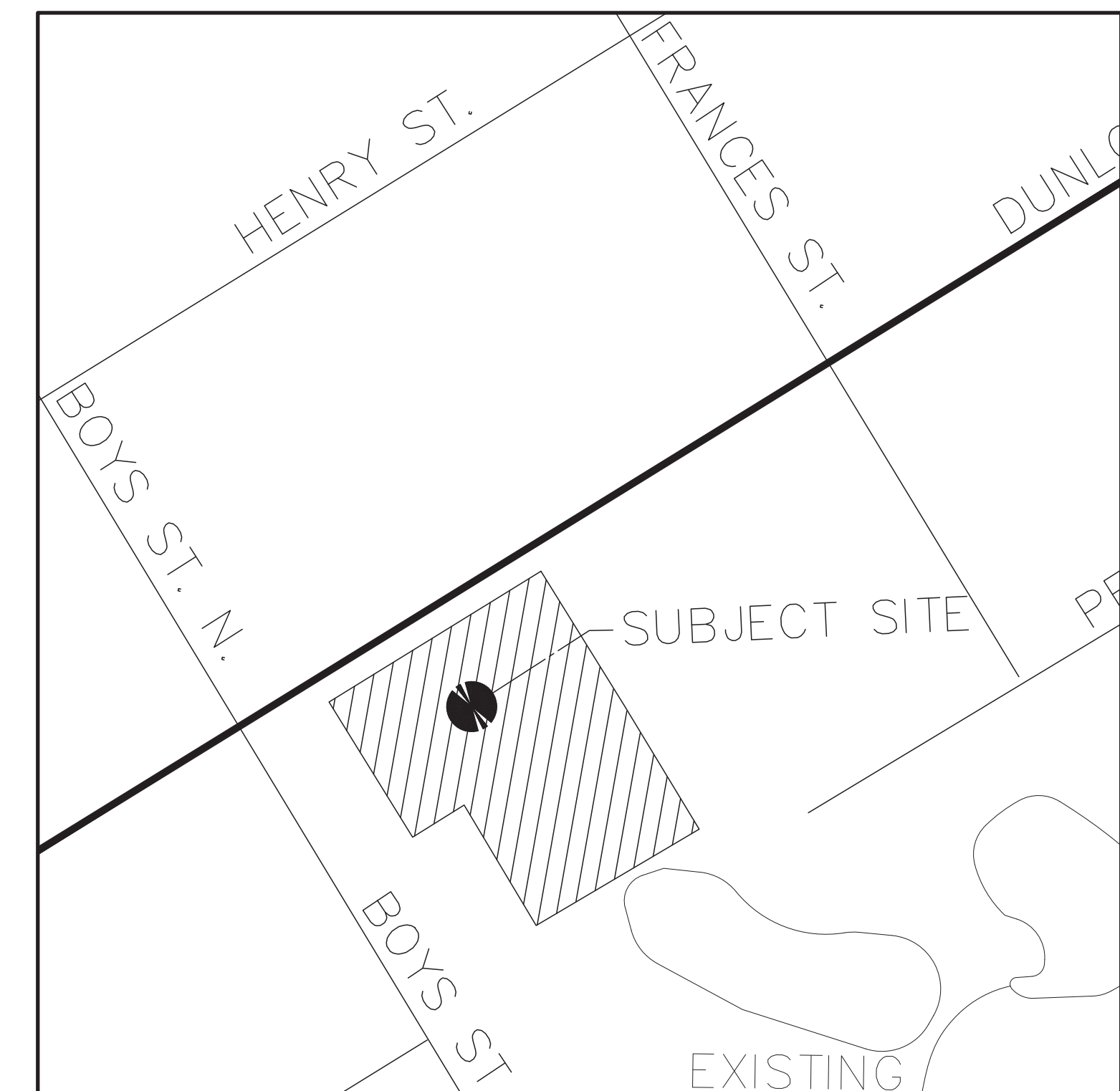


12081.01
GRAY - APARTMENT BUILDING
233, 237, 241, & 245 DUNLOP STREET WEST
BARRIE, ONTARIO

DRAWING LIST

ND-1	NOTES AND DETAILS
ND-2	NOTES AND DETAILS
SS-1	SITE SERVICING PLAN
SG-1	SITE GRADING PLAN
STM-1	PRE-DEVELOPMENT STORM CATCHMENT PLAN
STM-2	POST-DEVELOPMENT STORM CATCHMENT PLAN
EPR-1	ENVIRONMENTAL PROTECTION AND REMOVALS PLAN



MUNICIPALITY

CITY OF BARRIE
70 COLLIER ST.
BARRIE, ON
L4M 4T5

CLIENT

MDM DEVELOPMENTS
190 HOTCHKISS ST.
GRAVENHURST, ON
P1P 1H6



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GENERAL NOTES

1. DRAWINGS

- ALL DIMENSIONS ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETERS, UNLESS SPECIFIED OTHERWISE.
- ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
- RIGHT-OF-WAY ACTIVITY PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT (OPERATIONS CENTER, 165 FERNDALE DR. NORTH) PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.
- A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.
- NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- GRANULAR MATERIAL, USED FOR BACKFILL, SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.
- ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.
- REMOVAL AND SALVAGE OF CITY INFRASTRUCTURE INCLUDING BUT NOT LIMITED TO ROADWAY AND PARKING LOT ILLUMINATION, PAY AND DISPLAY MACHINE, PARKING METERS, PARKING LOT SIGNAGE, ETC. SHALL BE COORDINATED WITH THE APPROPRIATE CITY STAFF.

2. SANITARY

- SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
- MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
- PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS.
- CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m/mm CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II).
- MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.
- ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES, CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.
- PIPE TO BE MINIMUM 100 mm DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO C.S.A. (B-182.2.3.4) (COLOURED) FOR A RESIDENTIAL HOME AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.
- ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES, CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.

3. WATERMAIN

- CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.
- OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROHIBITED BY CURRENT BY-LAW. CITY SERVICE FEES ARE PER THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.
- MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.0m WHERE WATERMAIN CONFLICTS WITH SEWER PIPES, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
- WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSD.MUNI004.05.07 COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).
- COPPER WATER MAINS AND SERVICES 19mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100 mm ABOVE AND BELOW TO CONFORM TO OPSD.MUNI 1004.05.07.
- RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS, THRUST BLOCKS, AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
- NEW WATERMAINS TO BE PVC DR18 CL150 MINIMUM; DUCTILE IRON CL52AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.
- SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)
- RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.
- ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

4. STORM

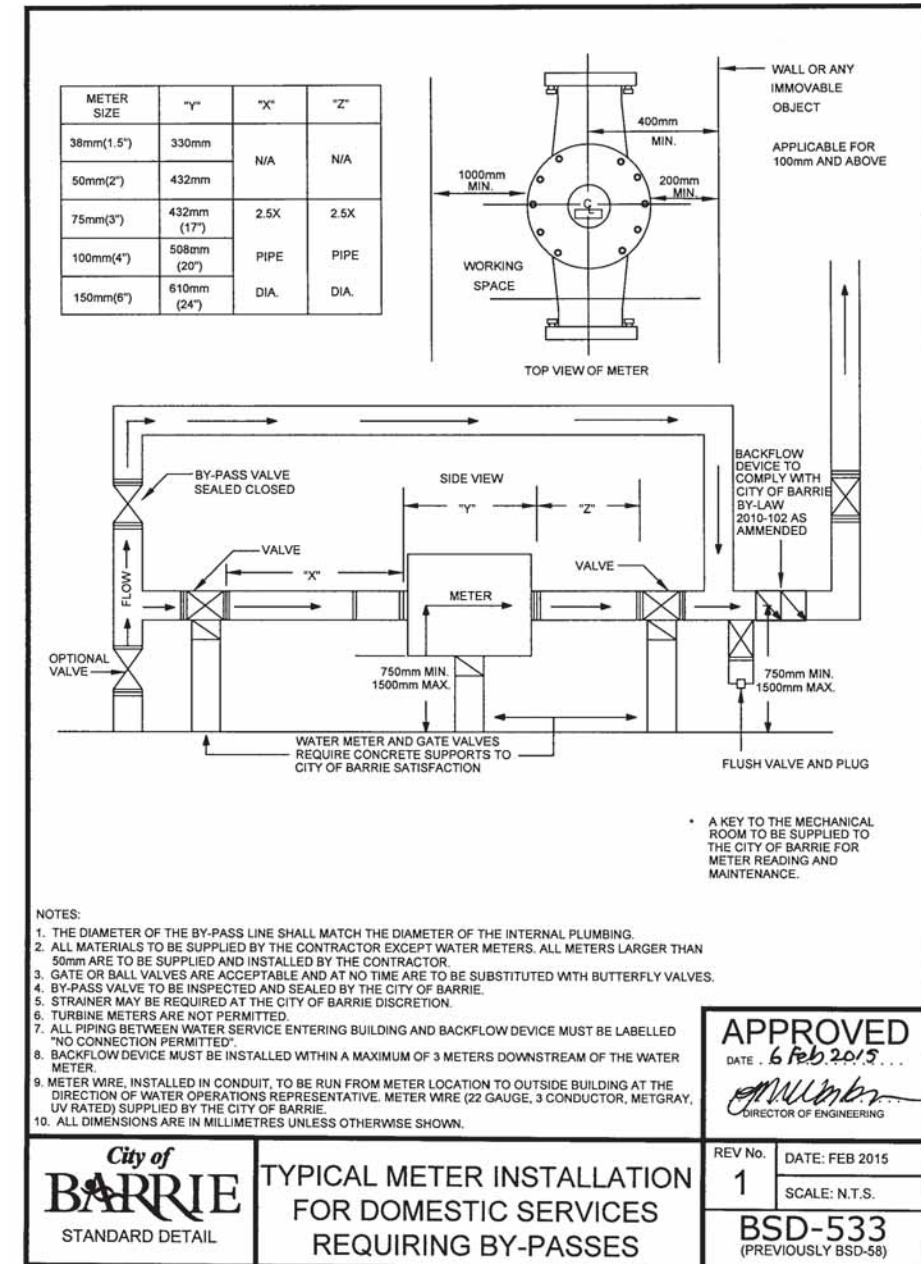
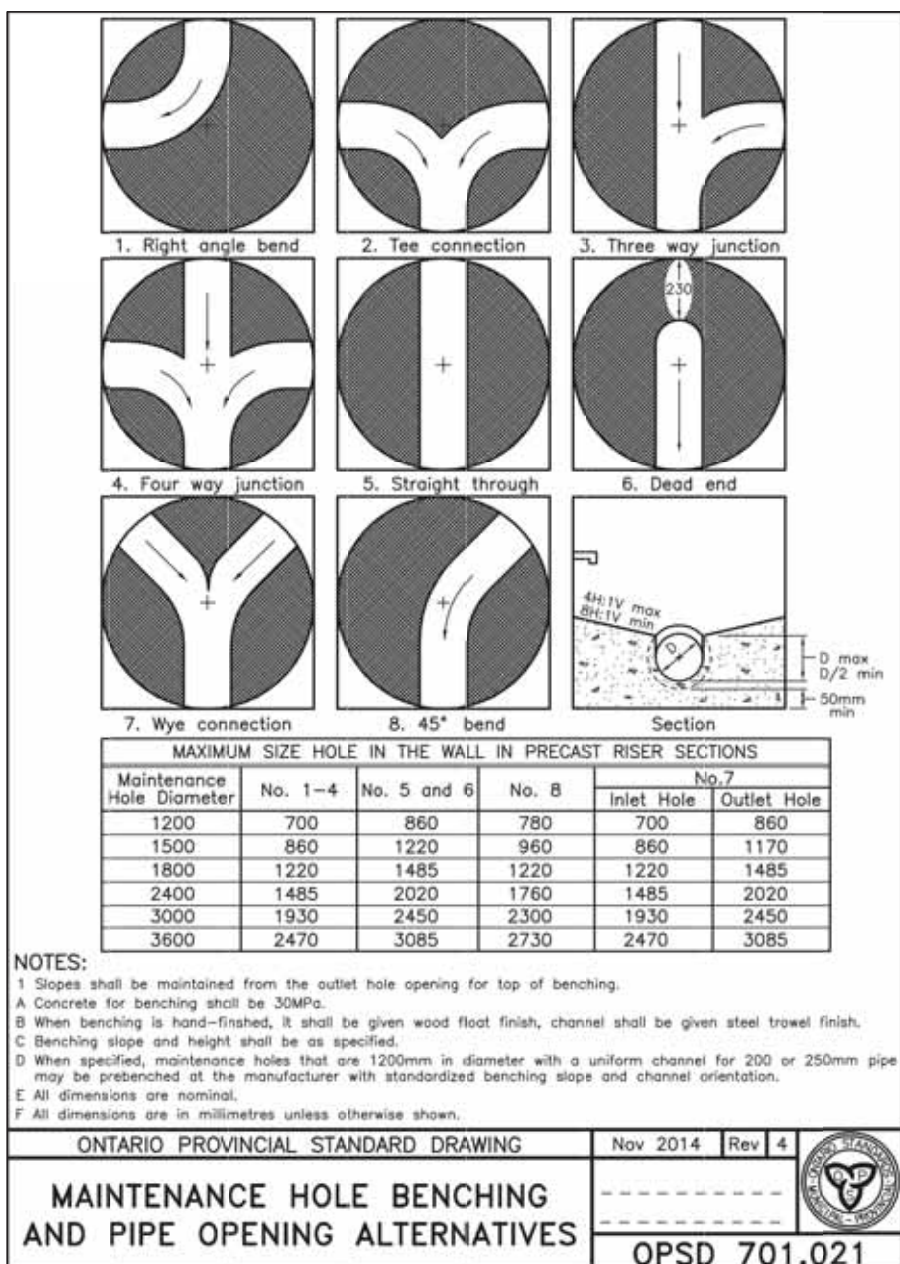
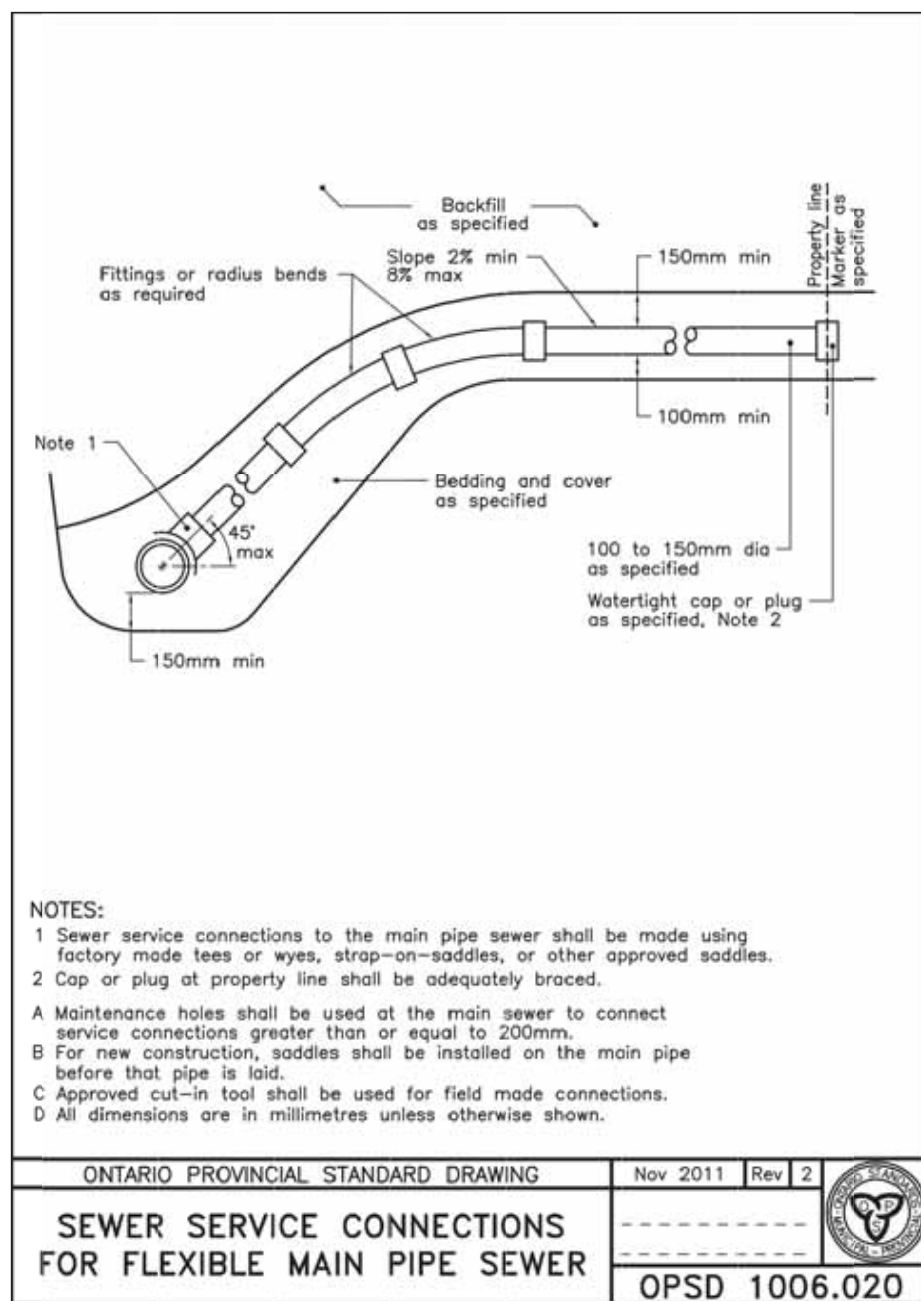
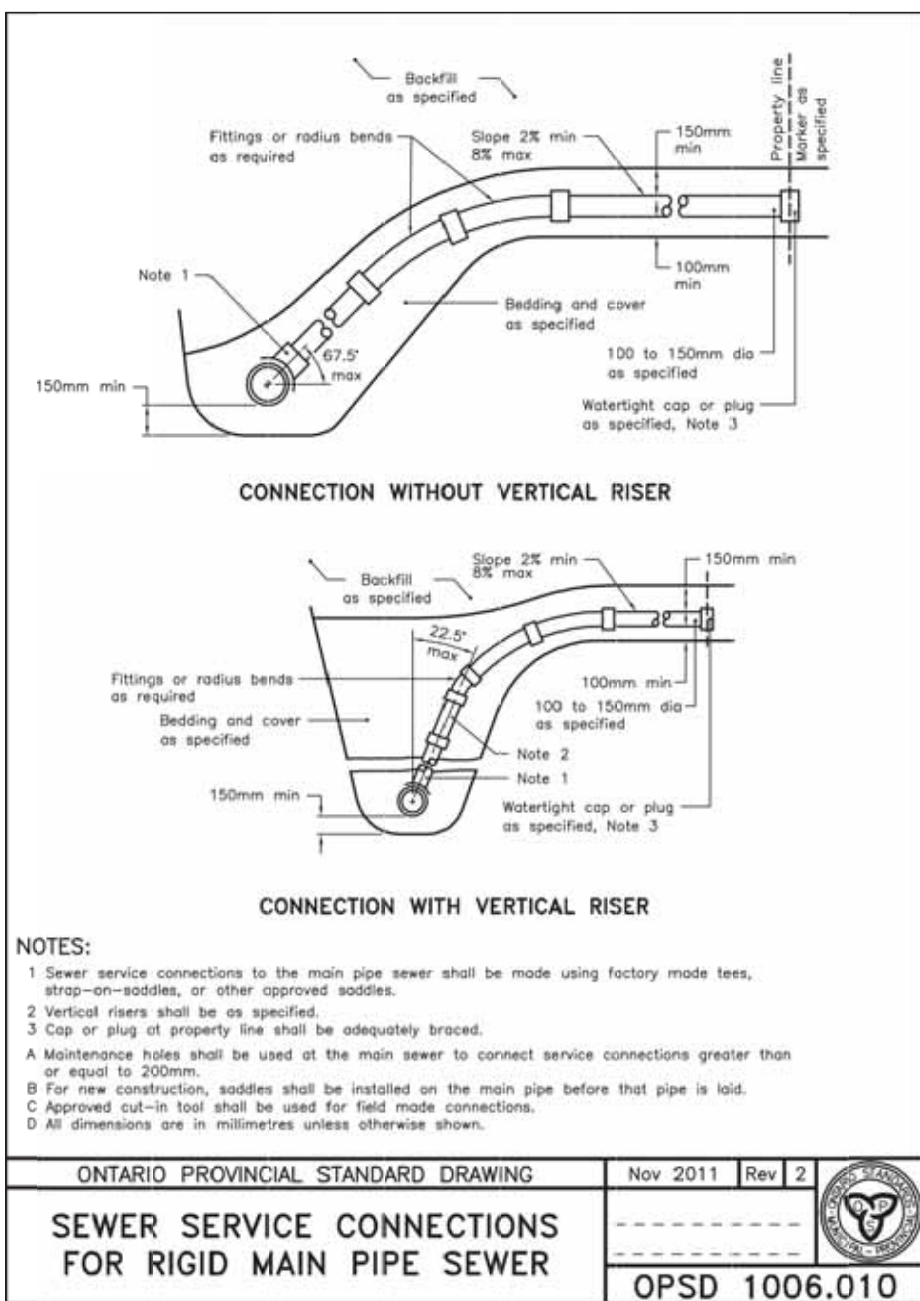
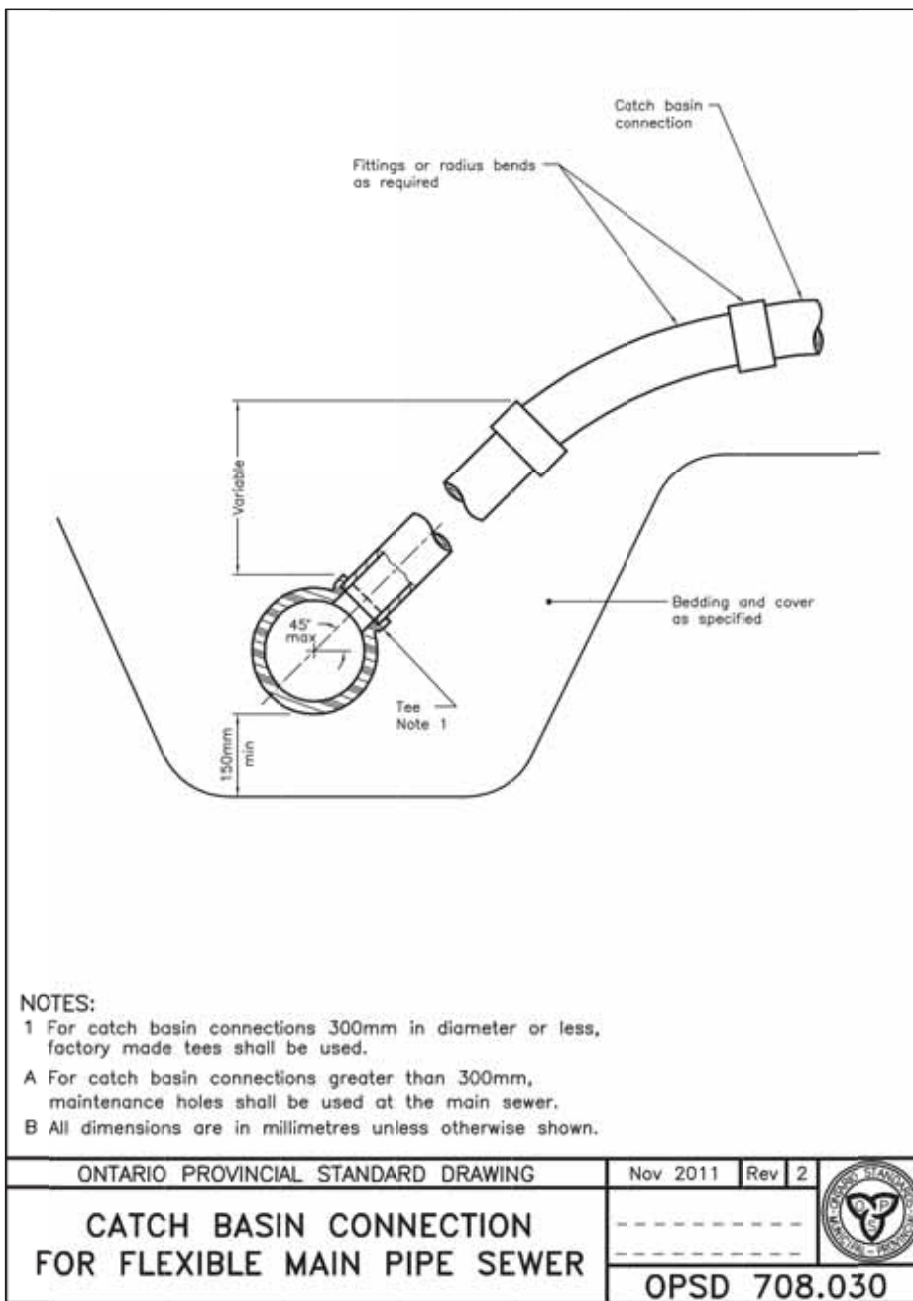
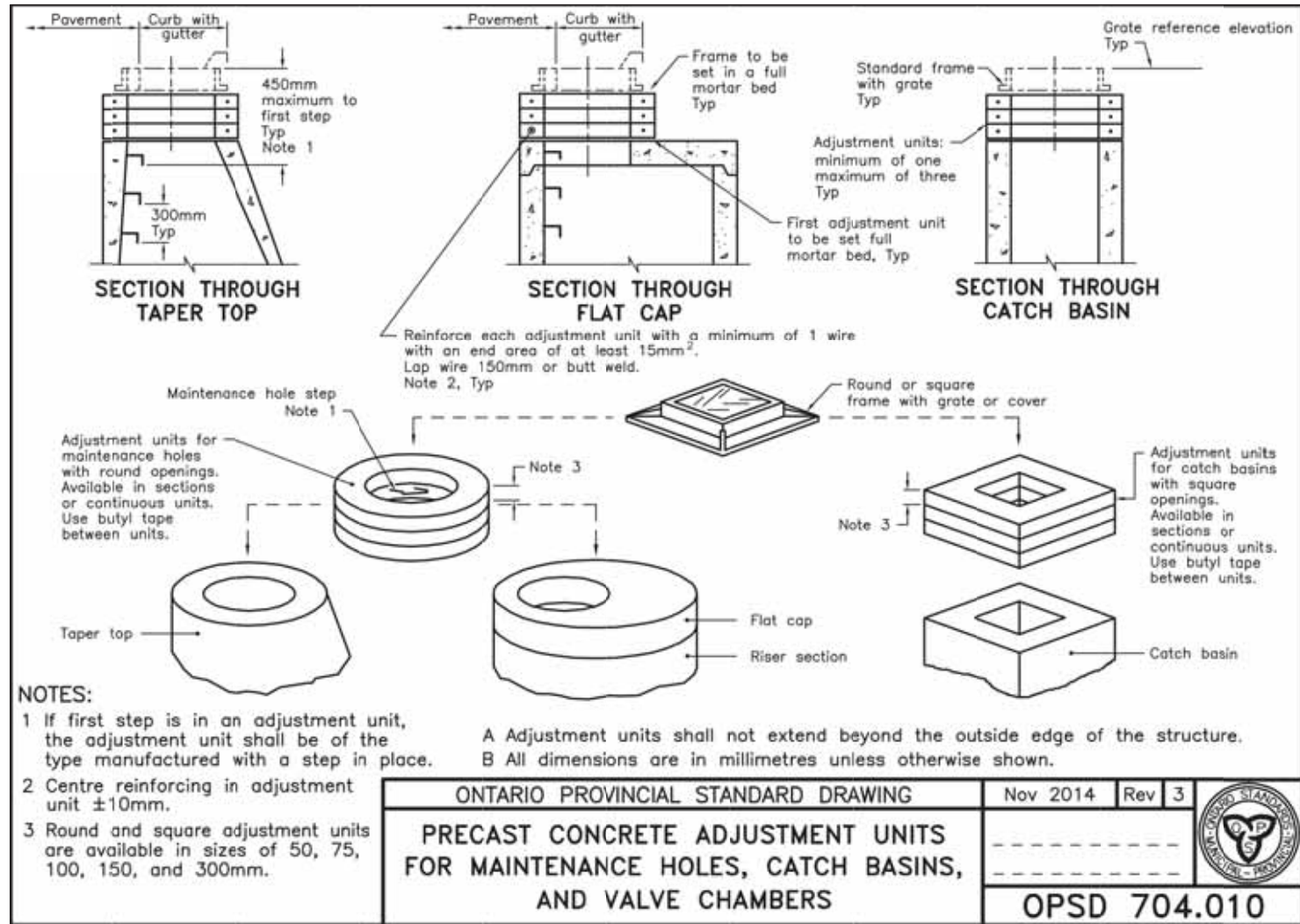
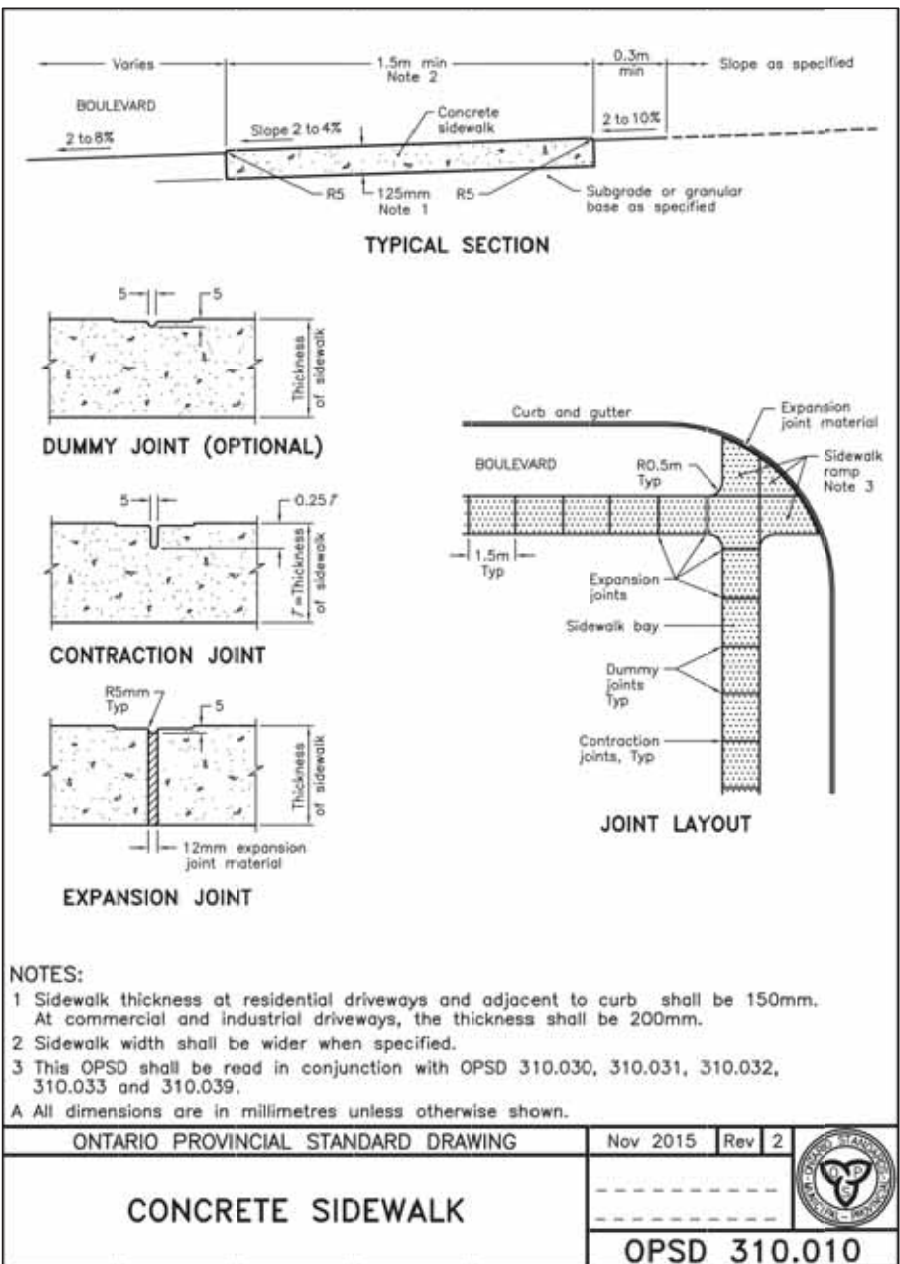
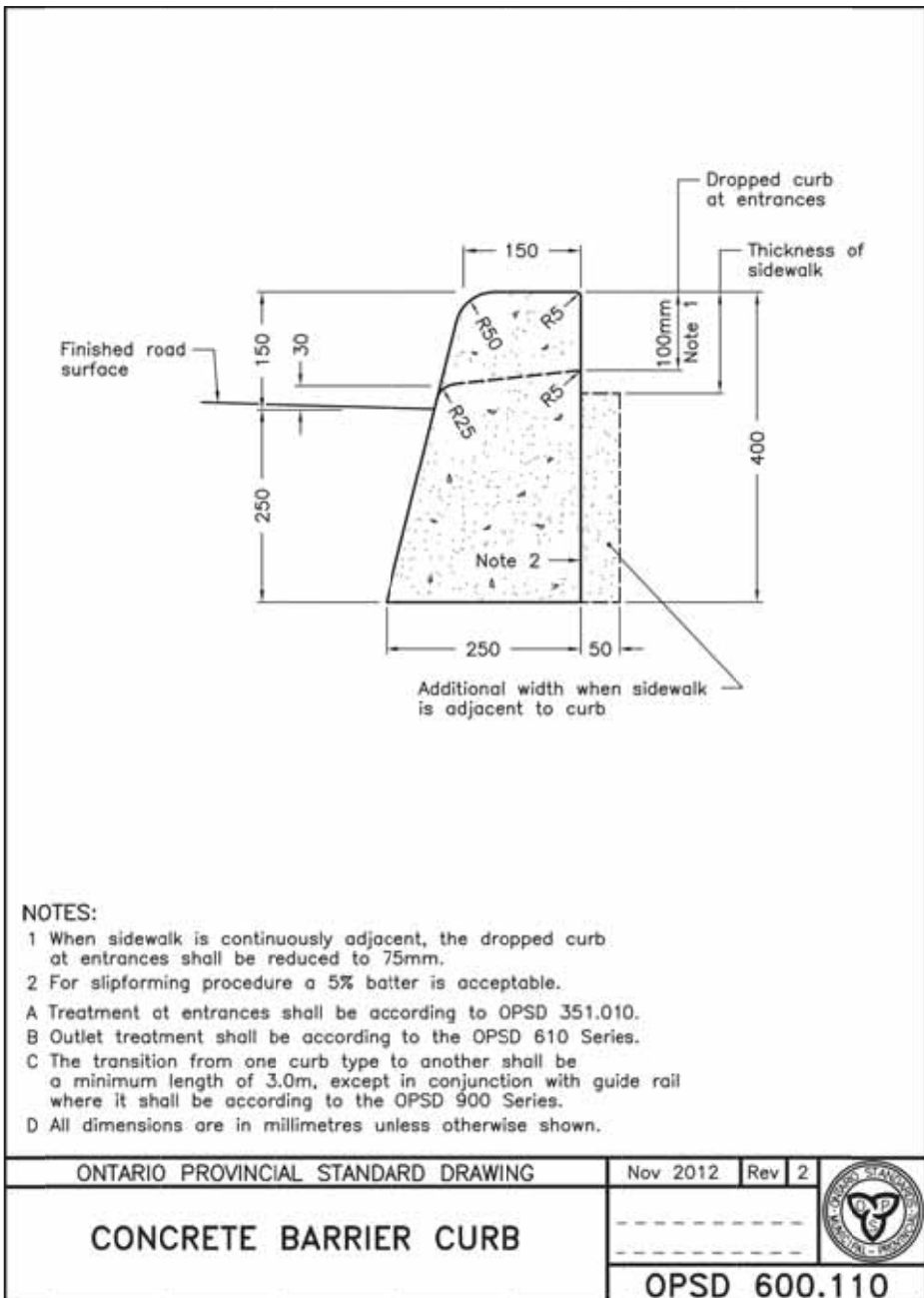
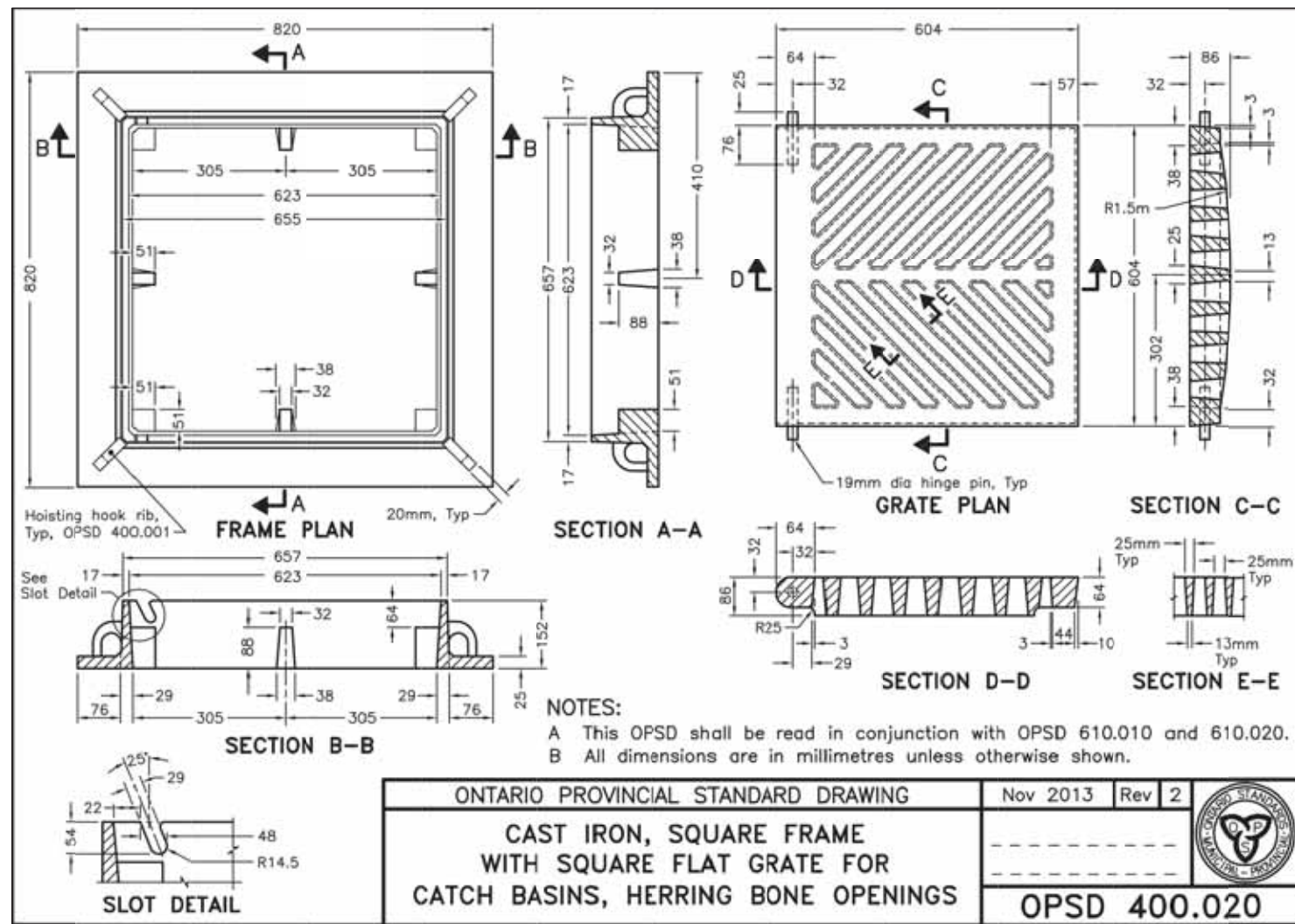
- STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD-802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
- MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.
- ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03.
- PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.
- STORM SEWER TO BE MINIMUM 300 mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.
- ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METERS UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.
- ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNBELL GUIDELINES.

5. OTHER

- SIDEWALKS TO COMPLY WITH OPSD-310.010 AND ARE TO BE 1.5 m WIDE. MINIMUM THICKNESS AS FOLLOWS :
 - RESIDENTIAL DRIVEWAY 150 mm
 - COMMERCIAL/INDUSTRIAL DRIVEWAY 200 mm (REINFORCEMENT AS PER OPSS IF REQUIRED)
 - WHEN NO DRIVEWAY IS PRESENT, 125 mm.
- NATIVE SUBGRADE SHALL HAVE A CROSSFALL OF 3% AND THE MATERIAL SHALL BE APPROVED BY A SOILS CONSULTANT AND IS SUBJECT TO APPROVAL BY THE DIRECTOR OF ENGINEERING.
- ALL CURB RADI TO BE MINIMUM OF 9.0 m AT THE ENTRANCE.
- NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR MAXIMUM DRY DENSITY AND SHALL BE PROOF ROLLED.
- MORTAR IS USED FOR LEVELING OF PRECAST UNITS ONLY. THE THICKNESS OF MORTAR WILL BE 10mm TO FILL ALL VOIDS CREATED BY IRREGULARITIES IN THE PRECAST UNITS.
- NON-COMPRESSIBLE BACK FILL WILL BE USED DURING REBUILDING, ADJUSTING, OR ANY OTHER APPLICABLE CATCH BASIN OR MAINTENANCE HOLE WORKS.

6. DEWATERING

- DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS 517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION.
- ANY DEWATERING THAT IS TO BE DISCHARGED TO THE STORM SEWER SHALL HAVE THE EFFLUENT QUALITY MEET PROVINCIAL WATER QUALITY OBJECTIVES (PWQO) AND THE CITY OF BARRIE SEWER USE BY-LAW 2012-172.
- ANY DEWATERING THAT IS TO BE DISCHARGED TO THE SANITARY SEWER SHALL HAVE EFFLUENT QUALITY MEET CITY OF BARRIE BY-LAW 2012-172 AND MUST BE PRE-APPROVED BY THE ENVIRONMENTAL AND WASTEWATER OPERATIONS STAFF.
- A PERMIT TO TAKE WATER (PTTW) FROM THE MOEC IS REQUIRED IF DEWATERING OCCURS AND VOLUMES EXCEED GREATER THAN 50,000 L PER DAY.
- THE DISCHARGE OF ANY WATER SHALL BE CONTROLLED IN A MANNER SO AS TO AVOID EROSION AND SEDIMENTATION OF THE RECEIVING AREA.



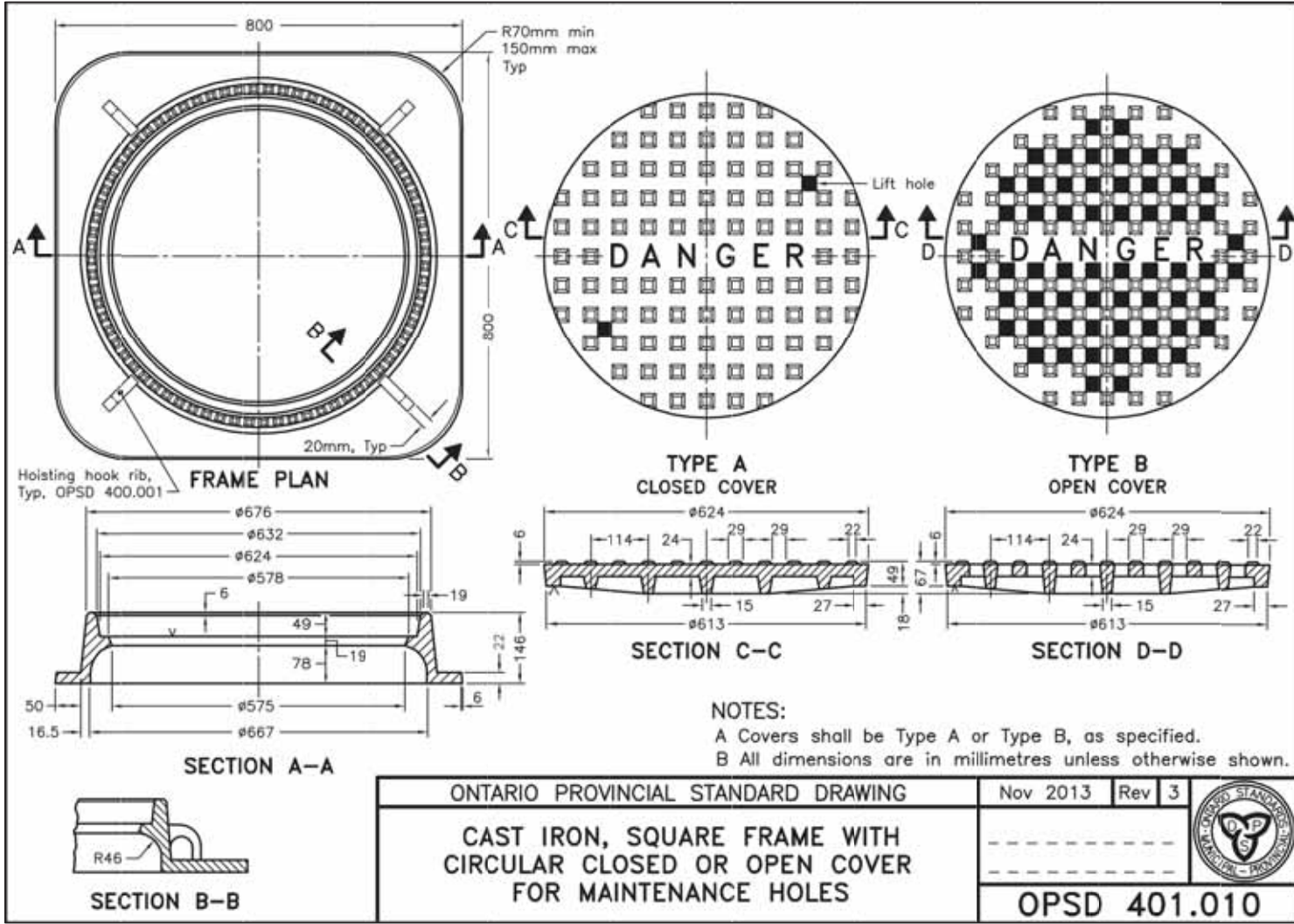
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NO.	REVISION NOTE	DATE	BY

MDM DEVELOPMENTS
233 DUNLOP STREET WEST
CITY OF BARRIE

NOTES & DETAILS

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DESIGNED BY	TA/MJWP	HORIZ SCALE	PROJECT #	12081.01
DRAWN BY	MJWP	VERT SCALE	DRAWING #	ND-1
CHECKED BY	MWD	DATE	REVISION #	0



CROSS SECTION NOTES:

1.0 FINISHED SURFACE:
1.1 FINISHED VEGETATED COVER
1.2 FINISHED ROAD SURFACE (ASPHALT, CONCRETE, ETC.)

2.0 TOP COVER:
2.1 SUFFICIENTLY COMPACTABLE FILL:
ENGINEER OF RECORD TO SPECIFY ROAD BASE MATERIALS, 3" (76.2 mm) MIN. COVERAGE FROM TOP OF STORMTANK™ TO FINISHED SURFACE REQUIRED TO ACHIEVE LOAD RATING.
2.2 SUFFICIENTLY COMPACTABLE FILL:
ENGINEER OF RECORD TO SPECIFY ROAD BASE MATERIALS, 3" (76.2 mm) MIN. COVERAGE FROM TOP OF STORMTANK™ TO FINISHED SURFACE REQUIRED TO ACHIEVE LOAD RATING.

3.0 NON-WOVEN GEOTEXTILE FABRIC (BENTWOOD 160N OR APPROVED EQUAL):
COMPLETE WRAP, ISOLATING LAYER TO STONE INTERFACE.

4.0 TOP BACKFILL:
MIN. 12" (305 mm) THICK LAYER OF 1/2" (12.5 mm) ANGULAR, CLEAN, CRUSHED STONE (ASHTO M 57.5.57.5) FREE OF LUMPS AND DEBRIS, PLACED IN MAX. 12" (305 mm) LIFTS, WALK BEING ROLLED OR PLATE TAMPED.

5.0 NON-WOVEN GEOTEXTILE FABRIC (BENTWOOD 160N OR APPROVED EQUAL):
COMPLETE WRAP, ISOLATING LAYER TO STONE INTERFACE.

6.0 SIDE BACKFILL:
MIN. 12" (305 mm) THICK LAYER OF 1/2" (12.5 mm) ANGULAR, CLEAN, CRUSHED STONE (ASHTO M 57.5.57.5) FREE OF LUMPS AND DEBRIS, PLACED IN MAX. 12" (305 mm) LIFTS, WALK BEING ROLLED OR PLATE TAMPED.

7.0 PREPARED SUB-GRADE / BASE:
EXCAVATION TO BE SMOOTH LEVEL (±1% ±1%) FREE OF LUMPS & DEBRIS, COMPACTED TO 95% STANDARD PROCTOR DENSITY TO MEET EXCEED MIN. REQUIRED SOIL BEARING CAPACITY IN ALL SATURATION CONDITIONS.

8.0 SIDE BACKFILL:
MIN. 12" (305 mm) THICK LAYER OF 1/2" (12.5 mm) ANGULAR, CLEAN, CRUSHED STONE (ASHTO M 57.5.57.5) FREE OF LUMPS AND DEBRIS, PLACED IN MAX. 12" (305 mm) LIFTS, WALK BEING ROLLED OR PLATE TAMPED.

9.0 SIDE BACKFILL:
MIN. 12" (305 mm) THICK LAYER OF 1/2" (12.5 mm) ANGULAR, CLEAN, CRUSHED STONE (ASHTO M 57.5.57.5) FREE OF LUMPS AND DEBRIS, PLACED IN MAX. 12" (305 mm) LIFTS, WALK BEING ROLLED OR PLATE TAMPED.

10. SIDE BACKFILL:
MIN. 12" (305 mm) THICK LAYER OF 1/2" (12.5 mm) ANGULAR, CLEAN, CRUSHED STONE (ASHTO M 57.5.57.5) FREE OF LUMPS AND DEBRIS, PLACED IN MAX. 12" (305 mm) LIFTS, WALK BEING ROLLED OR PLATE TAMPED.

ASSEMBLY NOTES:

GENERAL NOTES:
1. REMOVE PACKAGING MATERIAL AND CHECK FOR ANY DAMAGE. REPORT ANY DAMAGED COMPONENTS TO THE ON-SITE STORMTANK™ DISTRIBUTOR OR BENTWOOD PERSONNEL.

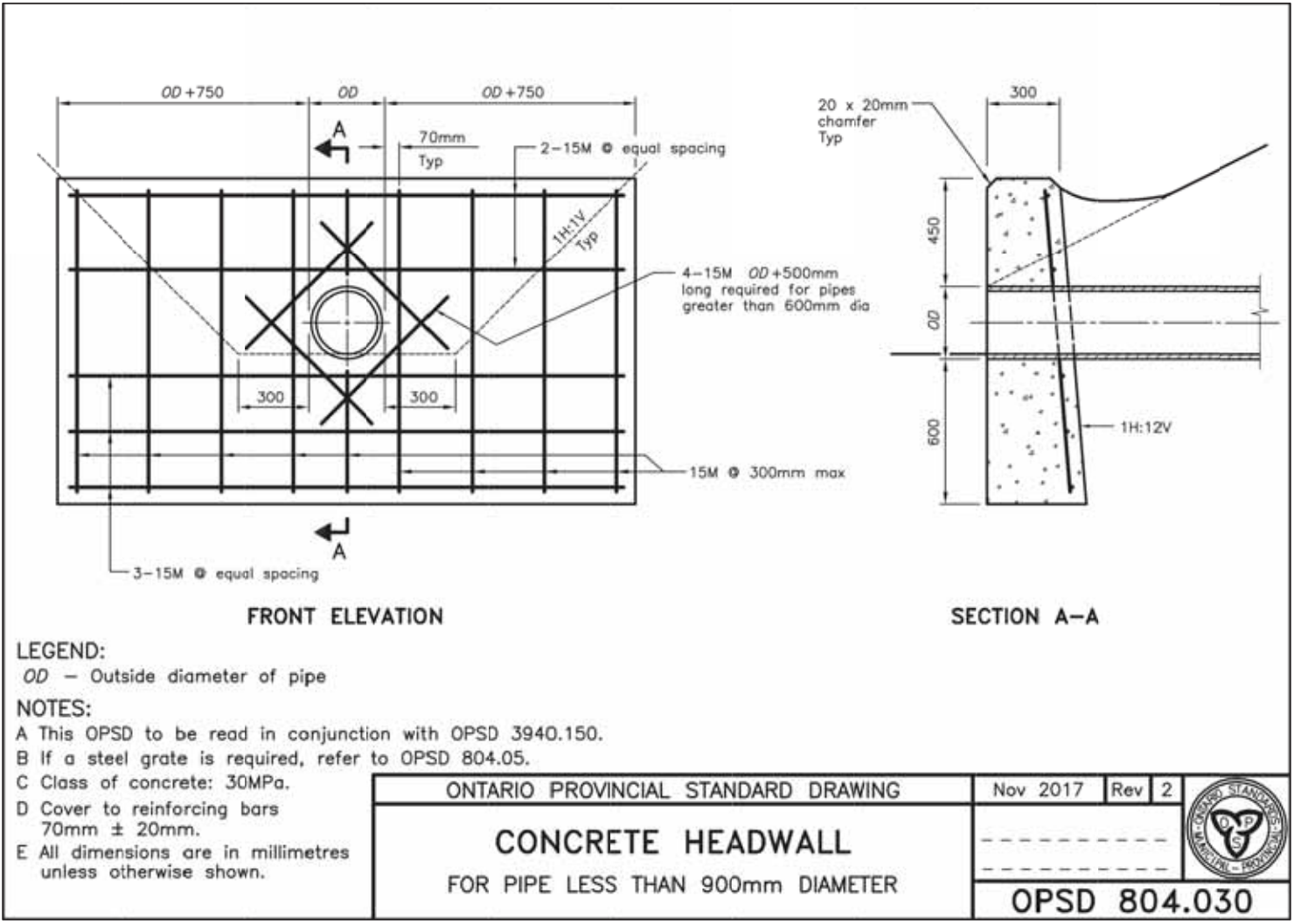
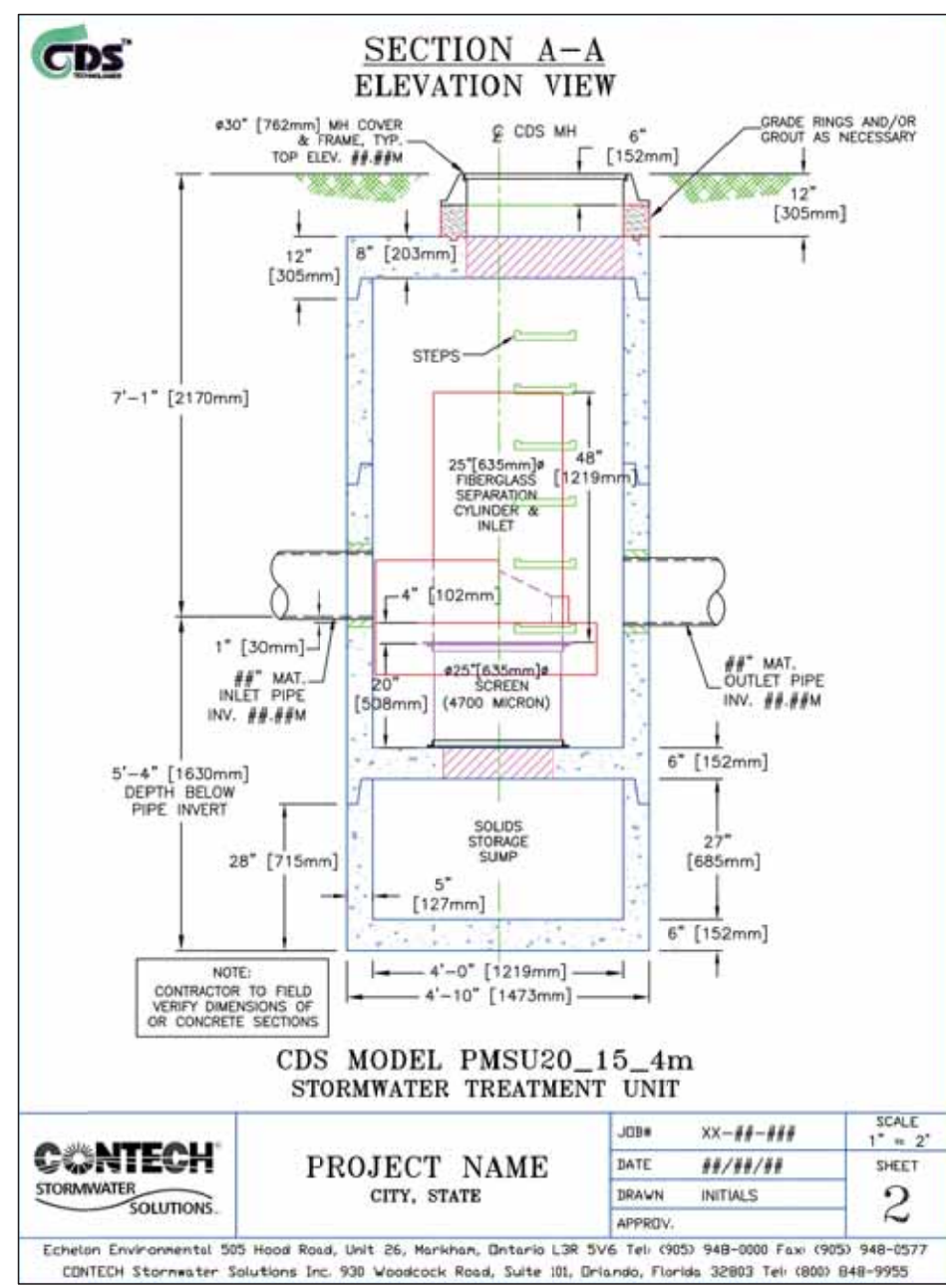
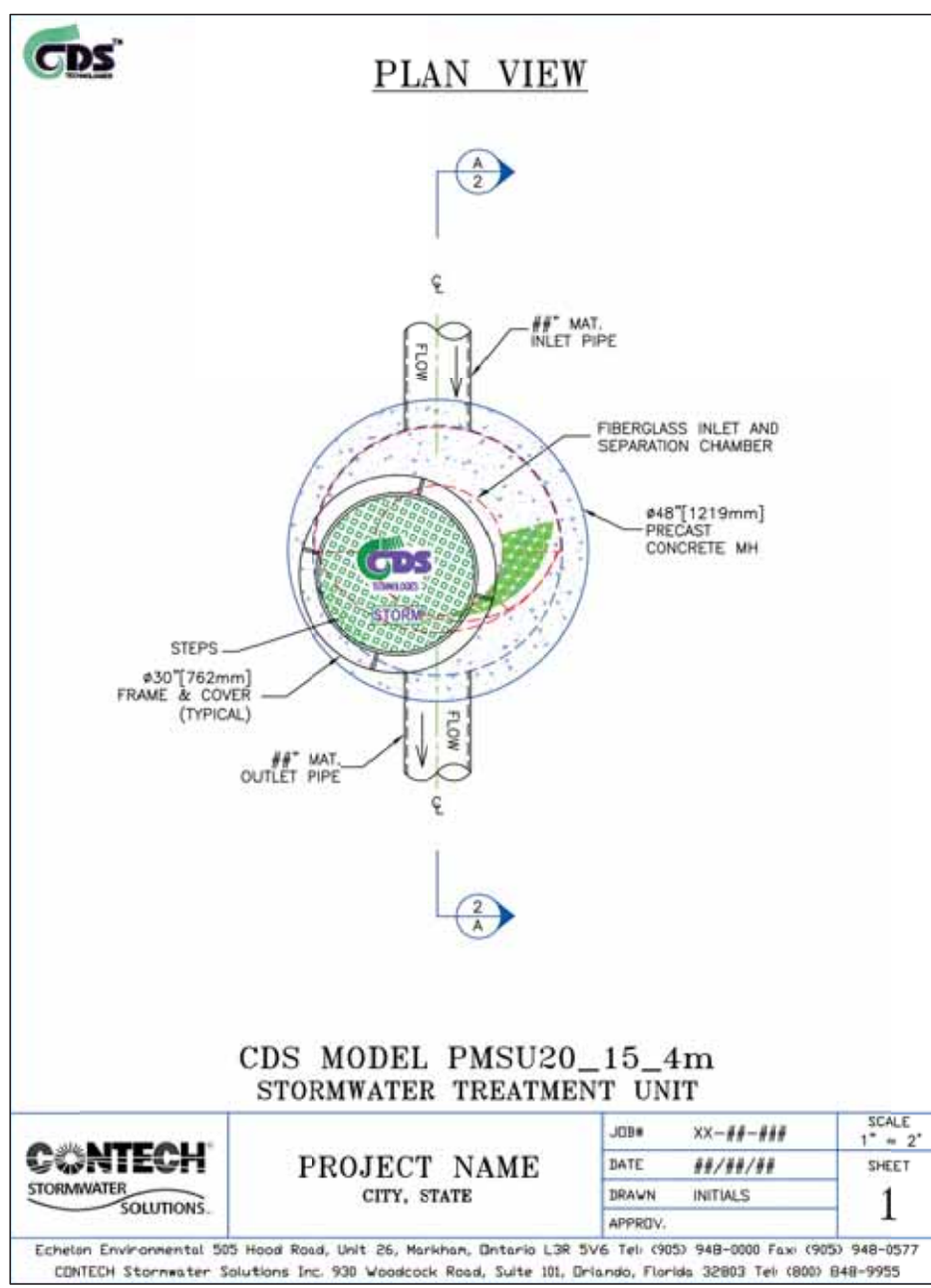
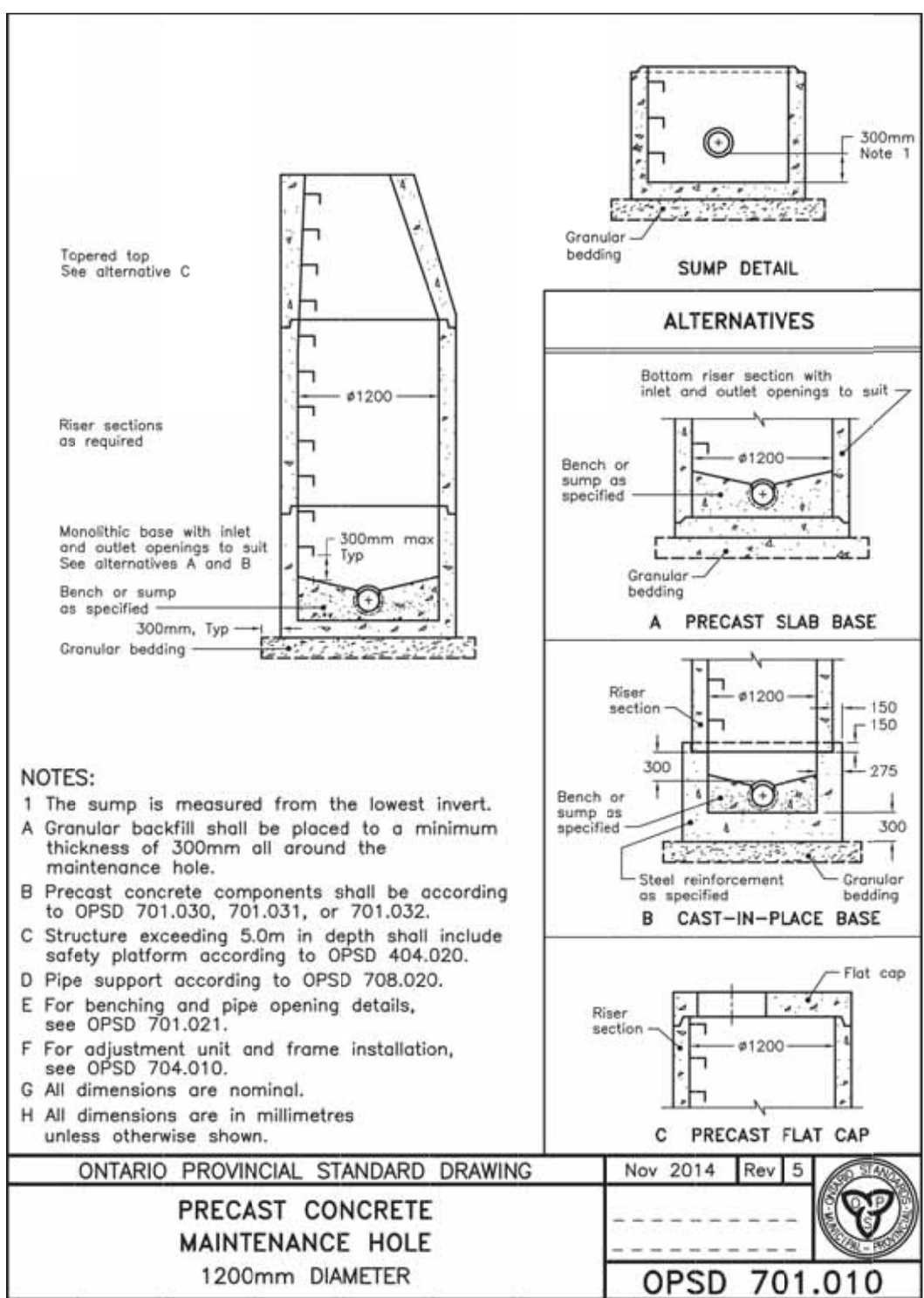
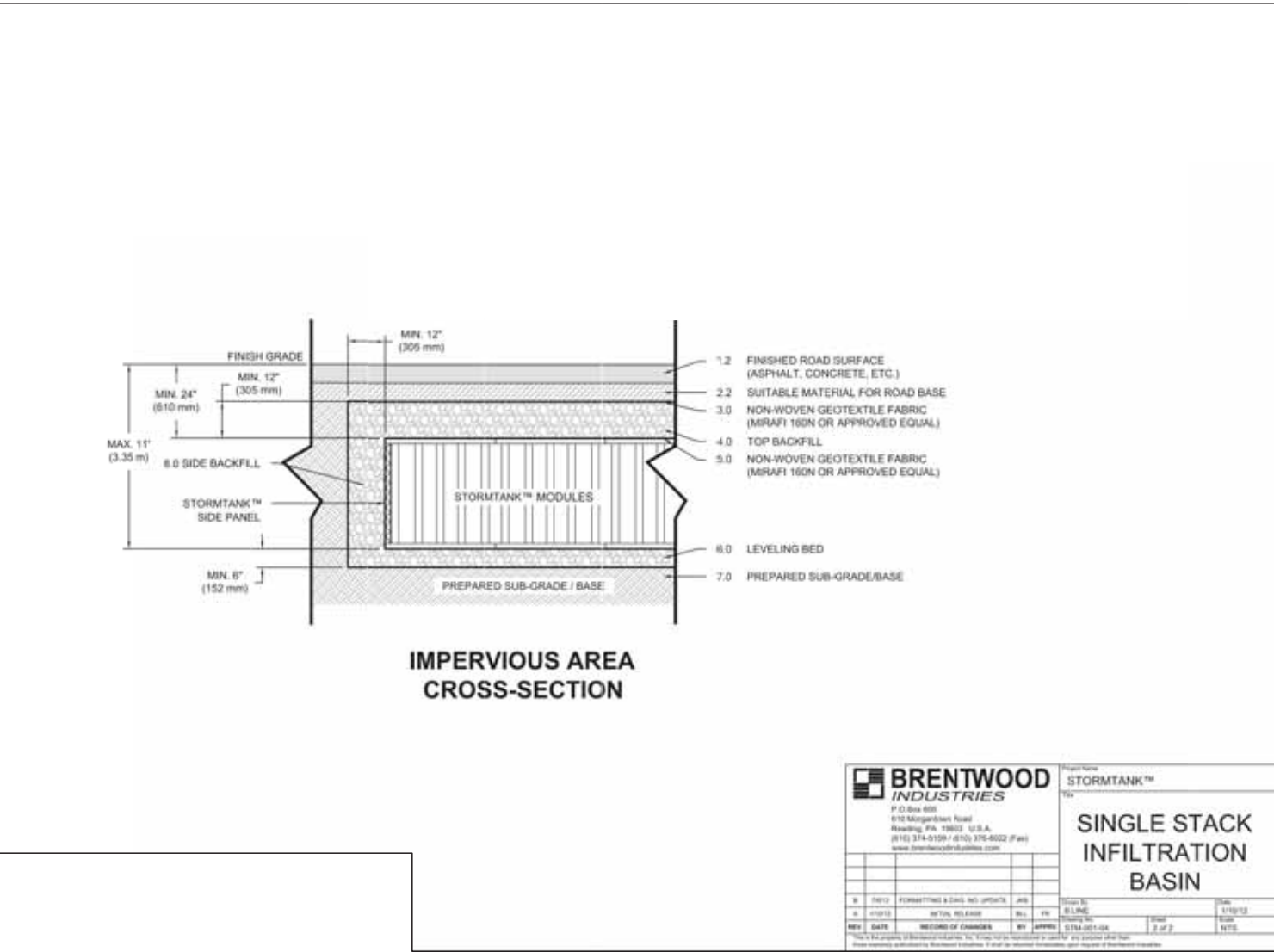
ASSEMBLY INSTRUCTIONS:
1. PLACE A PLATE ON A FIRM, LEVEL SURFACE AND INSERT THE EIGHT (8) COLUMNS INTO THE PLATE RECEIVER CUPS. FINALLY TAP EACH COLUMN WITH A RUBBER Mallet TO ENSURE THE COLUMN IS SEATED.
2. PLACE A SECOND PLATE ON A FIRM, LEVEL SURFACE. FLIP THE PREVIOUSLY ASSEMBLED COMPONENTS UPSEIDEDOWN ONTO THE SECOND PLATE, ALIGNING THE COLUMNS INTO THE PLATE RECEIVER CUPS.
3. ONCE ALIGNED, SEAT THE TOP ASSEMBLY BY ALTERNATING TAPS WITH A RUBBER Mallet AT EACH STRUCTURAL COLUMN UNTIL ALL COLUMNS ARE FINALLY SEATED.

SIDE PANELS:
4. IF SIDE PANELS ARE REQUIRED, FINALLY TAP THE TOP PLATE UPWARD TO RAISE THE TOP PLATE, INSERT THE SIDE PANEL INTO THE BOTTOM PLATE.
5. ALIGN THE TOP OF THE SIDE PANEL WITH THE TOP PLATE AND FINALLY SEAT THE TOP PLATE UTILIZING A RUBBER Mallet.

GENERAL NOTES:

1. ENGINEER OF RECORD TO SPECIFY SUB-GRADE DESIGN AND VERIFY THAT SUB-GRADE BEARING CAPACITY MEETS OR EXCEEDS THE REQUIRED SOIL BEARING CAPACITY OF THE STORMTANK SYSTEM FOR ALL SATURATION CONDITIONS FOR THE PROJECT. DESIGN TO BE BASED ON REFERENCED BENTWOOD DOCUMENT.
2. REQUIRE SOIL BEARING CAPACITY TABLES.
3. REQUIRE ENGINEER OF RECORD TO CONFIRM CONFORMANCE TO MANUFACTURER'S ALLOWABLE PROXIMITY TO OTHER STRUCTURES.
4. A VIBRATORY ROLLER MAY ONLY BE UTILIZED IF THE COMPACTED BACKFILL IS GREATER THAN 24" (610 mm) THICK OR FOR SPECIAL INSTALLATION.
5. FOR DETAILED INSTALLATION INSTRUCTIONS, REFER TO BENTWOOD DOCUMENT "SITE PREPARATION AND INSTALLATION INSTRUCTIONS".

BENTWOOD INDUSTRIES		STORMTANK™	
4150 Highway 104, Unit 104 Bentwood, Ontario L0B 1A0 Canada Tel: (905) 440-1111 Fax: (905) 440-1112 Email: sales@bentwood.com	4150 Highway 104, Unit 104 Bentwood, Ontario L0B 1A0 Canada Tel: (905) 440-1111 Fax: (905) 440-1112 Email: sales@bentwood.com	4150 Highway 104, Unit 104 Bentwood, Ontario L0B 1A0 Canada Tel: (905) 440-1111 Fax: (905) 440-1112 Email: sales@bentwood.com	4150 Highway 104, Unit 104 Bentwood, Ontario L0B 1A0 Canada Tel: (905) 440-1111 Fax: (905) 440-1112 Email: sales@bentwood.com



LEGEND:
OD - Outside diameter of pipe

NOTES:
A This OPD to be read in conjunction with OPD 3940.150.
B If a steel grate is required, refer to OPD 804.05.
C Class of concrete: 30MPa.
D Cover to reinforcing bars 70mm ± 20mm.
E All dimensions are in millimetres unless otherwise shown.

MDM DEVELOPMENTS
233 DUNLOP STREET WEST
CITY OF BARRIE

NOTES & DETAILS

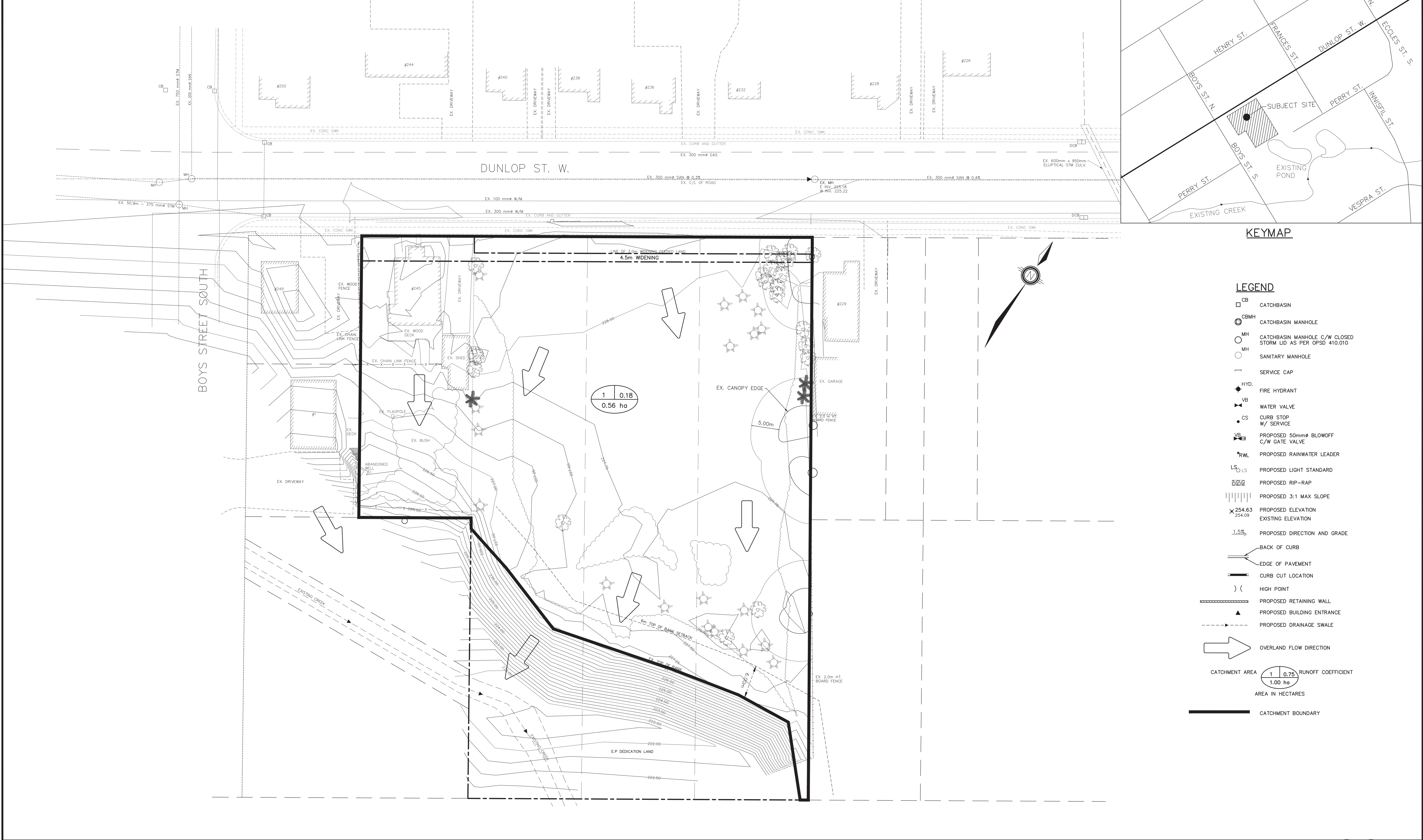
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DESIGNED BY	TA/MJWP	HORIZ SCALE	PROJECT #	12081.
DRAWN BY	MJWP	VERT SCALE	DRAWING #	ND-
CHECKED BY	MWD	DATE	FEBRUARY 2019	REVISION #

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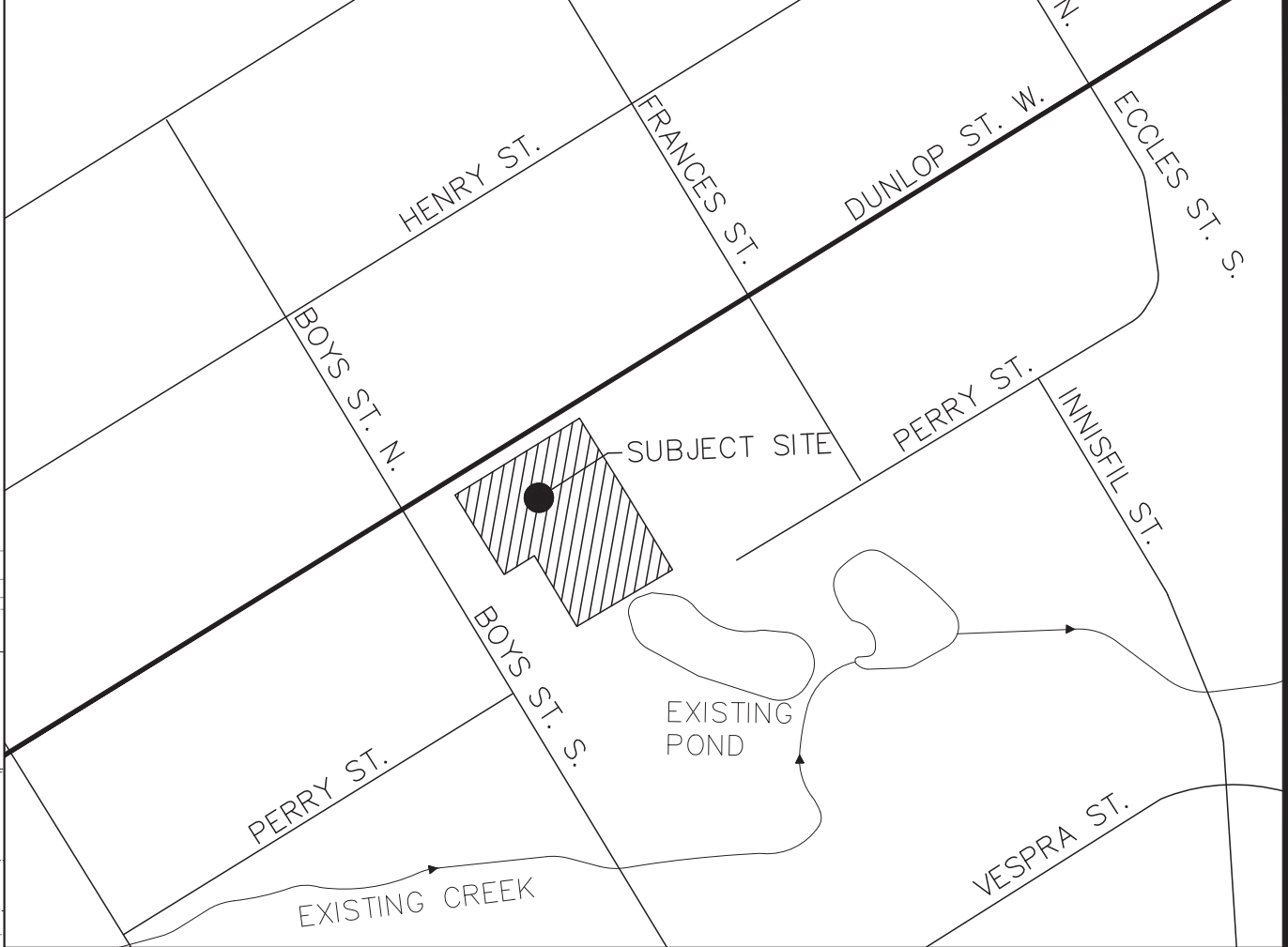
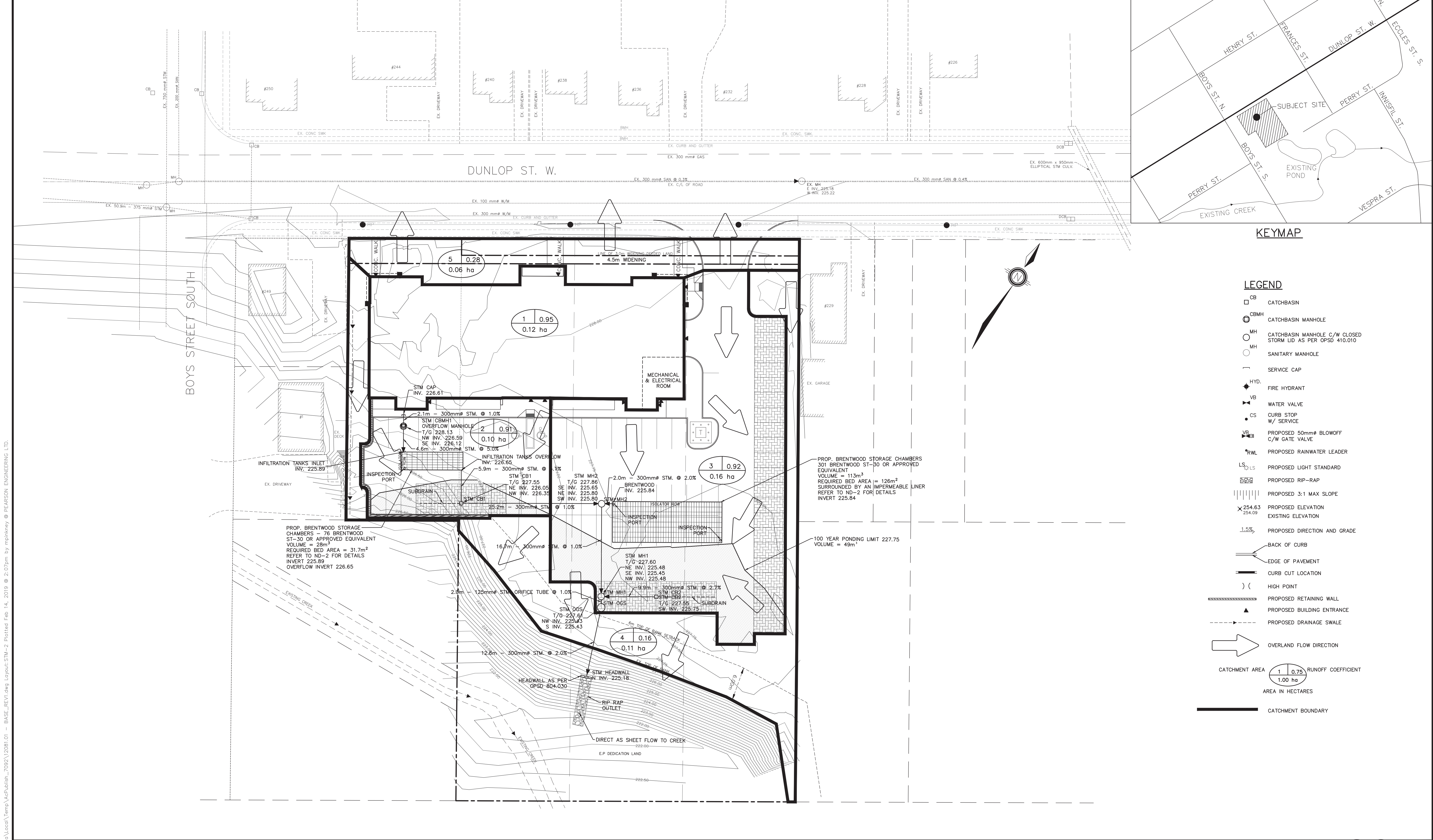
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					BENCHMARK:							MDM DEVELOPMENTS 233 DUNLOP STREET WEST CITY OF BARRIE	 PEARSON ENGINEERING LTD. PEARSONENG.COM PH. 705.719.4785
	NO.	REVISION	NOTE	DATE	BY								

DESIGNED BY	TA/MJWP	HORIZ SCALE	1:300	PROJECT #	12081.01
DRAWN BY	MJWP	VERT SCALE		DRAWING #	STM-1
CHECKED BY	MWD	DATE	FEBRUARY 2019	REVISION #	0

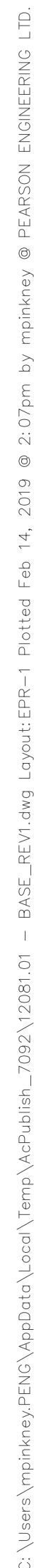


KEYMAP

LEGEND

- CB CATCHBASIN
- CBMH CATCHBASIN MANHOLE
- MH CATCHBASIN MANHOLE C/W CLOSED STORM LID AS PER OPSD 410.010
- MH SANITARY MANHOLE
- SC SERVICE CAP
- HYD. FIRE HYDRANT
- VB WATER VALVE
- CS CURB STOP W/ SERVICE
- VB PROPOSED 50mm Ø BLOWOFF C/W GATE VALVE
- RWL PROPOSED RAINWATER LEADER
- LS PROPOSED LIGHT STANDARD
- RIP PROPOSED RIP-RAP
- PROPOSED 3:1 MAX SLOPE
- 254.63 PROPOSED ELEVATION
- 254.09 EXISTING ELEVATION
- 1.5% PROPOSED DIRECTION AND GRADE
- BACK OF CURB
- EDGE OF PAVEMENT
- CURB CUT LOCATION
- HIGH POINT
- PROPOSED RETAINING WALL
- PROPOSED BUILDING ENTRANCE
- PROPOSED DRAINAGE SWALE
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA 1 0.75 RUNOFF COEFFICIENT 1.00 ha
- AREA IN HECTARES
- CATCHMENT BOUNDARY

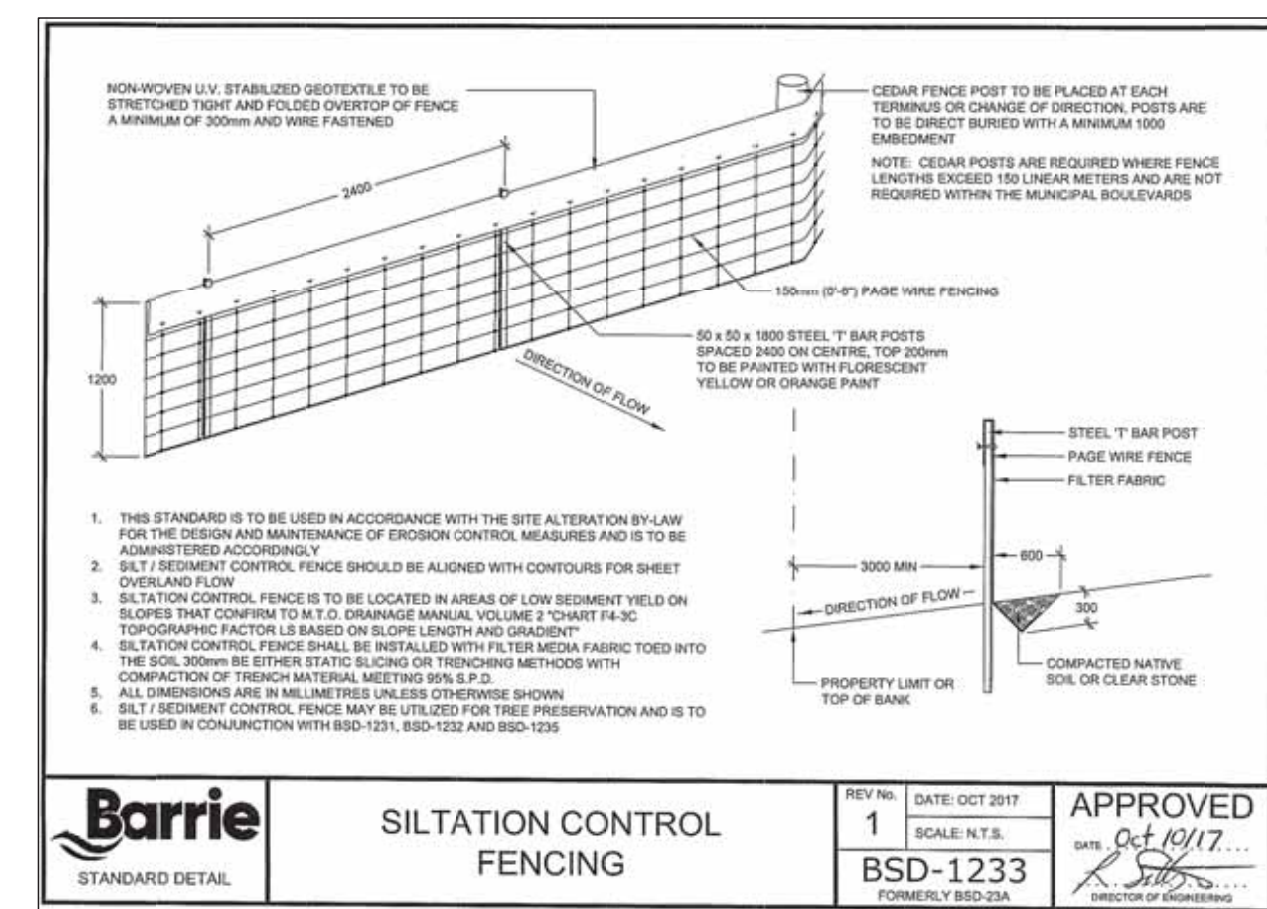
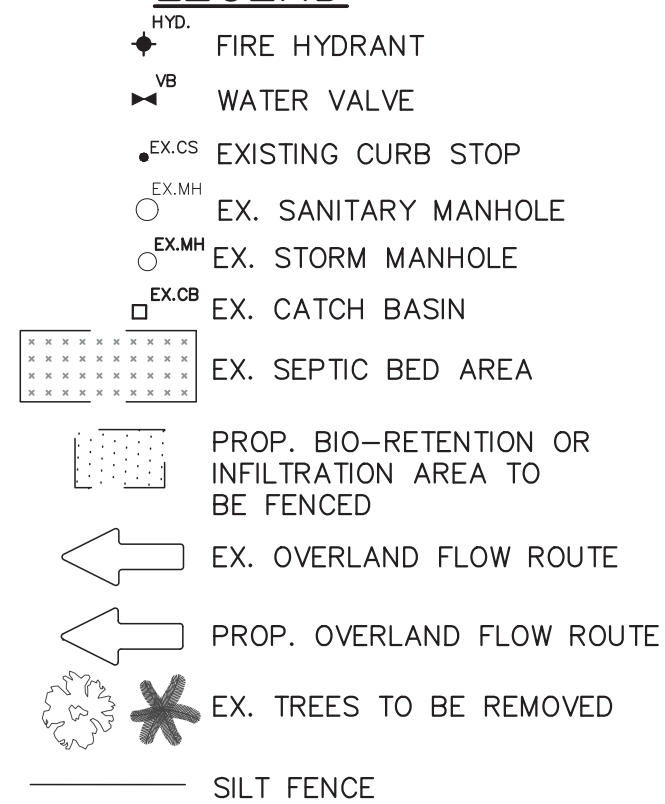
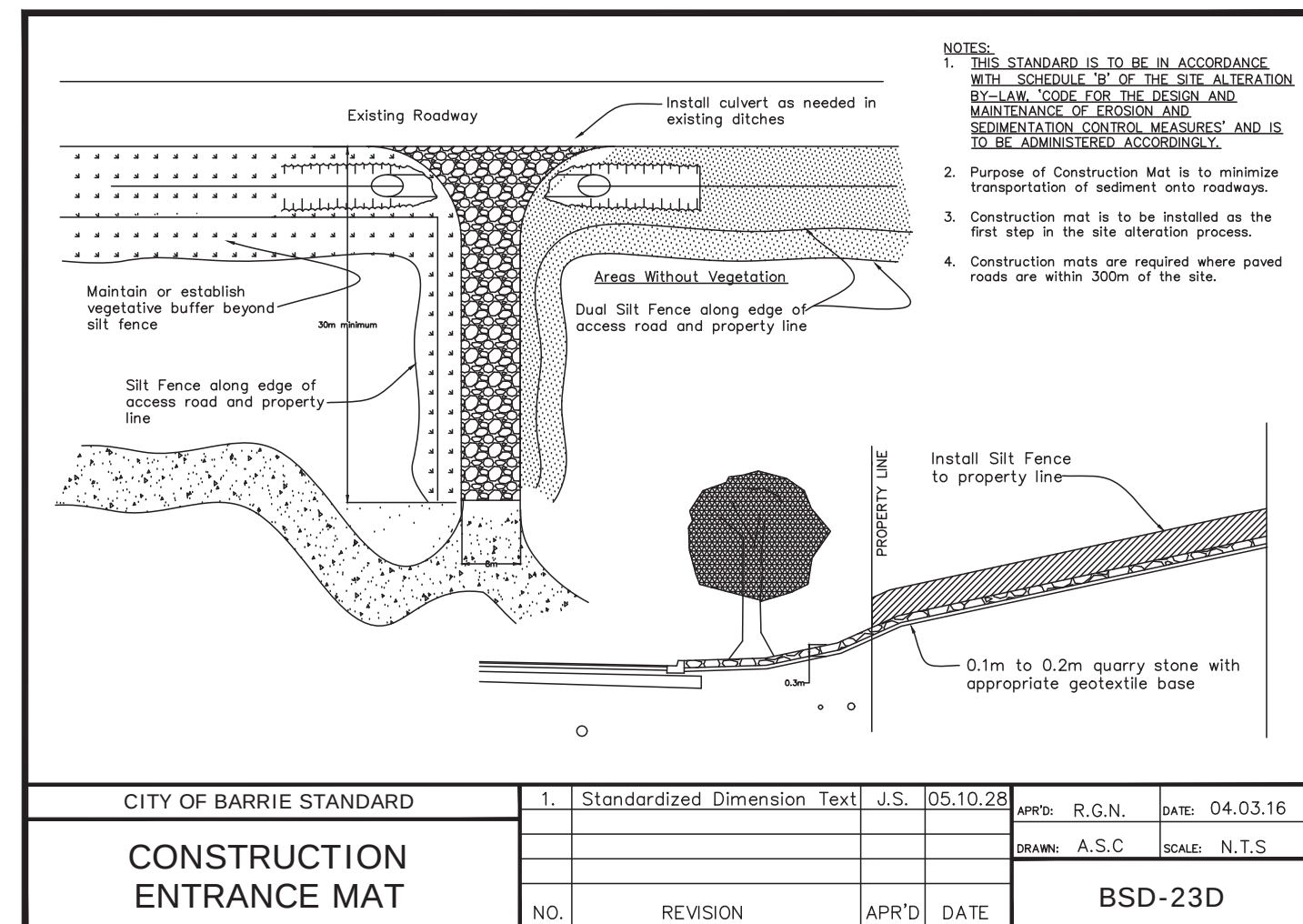
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1. OVERALL SITE AREA - 0.72 ha
2. EXISTING LAND USE - RESIDENTIAL & VACANT

1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ONSITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. COMMENCE WITH EARTH EXCAVATION AND SITE SERVING (TO BE REMOVED FROM SITE - NO STOCKPILE).
5. EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO ANY EARTHWORK BY THE ENGINEER DURING THE CONSTRUCTION PERIOD.
6. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
7. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR
8. AN ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.
9. PERMEABLE PAVERS WILL BE CONSTRUCTED ONCE THE SITE HAS COMPLETED FINAL GRADING WORKS.
10. PERMEABLE PAVERS AND INFILTRATION TANK AREAS NOT TO BE COMPACTED.

1. DISTURBED AREAS THAT HAVE FAILED TO HAVE STABLE GROUND COVER ESTABLISHED BY OCTOBER 30TH SHALL BE PROTECTED WITH A SILTATION CONTROL FENCE OR STRAW MULCH ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION BECOMES ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
2. ALL FILTERING AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED, FILTERING METHODS MUST BE APPROVED BY THE SITE ADMINISTRATOR. DISCHARGE TO MUNICIPAL SERVICES MUST BE APPROVED BY THE CITY OF BARRIE PRIOR TO STARTING WORK AND ADHERE TO CITY OF BARRIE STANDARDS.
3. ALL SLOPES SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONSTRUCTION MEASURES. PRIOR TO COMMENCEMENT OF EARTH GRADING ACTIVITIES, SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGED AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROLS TO BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN EVENT. INSTALLATION SHALL BE TO THE MANUFACTURER'S SUGGESTED SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND ADJACENT UNHAPPY DUMPED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK, AND AFTER EVERY RAINFALL EVENT.
5. THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 577, CONSTRUCTION SPECIFICATION FOR EROSION, SEDIMENT AND SILTATION CONTROL MEASURES. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES SHOULD BE PRESENTED IN WRITING FOR APPROVAL OF THE SITE ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE CITY OF BARRIE.
6. THE TOPS OF ALL FILTER FABRIC MUST BE A MINIMUM OF 1.0 METRES ABOVE THE GROUND LEVEL AND ATTACHED TO THE FENCE WITH A CONTINUOUS STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOPED THROUGH THE FABRIC ON BOTH SIDES OF THE FENCE. FILTER FABRIC SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONSTRUCTION MEASURES.
7. ALL DISTURBED GROUND LEFT INACTIVE SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONSTRUCTION MEASURES. THIS PERIOD OF INACTIVITY SHALL BE AT THE DISCRETION OF THE CITY OF BARRIE MANAGER OF ENGINEERING BUT SHALL NOT EXCEED THIRTY DAYS.
8. THE CONTRACTOR SHALL INSTALL AND MAINTAIN CATCHING SEDIMENT BARRIERS THROUGHOUT THE SITE DURING ALL CONSTRUCTION ACTIVITIES IN ORDER TO TRAP SEDIMENT. REFER TO DETAIL.



NO	REVISION NOTE	DATE	BY

BENCHMARK:

MDM DEVELOPMENTS
233 DUNLOP STREET WEST
CITY OF BARRIE

ENVIRONMENTAL PROTECTION AND REMOVALS PLAN



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