C.O.T. GENERAL NOTES

- 1. ALL WORK TO CONFORM TO THE LATEST CITY OF TORONTO STANDARD DRAWINGS AND SPECIFICATIONS AS WELL AS THE LATEST ADOPTED ONTARIO PROVINCIAL STANDARD DRAWINGS AND SPECIFICATIONS.
- 2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE CURRENT "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATION FOR CONSTRUCTION PROJECTS". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
- ACCORDANCE WITH THE CURRENT ONTARIO TRAFFIC MANUAL BOOK 7: TEMPORARY CONDITIONS FIELD EDITION. 4. ALL TRENCHES WITHIN THE EXISTING RIGHT-OF-WAY SHALL BE BACKFILLED WITH

3. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN

- UNSHRINKABLE FILL. TEMPORARY REPAIRS TO UTILITY CUTS WILL BE AS PER MUNICIPAL CONSENT REQUIREMENTS, APPENDIX D, TEMPORARY REPAIRS TO UTILITY CUTS. 5. THE CONTRACTOR SHALL RECTIFY ALL DISTURBED AREAS TO THE ORIGINAL CONDITION OR
- BETTER AND TO THE SATISFACTION OF THE EXECUTIVE DIRECTOR OF TECHNICAL SERVICES. 6. PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT-OF-WAY THE CONTRACTOR OR DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS
- FROM THE CITY'S RIGHT-OF-WAY MANAGEMENT SECTION. 7. CONTACT CITY INSPECTOR AND ENGINEER 48 HOURS BEFORE EXCAVATION, INSTALLATION OR BACKFILL.
- 8. LOCATION AND COMPLETENESS OF EXISTING SERVICES/UTILITIES SHOWN ON THE DRAWINGS ARE NOT GUARANTEED. CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY LOCATION WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO LOCATE THE EXIST. SERVICES ON
- 9. THE DRAWINGS INDICATE EXISTING SERVICES AND DID NOT ATTEMPT TO LOCATE ANYTHING OTHER THAN THESE SERVICES (I.E. ABANDONED BUILDING FOUNDATIONS AND OTHER EXISTING FACILITIES WERE NOT INVESTIGATED OR SHOWN ON THE DRAWINGS).
- 10. THE CONTRACTOR SHALL PROVE THE EXACT LOCATION AND SIZE OF ALL SERVICES AND STRUCTURES AND SHALL BE RESPONSIBLE FOR ADEQUATELY PROTECTING THEM AGAINST DAMAGE ASSUMING ALL LIABILITIES FOR DAMAGE.
- 11. THE CONTRACTOR SHALL REPORT TO THE ENGINEER ANY CONFLICT WHICH THE EXISTING SERVICES MAY CREATE WITH THE PROPOSED WORK AND SHALL SCHEDULE CONSTRUCTION WORK AVOIDING CONSTRUCTION DELAYS CAUSED BY SUCH CONFLICTS.
- 12. MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC AT ALL TIMES.
- 13. ALL SERVICES TO BE SUPPORTED AS PER CITY STD T-1007.01 TO T-1007.01-10. 14. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES BEFORE PROCEEDING
- WITH ANY WORK. 15. THE CONTRACTOR SHALL BECOME SOLE OWNER OF ALL EXCESS MATERIAL. 16. WITHIN THE PROPOSED PAVED AREAS AND EASEMENTS GRAN. B SHALL BE USED AS BACKFILL
- WITHIN 1M FROM MANHOLES, VALVE CHAMBERS AND CATCHBASINS, AND APPROVED NATIVE OR IMPORTED BACKFILL SHALL BE USED FOR ALL OTHER AREAS. 17. PROTECT ALL TREES FROM DAMAGE. SEE LANDSCAPE DRAWINGS FOR DETAILS.
- 18. REMOVE OBJECT AS PER OPSS 510, INCLUDING APPROVED COMPACTED BACKFILL. AND ABANDON PIPE AS PER OPSS 510 INCLUDING SEALING OF PIPE AND FILLING IT WITH 15MPA CONCRETE OR GROUT.
- 19. ADJUST ALL EXISTING MANHOLE, CATCHBASIN AND VALVE BOX FRAMES TO PROPOSED FINISHED GRADE.
- 20. RELOCATE EXISTING SERVICES AS REQUIRED TO CONSTRUCT PROPOSED INFRASTRUCTURE.
- 21. CONTRACTOR TO WORK IN DRY CONDITIONS. TEMPORARY PLUGGING OF SEWER UP AND DOWN STREAM WILL BE REQUIRED. PROVISION FOR WET WEATHER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 22. WHERE THE STABILITY, SAFETY OR FUNCTION OF THE EXISTING ROADWAY OR UNDERGROUND FACILITIES MAY BE IMPAIRED DUE TO THE CONTRACTOR'S METHOD OF OPERATIONS, THE CONTRACTOR SHALL PROVIDE SUCH PROTECTION AS MAY BE REQUIRED INCLUDING SHEETING, SHORING AND DRIVING PILES WHERE NECESSARY. CONSTRUCTION OF SHORING, BRACING AND PROTECTION SCHEMES SHALL CONFORM TO OPSS 538 AND OPSS 539.
- 23. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AT NO COST TO THE OWNER.
- 24. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF ALL PROPOSED MATERIALS. REQUIRED SHOP DRAWINGS SHALL BE BASED ON FIELD MEASUREMENT AND LAYOUT VERIFICATION BY THE CONTRACTOR.
- 25. WHERE NEW PAVING OR EARTHWORK MEETS EXISTING PAVING OR EARTHWORK, SMOOTHLY BLEND LINE AND GRADE OF EXISTING WITH NEW.
- 26. EXPANSION JOINT FILLER SHALL BE PLACED WHERE PAVEMENT MEETS STRUCTURES-INCLUDING WALLS, LIGHT POLES, HYDRANTS, BUILDINGS AND BUILDING COLUMNS, STAIRS AND AT OTHER CONDITIONS SHOWN ON THE DRAWINGS.
- 27. EXCAVATION REQUIRED WITHIN PROXIMITY OF UTILITY LINES AND WITHIN THE TREE PROTECTION ZONE OF TREES DESIGNATED TO REMAIN SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATION AT NO COST TO THE UTILITY COMPANIES OR THE OWNER.

LAYOUT AND MATERIALS

- 1. ALL DIMENSIONS SHOWN ON THE DRAWINGS ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
- CONSTRUCTION LAYOUT BY CONTRACTOR. ALL HORIZONTAL DIMENSION ARE TO CENTRE OF OBJECT OR TO GUTTER OF CURB. LASER ALIGNMENT CONTROL IS MANDATORY. AS-BUILT OF PIPE INVERT ELEVATIONS WITH
- CORRESPONDING STATIONS SHALL BE RECORDED PRIOR TO BACK FILLING OF TRENCH. 5. AS-BUILT ELEVATION AND COORDINATES SHALL BE PROVIDED AT 20m INTERVALS, AND AT EVERY HORIZONTAL AND VERTICAL CHANGE OF ALIGNMENT AND UPSTREAM AND DOWNSTREAM
- OF EACH SANITARY OR STORM MANHOLE, AND WATERMAIN VALVE CHAMBERS. HORIZONTAL AND VERTICAL CONTROL BASED ON THE CITY OF TORONTO PUBLISHED BENCHMARKS AND HORIZONTAL CONTROL MARKERS.
- ALL LINE AND GRADE WORK PER DRAWING AND SPECIFICATION SHALL BE LAID OUT BY A REGISTERED CIVIL ENGINEER OR SURVEYOR.

DEWATERING AND SOIL STABILIZATION

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING AND SOIL STABILIZATION.

SANITARY AND STORM SEWERS

- 1. MAIN LINE PVC PIPE AS PER DR 35 CSA B182.2-06 CERTIFIED ASTM D3034-04A, F679-03. SERVICE CONNECTION PVC PIPE TO BE AS PER DR 28 CSA B182.2-06 CERTIFIED ASTM D3034-04A.
- BEDDING FOR FLEXIBLE PIPE SHALL BE AS PER OPSD 802.010, 802.013 OR 802.014.
- ULTRA-RIB PIPE IS NOT PERMITTED.
- 4. MAINTENANCE HOLES AS PER CITY OF TORONTO STANDARD, T-701.010 (1200MM), T-701.011 (1500MM), T-701.012-1(1800MM), T-701.013 (2400MM) OR OPSD 701.014(3000MM). FRAME AND COVER AS PER OPSD 401.010 TYPE A CLOSED (SANITARY) TYPE B OPEN (STORM). 5. BENCHING SHALL BE AS PER CITY OF TORONTO STANDARD T-701.021.
- 6. DROP STRUCTURES TO BE AS PER CITY OF TORONTO STANDARD T-1003.01 (EXTERNAL) AND
- T-1003.01-2 (INTERNAL). 7. SANITARY SERVICE CONNECTIONS SHALL BE SINGLE, 150mmø MINIMUM, PVC CLASS DR 28 INSTALLED AT 2 PERCENT AND THE COLOUR SHALL BE GREEN, FOR SINGLE RESIDENTIAL DWELLINGS.
- 8. SANITARY MAINTENANCE HOLE SHALL HAVE WATERTIGHT FRAME AND COVER IN PONDING AREAS AS PER OPSD 401.030.
- 9. REINFORCED CONCRETE PIPE SHALL BE AS PER CSA A257.2-03 (MINIMUM 65-D). HEIGHT OF FILL TO BE VERIFIED USING OPSD TABLES 807.010 AND 807.030.
- 10. NON-REINFORCED CONCRETE PIPE 150 MM TO 250 MM SHALL BE AS PER CSA A257.1-03
- CLASS 3. HEIGHT OF FILL TO BE VERIFIED USING OPSD TABLES 807.040. 11. BEDDING FOR RIGID PIPE SHALL BE CLASS B AS PER OPSD 802.030, 802.031, 802.032 OR
- 802.033. 12. SINGLE CATCHBASINS SHALL BE AS PER CITY OF TORONTO STANDARD T-705.010 COMPLETE WITH GOSS TRAP. FRAME AND COVER AS PER OPSD 400.070. MODIFY GOSS TRAP AS PER
- 13. DOUBLE CATCHBASINS SHALL BE AS PER CITY OF TORONTO STANDARD T-705.020 COMPLETE
- WITH GOSS TRAP. FRAME AND COVER AS PER OPSD 400.070.
- 14. SERVICE CONNECTIONS AND UTILITY CUTS TO BE BACKFILLED WITH UNSHRINKABLE FILL.
- 15. CATCHBASIN LEADS TO BE 200mmø PVC DR 35 FOR SINGLE CATCHBASINS AND 250mmø PVC DR 35 FOR DOUBLE CATCHBASINS UNLESS OTHERWISE NOTED.

GRADING & ROAD / PAVEMENTS

- 1 ALL AREA GRADING AND RESULTING DRAINAGE PATTERNS SHALL NOT ADVERSELY AFFECT ADJACENT LANDS.
- 2 THE STORM DRAINAGE SHALL BE SELF CONTAINED WITHIN THE SUBJECT PROPERTY UNTIL IT CAN BE DISCHARGED, REUSED, INFILTRATED AND/OR EVAPOTRANSPIRATED IN A MANNER ACCEPTABLE TO THE CITY.
- 3. MINIMUM GENERALLY ACCEPTED GRADIENT 2.0%. 4. MAXIMUM GENERALLY ACCEPTABLE GRADIENT - 5.0%.
- 5. MAXIMUM ACCEPTABLE SLOPE 3 PARTS HORIZONTAL TO 1 PART VERTICAL (3:1). 6. NO ALTERATIONS TO EXISTING BOUNDARY ELEVATIONS OR ADJACENT LANDS SHALL BE UNDERTAKEN UNLESS WRITTEN AGREEMENT WITH THE ADJACENT PROPERTY OWNER IS OBTAINED AND SUBMITTED IN A FORMAT ACCEPTABLE TO THE CITY.
- MINIMUM SWALE GRADIENT 2.0%. 8. MINIMUM SWALE DEPTH - 150mm.
- 9. ALL SWALES OR DITCHES HAVING A VELOCITY IN EXCESS OF 1.5m/s SHALL BE
- DESIGNED TO INCORPORATE EROSION PROTECTION. 10. THE MINIMUM GRADIENT ON ANY DRIVEWAY SHALL BE 2.0%. THE MAXIMUM DRIVEWAY GRADIENT IS 8.0%.
- 11. RETAINING WALLS SHALL BE CONSTRUCTED ENTIRELY ON THE UPPER PROPERTY SO THAT TIE BACKS (IF REQUIRED) DO NOT CROSS PROPERTY BOUNDARIES.
- MAXIMUM PONDING DEPTH 0.3 METERS. 13. PROPOSED SPOT ELEVATIONS WILL BE SHOWN FOR ASPHALT, LANDSCAPE OR CONCRETE AREAS. UNLESS OTHERWISE NOTED, TOP OF CURB ELEVATIONS ARE 0.15M ABOVE ASPHALT ELEVATIONS EXCEPT AT CURB DEPRESSIONS AND WHEEL CHAIR
- 14. WHERE NEW ASPHALT MATCHES EXISTING ASPHALT, GRIND EXISTING ASPHALT A MINIMUM OF 300mm WIDE AND 40MM DEEP FOR KEYING. APPLY HOT RUBBER SEALING COMPOUND IN ACCORDANCE WITH OPSS 1212. ALL SURFACES TO BE TACK COATED WITH SS-1.
- 15. THE CONCRETE CURB, CONCRETE SIDEWALK (IF APPLICABLE) AND ALL RESTORATION ALONG FRONTING ROADWAYS TO THE SITE MUST BE CONSTRUCTED AND CARRIED OUT IN ACCORDANCE WITH ALL APPLICABLE AND CURRENT CITY OF TORONTO STANDARDS. - CITY OF TORONTO STANDARDS INCLUDE BUT ARE NOT LIMITED TO:
 - T-350.01 URBAN ENTRANCES T-310.010-4 - COMBINED CONCRETE CURB AND SIDEWALK
- CONCRETE CURB (BORDERING DRIVEWAY RETURN CURB AT ENTRANCES)
- 16. CRUSHED LIME STONE SHALL BE USED FOR ALL GRANULAR BASE MATERIAL BELOW ASPHALT SURFACES.
- 17. GRANULAR ROAD BASE SHALL BE COMPACTED TO 100% SPMDD.
- 18. ASPHALT SHALL BE COMPACTED TO 92.0% TO 96.5% MRD.
- 19. REFER TO TORONTO STANDARD SPECIFICATION 310 FOR PAVEMENT COMPACTION
- 20. SET EXISTING AND PROPOSED MANHOLES, CATCHBASINS, VALVES, ETC. TO BASE ASPHALT IF TOP ASPHALT WILL BE PAVED AFTER THE UPCOMING WINTER AND RAISE THEM PRIOR TO PLACING TOP ASPHALT.
- 21. SAW CUT EXISTING PAVED SURFACES FULL DEPTH AND IN STRAIGHT LINES, WHERE
- PROPOSED AND EXISTING PAVED SURFACES MEET. 22. SUPPLY AND PLACE 150mm SUB DRAIN AS PER CITY STANDARD T-216.02-8.

EROSION AND SEDIMENT CONTROL

- 1. SEDIMENT BARRIERS, CHECK DAMS, AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF CONSTRUCTION.
- 2. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
- 3. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
- 4. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
- 5. ALL CONSTRUCTION ACTIVITY WILL COMPLY WITH CITY OF TORONTO NOISE BYLAW. 6. SEDIMENT CONTROL FENCE TO BE AS PER CITY OF TORONTO STANDARD T-219.130-1.
- 7. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION
- 8. ALL TOPSOIL STOCKPILES TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING. 9. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED OR
- 270R OR APPROVED EQUIVALENT 10. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS ON PUBLIC STREET ACROSS THE PROPERTY'S FRONTAGE.

BACKYARDS GRADED AND SODDED. FILTER FABRIC FOR SILT CONTROL TO BE TERRA FIX

- 11. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCING, SEDIMENT CONTROL, AND MUD MATS.
- 12. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.
- 13. MUD MATS TO BE INSTALLED AT ALL TEMPORARY CONSTRUCTION ACCESS POINTS.
- 14. THE CONTRACTOR WILL BE RESPONSIBLE TO DETERMINE LOCATIONS OF TOPSOIL AND/OR GRANULAR STOCKPILES WITHIN THE SITE. LOCATION OF STOCKPILES MAY CHANGE TO SUIT VARIOUS STAGES OF CONSTRUCTION.
- 15. THE CONTRACTOR SHALL PROVIDE SEPARATE STORAGE AREAS WITHIN THE SITE FOR HAZARDOUS AND WASTE MATERIALS. THE STORAGE AREAS SHALL BE LOCATED AWAY FROM ANY RECEIVING WATER BODIES, INCLUDING PONDS, SEWERS, DITCHES, ETC. AND INCLUDE SPILL CONTAINMENT AREAS WITH IMPERVIOUS SURFACES. THE CONTRACTOR SHALL KEEP PROPER EMERGENCY SPILL KITS ON SITE AND PROVIDE PROPER TRAINING TO STAFF IN THE USE OF SPILL KITS. TO THE CONTRACTOR IS RESPONSIBLE FOR ADDRESSING AND REPORTING ANY HAZARDOUS WASTE SPILLS TO THE APPROPRIATE LOCAL AGENCIES, INCLUDING THE MINISTRY OF ENVIRONMENT (SPILL ACTION CENTRE) 1-800-268-6060.
- 16. CONTRACTOR TO ENSURE THAT PORTABLE TOILETS ARE LOCATED OFF PAVED ROADWAYS AND AWAY FROM ANY RECEIVING WATERS SUCH AS PONDS AND SEWERS.
- 17. THE SEDIMENT CONTROLS, INCLUDING SEDIMENTS, SHALL BE REMOVED OFF SITE AFTER GRASS SURFACES HAVE BEEN RESTORED TO THE SATISFACTION OF THE ENGINEER.
- 18. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL SEDIMENT AND EROSION CONTROLS, AS DESCRIBED IN THE "GTA CA'S EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN CONSTRUCTION" AND/OR OTHER CITY OF TORONTO REQUIREMENTS ON A SITE-BY-SITE BASIS SUCH AS INTERCEPTOR SWALES/DIKES, ROCK CHECK DAMS, SEDIMENT TRAPS, ETC. TO PREVENT SEDIMENTS FROM THEIR CONSTRUCTION OPERATIONS FROM ENTERING THE EXISTING AND PROPOSED STORM DRAINAGE SYSTEMS.
- 18. AFTER ROAD CONSTRUCTION AND PRIOR TO LANDSCAPE OR SODDING OF SITE, CONTRACTOR TO INSTALL SEDIMENT CONTROLS, SUCH AS SEDIMENT FENCING, ALONG DOWNSTREAM EDGES OF INDIVIDUAL BLOCKS.
- 19. THE CONTRACTOR SHALL PROVIDE SEPARATE DESIGNATED AREAS FOR CONCRETE TRUCK WASHOUT. THE CONTRACTOR SHALL PROVIDE MEASURES TO ENSURE THAT NO CONCRETE MATERIAL SHALL ENTER EXISTING OR PROPOSED STORM DRAINAGE SYSTEMS AND NATURAL WATERCOURSES.
- 20. THE CONTRACTOR SHALL BE MONITOR AND EVALUATE THE EROSION AND SEDIMENT CONTROL MEASURES ON A WEEKLY BASIS AND AFTER ANY STORM EVENT. ANY REPAIRS REQUIRED ARE TO BE RECTIFIED IMMEDIATELY.
- 21. ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (I.E. SEDIMENT FENCE, CLEAR STONE, ETC.) ARE TO BE KEPT ON-SITE FOR EMERGENCIES AND REPAIRS. 22. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE NOT
- STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO MINIMIZE SEDIMENT LADEN RUNOFF FROM LEAVING THE WORK AREAS. IF THE PRESCRIBED MEASURES ON THE PLANS ARE NOT EFFECTIVE IN PREVENTING THE RELEASE OF DELETERIOUS SUBSTANCES , THEN ALTERNATIVE MEASURES MUST BE IMPLEMENTED IMMEDIATELY TO MINIMIZE POTENTIAL ECOLOGICAL IMPACTS. ADDITIONAL E&SC ARE TO BE KEPT ON SITE AND USED AS NECESSARY. MODIFICATIONS TO THE PLAN MUST RECEIVE APPROVAL BY THE DESIGNER AND APPROPRIATE MUNICIPAL OFFICIALS.

<u>WATERMAINS</u>

- 1. ALL SERVICE CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH T-1104.01, T-1104.02-1, T-1104.02-2, T-1105.02-1 AND T-1105.02-2.
- 2. WATERMAIN AND WATERMAIN APPURTENANCES SHALL CONFORM TO CITY OF TORONTO MATERIAL / MANUFACTURER SPECIFICATIONS. SEE CHAPTER 6, MATERIAL SPECIFICATIONS.
- 3. ALL POLYVINYL CHLORIDE (PVC) PIPES, RANGING IN SIZE FROM 100 MM THROUGH 300 MM IN DIAMETER SHALL BE PRESSURE CLASS 235, DR 18 AND MANUFACTURED IN ACCORDANCE AWWA C900-07 AND TO CSA B137.3-05 AND SHALL HAVE CAST IRON OUTSIDE DIAMETER DIMENSIONS. ALL PVC PIPE LARGER THAN 350 MM THROUGH 400 MM IN DIAMETER, SHALL BE PRESSURE CLASS 235, DR 18 AND MANUFACTURED IN ACCORDANCE TO AWWA C905-97 STANDARD AND
- CSA B137.3-05 AND SHALL HAVE CAST IRON OUTSIDE DIAMETER DIMENSIONS. 4. BEDDING FOR FLEXIBLE PIPE SHALL BE AS PER OPSD 802.010, 802.013 OR 802.014.
- 5. MINIMUM COVER ON WATERMAINS WILL BE 1.8 METRES.
- 6. PROVISIONS FOR FLUSHING THE WATER LINE PRIOR TO TESTING AND SO FORTH MUST BE PROVIDED WITH AT LEAST A 50 MM OUTLET ON 100 MM AND LARGER LINES AS PER T-1104.03-1. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. ON FIRE LINES, FLUSHING OUTLET TO BE 100 MM DIAMETER MINIMUM OR A HYDRANT. 7. ALL HYDRANTS TO BE AS PER CITY OF TORONTO STANDARD T-1105.01. IT SHALL CONFORM TO

CITY OF TORONTO MATERIAL /MANUFACTURER SPECIFICATIONS. SEE CHAPTER 6, MATERIAL

- 8. SINGLE WATER SERVICE CONNECTIONS SHALL BE A MINIMUM OF 19 MM DIAMETER AND CONFORM TO ASTM B88-03 (ASTM B88M-05 FOR METRIC SIZES) TYPE "K" SOFT COPPER AS PER
- T-1104.01. 9. ALL CURB AND VALVE BOXES TO BE LOCATED AT STREET LINE.
- 10. MECHANICAL THRUST RESTRAINTS SHALL BE INSTALLED AT ALL FITTINGS, BENDS, TEES, CROSSES. REDUCERS AND VALVES FOR ALL WATERMAIN SIZES. MECHANICAL RESTRAINTS AT JOINTS SHALL BE INSTALLED WITHIN 6.1 METERS OF EITHER SIDE OF THE VALVE FOR WATERMAINS 300 MM DIAMETER OR LARGER. MECHANICAL THRUST RESTRAINTS SHALL CONFORM TO THE MATERIAL SPECIFICATIONS CONTAINED IN CITY OF TORONTO MATERIAL/MANUFACTURER SPECIFICATIONS. SEE CHAPTER 6, MATERIAL SPECIFICATIONS.
- 11. ALL TEES, PLUGS, HORIZONTAL, VERTICAL BENDS, REDUCERS AND HYDRANTS TO HAVE CONCRETE THRUST BLOCKS AS PER CITY OF TORONTO STANDARD T-1103.01, T-1103.020.
- 12. WATERMAINS MUST FOLLOW THE MINISTRY OF THE ENVIRONMENT PROCEDURES THAT GOVERN THE SEPARATION OF SEWERS AND WATERMAINS F-6-1. A MINIMUM VERTICAL CLEARANCE OF 0.50 METER OVER, 0.5 METER UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING. MUST ALSO MAINTAIN 2.5 METERS HORIZONTAL SEPARATION WITH SEWERS.
- 13. ALL VALVES LESS THAN 400 MM WILL BE IN A VALVE AND BOX AS PER CITY OF TORONTO
- STANDARD T-1101.02-2. ALL VALVES 400 MM AND LARGER WILL BE IN A CHAMBER. 14. SACRIFICIAL ANODES TO BE INSTALLED FOR ALL METAL PIPES AND APPURTENANCES, WATER SERVICES AND FITTINGS AS PER CITY OF TORONTO STANDARD T-1106.04, T-1106.05 AND T-1106.06 CONSTRUCTION SPECIFICATION T.S. 7.22.
- 15. TRACER WIRE INSTALLATION AS PER CITY OF TORONTO CONSTRUCTION SPECIFICATION T.S. 7.40. 16. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW
- INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM THE EXISTING SYSTEM. FLUSHING, SWABBING, AND TESTING OF WATERMAIN AS PER ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS), AS WELL AS CITY OF TORONTO SPECIFICATION TS 7.30 OR LATEST
- 17. AFTER PASSING THE HYDROSTATIC PRESSURE TEST AND LEAKAGE TEST, CHLORINATION CAN PROCEED. SAMPLING OF THE NEW MAINS IS TO BE DONE AT THE REQUIRED LOCATIONS PRIOR TO CONNECTING TO THE CITY WATERMAIN SYSTEM. THE TEE FITTING IS TO BE CUT INTO THE EXISTING WATERMAIN TO MAKE THE CONNECTION. TO MAINTAIN THE PRESSURE IN THE NEW MAIN DURING INSTALLATION OF SERVICE, A 50 MM BY-PASS WITH AN APPROVED PRESSURE DIFFERENTIAL BACKFLOW PREVENTER, MOUNTED ABOVE GROUND LEVEL IS TO BE INSTALLED AROUND THE CLOSED ISOLATING VALVE.
- 18. CITY IN-SERVICE WATER VALVES CAN ONLY BE OPERATED BY TORONTO WATER STAFF. 19. WATERMAINS TO BE INSTALLED TO GRADE AS SHOWN ON APPROVED PLANS, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHEN REQUESTED BY INSPECTOR.

<u>WATERMAIN — FILL AREAS</u>

- 1. PIPES ARE NOT TO BE LAID ON FILL UNTIL THE FIELD DENSITY TEST REPORTS HAVE BEEN SUBMITTED AND APPROVED BY THE ENGINEER.
- 2. FILL TO BE PLACED TO A MINIMUM OF 600 MM ABOVE THE WATERMAIN GRADES AND TO 3 METRES MINIMUM ON EACH SIDE PRIOR TO WATERMAIN LAYING COMPACTED TO A MINIMUM OF 100 PERCENT
- STANDARD PROCTOR DENSITY IN 300 MM LIFTS. 3. SOIL DENSITY TESTS SHALL BE TAKEN ALONG CENTRELINE OF THE WATERMAIN AND ON LINES 1.5 METRES ON EITHER SIDE OF SAME AT A MAXIMUM INTERVAL OF 30 METRES. TESTS TO BE TAKEN AT EACH 600 MM LIFT.
- 4. ALL HYDRANTS, TEES, VALVES, BENDS, PLUGS AND EACH PIPE JOINT ARE TO BE MECHANICALLY RESTRAINED.
- 5. PIPE JOINT DEFLECTIONS ARE NOT ALLOWED.

- FILL SHALL BE NATIVE MATERIAL UNLESS OTHERWISE SHOWN. THE NATIVE MATERIAL SHALL BE FREE OF ORGANICS AND DEBRIS AND WITH A NATURAL MOISTURE CONTENT WHICH IS WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WET MATERIAL MAY REQUIRE AERATION FOR PROPER COMPACTION BY SPREADING THEM THINLY ON THE GROUND.
- ALL PIPE BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF SPMDD. FILL SHALL BE COMPACTED TO 95% SPMDD, EXCEPT UNDER PAVED SURFACES, WHERE THE UPPER 1.0m OF THE SUBGRADE SHALL BE COMPACTED TO 98% SPMDD. THE LIFT OF EACH LAYER SHALL BE LIMITED TO 200mm OR THE LIFT THICKNESS SHALL BE DETERMINED BY
- 4. STONES GREATER THAN 75mm IN ANY DIMENSION WILL NOT BE PERMITTED IN BACKFILL PLACED WITHIN 300mm OF UTILITIES AND PAVEMENT SUBGRADE.
- 5. FILL SHALL BE PLACED AS FOLLOWS: 1.1 THE AREA SHALL BE STRIPPED OF ALL EXISTING TOPSOIL AND OTHER UNSUITABLE MATERIALS. ALL SOFT SPOTS SHALL BE SUB-EXCAVATED. THE EXPOSED NATIVE SUBGRADE SHALL BE EXAMINED BY THE SOILS CONSULTANT PRIOR TO PLACEMENT OF
- 1.2 THE FILL SHALL BE PLACED, SUCH THAT THE SPECIFIED FILL GEOMETRY IS ACHIEVED. 1.3 TYPICALLY THE FILL MUST NOT BE PLACED BETWEEN THE PERIOD BETWEEN LATE NOVEMBER AND EARLY APRIL, AS IT IS DIFFICULT TO ENSURE THAT THE FILL IS FREE OF FROZEN SOILS. IF GRANULAR MATERIAL/RECYCLED CONCRETE IS USED, THE
- ABOVE PRECAUTIONARY MEASURES ARE NOT NECESSARY. 6. REFER TO "WATERMAIN-FILL AREAS" NOTES FOR FILL REQUIREMENTS AT PROPOSED
- WATERMAINS. 7. FILL SHALL MEET THE REMEDIATION PLAN REQUIREMENTS.

BENCH MARK:

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO MNRF BENCHMARK No. 12219740328 HAVING A PUBLISHED ELEVATION OF 98.372 METRES (CGVD28:PRE78) BEARING NOTE:

BEARINGS ARE GRID DERIVED FROM THE 3° MTM CO-ORDINATE SYSTEM ZONE 10, NAD 83 (CSRS)(2010).

Sheet Number Sheet Title GENERAL NOTES SITE SERVICING GENERAL SITE GRADING C3 CROSS SECTIONS & DETAILS SWM TANK SECTIONS & DETAILS C5 C6 ESC SWM-1 SWM FIGURE SWM-2 PRE-DEV STM DRAINAGE FIGURE

LIST OF CIVIL DRAWINGS

- ALL RVA DRAWINGS ARE TO BE READ IN CONJUNCTION WITH DRAWINGS PREPARED BY OTHER CONSULTANTS FOR THIS PROJECT, INCLUDING BUT NOT LIMITED TO:
- ARCHITECT RAW DESIGN INC LANDSCAPE - STUDIO TLA

PURCELL LTD.

- HYDROGEOLOGICAL INVESTIGATION GROUNDED ENGINEERING • PROPERTY BOUNDARY/TOPO SURVEYS - SCHAEFFER DZALDOV

R.V.A. ADDITIONAL NOTES

ADDITIONAL ROAD IMPROVEMENT NOTES:

- 1. UNLESS INDICATED OTHERWISE, ALL WORK WITHIN THE CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF TORONTO DESIGN STANDARDS AND SPECIFICATION AND THE UNDERTAKING. ONTARIO PROVINCIAL STANDARDS MAY, SUBJECT TO THE APPROVAL OF THE CITY OF TORONTO, BE USED WHERE NO STANDARD OR SPECIFICATION IS NOTED.
- 2. ANY DISCREPANCIES BETWEEN SITE CONDITIONS AND THE DRAWINGS MUST BE REPORTED TO THE CONSULTING ENGINEER/CITY PRIOR TO COMMENCEMENT OF CONSTRUCTION AND APPROPRIATE ACTION TAKEN TO THE SATISFACTION OF THE CITY OF
- 3. ALL SURVEY POINTS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE LAYOUT SHALL BE REPORTED TO THE CONSULTING ENGINEER/CITY AND THE CONSULTING ENGINEER/CITY SHALL NOTIFY THE CITY OF THE NECESSARY CHANGES.
- 4. NO PORTION OF THE WORK SHALL BE CARRIED OUT WITHOUT FIRST HAVING OBTAINED APPROVED CONSTRUCTION DRAWINGS, APPROVED PROJECT SCHEDULE(S), APPROVED TRAFFIC STAGING PLANS AND PERMITS FOR SUCH PORTION OF THE INFRASTRUCTURE WORK IN ACCORDANCE WITH THE PROVISIONS HEREOF AND GIVING 10 WORKING DAYS PRIOR WRITTEN NOTICE TO THE EXECUTIVE DIRECTOR, TECHNICAL SERVICES THAT SUCH WORK IS TO BE CARRIED OUT WITH SUCH NOTICE TO SPECIFY THE ANTICIPATED DATE OF COMMENCEMENT OF THE WORK. A PRE-CONSTRUCTION COORDINATION MEETING WITH CITY STAFF IS TO BE HELD A MINIMUM OF FIVE WORKING DAYS PRIOR TO THE COMMENCEMENT OF ANY OF THE WORK.
- 5. THE REMOVAL OF TREES REQUIRES THE APPROVAL OF PARKS, FORESTRY AND RECREATION DIVISION.
- 6. ALL AREAS DISTURBED DURING CONSTRUCTION WITHIN THE CITY'S RIGHT-OF-WAY (INCLUDING BUT NOT LIMITED TO ROADWAYS, CURBS, BOULEVARDS, ETC) SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. GRASSED AREAS SHALL BE PROVIDED
- WITH 100 MM OF TOPSOIL AND SHALL BE SODDED AS PER T.S. 5.00 AND T.S. 5.10. 7. PAVEMENT STRUCTURE REINSTATEMENT TO BE SUPERPAVE AS PER TORONTO STANDARD TS-1151 FOR COLLECTOR ROADWAYS COMPOSITION AS PER LATEST TORONTO 'PAVEMENT STRUCTURAL DESIGN MATRIX' MINIMUM 10,000 AADT AND 30 MPa COMMERCIAL OR LOCAL COLLECTOR BUS/TRUCK ROUTE FOR COMPOSITE PAVEMENT. ANY DISCREPANCIES BETWEEN EXISTING AND LATEST STANDARD PAVEMENT STRUCTURE SHALL BE REPORTED TO THE CONSULTANT PRIOR TO COMMENCEMENT OF CONSTRUCTION AND APPROPRIATE ACTION TAKEN TO THE SATISFACTION OF THE CITY OF TORONTO. THE MORE STRINGENT DESIGN SHALL GOVERN THE REQUIRED REINSTATEMENT.
- 8. SAWCUT MAXIMUM 0.3m ASPHALT STRIP AS REQUIRED FROM GUTTERLINE OF CURB FOR CURB REINSTATMENT WITHIN ROW. ASPHALT AND ROAD BASE RESTORATION AS PER NOTE 7. CONCRETE ROAD BASE RESTORATION INCLUDES REINSTATEMENT OF DOWELS AND GROUT AND SEAL AT JOINTS AS PER TORONTO STANDARDS TS-3.40 AND TS-3.45.
- 7. THE CONTRACTOR SHALL REFER TO THE ONTARIO TRAFFIC MANUAL BOOK 7, TEMPORARY CONDITIONS FOR TEMPORARY
- 8. ANY DAMAGE TO PROPERTY ADJACENT TO THE CONSTRUCTION SITE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. 9. CONCRETE SIDEWALK TO BE COMPLETE WITH 150 MM GRANULAR BASE OR AS DIRECTED BY THE CITY INSPECTOR.
- 10. SUBSOIL IN POOR OR UNSUITABLE CONDITION AT THE BASE OF ALL SEWER AND WATERMAIN TRENCHES IS TO BE REPLACED WITH 200mm DEPTH OF GRANULAR 'A' MATERIAL AS DIRECTED BY THE GEOTECHNICAL CONSULTANT. SEWER OR WATERMAIN PIPES SHOULD THEN BE BACKFILLED WITH SAND FILL UP TO A DEPTH OF 300mm ABOVE THE TOP OF THE PIPES. THE CITY OF TORONTO SPECIFICATIONS FOR SEWER AND WATER MAIN INSTALLATION SHOULD BE CLOSELY FOLLOWED. TRENCH BACKFILL ABOVE PIPE COVER MATERIAL SHALL BE UNSHRINKABLE CONCRETE FILL AS PER TORONTO STANDARD TS-13.10 WITHIN PUBLIC RIGHT-OF-WAYS. APPROVED CLEAN FILL MATERIAL COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN 200mm LAYERS MAY BE USED ON PRIVATE LANDS.
- 11. REFER TO LANDSCAPE DRAWINGS FOR SURFACE WORKS AND BOULEVARD/SIDEWALK BASE DETAILS/SUBGRADE PREPARATION BEHIND CURB TO BUILDING.

NOTES FOR SITE STORMWATER MANAGEMENT SYSTEMS:

1. <u>DESIGN / CONSTRUCTION RESPONSIBILITIES FOR SWM SYSTEMS WITHIN BUILDING FOOTPRINT:</u>

THE STORMWATER MANAGEMENT (SWM) SYSTEM DEPICTED ON THIS DRAWING ESTABLISHES THE FUNCTIONAL PARAMETERS TO MEET THE OBJECTIVES OF THE APPROVED SWM PLAN. THESE PARAMETERS INCLUDE SIZE AND SHAPE OF THE TANK(S), ORIFICE SIZE(S), PROPRIETARY TREATMENT UNIT(S), PIPE SIZE(S), INVERT(S) AND ACCESS OPENING LOCATION(S).

ALL OPENINGS TO THE STORM TANK (OR SWM TANK), INCLUDING FOR PIPE OPENINGS, ACCESS HATCHES, ETC ARE TO BE WATERTIGHT (DESIGN BY MECHANICAL/STRUCTURAL). ALL ACCESS HATCHES AND INCOMING AND OUTGOING PIPES AND JOINTS ARE TO BE DESIGNED TO RESIST A MINIMUM 12m INTERNAL PRESSURE HEAD IN THE EMERGENCY SCENARIO WHERE DISCHARGE PUMPING FAILS AND THE TANK BECOMES SUBMERGED. AN EMERGENCY OUTLET TO GRADE EXTERNAL TO THE BUILDING IS REQUIRED TO ALLOW FOR SPILLOVER TO THE ADJACENT ROW.

PLUMBING CONVEYING RUNOFF FROM ROOFTOP SOURCES MUST BE CAPABLE OF CONVEYING UP TO THE 100-YEAR STORM EVENT

THE HYDROLOGIC FUNCTION OF THE SWM SYSTEM IS BASED ON THE GROUND AND BUILDING SURFACES AND AREA MATERIALS (I.E. EXTENT OF GREEN ROOF, PAVING STONES AND OTHER LANDSCAPING) OUTLINED IN THE APPROVED SWM REPORT. CHANGES TO THESE MATERIALS WILL AFFECT THE SWM SYSTEM.

HOWEVER, SINCE THE SWM TANK AND THE ASSOCIATED PIPING, IN ADDITION TO THE PRESCRIBED BUILDING SURFACES (I.E. GREEN

ROOFS, ROOFTOP LANDSCAPING AND ROOF DRAIN CONVEYANCE) ARE BUILDING SYSTEMS, DETAILED DESIGN OF THESE SYSTEMS

ARE UNDERTAKEN BY OTHERS. IN THAT REGARD, THE FOLLOWING PARTIES AND THEIR RESPECTIVE DESIGN DRAWINGS AND DOCUMENTATION SHOULD BE REFERRED TO WITH RESPECT TO THE CONSTRUCTION AND OPERATION OF THE SWM SYSTEM.

DETAILED DESIGN AND SPECIFICATIONS FOR THE FOLLOWING ITEMS ASSOCIATED WITH THE SWM SYSTEM ARE PROVIDED BY OTHERS:

FLOWS TO THE STORM TANK.

- LANDSCAPE SURFACES
- AREA AND ROOF DRAINS PIPING WITHIN THE BUILDING ENVELOPE
- TANK INLET PIPING LOCATIONS • PUMPING SYSTEMS AND ASSOCIATED PIPING, VALVES, UNIONS, CHECK VALVES, FILTERS, ETC.
- ELECTRICAL SUPPLY, DISTRIBUTION AND CLASSIFICATION OF AREAS TANK VENTING

CONTROL SYSTEMS

 TANK STRUCTURAL DESIGN WATERPROOFING

TANK ACCESS OPENINGS, COVERS, DOORS AND LADDERS.

CONTENT.

- PROPRIETARY SWM EQUIPMENT/FILTRATION DURING CONSTRUCTION, THE CONTRACTOR IS TO IDENTIFY ANY DISCREPANCIES BETWEEN THE VARIOUS DESIGN INFORMATION PERTAINING TO THE SWM SYSTEM TO R.V.ANDERSON ASSOCIATES LIMITED FOR COORDINATION OF RESOLUTION.
- 2. MAINTENANCE BY BUILDING OWNER
- a. THE SWM SYSTEM DEPICTED ON THE SITE SERVICING DRAWINGS REQUIRES ONGOING MAINTENANCE IN ORDER TO PRESERVE THE INTENDED FUNCTION.
- b. CATCHBASINS, ROOF DRAINS AND OTHER INLETS REQUIRE ONGOING ROUTINE CONDITION INSPECTION AND CLEANING TO ENSURE THAT THEY REMAIN FREE OF ANY BLOCKAGE OR OBSTRUCTIONS.

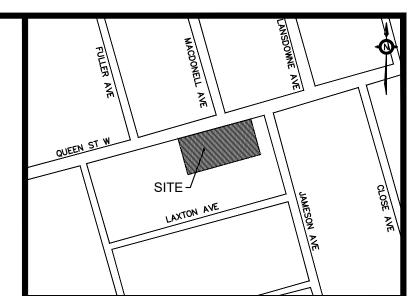
c. THE SWM TANK, CATCHBASINS AND AREA DRAIN SUMPS WILL ACCUMULATE SEDIMENT AND DEBRIS AND ONGOING ROUTINE

d. OTHER MAINTENANCE REQUIREMENTS PRESCRIBED BY THE STRUCTURAL ENGINEER, ARCHITECT, MECHANICAL ENGINEER AND IRRIGATION CONSULTANT SHOULD ALSO BE ADHERED TO.

INSPECTION AND CLEANING MUST BE PERFORMED BY A QUALIFIED/LICENSED SERVICE PROVIDER.

APPLY FOR TANK ENTRY. f. THE BUILDING OWNER IS CAUTIONED THAT CHANGES TO THE BUILDING AND SITE SURFACE MATERIALS MAY ALTER THE PERFORMANCE OF THE SWM SYSTEMS AND SHOULD BE REVIEWED BY A QUALIFIED PROFESSIONAL ENGINEER.

e. THE SWM TANK IS A CONFINED SPACE UNDER OHSA, AND THEREFORE APPLICABLE CONFINED SPACE ENTRY PROCEDURES



KEY PLAN

N. 1.3.						
No.	Revision	Comments				
1	2023-04-19	ISSUED FOR SPA				

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2023-04-19

RVA 23677



STANFORD HOMES

1437-1455 QUEEN ST W

TORONTO, ONTARIO

DATE

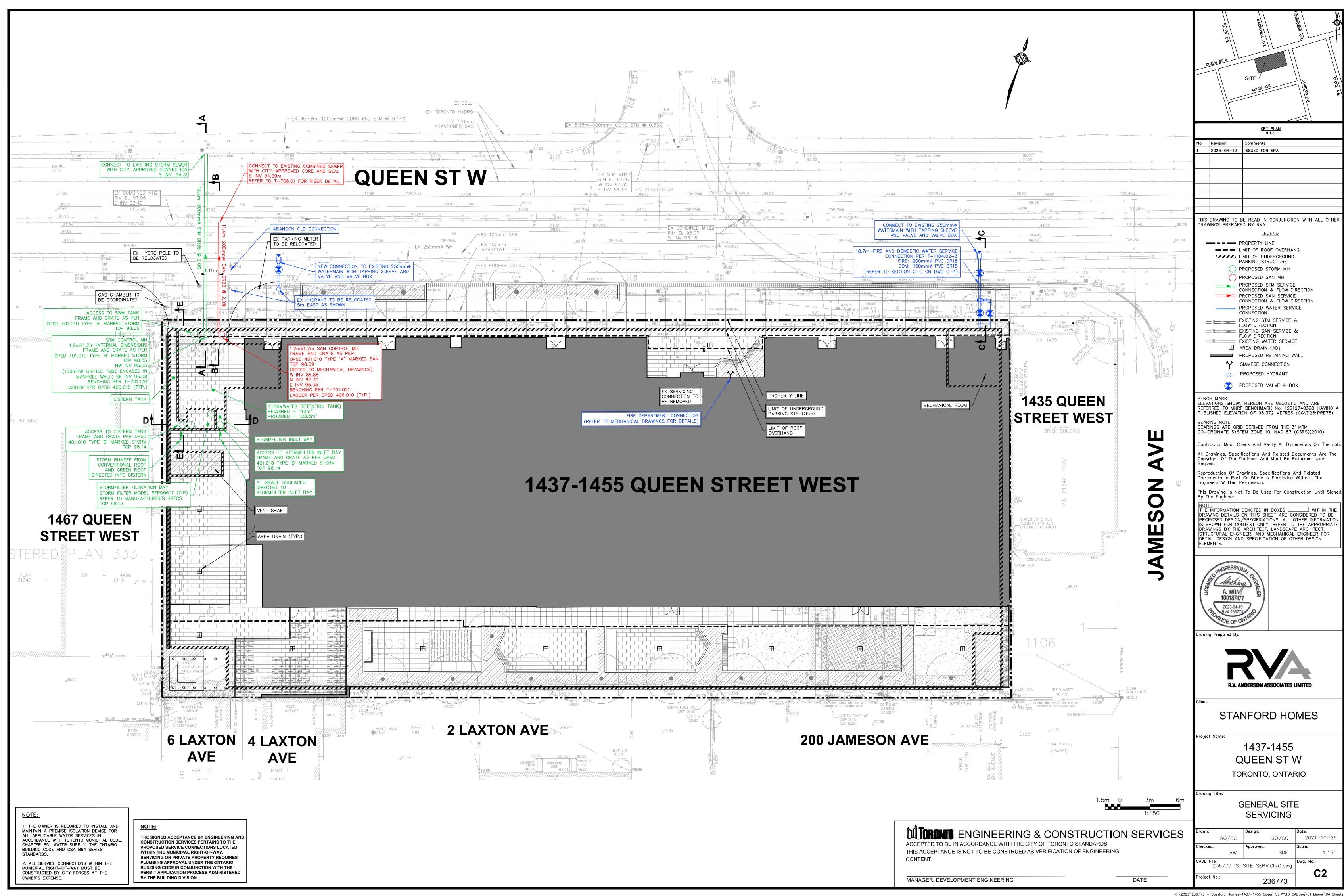
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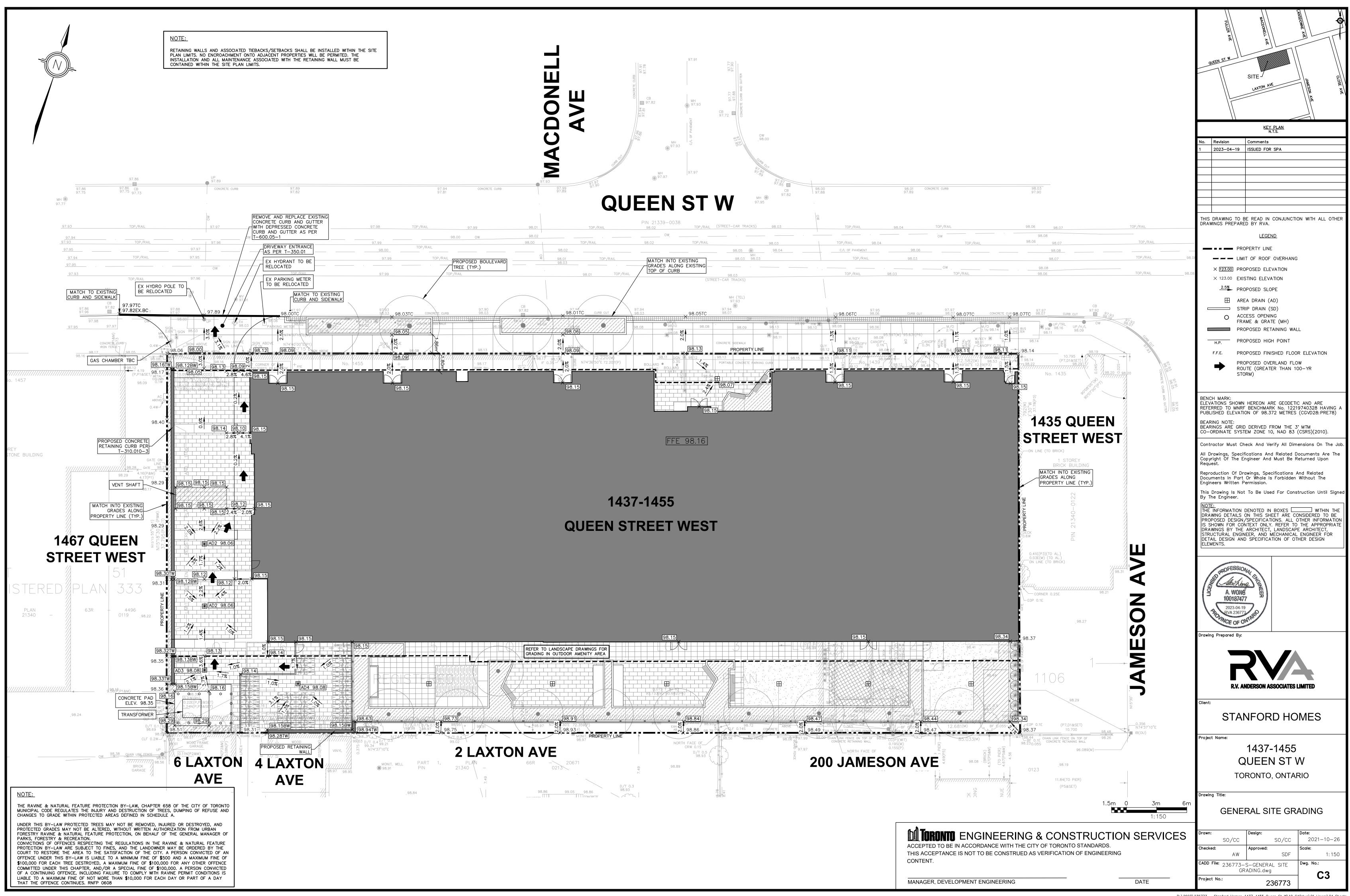
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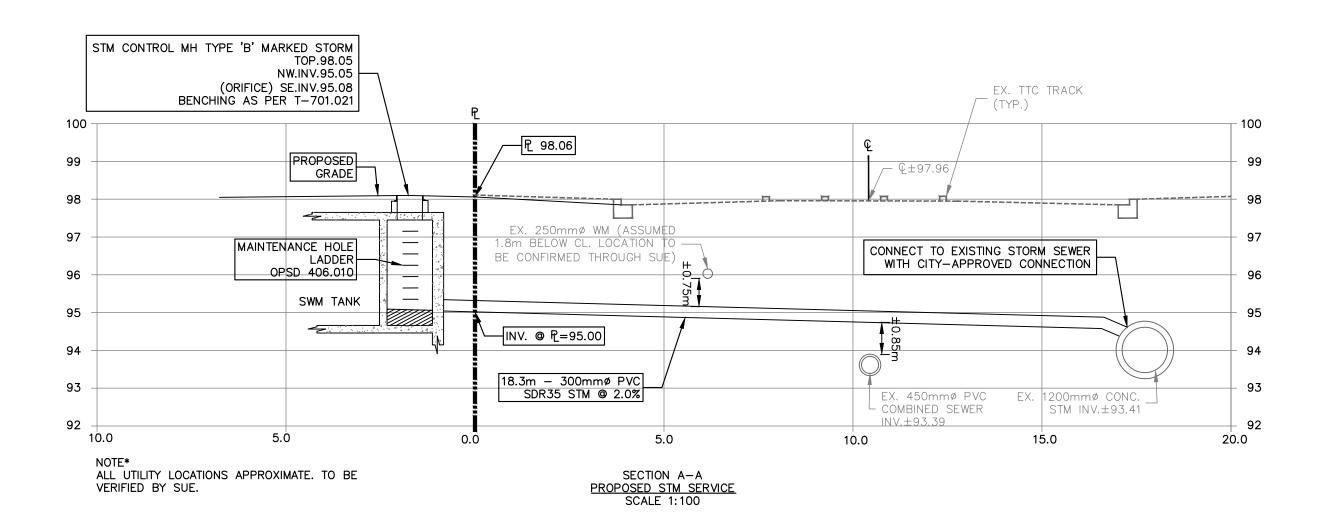
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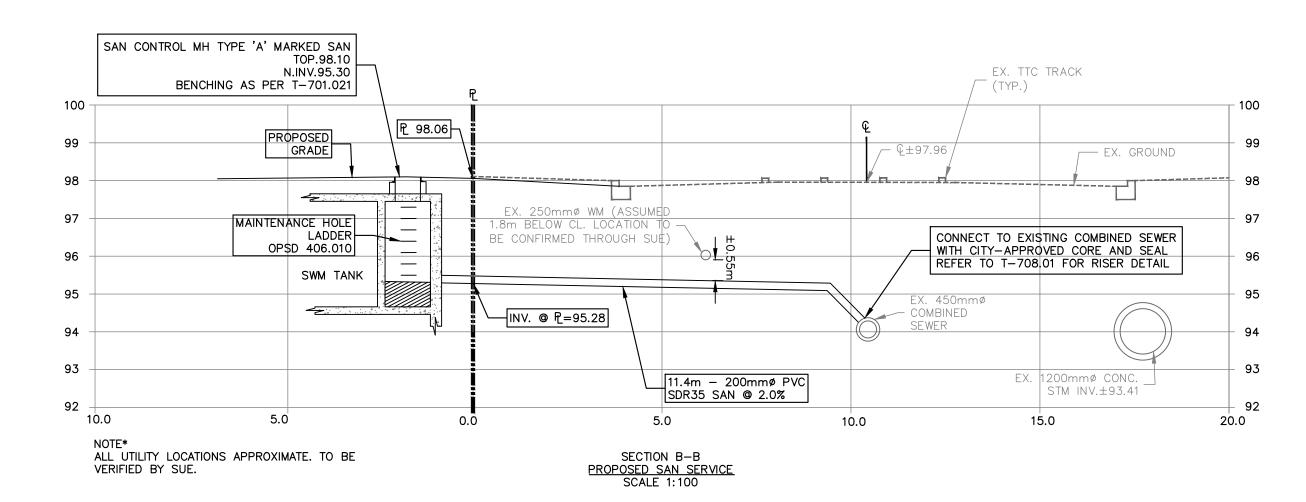
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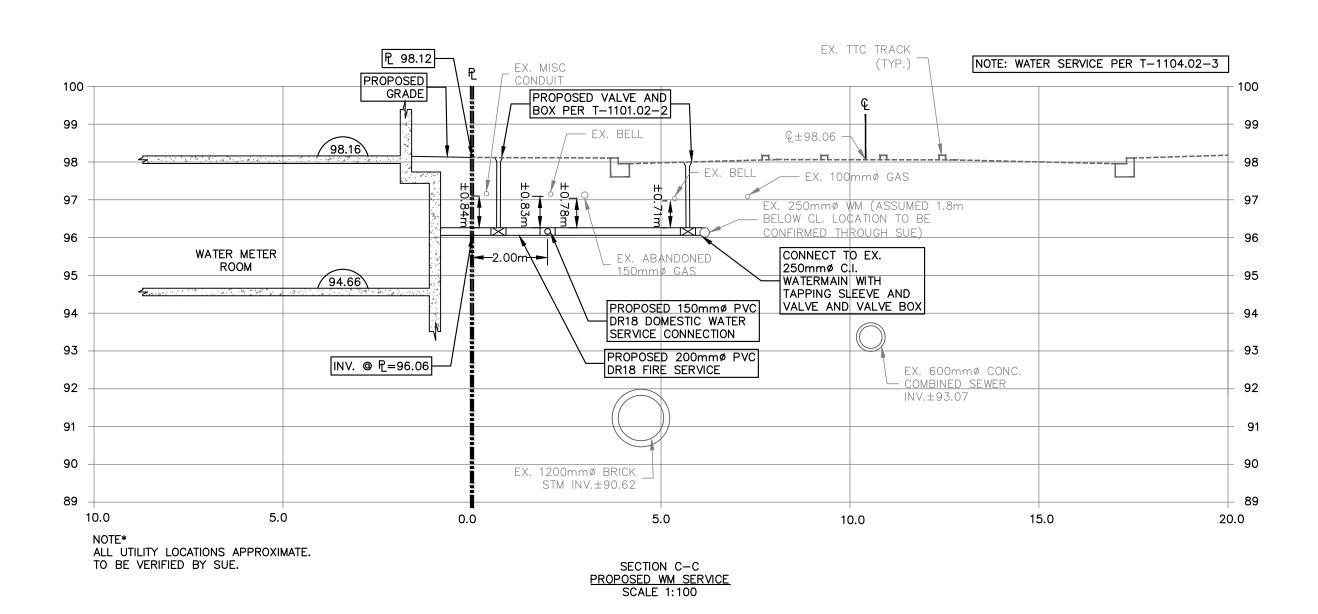
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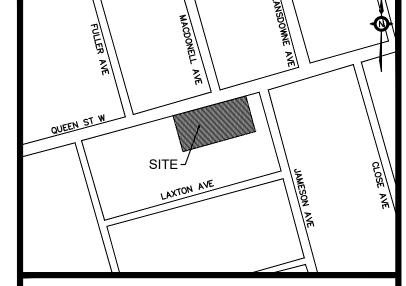












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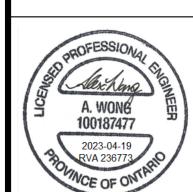
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STRUCTURAL ENGINEER, AND MECHANICAL ENGINEER FOR

DETAIL DESIGN AND SPECIFICATION OF OTHER DESIGN



Drawing Prepared By:



STANFORD HOMES

Project Name:

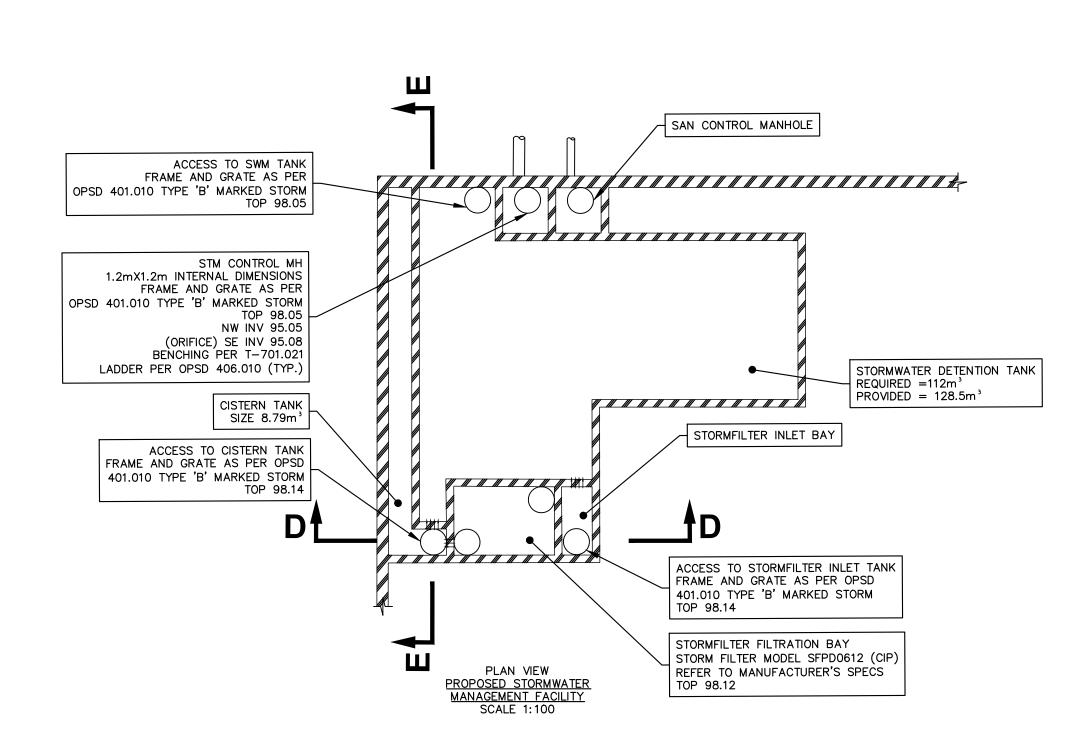
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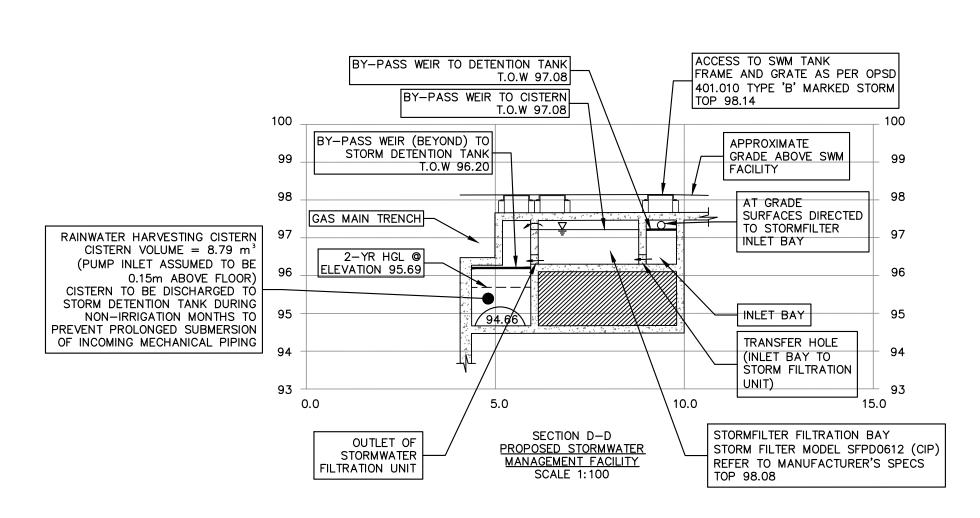
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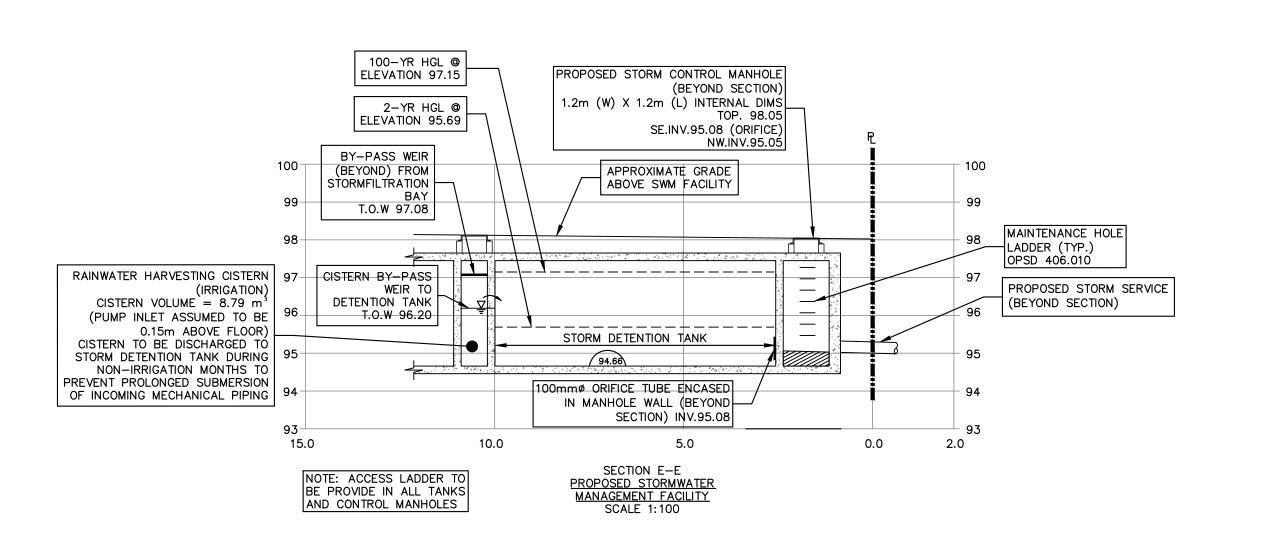
CROSS SECTIONS & DETAILS

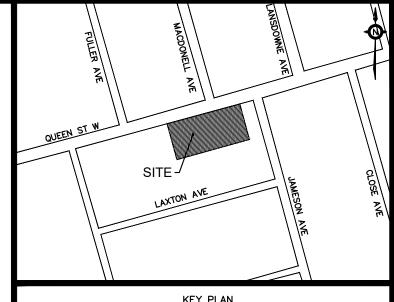
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CONTENT.









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rawing Prepared By:



STANFORD HOMES

roject Name:

1437-1455 QUEEN ST W TORONTO, ONTARIO

DATE

SWM TANK SECTIONS & **DETAILS**

Drawn:	Design:		Date:
SO/CC		SO/CC	2021-10-26
Checked:	Approved:		Scale:
AW		SDF	1:100
CADD File:			Dwg. No.:
			C5
Project No.:	2	36773	

MANAGER, DEVELOPMENT ENGINEERING

