

1. STANDARDS AND DRAWINGS

- A. THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNDER THIS CONTRACT UNLESS OTHERWISE NOTED ON DRAWINGS AND/OR SPECIFIC DETAIL DRAWINGS.
- B. THE STANDARDS OF THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS), THE ONTARIO PROVINCIAL STANDARDS DRAWINGS (OPSD) AND ELECTRICAL SAFETY AUTHORITY (ESA) CONSTITUTE PART OF THE PLANS OF THIS CONTRACT.
- C. ORDER OF PRECEDENCE OF STANDARDS IS FIRSTLY CITY OF OTTAWA.
- D. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY ACT.
- E. THE STANDARD DRAWINGS INCLUDED WITH THESE PLANS ARE PROVIDED FOR CONVENIENCE ONLY AND ARE NOT TO BE CONSIDERED TO BE A COMPLETE SET FOR THE PURPOSE OF THE CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT STANDARD DRAWINGS AND SPECIFICATIONS AS REQUIRED FOR THIS CONTRACT.

2. MEASUREMENTS

- A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE AND STRUCTURE DIAMETERS, WHICH ARE IN MILLIMETRES.
- B. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

3. GENERAL

- A. PIPES TO BE CONSTRUCTED WITH BEDDING, COVER AND BACKFILL OR EMBEDMENT AND BACKFILL CONFORMING TO OPSD 802.010, 802.013, 802.014, 802.030, 802.031, 802.032, 802.033 AND 802.034 AS APPLICABLE BASED ON PIPE MATERIAL AND SOIL CONDITIONS, BEDDING, COVER, AND EMBEDMENT MATERIALS SHALL BE GRANULAR 'A'. EMBEDMENT, BEDDING, COVER AND BACKFILL MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 100% OF THE MATERIALS SPMD. IN WET AREAS EMBEDMENT MATERIAL TO BE 9.5 MM CLEAR LIMESTONE WRAPPED IN AN APPROVED GEOTEXTILE (TERRAFIX 270R OR APPROVED EQUIVALENT).
- B. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT. ALL DISTURBED AREAS WITHIN THE CITY RIGHT-OF-WAY TO BE SODDED.
- C. EXISTING SERVICES AND UTILITIES SHOWN ON THESE CONTRACT DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION.
- D. EXISTING BELL DUCT BANKS, HYDRO BANKS AND GAS MAINS IN PAVEMENT OR BOULEVARD (AS LOCATED BY UTILITY PROVIDER) TO BE EXPOSED AT CONTRACTORS COST PRIOR TO INSTALLATION OF SANITARY OR STORM SEWER, CULVERTS, WATERMAIN OR SERVICES WHICH CROSS DUCT BANK OR GAS MAINS. ALL UTILITY DUCT BANKS ARE TO BE PROPERLY SUPPORTED WHEN SEWERS OR SERVICES ARE INSTALLED UNDERNEATH. SPACE BETWEEN DUCT BANK AND SEWER OR SERVICE TO BE BACKFILLED WITH UNSHRINKABLE FILL.
- E. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY SUPPORT OF EXISTING CULVERTS, SEWER AND WATERMAIN AT ALL CROSSINGS.
- F. THE CONTRACTOR SHALL OBTAIN ROAD OCCUPANCY AND ACCESS PERMITS FOR ALL WORK IN THE MUNICIPAL ROW. THE PERMIT(S) OBTAINED SHALL BE TAKEN OUT IN THE NAME OF THE CONTRACTOR.
- G. THE CONTRACTOR SHALL PROTECT SURVEY MONUMENTS AND BENCHMARKS ENCOUNTERED DURING THE WORK. ALL SURVEY MONUMENTS AND BENCHMARK DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY AN ONTARIO LAND SURVEYOR, AT THE CONTRACTOR'S EXPENSE.
- H. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL MATERIALS TO CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO ORDERING.
- I. THE CONTRACTOR IS REQUIRED TO CONFIRM EXISTING GRADES AND PIPE INVERTS AT CONNECTIONS AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE COMMENCING WORK.
- J. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER AND/OR CALCIUM CHLORIDE AS REQUIRED FOR COMPACTION AND/OR DUST CONTROL.
- K. TREES/SHRUBS THAT MUST BE REMOVED SHALL BE IDENTIFIED AND PERMISSION FOR REMOVAL SHALL BE OBTAINED FROM THE CONTRACT ADMINISTRATOR.
- L. CONTRACTOR IS TO NOTIFY THE CITY OF ALL CONSTRUCTION ACTIVITIES A MINIMUM OF 72 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- M. TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL CONFORM TO THE MOST CURRENT ONTARIO CONSTRUCTION REGULATIONS INCLUDING REGULATION No. 213 UNDER OHSA AND REFERENCE TO MTO TEMPORARY CONDITIONS MANUAL BOOK No. 7.
- N. ALL EARTH GRADING TO OPSS 206.
- O. EXCESS STOCKPILED OR UNSUITABLE MATERIALS TO BE DISPOSED OF BY THE CONTRACTOR AT AN APPROVED OFFSITE LOCATION IN ACCORDANCE WITH O.REG.406/19.
- P. FOR THE DURATION OF THE CONTRACT, MATERIAL THAT BECOMES CONTAMINATED DUE TO CONTRACTOR'S ACTIVITY SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

4. ENTRANCE, DRIVE AISLES AND PARKING AREAS

- A. ALL TOPSOIL MUST BE STRIPPED FROM LANEWAY AND PARKING AREAS PRIOR TO CONSTRUCTION.
- B. CONTRACTOR TO REMOVE ALL TOPSOIL AND ORGANIC MATERIAL LOCATED BELOW EXISTING FILL MATERIAL WITHIN THE LANEWAY AND PARKING AREAS. BACKFILL TO BE APPROVED ENGINEERED FILL OR NATIVE MATERIAL COMPACTED TO 95% SPMD. THE SUBGRADE SHOULD BE COMPACTED, PROOF ROLLED AND INSPECTED BY A GEOTECHNICAL ENGINEER.
- C. GRANULAR 'B' SUBBASE TO BE PLACED IN 150mm MAXIMUM LOOSE LIFT AND COMPACTED TO 98% OF MATERIAL'S SPMD.
- D. GRANULAR 'A' BASES TO BE PLACED IN 1500mm MAXIMUM LOOSE LIFT AND COMPACTED TO 100% OF MATERIAL'S SPMD.
- E. ALL ASPHALT MATERIAL AND PLACEMENT TO BE IN ACCORDANCE WITH OPSS 310.
- F. PAVEMENT AND GRANULAR STRUCTURES SHALL BE AS PER PAVEMENT STRUCTURE TABLE ON DRAWING SG-1 AND GEOTECHNICAL RECOMMENDATIONS.
- G. FROST TREATMENT FOR ALL STORM SEWERS IN ACCORDANCE WITH OPSD 803.030.
- H. BOULDER TREATMENT TO OPSD 204.010.
- I. TRANSITION TREATMENT FOR EARTH/ROCK CUT/FILL OPERATIONS TO OPSD 205.010, 205.020, 205.040, 205.050 ACCORDINGLY.

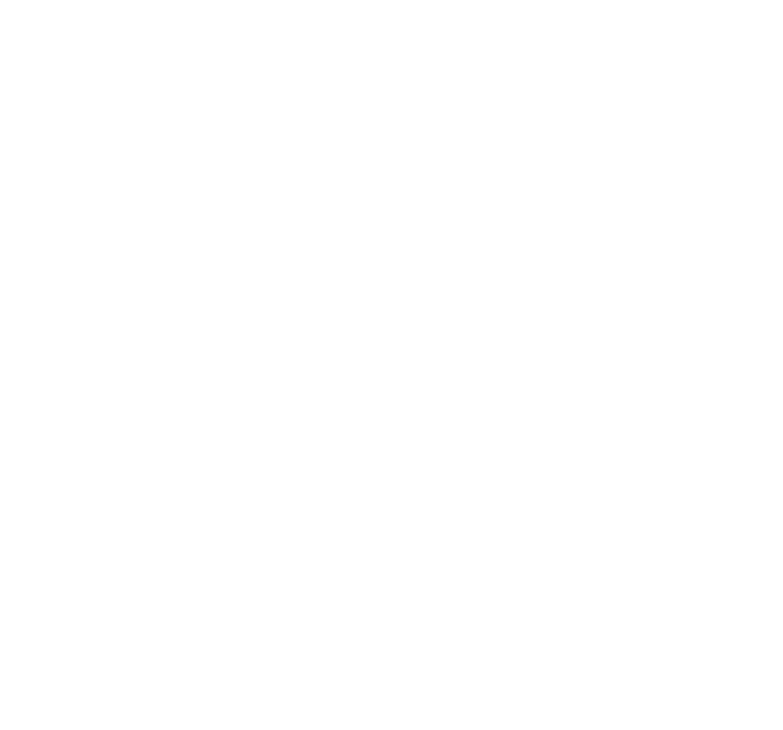
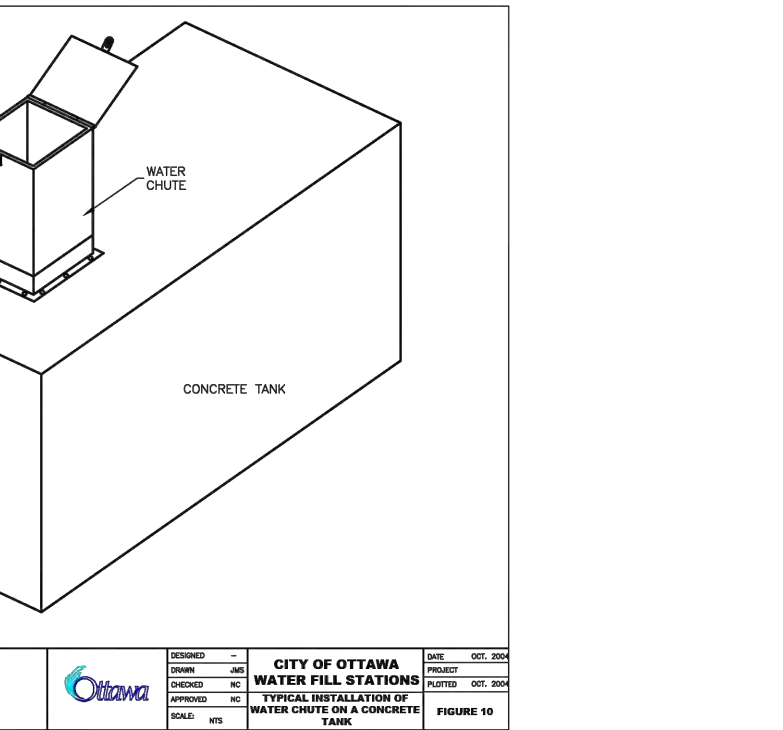
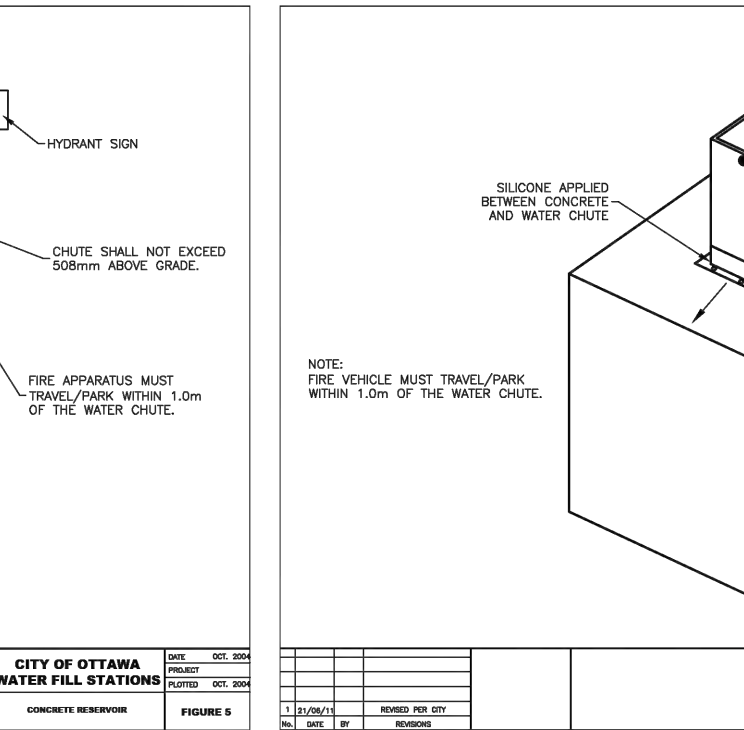
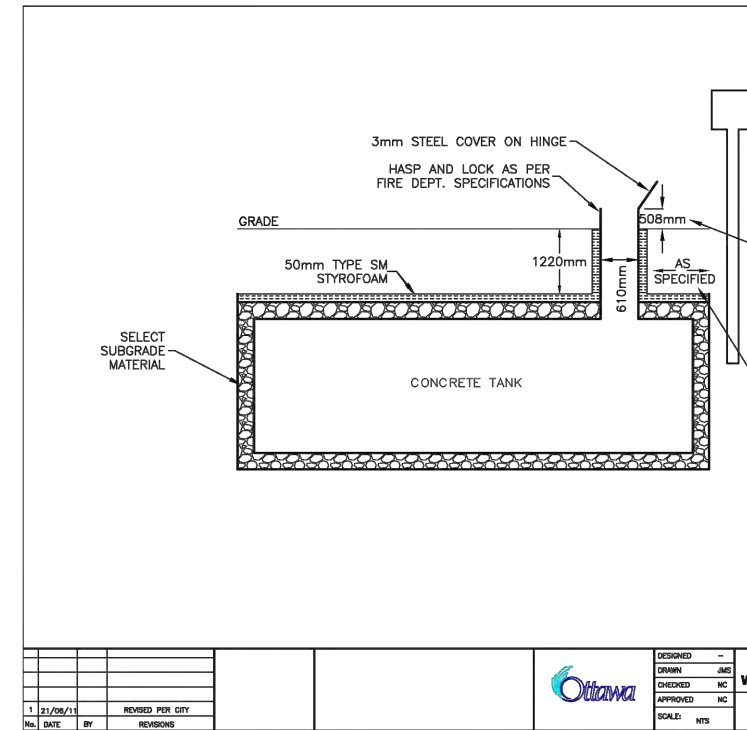
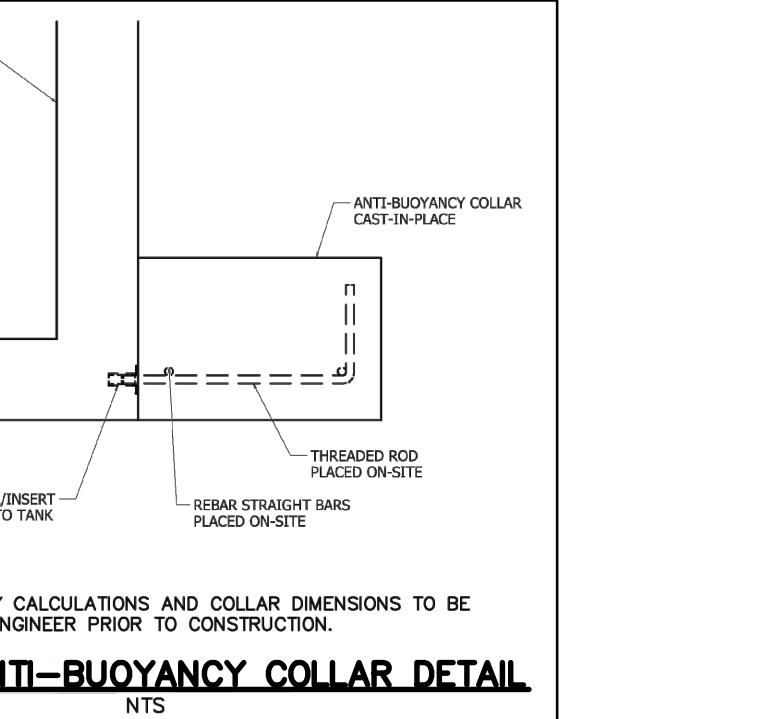
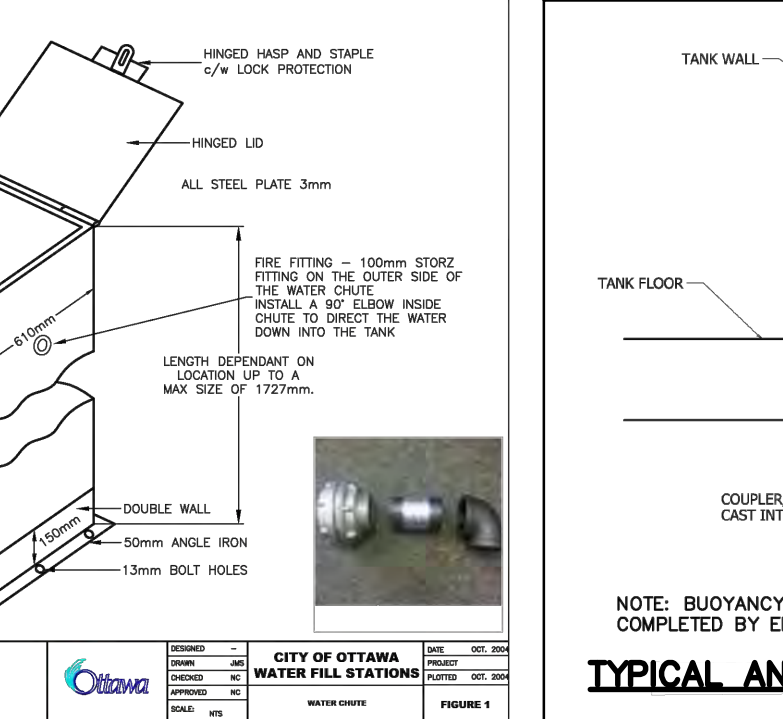
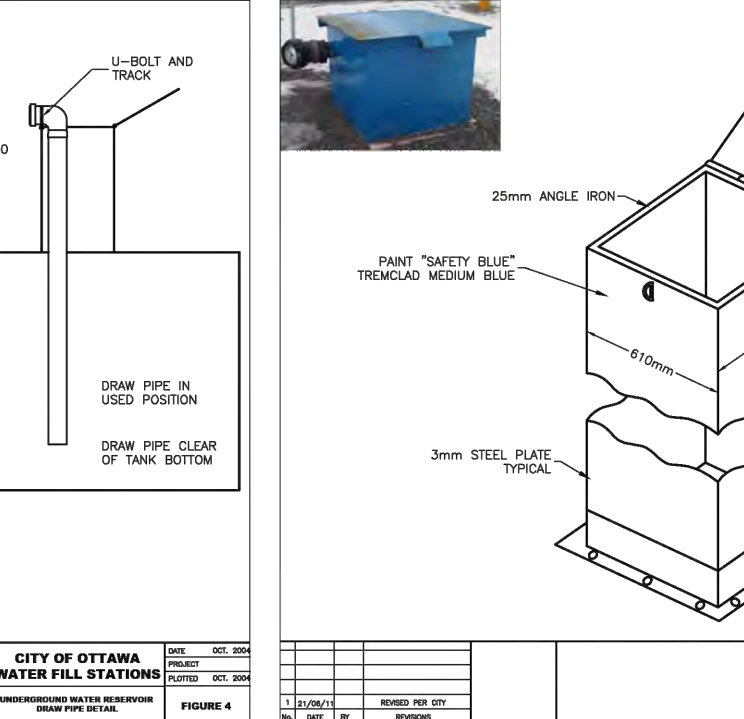
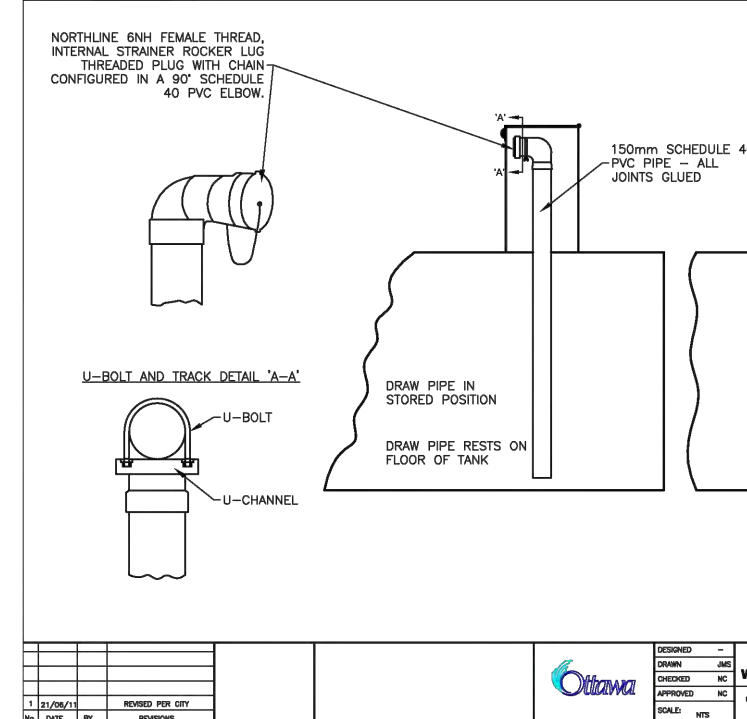
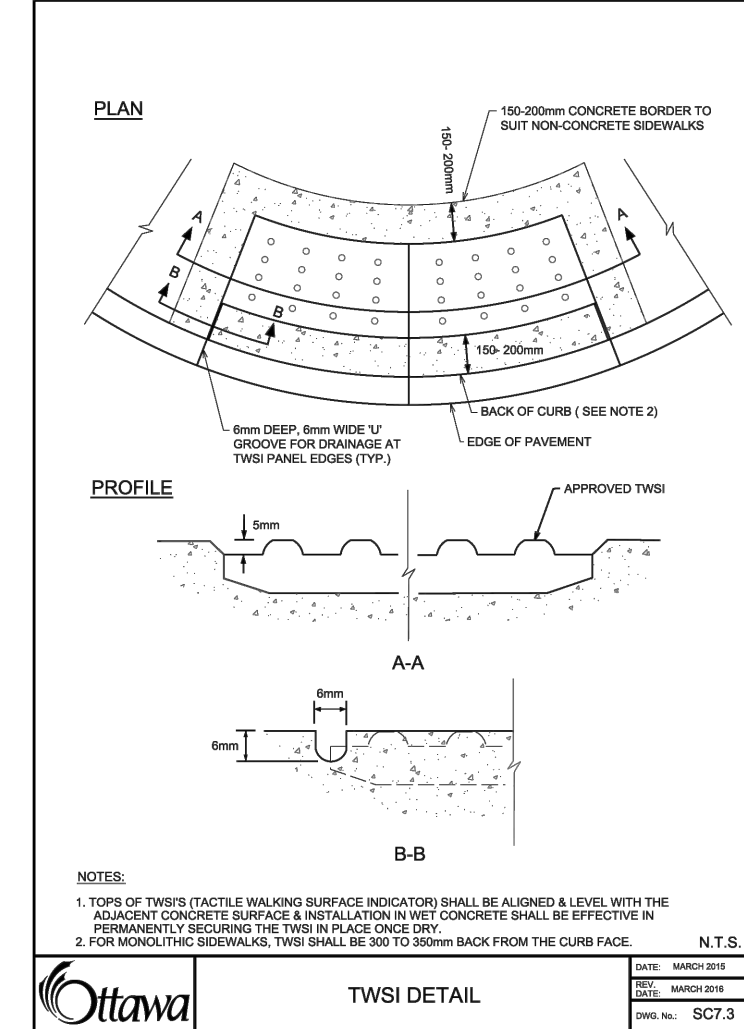
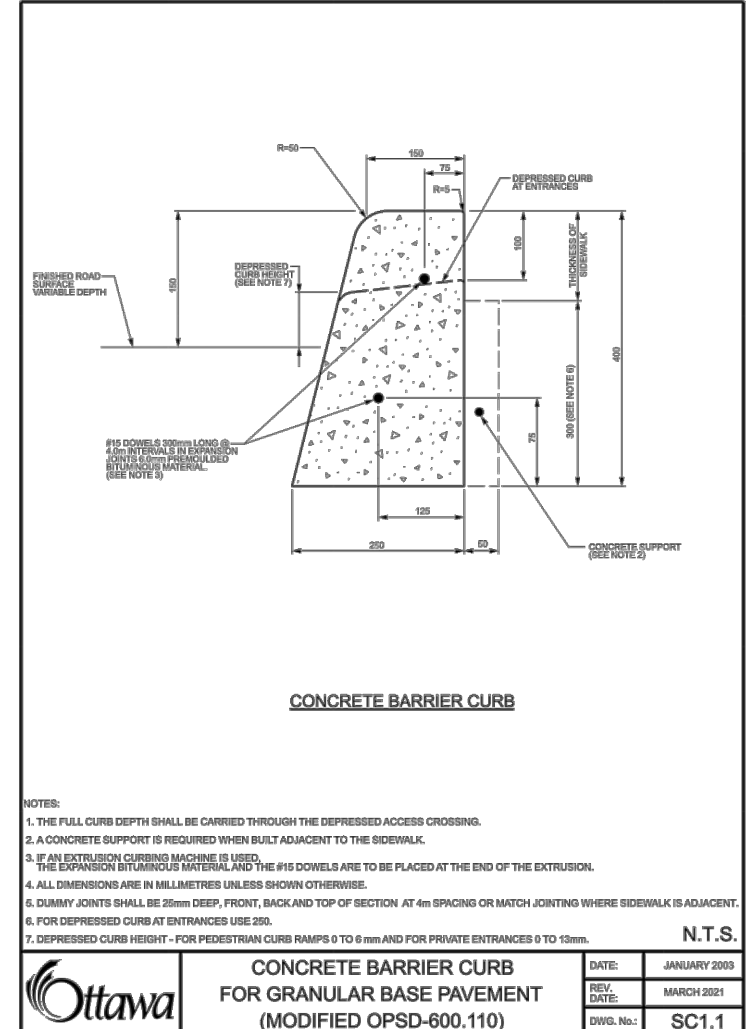
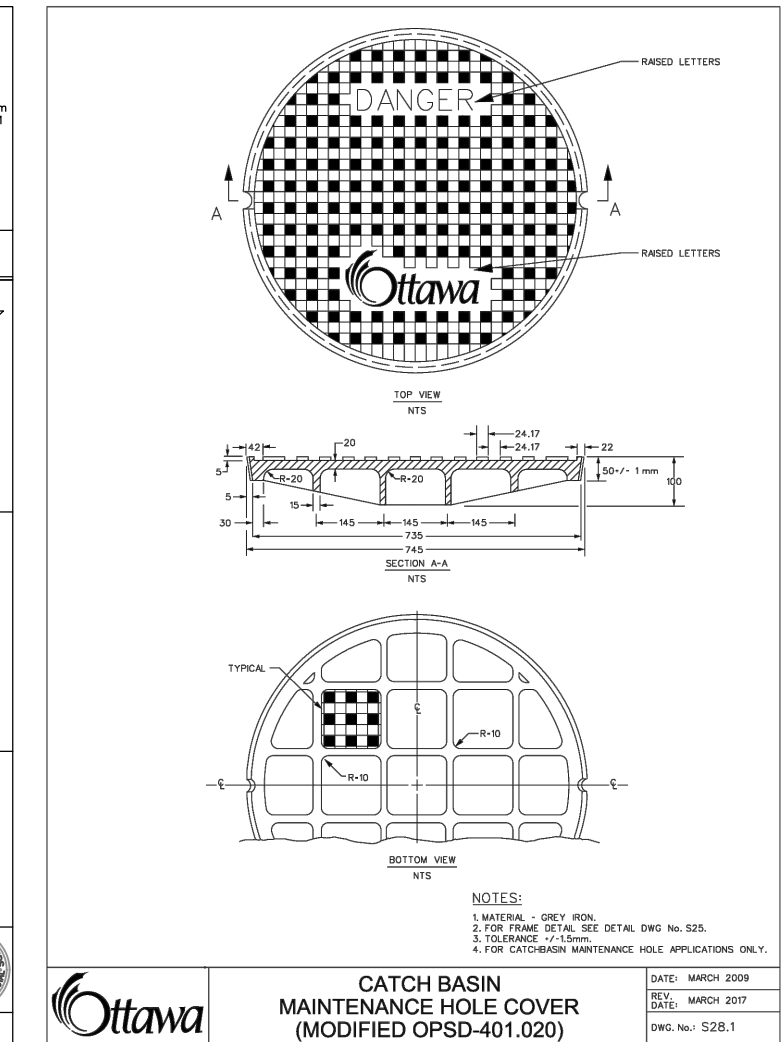
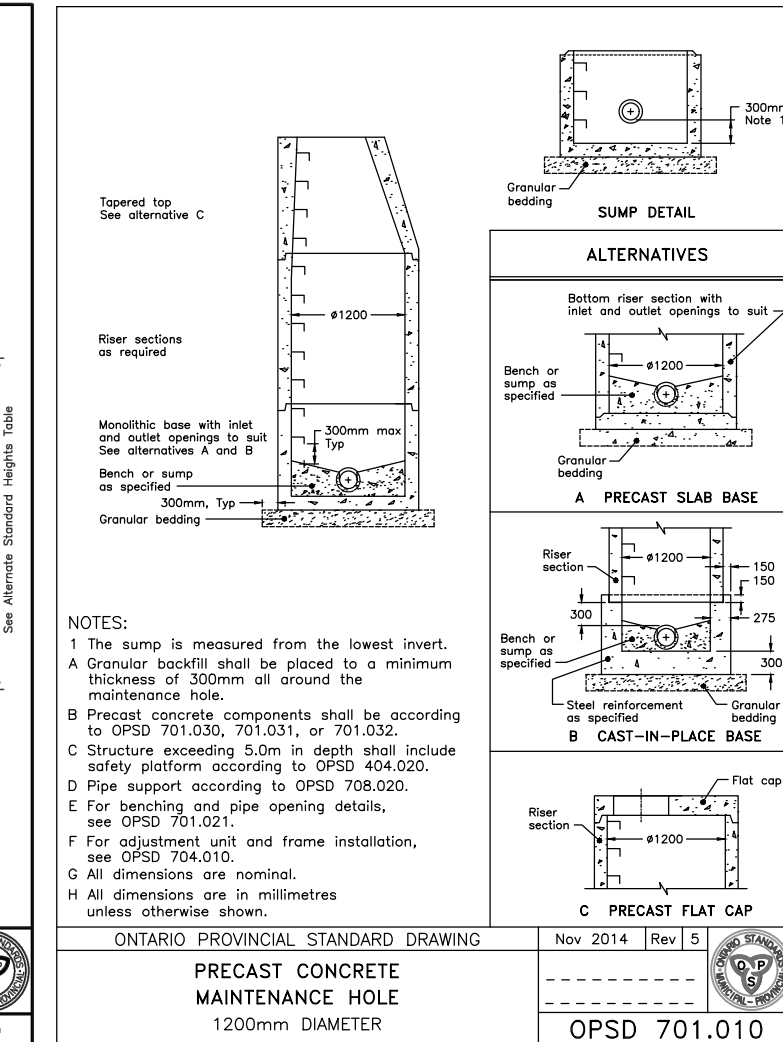
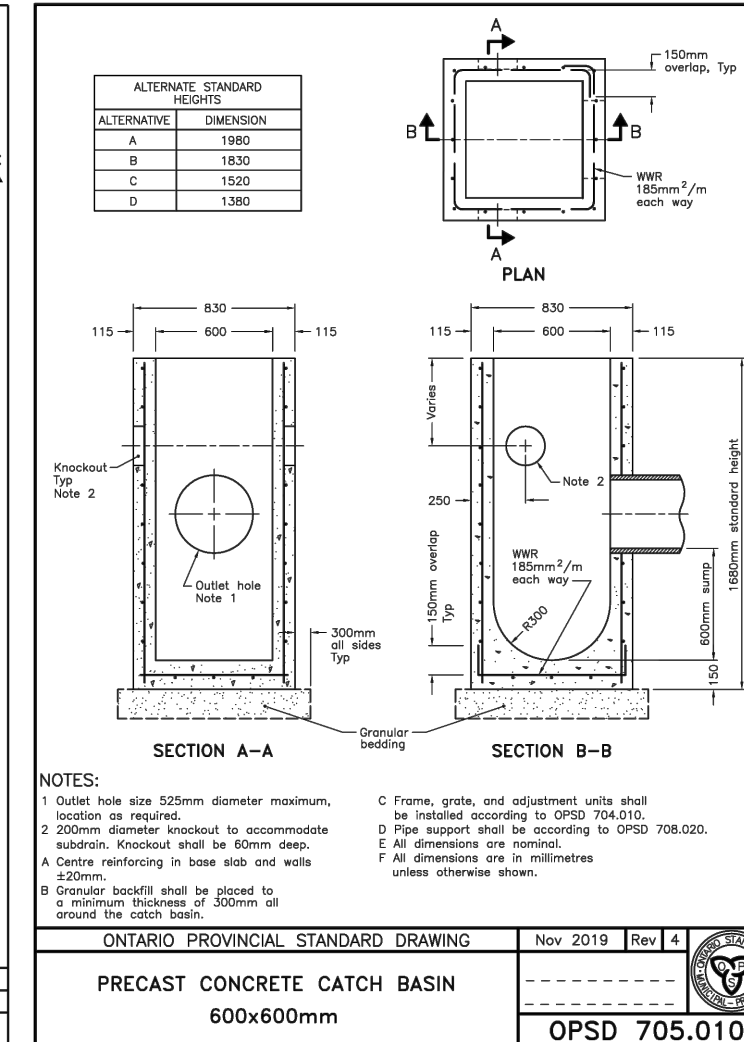
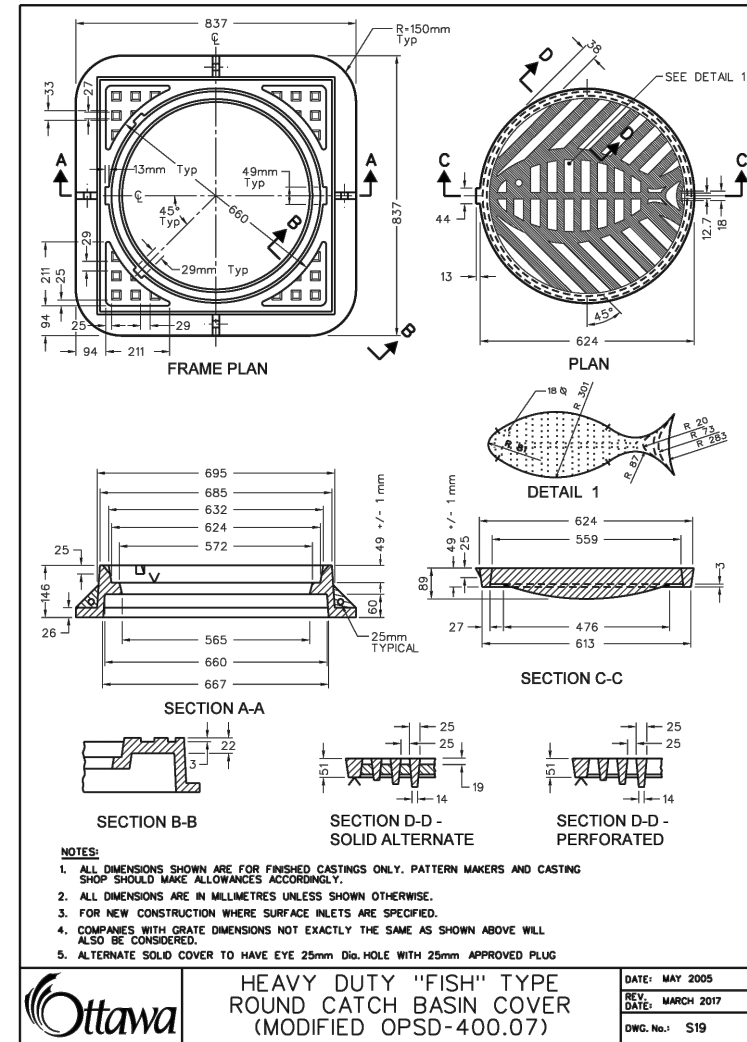
5. STORM SEWER



- A. PIPE MATERIAL TO BE PVC SDR 35 CERTIFIED TO C.S.A. STANDARDS B182.2 AND B182.4 OR CONCRETE REINFORCED PIPE, CONFORMING TO CSA STANDARD A257.1 WITH A STRENGTH AS INDICATED ON THE DRAWINGS OR APPROVED EQUIVALENTS. WHERE SPECIFIED, HDPE STORM SEWER TO BE CORRUGATED DOUBLE WALL PIPE CONFORMING TO CSA B1 82.8 AND WITH MIN. 320 KPA PIPE STIFFNESS.
- B. ALL PIPE HANDLING AND INSTALLATION MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATION GUIDES AND THE UNIBELL GUIDELINES.
- C. MAXIMUM DEFLECTION FROM COMBINED LINE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
- D. SINGLE CATCHBASINS TO BE 600 mm SQUARE PRECAST CONCRETE TO OPSD 705.010, FRAME AND GRATE TO CITY OF OTTAWA DETAIL 'S19', 900mm SUMP, CATCHBASIN MAINTENANCE HOLE TO BE 1200mmØ PRECAST CONCRETE TO OPSD 701.010 FRAME AND GRATE TO CITY OF OTTAWA DETAIL S28.1 500mm SUMP.
- E. STORM SEWER WITH LESS THAN 2.0M COVER TO PIPE CROWN REQUIRES INSULATION AS PER DETAIL ON DWG SG-1 OR APPROVED EQUIVALENT.
- F. TESTING OF STORM SEWERS SHALL INCLUDE:
- CCTV VIDEO INSPECTION
 - FLUSHING AND CLEANING

- G. PIPE SUPPORT AT ALL STRUCTURES TO OPSD 708.020.
- H. IF SEPARATION BETWEEN STORM SEWER AND OTHER STRUCTURES, PIPE OR UTILITIES IS LESS THAN 0.3m, INSTALL 50mm HI-60 INSULATION AS DIRECTED BY THE ENGINEER.
- I. ALL RIP RAP SHALL CONFORM WITH OPSD 810.010.
6. UTILITIES
- A. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY, ACTUAL LOCATION TO BE CONFIRMED BY CONTRACTOR.
- B. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING LOCATES AND INFORMATION IN REGARD TO EXACT LOCATION OF BURIED UTILITIES AND INFRASTRUCTURE. THIS SHALL INCLUDE HYDRO VACUUM EXCAVATION IF NECESSARY. THE CONTRACTOR MUST EXERCISE NECESSARY CARE IN CONSTRUCTION OPERATIONS INCLUDING IF NECESSARY HAND DIGGING TO SAFEGUARD UTILITIES AND ALL OTHER BURIED INFRASTRUCTURE FROM DAMAGE. THE CONTRACTOR IS LIABLE FOR ALL DAMAGE TO UTILITIES AND ALL BURIED INFRASTRUCTURE OCCURRING WITHIN OR OUTSIDE THE CONTRACT LIMITS CAUSED BY HIS OPERATIONS.
- C. ANY AREA OF POSSIBLE CONFLICTS WITH EXISTING UTILITIES SHALL BE EXCAVATED BY HAND PRIOR TO CONSTRUCTION.
- D. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITY CORPORATIONS PRIOR TO CROSSING UTILITIES FOR THE PURPOSE OF INSPECTION BY THE CONCERNED CORPORATION. THIS INSPECTION WILL BE FOR THE DURATION OF CONSTRUCTION WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.

4. CONSTRUCTION DEWATERING

- A. THE CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING THAT MAY BE REQUIRED TO PRODUCE A DRY AND STABLE TRENCH FOR CONSTRUCTION OF THE WORKS. WORK TO BE IN ACCORDANCE WITH ONTARIO REGULATION 63/16, OPSS 518.
- B. DURING NORMAL OPERATIONS, THE MAXIMUM VOLUME OF WATER TO BE DISCHARGED FROM THE DE-WATERING OPERATION ON A DAILY BASIS WITHOUT A MECP PERMIT TO TAKE WATER IS 400,000 L/DAY. FOR DE-WATERING BETWEEN 50,000L/DAY AND 400,000L/DAY THE CONTRACTOR IS REQUIRED TO REGISTER THE ACTIVITY ON THE EASR IN ACCORDANCE WITH O.REG. 63/16.
- C. ALL WATER DISCHARGED FROM THE DEWATERING OPERATION SHALL BE DISCHARGED TO AN APPROVED OUTLET AS DETERMINED BY THE CONTRACT ADMINISTRATOR.
- D. DEWATERING PUMPS SHALL DISCHARGE TO A GEOTEXTILE FILTER BAG LOCATED ON A GENTLY SLOPING GRASSSED SURFACE TO THE APPROVED OUTLET.
- E. WHERE REQUIRED, SUPPLEMENTARY SEDIMENT AND EROSION CONTROL WORKS, SUCH AS SILT FENCE AND STRAW BALE CHECK DAMS, SHALL BE INSTALLED DOWN GRADIENT OF THE FILTER BAGS TO ENSURE DISCHARGE WATER IS FREE OF SEDIMENT AND TO PREVENT EROSION.
- F. TO MINIMIZE THE VOLUME OF WATER TO BE REMOVED FROM EXCAVATIONS, THE WORK AREA SHALL BE GRADED TO DIRECT SURFACE RUNOFF AROUND AND AWAY FROM OPEN EXCAVATIONS.
- G. THE CONTRACTOR SHALL MEASURE AND RECORD, ON A DAILY BASIS, THE TOTAL VOLUME OF WATER DISCHARGED (L/DAY) AND THE AVERAGE DISCHARGE RATE (L/S). THE CONTRACTOR SHALL SUBMIT COPIES OF THE DEWATERING DISCHARGE FLOW RECORDS TO THE CONTRACT ADMINISTRATOR ON A WEEKLY BASIS OR UPON REQUEST. THE METHOD OF MEASURING THE VOLUME OF WATER DISCHARGED SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING DEWATERING OPERATIONS.
- H. DEWATERING OPERATIONS ARE TO BE SUSPENDED DURING SEVERE STORM EVENTS.



DISCLAIMER AND COPYRIGHT CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED. TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.		No.		REVISION DESCRIPTION	DATE	ENGINEER STAMP	1981 CENTURY RD. WEST CITY OF OTTAWA BRUNSTAD CHRISTIAN CHURCH OTTAWA				
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