### **GENERAL NOTES**

- 1. 1D4C LEGAL BOUNDARY AND TOPOGRAPHICAL INFORMATION FROM SURVEY BY FAIRHALL MOFFATT & WOODLAND LIMITED DATED SEPTEMBER 17, 2018.
- . 1D4C GEOTECHNICAL DESIGN REPORT BY THURBER ENGINEERING LTD. DATED NOVEMBER 3, 2023. REFER TO REPORT FOR FURTHER SITE SPECIFIC REQUIREMENTS DUE TO EXPANSIVE SHALE AND POTENTIAL FOR SULPHATE ATTACK.
- 3. THIS SET OF PLANS SHALL NOT BE USED FOR CONSTRUCTION UNTIL STAMPED BY THE DESIGN ENGINEER AND APPROVED BY THE LOCAL MUNICIPALITY.
- 4. NO CHANGES ARE TO BE MADE WITHOUT THE APPROVAL OF THE DESIGN ENGINEER. 5. THIS PLAN NOT TO BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE
- PERMISSION OF WALTERFEDY. 6. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARII Y SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN THE
- ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM AND THOSE NOT LOCATED PRIOR TO CONSTRUCTION. ANY AREA DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ITS
- ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE CONSULTANT AND AUTHORITY HAVING JURISDICTION. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL DAMAGED AND/OR DISTURBED PROPERTY WITHIN THE MUNICIPAL RIGHT-OF-WAY TO MUNICIPAL STANDARDS. 8. ALL HEALTH AND SAFETY RELATED SIGNAGE MUST BE POSTED AT THE SITE AS
- REQUIRED BY APPLICABLE LAW AND BEST MANAGEMENT PRACTICES. 9. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE CONSULTANT WITH A DIGITAL FILE OF AS-CONSTRUCTED DRAWINGS. THE DRAWINGS MUST REFLECT THE CONSTRUCTED STATE OF THE WORK SUBMISSION OF
- UNALTERED DESIGN DRAWINGS AND CONTRACT CHANGES WILL NOT BE ACCEPTED. **EROSION CONTROL NOTES** ALL FROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA. THEY ARE TO 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 ARE TO 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. EROSION AND SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED DURING
- CONSTRUCTION IN ACCORDANCE WITH THE "GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES" (GOVERNMENT OF ONTARIO, MAY 1987). THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEETING ALL REGULATORY AGENCY REQUIREMENTS.
- . TO PREVENT SURFACE EROSION FROM ENTERING ANY STORM SEWER SYSTEM DURING CONSTRUCTION, FILTER CLOTH WILL BE PLACED UNDER GRATES OF NEARBY CATCHBASINS AND STRUCTURES A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE. 4. TO LIMIT EROSION: MINIMIZE THE AMOUNT OF EXPOSED SOILS AT ANY GIVEN TIME,
- RE-VEGETATE EXPOSED AREAS AND SLOPES AS SOON AS POSSIBLE AND PROTECT EXPOSED SLOPES WITH NATURAL OR SYNTHETIC MULCHES. 5. FOR MATERIAL STOCKPILING: MINIMIZE THE AMOUNT OF EXPOSED MATERIALS AT ANY GIVEN TIME; APPLY TEMPORARY SEEDING, TARPS, COMPACTION AND/OR
- SURFACE ROUGHENING AS REQUIRED TO STABILIZE STOCKPILED MATERIALS THAT WILL NOT BE USED WITHIN 14 DAYS. 6. 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 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. SES THAT FAILURE TO IMPLEMENT EROS SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY
- APPLICABLE REGULATORY AGENCY 9. ROADWAYS ARE TO BE SWEPT AS REQUIRED OR AS DIRECTED BY THE ENGINEER
- AND/OR THE MUNICIPALITY. 10. THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS MONITOR DUST LEVELS DURING SITE PREPARATION/EXCAVATION AND CONSTRUCTION ACTIVITIES. AND WHEN DUST LEVELS BECOME VISUALLY APPARENT SPRAY WATER TO MINIMIZE THE RELEASE OF DUST FROM GRAVEL, PAVED AREAS AND EXPOSED SOILS. USE CHEMICAL DUST SUPPRESSANTS ONLY WHERE NECESSARY ON PROBLEM AREAS.
- GRADING NOTE
- MATCH EXISTING GRADES AT ALL PROPERTY LINES AND/OR LIMITS OF CONSTRUCTION EXCEPT WHERE PROPOSED GRADES ARE NOTED.
- MANAGEMENT OF EXCESS MATERIALS SHALL BE IN ACCORDANCE WITH OPSS 180. ENVIRONMENTALLY IMPACTED SOILS. WHERE AND WHEN ENCOUNTERED. SHALL BE MANAGED ON SITE AS REQUIRED UNTIL SUCH TIME THAT LABORATORY TESTING RESULTS HAVE CONFIRMED THE NATURE OF THE IMPACTS AND A SUITABLE DISPOSAL METHOD. SURPLUS MATERIAL OF ALL TYPES NOT REQUIRED FOR BACKFILL, GRADING OR
- LANDSCAPING SHALL BECOME THE PROPERTY OF THE OWNER AND BE REMOVED FROM THE SITE AS DIRECTED BY THE CONSULTANT. THE COSTS OF ALL OFFSITE DISPOSAL SHALL BE BORNE BY THE CONTRACTOR UNLESS A SPECIFIC PROVISION IS MADE IN THE CONTRACT DOCUMENTS FOR PAYMENT FROM DISPOSAL OF A SPECIFIC SURPLUS MATERIAL A QUALIFIED PERSON SHALL BE RETAINED TO PREPARE AND SIGN OFF ON A SOIL
- MANAGEMENT PLAN (SMP). THE SMP SHALL INCLUDE THE MANAGEMENT OF EXCESS SOIL EXCAVATED FROM THE SITE INCLUDING THE MANAGEMENT OF THE SOIL FROM THE BASEMENT EXCAVATION IN ACCORDANCE WITH ONTARIO REGULATION 406/19 AND WITH MANAGEMENT OF EXCESS SOIL – A GUIDE FOR BEST MANAGEMENT PRACTICES. A SMP SHALL BE IMPLEMENTED FOR THE SITE PRIOR TO ANY EXCAVATION WORKS BEING DONE. THE MAIN ELEMENTS REQUIRED FROM THE SOIL MANAGEMENT PLAN INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- 4.1. THE SMP SHALL MAXIMIZE THE RE-USE OF ALL SOILS ON SITE AND INCORPORATION INTO LANDSCAPE FEATURES OR USE UNDER ROADWAYS AND WALKWAYS IN ACCORDANCE WITH THE GEOTECHNICAL REPORTS PROVIDED IN THE BACKGROUND DOCUMENTS. 4.2. THE SMP SHALL PROVIDE A FRAMEWORK FOR THE HANDLING AND DISPOSAL OF
- EXCESS SOILS IN ACCORDANCE WITH ALL PERTINENT PROVINCIAL REGULATIONS AND REQUIREMENTS AND REFERENCE DOCUMENTS. 4.3. THE SMP SHALL PROVIDE SAFE WORKING PRACTICES AND PROCEDURES THAT
- SHOULD BE FOLLOWED DURING SUBSURFACE WORK. 4.4. THE SMP SHALL INFORM WORKERS AND CONTRACTORS WHO MAY COME INTO CONTACT WITH IMPACTED SOILS IF ANY ABOUT THE POTENTIAL HEALTH AND SAFETY HAZARDS ASSOCIATED WITH ANY KNOWN CONTAMINATIONS WITHIN THE GROUNDWATER AND IMPACTED SOILS AND OTHER HAZARDS THAT MAY BE ENCOUNTERED.
- . MATERIALS TO BE REMOVED SHALL BE NEATLY SAW-CUT ALONG ITS LIMITS, IN ADVANCE OF THE REMOVAL. THE LIMITS OF REMOVAL SHALL BE AS NOTED ON THE PLANS UNLESS AN EXTENSION OR REDUCTION OF THE MATERIAL TO BE REMOVED IS APPROVED IN ADVANCE BY THE CONSULTANT. AS SUCH, THE COSTS OF ANY OVER-EXCAVATION NOT APPROVED IN ADVANCE SHALL BE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR. THIS RESPONSIBILITY SHALL ALSO EXTEND TO RESTORATION OR REPLACEMENT OF DISTURBED FEATURES AND SURFACES DUE TO UNAUTHORIZED EXCAVATION.
- 6. ALL FILL PLACED ON SITE SHALL BE COMPACTED TO A MINIMUM 95% SPMDD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER OR ON THE DRAWINGS AND IN THE SPECIFICATIONS) ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS EXCEPT WHERE UNDER PAVING, AND WALKS WHEN LAYERS SHALL BE 150mm MAX.
- MAXIMUM SLOPE IN GRASSED AREAS TO BE 3:1. SLOPES GREATER THAN 3:1 TO BE LANDSCAPED WITH LOW MAINTENANCE GROUND COVER. MINIMUM SLOPE IN GRASSED AREAS TO BE 1%. GRASS SWALES WITH A SLOPE LESS THAN 1% TO BE UNDERLAIN WITH A FRENCH DRAIN
- 8. FINISH GRADE AT FOUNDATION WALLS TO BE MINIMUM 150mm BELOW THE TOP OF FOUNDATION WALL/BRICK LINE UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. 9. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE ON ALL SURFACES TO THE APPROPRIATE OUTLET STRUCTURE AREAS OF PONDING CAUSED BY CONSTRUCTION ERROR WILL BE REPAIRED BY THE CONTRACTOR TO THE
- SATISFACTION OF THE CONSULTANT AT THE CONTRACTORS EXPENSE. 10. SHOULD THE NATURE OF THE SOIL AT THE DEPTH INDICATED PROVE UNSATISFACTORY AS DETERMINED BY THE GEOTECHNICAL ENGINEER. THE EXCAVATION SHALL BE CARRIED DOWN TO SUCH A DEEPER LEVEL AS THE GEOTECHNICAL ENGINEER MAY REQUIRE UNTIL A SATISFACTORY BEARING STRATUM IS REACHED.
- THIS CONTRACTOR SHALL BE PAID THE COST OF SUCH EXTRA EXCAVATION AT THE UNIT PRICE ESTABLISHED IN THE CONTRACT. 10.2. ALL EXTRA DEPTHS OF EXCAVATION AND FILLING MUST HAVE THEIR AREA AND VOLUME DOCUMENTED BY AN INDEPENDENT INSPECTION AND TESTING
- COMPANY OR THE CONSULTANT TO QUALIFY FOR PAYMENT. 10.3. QUANTITIES USED FOR PAYMENT OF EXCAVATION AND FILLING AT EXTRA DEPTHS TO BE DETERMINED BY THE CONSULTANT.

# **GENERAL SERVICING**

- 1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE REGULATIONS SET OUT BY THE MUNICIPALITY HAVING JURISDICTION.
- RIGID PIPE BEDDING: CLASS 'B' AS PER OPSD 802.030 (EARTH EXCAVATION, TYPE 1 OR 2 SOIL), OPSD 802.031 (EARTH EXCAVATION, TYPE 3 SOIL), OPSD 802.032 (EARTH
- EXCAVATION, TYPE 4 SOIL). 3. FLEXIBLE PIPE BEDDING: AS PER OPSD 802.010 (EARTH)
- GRANULAR FILL SHALL BE DEPOSITED IN THE TRENCH, FOR THE FULL WIDTH OF THE TRENCH, COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IN LAYERS NOT OVER 300mm DEPTH. EXCEPT WHERE UNDER PAVING, AND WALKS WHEN LAYERS SHALL BE 150mm MAX.
- 5. SITE SERVICING CONTRACTOR TO TERMINATE ALL SERVICES 1.0m FROM FOUNDATION WALL AND COORDINATE WITH THE GENERAL OR MECHANICAL CONTRACTOR AS REQUIRED TO FACILITATE THE CONNECTION.
- WHEN BELL AND SPIGOT PIPE IS LAID, THE BELL END OF THE PIPE SHALL BE LAID UPGRADE.
- . PIPE SHALL BE KEPT CLEAN AND DRY AS WORK PROGRESSES. THE TRENCH SHALL BE KEPT DRY.
- 8. A REMOVABLE WATERTIGHT BULKHEAD SHALL BE INSTALLED DAILY AT THE OPEN END OF THE LAST PIPE LAID.
- 9. PIPE SHALL NOT BE LAID UNTIL THE PRECEDING PIPE JOINT HAS BEEN COMPLETED AND THE PIPE IS BEDDED AND SECURED IN PLACE.
- 10. ALL PIPE ENDS SHALL BE THOROUGHLY CLEANED PRIOR TO THE INSTALLATION OF GASKETS. ALL GASKETS TO BE LUBRICATED PRIOR TO BEING INSTALLED OR AS RECOMMENDED BY THE PIPE MANUFACTURER.
- 11. A TEMPORARY LOCATION MARKER 50x75mm SHALL BE PLACED AT THE END OF ALL CAPPED SERVICE CONNECTIONS. THE MARKER SHALL BE PLACED 300mm ABOVE THE PLUGGED END OF THE SERVICE PIPE, CUT AT LEAST 500mm ABOVE THE FINISHED GRADE, AND MARKED WITH BRIGHT PAINT. 12. ALL MANHOLES, BASINS, CHAMBERS ETC. TO BE INSTALLED LEVEL AND PLUMB TO

THE SATISFACTION OF THE CONSULTANT

- STORM AND SANITARY SEWER ALL SEWER MATERIALS TO COMPLY WITH CITY OF OTTAWA MS-22.15 REQUIREMENTS
- THE SITE SERVICING CONTRACTOR SHALL PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410 07 01 15 AND 407 07 25 AND IN ACCORDANCE WITH THE PLUMBING CODE. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS TO THE CITY OF OTTAWA. CONTRACTOR TO PROVIDE CONSULTANT MINIMUM 1 WEEK NOTICE OF SCHEDULING PRIOR TO COMPLETING TESTING ON SITE.
- POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS: SMOOTH PROFILES, TO OPSS 1841 AND CSA B182.2, WITH SEPARATE GASKET AND INTEGRAL BELL SYSTEM, IN 6.0m NOMINAL LENGTHS AS FOLLOWS: 3.1. 200mm OD AND LARGER: SDR35 PVC WITH 320 kPa STIFFNESS.
- SUBSURFACE DRAINAGE PIPE AND FITTINGS: TO OPSS 405, PERFORATED PVC PIPE TO OPSS 1841 OR PE PIPE TO OPSS.MUNI 1840, TO CAN/CSA-B182.1; COMPLETE WITH KNITTED SOCK GEOTEXTILE AS REQUIRED (TERRAFIX 270R OR EQUIVALENT).
- MANHOLES AND CATCHBASIN MANHOLES TO BE PRECAST 1200mm DIAMETER WITH ALUMINUM STEPS AT 300mm SPACING AS PER OPSD 701.010 UNLESS SPECIFIED OTHERWISE.
- . CATCHBASINS TO BE 600mm SQUARE PRECAST AS PER OPSD 705.010. DOUBLE CATCHBASINS TO BE 600x1450mm PRECAST AS PER OPSD 705.020.
- 7. CATCHBASIN MANHOLES, CATCHBASINS, AND DOUBLE CATCHBASINS TO HAVE A MINIMUM 600mm DEEP SUMP.
- 8. STORM MANHOLES TO HAVE MINIMUM 300mm DEEP SUMP. 9. MANHOLE AND CATCHBASIN, FRAMES, GRATES, CASTINGS, LIDS TO BE AS PER OPSS
- 10. CAST IRON FRAMES AND COVERS OR GRATES- STORM SEWERS: TO OPSS 1850 AND
- OPSD 400.020, OPSD 401.010 (B, OPEN). 11. CAST IRON FRAMES AND COVERS OR GRATES - SANITARY SEWERS: TO OPSS 1850. OPSD 401.010 (A, CLOSED).
- 12. ALL SANITARY MANHOLES LOCATED IN STORM WATER PONDING AREAS TO HAVE WATERTIGHT FRAME AND COVERS AS PER OPSD 401.030
- STORM SEWERS AND SERVICES TO HAVE MINIMUM 2.0m COVER TO TOP OF PIPE WHERE COVER TO TOP OF PIPE IS DEFICIENT, CONTRACTOR SHALL INSTALL SHALLOW BURIED SEWER PIPE IN ACCORDANCE WITH APPLICABLE 'SEWER PIPE INSULATION DETAIL' INDICATED IN DRAWING DETAILS.
- 4 SANITARY SEWERS AND SERVICES TO HAVE A MINIMUM 2.0m COVER TO TOP OF PIPE WHERE COVER TO TOP OF PIPE IS DEFICIENT. CONTRACTOR SHALL INSTALL SHALLOW BURIED SEWER PIPE IN ACCORDANCE WITH APPLICABLE 'SEWER PIPE INSULATION DETAIL' INDICATED IN DRAWING DETAILS. 15. ALL PIPES, TO BE INSTALLED FLUSH WITH THE INSIDE WALLS OF THE STRUCTURE
- AND PARGED TO A SMOOTH FINISH. 16. ALL SANITARY MANHOLES TO BE PRE-BENCHED OR BENCHED WITH 30MPa
- CONCRETE AS PER OPSD 701.021. BENCHING SHALL EXTEND TO THE SPRING LINE OF LARGEST PIPE IN THE MANHOLE AND SHALL HAVE A SLOPE OF 1:8. 17. CONTRACTOR TO SUPPLY AND PAY FOR CCTV INSPECTION OF ALL SEWER LINES AND
- STRUCTURES. 8. ACCEPTANCE OF SEWER LINES AND STRUCTURES SHALL BE MADE AFTER THE
- CONSULTANT HAS REVIEWED THE CCTV DOCUMENTATION AND VIDEOS, AND EXPRESSED IN WRITING THAT THE SEWER LINES AND STRUCTURES ARE ACCEPTABLE.
- 19. IF CCTV INSPECTIONS SHOW ADDITIONAL CLEANING IS REQUIRED, CLEAN AND RE-INSPECT THE SEWER UNTIL ACCEPTED BY THE CONSULTANT. 20 A MINIMUM OF ONE (1) AND MAXIMUM OF THREE (3) ADJUSTMENT UNITS SHALL BE INSTALLED ON EACH STRUCTURE TO A MINIMUM HEIGHT OF 75mm AND MAXIMUM OF 300mm. THE FIRST ADJUSTMENT UNIT SHALL BE LAID IN A FULL BED OF MORTAR AND ALIGNED WITH THE OPENING IN THE STRUCTURE, SUCCESSIVE ADJUSTMENT UNITS SHALL BE LAID PLUMB TO THE FIRST ADJUSTMENT UNIT AND SEALED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. FRAMES WITH GRATES OR COVERS SHALL BE SET IN A FULL BED OF MORTAR ON THE ADJUSTMENT UNITS AND SUPPORTED USING SHIMS. ROCKS, STONES AND DEBRIS WILL NOT BE PERMITTED FOR USE AS

## WATERMAINS

- 1. ALL WATERMAIN MATERIALS TO COMPLY WITH CITY OF OTTAWA MS-19.15 REQUIREMENTS. POLYVINYL CHLORIDE (PVC) PIPE: MANUFACTURED TO CAST IRON OD (CIOD); COLOUR CODED BLUE, WITH INTEGRAL WALL THICKENED BELL DESIGNED FOR JOINT ASSEMBLY USING AN ELASTOMERIC GASKET CONFORMING TO ASTM D3139 AND CSA
- 2.1. 100 TO 300mm: TO AWWA C900, DR 18, IPEX OR APPROVED EQUAL. 3. MOLECULARLY ORIENTED POLYVINYL CHLORIDE (PVCO) PIPE: MANUFACTURED TO CIOD: COLOUR CODED BLUE, BIAXIALLY ORIENTED, WITH INTEGRAL WALL THICKENED BELL DESIGNED FOR JOINT ASSEMBLY USING AN ELASTOMERIC GASKE CONFORMING TO ASTM D3139 AND CSA B137.3.1, COMPLETE WITH TRACER WIRE.
- 3.1. 100 TO 300mm: TO AWWA C909, PC 1620 kPa, BIONAX OR APPROVED EQUAL.

B137.3 TO CSA B137.3 COMPLETE WITH TRACER WIRE

- 4. ALL WATER SERVICING TO HAVE MINIMUM 2.4m COVER. 5. ALL WATER SERVICING PROVIDING FIRE FLOWS MUST BE PRESSURE TESTED TO 200 PSI AS PER THE OBC PLUMBING CODE.
- 6. FITTINGS: FOR POLYVINYL CHLORIDE (PVC) AND MOLECULARLY ORIENTED POLYVINYL CHLORIDE (PVCO) PIPE SHALL BE EITHER:
- 6.1. GRAY IRON ACCORDING TO AWWA C110/A21.10.
- 6.2. DUCTILE IRON ACCORDING TO C110/A21.10 OR AWWA C153 AND SHALL BE CEMENT LINED ACCORDING TO AWWA C104/A21.4. 6.3. INJECTION MOULDED POLYVINYL CHLORIDE, BLUE IN COLOUR AND ACCORDING
- TO AWWA C907 AND CSA B137.2. 6.4. PREFABRICATED POLYVINYL CHLORIDE, BLUE IN COLOUR AND ACCORDING TO AWWA C905 AND CSA B137.3.

# JOINT RESTRAINTS:

- 7.1. FOR PVC PIPE AND FITTINGS: TO ASTM F1674 AND AWWA C111, SERRATED RING TYPE; FOR PUSH ON JOINTS UNIFLANGE (SERIES 1300, 1350 & 1360), EBAA (SERIES 1600, 2500 & 2800) OR CLOW (SERIES 300 & 350); OR WEDGE ACTION TYPE AS MANUFACTURED BY EBAA (SERIES 2000PV), OR UNIFLANGE (SERIES 1500) AND STAR STARGRIP 4000, 4100P. 7.2. FOR PVCO PIPE (AWWA C909) AND FITTINGS: SERRATED RING TYPE; FOR PUSH
- ON JOINTS UNIFLANGE (SERIES 1360), EBAA (SERIES 2500); WEDGE ACTION TYPE AS MANUFACTURED BY CLOW (SERIES 2000 TUF GRIP), STAR (STARGRIP 3500). 7.3. ALL MECHANICAL JOINTS IN TEMPORARY AND PERMANENT CONNECTIONS TO INCLUDE MECHANICAL JOINT RESTRAINTS.
- 7.4. WATERMAIN FITTINGS WHICH CHANGE DIRECTIONS VERTICALLY OR HORIZONTALLY TO BE FULLY RESTRAINED BY MECHANICAL JOINT RESTRAINT OR THRUST BLOCKS (OPSD 1103.01 AND 1103.02). THREADED ROD WILL NOT BE PERMITTED

#### 7.5. WATERMAIN FITTINGS TO BE SUPPLIED WITH MECHANICAL JOINT RESTRAINTS. FOR WATERMAIN PIPE SIZES 150mmØ OR LESS ALL PIPE JOINTS TO BE RESTRAINED WITHIN 5 0m FROM ALL FITTINGS. IN EACH DIRECTION, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS. FOR WATERMAIN PIPE SIZES GREATER THAN 150mmØ ALL PIPE JOINTS TO BE RESTRAINED WITHIN 10.0m FROM ALL FITTING, IN EACH DIRECTION, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS. ALL TEES TO HAVE MINIMUM 2.0m SOLID PIPE

- LENGTH ON EACH RUN OF THE TEE, OR PROVIDE A THRUST BLOCK PER OPSD 1103.010. 8. TRACER WIRE: 8.1. T.W.U. OR R.W.U #10 GAUGE MIN. 7 STRANDS COPPER WIRE, MIN 60°C OR
- HIGHER. 600v OR APPROVED EQUIVALENT. 8.2. PVC WATERMAIN SHALL HAVE TRACER WIRE STRAPPED TO TOP AT 5.0m INTERVALS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT ALL

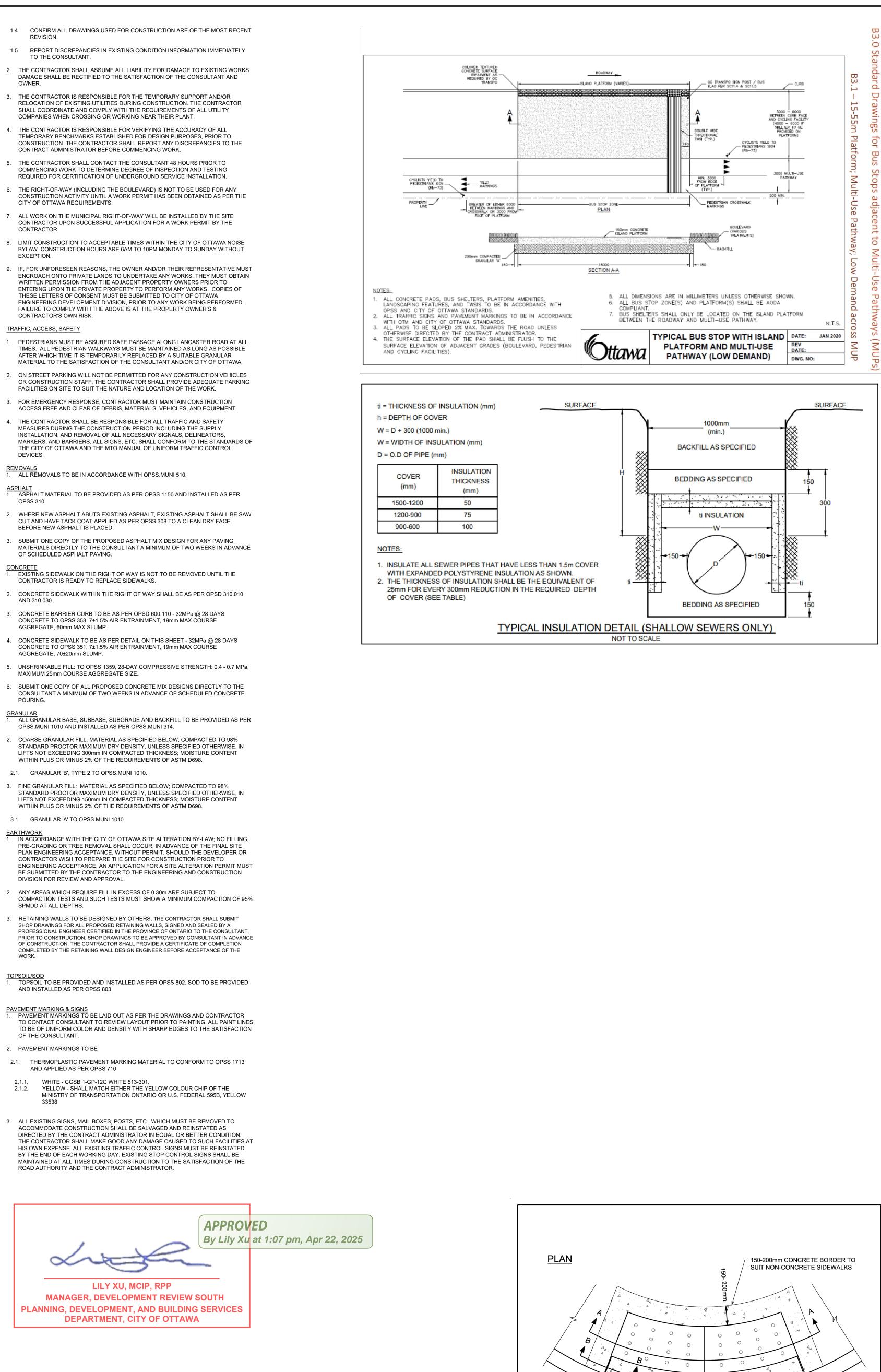
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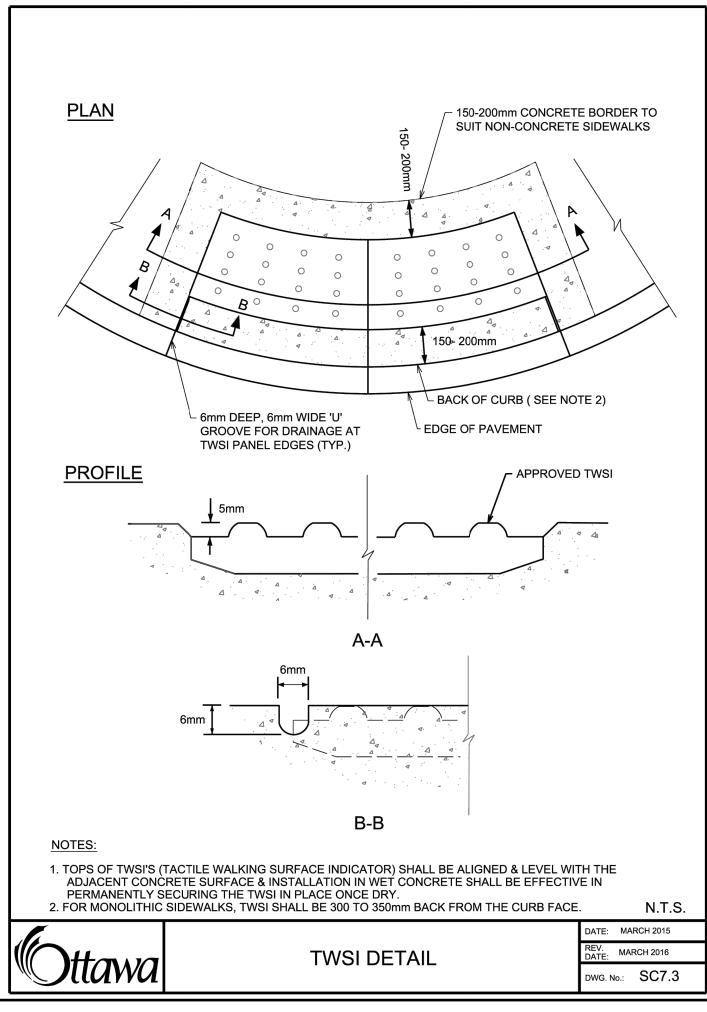
- HYDRANTS AND CONNECTED TO THE LOWER FLANGE OF THE HYDRANT. 8.3. DO NOT CONNECT THE TRACER WIRE ON NON-METALLIC SYSTEMS TO NEW OR
- EXISTING METALLIC WATERMAIN PIPING AND/OR ASSOCIATED FITTINGS. WATERMAIN VALVES, 100mm AND LARGER, SHALL BE AS PER AWWA C509-MUELLER A2362 OR APPROVED EQUIVALENT (OPEN LEFT) INCLUDING VALVE BOX AND CATHODIC PROTECTION.
- 10 HYDRANTS CONFORM TO AWWA C502 FOR DRY-BARREL HYDRANTS WITH TWO 63.5mm HOSE NOZZLES AT 180 DEGREES AND A 114.3mm PUMPER NOZZLE WITH A 100mm ULC APPROVED STORTZ CONNECTION; 32mm SQUARE OPERATING NUT, OPEN COUNTER-CLOCKWISE AND HAVE MECHANICAL JOINT END; COMPLETE WITH 150mm LEAD. 150mm GATE VALVE. ANCHOR TEE. VALVE AND BOX PROVIDED IN
- ACCORDANCE WITH THE CITY OF OTTAWA. ANODES TO BE PROVIDED AS REQUIRED BY THE CITY OF OTTAWA MS-19.15 REQUIREMENTS.
- 12. CHAMBERS FOR VALVES AND METERS TO BE PROVIDED IN ACCORDANCE WITH OPSS 407 AND 408.
- 12.1. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR CHAMBER AND METER ASSEMBLY TO THE CONSULTANT FOR REVIEW.
- 12.2. COMPLETE WITH FACTORY INSTALLED GALVANIZED OR ALUMINUM MANHOLE LADDER RUNGS. 12.3. PROVIDE AND INSTALL ACCESS HATCH FRAME AND COVERS TO OPSD 402.030,
- CAST IN PLACE. ACCESS HATCH SHALL BE LOCKABLE. 13. PETROLATUM TAPE SYSTEMS: TO BE COMPRISED OF THREE COMPONENTS; PASTE, MASTIC AND TAPE THAT MEET AWWA C217-09 SUPPLIED BY DENSO NORTH AMERICA INC. OR PETRO COATING SYSTEMS LTD. OR RUSTROL SYSTEMS (INTERPROVINCIAL CORROSION CONTROL COMPANY LTD.). ONLY MATERIAL FROM SUPPLIERS LISTED SHALL BE USED. AT NO TIME SHALL MATERIALS FROM EITHER
- SYSTEM BE UTILISED WITH ONE AND OTHER. 13.1. ALL MECHANICAL JOINT RESTRAINTS TO BE WRAPPED WITH APPROVED PETROLEUM TAPE SYSTEM.
- 14. PROVIDE ADEQUATE SUMP BELOW CONNECTION, AND PUMPING IF REQUIRED, TO PREVENT CONTAMINATION OF NEW WATERMAIN WITH TRENCH GROUND WATER OR ANY OTHER FOREIGN MATTER.
- 15. ALL WATERMAIN AND SERVICE COMMISSIONING, PRESSURE/LEAKAGE TESTING, DISINFECTION, BACTERIOLOGICAL ANALYSIS AND FLUSHING TO BE SUCCESSFULLY COMPLETED BY THE CONTRACTOR AND ACCEPTED BY THE CITY OF OTTAWA AND THE CONSULTANT PRIOR TO PERMANENT CONNECTION TO WATER DISTRIBUTION SYSTEM. REFER TO CONTRACT SPECIFICATIONS FOR REQUIREMENTS.
- 15.1. CONTRACTOR TO SUBMIT A WATERMAIN COMMISSIONING PLAN TO THE CITY OF OTTAWA AND CONSULTANT AT LEAST TWO WEEKS PRIOR TO CHLORINE RESIDUAL & BACTERIOLOGICAL TESTING.

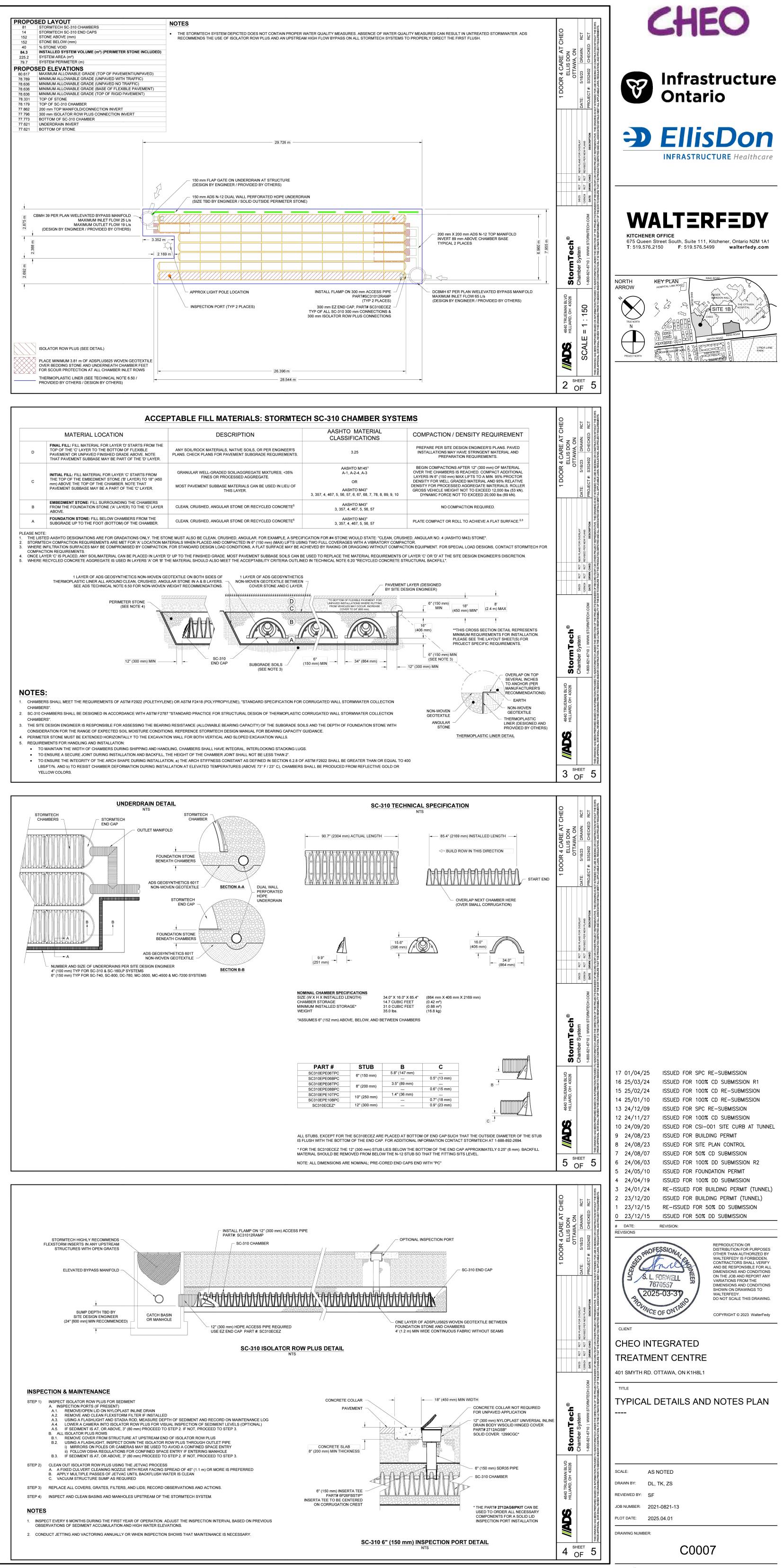
## CONSTRUCTION NOTE

ARCHITECTURAL DRAWINGS.

- <u>GENERAL</u> . PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST: 1.1. CHECK AND VERIFY ALL DIMENSIONS AND EXISTING ELEVATIONS WHICH
- INCLUDES, BUT IS NOT LIMITED TO, THE BENCHMARK ELEVATIONS, EXISTING SERVICE CONNECTIONS AND EXISTING INVERTS.
- 1.2. OBTAIN ALL UTILITY LOCATES AND REQUIRED PERMITS AND LICENSES. 1.3. VERIFY THAT THE FINISHED FLOOR ELEVATIONS AND EXISTING FLOOR ELEVATIONS (WHICH MAY APPEAR ON THIS PLAN) COMPLY WITH THE FINAL







PLAN #: 19223 DEVELOPMENT #: D07-12-24-0121