

LEGEND:

- EXISTING PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING V&VB
- EXISTING VALVE CHAMBER
- EXISTING SANITARY SEWER AND MAINTENANCE HOLE
- EXISTING STORM SEWER AND MAINTENANCE HOLE
- EXISTING GRADE
- EXISTING OVERHEAD HYDRO
- EXISTING GAS
- EXISTING BELL
- 4m x 10m CONSTRUCTION MUD MAT
- PROPOSED SILT FENCE AS PER OPSD 219.110
- ⊗ SILT SACK PER DETAIL D1
- ⊗ STRUCTURE TO BE REMOVED

EROSION AND SEDIMENT CONTROL MEASURES:

- CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION 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 IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- SEDIMENT AND EROSION CONTROL PLAN OBJECTIVES:
- PREVENT SOIL EROSION. THIS CAN RESULT FROM STREAMING RAIN WATER OR WIND EROSION DURING CONSTRUCTION.
- PREVENT SEDIMENT DEPOSITS IN THE SEWER PIPES AND NEARBY COLLECTING STREAMS (AS APPLICABLE).
- PREVENT AIR POLLUTION FROM PARTICULATE MATTER AND DUST.

1. PRIOR TO START OF CONSTRUCTION:

- PRIOR TO THE REMOVAL OF ANY VEGETATIVE COVER, MOVING OF SOIL AND CONSTRUCTION:
- INSTALL SILT FENCE (AS PER OPSD 219.110) ALONG DITCHES IMMEDIATELY DOWNSTREAM FROM AREAS TO BE DISTURBED (SEE PLAN FOR LOCATION).
- INSTALL FILTER CLOTH ON DOWNSTREAM MANHOLE COVERS.
- INSTALL SILTSACK FILTERS IN ALL CONCRETE CATCH BASINS STRUCTURES.
- INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
- THE CONTRACTOR MUST SET UP THE MEASURES INDICATED ON THE PLAN, INSPECT THEM FREQUENTLY AND CLEAN AND REPAIR OR REPLACE THE DETERIORATED STRUCTURES. AT THE END OF THE CONSTRUCTION PERIOD, THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF THE TEMPORARY STRUCTURES AND RECONDITIONING THE AFFECTED AREAS

2. DURING CONSTRUCTION:

- SEDIMENT AND EROSION CONTROL MEASURES TO BE CONSTRUCTED AS PER OPSD 506
- WHEN SEDIMENT AND EROSION CONTROL MEASURES MUST BE REMOVED TO COMPLETE A PORTION OF THE WORK, THE SAME MEASURES MUST BE REINSTATED UPON THE WORK'S COMPLETION.
- WORK TO BE DONE IN THE VICINITY OF MAJOR WATERWAYS TO 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 REHABILITATED SHORTLY.
- INSPECT STRAW BALE FLOW CHECK DAMS, SILT FENCES, SILT SACKS, AND CATCH BASIN SUMPS REGULARLY AND AFTER 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. ALL 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/OR STREAMING RAIN 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 (TYPE I - OPSD 2501 AND CANCOSB-15-1) AND WATER WITH EQUIPMENT APPROVED BY THE OWNER'S REPRESENTATIVE AT RATE IN ACCORDANCE TO OPSD 506 WHEN DIRECTED BY OWNER'S REPRESENTATIVE.
- ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING 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 SCRAPPED.
- ANY MUD/MATERIAL 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 SPILLED OR TRACKED ONTO ADJACENT PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
- PROVIDE GRAVEL ENTRANCE WHEREVER EQUIPMENT LEAVES THE SITE TO PROVIDE MUD TRACKING ONTO PAVED SURFACES. GRAVEL BED SHALL BE A MINIMUM OF 10m LONG, 4m WIDE, AND 0.15m DEEP AND SHALL CONSIST OF COARSE MATERIAL. MAINTAIN GRAVEL ENTRANCE IN CLEAN CONDITION.

3. AFTER CONSTRUCTION:

- 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.

NOTES: REMOVALS AND DEMOLITION

1. PRE-REMOVAL, 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 EVALUATION OF THE WORK TO BE COMPLETED.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND THE REQUEST FOR INTERRUPTION OF PUBLIC UTILITY SERVICES, SUCH AS GAS, TELEPHONE, POWER, CABLE, SEWERS, WATERMAIN, ETC. BEFORE PROCEEDING WITH WORK, COORDINATE WITH ALL APPLICABLE UTILITY COMPANIES.
3. FIRE HYDRANTS TO BE TAGGED AND BAGGED AND/OR PROTECTED AS INDICATED ON DRAWING.
4. CURBS, ASPHALT, SIDEWALK, AND GRANULAR BASE TO BE EXCAVATED WITHIN LIMITS OF DEMOLITION REMOVAL. THE CONTRACTOR MUST CARRY OUT NECESSARY SAW CUTS.
5. SEWER / WATERMAIN PIPES TO BE ABANDONED MUST BE CUT, FILL WITH UNSHRINKABLE CONCRETE CONFORMING TO OPSD 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 MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE (MOECC).
 - a. THE CONTRACTOR MUST DISCARD RECYCLABLE DEMOLITION MATERIALS IN COLLABORATION WITH A REGIONAL RECYCLING COMPANY.
 - b. ALL DEMOLITION MATERIALS MUST BE DISPOSED OFF-SITE AT AUTHORIZED LICENSED LANDFILLS AND IN CONFORMITY 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.
8. SURFACES 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.
9. ALL MATERIALS, PRODUCTS AND OTHERS COMING FROM THE DEMOLITION BELONG TO THE CONTRACTOR, UNLESS SPECIFIED OTHERWISE.
10. THE CONTRACTOR MUST COMPLETE ALL REMOVALS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO MAKE THE WORK COMPLETE.
11. THE CONTRACTOR MUST PROTECT AND MAINTAIN IN SERVICE THE EXISTING WORKS 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 EXPENSE TO THE OWNER.
12. THE CONTRACTOR MUST NOT PERFORM ANY TREE CUTTING DURING THE CORE MIGRATORY BIRDS NESTING PERIOD, WHICH IS APRIL 15 TO AUGUST 15.

TURNER FLEISCHER
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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. 019680071 HAVING AN ELEVATION OF 99.742m.

#	DATE	ISSUED FOR	DESCRIPTION	BY
1	2023-05-01	ISSUED FOR SPA		BY

Loblaw Companies Limited

PROJECT
 3845 CAMBRIAN RD
 BARRHAVEN, ONTARIO

EROSION/SEDIMENT CONTROL & REMOVALS PLAN

PROJECT NO. 478575	PROJECT DATE 2023-02-27
DRAWN BY BY	CHECKED BY MT
SCALE As indicated	DATE 2023-05-01



DRAWING NO. C101	REV. 1
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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. 019680071 HAVING AN ELEVATION OF 99.74m.

NOTES: SEWER

- 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.
- ALL WORK SHALL BE PERFORMED, AS APPLICABLE IN ACCORDANCE WITH OPSS 407, 408 AND 410.
- ALL STORM AND SANITARY SEWERS INSTALLED BELOW THE GROUNDWATER TABLE ELEVATION (92.20m) SHALL BE WATERTIGHT AND INFILTRATION TESTS SHALL BE CARRIED OUT ACCORDING TO OPSS MUNI 410.
- CLAY SEALS SHALL BE ACCORDING CITY OF OTTAWA STD DETAIL S8 AND EXTENDED AT LEAST 1.0m ABOVE THE GROUNDWATER TABLE ELEVATION. PIPE MATERIAL TO BE PVC SDR-35 AND CONFORMING TO OPSS 1941, UNLESS INDICATED OTHERWISE. PVC SEWERS TO BE INSTALLED PER OPSS 802.010 (MODIFIED). BEDDING AND COVER MATERIALS TO BE OPSS 1010 GRANULAR 'A' CRUSHER-RUN LIMESTONE BEDDING COMPACTED TO 95% SPMD.
- ALL SEWERS WITH LESS THAN 1.5 METERS OF COVER ARE SUBJECT TO INSULATION PER CITY OF OTTAWA STD DETAIL S35.
- PIPE BACKFILL MATERIAL TO BE APPROVED NATIVE MATERIAL OR SELECT SUBGRADE MATERIAL IN CONFORMANCE WITH OPSS 212.
- 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.
- ALL CATCH BASINS TO BE 600x600mm AS PER OPSS 705.010, UNLESS INDICATED OTHERWISE. CATCH BASINS TO BE INSTALLED PER OPSS 407.
- EXCAVATING, BACKFILLING, AND COMPACTING REQUIRED FOR MAINTENANCE HOLES, CATCH BASIN MAINTENANCE HOLES, AND CATCH BASINS TO BE COMPLETED AS PER OPSS 402. THEY ARE TO BE BACKFILLED WITH OPSS GRANULAR 'B' COMPACTED TO 98% SPMD. JOINTS BETWEEN SECTIONS TO BE WRAPPED WITH NON-WOVEN GEOTEXTILE.
- FOR SANITARY STRUCTURES: CAST IRON MAINTENANCE HOLE COVER AS PER OPSS 401.010 TYPE 'A'.
- FOR STORM 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.
- SANITARY MAINTENANCE HOLES REQUIRE BENCHING AS PER OPSS 701.021.
- THE CONTRACTOR IS RESPONSIBLE FOR MAKING 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.
- ADVISE THE CITY PUBLIC WORKS AT LEAST 72 HOURS IN ADVANCE BEFORE ANY CONNECTION TO THE CITY SERVICES. CO-ORDINATE WITH CITY AS REQUIRED.
- TERMINATE AND PLUG ALL SERVICE CONNECTIONS AT 1.0 m FROM EDGE OF THE BUILDING.
- ALL SEWERS 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.

NOTES: WATERMAIN

- 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 CITY OF OTTAWA DETAIL W22.
- WATERMAIN PIPE MATERIALS TO BE CLASS PVC DR-18, OR APPROVED EQUIVALENT, UNLESS INDICATED OTHERWISE.
- WATERMAIN TO BE CONSTRUCTED AS PER OPSS 441 AND OPSS 802.010. WATERMAIN BEDDING AND COVER MATERIAL TO BE OPSS 1010 GRANULAR 'A' CRUSHER-RUN LIMESTONE COMPACTED TO 95% SPMD.
- A CONTINUOUS 12 GAUGE COPPER TRACER WIRE MUST BE INSTALLED OVER ALL WATERMANS. TRACER WIRE SHALL BE TIED TO ALL FIRE HYDRANTS.
- INSTALLATION OF A WATERMAIN PIPE CROSSING A SEWER PIPE SHALL BE AS PER CITY OF OTTAWA DETAILS W25 AND W25.2.
- 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.
- CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS AS PER OPSS 1109.011.
- THRUST BLOCKS AND RESTRAINING AS PER OPSS 1103.010 AND OPSS 1103.020.
- HYDRANT INSTALLATION AS PER OPSS 1105.010 AND OPSS 441. HYDRANT TO COMPLY WITH AWWA C552.
 - HYDRANTS MUST HAVE THREE EXITS (TWO 65.5 mm AND ONE 100.0 mm 'STORZ' OF STAINLESS STEEL) WITHOUT DRAIN. FIRE HYDRANTS MUST BE INSTALLED SUCH THAT THE 'STORZ' EXIT POINTS TOWARDS THE BUILDING IT WILL SERVICE. THE CONTRACTOR MUST ENSURE THAT THE BREAKAWAY FLANGE IS LOCATED ABOVE THE FINISHED GROUND (APPROXIMATELY 150 mm).
 - FIRE FLOW TESTS FOLLOWED BY COLOUR CODING OF HYDRANTS (AS PER NFPA-291) SHALL BE CARRIED OUT PRIOR TO SUBSTANTIAL COMPLETION OF THE WORK.
- WATERMAIN AND HYDRANT CONTROL VALVES IN THE 100 - 300 mm RANGE WILL BE RESILIENT SEATING GATE VALVES (AWWA C509) WITH MECHANICAL JOINT CONNECTIONS. VALVES WILL OPERATE COUNTER-CLOCKWISE TO OPEN WITH A NON-RISING STEM. VALVES WILL BE COMPLETE WITH THE STANDARD AWWA 59 mm OPERATING NUT. VALVES TO BE INSTALLED AS PER OPSS 441.
- PIPE FITTINGS (BENDS, TEES, CROSSES, REDUCERS, ETC.) WILL BE MECHANICAL JOINT (AWWA C-11) WITH CEMENT MORTAR LINING (AWWA C-104).
- COUPLERS MUST BE COMPRESSION TYPE WITH MINIMUM PRESSURE RATING OF 1035 kPa. COUPLERS MUST BE MUELLER 11-12940.
- VALVE BOXES MUST BE COMPLETE (FULLY METALLIC) 3 PIECE SLIDING TYPE WITH GUIDE PLATES.
- WATERMANS MUST BE THOROUGHLY FLUSHED AND CLEANED TO REMOVE ALL DIRT AND DEBRIS PRIOR TO THE DISINFECTION PROCESS.
- ALL WATERMANS SHALL BE HYDROSTATICALLY AND BACTERIOLOGICALLY TESTED AS PER PROVINCIAL AND MUNICIPAL REGULATIONS. 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. DISINFECTION MUST BE PERFORMED BY THE CONTRACTOR USING METHODS APPROVED BY THE CITY AND IN ACCORDANCE WITH MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE GUIDELINES. DOSAGE MUST BE 100 ppm WITH A MINIMUM RESIDUAL OF 25 ppm AFTER 24 HOURS. DISINFECTANT MUST BE SUPPLIED BY THE CONTRACTOR AND MUST BE ANSI APPROVED. TESTING AND TEST RESULTS MUST BE WITNESSED BY CITY PERSONNEL.
- ALL DISINFECTANT WATER IS TO BE REMOVED FROM THE NEW WATERMANS AND REPLACED WITH DISTRIBUTION SYSTEM WATER PRIOR TO PRESSURE TESTING OF THE WATERMAIN.
- PRESSURE TESTING OF ALL WATERMANS AND APPURTENANCES INSTALLED BY THE CONTRACTOR MUST BE PERFORMED BY THE CONTRACTOR USING METHODS MEETING THE APPROVAL OF THE CITY. TESTING AND RESULTS MUST BE WITNESSED BY CITY PERSONNEL.
- MAINS AND SERVICES MUST BE PRESSURE TESTED AT 1035 kPa (150 psi) IN ACCORDANCE WITH AWWA C-600-82 (MINIMUM REQUIREMENT).
- LEAKAGE TESTS MUST BE CONDUCTED AS PER AWWA C-600-82 (MINIMUM REQUIREMENT).
- ONCE THE DISINFECTION AND PRESSURE TESTING RESULTS HAVE BEEN APPROVED, THE CONTRACTOR MUST ENSURE THAT ALL WATERMAIN PIPES ARE FLUSHED UNTIL THE CHLORINE LEVEL IN THE WATER IS SIMILAR TO THE LEVEL OF CHLORINE IN THE MUNICIPAL WATERMAIN NETWORK IN THE AREA.
- BACTERIOLOGICAL TESTING MUST CONSIST OF TWO SAMPLINGS TWENTY FOUR HOURS APART. IF BACTERIOLOGICAL SAMPLES ARE SATISFACTORY THE WATERMAIN MAY BE PLACED ON LINE.
- ALL WATERMAIN VALVES TO BE OPERATED BY THE CITY OF OTTAWA ONLY.

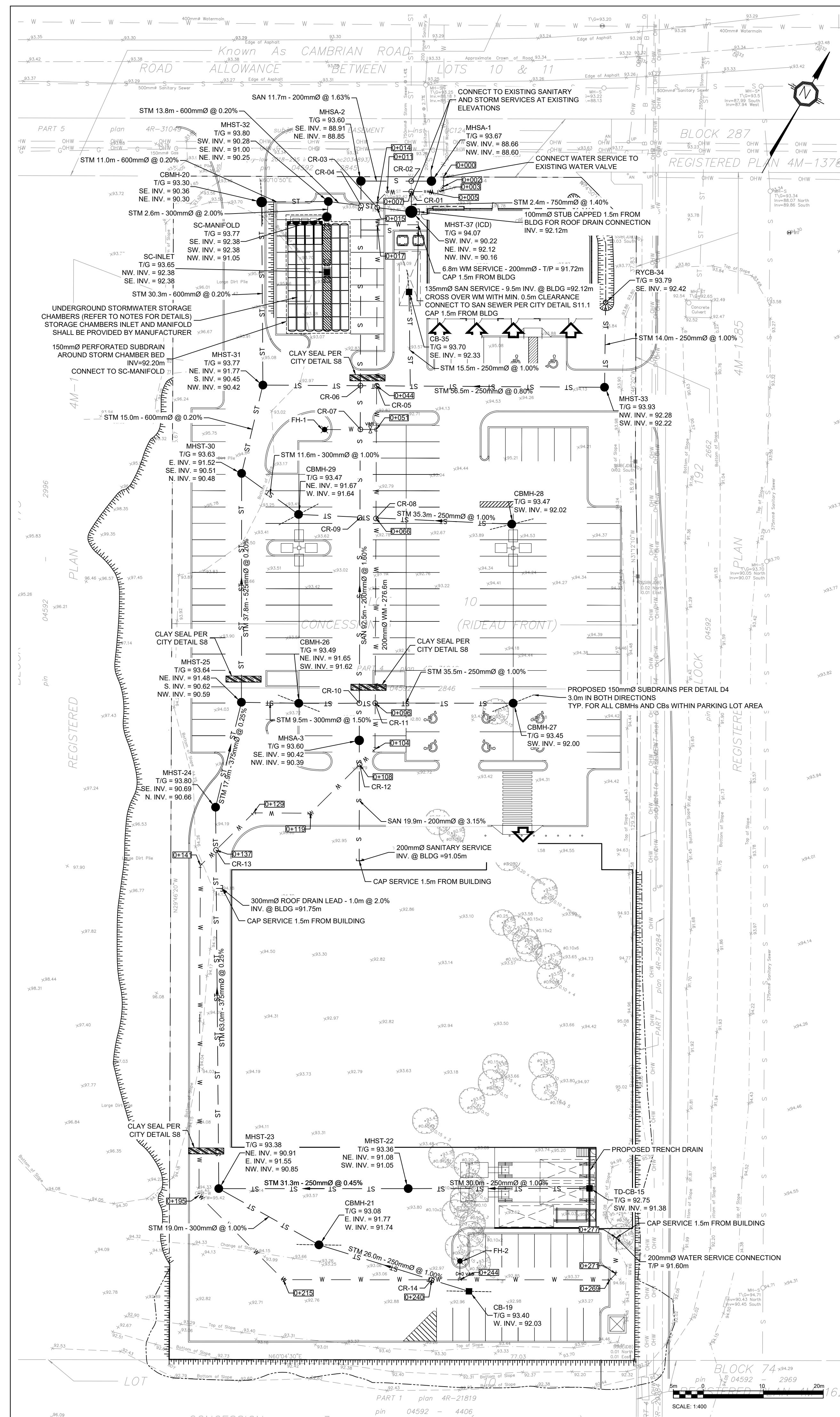
LEGEND:

- EXISTING PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING V&VB
- EXISTING VALVE CHAMBER
- PROPOSED WATERMAIN
- PROPOSED FIRE HYDRANT PER CITY STD DWG W19
- PROPOSED V&VB
- EXISTING SANITARY SEWER AND MAINTENANCE HOLE
- PROPOSED SANITARY SEWER AND MAINTENANCE HOLE
- EXISTING STORM SEWER AND MAINTENANCE HOLE
- PROPOSED STORM SEWER AND MAINTENANCE HOLE
- PROPOSED REAR YARD CATCH BASIN AS PER CITY STD DWG S31
- PROPOSED CATCH BASIN WITH SUBDRAINS PER DETAIL D4
- TERRACE (3:1 MAX)
- PROPOSED CENTERLINE SWALE
- PROPOSED LIGHT STANDARD
- CLAY SEAL PER CITY STD DETAIL S8

WATERMAIN TABLE					
STATION	SURFACE ELEVATION	W/M DEPTH	TOP OF W/M ELEV.	INV. OF W/M ELEV.	NOTES
0+000	93.66	3.35m	90.31	90.11	CONNECTION TO EXISTING VALVE
0+002	93.80	3.49m	90.31	90.11	45° HORIZONTAL BEND
0+003	93.88	3.57m	90.31	90.11	45° HORIZONTAL BEND
0+005	93.88	2.48m	91.40	91.20	2 x 45° VERTICAL BENDS
0+007	93.80	2.40m	91.40	91.20	CR-01 REFER TO CROSSING TABLE
0+011	93.80	2.40m	91.40	91.20	45° HORIZONTAL BEND
0+014	93.93	2.40m	91.40	91.20	45° HORIZONTAL BEND
0+015	93.80	2.40m	91.40	91.20	CR-03 REFER TO CROSSING TABLE
0+017	93.78	2.40m	91.38	91.18	200x200 TEE, 200mm WATER SERVICE CONNECTION
0+044	93.79	2.40m	91.39	91.19	CR-05 REFER TO CROSSING TABLE
0+051	93.70	2.40m	91.30	91.10	200x150 TEE FOR FIRE HYDRANT LATERAL
0+066	93.70	2.40m	91.30	91.10	CR-08 REFER TO CROSSING TABLE
0+096	93.63	2.40m	91.23	91.03	CR-11 REFER TO CROSSING TABLE
0+104	93.63	2.40m	91.23	91.03	45° HORIZONTAL BEND
0+108	93.61	2.40m	91.21	91.01	CR-12 REFER TO CROSSING TABLE
0+119	93.74	2.40m	91.34	91.14	45° HORIZONTAL BEND
0+129	93.75	2.40m	91.35	91.15	45° HORIZONTAL BEND
0+137	93.90	2.40m	91.50	91.30	CR-13 REFER TO CROSSING TABLE
0+141	93.90	2.40m	91.50	91.30	45° HORIZONTAL BEND
0+195	93.44	2.40m	91.04	91.84	45° HORIZONTAL BEND
0+215	93.23	2.40m	90.83	90.63	45° HORIZONTAL BEND
0+240	93.40	2.40m	91.00	90.80	CR-14 REFER TO CROSSING TABLE
0+244	93.40	2.40m	91.00	90.80	200x150 TEE FOR FIRE HYDRANT LATERAL
0+269	93.81	2.40m	91.41	91.21	45° HORIZONTAL BEND
0+271	93.98	2.40m	91.58	91.38	45° HORIZONTAL BEND
0+277	94.00	2.40m	91.60	91.40	SERVICE CONNECTION, CAPPED 1.5m FROM BLDG

ICD SCHEDULE						
ICD ID	LOCATION	ORIFICE INVERT (m)	FLOW 5y/100y (L/s)	HEAD 5y/100y (m)	EQUIVALENT DIAMETER (mm)	MODEL*
1	MHST-37	90.16	287.0/337.1	2.03/2.80	305	SEE D2 ON DWG C104

- * ICD SHOP DRAWINGS SHALL BE SUBMITTED TO PARSONS BEFORE COMMENCING ANY WORK
- ### NOTES: UNDERGROUND STORMWATER STORAGE
- UNDERGROUND STORMWATER STORAGE SYSTEM CHAMBER TYPE OR EQUIVALENT STORAGE REQUIREMENT: 130.0m³.
 - CHAMBER TYPE: STORMTECH SC-740 OR EQUIVALENT
 - BOTTOM GRANULAR PAD ELEVATION & PERFORATED SUBDRAIN INVERT: 92.20m
 - BOTTOM OF CHAMBER ELEVATION: 92.35
 - TOP OF CHAMBER ELEVATION: 93.11m
 - TOP OF SYSTEM TO BE A MINIMUM OF 450mm BELOW PARKING LOT PAVEMENT




PROJECT: **3845 CAMBRIAN RD**
BARRHAVEN, ONTARIO

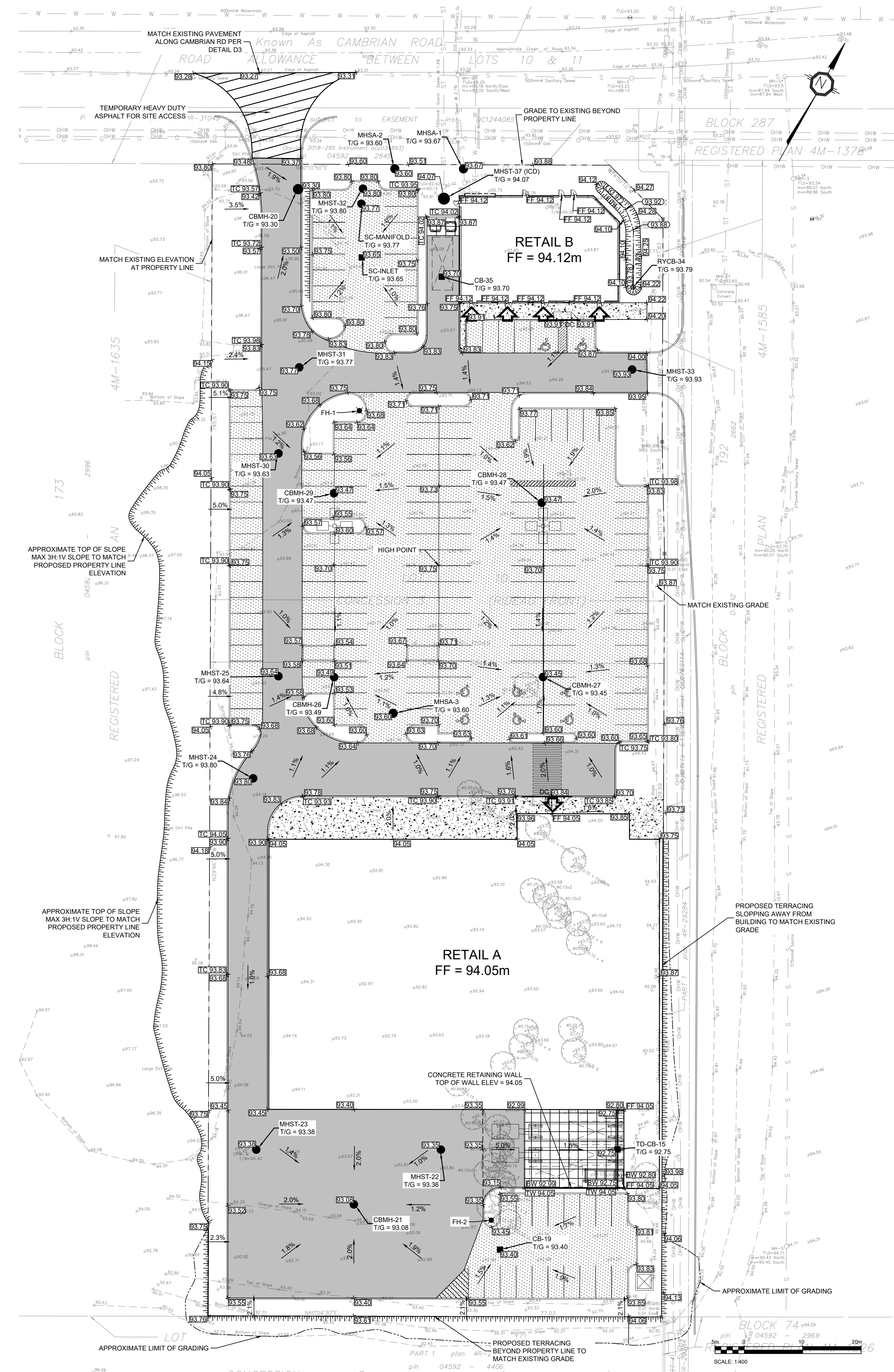
DRAWING: **SITE SERVICING PLAN**

PROJECT NO: 478575
PROJECT DATE: 2023-02-27
DRAWN BY: [Signature]
CHECKED BY: MT
SCALE: As indicated

PROJECT NO: 478575
PROJECT DATE: 2023-02-27
DRAWN BY: [Signature]
CHECKED BY: MT
SCALE: As indicated

2023-05-01
PROVINCE OF ONTARIO

DRAWING NO: **C102** REV: **1**



LEGEND:

- EXISTING PROPERTY LINE
- - - - - PROPOSED DITCH/SWALE CENTERLINE
- ===== TERRACE (3:1 MAX)
- EXISTING GRADE
- 99.99 PROPOSED GRADE
- 99.99 PROPOSED TOP OF WALL GRADE
- 99.99 PROPOSED BOTTOM OF WALL GRADE
- 99.99 PROPOSED FINISHED FLOOR ELEVATION
- 99.99 PROPOSED TOP OF CURB ELEVATION
- 99.99 PROPOSED CENTRELINE OF DITCH/SWALE GRADE
- 9.9% PROPOSED SLOPE DIRECTION AND PERCENTAGE
- PROPOSED STORM MAINTENANCE HOLE
- PROPOSED SANITARY MAINTENANCE HOLE
- PROPOSED CATCH BASIN
- PROPOSED REAR YARD CATCH BASIN AS PER CITY STD DWG 531
- 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 TWIS PER CITY STD DWG SC7.3
- PROPOSED LIGHT STANDARD
- APPROXIMATE LIMIT OF GRADING ON NEIGHBOURING PROPERTY

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

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 DUKAK 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 OTHER 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 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 MUST BE REQUIRED. IT IS ASSUMED THAT GROUNDWATER SHALL 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 C10.
- 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 OFFSITE BE STOCKPILED TEMPORARILY FOR SAMPLING PRIOR BEING LOADED OFFSITE.
- 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 517.
- 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 SEWER.
- 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.

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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. 019680071 HAVING AN ELEVATION OF 99.74m.

#	DATE	ISSUED FOR	DESCRIPTION	BY
1	2023-05-01	ISSUED FOR SPA		BY

Loblaw Companies Limited

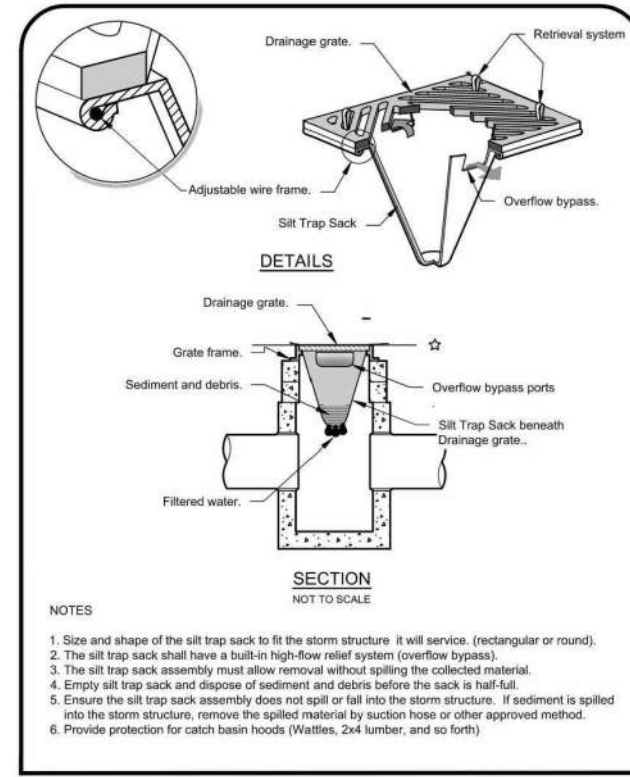
PROJECT: **3845 CAMBRIAN RD**
 BARRHAVEN, ONTARIO

DRAWING: **GRADING PLAN**

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



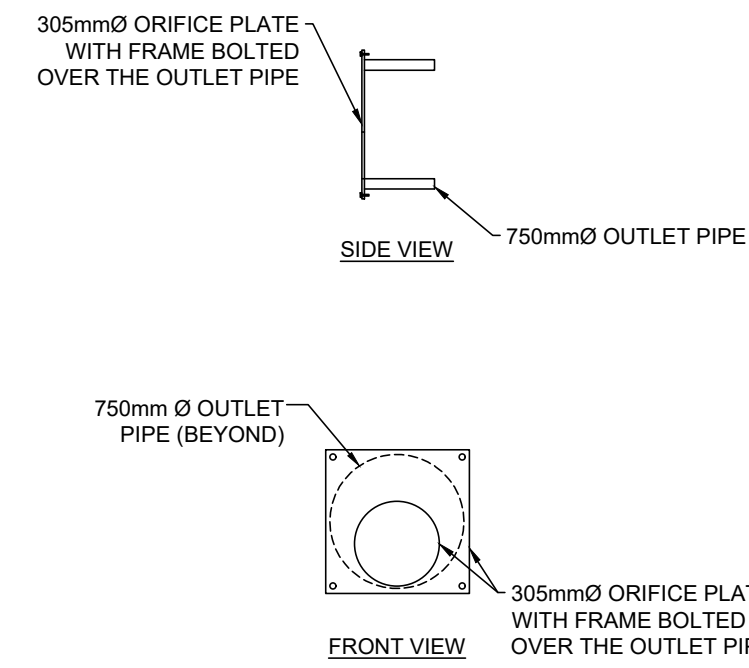
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SILT SACK DETAIL

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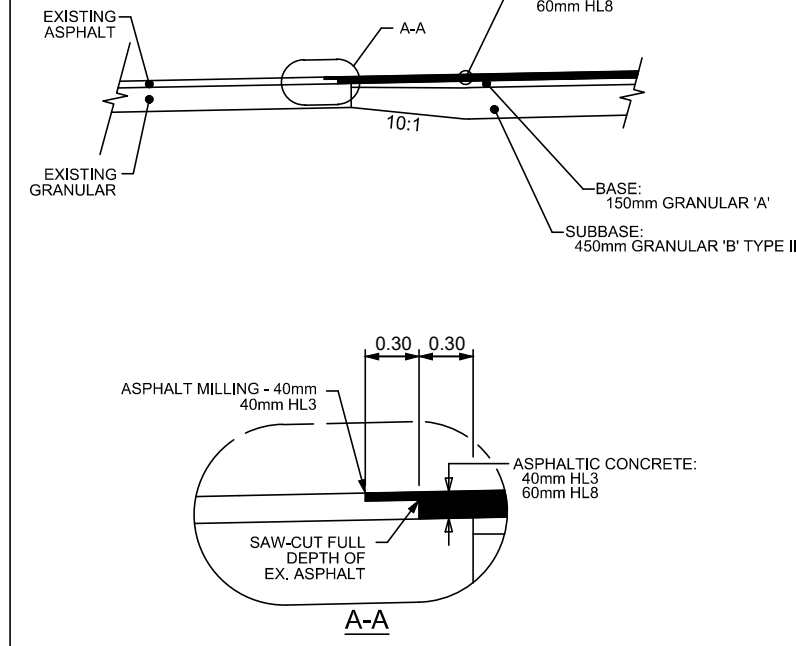
D1



FRAME & PLATE ICD

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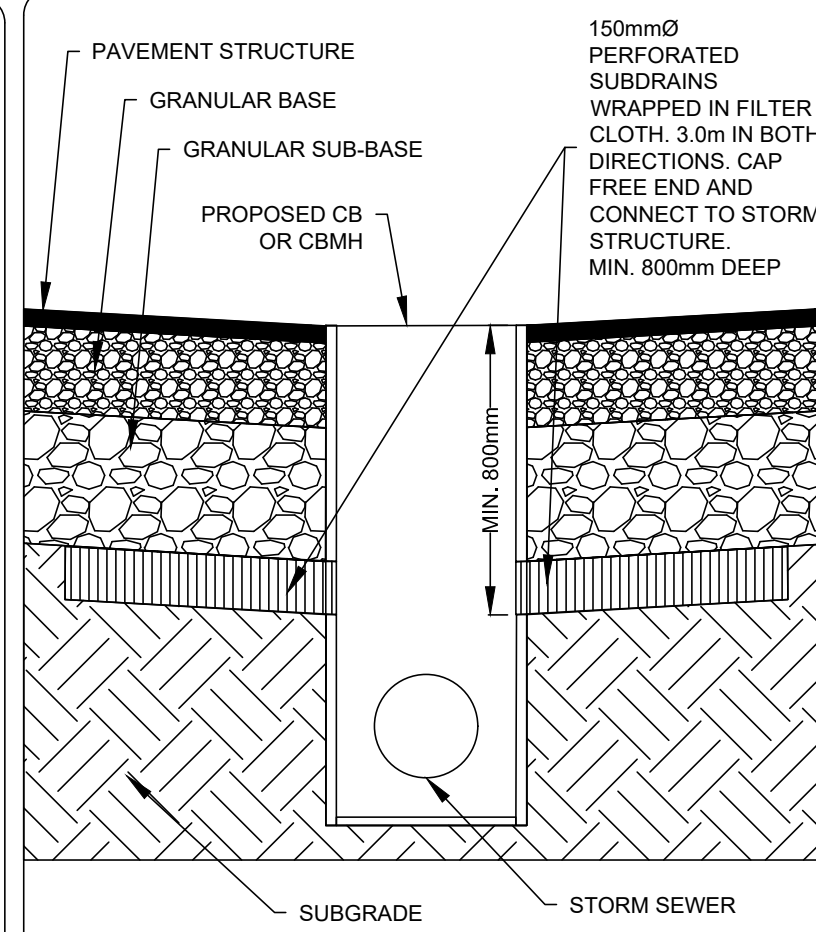
D2



NEW TO EXISTING PAVEMENT PERPENDICULAR TRANSITION DETAIL

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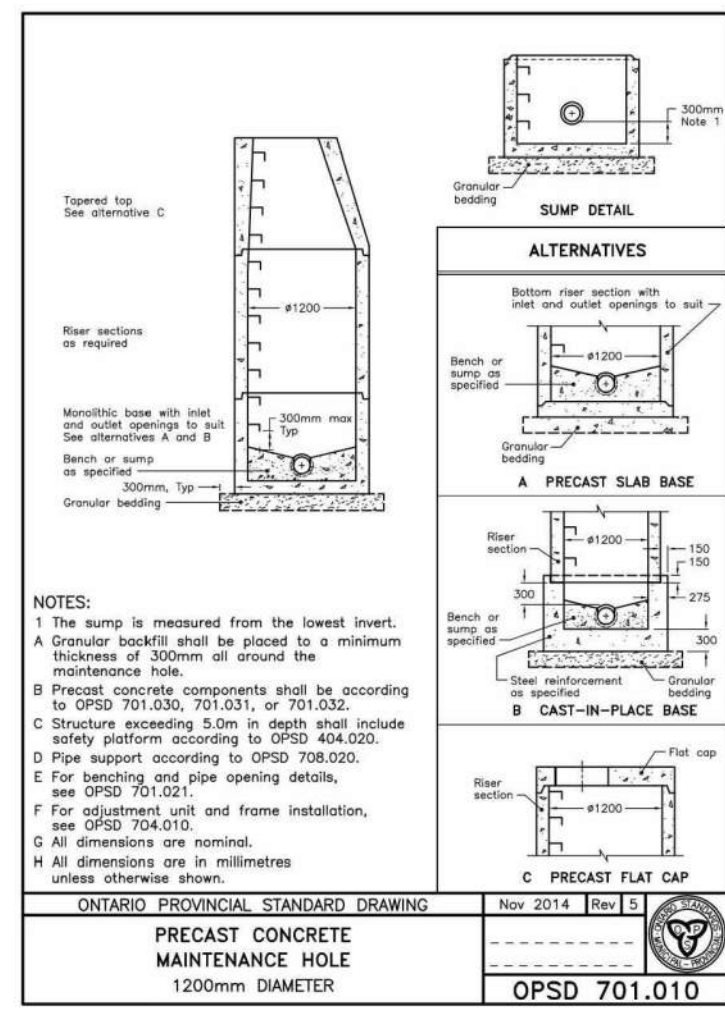
D3



TYPICAL SUBDRAIN DETAIL

PARSONS

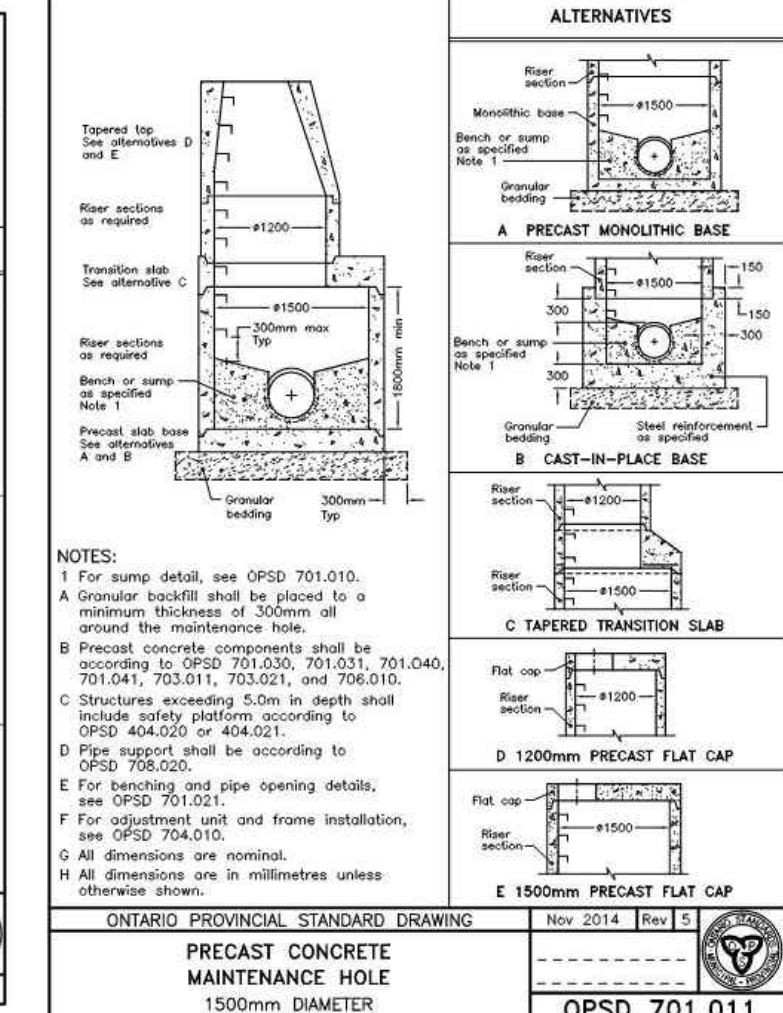
D4



PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER

ONTARIO PROVINCIAL STANDARD DRAWING

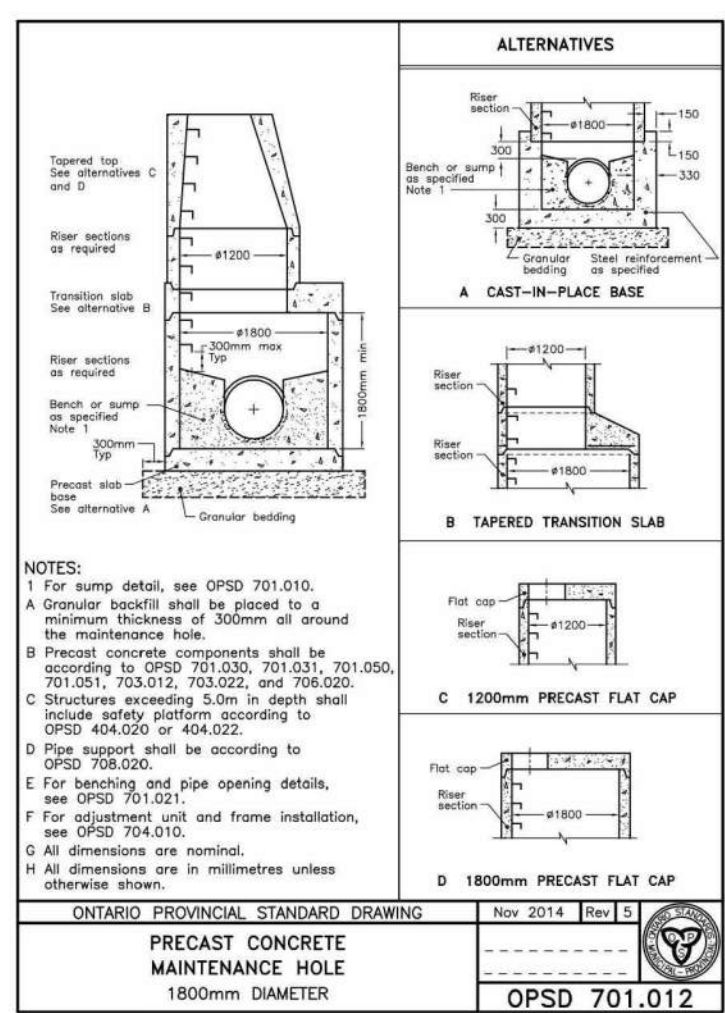
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PRECAST CONCRETE MAINTENANCE HOLE 1500mm DIAMETER

ONTARIO PROVINCIAL STANDARD DRAWING

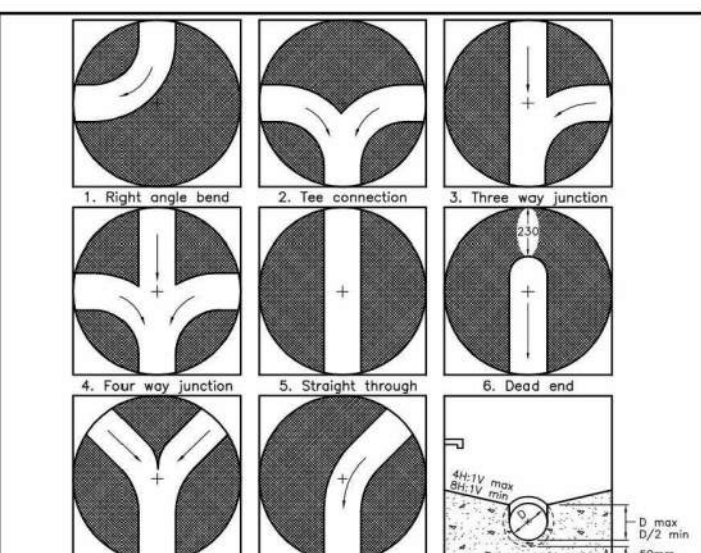
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PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER

ONTARIO PROVINCIAL STANDARD DRAWING

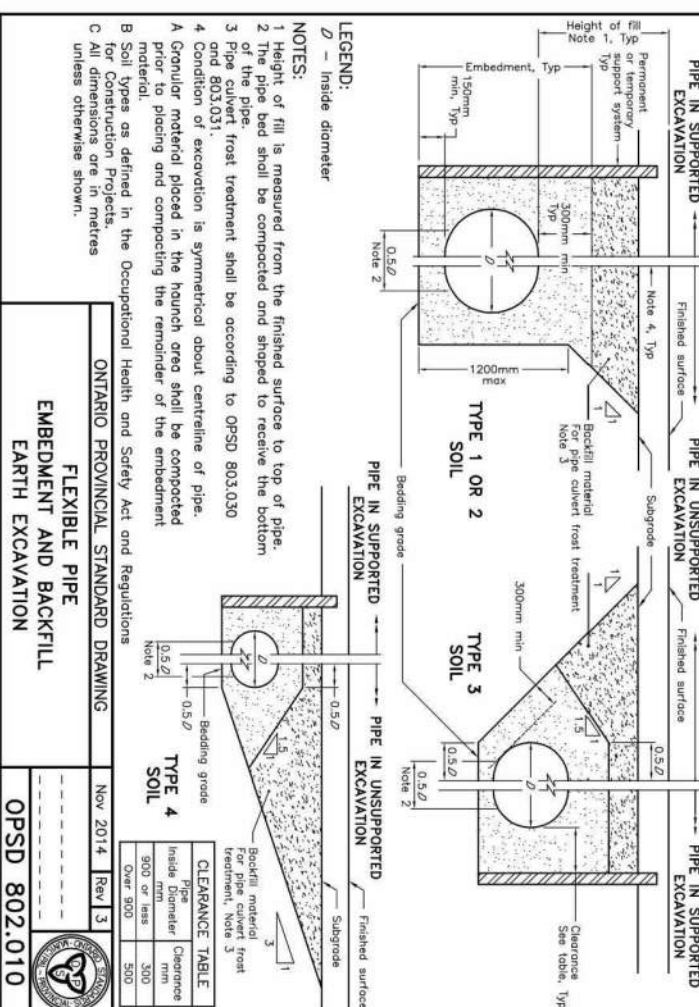
D7



MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES

ONTARIO PROVINCIAL STANDARD DRAWING

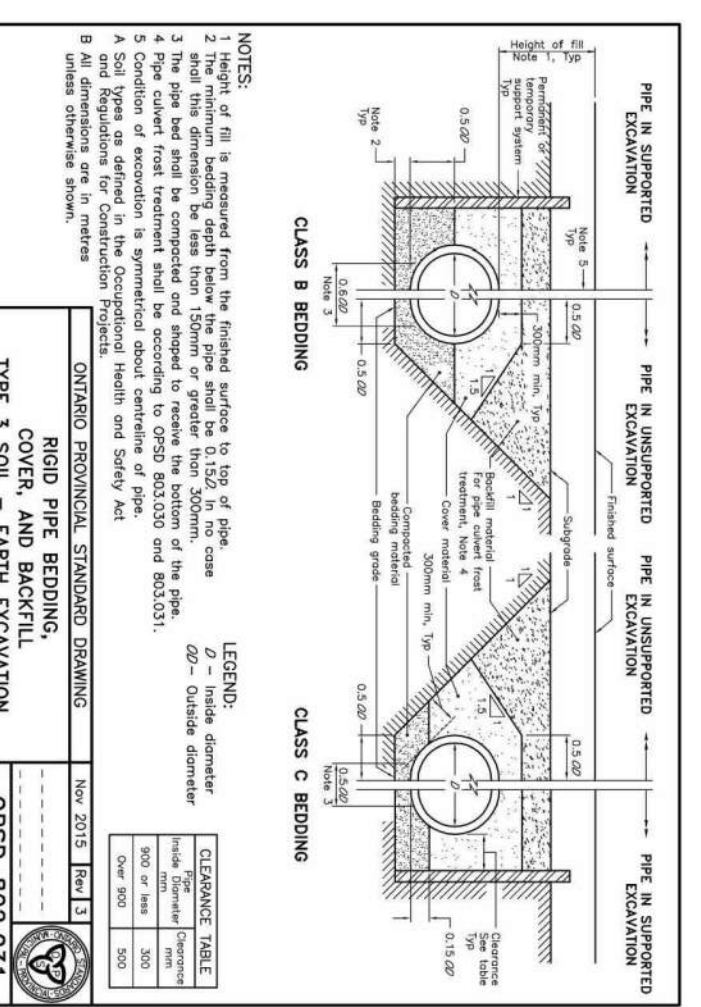
D8



EMBEDMENT AND BACKFILL EARTH EXPANSION

ONTARIO PROVINCIAL STANDARD DRAWING

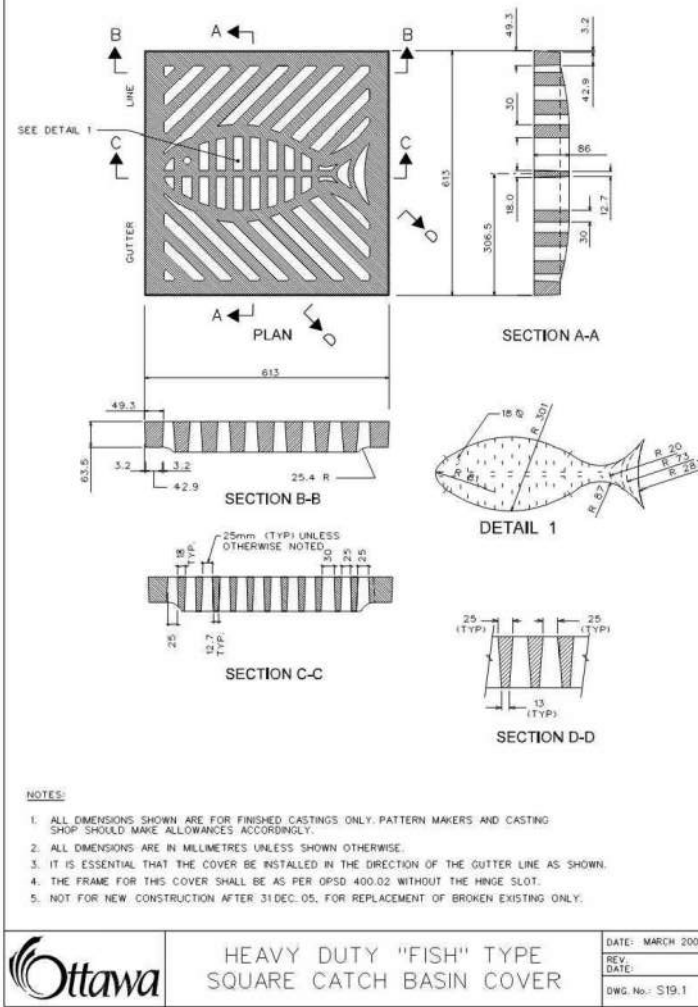
D9



HEAVY DUTY "FISH" TYPE SQUARE CATCH BASIN COVER

OTTAWA

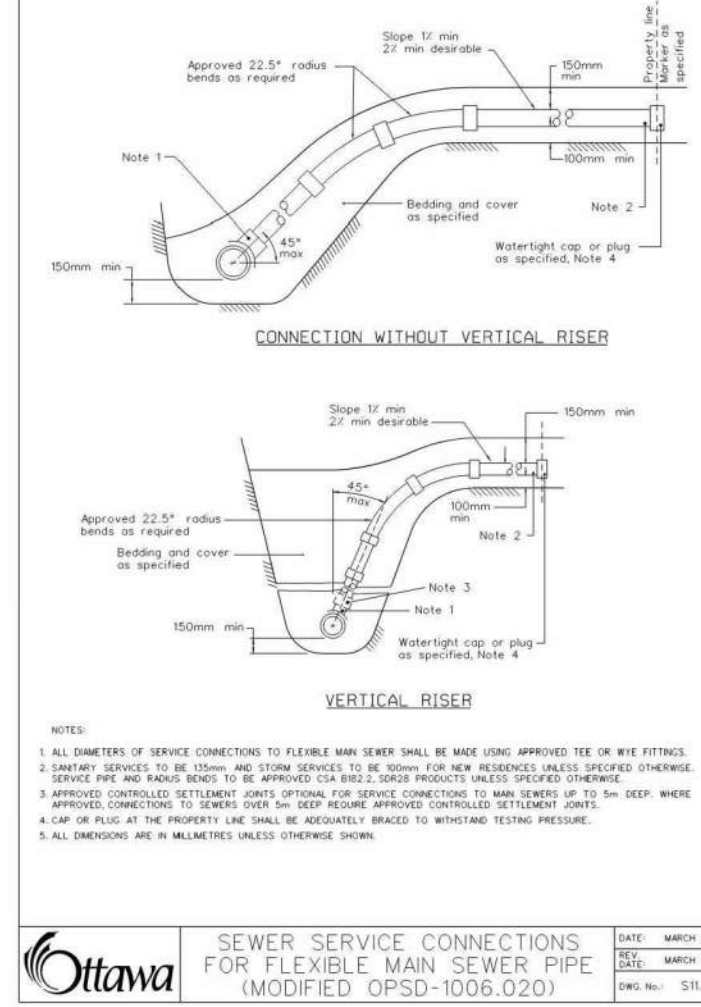
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STANDARD CIRCULAR FRAME FOR MAINTENANCE HOLES

OTTAWA

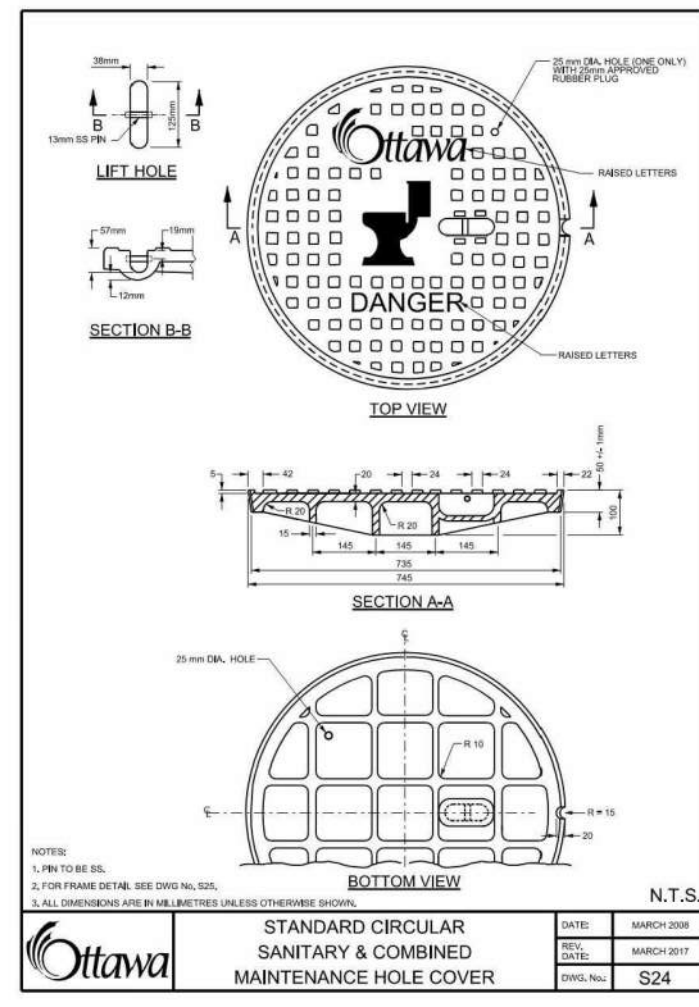
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CATCH BASIN MAINTENANCE HOLE COVER

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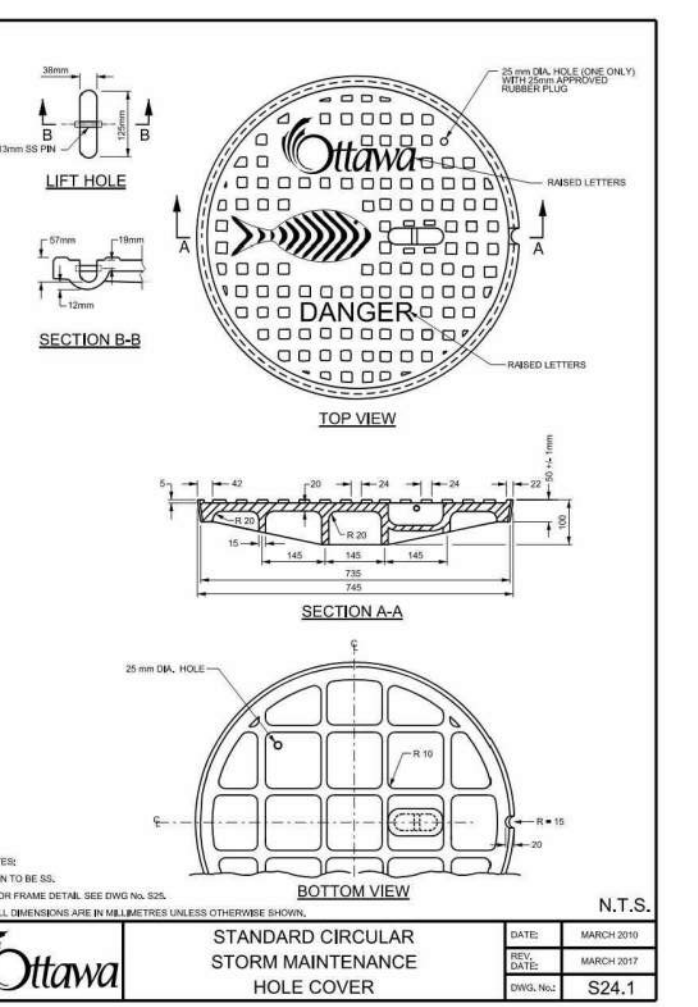
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PRECAST CONCRETE CATCH BASIN

ONTARIO PROVINCIAL STANDARD DRAWING

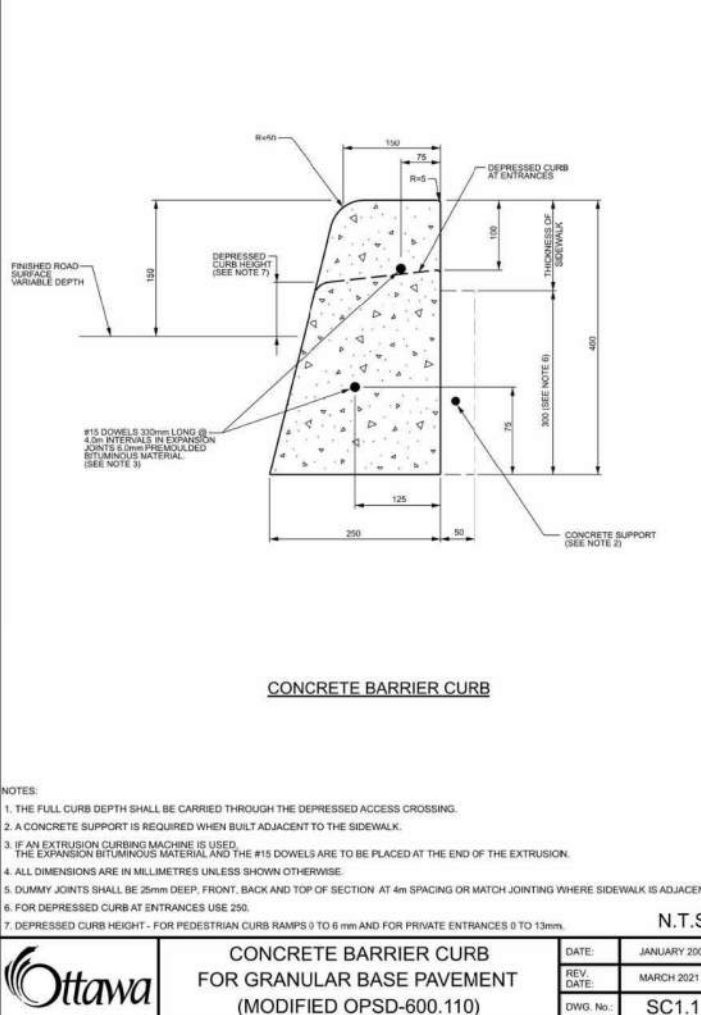
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STANDARD CIRCULAR STORM MAINTENANCE HOLE COVER

OTTAWA

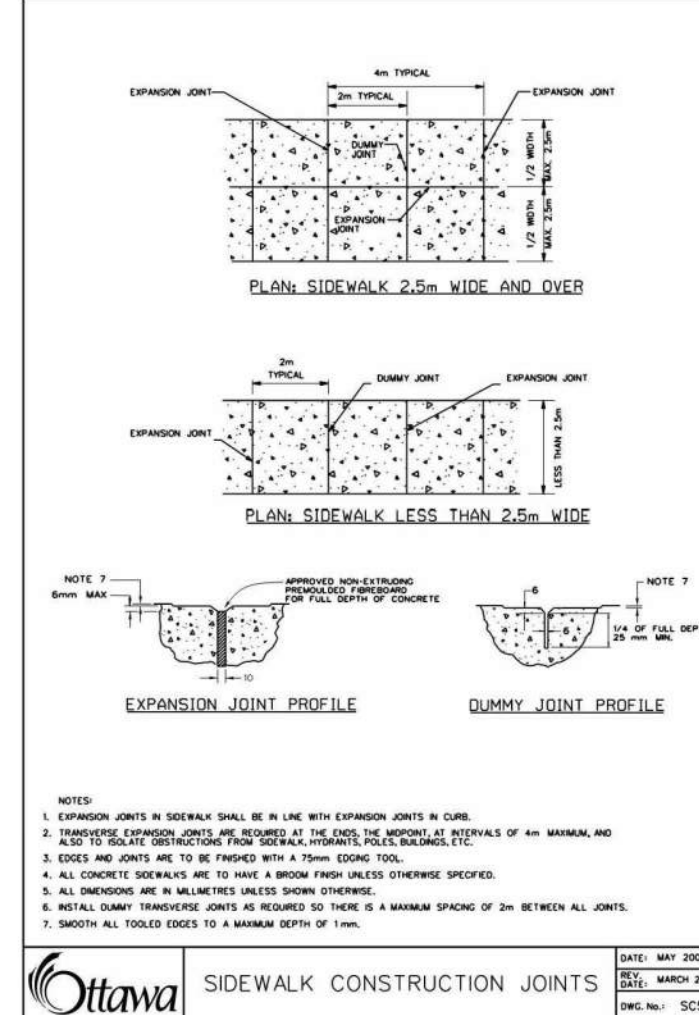
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CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT

OTTAWA

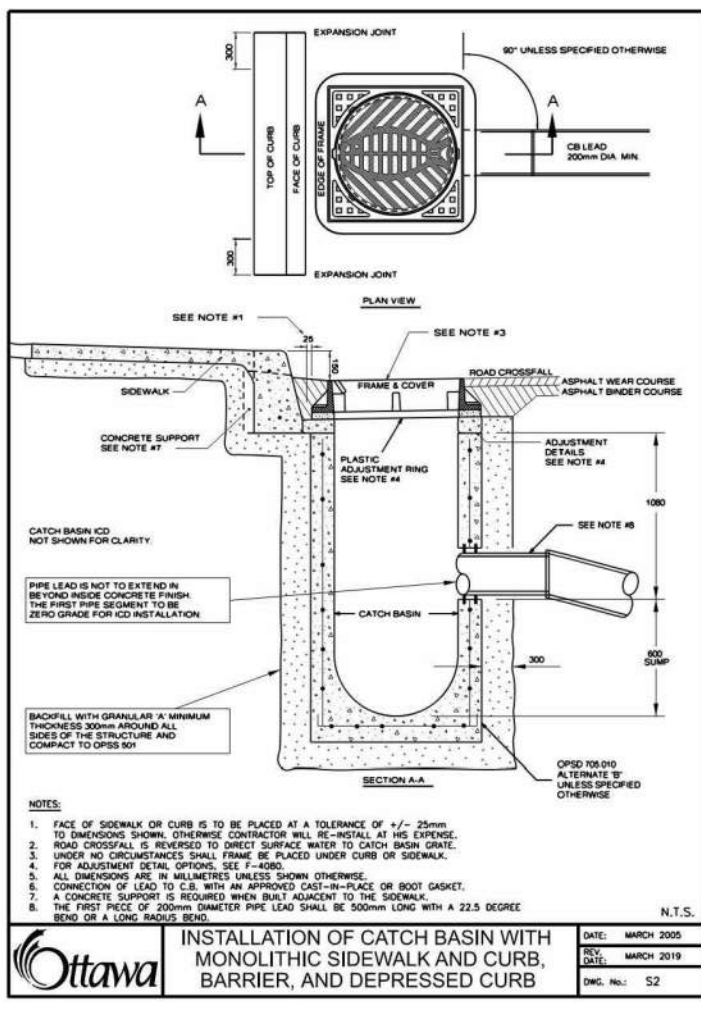
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SIDEWALK CONSTRUCTION JOINTS

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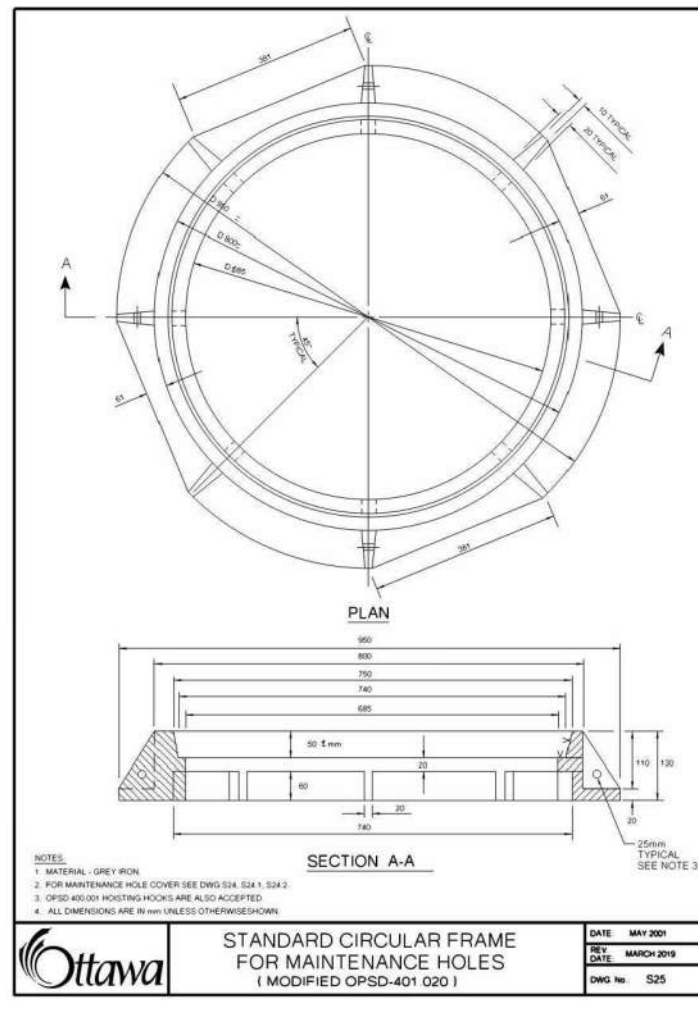
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INSTALLATION OF CATCH BASIN WITH MONOLITHIC SIDEWALK AND CURB, BARRIER, AND DEPRESSED CURB

OTTAWA

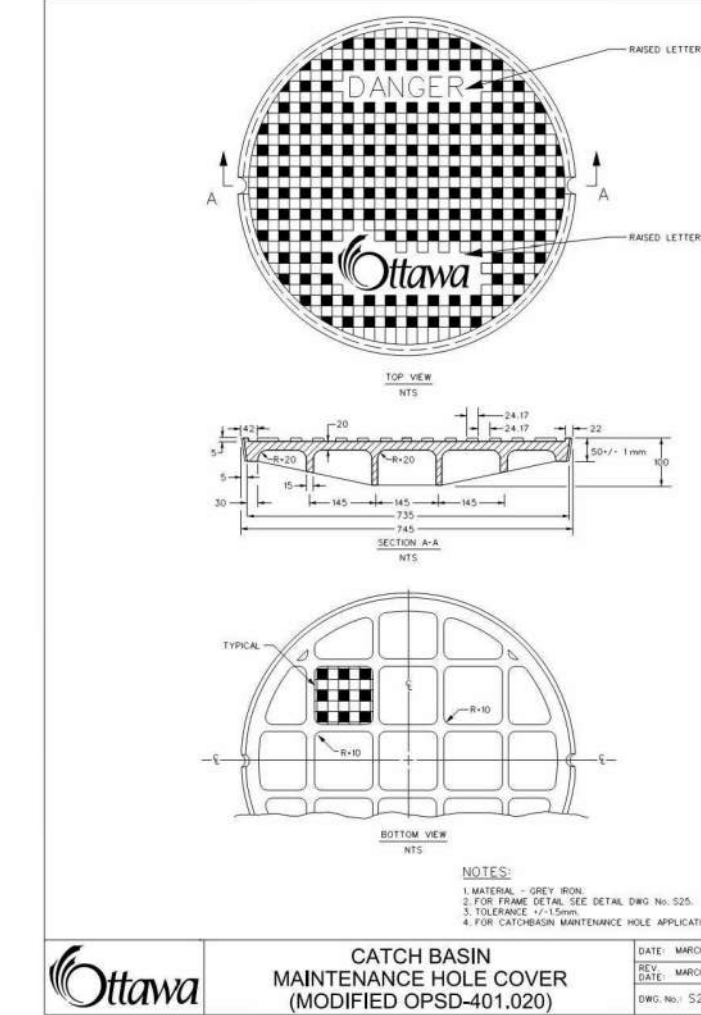
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STANDARD CIRCULAR FRAME FOR MAINTENANCE HOLES

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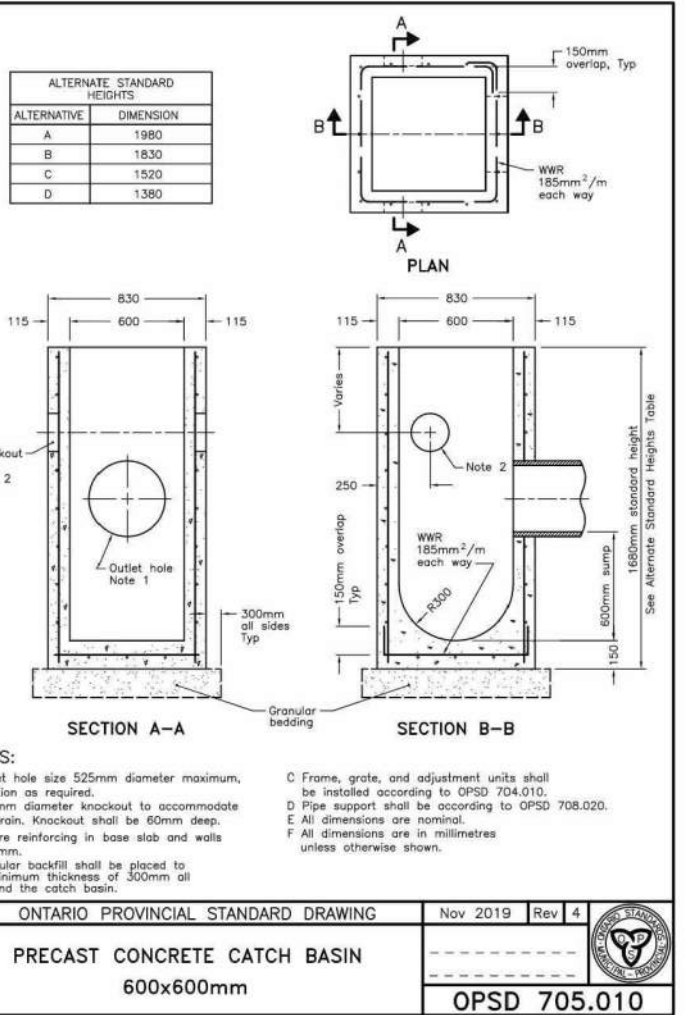
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CATCH BASIN MAINTENANCE HOLE COVER

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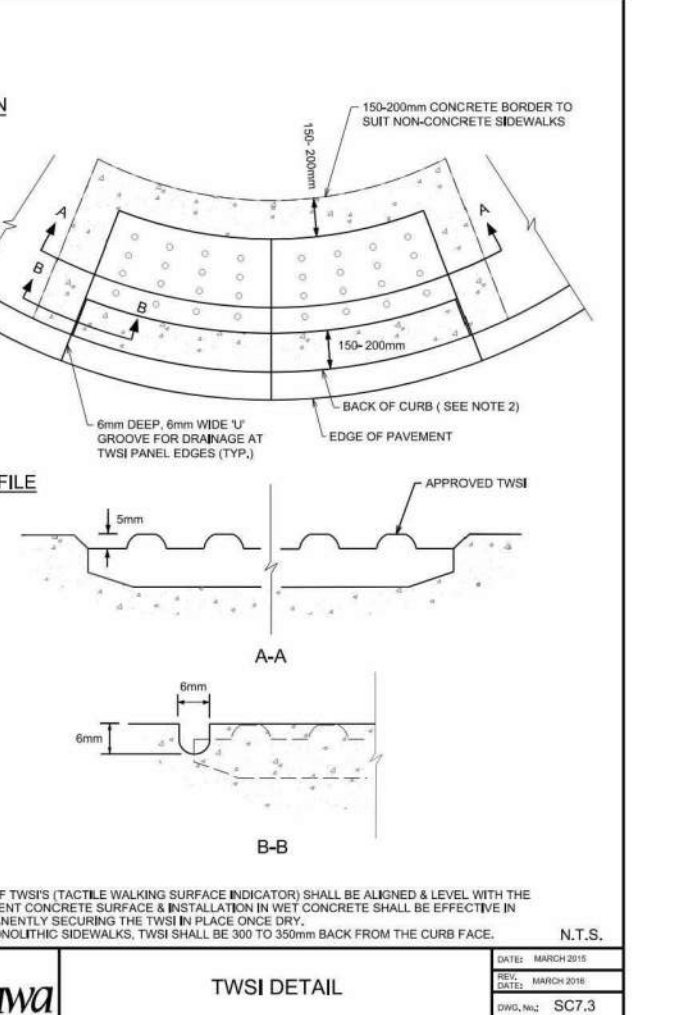
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PRECAST CONCRETE CATCH BASIN

ONTARIO PROVINCIAL STANDARD DRAWING

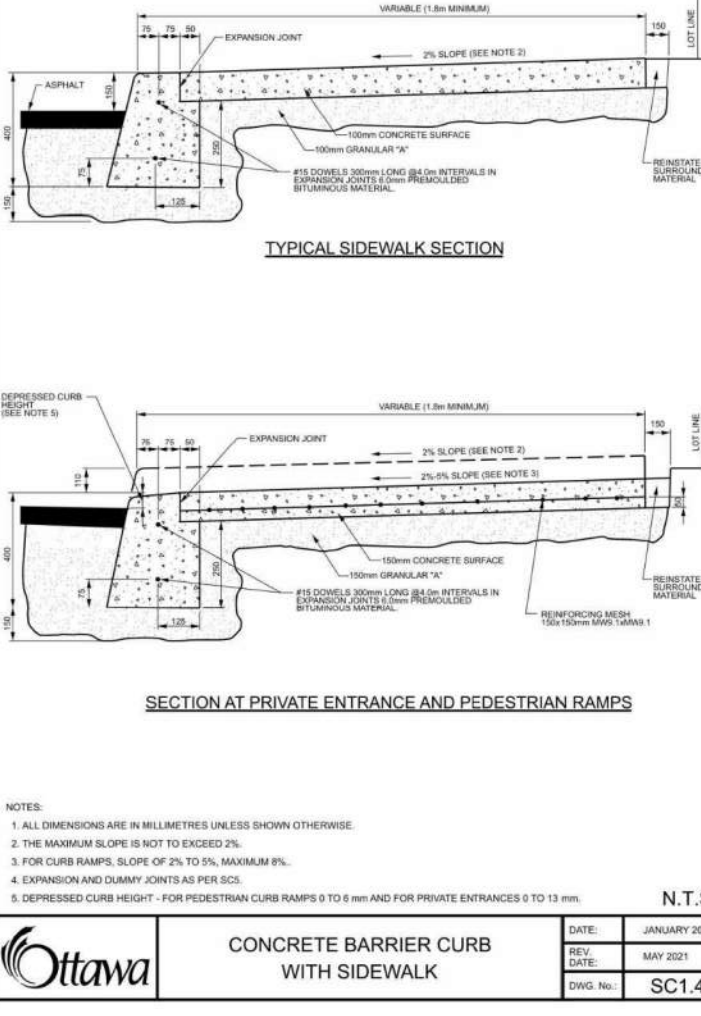
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TWSI DETAIL

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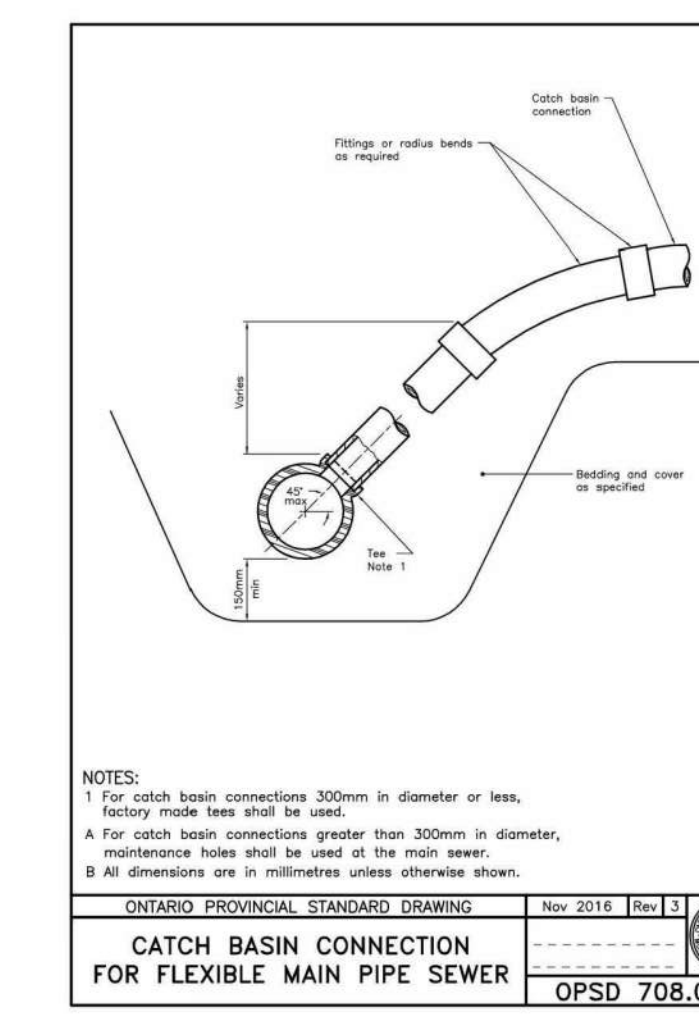
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CONCRETE BARRIER CURB WITH SIDEWALK

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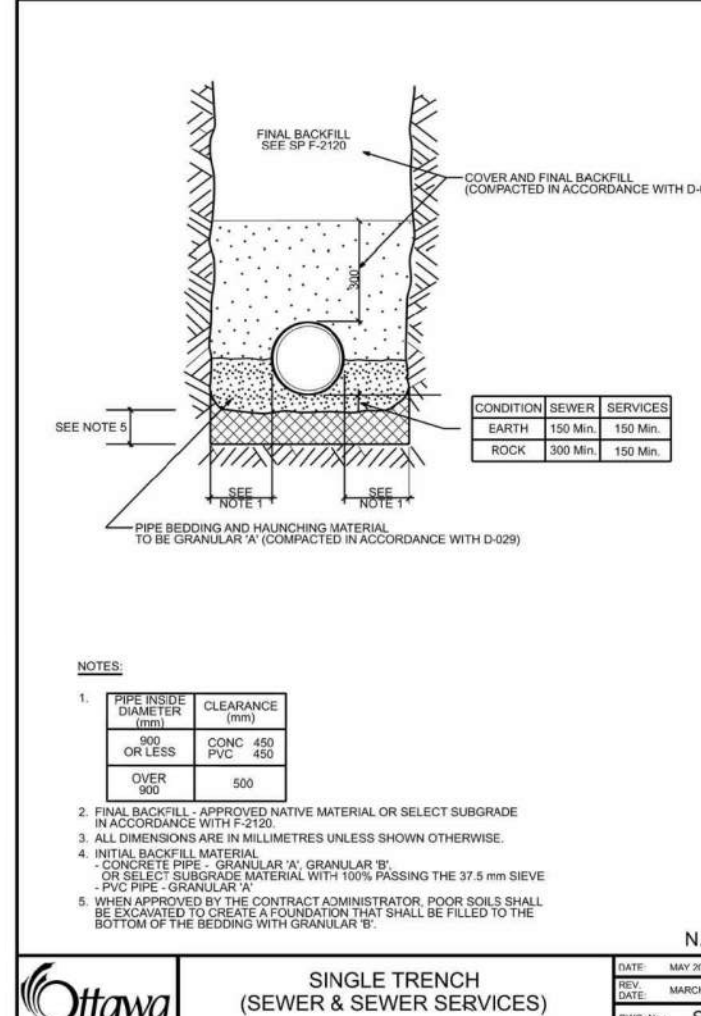
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CATCH BASIN CONNECTION FOR FLEXIBLE MAIN PIPE SEWER

ONTARIO PROVINCIAL STANDARD DRAWING

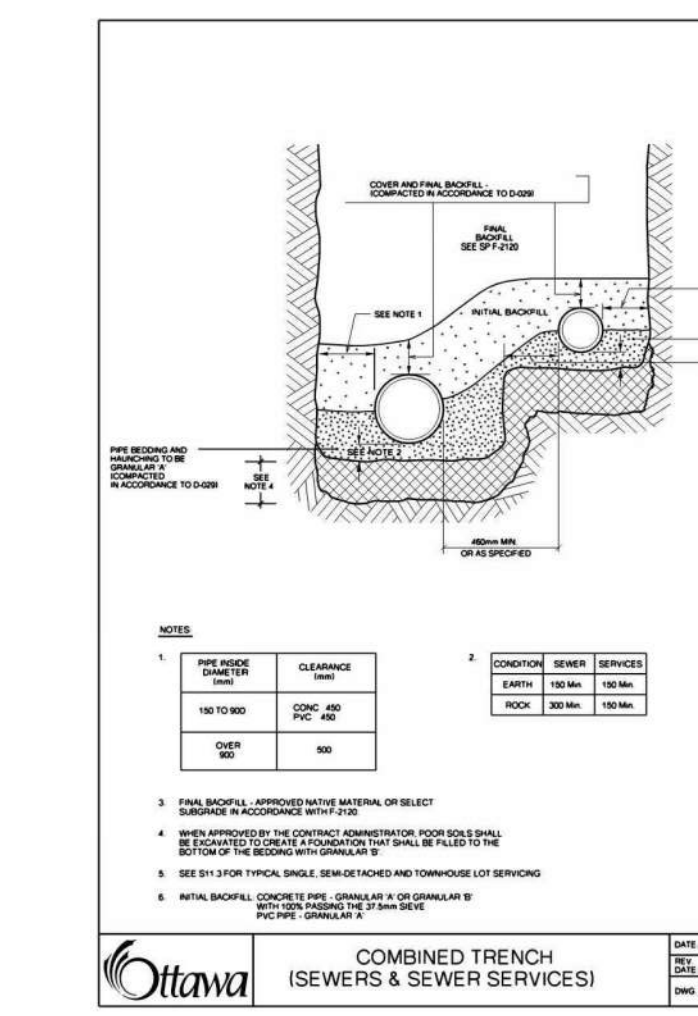
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SINGLE TRENCH (SEWER & SEWER SERVICES)

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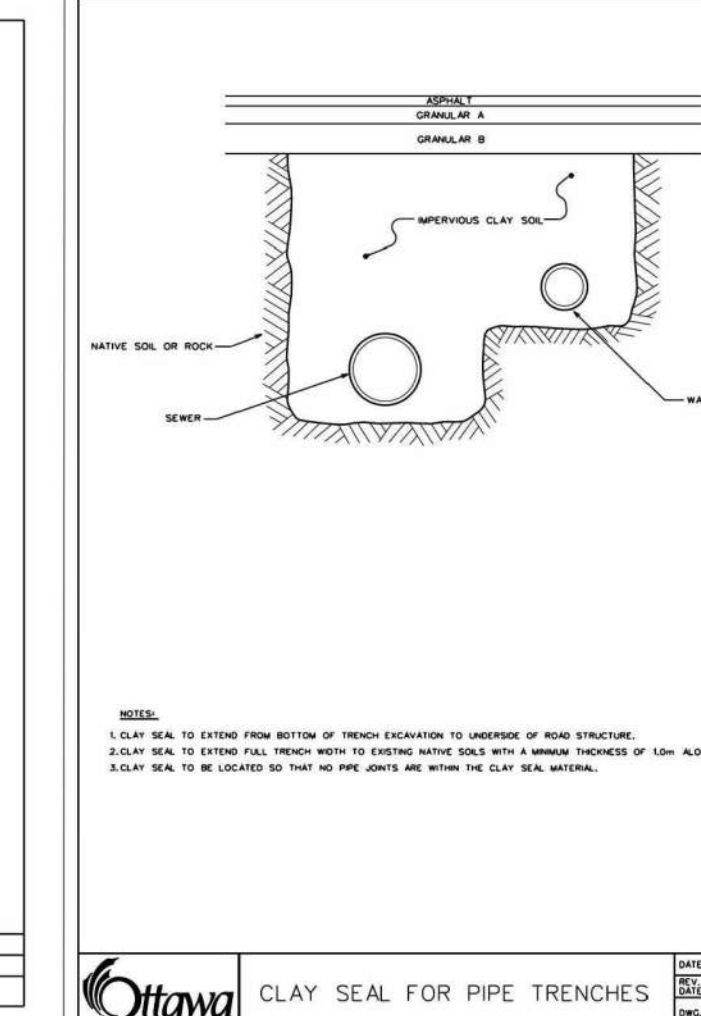
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COMBINED TRENCH (SEWERS & SEWER SERVICES)

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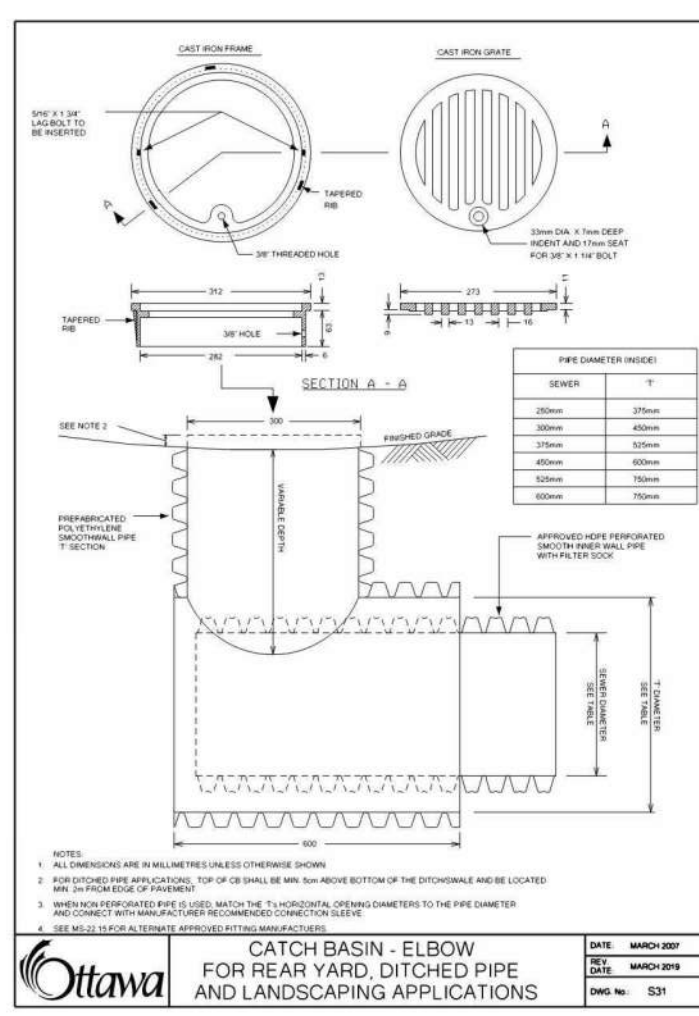
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CLAY SEAL FOR PIPE TRENCHES

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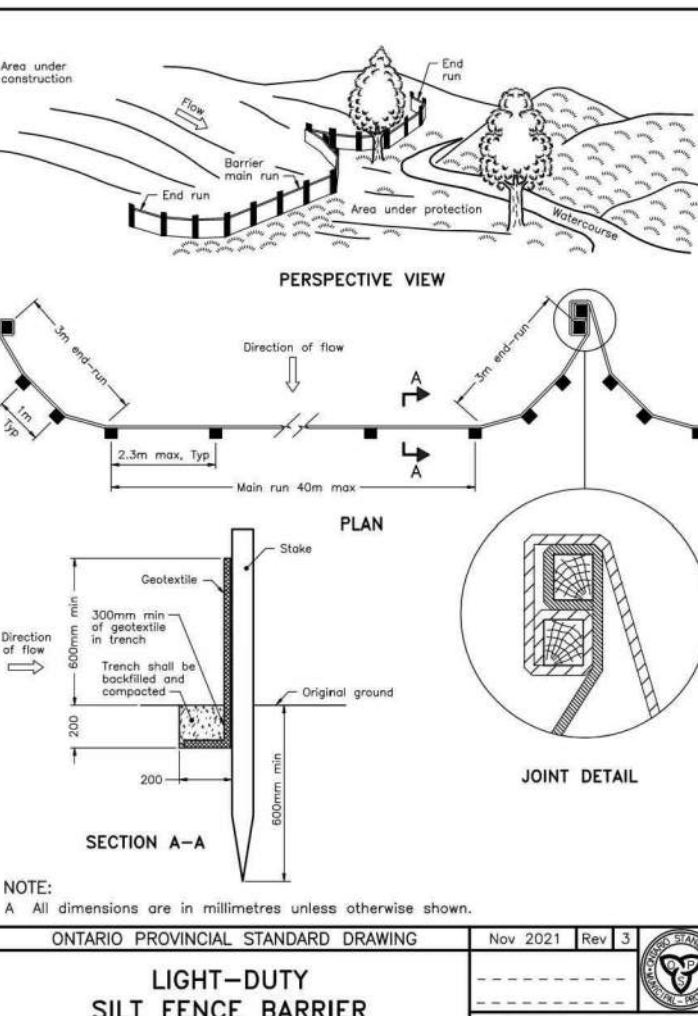
D26



CATCH BASIN - ELBOW FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS

OTTAWA

D27



LIGHT-DUTY SILT FENCE BARRIER

ONTARIO PROVINCIAL STANDARD DRAWING

D28

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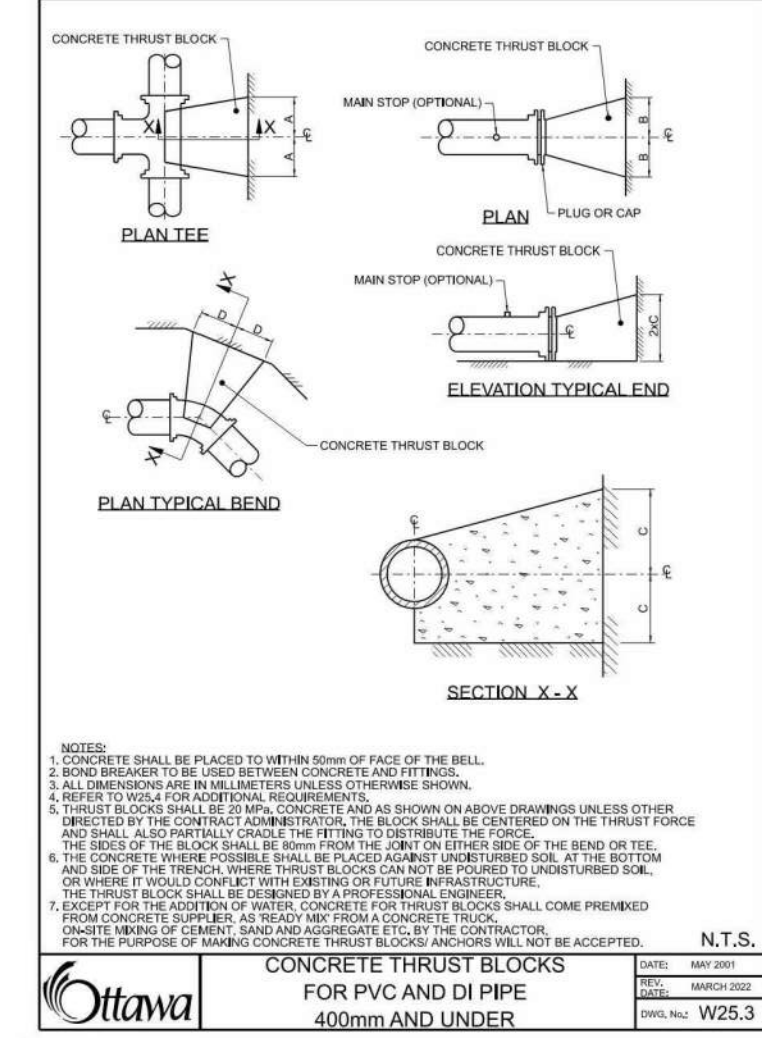
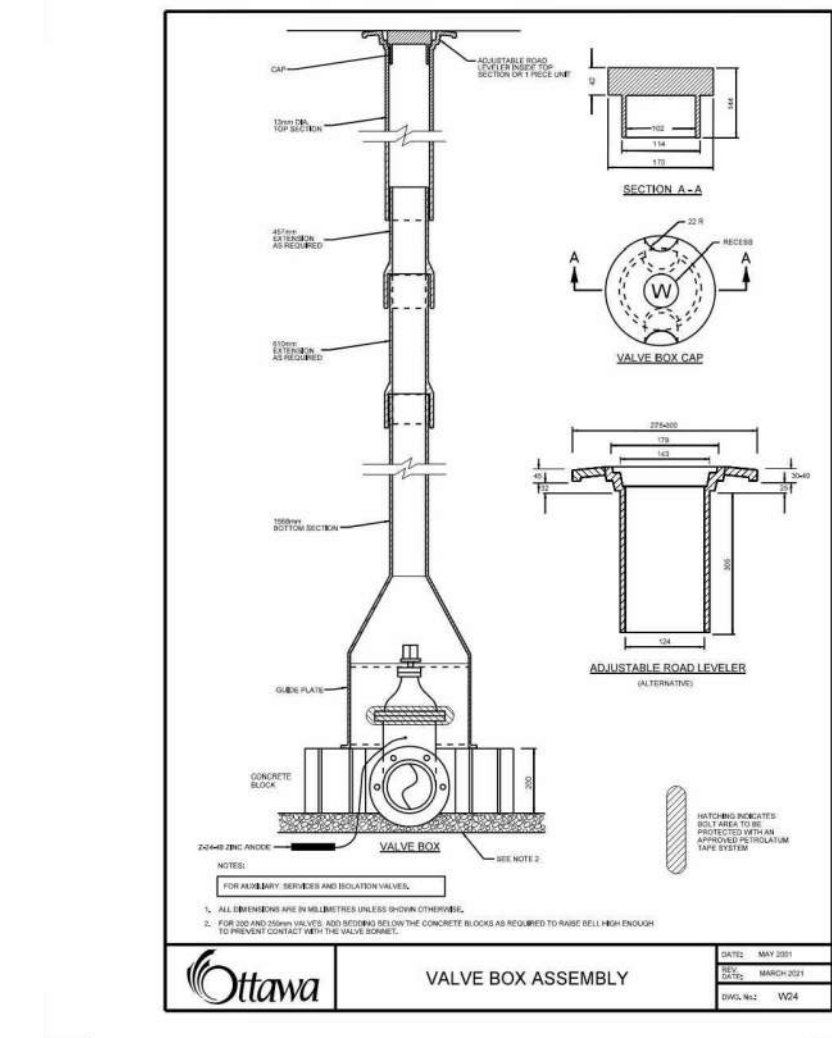
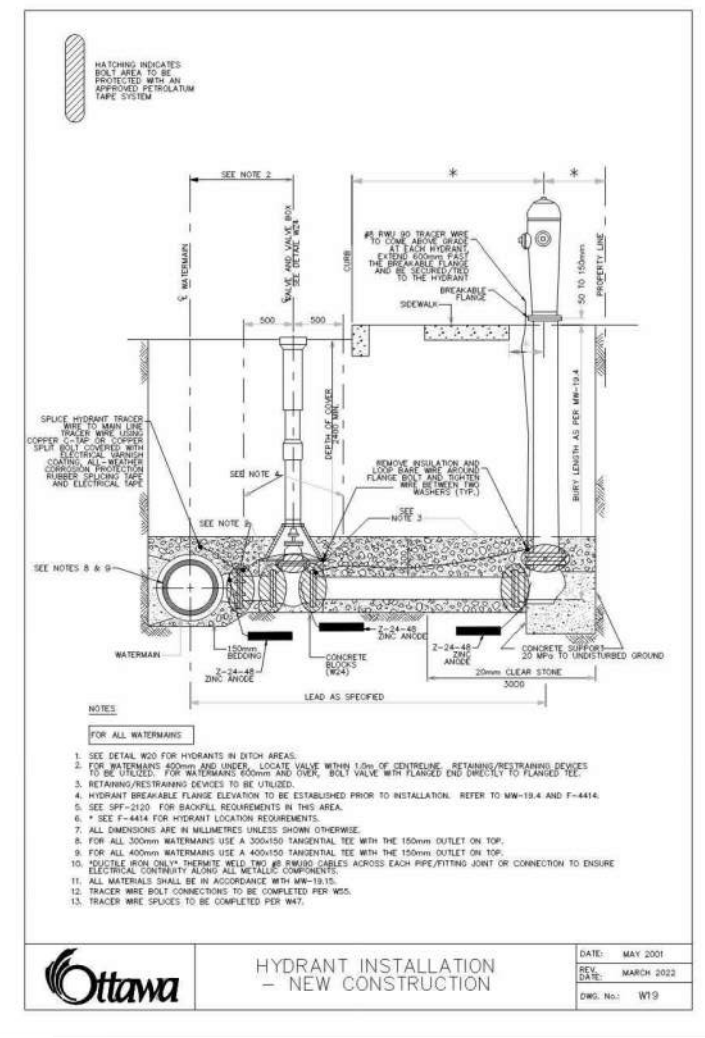
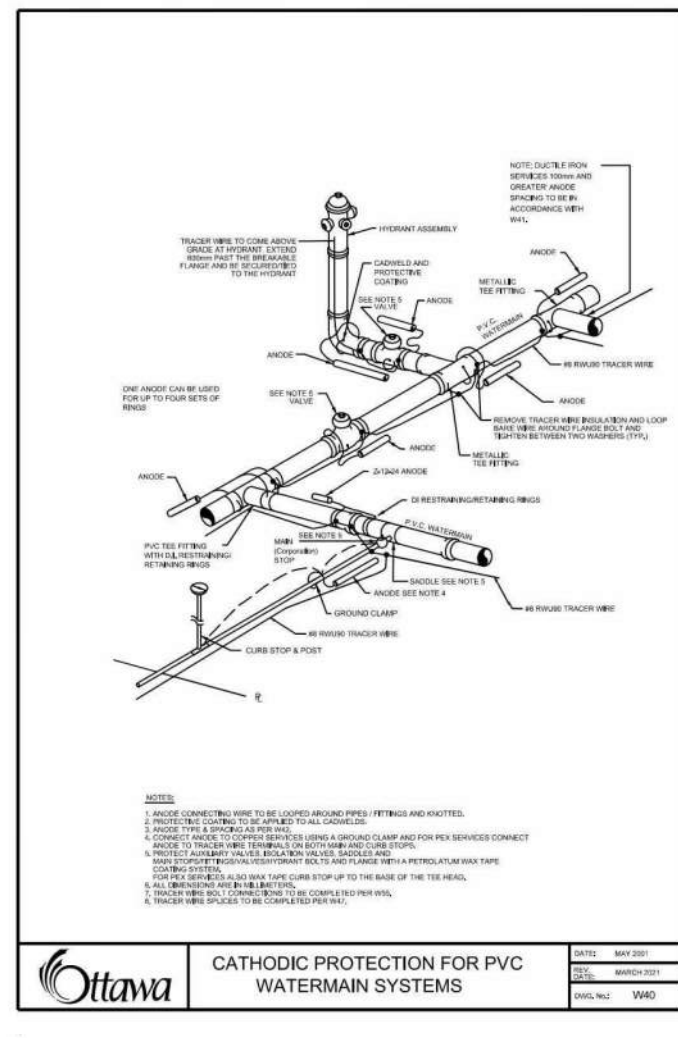
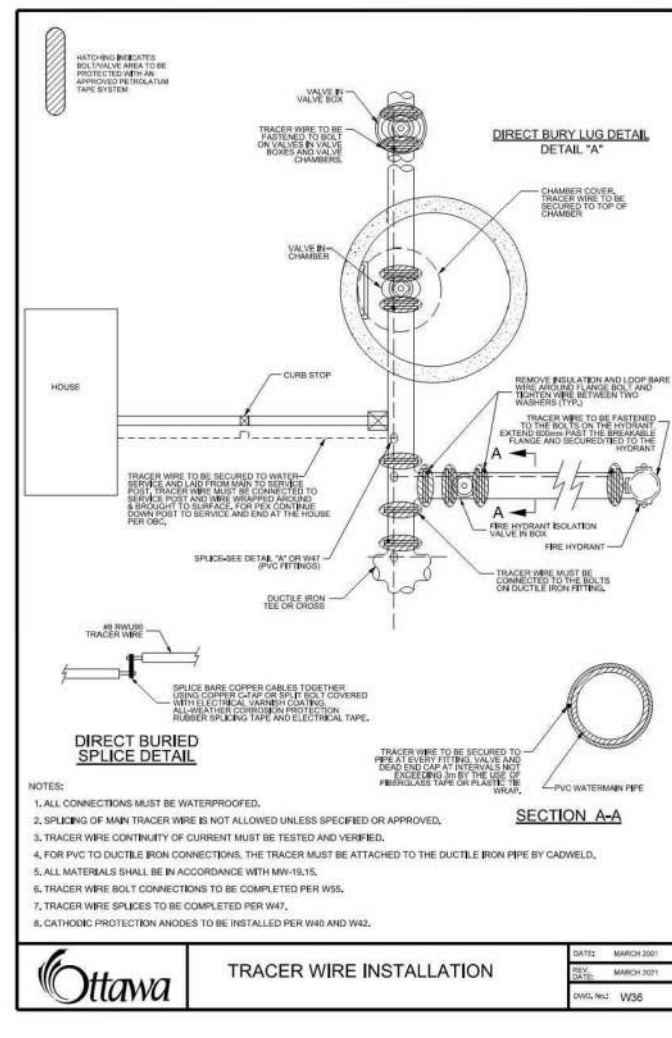
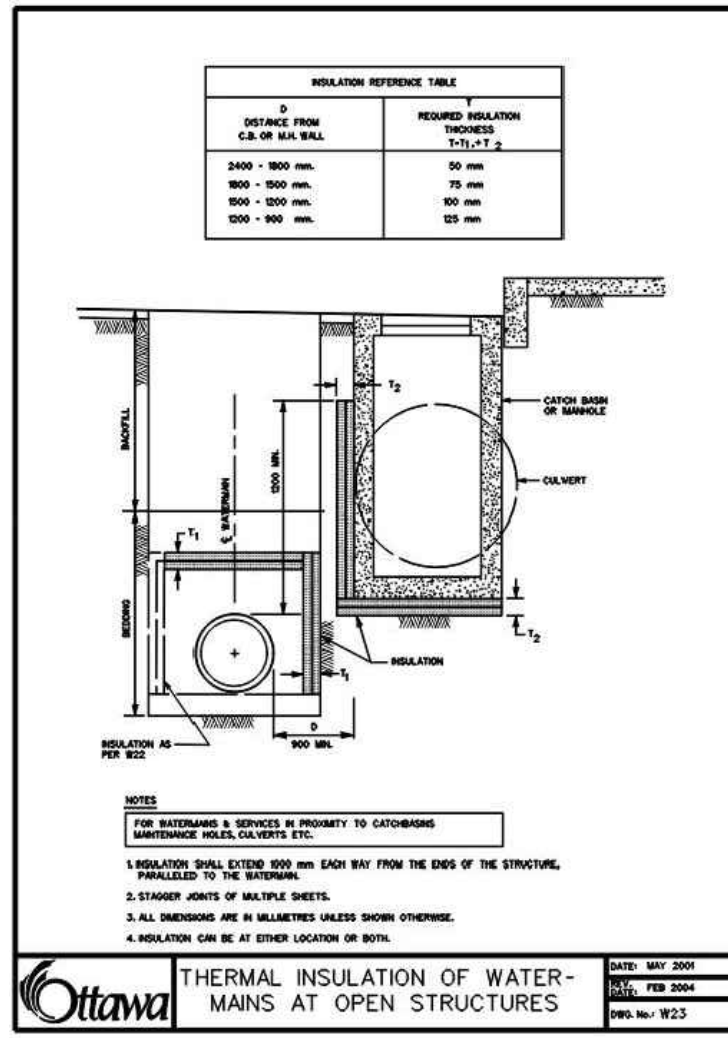
Loblaw Companies Limited

PROJECT: 3845 CAMBRIAN RD
BARRHAVEN, ONTARIO

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

DRAWING NO: C104
REV: 1

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1. SOIL DESCRIPTIONS WITH FINE SANDS, GRAVELS, CLAYS, SILTS, SILTS WITH TYPICAL BEARING CAPACITY OF 100 TO 200 kPa

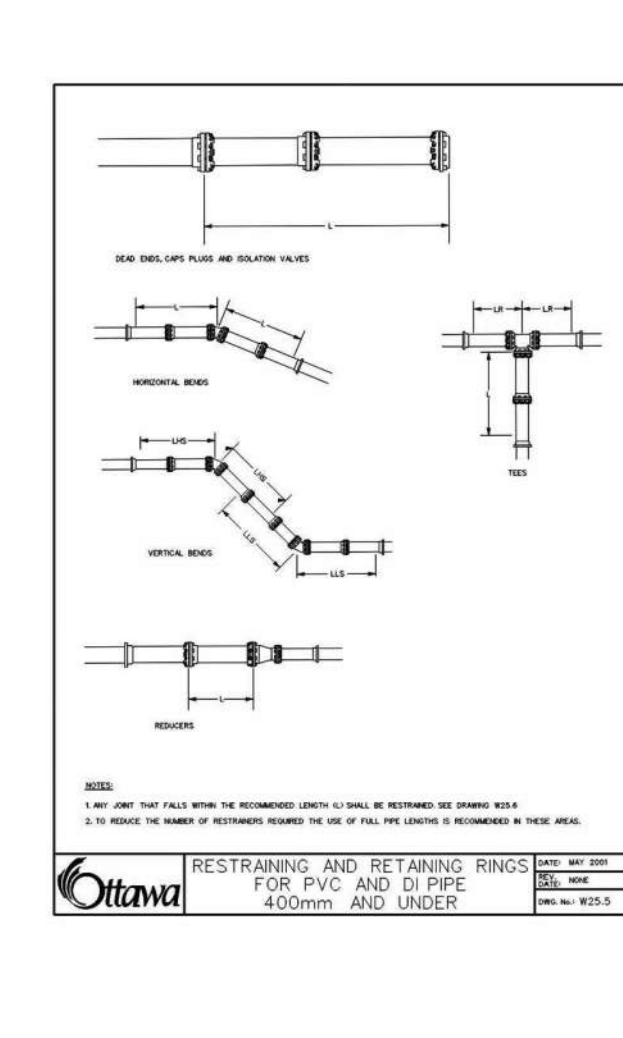
PIPE DIAMETER	A	B	C	D
100	200	200	200	200
150	300	300	300	300
200	400	400	400	400
250	500	500	500	500
300	600	600	600	600
350	700	700	700	700
400	800	800	800	800

2. SOIL DESCRIPTIONS WITH SANDS, GRAVELS OR CLAYEY SANDS GRAVELS WITH TYPICAL BEARING CAPACITY OF 200 TO 300 kPa

PIPE DIAMETER	A	B	C	D
100	200	200	200	200
150	300	300	300	300
200	400	400	400	400
250	500	500	500	500
300	600	600	600	600
350	700	700	700	700
400	800	800	800	800

3. SOIL DESCRIPTIONS WITH SANDS, GRAVELS AND GRAVELS AND SILTS WITH TYPICAL BEARING CAPACITY OF 300 kPa AND OVER

PIPE DIAMETER	A	B	C	D
100	200	200	200	200
150	300	300	300	300
200	400	400	400	400
250	500	500	500	500
300	600	600	600	600
350	700	700	700	700
400	800	800	800	800



TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER

PIPE DIAMETER	RESTRAINED LENGTH (mm)
100	100
150	150
200	200
250	250
300	300
350	350
400	400

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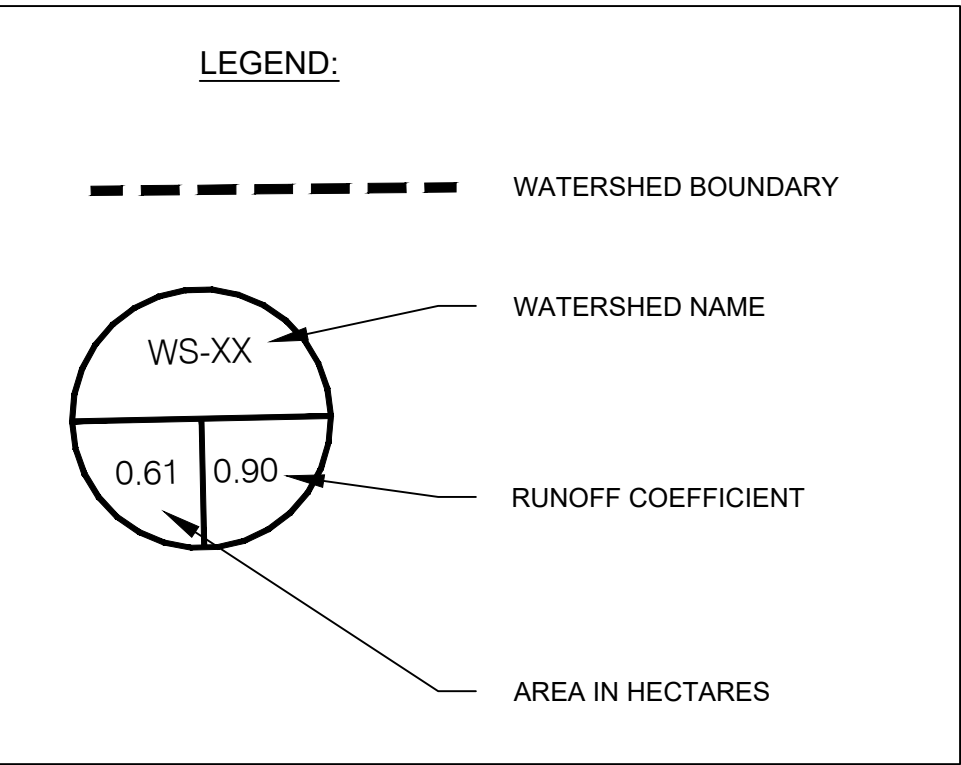
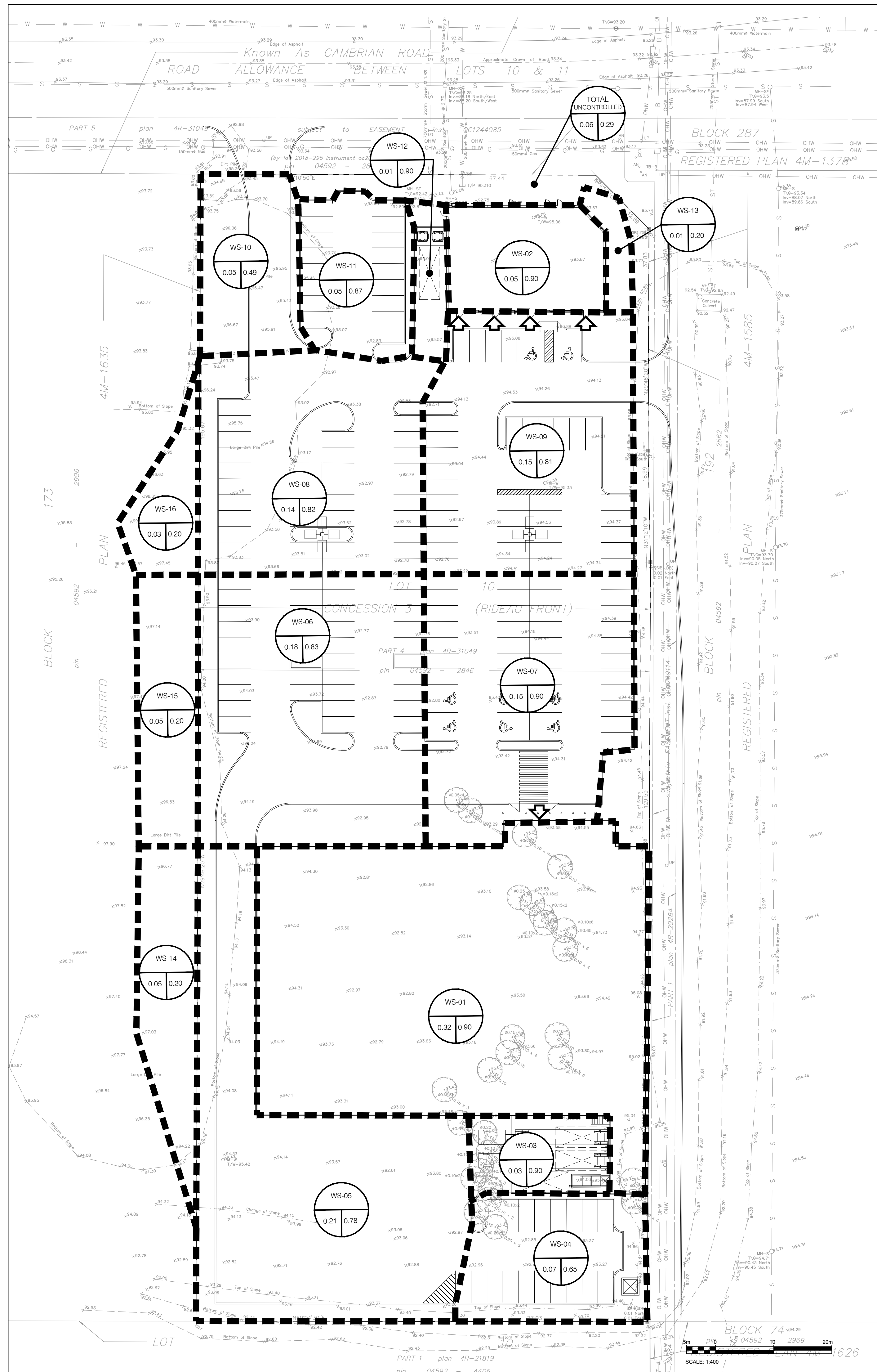
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