

**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 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.
- THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV. = 109.12), LOCATED AT THE INTERSECTION OF CULDAFF ROAD AND BERNONDSY WAY. BENCHMARK #2 IS THE TOP OF HYDRANT SPINDLE (ELEV. = 109.29), LOCATED ON DERRREEN AVENUE ACROSS THE ROAD FROM THE PROJECTION OF THE EAST PROPERTYLINE. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THE CGVD-1928-1978 GEODETIC DATUM. REFER TO THE FARLEY, SMITH & DENIS SURVEYING LTD. 2024 TOPOGRAPHIC SKETCH OF # 425 CULDAFF ROAD, CITY OF OTTAWA.
- REFER TO GEOTECHNICAL REPORT (No. PG7040-1, DATED MAY 21, 2024), PREPARED BY PATERSON GROUP 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 HARDSURFACE AREAS AND DIMENSIONS.
- REFER TO SERVICING AND STORMWATER MANAGEMENT REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD. (DATED FEBRUARY 28, 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 SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T.O. ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
- CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.

**SEWER NOTES:**

SPECIFICATIONS:	SPEC. No.	REFERENCE
ITEM		
CATCH-BASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200mm)	701.010	OPSD
STORM / SANITARY MANHOLE (1500mm)	701.011	OPSD
CB, FRAME & COVER	400.020	OPSD
STORM / SANITARY MH 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	S6 & S7	CITY OF OTTAWA
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
CATCH-BASIN LEAD	PVC DR 35	

INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER WITH 50mmX1200mm HI-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.
- THE PIPE BEDDING FOR THE SEWER AND WATER PIPES SHOULD CONSIST OF AT LEAST 150 MM OF OPSS GRANULAR A. THE BEDDING LAYER THICKNESS SHOULD BE INCREASED TO A MINIMUM OF 300 MM WHERE THE SUBGRADE WILL CONSIST OF GREY SILTY CLAY. THE MATERIAL SHOULD BE PLACED IN A MAXIMUM 225 MM THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95% OF ITS SPMD. THE BEDDING MATERIAL SHOULD EXTEND AT LEAST TO THE SPRING LINE OF THE PIPE.
- THE COVER MATERIAL, WHICH SHOULD CONSIST OF OPSS GRANULAR A, SHOULD EXTEND FROM THE SPRING LINE OF THE PIPE TO AT LEAST 300 MM ABOVE THE OVERT OF THE PIPE. THE MATERIAL SHOULD BE PLACED IN MAXIMUM 225 MM THICK LIFTS AND COMPACTED TO A MINIMUM OF 95% OF ITS SPMD.
- WHERE HARD SURFACE AREAS ARE CONSIDERED ABOVE THE TRENCH BACKFILL, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (ABOUT 1.8 M 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 300 MM THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95% 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 CRADLE FOR THE PIPE CAN BE ELIMINATED.
- 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.
- STORM MANHOLES AND CBMHs ARE TO HAVE 300mm SUMPMS UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO TELEVISION (CCTV) ALL PROPOSED SEWERS, 200mm OR GREATER PRIOR TO BASE COURSE ASPHALT, UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
- ALL CATCHBASINS AND CATCHBASIN MANHOLES TO BE PROVIDED WITH MINIMUM 3 METER LONG PERFORATED SUBDRAINS EXTENDING IN TWO DIRECTIONS AT THE SUBGRADE LEVEL. SUBDRAIN IS TO BE PROVIDED AT THE TRANSITIONS BETWEEN DIFFERENT PAVEMENT COMPOSITIONS. THE SUBGRADE SURFACE SHOULD BE SHAPED TO PROMOTE WATER FLOW TO THE DRAINAGE LINES.

**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 VALVE AND VALVE BOX	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 CHLORINATION 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 THAT RECOMMENDED BY THE MANUFACTURER.

**GRADING NOTES:**

- TOPSOIL AND FILL, SUCH AS THOSE CONTAINING SIGNIFICANT AMOUNTS OF ORGANIC OR SILTY CLAY, SHOULD BE STRIPPED FROM UNDER ANY BUILDINGS, PAVED AREAS, PIPE BEDDING AND OTHER SETTLEMENT SENSITIVE STRUCTURES, AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
- SITE-EXCAVATED SOIL CAN BE PLACED AS GENERAL LANDSCAPING FILL WHERE SETTLEMENT IS A MINOR CONCERN OF THE GROUND SURFACE. THESE MATERIALS SHOULD BE SPREAD IN THIN LIFTS AND AT LEAST COMPACTED BY THE TRACKS OF THE SPREADING EQUIPMENT TO MINIMIZE VOIDS. IF THESE MATERIALS ARE TO BE PLACED TO INCREASE THE SUBGRADE LEVEL FOR AREAS TO BE PAVED, THE FILL SHOULD BE COMPACTED IN MAXIMUM 300 mm THICK LIFTS AND TO A MINIMUM DENSITY OF 95% OF THE RESPECTIVE SPMD.
- CONSIDERATION MAY BE GIVEN FOR LEAVING IN-SITU FILL IN PLACE AT THE SUBGRADE LEVEL OF PAVED AREAS PROVIDED IT IS REVIEWED IN THE FIELD AT THE TIME OF CONSTRUCTION BY PATERSON PERSONNEL AND SUBSEQUENTLY PROOF-ROLLER BY A SUITABLY-SIZED SHEEPSFOOT ROLLER. PROOF-ROLLING SHOULD BE COMPLETED UNDER DRY AND ABOVE-FREEZING CONDITIONS AND UNDER THE SUPERVISION OF PATERSON PERSONNEL PRIOR TO THE PLACEMENT OF GRANULARS.
- IF SOFT SPOTS DEVELOP IN THE SUBGRADE DURING COMPACTION OR DUE TO CONSTRUCTION TRAFFIC, THE AFFECTED AREAS SHOULD BE EXCAVATED AND REPLACED WITH OPSS GRANULAR B TYPE II MATERIAL, AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- FILL USED FOR GRADING BENEATH THE BASE AND SUBBASE LAYERS OF PAVED AREAS SHOULD CONSIST, UNLESS OTHERWISE SPECIFIED, OF CLEAN IMPORTED GRANULAR FILL, SUCH AS OPSS GRANULAR A, GRANULAR B TYPE I OR SELECT SUBGRADE MATERIAL. THIS MATERIAL SHOULD BE TESTED AND APPROVED PRIOR TO DELIVERY TO THE SITE. THE FILL SHOULD BE PLACED IN LIFTS NO GREATER THAN 300 mm THICK AND COMPACTED USING SUITABLE COMPACTION EQUIPMENT FOR THE LIFT THICKNESS. FILL PLACED BENEATH THE PAVED AREAS SHOULD BE COMPACTED TO AT LEAST 95% OF ITS SPMD.
- THE PAVEMENT GRANULAR BASE AND SUBBASE SHOULD BE PLACED IN MAXIMUM 300 MM THICK LIFTS AND COMPACTED TO A MINIMUM OF 100% OF THE SPMD WITH SUITABLE VIBRATORY EQUIPMENT.
- MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
- MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
- ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
- ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED.
- BACKFILL MATERIAL BELOW SIDEWALK AND WALKWAY SUBGRADE AREAS OR OTHER SETTLEMENT SENSITIVE STRUCTURES WHICH ARE NOT ADJACENT TO THE BUILDINGS SHOULD CONSIST OF FREE-DRAINING NON-FROST SUSCEPTIBLE MATERIAL. THIS MATERIAL SHOULD BE PLACED IN MAXIMUM 300 MM THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 98% OF ITS SPMD UNDER DRY AND ABOVE FREEZING CONDITIONS.
- REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

**PAVEMENT STRUCTURE:**

- CAR ONLY PARKING AREAS**
- 50mm HL3 OR SUPERPAVE 12.5
  - 150mm OPSS GRAN "A" CRUSHED STONE
  - 300mm OPSS GRAN "B" TYPE II (SUBGRADE - EITHER IN SITU SOIL, FILL OR OPSS GRANULAR B TYPE I OR II MATERIAL PLACED OVER IN SITU SOIL.)
- HEAVY TRUCK TRAFFIC AND LOADING AREAS**
- 40mm HL3 OR SUPERPAVE 12.5
  - 50mm HL8 OR SUPERPAVE 19.0
  - 150mm OPSS GRAN "A" CRUSHED STONE
  - 450mm OPSS GRAN "B" TYPE II (SUBGRADE - EITHER IN SITU SOIL, FILL OR OPSS GRANULAR B TYPE I OR II MATERIAL PLACED OVER IN SITU SOIL.)

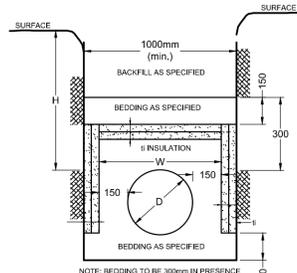
- NOTE:**
- MINIMUM PERFORMANCE GRADED (PG) 58-34 ASPHALT CEMENT.

**SEWER & WATERMAIN INSULATION NOTES:**

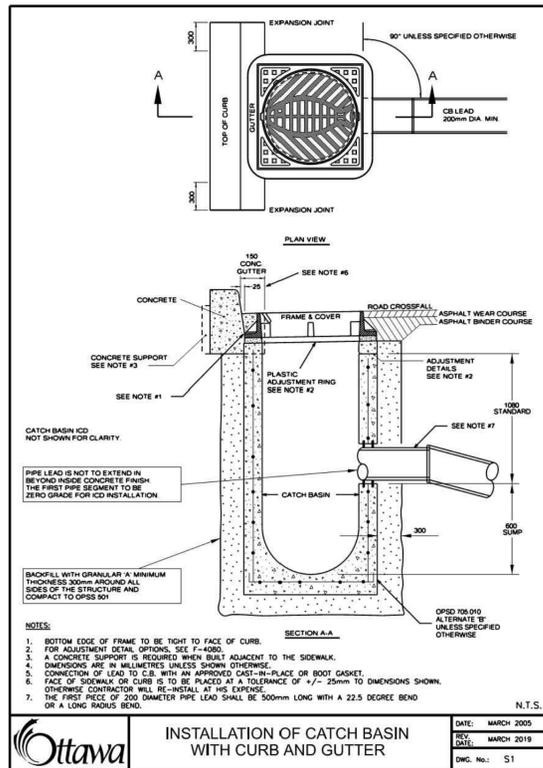
- INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 2.0m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER OPSD 1109.030.
- THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER WITH 50mm MINIMUM (SEE TABLE)

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

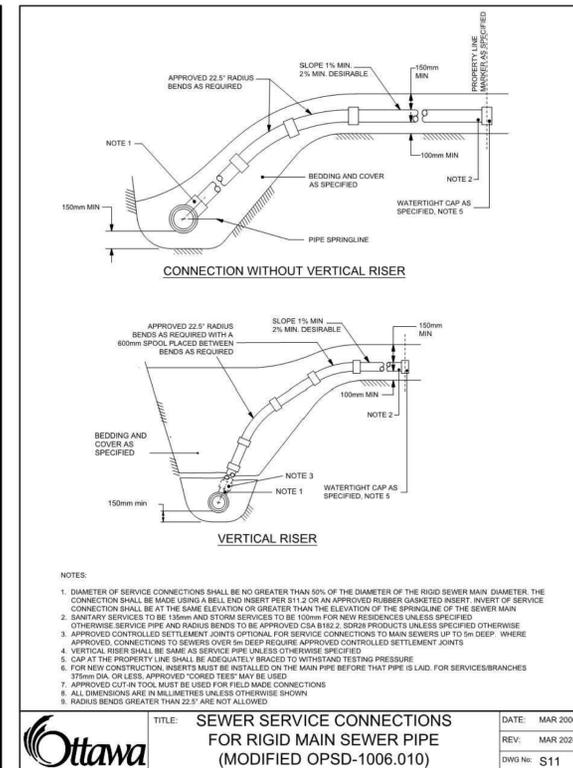
T = THICKNESS OF INSULATION (mm)  
W = WIDTH OF INSULATION (mm)  
W = D + 300 (1000 MIN.)  
D = O.D. OF PIPE (mm)



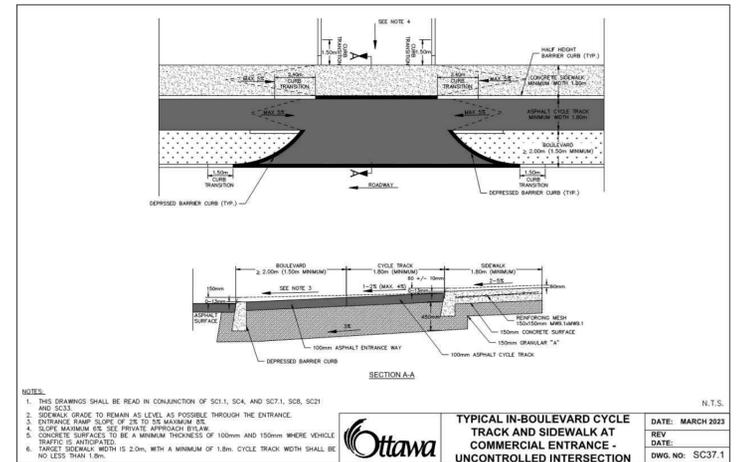
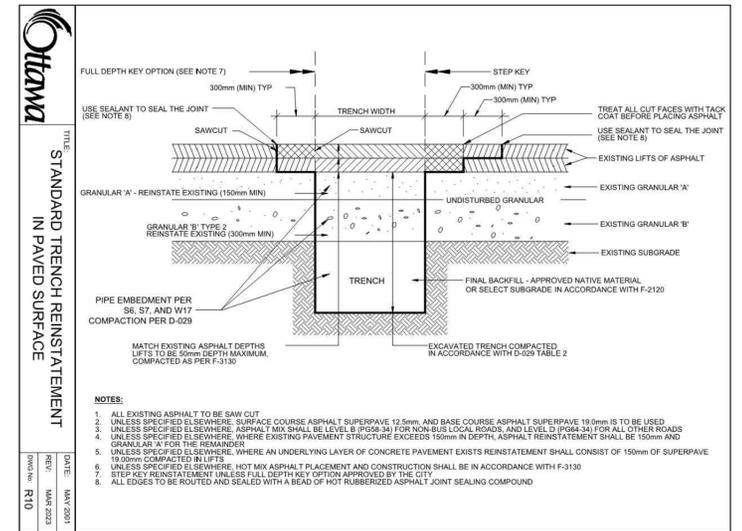
**INSULATION DETAIL FOR SHALLOW SEWERS & WATERMAIN**  
N.T.S.



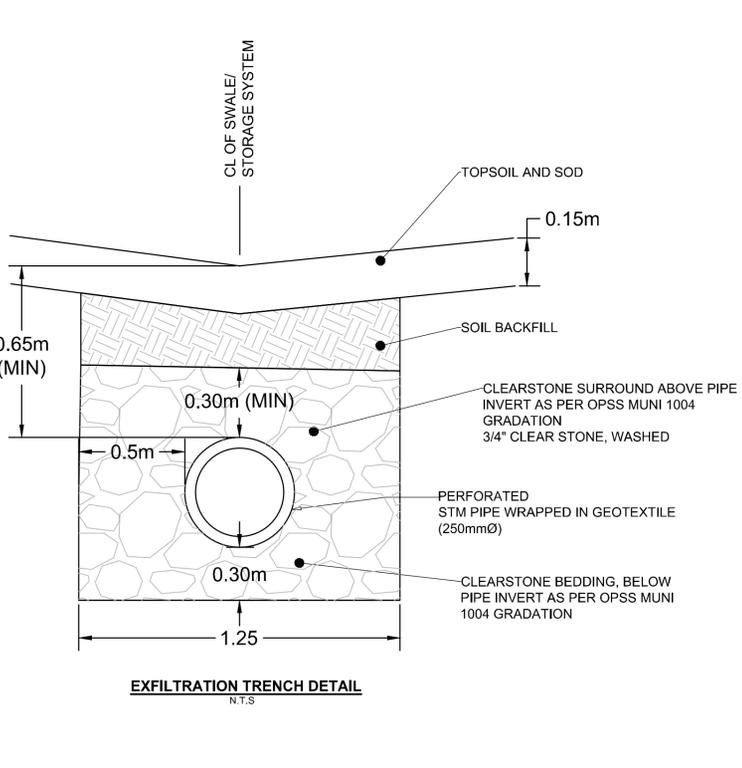
**INSTALLATION OF CATCH BASIN WITH CURB AND GUTTER**  
DATE: MARCH 2025  
REV. DATE: MARCH 2019  
DWG. No.: S1



**SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE (MODIFIED OPSD-1006.010)**  
DATE: MAR 2006  
REV: MAR 2024  
DWG. No.: S11



**TYPICAL IN-BOULEVARD CYCLE TRACK AND SIDEWALK AT COMMERCIAL ENTRANCE - UNCONTROLLED INTERSECTION**  
DATE: MARCH 2023  
REV. DATE:  
DWG. No.: SC37.1



**EXFILTRATION TRENCH DETAIL**  
N.T.S.

**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.

**NOT FOR CONSTRUCTION**

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	FEB 28/2025	ARM
1.	ISSUED FOR SITEPLAN APPLICATION	OCT/17/24	ARM

SCALE: AS SHOWN

DESIGN: ARM

CHECKED: GJM

DRAWN: MF/ARM

CHECKED: ARM

APPROVED: GJM

**FOR REVIEW ONLY**

PROFESSIONAL ENGINEER  
A.R. MESTWARP  
100201604  
28/2025  
PROVINCE OF ONTARIO

PROFESSIONAL ENGINEER  
G.J. MacDONALD  
Feb. 28, 2025  
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	PROJECT No.
CITY OF OTTAWA 425 CULDAFF ROAD	123194
DRAWING NAME	REV
NOTES AND DETAILS	REV#2
DRAWING No.	123194-ND

M:\2025\123194\CADD\DWG\123194-ND.dwg, AND, Feb. 28, 2025 - 10:16am, armestwarp