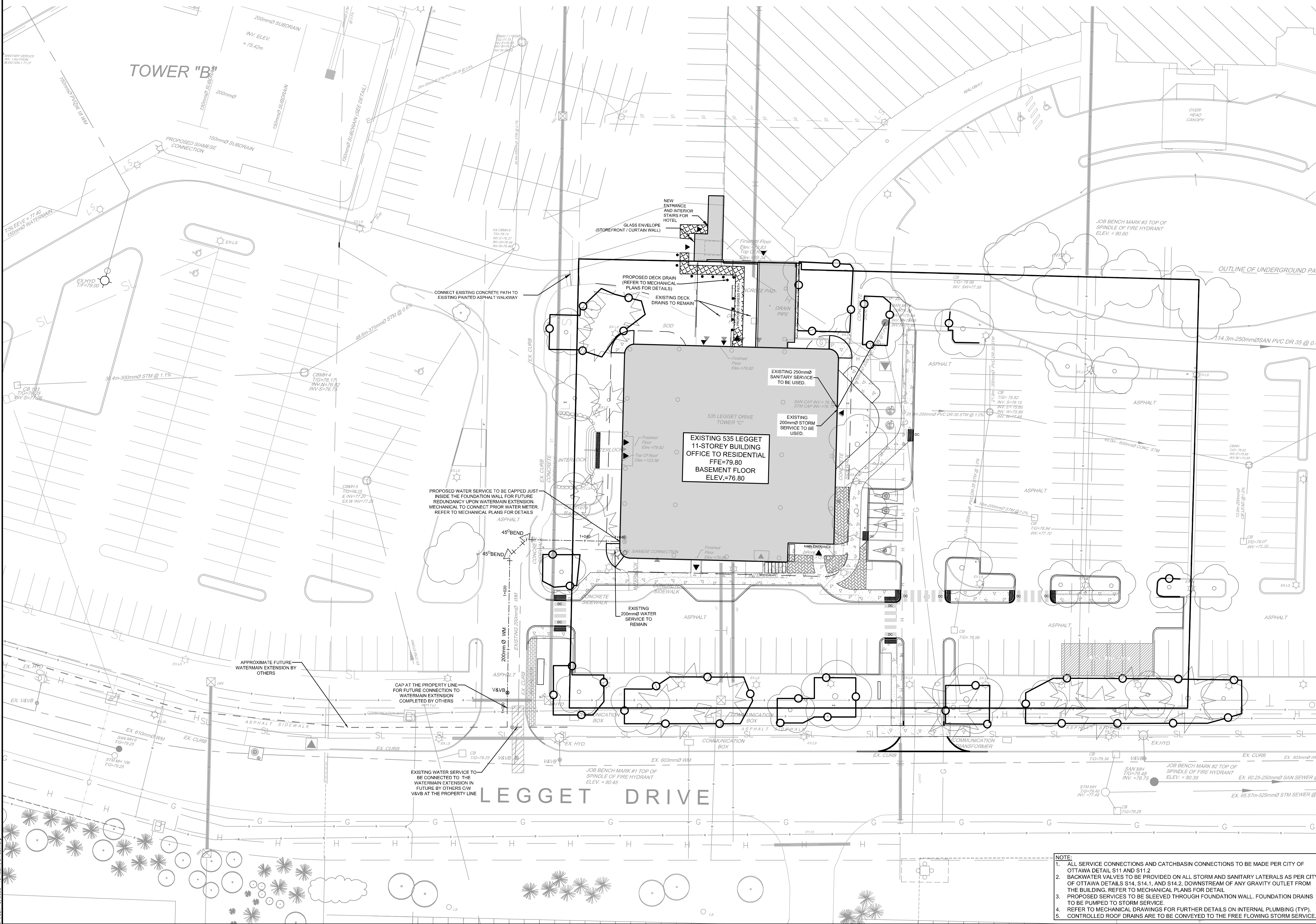
- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER/ABOVE SEWER	W25 / W25.2	CITY OF OTTAWA
WATERMAIN HYDRANT	PVC DR 18	CITY OF OTTAWA
VALVE AND VALVE BOX	W19	CITY OF OTTAWA
W24		CITY OF OTTAWA
- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND COLORATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. ANY WATERMAIN WITH LESS THAN 2.4m COVER TO BE INSULATED PER THE SHOWN DETAIL.
- PROVIDE MINIMUM 0.25m ABOVE, 0.5m IF BELOW, CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS PER CITY OF OTTAWA STANDARDS W25/W25.2
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.
- CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS CITY OF OTTAWA STANDARD DETAILS W-39, 40, 41, 42, 43 AND 44.
- PROVIDE THERMAL INSULATION FOR WATERMAIN AT OPEN STRUCTURES PER CITY OF OTTAWA STANDARD DETAIL W-23.
- IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THE MANUFACTURER.

**SEWER NOTES:**

- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
SEWER TRENCH	S8 & S7	CITY OF OTTAWA
STORM SEWER	PVC DR 35	CITY OF OTTAWA
SANITARY SEWER	PVC DR 35	CITY OF OTTAWA
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER WITH 50mmx1200mm H-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION (REFER TO DETAIL).
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0% (2.0% IS PREFERRED).
- SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
- PIPE BEDDING FOR SEWER AND WATER PIPES SHOULD CONSIST OF AT LEAST 150mm OF OPSS GRANULAR A. THE BEDDING LAYER THICKNESS SHOULD BE INCREASED TO 300mm WHERE THE SUBGRADE WILL CONSIST OF GREY SILTY CLAY. THE MATERIAL SHOULD BE PLACED IN A MAXIMUM 225mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 99% OF ITS SPMD. THE BEDDING SHOULD EXTEND AT LEAST TO THE SPRING LINE OF THE PIPE.
- THE SEWER AND WATER PIPE COVER MATERIAL SHOULD CONSIST OF OPSS GRANULAR A, AND SHOULD EXTEND FROM THE SPRINGLINE OF THE PIPE TO AT LEAST 300mm ABOVE THE OVERTOP OF THE PIPE. THE MATERIAL SHOULD BE PLACED IN MAXIMUM 225mm THICK LIFTS AND COMPACTED TO A MINIMUM OF 99% OF ITS SPMD.
- WHERE HARD SURFACE AREAS ARE CONSIDERED ABOVE TRENCH BACKFILL, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (ABOUT 1.8m BELOW FINISHED GRADE) SHOULD MATCH THE SOILS EXPOSED AT THE TRENCH WALLS TO MINIMIZE DIFFERENTIAL FROST HEAVING. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 300mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIAL'S SPMD.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX, POSITIVE SEAL AND DURASEAL). THE CONCRETE GRADLE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPS 4107.16, 4107.07.16, 4107.16.04 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.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.



**NOTE:**  
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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	JAN 15/25	GJM
2	RE-ISSUED WITH SITE PLAN APPLICATION	NOV/24	GJM
1	ISSUED WITH SITE PLAN APPLICATION	OCT/24	GJM

SCALE: 1:300

FOR REVIEW ONLY

CHECKED: C/JF  
 DRAWN: G/JM  
 CHECKED: C/JF  
 APPROVED: G/JM

NOVATECH ENGINEERING CONSULTANTS LTD.

LOCATION: CITY OF OTTAWA  
 535 LEGGET DRIVE

DRAWING NAME: GENERAL SERVICING PLAN

PROJECT No.: 124045  
 REV: REV # 3  
 DRAWING No.: 124045-GP

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