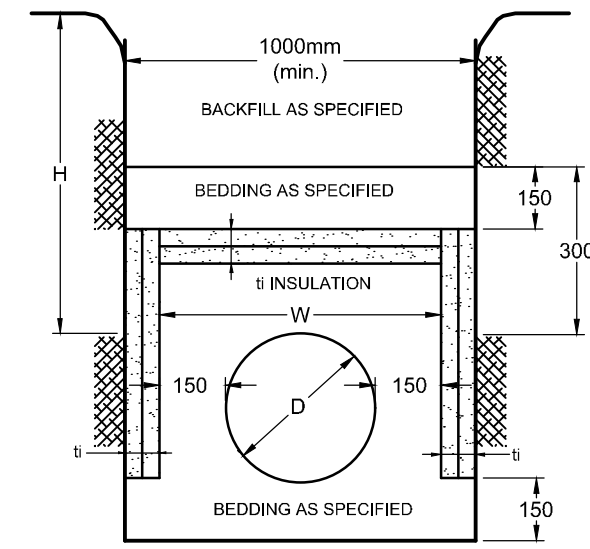


LEGEND

| | | | |
|---------------|---|-------|-----------------------------------|
| PROPERTY LINE | PROPOSED BARRIER CURB | FFE | FINISHED FLOOR ELEVATION |
| SANMH 01 | PROPOSED DEPRESSION CURB | T/FND | TOP OF FOUNDATION WALL ELEVATION |
| CBMH 01 | PROPOSED WATER SERVICE AND DIAMETER | USF | UNDERSIDE OF FOOTING ELEVATION |
| STMMH 01 | PROPOSED VALVE & VALVE BOX | SANMH | EXISTING SANITARY MANHOLE & SEWER |
| CB 02 | PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE | CBMH | EXISTING CATCHBASIN MANHOLE |
| HYD | PROPOSED CAP | STMMH | EXISTING STORM MANHOLE & SEWER |
| ICD | PROPOSED BUILDING ENTRANCE | CB | EXISTING CATCH-BASIN CIV |
| RD | THERMAL INSULATION FOR SHALLOW SEWERS | HYD | EXISTING HYDRANT & VALVE |
| DS | PROPOSED HYDRO TRANSFORMER | | |
| | DOWNSPOUT | | |

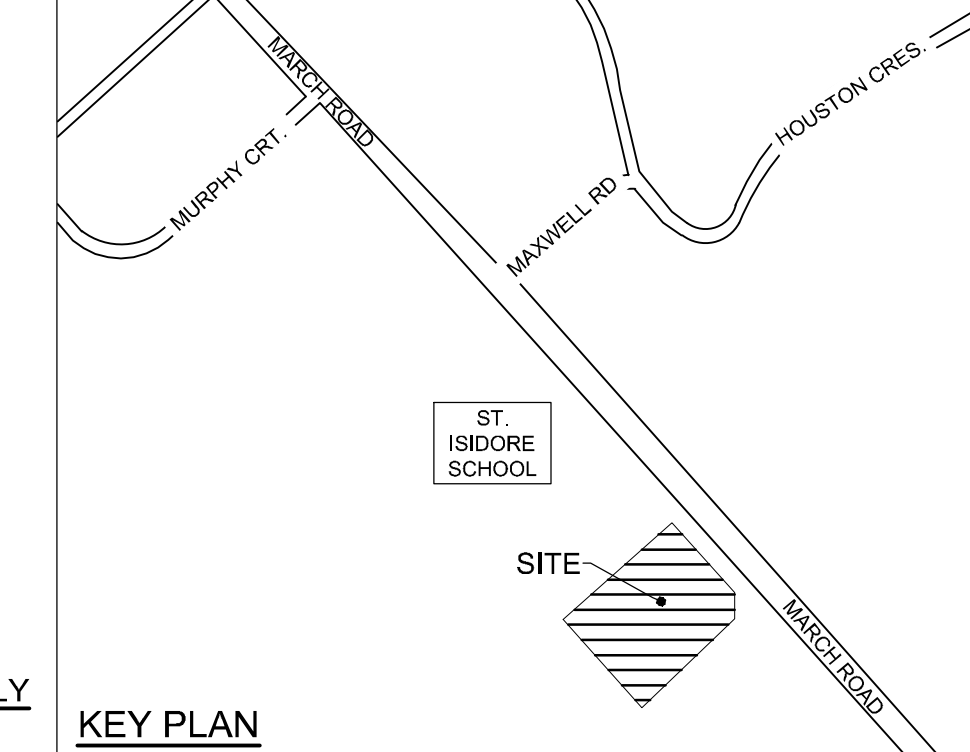
| | | | |
|--------|---|-------|-----------------------------------|
| DC | PROPOSED BARRIER CURB | FFE | FINISHED FLOOR ELEVATION |
| 150mmØ | PROPOSED DEPRESSION CURB | T/FND | TOP OF FOUNDATION WALL ELEVATION |
| VB | PROPOSED WATER SERVICE AND DIAMETER | USF | UNDERSIDE OF FOOTING ELEVATION |
| BEND | PROPOSED VALVE & VALVE BOX | SANMH | EXISTING SANITARY MANHOLE & SEWER |
| C | PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE | CBMH | EXISTING CATCHBASIN MANHOLE |
| | PROPOSED CAP | STMMH | EXISTING STORM MANHOLE & SEWER |
| | PROPOSED BUILDING ENTRANCE | CB | EXISTING CATCH-BASIN CIV |
| | THERMAL INSULATION FOR SHALLOW SEWERS | HYD | EXISTING HYDRANT & VALVE |
| | PROPOSED HYDRO TRANSFORMER | | |
| DS | DOWNSPOUT | | |



| | |
|-----------|-----|
| 1800-1500 | 50 |
| 1500-1200 | 75 |
| 1200-900 | 100 |
| 900-600 | 125 |

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

- NOTES:**
- INSULATE ALL SEWER PIPES THAT ARE LESS THAN 600mmØ AND HAVE LESS THAN 1.0m COVER WITH EXPANDED POLYSTYRENE INSULATION AS SHOWN.
 - THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER (SEE TABLE).



INSULATION DETAIL FOR SHALLOW SEWERS ONLY
NOT TO SCALE

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 \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS COINSURED.
- COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED'.
- 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.
- REFER TO GEOTECHNICAL INVESTIGATION REPORT (Ref No.: PG5321-1, DATED JAN 20, 2021) PREPARED BY PATERSON GROUP INC., FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AS A CONDITION OF EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACED AREAS AND DIMENSIONS.
- REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-090) PREPARED BY NOVATECH.
- SAW CUT AND KEYING IN ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

SEWER NOTES:

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

| ITEM | SPEC. No. | REFERENCE |
|------------------------------------|---|----------------|
| STORM/SANITARY MANHOLE (1200Ø) | 701.010 | OPSD |
| STORM/CATCHBASIN MANHOLE (1500Ø) | 701.011 | OPSD |
| STORM/SANITARY FRAME AND COVER | 401.010 - TYPE 'B' | OPSD |
| SANITARY MANHOLE FRAME AND COVER | 401.010 - TYPE 'A' | OPSD |
| WATERTIGHT MANHOLE FRAME AND COVER | 401.030 | OPSD |
| CATCHBASIN MH FRAME & COVER | 401.010 Type 'B' | OPSD |
| CATCHBASIN (600x600) | 705.010 | OPSD |
| CATCHBASIN FRAME & COVER | S19 | CITY OF OTTAWA |
| SEWER TRENCH | S6 | CITY OF OTTAWA |
| STORM SEWER | PVC DR 35 (450mmØ PIPE AND SMALLER) | CITY OF OTTAWA |
| STORM SEWER | HDPE BOSS 2000 (600mmØ PIPE AND LARGER) | CITY OF OTTAWA |
| SANITARY SEWER | PVC DR 35 | CITY OF OTTAWA |
- THE SANITARY SERVICE LATERAL SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14.1 OR S14.2. REFER TO MECHANICAL PLANS FOR DETAILS.
- THE STORM SERVICE LATERAL SHALL BE EQUIPPED WITH A BACKFLOW PREVENTER WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14. REFER TO MECHANICAL PLANS FOR DETAILS.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- 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.
- INSULATE ALL PIPES (SAN / STM) THAT HAVE LESS THAN 1.5m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- CONCRETE MANHOLES ARE TO BE 1200mmØ STRUCTURES UNLESS OTHERWISE NOTED ON THE DRAWING. 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.
- TYPICAL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR IS TO TELEVISION (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. PROVIDE A COPY OF ALL CCTV INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.
- 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 T/G 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 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.
- ALL STRUCTURES WITHIN GRASSED AREAS TO BE FLUSH WITH GRADE.

WATERMAIN NOTES:

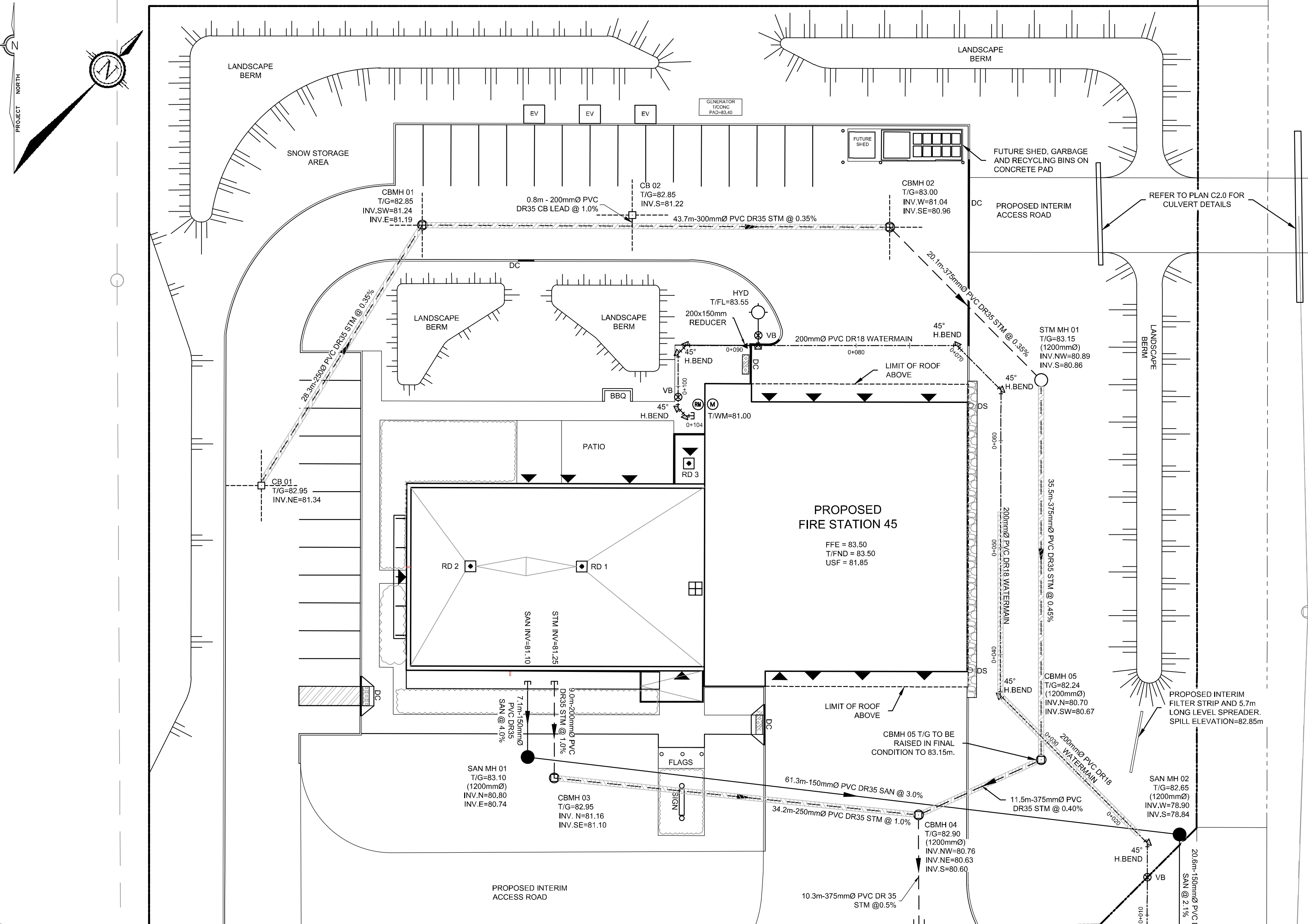
- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
- SPECIFICATIONS:

| ITEM | SPEC. No. | REFERENCE |
|--|------------------------------|----------------|
| WATERMAIN TRENCHING | W17 | CITY OF OTTAWA |
| HYDRANT INSTALLATION | W19 | CITY OF OTTAWA |
| THERMAL INSULATION IN SHALLOW TRENCHES | W22 | CITY OF OTTAWA |
| THERMAL INSULATION BY OPEN STRUCTURES | W23 | CITY OF OTTAWA |
| VALVE BOX ASSEMBLY | W24 | CITY OF OTTAWA |
| WATERMAIN CROSSING BELOW SEWERS | W25 | CITY OF OTTAWA |
| CATHODIC PROTECTION FOR PVC WATERMANS | W40 | CITY OF OTTAWA |
| WATERMAIN MATERIAL | PVC DR 18 (100mm AND LARGER) | CITY OF OTTAWA |
- EXCAVATION, INSTALLATION, 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, UNLESS OTHERWISE INDICATED.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

PROPOSED 200mmØ / 150mmØ WATER SERVICE TABLE

| STATION | SURFACE ELEVATION | T/MW ELEVATION | COMMENTS |
|---------|-------------------|----------------|---|
| 0+000.0 | 82.92 | 79.66* | 200mmØ WM CONNECTION TO EX. 300mmØ PVC WM |
| 0+013.5 | 82.50 | 80.10 | VALVE AND VALVE BOX AT PROPERTY LINE |
| 0+016.7 | 82.40 | 80.00** | 45° HORIZONTAL BEND |
| 0+018.6 | 82.69 | 80.29** | CROSSING PROPOSED 150mmØ SAN. CLEARANCE=0.91m |
| 0+028.4 | 83.15 | 80.75** | 22.5° VERTICAL BEND |
| 0+029.6 | 83.15 | 80.17** | 22.5° VERTICAL BEND |
| 0+030.6 | 83.20 | 80.17** | CROSSING PROPOSED 375mmØ STM. CLEARANCE=0.50m |
| 0+031.8 | 83.20 | 80.17** | 22.5° VERTICAL BEND |
| 0+033.3 | 83.20 | 80.80** | 22.5° VERTICAL BEND |
| 0+036.2 | 83.25 | 80.85** | 45° HORIZONTAL BEND |
| 0+044.7 | 83.29 | 80.89** | 45° HORIZONTAL BEND |
| 0+070.6 | 83.32 | 80.92 | 45° HORIZONTAL BEND |
| 0+089.2 | 83.40 | 81.00 | HYDRANT LEAD (200x150x200 TEE) |
| 0+090.7 | 83.40 | 81.00 | 200x150mm REDUCER |
| 0+095.9 | 83.35 | 80.95 | 45° HORIZONTAL BEND |
| 0+096.9 | 83.35 | 80.95 | 45° HORIZONTAL BEND |
| 0+101.0 | 83.40 | 81.00 | VALVE AND VALVE BOX |
| 0+102.0 | 83.40 | 81.00 | 45° HORIZONTAL BEND |
| 0+103.1 | 83.42 | 81.02 | 45° HORIZONTAL BEND |
| 0+103.8 | 83.42 | 81.00 | CAP 1.0m FROM FOUNDATION WALL |

* CONNECTION TO EXISTING 300mmØ PVC WATERMAIN. EXACT ELEVATION TO BE FIELD DETERMINED.
** THERMAL INSULATION TO BE PROVIDED DUE TO SHALLOW COVER DEPTH DURING THE INTERIM CONDITIONS.



MARCH ROAD

Lisa Stern
LISA STERN
PLANNER
PLANNING, REAL ESTATE & ECONOMIC DEVELOPMENT
DEPARTMENT, CITY OF OTTAWA

APPROVED
By Lisa Stern at 12:18 pm, Dec 21, 2022

PLUG OUTLET PIPE IN INTERIM CONDITION. STORM SEWER TO BE EXTENDED TO MUNICIPAL STORM SEWER IN BACKLASH STREET IN FINAL CONDITIONS

CONNECTION TO EXISTING 300mmØ WATERMAIN TO BE COMPLETED BY CITY FORCES. CONTRACTOR TO DETERMINE EXACT LOCATION AND ELEVATION OF WATERMAIN IN FIELD. EXCAVATION, BACKFILL AND REINSTATEMENT BY CONTRACTOR. TWM=79.66

CONNECT TO EXISTING 375mmØ SANITARY SEWER PIPE AS PER CITY STANDARD S11.1. BACKFILL AND REINSTATEMENT BY CONTRACTOR. EXISTING 375mmØ PIPE SPRINGLINE=78.41. PROPOSED CONNECTION INV.=78.41

PROPOSED ROOF DRAIN TABLE: AREA R-1 (RD1, RD2 AND RD3)

| AREA ID | ROOF DRAIN No. (WATTS MODEL) | ROOF DRAIN OPENING SETTING | 1.5 YEAR RELEASE RATE | APPROX. 5-YR PONDING DEPTH | 1-100 YEAR PONDING DEPTH | APPROX. 100-YR PONDING DEPTH |
|---------|------------------------------|----------------------------|-----------------------|----------------------------|--------------------------|------------------------------|
| R-1 | RD 1 (RD-100-A-ADJ) | FULLY EXPOSED | 1.07 L/s | 9 cm | 1.39 L/s | 12 cm |
| R-1 | RD 2 (RD-100-A-ADJ) | FULLY EXPOSED | 1.07 L/s | 9 cm | 1.39 L/s | 12 cm |
| R-1 | RD 3 (RD-100-A-ADJ) | - | 0.28 L/s | - | 0.50 L/s | - |

* REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-090) PREPARED BY NOVATECH FOR DRAINAGE AREA IDENTIFIERS AND STORMWATER MANAGEMENT DETAILS.



FOR / POUR
INFRASTRUCTURE SERVICES & COMMUNITY SUSTAINABILITY
INFRASTRUCTURE SERVICES
DESIGN & CONST. - BUILDINGS & PARKS

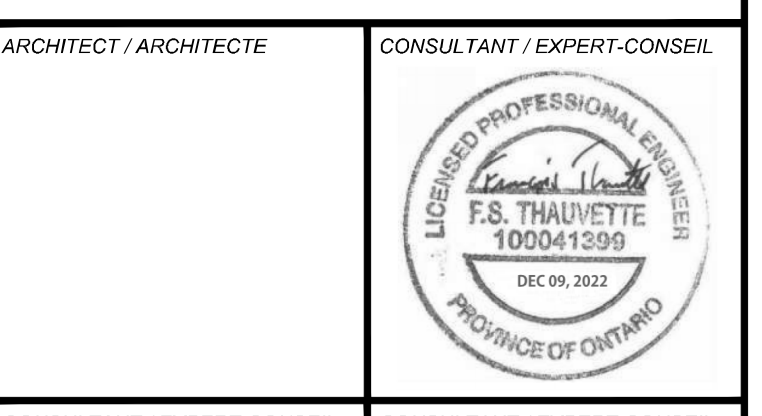


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| 1 | ISSUED FOR SITE PLAN APPROVAL | 22/12/2022 | FST |
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|------------------------|------------------------|
| DESIGNED BY / CONCEPAR | DESIGNED BY / CONCEPAR |
| DRAWN BY / DESINÉ PAR | SCALE / ÉCHELLE |
| DMM | 1:250 |

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| 1 | DRAWING TITLE | SCALE |
| A1.1 | GENERAL PLAN OF SERVICES INTERIM CONDITIONS | 1:250 |

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| | |
|-----------------------------|-----------------------------|
| ARCHITECT / ARCHITECTE | CONSULTANT / EXPERT-CONSEIL |
| CONSULTANT / EXPERT-CONSEIL | CONSULTANT / EXPERT-CONSEIL |

PROJECT / LOCATION / PROJET / ENDROIT
FIRE STATION 45
1075-A MARCH ROAD
OTTAWA, ONTARIO

DRAWING / Dessin
GENERAL PLAN OF SERVICES INTERIM CONDITIONS

BUSINESS ENTITY / NUMÉRO DE L'ENTITÉ
BUILDING NUMBER / NUMÉRO DU BÂTIMENT
CITY PROJECT NO. / NUMÉRO DE PROJET
CONS. PROJECT NO. / NUMÉRO DE PROJET
C1.0
122089

D07-12-22-0090