

**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 ELEVATIONS ARE GEODETIC. THE SITE BENCHMARKS IS CURRENTLY SET CUT CROSS TOP OF HYDRO TRANSFORMER (ELEV. = 76.57), LOCATED SOUTH WEST OF THE CONCRETE BLOCK PUMP HOUSE. REFER TO FAIRHALL, MOFFAT AND WOODLAND LIMITED TOPOGRAPHIC SURVEY OF PART OF BLOCK 11, REGISTERED PLAN 4M-1096 AND PART OF LOT PLAN OF PART OF LOT 8 CONVESSION 4 GEOGRAPHICAL TOWNSHIP OF MARCH, NOW CITY OF OTTAWA, NOTE THAT AS PART OF THIS PROJECT, THE BENCHMARK WILL BE DESTROYED DURING CONSTRUCTION, A NEW BENCH MARK WILL NEED TO BE SET BY THE SURVEYOR PRIOR TO THE START OF CONSTRUCTION.
- REFER TO GEOTECHNICAL REPORT (No. PG5673-1 REVISION 2 DATED JANUARY 27, 2022 BY PATTERSON 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 SITE SERVICING AND STORMWATER MANAGEMENT BRIEF (REPORT NO. R-2021-131, DATED APRIL 4, 2022) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- 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.
- ALL MONITORING WELLS SHOULD BE DECOMMISSIONED IN ACCORDANCE WITH ONTARIO REGULATIONS O REG 903 BY A QUALIFIED LICENSED WELL TECHNICIAN PRIOR TO CONSTRUCTION.
- 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 TIG ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

**SEWER NOTES:**

- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200)	701.010	OPSD
STORM / SANITARY MANHOLE (1500)	701.011	OPSD
STORM / SANITARY MANHOLE (2400)	701.013	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	S8 & S7	CITY OF OTTAWA
LANDSCAPE DRAINS	S3 & S31	CITY OF OTTAWA
TRENCH DRAIN	SOLENO 300mm FILCOTEN INFRA CHANNEL (OR APPROVED EQUIVALENT)	
STORM SEWER < 450mmØ	PVC SDR 35 (UNLESS SPECIFIED OTHERWISE)	
STORM SEWER >= 450mmØ	CONC 85 (UNLESS SPECIFIED OTHERWISE)	
SANITARY SEWER	PVC DR 35	CITY OF OTTAWA
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER WITH 50mmX1200mm H140 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%/2.0% IS PREFERRED).
- 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.
- SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
- 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 OPS5 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 CBHMS ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
- CONTRACTOR 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.
- 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 / OVER SEWER	W25 / W25.2	CITY OF OTTAWA
VALVE BOX	W24	CITY OF OTTAWA
WATERMAIN	PVC DR 18	
- THE WATERMAIN SHALL BE PVC DR 18 IN ACCORDANCE WITH MATERIAL SPECIFICATION MW-18.1, UNLESS OTHERWISE INDICATED.
- 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 FORCES.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- PROVIDE MINIMUM 0.25m ABOVE, 0.5m IF BELOW, CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS AS PER OTTAWA STANDARDS W25/W25.2.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

**EROSION AND SEDIMENT CONTROL NOTES:**

- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, CITY OF OTTAWA AND THE CONSERVATION AUTHORITY. THEY SHALL BE APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION. THESE PRACTICES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
- TO PREVENT SURFACE EROSION FROM ENTERING THE DITCH OR STORM SYSTEM DURING CONSTRUCTION, FILTER SOCKS WILL BE PLACED UNDER GRATES OF ALL PROPOSED AND EXISTING CATCHBASINS AND STRUCTURES. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED IN SELECTED LOCATIONS, AND STRAW BALE BARRIERS WILL BE INSTALLED WITHIN THE OUTLET DITCHES. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION COMPLETE.
- THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
- THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY DITCH OR STORM SEWER SYSTEM. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
- THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- THE CONTRACTOR SHALL PROVIDE DUST CONTROL WITH THE APPLICATION OF WATER AND/OR CALCIUM CHLORIDE AS REQUIRED.

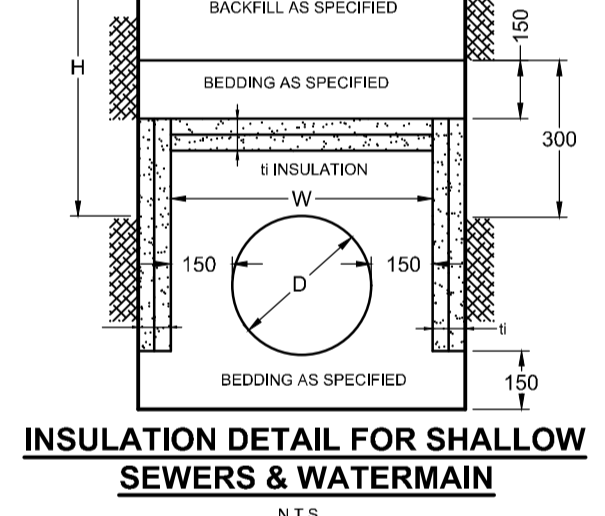
**GRADING NOTES:**

- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
- EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
- ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
- MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
- GRADE AND/OR FILL BEHIND PROPOSED CURB AND BETWEEN BUILDINGS AND CURBS, WHERE REQUIRED TO PROVIDE POSITIVE DRAINAGE
- MAXIMUM TERRACING GRADE TO BE 2.1.
- ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
- AS PER PRIVATE APPROACH BY-LAW NO. 2004-447 SECTION 26 (H) THE GRADE OF ANY PART OF A PRIVATE APPROACH TO A BUILDING MAY BE GREATER THAN 6% BUT SHALL NOT EXCEED 12% PROVIDED THAT A SUBSTANCE MELTING DEVICE SUFFICIENT TO KEEP THE PRIVATE APPROACH FREE OF ICE AT ALL TIMES IS INSTALLED AND PROPERLY MAINTAINED BY THE OWNER.
- 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 THE GRADING PLANS.

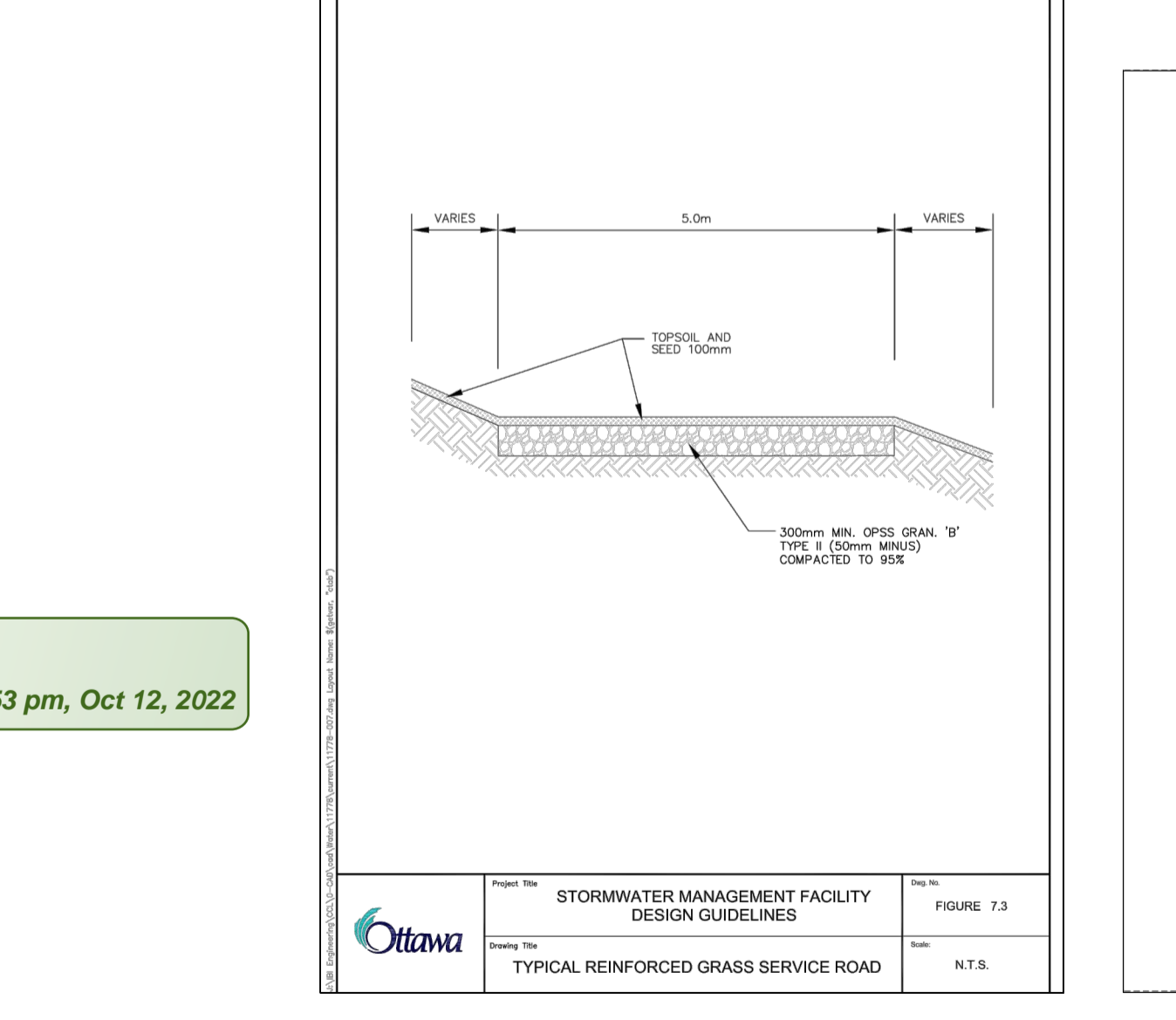
**SEWER & WATERMAIN INSULATION NOTES:**

- 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).

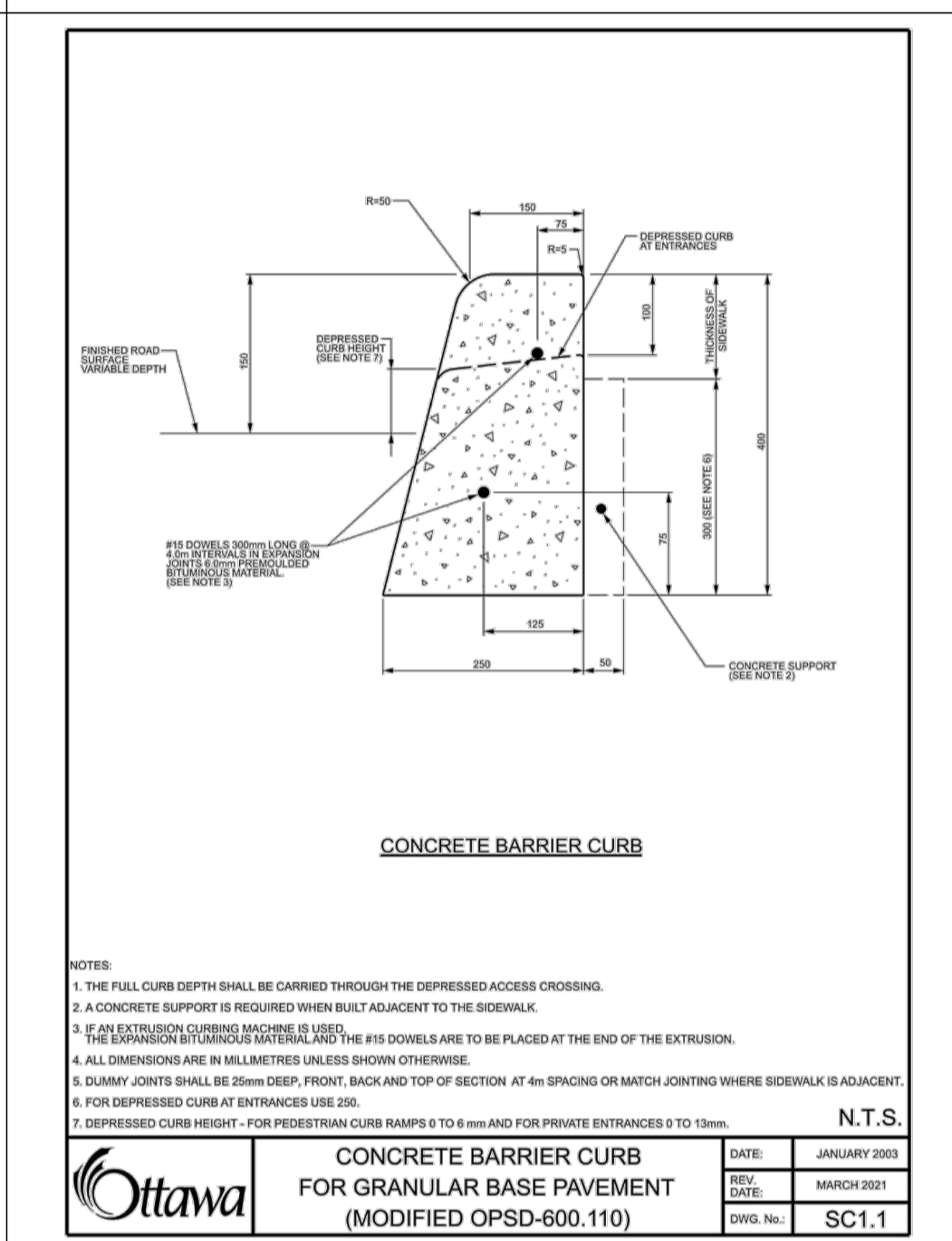
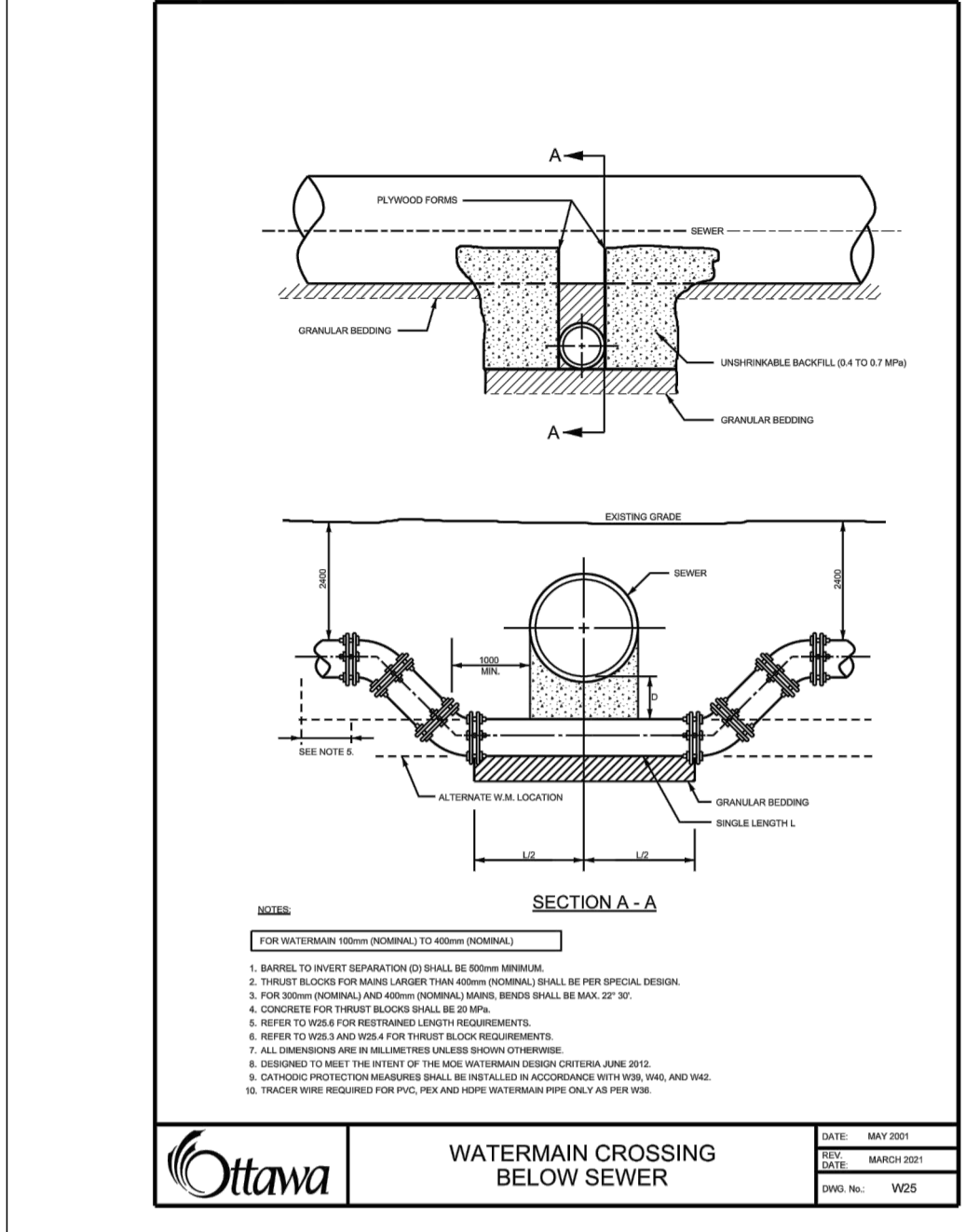
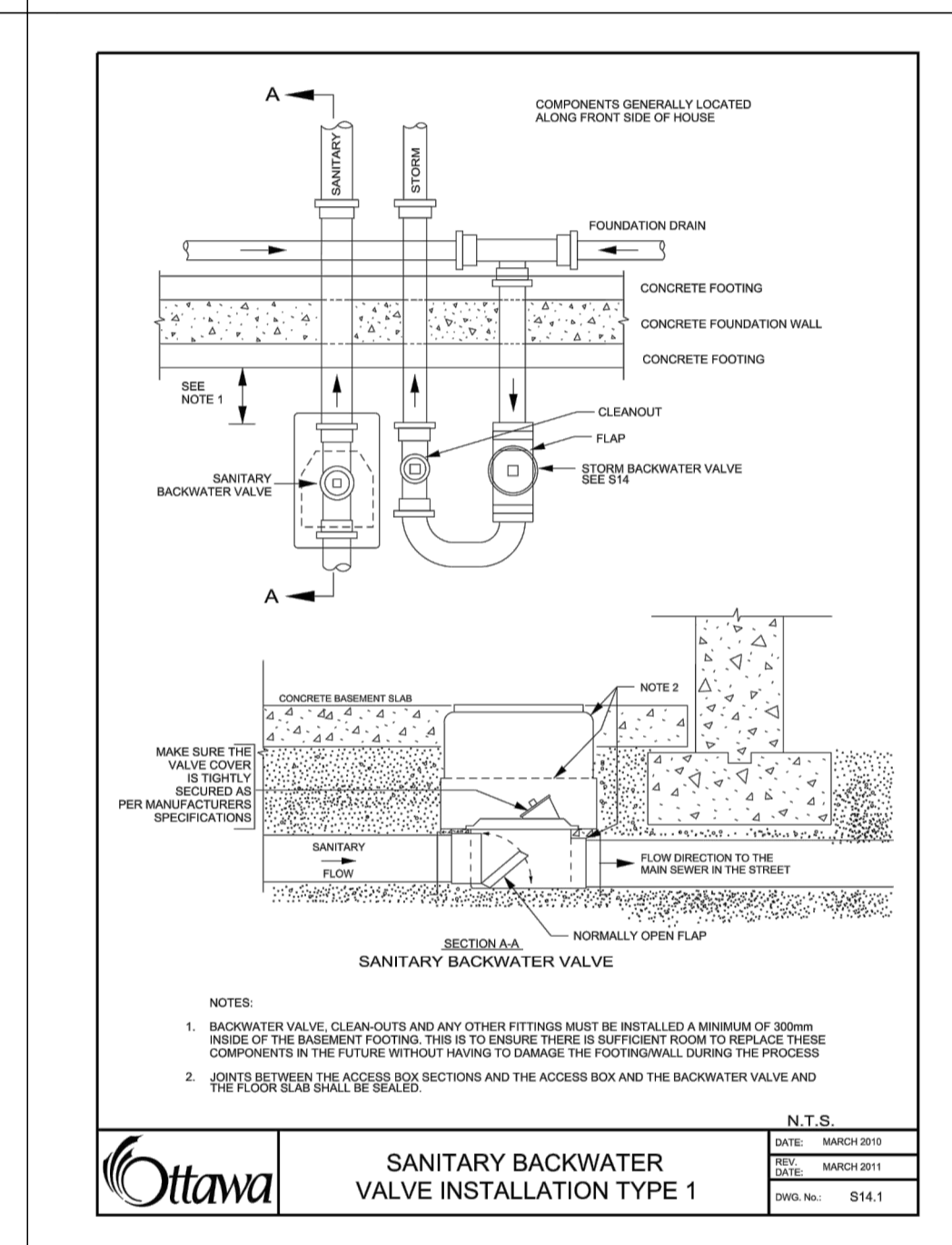
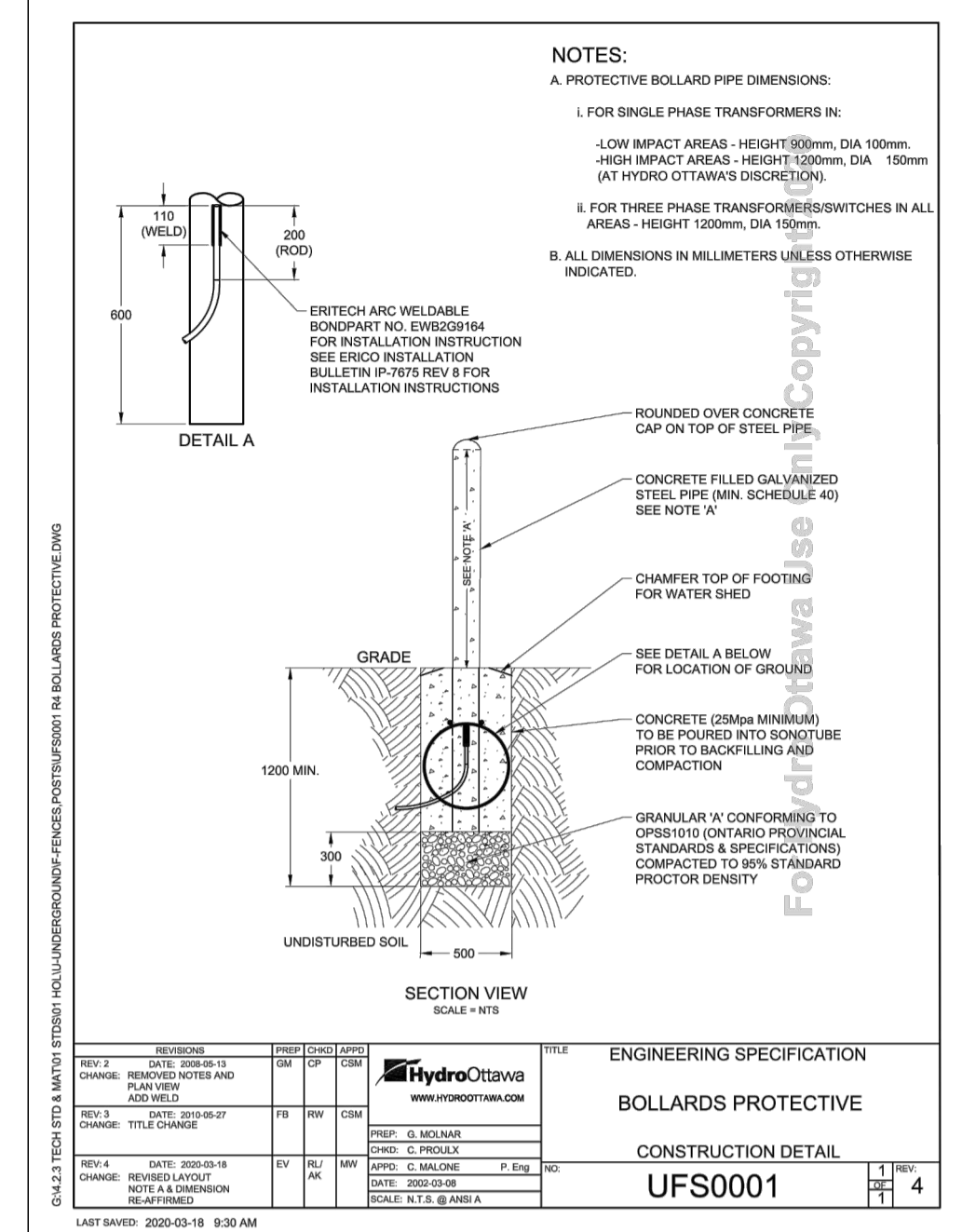
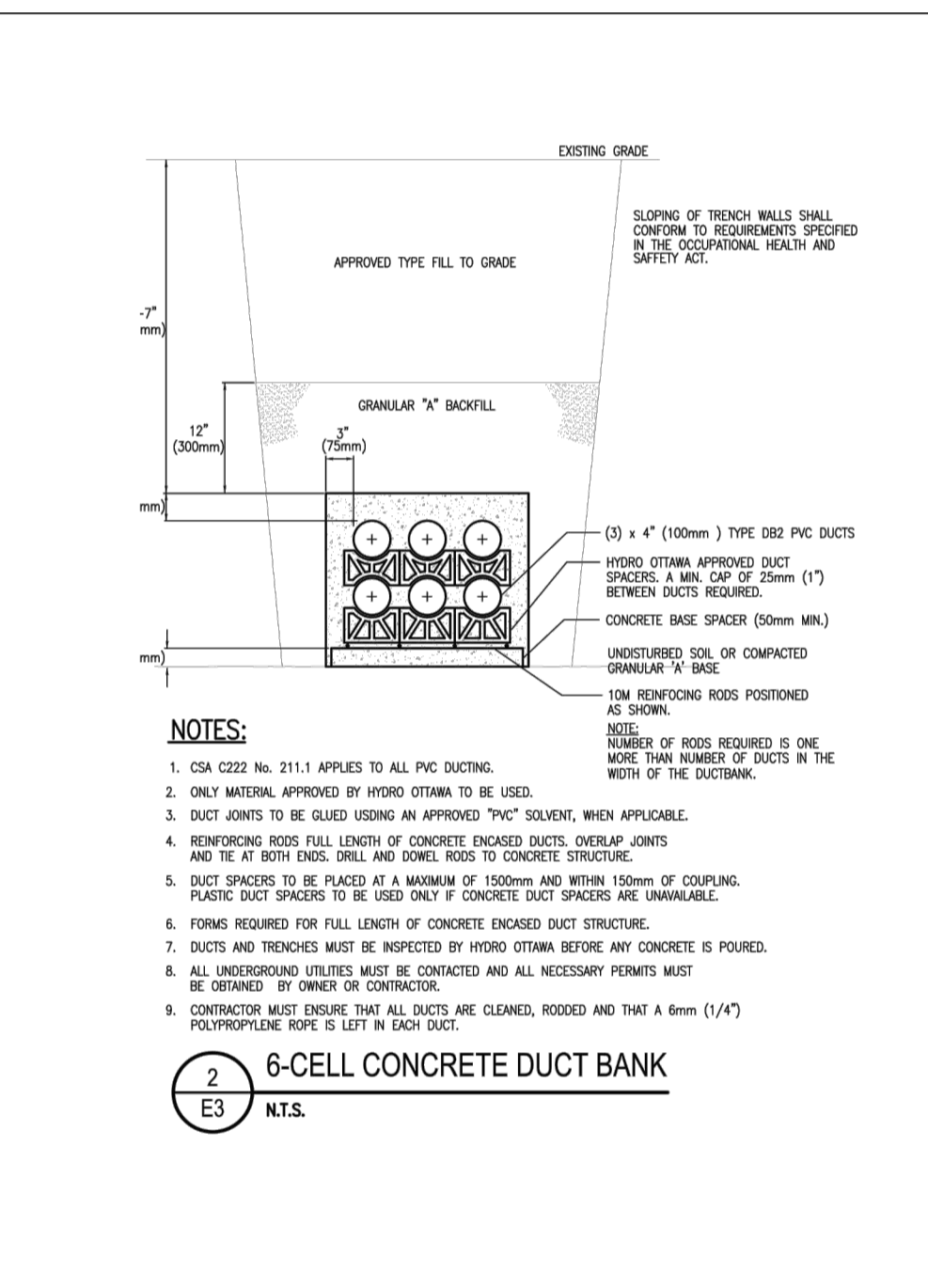
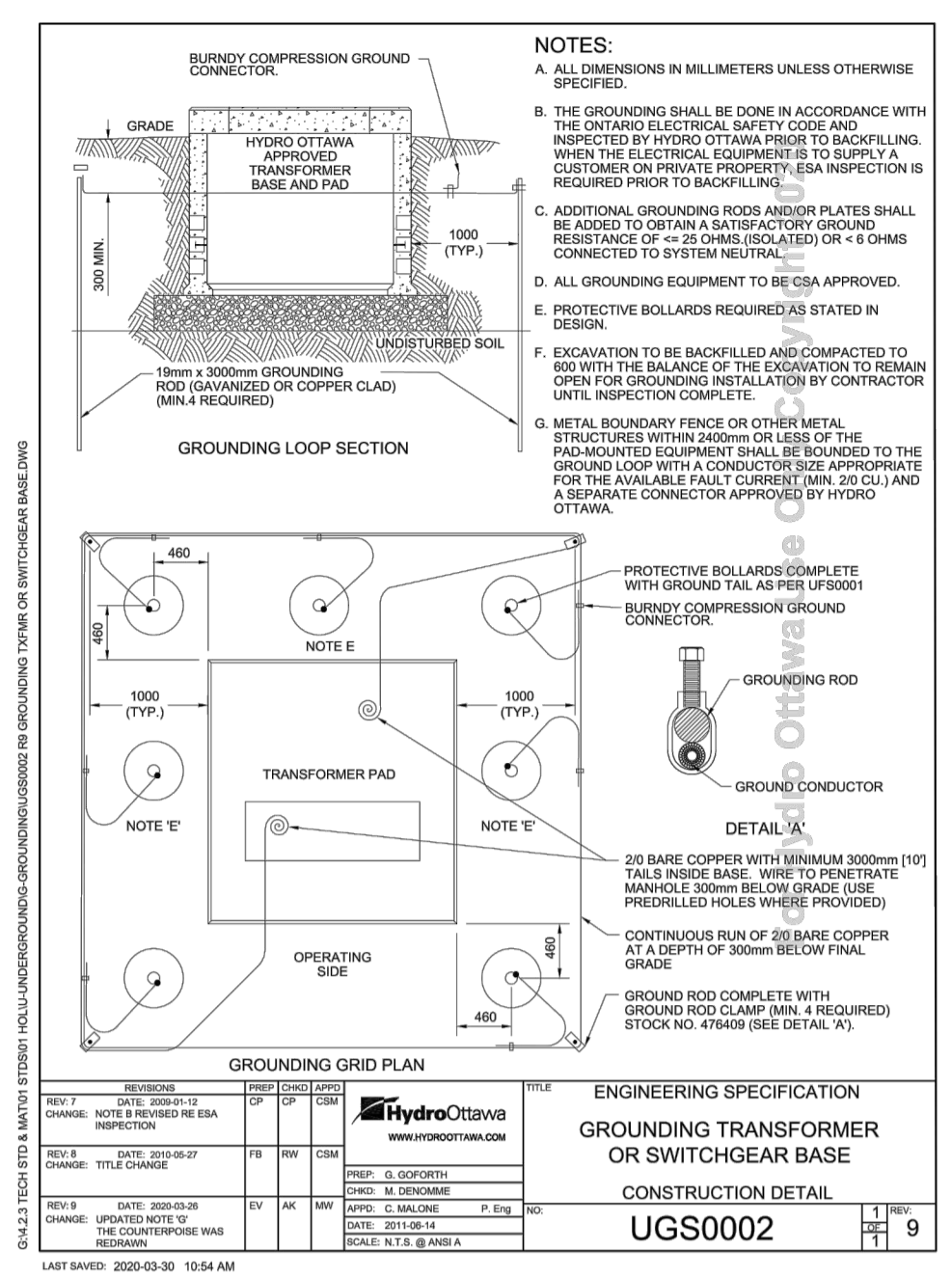
COVER SEWER / WATER (mm)	INSULATION THICKNESS (mm)
2000-1700 / 2400-2100	50
1700-1400 / 2100-1800	75
1400 - / 1800-1500	100



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



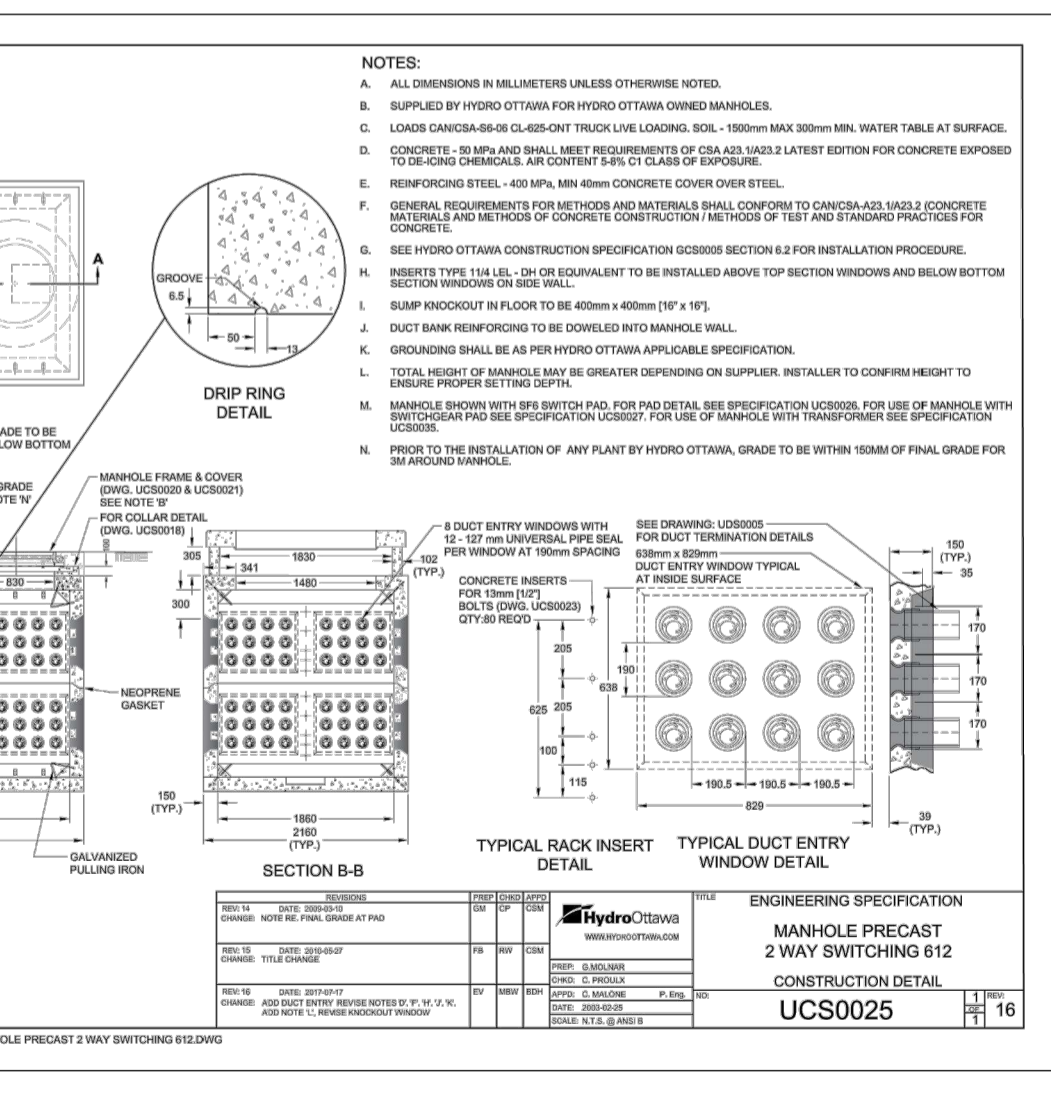
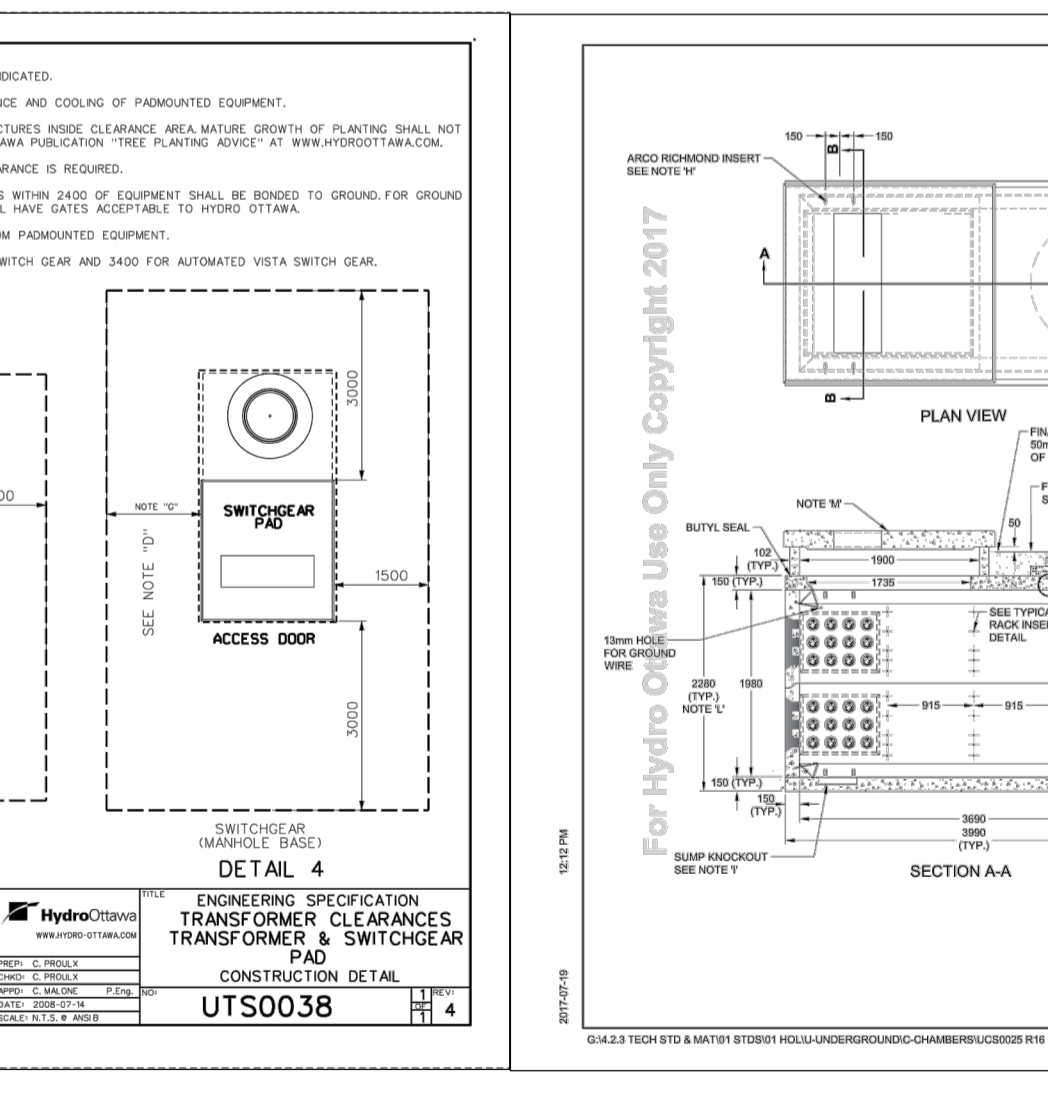
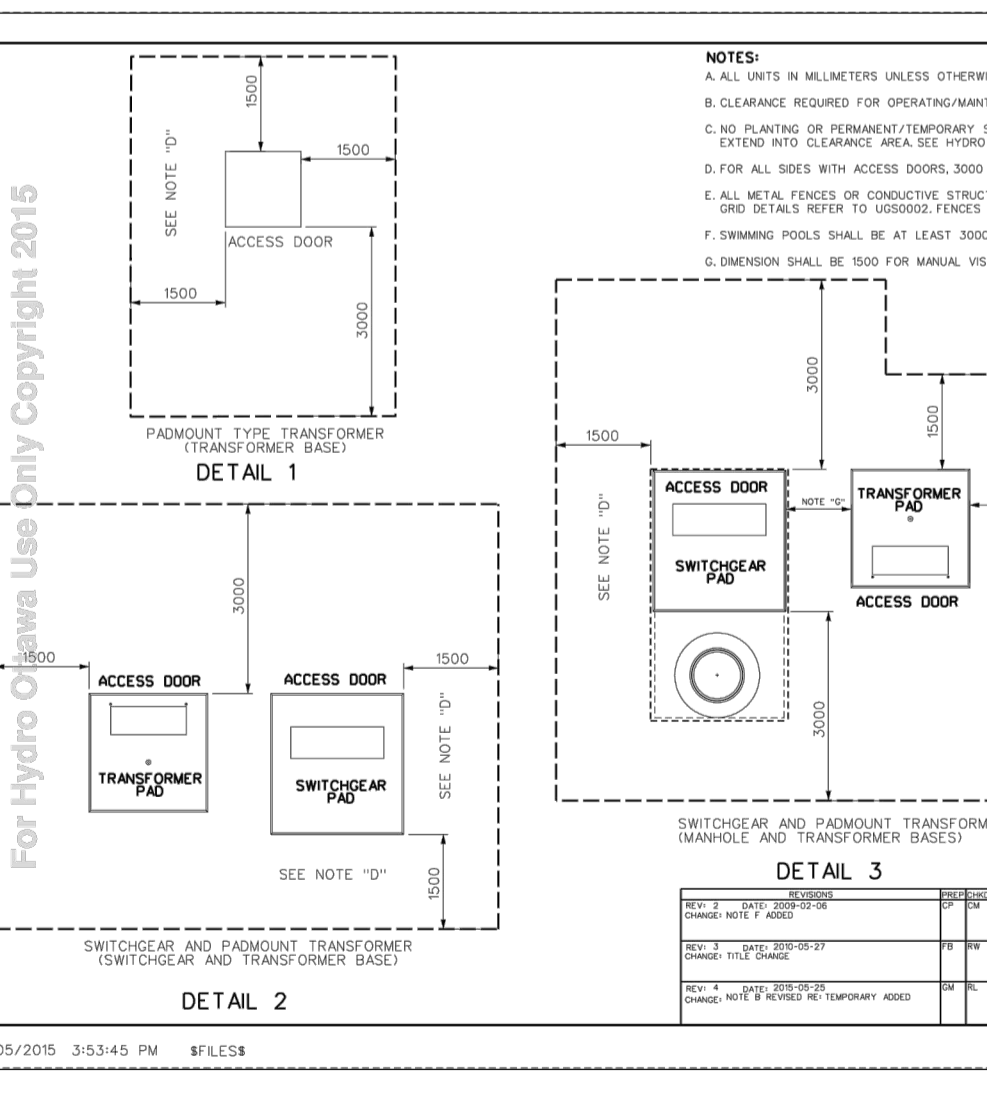
No.	REVISION	DATE	BY
5.	REVISED PER CITY COMMENTS	JUNE 17/22	GJM
4.	GARAGE PERMIT	APR 08/22	GJM
3.	REVISED PER CITY COMMENTS	APR 04/22	GJM
2.	ISSUED FOR GARAGE COORDINATION	MAR 25/22	GJM
1.	REVISED PER CITY COMMENTS	JAN 28/22	GJM



**APPROVED**  
By Allison Hamlin at 10:53 pm, Oct 12, 2022

*Allison Hamlin*

**ALLISON HAMLIN**  
MANAGER (A), DEVELOPMENT REVIEW WEST  
PLANNING, REAL ESTATE & ECONOMIC DEVELOPMENT  
DEPARTMENT, CITY OF OTTAWA



**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.

DESIGN	SCALE	DATE	BY
GJM	AS SHOWN		
GJM			
RJG			
GJM			
GJM			

**PROFESSIONAL ENGINEER**  
A.R. MESTWARP  
100201604  
JUNE 17/2022  
PROVINCE OF ONTARIO

**PROFESSIONAL ENGINEER**  
G.J. MacDONALD  
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