

CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING EROSION AND SEDIMENT CONTROL FEATURES OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURE MAY BE SUBJECT TO PENALTIES AND FINES AS IMPOSED BY THE REGULATORY AGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING EROSION AND SEDIMENT CONTROL PLAN OBJECTIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENT SOIL EROSION. THIS CAN RESULT FROM STREAMING RAIN WATER OR WIND EROSION DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SEDIMENT AND SOLIDS DEPOSITS IN THE SEWER PIPES AND MANHOLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SEDIMENT AND SOLIDS DEPOSITS IN THE COLLECTING STREAMS (AS APPLICABLE). THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENT AIR POLLUTION FROM PARTICULATE MATTER AND DUST.

PRIOR TO THE REMOVAL OF ANY VEGETATIVE COVER, MOVING OF SOIL AND  
 CONSTRUCTION:

- INSTALL SILT FENCE (AS PER OPRD 218.110) ALONG DITCHES IMMEDIATELY  
 DOWNSTREAM FROM AREAS THAT ARE DISTURBED (SEE PLAN FOR LOCATION).
- INSTALL FILTER CLOTH ON DOWNSTREAM MANHOLE COVERS.
- INSTALL SILTSACK FILTERS IN ALL CONCRETE CATCH BASIN STRUCTURES.
- INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.

THE CONTRACTOR MUST SET UP THE MEASURES INDICATED ON THE PLAN, INSPECT  
 THEM REGULARLY AND REPAIR OR REPLACE THE DETERIORATED MEASURES.  
 STRUCTURES. AT THE END OF THE CONSTRUCTION PERIOD, THE CONTRACTOR IS  
 RESPONSIBLE FOR REMOVAL OF THE TEMPORARY STRUCTURES AND  
 RECONDITIONING THE AFFECTED AREAS

SEDIMENT AND EROSION CONTROL MEASURES TO BE CONSTRUCTED AS PER OPS58 805.

WORK TO BE DONE IN THE VICINITY OF MAJOR WATERWAYS WILL BE CARRIED OUT FROM JULY AND SEPTEMBER ONLY.

MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE. PROTECT DISTURBED AREAS FROM RUNOFF.

PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REIMBURSED IMMEDIATELY.

INSTALL BARE SOIL RAIN GUTS, SLOPE ERMERS, SILT FENCES, SILT SACKS, AND CATCH BASIN SUMPS REQUIRING WATER AND EVERY MAJOR STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.

PLAN TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.

EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.

DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS), WHEN STORING SOIL ON SITE IN PILES THE CONTRACTOR MUST COVER EACH PILE WITH TARPS, STRAW OR A GEOTEXTILE FABRIC TO AVOID FINE PARTICLE TRANSPORT BY WIND AND ANTI-DRIFT WATER.

CONTROL WIND-BLOWN DUST OFF SITE TO ACCEPTABLE LEVELS BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED). FOR DUST CONTROL, CONTRACTOR TO APPLY CALCIUM CHLORIDE AT A RATE OF 200 TO 250 LBS PER 1000 SQ. YD. OF EXPOSED AREA.

THE OWNER'S REPRESENTATIVE AT RATE IN ACCORDANCE TO OPS58 506 WHEN DIRECTED BY OWNER'S REPRESENTATIVE.

ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED EITHER BY PAYING OR RESTORATION OF VEGETATIVE GROUND COVER. SEDIMENT CAPTURE SILT SACKS MUST BE MAINTAINED AND CANNOT BE REMOVED UNTIL ALL LANDSCAPING AREAS ARE COMPLETED.

NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THIS CONSULTING ENGINEER AND THE TOWN DEPARTMENT OF PUBLIC WORKS.

CONTRACTOR RESPONSIBLE FOR MUNICIPAL ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING ETC. AT THE END OF EACH WORK DAY.

DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE CLEANED.

ANY MULTIMATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.

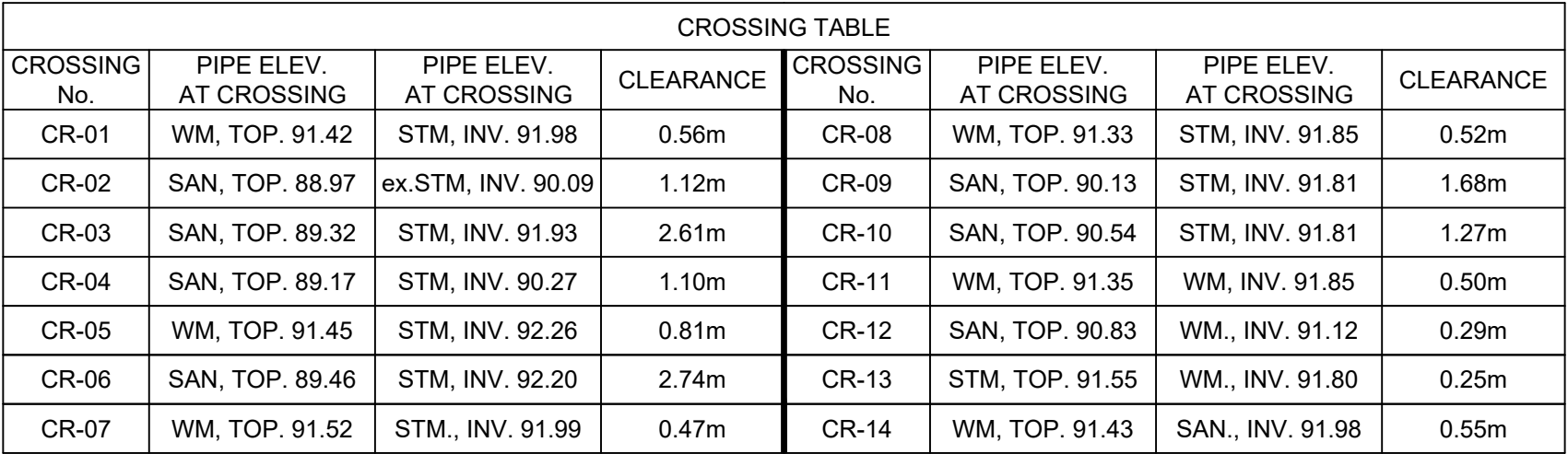
TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING DRIVEN OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.

PROVIDE GRAVE ENTRANCE WHEREVER EQUIPMENT LEAVES THE SITE TO PROVIDE A 10' WIDE, 4' HIGH, AND 15' DEEP GRAVE. GRAVE BED SHALL BE A MINIMUM OF 10m LONG AND 4' WIDE, AND 15' DEEP AND SHALL CONSIST OF COARSE MATERIAL MAINTAIN GRAVE ENTRANCE IN CLEAN CONDITION.

- PROVIDE PERMANENT COVER CONSISTING OF TOPSOIL AND SEED TO DISTURBED AREAS.
- ALL SEDIMENT AND EROSION CONTROL MEASURES TO BE REMOVED BY THE CONTRACTOR FOLLOWING THE COMPLETION OF WORK AND AFTER DISTURBED AREAS HAVE BEEN REHABILITATED AND STABILIZED, THIS INCLUDES REMOVE STRAW BALE FLOW CHECK DAMS, SILT FENCES AND FILTER CLOTHS ON CATCH BASINS AND MANHOLE COVERS.
- INSPECT AND CLEAN CATCH BASIN SUMPS AND STORM SEWERS.

1. PRE-REMEDIATION, THE CONTRACTOR MUST VISIT THE PREMISES IN ORDER TO BE FULLY AWARE OF EXISTING CONDITIONS ON SITE, INCLUDING ALL ELEMENTS TO BE REMOVED AND DEMOLISHED. NO CLAIM WILL BE ACCEPTED DUE TO A POOR UNDERSTANDING OF THE CONDITION OF THE SITE.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND THE REQUEST FOR INTERUPTION OF PUBLIC UTILITY SERVICES, SUCH AS GAS, TELEPHONE, POWER, CABLE, SEWERS, WATERMAIN, ETC. BEFORE PROCEEDING WITH WORK. COORDINATION WITH THE LOCAL UTILITY COMPANIES MUST BE COMPLETED.
3. FIRE HYDRANTS TO BE TAGGED AND BAGGED AND/OR PROTECTED AS REQUIRED BY DRAWING.
4. CURB, ASPHALT, SIDEWALK, AND GRANULAR BASE TO BE EXCAVATED WITHIN LIMIT OF DEMOLITION REMOVAL. THE CONTRACTOR MUST CARRY OUT NECESSARY SUMP CUTS.
5. SEWER / WATERMAIN PIPES TO BE ABANDONED MUST BE CUT, FILL WITH UNSHRINKABLE CONCRETE CONFORMING TO OPSS 1359, AND CAPPED.
6. REMOVE AND DISPOSE SEWERS AS INDICATED. PLUG ANY SERVICE LATERALS TO BE ABANDONED.
7. THE CONTRACTOR MUST ENTIRELY REMOVE THE DEMOLITION WRECKAGE FROM THE CONSTRUCTION SITE OFFSITE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROVINCE OF ONTARIO ENVIRONMENTAL PROTECTION ACT AND CLUSTERS ACT.
8. THE CONTRACTOR MUST DISCARD RECYCLABLE DEMOLITION MATERIALS IN COLLABORATION WITH A REGIONAL RECYCLING COMPANY.  
ALL OTHER DEMOLITION MATERIALS MUST BE DISPOSED OFF-SITE AT AN APPROVED AND LICENSED DISPOSAL FACILITY IN ACCORDANCE WITH THE APPLICABLE LAWS AND REGULATIONS. THE CONTRACTOR MUST BE ABLE TO PROVIDE, UPON REQUEST, COPIES OF THE DISPOSAL TICKETS TO THE OWNER'S REPRESENTATIVE.
9. SURFING AND WORKS LOCATED OUTSIDE OF THE CONSTRUCTION WORK LIMIT MUST BE REINSTATED AS THEY WERE BEFORE BEGINNING OF WORK. CONTRACTOR IS RESPONSIBLE TO MAKE GOOD ON ANY DAMAGES TO EXISTING CURB AND ASPHALT NOT SCHEDULED FOR REMOVAL.
10. ALL MATERIALS MUST BE PROTECTED AND MAINTAINED IN SERVICE WITH THE APPLICABLE LAWS AND REGULATIONS. ANY DAMAGE TO THE DEMOLITION BELONGING TO THE CONTRACTOR, UNLESS SPECIFIED OTHERWISE.
11. THE CONTRACTOR MUST COMPLETE ALL REMOVALS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO MAKE THE WORK COMPLETE.
12. THE CONTRACTOR MUST PROTECT AND MAINTAIN IN SERVICE THE EXISTING WORK WHICH MUST REMAIN IN PLACE. IF THEY ARE DAMAGED, THE CONTRACTOR MUST IMMEDIATELY MAKE THE REPLACEMENTS AND NECESSARY REPAIRS TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND WITHOUT ADDITIONAL CHARGE TO THE OWNER.
13. THE CONTRACTOR MUST NOT PERFORM ANY TREE CUTTING DURING THE CORE MIGRATORY BIRDS NESTING PERIOD, WHICH IS APRIL 15 TO AUGUST 15.





**(A)** 6.8m WM SERVICE - 200mmØ - T/P = 91.72m  
CAP 1.5m FROM BUILDING

**(B)** 135mmØ SAN SERVICE - 9.5m @ 2.0%  
INV. @ BLDG = 92.12m  
CROSS OVER WM WITH MIN. 0.5m CLEARANCE  
CONNECT TO SAN SEWER PER CITY DETAIL S11.1  
CAP 1.5m FROM BUILDING

**(C)** 100mmØ ROOF DRAIN CONNECTION - 11.4m @ 2.0%  
INV. @ BLDG = 92.12m  
CROSS OVER WM WITH MIN. 0.5m CLEARANCE  
CONNECT TO STM SEWER PER CITY DETAIL S11.1  
CAP 1.5m FROM BUILDING

1. CONTRACTOR TO CONFIRM ELEVATION OF EXISTING STORM AND SANITARY SEWERS AT PROPOSED CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK.
2. ALL WORK SHALL BE PERFORMED, AS APPLICABLE, IN ACCORDANCE WITH OPSS 407, 408 AND 410.
3. ALL STORM AND SANITARY SEWERS INSTALLED BELOW THE GROUNDWATER TABLE ELEVATION (±32.20m) SHALL BE WATERTIGHT AND INFILTRATION TESTS SHALL BE CONDUCTED TO OBTAIN ACCEPTABLE RESULTS.
4. ALL CLAY SHALL BE ACCORDING CITY OF OTTAWA STD DETAIL 58 AND EXTENDED AT LEAST 1.0m ABOVE THE GROUNDWATER TABLE ELEVATION.
5. PIPE MATERIAL TO BE PER SDC R38.5 AND CONFORMING TO OPSS 1841, UNLESS INDICATED OTHERWISE. PIPE SEWERS TO BE INSTALLED PER OPSS 802.010 (R38.5) BEDDING AND COVER MATERIALS TO BE OPSS 1010 GRANULAR 'A' CRUSHER-RUN LIMESTONE BEDDING COMPACTED TO 95% SPM2.
6. ALL SEWERS WITH LESS THAN 1.5 METERS OF COVER ARE SUBJECT TO INSULATION PER CITY OF OTTAWA STD DETAIL 535
7. EXPOSED EXFILL MATERIAL TO BE APPROPRIATE MATERIAL OR SELECT SUBGRADE MATERIAL IN CONFORMANCE WITH OPSS 212.
8. ALL MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES TO BE 1200mmØ AS PER OPSS 701.010, UNLESS INDICATED OTHERWISE. MAINTENANCE HOLES AND CATCH BASIN MAINTENANCE HOLES TO BE INSTALLED PER OPSS 407.
9. ALL CATCH BASINS BE CONSTRUCTED TO CONFORM TO OPSS 407, UNLESS INDICATED OTHERWISE. CATCH BASINS TO BE INSTALLED PER OPSS 407.
10. EXCAVATING, BACKFILLING, AND COMPACTING REQUIRED FOR MAINTENANCE HOLES, CATCH BASIN BACKFILLING, AND CATCH BASINS TO BE COMPLETED AS PER THE CITY OF OTTAWA STD DETAIL 535. JOINTS BETWEEN SECTIONS TO BE COMPACTED TO 98% SPM2. JOINTS BETWEEN SECTIONS TO BE WRAPPED WITH NON-WOVEN GEOTEXTILE.
11. FOR SANITARY STRUCTURES: CAST IRON MAINTENANCE HOLE COVER AS PER OPSS 401.010 TYPE 'A'.
12. FOR SANITARY STRUCTURES: CAST IRON CATCH BASIN MAINTENANCE HOLE COVER AS PER OPSS 401.010 TYPE 'B' AND CAST IRON CATCH BASIN COVER AS PER OPSS 400.020.
13. SANITARY MAINTENANCE HOLES REQUIRE BENCHING AS PER OPSS 701.021.
14. THE CONTRACTOR DESIGNS AND INSTALLS BANKING OR ARRANGING ALL CONNECTIONS TO THE EXISTING SEWERS AS PER MUNICIPAL REQUIREMENTS. PRIOR TO CONNECTION, THE CONTRACTOR MUST PROVIDE, TO THE CONSULTANT / ENGINEER AND THE CITY FOR APPROVAL, ALL TEST RESULTS PERFORMED ON THE INTERNAL SERVICES.
15. ALL CITY PUBLIC WORKS AT LEAST 72 HOURS IN ADVANCE BEFORE ANY CONNECTION TO THE CITY SERVICES. CO-ORDINATE WITH CITY AS REQUIRED.
16. TERMINATE AND PLUG ALL SERVICE CONNECTIONS AT 1.0 m FROM EDGE OF THE BERM.
17. TO BE SUBMITTED TO BE C.C.T.V. INSPECTED BY THE CONTRACTOR AS PER OPSS 409. TWO COPIES OF THE INSPECTION REPORT MUST BE PROVIDED TO THE CONSULTANT AND THE C.C.T.V. INSPECTION IN DVD FORMAT ONLY.

1. ALL WATERMAIN TO BE INSTALLED AT MINIMUM COVER OF 2.4m BELOW FINISHED GRADE, WHERE THE MINIMUM COVER OF 2.4m IS NOT REACHED, THERMAL INSULATION IS REQUIRED AS PER PERSD 1103.010 AND PERSD 1103.020.
2. WATERMAIN PIPE MATERIAL SHALL BE TO CLASS PP2 OR PE 100, OR APPROVED EQUIVALENT, UNLESS INDICATED OTHERWISE.
3. WATERMAIN TO BE CONSTRUCTED AS PER PERSD 1051.041 AND PERSD 802.010. WATERMAIN JOINTS SHALL BE TO PERSD 1051.041 AND PERSD 1051.042 GRANULAR 'A' CRUSHER RUN LIMESTONE COMPACTED TO 95% SPDM.
4. A CONTINUOUS 12 GAUGE COPPER TRACER WIRE MUST BE INSTALLED OVER ALL WATERMANS. TRACER WIRE SHALL BE TIED TO ALL FIRE HYDRANTS.
5. WATERMAIN SHALL BE INSTALLED AT MINIMUM COVER OF 2.4m. A SEWER PIPE SHALL BE AS PER CITY OF OTTAWA DETAILS W25 AND W25.2.
6. IF WATERMAIN PIPE MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.
7. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS AS PER PERSD 1109.011.
8. THRUST BLOCKS AND RESTRAINING AS PER PERSD 1103.010 AND PERSD 1103.020.
9. HYDRANT INSTALLATION AS PER PERSD 1105.010 AND PERSD 441. HYDRANT TO COMPLY WITH AWWA C900.22.
10. a. HYDRANTS MUST HAVE THREE EXITS (TWO 65.5 mm AND ONE 100.0 mm 'STORZ' OF STAINLESS STEEL WITHOUT DRINK. FIRE HYDRANTS MUST BE INSTALLED SUCH THAT THE STORZ EXIT POINTS TOWARDS THE BUILDING IT WILL SERVE. THE CONTRAIL SHALL BE LOCATED AT THE END OF THE OPEN LANGE IS LOCATED ABOVE THE FINISHED GROUND (APPROXIMATELY 150 mm).
11. b. FIRE FLOW TESTS FOLLOWED BY COLOUR CODING OF HYDRANTS (AS PER PERSD 1105.010) SHALL BE CARRIED OUT PRIOR TO SUBSTANTIAL COMPLETION OF THE WORK.
12. WATERMAIN AND HYDRANT CONTROL VALVES IN THE 100 - 300 mm RANGE WILL BE RESILIENT SEATING GATE VALVES (AWWA C509) WITH MECHANICAL JOINTS. VALVES IN 300 mm AND OVER SIZES SHALL BE CAST IRON VALVES WITH NON-RISING STEM. VALVES WILL BE COMPLETE WITH THE STANDARD AWWA 50 mm OPERATING NUT. VALVES TO BE INSTALLED AS PER PERSD 441.
13. PIPE FITTINGS (BENDS, TEES, CROSSERS, REDUCERS, ETC.) WILL BE MECHANICAL JOINTS (AWWA C900.22) WITH 100 mm OPERATING NUTS.
14. COUPLERS MUST BE COMPRESSION TYPE WITH MINIMUM PRESSURE RATING OF 1035 kPa. COUPLERS MUST BE MUELLER 11-12540.
15. VALVE BOXES MUST BE COMPLETE (FULLY METALLIC) 3 PIECE SILING TYPE WITH 150 mm OPERATING NUTS.
16. WATERMANS MUST BE THOROUGHLY FLUSHED AND CLEANED TO REMOVE ALL DIRT AND DEBRIS PRIOR TO THE DISINFECTION PROCESS.
17. ALL WATERMANS SHALL BE HYDROSTATICALLY AND BACTERIOLOGICALLY TESTED TO THE SATISFACTION OF THE CITY OF OTTAWA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL REQUIREMENTS ARE FOLLOWED. THE DISINFECTION PROCEDURE WHICH FOLLOWS INITIAL FLUSHING AND CLEANING CONSISTS OF CHLORINATION, FINAL FLUSHING AND BACTERIOLOGICAL TESTING. CHLORINATION MUST BE CONDUCTED BY THE CONTRACTOR USING METHOD APPROVED BY THE CITY AND IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE GUIDELINES. DOSAGE MUST BE 100 ppm WITH A MINIMUM RESIDUE OF 25 ppm AFTER 24 HOURS. BACTERIOLOGICAL TESTS MUST BE SUPERVISED BY THE CONTRACTOR AND TESTED AND APPROVED. TESTING AND TEST RESULTS MUST BE WITNESSED BY CITY PERSONNEL.
18. ALL DISINFECTANT WATER IS TO BE REMOVED FROM THE NEW WATERMANS AND REUSE IN THE DISTRIBUTION SYSTEM WATER PRIOR TO PRESSURE TESTING OF THE WATERMAIN.
19. PRESSURE TESTING OF ALL WATERMANS AND APPURTENANCES INSTALLED BY THE CONTRACTOR MUST BE PERFORMED BY THE CONTRACTOR USING METHODS APPROVED BY THE CITY OF OTTAWA. TESTING AND RESULTS MUST BE WITNESSED BY CITY PERSONNEL.
20. MAINS AND SERVICES MUST BE PRESSURE TESTED AT 1035 kPa (150 psi) IN ACCORDANCE WITH AWWA C600-82 (MINIMUM REQUIREMENT).
21. LEAKAGE TESTS MUST BE CONDUCTED AS PER AWWA C600-82 (MINIMUM REQUIREMENT).
22. ONCE THE DISINFECTION AND PRESSURE TESTING RESULTS HAVE BEEN APPROVED, THE CONTRACTOR MUST ENSURE THAT ALL WATERMAIN PIPES ARE FLUSHED UNTIL THE CHLORINE LEVEL IS BELOW 1.0 mg/L TO THE LEVEL OF CHLORINE IN THE MUNICIPAL WATERMAIN NETWORK IN THE AREA.
23. BACTERIOLOGICAL TESTING MUST CONSIST OF TWO SAMPLINGS TWENTY FOUR HOURS APART. IF BACTERIOLOGICAL SAMPLES ARE SATISFACTORY THE CONTRACTOR MAY BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING.
24. ALL WATERMAIN VALVES TO BE OPERATED BY THE CITY OF OTTAWA ONLY.

WATERMAIN TABLE					
STATION	SURFACE ELEVATION	W/M DEPTH	TOP OF W/M ELEV.	INV. OF W/M ELEV.	NOTES
0+000	93.84	3.53m	90.31	90.11	CONNECTION TO EXISTING SERVICE WITH VALVE CHAMBER PER CITY STD DETAIL W3
0+006	93.89	3.58m	90.31	90.11	45° HORIZONTAL BEND
0+008	94.15	3.84m	90.31	90.11	45° HORIZONTAL BEND
0+009	94.12	2.40m	91.72	91.48	2 x 45° VERTICAL BENDS
0+016	94.04	2.40m	91.64	91.44	45° HORIZONTAL BEND
0+018	93.84	2.40m	91.44	91.24	45° HORIZONTAL BEND
0+020	93.84	2.40m	91.44	91.24	200x200 TEE, 200mm WATER SERVICE CONNECTION
0+021	93.83	2.40m	91.43	91.23	CR-15 REFER TO CROSSING TABLE
0+022	93.82	2.40m	91.42	91.22	CR-01 REFER TO CROSSING TABLE
0+030	93.85	2.40m	91.45	91.25	CR-05 REFER TO CROSSING TABLE
0+055	93.92	2.40m	91.52	91.32	200x150 TEE FOR FIRE HYDRANT LATERAL
0+069	93.73	2.40m	91.33	91.13	CR-08 REFER TO CROSSING TABLE
0+094	93.75	2.40m	91.35	91.15	CR-11 REFER TO CROSSING TABLE
0+104	93.76	2.40m	91.36	91.16	45° HORIZONTAL BEND
0+107	93.72	2.40m	91.32	91.12	CR-12 REFER TO CROSSING TABLE
0+115	93.74	2.40m	91.34	91.14	45° HORIZONTAL BEND
0+122	93.70	2.40m	91.30	91.10	45° HORIZONTAL BEND
0+124	93.70	2.40m	91.30	91.10	200x150 TEE FOR FIRE HYDRANT LATERAL
0+131	93.71	2.40m	91.31	91.11	45° HORIZONTAL BEND
0+140	93.92	2.40m	91.52	91.32	CR-07 REFER TO CROSSING TABLE
0+183	93.70	2.40m	91.30	91.10	45° HORIZONTAL BEND
0+191	93.71	1.71m	92.00	91.80	CR-14 REFER TO CROSSING TABLE, CROSSING OVER STM SEWER PER CITY W25.2 WITH INSULATION PER CITY W22
0+213	93.70	2.40m	91.30	91.10	45° HORIZONTAL BEND
0+227	93.68	2.40m	91.28	91.08	200x150 TEE FOR FIRE HYDRANT LATERAL
0+243	93.83	2.40m	91.43	91.23	45° HORIZONTAL BEND
0+248	93.78	2.40m	91.38	91.18	45° HORIZONTAL BEND
0+252	94.15	2.40m	91.75	91.55	SERVICE CONNECTION, CAPPED 1.5m FROM BLDG

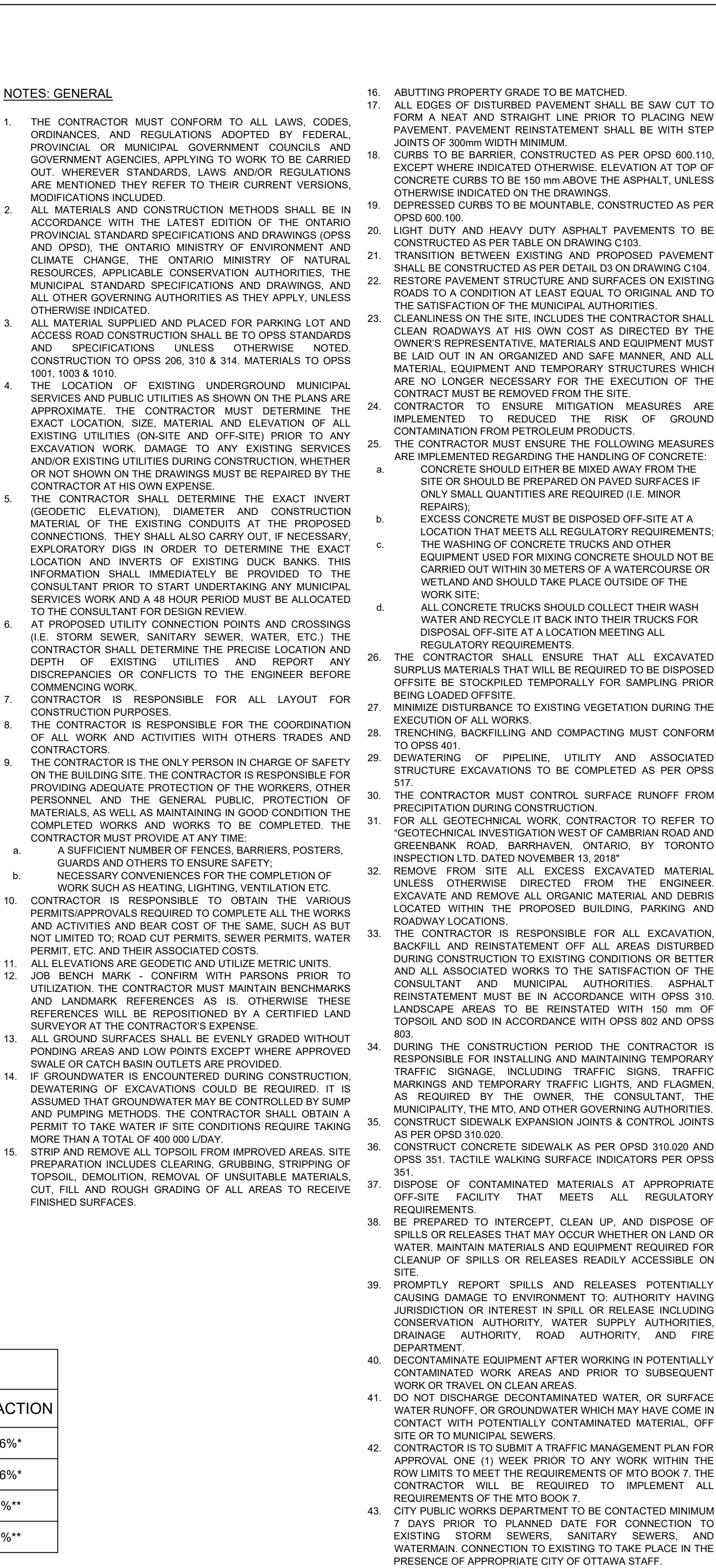
ICD SCHEDULE						
ICD ID	LOCATION	ORIFICE INVERT (m)	FLOW 100y (L/s)	HEAD 100y (m)	EQUIVALENT DIAMETER (mm)	MODEL*
1	MHST-32	90.27	326.1	2.41	328	SEE D2 ON DWG C104

**NOTES: UNDERGROUND STORMWATER STORAGE**

1. UNDERGROUND STORMWATER STORAGE SYSTEM CHAMBER TYPE OR EQUIVALENT STORAGE REQUIREMENT: 115.6m<sup>3</sup>.
2. CHAMBER TYPE: STORMTECH SC-310 OR EQUIVALENT
3. BOTTOM GRANULAR PAD ELEVATION & PERFORATED SUBDRAIN INVERT: 92.20m.
4. BOTTOM OF CHAMBER ELEVATION: 92.35m
5. TOP OF CHAMBER ELEVATION: 92.76m.
6. TOP OF SYSTEM TO BE A MINIMUM OF 450mm BELOW PARKING LOT PAVEMENT
7. SHOP DRAWINGS FOR UNDERGROUND STORAGE SYSTEM AND FOR THERMOPLASTIC LINER, INCLUDING MANUFACTURER RECOMMENDATIONS SHALL BE PROVIDED. PROPOSED STRUCTURES SHALL BE STANDARD OPSD CONCRETE STRUCTURES. SHOP DRAWINGS TO BE PROVIDED AND COORDINATED.

#18983 D07-12-23-0058





PAVEMENT STRUCTURES			
MATERIAL	LIGHT DUTY	HEAVY DUTY	COMPACTION
SURFACE LAYER : HL3	65 mm	40 mm	≥ 96%*
BASE LAYER : HL8	--	60 mm	≥ 96%*
GRANULAR BASE : OPSS.MUNI 1010 GRANULAR A	150 mm	150 mm	100%**
GRANULAR SUB-BASE : OPSS.MUNI 1010 GRANULAR B	300 mm	450 mm	100%**

\*MINIMUM PAVEMENT COMPACTION BASED ON MARSHALL DENSITY TEST  
 \*\*OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY  
 SOURCE: GEOTECHNICAL INVESTIGATION, WEST OF CAMBRIAN ROAD AND GREENBANK ROAD, BARRHAVEN,  
 ONTARIO, BY TORONTO INSPECTION LTD, DATED NOVEMBER 13, 2018

# TURNER FLEISCHER

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## PARSONS

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**TOPOGRAPHIC INFORMATION & BENCHMARK**

SURVEY COMPLETED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. ON MARCH 28, 2023. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THE CGVD28 GEODETIC DATUM. DERIVED FROM CONTROL MONUMENT NO. 01968007/1 HAVING AN ELEVATION OF 99.742m.

4	2025-11-26	RE-ISSUED FOR SPA	BV
3	2025-03-13	RE-ISSUED FOR SPA	BV
2	2023-12-23	RE-ISSUED FOR SPA	BV
1	2025-05-01	ISSUED FOR SPA	BV

#	DATE	DESCRIPTION	BY

**PROJECT**

3845 CAMBRIAN RD

BARRHAVEN, ONTARIO

**DRAWING**

INTERIM GRADING PLAN

PROJECT NO.  
**478575**

PROJECT DATE  
**2023-02-27**

DRAWN BY  
**BV**

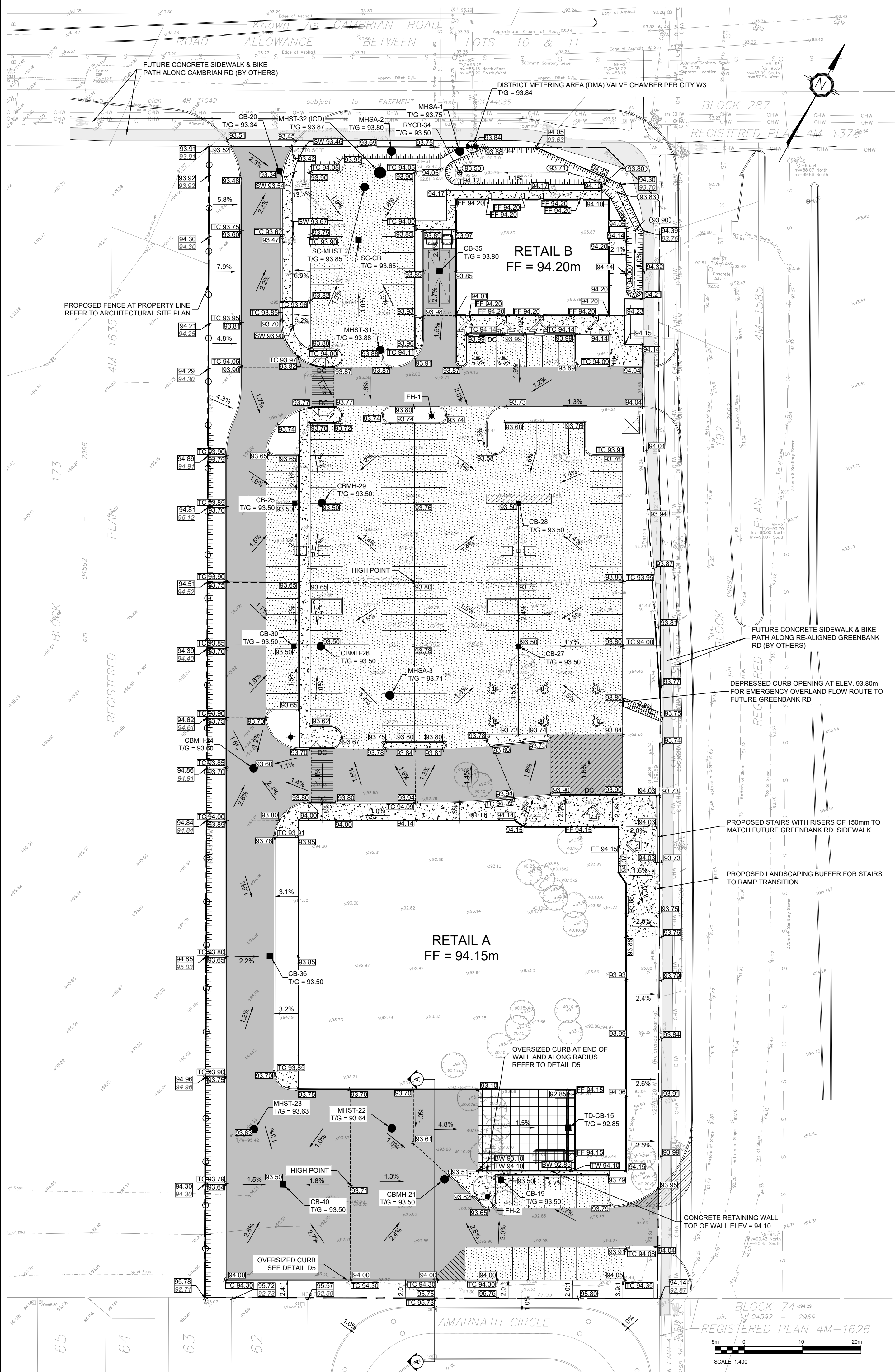
CHECKED BY  
**MT**

SCALE  
**As indicated**

DRAWING NO.  
**C103**

REV.





**LEGEND:**

--- FUTURE PROPERTY LINE

--- EXISTING PROPERTY LINE

--- PROPOSED DITCH/SWALE CENTERLINE

--- TERRACE (3:1 MAX)

--- EXISTING GRADE

--- PROPOSED GRADE

--- PROPOSED TOP OF WALL GRADE

--- PROPOSED BOTTOM OF WALL GRADE

--- PROPOSED FINISHED FLOOR ELEVATION

--- PROPOSED TOP OF CURB ELEVATION

--- PROPOSED CENTRELINE OF DITCH/SWALE GRADE

--- PROPOSED SLOPE DIRECTION AND PERCENTAGE

--- PROPOSED VALVE CHAMBER PER CITY STD DWG W3

--- PROPOSED STORM MAINTENANCE HOLE

--- PROPOSED SANITARY MAINTENANCE HOLE

--- PROPOSED CATCH BASIN

--- PROPOSED REAR YARD CATCH BASIN AS PER CITY STD DWG S31

--- PROPOSED LIGHT DUTY PAVEMENT

--- PROPOSED HEAVY DUTY PAVEMENT

--- PROPOSED TEMPORARY HEAVY DUTY PAVEMENT

--- PROPOSED CONCRETE SIDEWALK

--- PROPOSED CONCRETE STRUCTURAL SLAB PER STRUCTURAL

--- PROPOSED CONCRETE CURB

--- PROPOSED DEPRESSED CONCRETE CURB WITH TWSI PER CITY STD DWG SC7.3

--- PROPOSED LIGHT STANDARD

--- APPROXIMATE LIMIT OF GRADING ON NEIGHBOURING PROPERTY

--- FUTURE SIDEWALK ALONG RE-ALIGNED GREENBANK RD/CAMBRIAN RD BY OTHERS

--- PROPOSED FENCE AT PROPERTY LINE REFER TO ARCHITECTURAL SITE PLAN

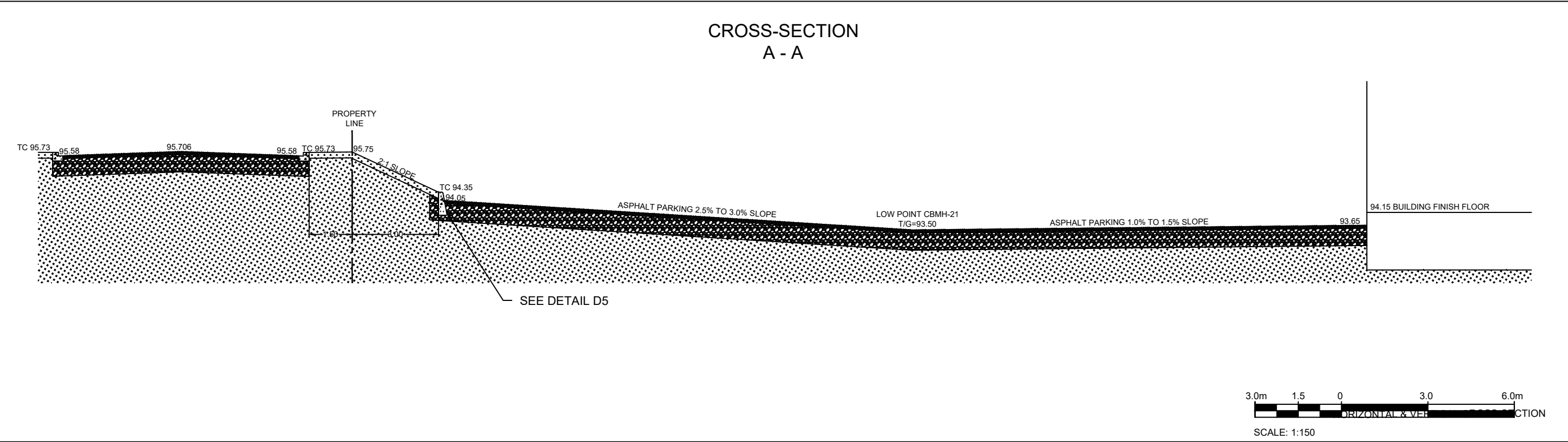
**NOTES: GENERAL**

- THE CONTRACTOR MUST CONFORM TO ALL LAWS, CODES, ORDINANCES, AND REGULATIONS ADOPTED BY FEDERAL, PROVINCIAL OR MUNICIPAL GOVERNMENT COUNCILS AND GOVERNMENT AGENCIES APPLYING TO WORK TO BE CARRIED OUT. WHEREVER STANDARDS, LAWS AND/OR REGULATIONS ARE MENTIONED THEY REFER TO THEIR CURRENT VERSIONS, MODIFICATIONS INCLUDED.
- ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS AND OPSD), THE ONTARIO MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE, THE ONTARIO MINISTRY OF NATURAL RESOURCES, APPLICABLE CONSERVATION AUTHORITIES, THE MUNICIPAL STANDARD SPECIFICATIONS AND DRAWINGS, AND ALL OTHER GOVERNING AUTHORITIES AS THEY APPLY, UNLESS OTHERWISE INDICATED.
- ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSS 206, 310 & 314. MATERIALS TO OPSS 1001, 1003 & 1010.
- THE LOCATION OF EXISTING UNDERGROUND MUNICIPAL SERVICES AND PUBLIC UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES (ON-SITE AND OFF-SITE) PRIOR TO ANY EXCAVATION WORK. DAMAGE TO ANY EXISTING SERVICES AND/OR EXISTING UTILITIES DURING CONSTRUCTION, WHETHER OR NOT SHOWN ON THE DRAWINGS MUST BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL DETERMINE THE EXACT INVERT (GEODETIC ELEVATION), DIAMETER AND CONSTRUCTION MATERIAL OF THE EXISTING CONDUITS AT THE PROPOSED CONNECTIONS. THEY SHALL ALSO CARRY OUT, IF NECESSARY, EXPLORATORY DIGS IN ORDER TO DETERMINE THE EXACT LOCATION AND INVERTS OF EXISTING DUCK BANKS. THIS INFORMATION SHALL IMMEDIATELY BE PROVIDED TO THE CONSULTANT PRIOR TO START UNDERTAKING ANY MUNICIPAL SERVICES WORK AND A 48 HOUR PERIOD MUST BE ALLOCATED TO THE CONSULTANT FOR DESIGN REVIEW.
- AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
- THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK AND ACTIVITIES WITH OTHERS TRADES AND CONTRACTORS.
- THE CONTRACTOR IS THE ONLY PERSON IN CHARGE OF SAFETY ON THE BUILDING SITE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE PROTECTION OF THE WORKERS, OTHER PERSONNEL AND THE GENERAL PUBLIC. PROTECTION OF MATERIALS, AS WELL AS MAINTAINING IN GOOD CONDITION THE COMPLETED WORKS AND WORKS TO BE COMPLETED. THE CONTRACTOR MUST PROVIDE AT ANY TIME:
  - A SUFFICIENT NUMBER OF FENCES, BARRIERS, POSTERS, GUARDS AND OTHERS TO ENSURE SAFETY.
  - NECESSARY CONVENIENCES FOR THE COMPLETION OF WORK SUCH AS HEATING, LIGHTING, VENTILATION ETC.
- CONTRACTOR IS RESPONSIBLE TO OBTAIN THE VARIOUS PERMITS/APPROVALS REQUIRED TO COMPLETE ALL THE WORKS AND ACTIVITIES AND BEAR COST OF THE SAME, SUCH AS BUT NOT LIMITED TO: ROAD CUT PERMITS, SEWER PERMITS, WATER PERMIT, ETC. AND THEIR ASSOCIATED COSTS.
- ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
- JOB BENCH MARK - CONFIRM WITH PARSONS PRIOR TO UTILIZATION. THE CONTRACTOR MUST MAINTAIN BENCHMARKS AND LANDMARK REFERENCES AS IS, OTHERWISE THESE REFERENCES WILL BE REPOSITIONED BY A CERTIFIED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND LOW POINTS EXCEPT WHERE APPROVED SWALE OR CATCH BASIN OUTLETS ARE PROVIDED.
- IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, DEWATERING OF EXCAVATIONS COULD BE REQUIRED. IT IS ASSUMED THAT GROUNDWATER MAY BE CONTROLLED BY SUMP AND PUMPING METHODS. THE CONTRACTOR SHALL OBTAIN A PERMIT TO TAKE WATER IF SITE CONDITIONS REQUIRE TAKING MORE THAN A TOTAL OF 400,000 L/DAY.
- STRIP AND REMOVE ALL TOPSOIL FROM IMPROVED AREAS. SITE PREPARATION INCLUDES CLEARING, GRUBBING, STRIPPING OF TOPSOIL, DEMOLITION, REMOVAL OF UNSUITABLE MATERIALS, CUT, FILL AND ROUGH GRADING OF ALL AREAS TO RECEIVE FINISHED SURFACES.

- ABUTTING PROPERTY GRADE TO BE MATCHED.
- ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 300mm WIDTH MINIMUM.
- CURBS TO BE BARRIER, CONSTRUCTED AS PER OPSS 600.110, EXCEPT WHERE INDICATED OTHERWISE. ELEVATION AT TOP OF CONCRETE CURBS TO BE 150 mm ABOVE THE ASPHALT, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- DEPRESSED CURBS TO BE MOUNTABLE, CONSTRUCTED AS PER OPSS 600.100.
- LIGHT DUTY AND HEAVY DUTY ASPHALT PAVEMENTS TO BE CONSTRUCTED AS PER TABLE ON DRAWING C103.
- TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT SHALL BE CONSTRUCTED AS PER DETAIL D3 ON DRAWING C104.
- RESTORE PAVEMENT STRUCTURE AND SURFACES ON EXISTING ROADS TO A CONDITION AT LEAST EQUAL TO ORIGINAL AND TO THE SATISFACTION OF THE MUNICIPAL AUTHORITIES.
- CLEANLINESS ON THE SITE, INCLUDES THE CONTRACTOR SHALL CLEAN ROADWAYS AT HIS OWN COST AS DIRECTED BY THE OWNER'S REPRESENTATIVE. MATERIALS AND EQUIPMENT MUST BE LAID OUT IN AN ORGANIZED AND SAFE MANNER, AND ALL MATERIAL, EQUIPMENT AND TEMPORARY STRUCTURES WHICH ARE NO LONGER NECESSARY FOR THE EXECUTION OF THE CONTRACT MUST BE REMOVED FROM THE SITE.
- CONTRACTOR TO ENSURE MITIGATION MEASURES ARE IMPLEMENTED TO REDUCE THE RISK OF GROUND CONTAMINATION FROM PETROLEUM PRODUCTS.
- THE CONTRACTOR MUST ENSURE THE FOLLOWING MEASURES ARE IMPLEMENTED REGARDING THE HANDLING OF CONCRETE:
  - CONCRETE SHOULD EITHER BE MIXED AWAY FROM THE SITE OR SHOULD BE PREPARED ON PAVED SURFACES IF ONLY SMALL QUANTITIES ARE REQUIRED (I.E. MINOR REPAIRS);
  - EXCESS CONCRETE MUST BE DISPOSED OFF-SITE AT A LOCATION THAT MEETS ALL REGULATORY REQUIREMENTS;
  - THE WASHING OF CONCRETE TRUCKS AND OTHER EQUIPMENT USED FOR MIXING CONCRETE SHOULD NOT BE CARRIED OUT WITHIN 30 METERS OF A WATERCOURSE OR WETLAND AND SHOULD TAKE PLACE OUTSIDE OF THE WORK SITE;
  - ALL CONCRETE TRUCKS SHOULD COLLECT THEIR WASH WATER AND RECYCLE IT BACK INTO THEIR TRUCKS FOR DISPOSAL OFF-SITE AT A LOCATION MEETING ALL REGULATORY REQUIREMENTS.
- THE CONTRACTOR SHALL ENSURE THAT ALL EXCAVATED SURPLUS MATERIALS THAT WILL BE REQUIRED TO BE DISPOSED OFF-SITE BE STOCKPILED TEMPORARILY FOR SAMPLING PRIOR BEING LOADED OFF-SITE.
- MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
- TRENCHING, BACKFILLING AND COMPACTING MUST CONFORM TO OPSS 401.
- DEWATERING OF PIPELINE, UTILITY AND ASSOCIATED STRUCTURE EXCAVATIONS TO BE COMPLETED AS PER OPSS 617.
- THE CONTRACTOR MUST CONTROL SURFACE RUNOFF FROM PRECIPITATION DURING CONSTRUCTION.
- FOR ALL GEOTECHNICAL WORK, CONTRACTOR TO REFER TO "GEOTECHNICAL INVESTIGATION WEST OF CAMBRIAN ROAD AND GREENBANK ROAD, BARRHAVEN, ONTARIO, BY TORONTO INSPECTION LTD. DATED NOVEMBER 13, 2018"
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION, BACKFILL AND REINSTATEMENT OFF ALL AREAS DISTURBED DURING CONSTRUCTION TO EXISTING CONDITIONS OR BETTER AND ALL ASSOCIATED WORKS TO THE SATISFACTION OF THE CONSULTANT AND MUNICIPAL AUTHORITIES. ASPHALT REINSTATEMENT MUST BE IN ACCORDANCE WITH OPSS 310. LANDSCAPE AREAS TO BE REINSTATED WITH 150 mm OF TOPSOIL AND SOD IN ACCORDANCE WITH OPSS 802 AND OPSS 803.
- DURING THE CONSTRUCTION PERIOD THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAGE, INCLUDING TRAFFIC SIGNS, TRAFFIC MARKINGS AND TEMPORARY TRAFFIC LIGHTS, AND FLAGMEN, AS REQUIRED BY THE OWNER, THE CONSULTANT, THE MUNICIPALITY, THE MTO, AND OTHER GOVERNING AUTHORITIES. CONSTRUCT SIDEWALK EXPANSION JOINTS & CONTROL JOINTS AS PER OPSS 310.020.
- CONSTRUCT CONCRETE SIDEWALK AS PER OPSS 310.020 AND OPSS 351. TACTILE WALKING SURFACE INDICATORS PER OPSS 351.
- DISPOSE OF CONTAMINATED MATERIALS AT APPROPRIATE OFF-SITE FACILITY THAT MEETS ALL REGULATORY REQUIREMENTS.
- BE PREPARED TO INTERCEPT, CLEAN UP, AND DISPOSE OF SPILLS OR RELEASES THAT MAY OCCUR WHETHER ON LAND OR WATER. MAINTAIN MATERIALS AND EQUIPMENT REQUIRED FOR CLEANUP OF SPILLS OR RELEASES READILY ACCESSIBLE ON SITE.
- PROMPTLY REPORT SPILLS AND RELEASES POTENTIALLY CAUSING DAMAGE TO ENVIRONMENT TO: AUTHORITY HAVING JURISDICTION OR INTEREST IN SPILL OR RELEASE INCLUDING CONSERVATION AUTHORITY, WATER SUPPLY AUTHORITIES, DRAINAGE AUTHORITY, ROAD AUTHORITY, AND FIRE DEPARTMENT.
- DECONTAMINATE EQUIPMENT AFTER WORKING IN POTENTIALLY CONTAMINATED WORK AREAS AND PRIOR TO SUBSEQUENT WORK OR TRAVEL ON CLEAN AREAS.
- DO NOT DISCHARGE DECONTAMINATED WATER, OR SURFACE WATER RUNOFF, OR GROUNDWATER WHICH MAY HAVE COME IN CONTACT WITH POTENTIALLY CONTAMINATED MATERIAL, OFF SITE OR TO MUNICIPAL SEWERS.
- CONTRACTOR IS TO SUBMIT A TRAFFIC MANAGEMENT PLAN FOR APPROVAL ONE (1) WEEK PRIOR TO ANY WORK WITHIN THE ROW LIMITS TO MEET THE REQUIREMENTS OF MTO BOOK 7. THE CONTRACTOR WILL BE REQUIRED TO IMPLEMENT ALL REQUIREMENTS OF THE MTO BOOK 7.
- CITY PUBLIC WORKS DEPARTMENT TO BE CONTACTED MINIMUM 7 DAYS PRIOR TO PLANNED DATE FOR CONNECTION TO EXISTING STORM SEWERS, SANITARY SEWERS, AND WATERMAIN. CONNECTION TO EXISTING TO TAKE PLACE IN THE PRESENCE OF APPROPRIATE CITY OF OTTAWA STAFF.

PAVEMENT STRUCTURES			
MATERIAL	LIGHT DUTY	HEAVY DUTY	COMPACTION
SURFACE LAYER : HL3	65 mm	40 mm	≥ 96%*
BASE LAYER : HL8	--	60 mm	≥ 96%*
GRANULAR BASE : OPSS.MUNI 1010 GRANULAR A	150 mm	150 mm	100%**
GRANULAR SUB-BASE : OPSS.MUNI 1010 GRANULAR B	300 mm	450 mm	100%**

\*MINIMUM PAVEMENT COMPACTION BASED ON MARSHALL DENSITY TEST  
\*\*OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY  
SOURCE: GEOTECHNICAL INVESTIGATION, WEST OF CAMBRIAN ROAD AND GREENBANK ROAD, BARRHAVEN, ONTARIO, BY TORONTO INSPECTION LTD, DATED NOVEMBER 13, 2018



# TURNER FLEISCHER

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**TOPOGRAPHIC INFORMATION & BENCHMARK**

SURVEY COMPLETED BY ANNIS, O'SULLIVAN, VOLLEBEK LTD. ON MARCH 28, 2023. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THE CGVD28 GEODETIC DATUM. DERIVED FROM CONTROL MONUMENT NO. 019680071 HAVING AN ELEVATION OF 99.742m.



SUBJECT SITE



**3845 CAMBRIAN RD**

BARRHAVEN, ONTARIO

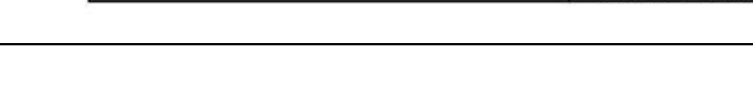
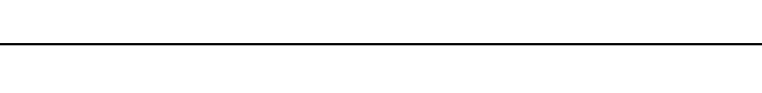
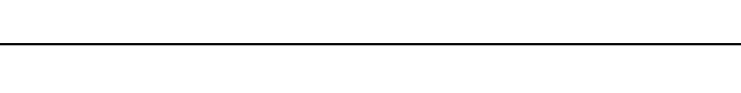
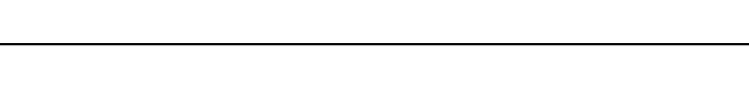
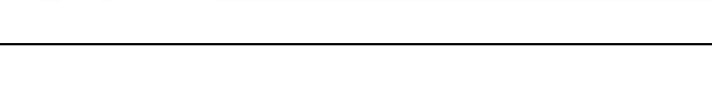
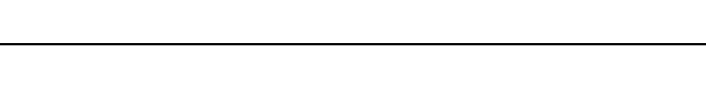
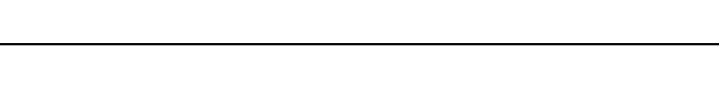
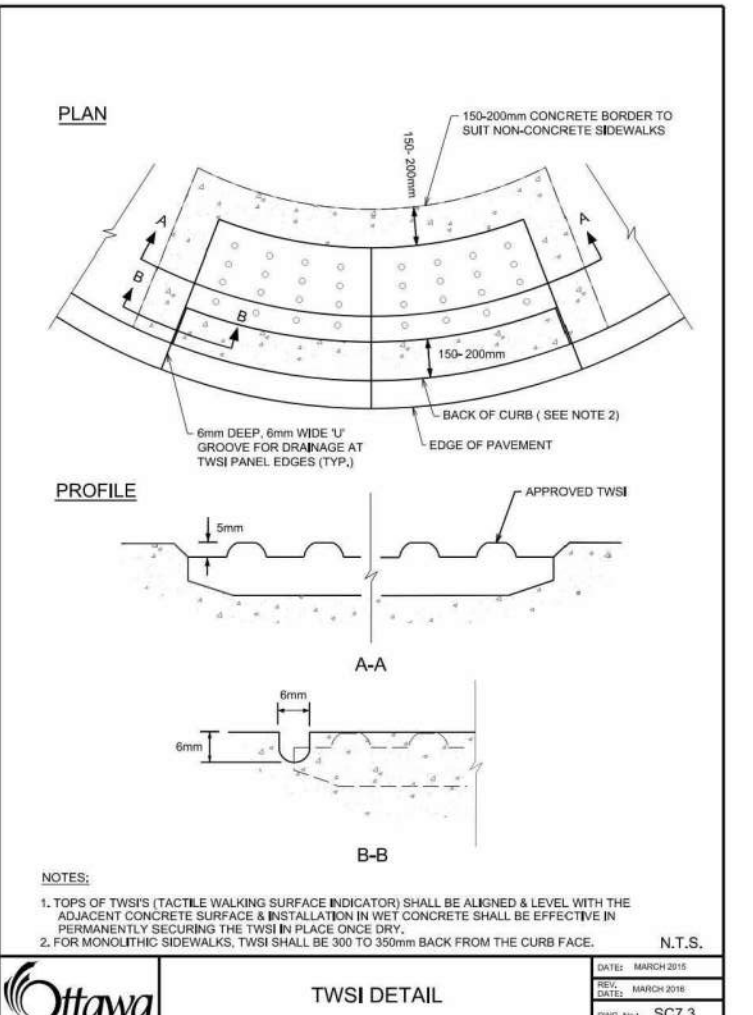
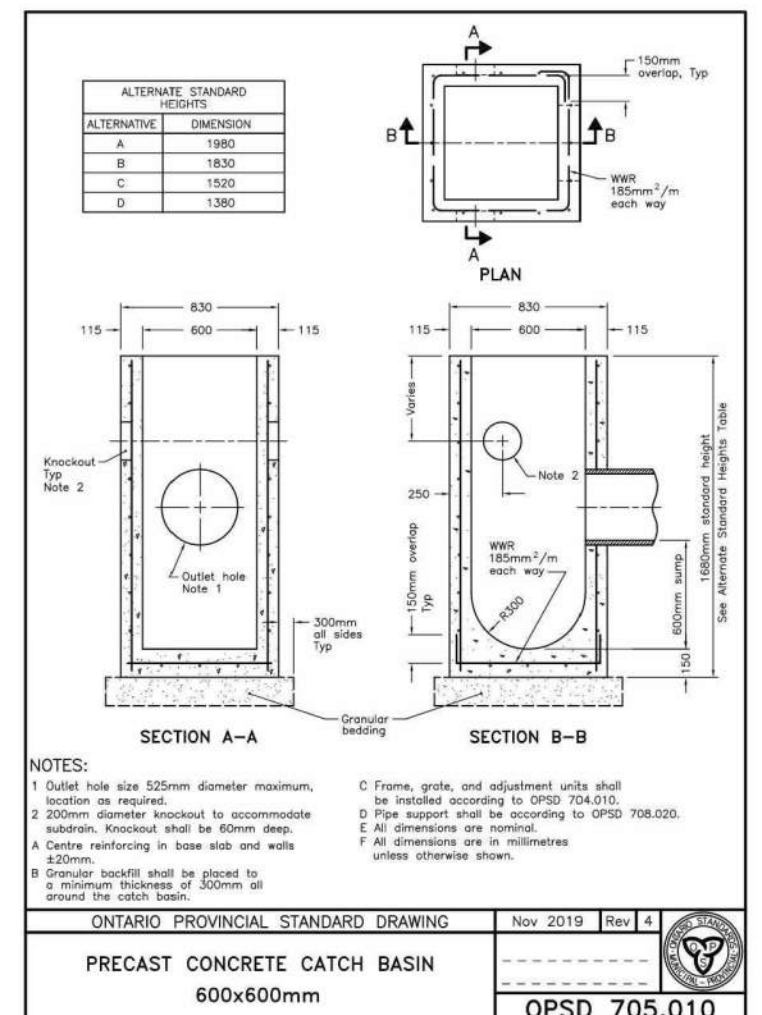
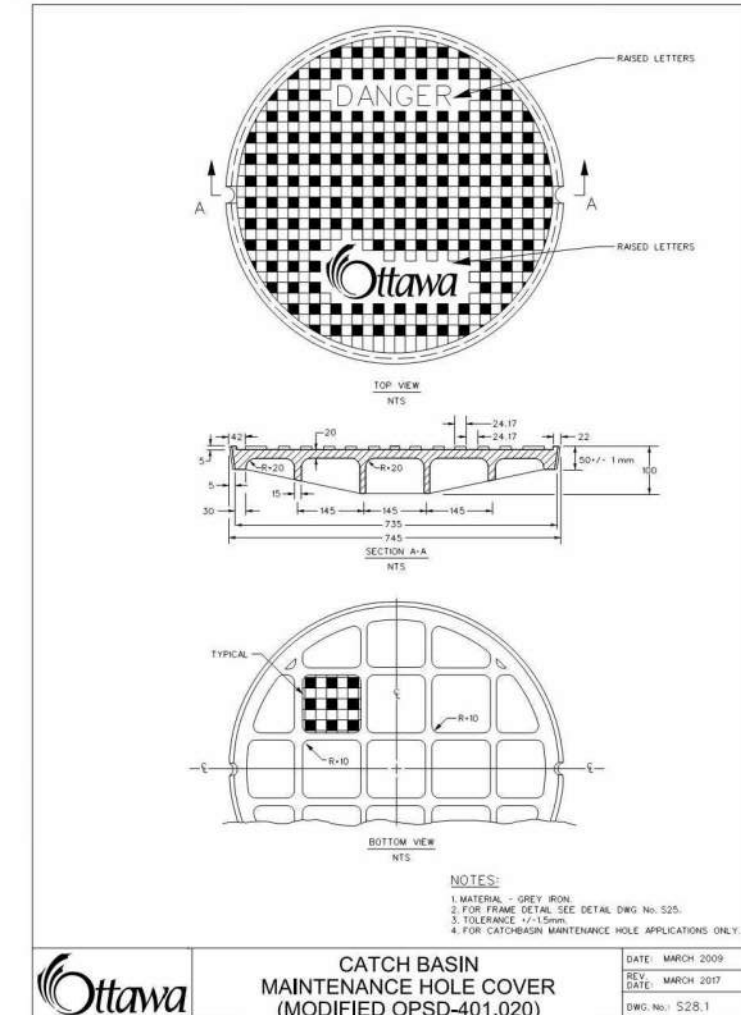
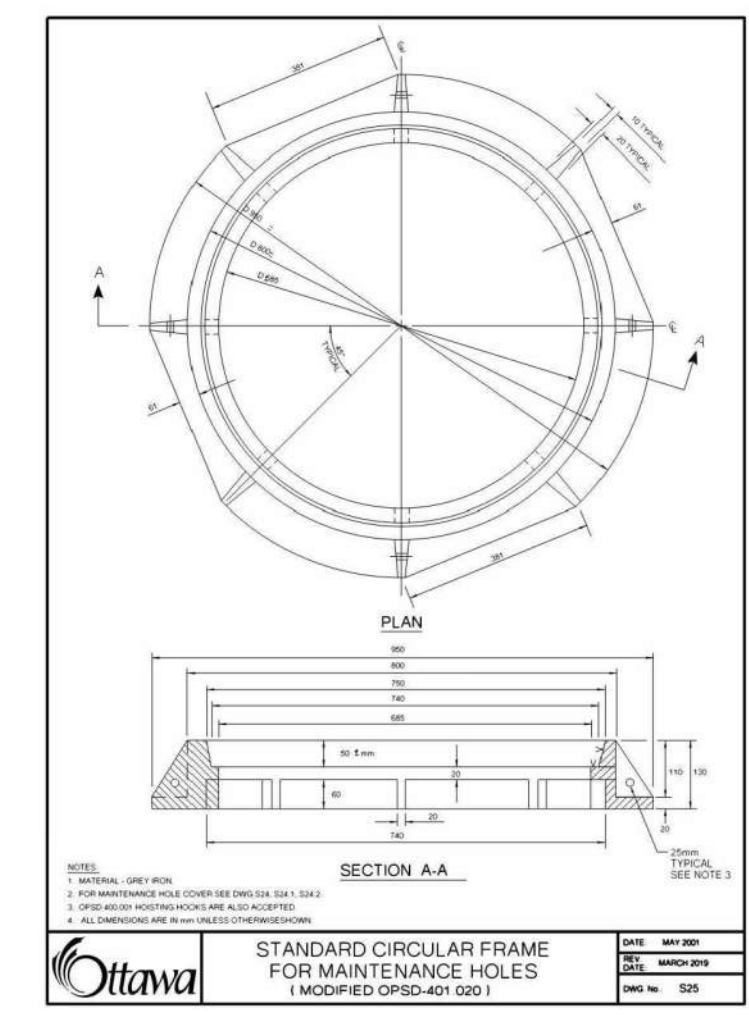
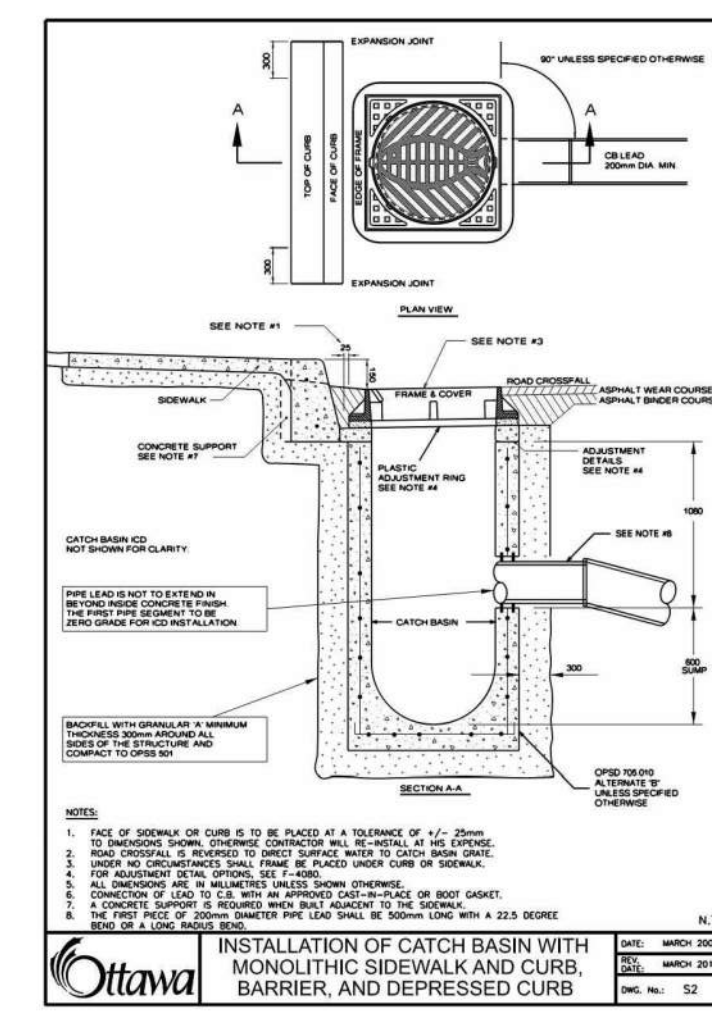
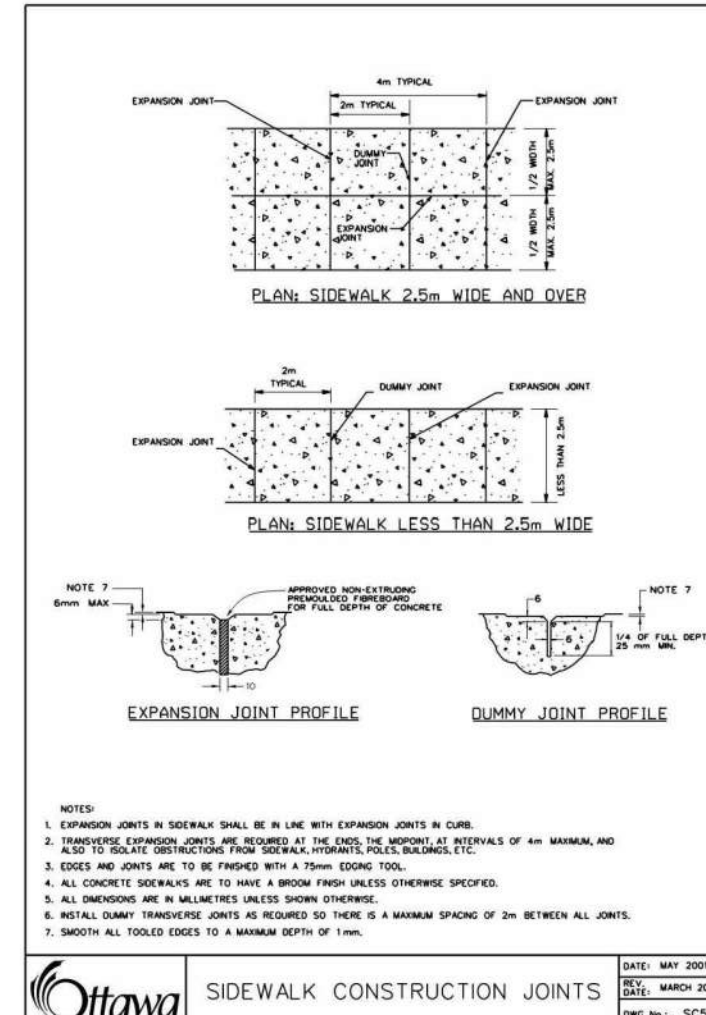
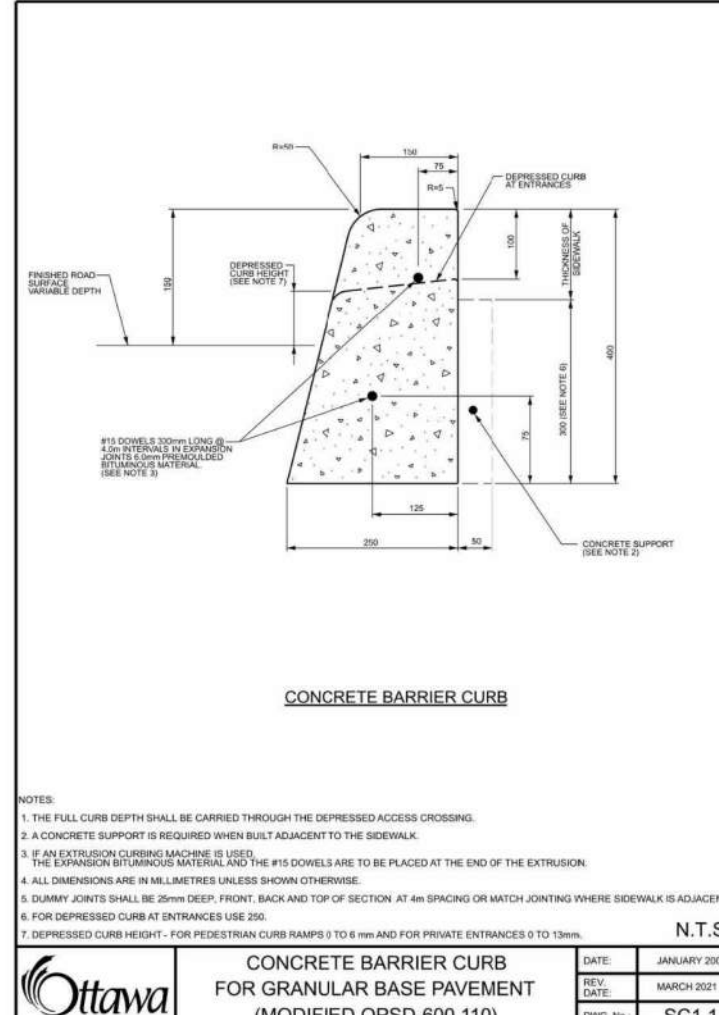
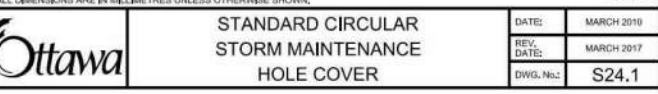
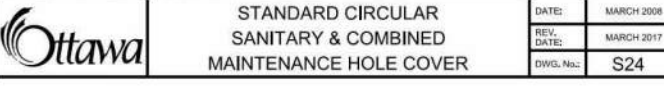
**ULTIMATE GRADING PLAN**

PROJECT NO.  
478575  
PROJECT DATE  
2023-02-27  
DRAWN BY  
BV  
CHECKED BY  
MT  
SCALE  
As indicated



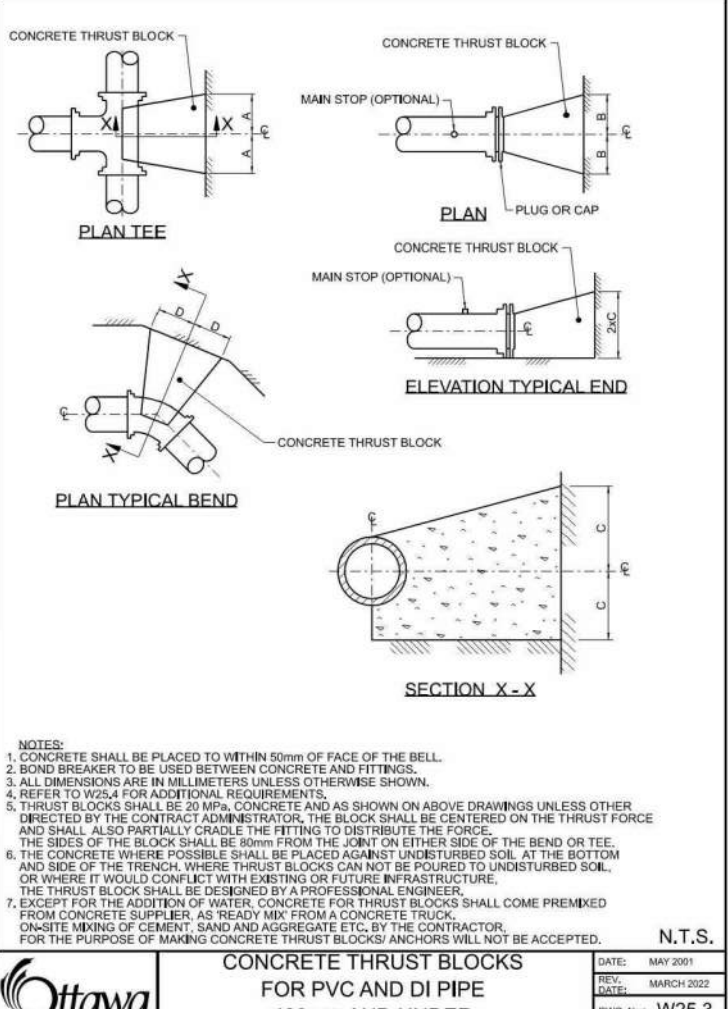
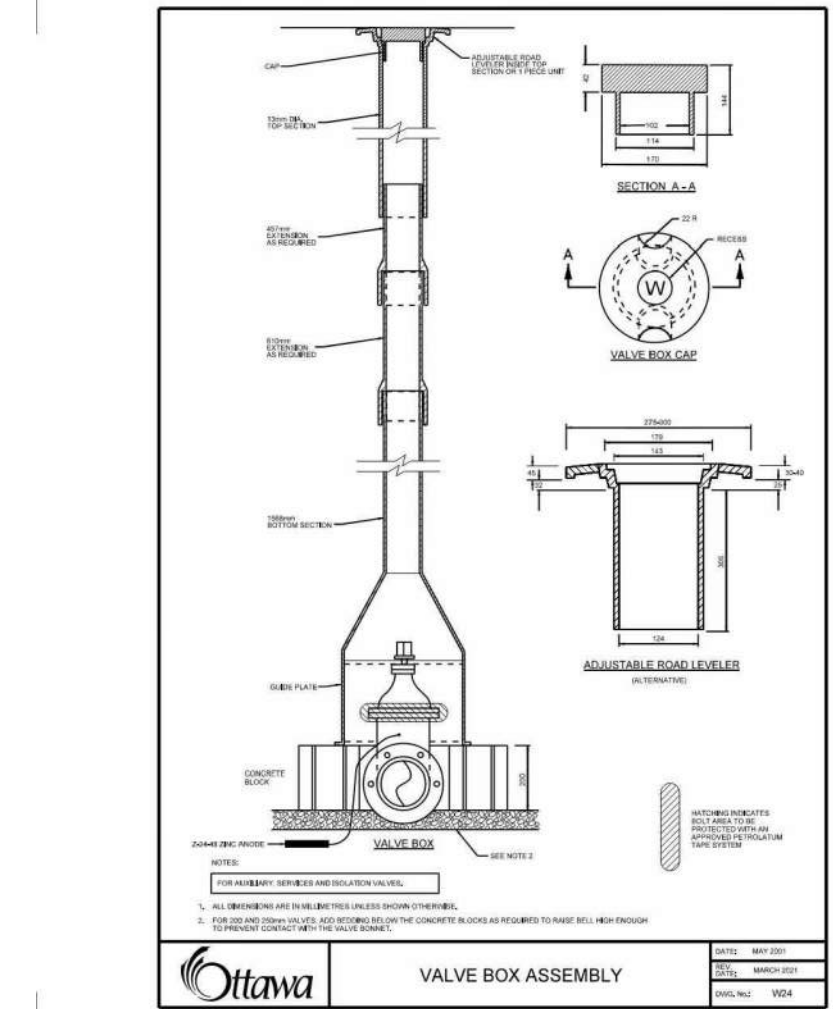
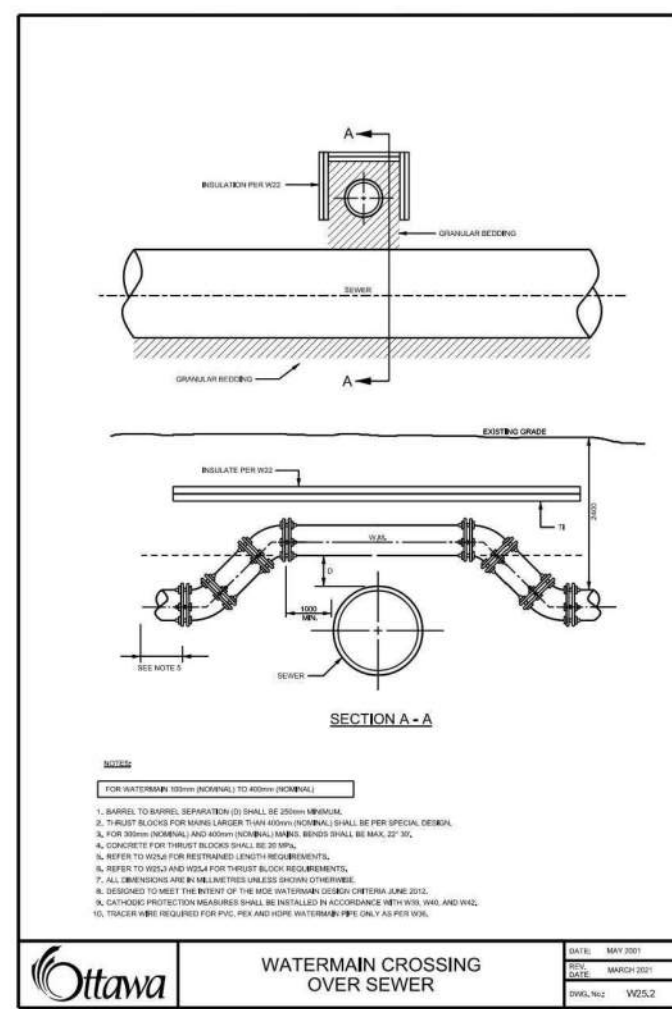
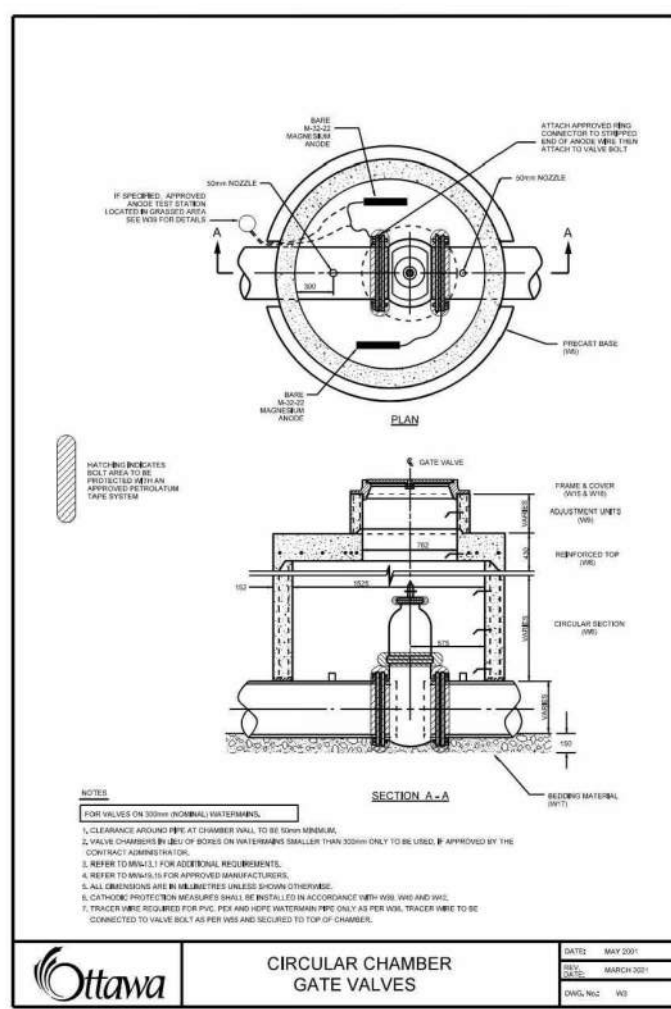
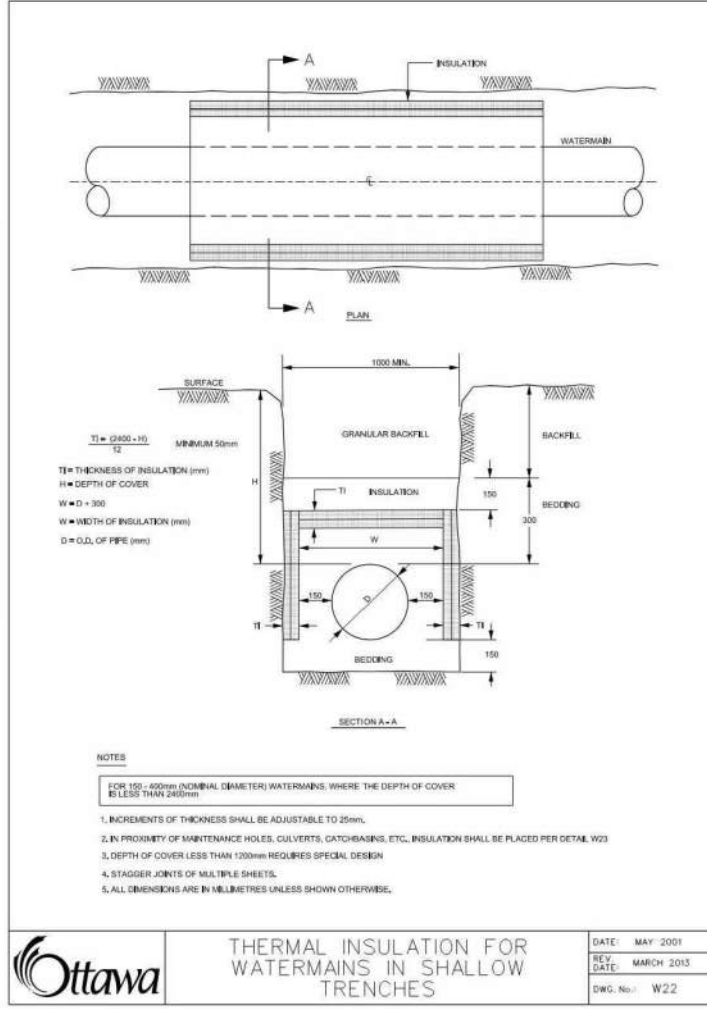
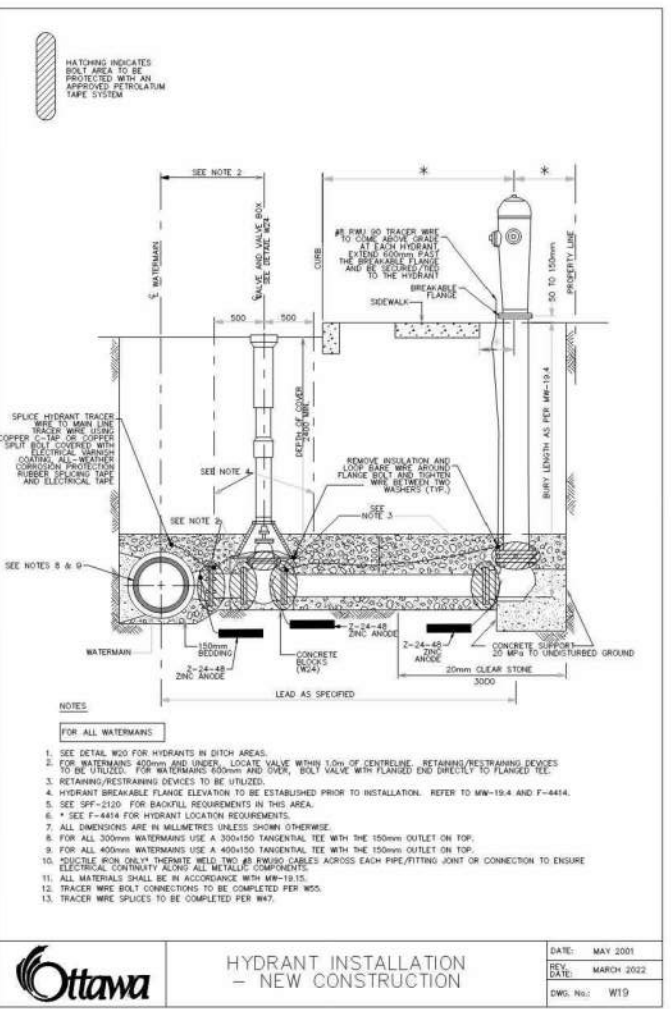
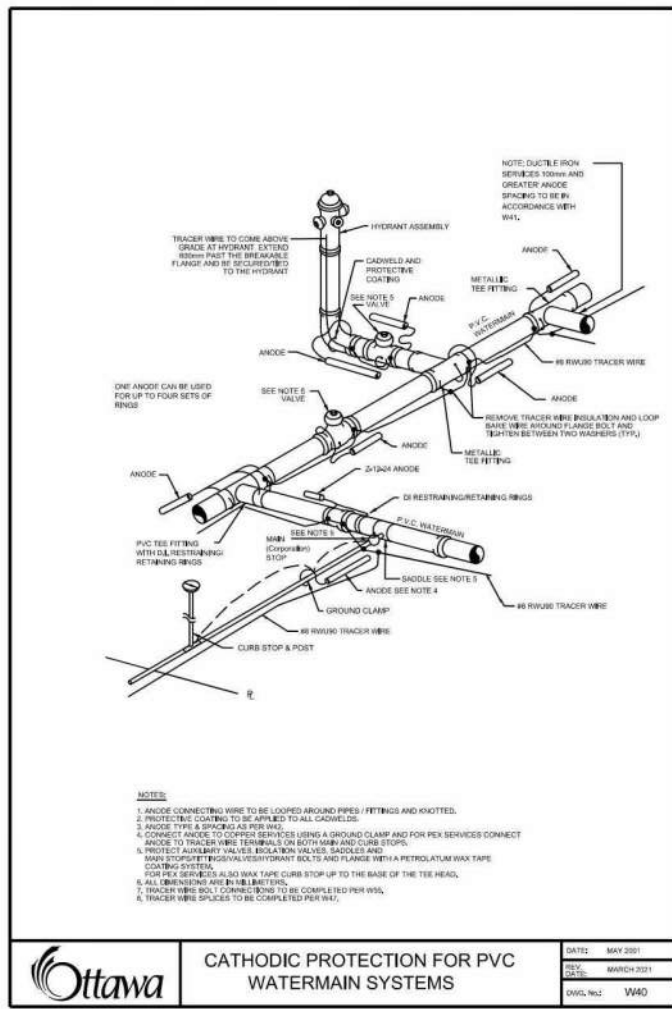
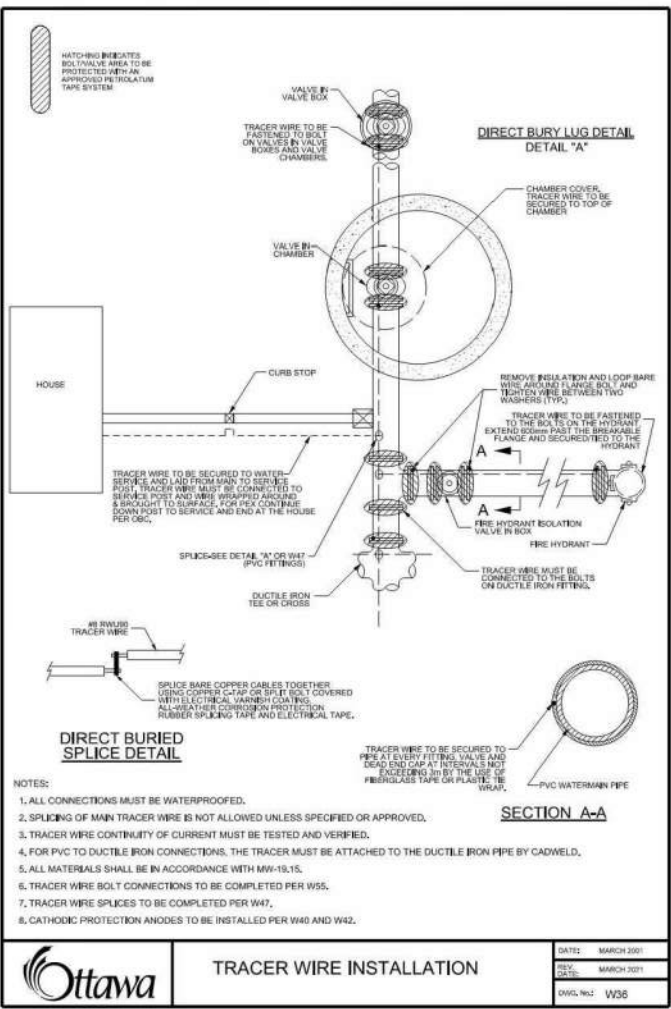
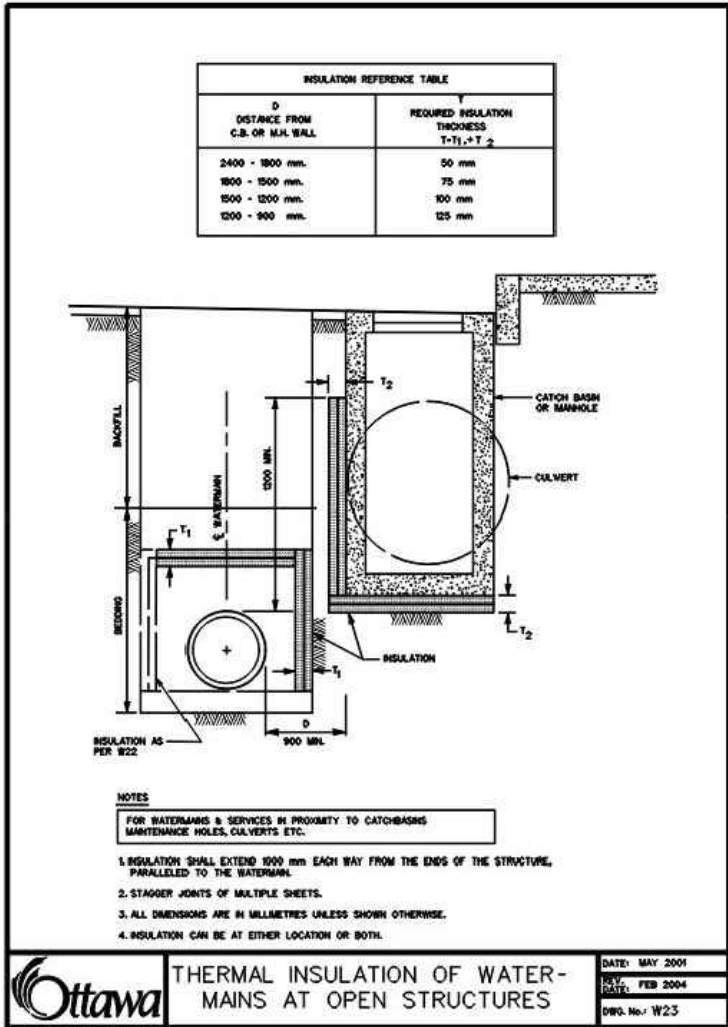
DRAWING NO.  
**C103A**  
REV.





DRAWING NO.  
**C104**





1. SOLE DESCRIPTION: VERY FINE SANDS, SANDY CLAYE, CLAYE.				
SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 200 KPa.				
PIPE DIAMETER	A	B	C	D
100mm	200	200	200	200
150mm	300	300	300	300
200mm	400	400	400	400
250mm	500	500	500	500
300mm	600	600	600	600
350mm	700	700	700	700
400mm	800	800	800	800

2. SOLE DESCRIPTION: FINE TO MEDIUM SANDS OR CLAYE SAND GRAVEL.				
SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 300 KPa.				
PIPE DIAMETER	A	B	C	D
100mm	200	200	200	200
150mm	300	300	300	300
200mm	400	400	400	400
250mm	500	500	500	500
300mm	600	600	600	600
350mm	700	700	700	700
400mm	800	800	800	800

3. SOLE DESCRIPTION: FINE TO MEDIUM SANDS, GRAVELS AND GRAVELS-SAND MIXTURES.				
SOILS WITH TYPICAL BEARING STRENGTH OF 300 TO 400 KPa.				
PIPE DIAMETER	A	B	C	D
100mm	200	200	200	200
150mm	300	300	300	300
200mm	400	400	400	400
250mm	500	500	500	500
300mm	600	600	600	600
350mm	700	700	700	700
400mm	800	800	800	800

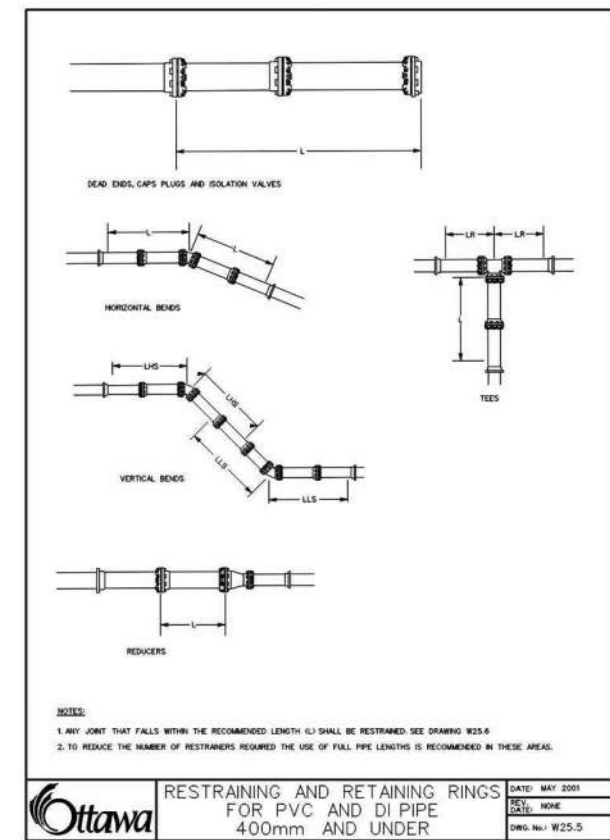
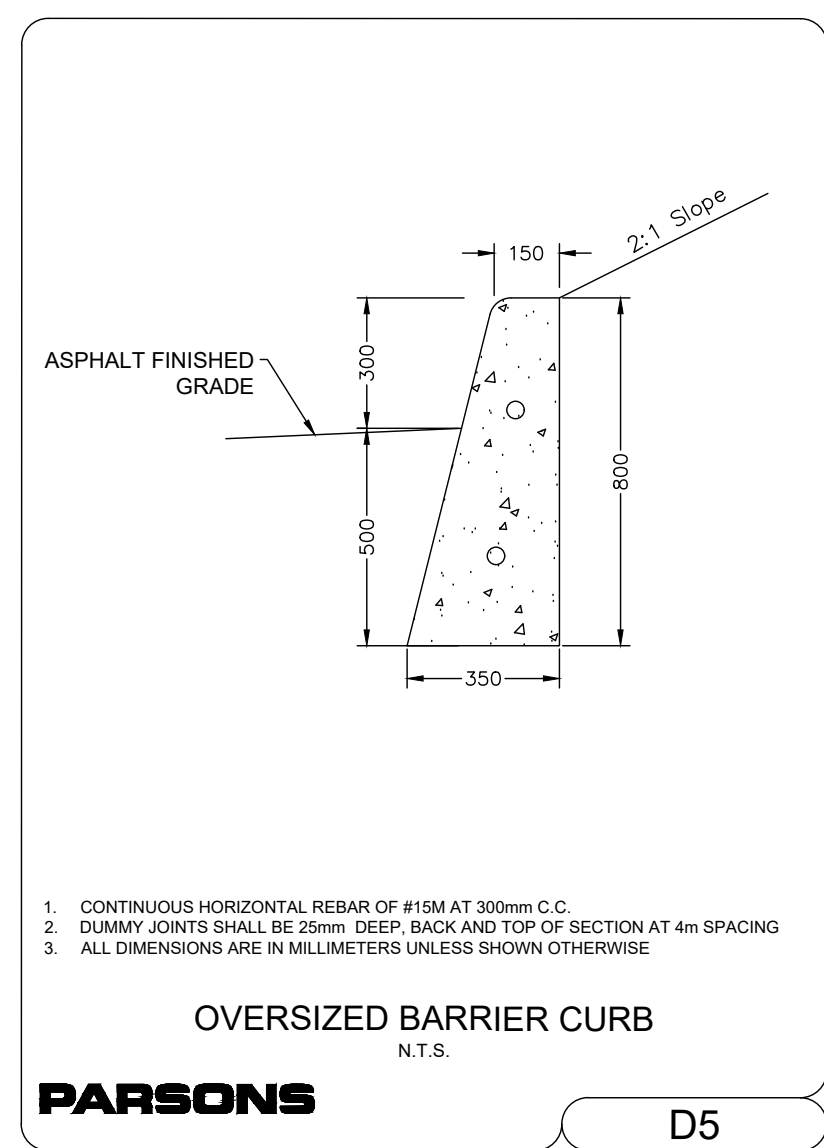
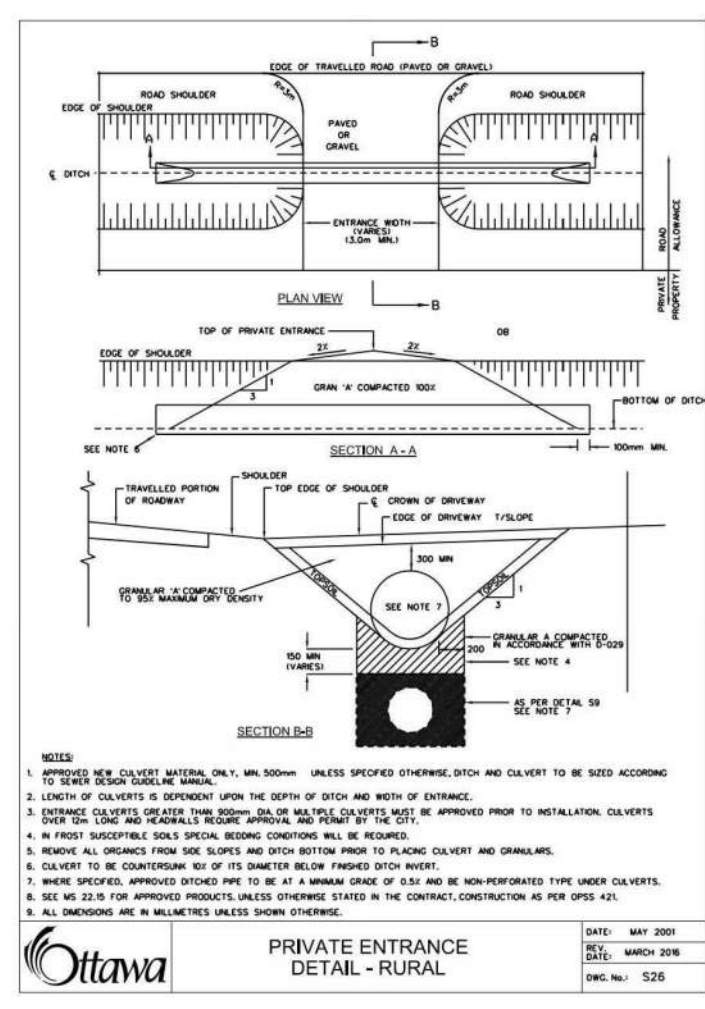


TABLE OF RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN (PER STANDARD)									
RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN (PER STANDARD)									
RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN (PER STANDARD)									
RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN (PER STANDARD)									
RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN (PER STANDARD)									



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## PARSONS

1223 MICHAEL STREET, SUITE 100, OTTAWA, ONTARIO K1J 1T2  
Tel: 613-738-4160 Fax: 613-739-7105



4	2025-11-26	RE-ISSUED FOR SPA	BV
3	2025-03-13	RE-ISSUED FOR SPA	BV
2	2025-10-23	RE-ISSUED FOR SPA	BV
1	2025-05-01	ISSUED FOR SPA	BV
#	DATE	DESCRIPTION	BY

## Loblaw Companies Limited

**PROJECT**

**3845 CAMBRIAN RD**

BARRHAVEN, ONTARIO

**DRAWING**

**DETAIL PAGE 2**

PROJECT NO.  
478575

PROJECT DATE  
2023-02-27

DRAWN BY  
BV

CHECKED BY  
MT

SCALE  
As indicated

DATE  
2025-11-26

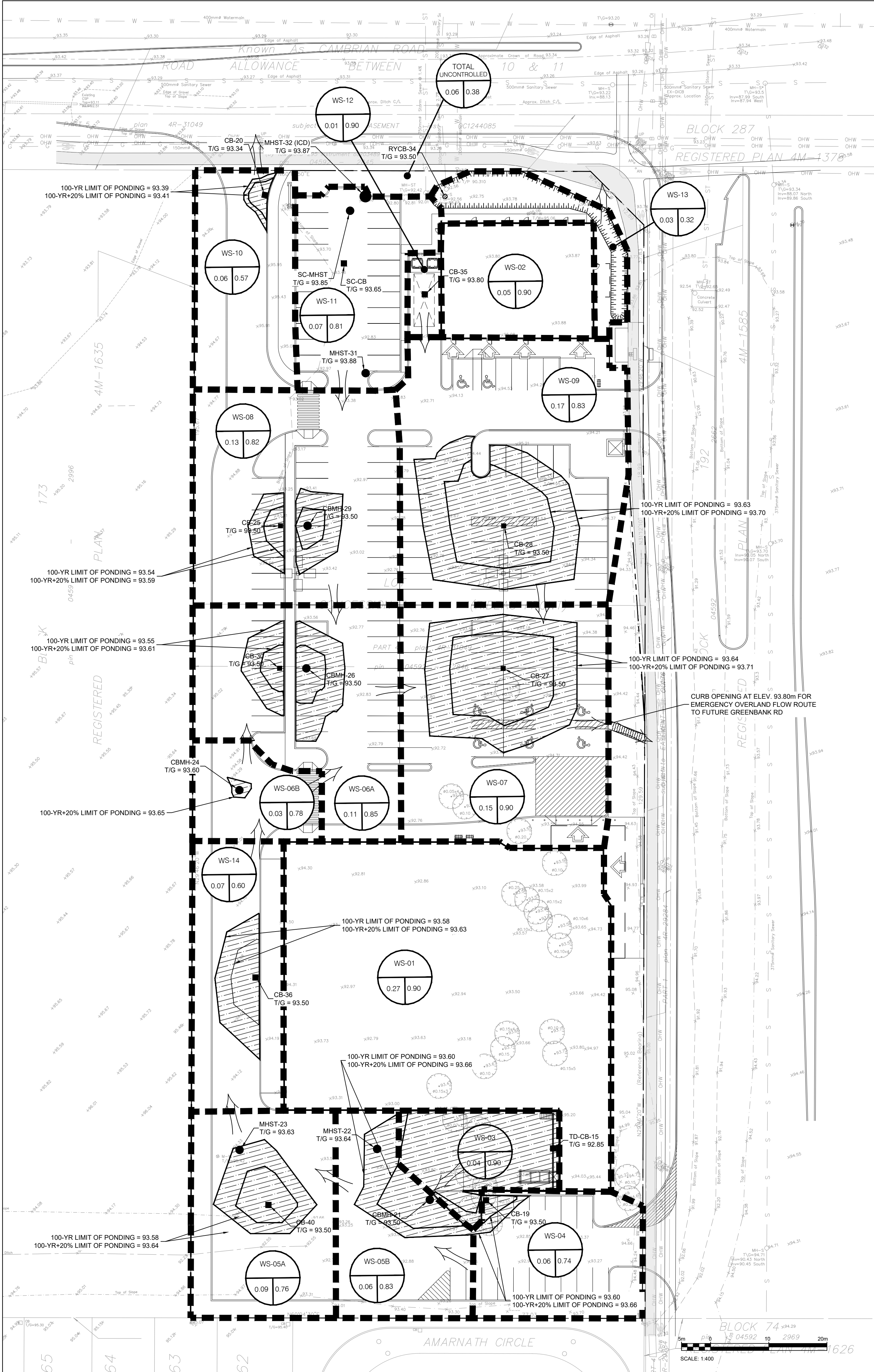
PROVINCE OF ONTARIO

DRAWING NO.  
**C105**

REV.

#18623 2024-12-23-0008





**LEGEND:**

- WATERSHED BOUNDARY
- WS-XX WATERSHED NAME
- 0.61 0.90 RUNOFF COEFFICIENT
- AREA IN HECTARES
- ⇒ MAJOR OVERLAND FLOW ROUTE

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PARSONS

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4	2025-11-26	RE-ISSUED FOR SPA	BV
3	2025-03-13	RE-ISSUED FOR SPA	BV
2	2023-10-23	RE-ISSUED FOR SPA	BV
1	2023-05-01	ISSUED FOR SPA	BV
#	DATE	DESCRIPTION	BY

Loblaw Companies Limited

PROJECT

3845 CAMBRIAN RD

BARRHAVEN, ONTARIO

DRAWING

POST-DEVELOPMENT DRAINAGE AREAS & PONDING PLAN

PROJECT NO.  
478575

PROJECT DATE  
2023-02-27

DRAWN BY  
BV

CHECKED BY  
MT

SCALE  
As indicated

LICENSED PROFESSIONAL ENGINEER  
B. VILLENEUVE  
100553987  
2025-11-26  
PROVINCE OF ONTARIO

DRAWING NO.  
C106

REV.

#18953 007-12-23-0058