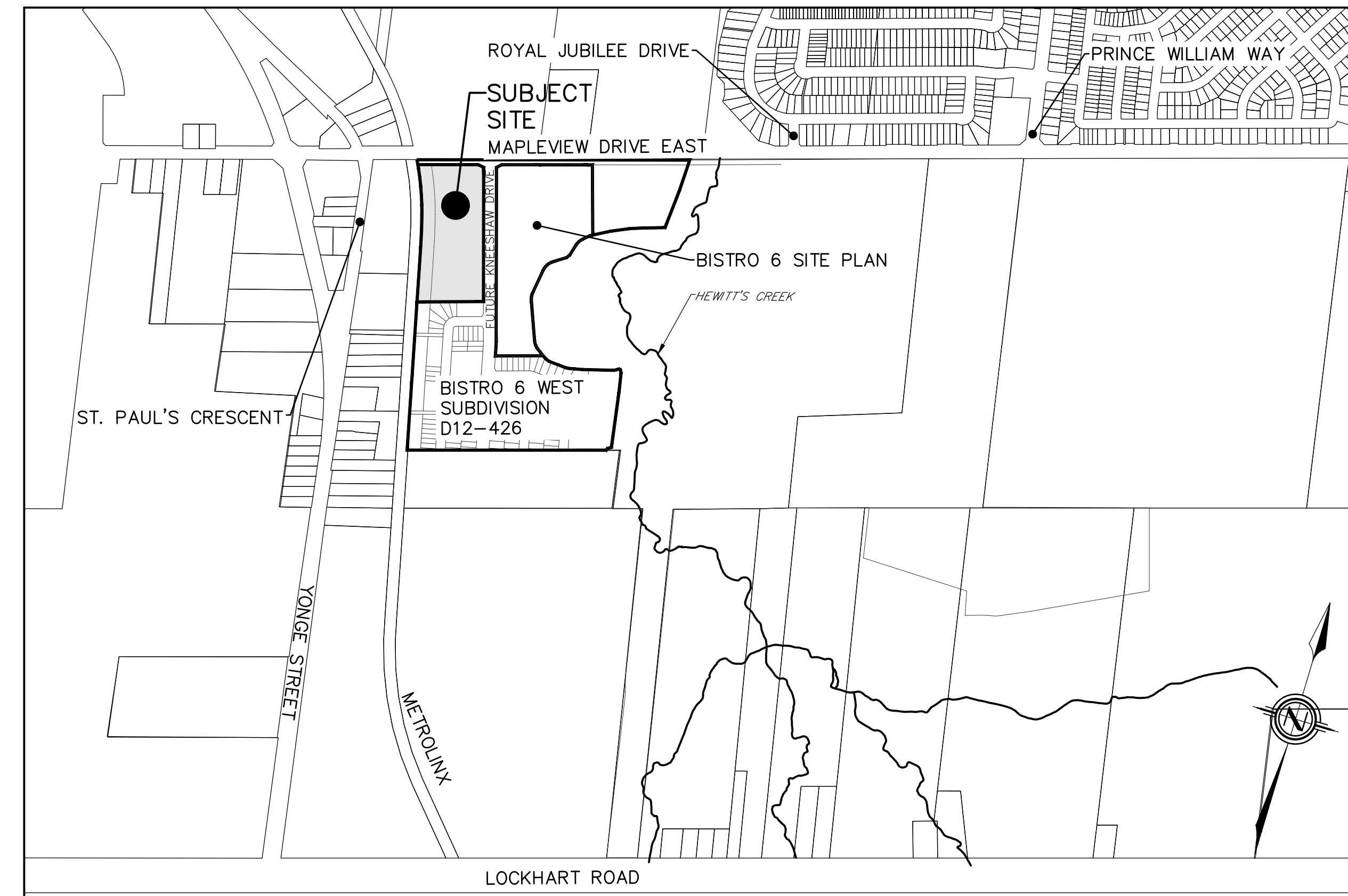


# ELEMENTS SITE PLAN CITY OF BARRIE

## DRAWING LEGEND

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- GRADE AND CROSSFALL ADJUSTMENT OF MAINTENANCE HOLE AND CATCHBASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
- ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND IMO-SDM LISTS, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
- ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND/OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES.
- 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 TO ENSURE AN EVEN SURFACE ONLY.



**GENERAL NOTES ROADWORKS**

REV No. 1	DATE: OCT 2017	APPROVED
SCALE: N.T.S.	DATE: Oct 2017	<i>[Signature]</i>
BSD-N2		ENGINEER

**GENERAL NOTES - STORM SEWER**

- STORM SEWER**
- STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
  - PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 150mm DIA. SINGLE < 300mm DIA. DOUBLE.
  - 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.
  - STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.
  - 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/mm<sup>2</sup> CONFORMING TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY U.S.A. STANDARD A257.2-1974, CLASS 5) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.
  - STORM SEWER TO BE MINIMUM 300mm 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 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.
  - ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATION GUIDES AND THE C.S.A. OR UNSELL GUIDELINES.
  - SUMP PUMP DISCHARGE PIPING IN BOULEVARD: IN THE EVENT OF OVERACTIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTSIDES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CARPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF SEWER IS TO BE EQUAL TO SUBDRAIN DEPTH. NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

**CITY OF BARRIE STANDARD GENERAL NOTES STORM SEWERS**

4. NOTE 'X' - SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07	APPROVED: R.G.N.	DATE: 92.05.15
3. NOTE 'Y' & 'Z' - "DIRECTOR OF ENGINEERING"	B.R.	2012.10.28		
2. NOTE 'C' OPSD NUMBER REVISION	K.C.	2000.03.16	DRAWN: L.A.J.	SCALE: N.T.S.
1. NOTE 'D' CHANGED	K.C.	98.03.30		
NO.	REVISION	APPR'D	DATE	BSD-N5

**GENERAL NOTES - SANITARY SEWER**

- SANITARY SEWERS**
- SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.
  - 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/mm<sup>2</sup> CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY U.S.A. STANDARD A257.2-1974, CLASS 5).
  - 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 INSERT-A-TEES IN STRICT ACCORDANCE TO MANUFACTURERS GUIDELINES.

**CITY OF BARRIE STANDARD GENERAL NOTES SANITARY SEWERS**

4. NOTE 'B' - "ENGINEERING"	B.R.	2002.10.28	APPROVED: R.G.N.	DATE: 92.05.15
3. NOTE 'B' OPSD NUMBER REVISION	K.C.	2000.03.16		
2. NOTE 'F' CHANGED	K.C.	98.03.30	DRAWN: L.A.J.	SCALE: N.T.S.
1. CHANGES TO B. TO G.	K.C.	95.04.24		
NO.	REVISION	APPR'D	DATE	BSD-N3

**GENERAL NOTES**

- DRAWINGS**
  - ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS & SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.
- MEASUREMENTS**
  - ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.
- GENERAL**
  - 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.
  - A ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE ROADS AND PARKS OPERATIONS BRANCH 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 RESTORED 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.

**CITY OF BARRIE STANDARD GENERAL NOTES**

3. NOTE 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'AA', 'AB', 'AC', 'AD', 'AE', 'AF', 'AG', 'AH', 'AI', 'AJ', 'AK', 'AL', 'AM', 'AN', 'AO', 'AP', 'AQ', 'AR', 'AS', 'AT', 'AU', 'AV', 'AW', 'AX', 'AY', 'AZ', 'BA', 'BB', 'BC', 'BD', 'BE', 'BF', 'BG', 'BH', 'BI', 'BJ', 'BK', 'BL', 'BM', 'BN', 'BO', 'BP', 'BQ', 'BR', 'BS', 'BT', 'BU', 'BV', 'BW', 'BX', 'BY', 'BZ', 'CA', 'CB', 'CC', 'CD', 'CE', 'CF', 'CG', 'CH', 'CI', 'CJ', 'CK', 'CL', 'CM', 'CN', 'CO', 'CP', 'CQ', 'CR', 'CS', 'CT', 'CU', 'CV', 'CW', 'CX', 'CY', 'CZ', 'DA', 'DB', 'DC', 'DD', 'DE', 'DF', 'DG', 'DH', 'DI', 'DJ', 'DK', 'DL', 'DM', 'DN', 'DO', 'DP', 'DQ', 'DR', 'DS', 'DT', 'DU', 'DV', 'DW', 'DX', 'DY', 'DZ', 'EA', 'EB', 'EC', 'ED', 'EE', 'EF', 'EG', 'EH', 'EI', 'EJ', 'EK', 'EL', 'EM', 'EN', 'EO', 'EP', 'EQ', 'ER', 'ES', 'ET', 'EU', 'EV', 'EW', 'EX', 'EY', 'EZ', 'FA', 'FB', 'FC', 'FD', 'FE', 'FF', 'FG', 'FH', 'FI', 'FJ', 'FK', 'FL', 'FM', 'FN', 'FO', 'FP', 'FQ', 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**GENERAL NOTES - SANITARY SEWER**

- SANITARY SERVICE LATERALS**
- SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CARPED.
  - LOCATION OF LATERAL TO BE MARKED 2.0m PAST PROPERTY LINE WITH A 50 x 100mm WOOD MARKER, PAINTED GREEN, EXTENDING FROM SERVICE INVERT TO 300mm ABOVE GROUND LEVEL.
  - 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 HOUSE AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.
  - MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4m MEASURED FROM THE SEWER OVERTOP TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.
  - 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 INSERT-A-TEES IN STRICT ACCORDANCE TO MANUFACTURERS GUIDELINES.
  - MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD-1006.010, 1006.020).

**CITY OF BARRIE STANDARD GENERAL NOTES SANITARY SEWERS**

2. OPSD NUMBERS REVISED	K.C.	2000.08.17	APPROVED: R.G.N.	DATE: 92.05.15
1. CHANGES TO B. TO G.	K.C.	95.04.24	DRAWN: L.A.J.	SCALE: N.T.S.
NO.	REVISION	APPR'D	DATE	BSD-N4

**GENERAL NOTES - 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 FOR THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESSURE TEST, OPERATE AND MAINTAIN ALL WATER MAINS.
- MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m 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 GRANULATION REQUIREMENTS OF OPSD/MUM 104.65.07 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 10 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).
- COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD/MUM 104.65.07.
- RESTRAINING WALLS WILL BE REQUIRED ON ALL HYDRANTS, THRUST BLOCKS, AS PER OPSD 1183.010 AND 1183.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKS WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
- NEW WATERMANS TO BE PVC DR18 CL150 MINIMUM DUCTILE IRON CL15 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LUST.
- TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (P.C.S.S.) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO PLANGE BOLT. ALL SPIGOTS TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LUST.
- 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 GASKETS 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
- RISE PIPES SHALL BE INSTALLED AS PER BSD-110.10 AND REMOVED AS DIRECTED. SWABING 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.

**City of BARRIE STANDARD DETAIL GENERAL NOTES - WATERMAIN**

REV No. 2	DATE: MAY 2015	APPROVED
SCALE: N.T.S.	DATE: May 2015	<i>[Signature]</i>
BSD-500		ENGINEER

**EROSION CONTROL NOTES**

- ALL TEMPORARY SILT CONTROL AND EROSION PROTECTION DEVICES (I.E. SILT FENCING, DRAINAGE SWALES, ROCK CHECK DAMS, SEDIMENT TRAPS, GRAVEL ACCESS PAD, ETC.) SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF SITE WORKS 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.
- ALL SEDIMENTATION CONTROL MEASURES ARE TO BE INSPECTED REGULARLY (MINIMUM WEEKLY), AS WELL AS AFTER EVERY RAINFALL EVENT AND ANY DAMAGED SILT CONTROL AND EROSION PROTECTION DEVICES SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES.
- AREAS WITHOUT STABLE GROUND COVER SHALL BE PROTECTED WITH SILTATION CONTROL FENCING, STRAW MULCH, ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH.
- ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. (IF SEEDING IS APPROPRIATE DURING CURRENT SEASON).
- ALL SITE DRAINAGE IS TO BE DIRECTED TO THE TEMPORARY SEDIMENT TRAPS AND OTHER CHECK DAMS VIA SHEET DRAINAGE, BERMS OR SWALES (AS NECESSARY) TO FACILITATE THE COMPLETION OF GRADING WORKS. THE CONTRACTOR SHALL CONSTRUCT ANY ADDITIONAL SWALES OR BERMS THAT MAY BE NECESSARY TO DIRECT RUN-OFF TO THE SEDIMENT TRAPS.
- ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
- ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE INSPECTOR.
- THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSD 805. CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, AS WELL AS APPLICABLE MUNICIPAL STANDARDS AND/OR APPROVAL AGENCY STANDARDS.
- THE CONTRACTOR SHALL CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES, SUCH MEASURES MUST BE PRESENTED IN WRITING FOR APPROVAL BY THE CONTRACT ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE APPLICABLE APPROVAL AGENCIES.

**GRADING NOTES**

- ALL DISTURBED AREAS TO BE RESTORED TO EXISTING CONDITIONS OR BETTER WITH A MIN. 200mm DEPTH OF TOPSOIL AND SOO IMMEDIATELY FOLLOWING COMPLETION OF GRADING.
- ALL SLOPES SHALL BE RESTORED WITH A MIN. 200mm DEPTH OF TOPSOIL AND SOO IMMEDIATELY FOLLOWING COMPLETION OF GRADING.
- ALL SLOPES ALONG BERMS AND DITCHES TO BE MAXIMUM SLOPES OF 3:1.

**WATER SERVICING NOTES, AS REQUIRED BY THE CITY OF BARRIE GENERAL**

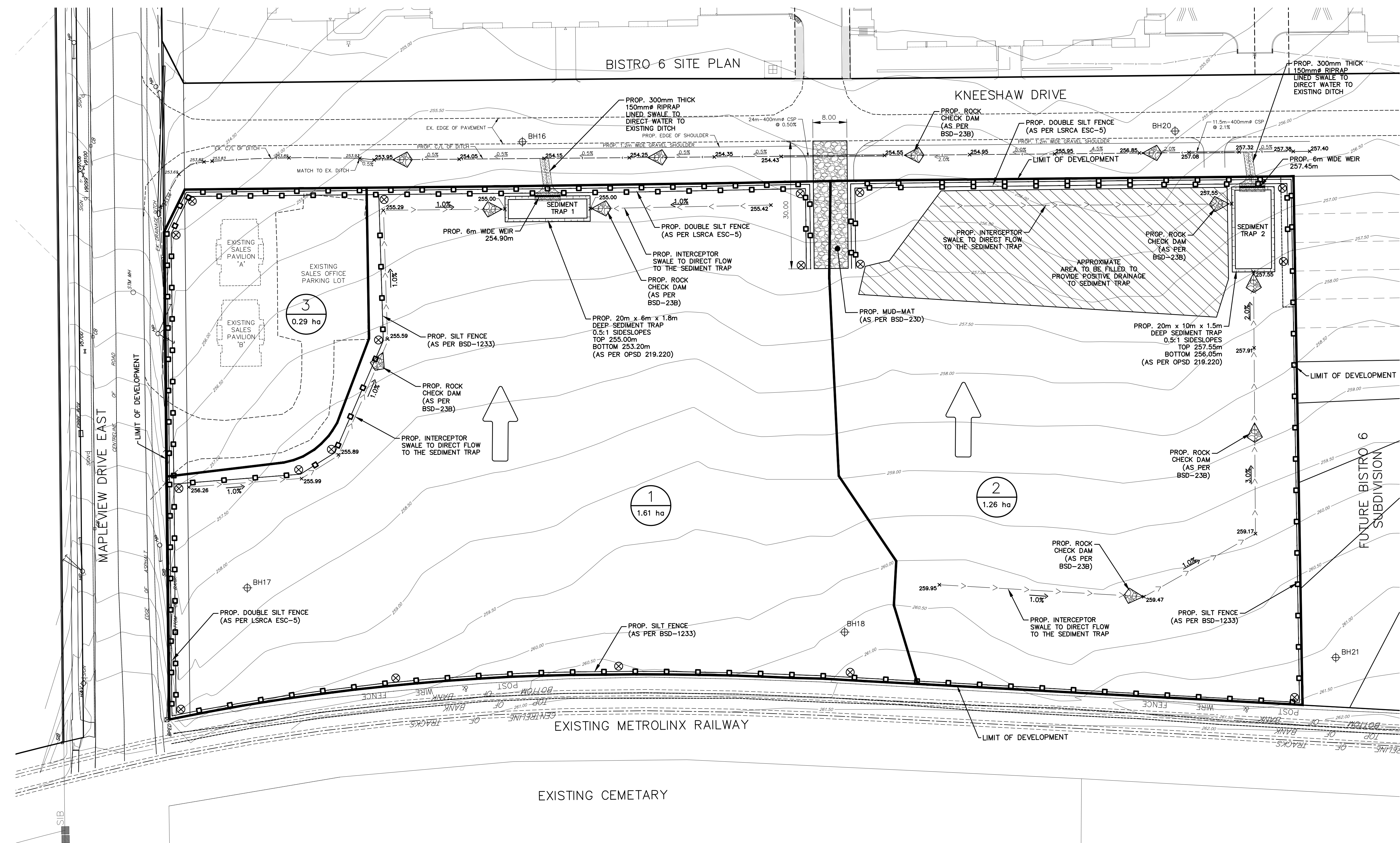
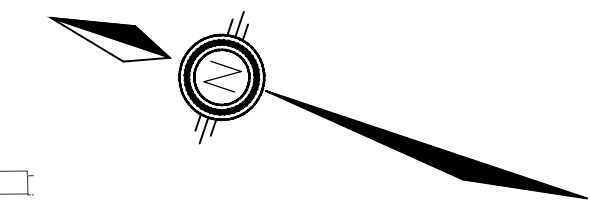
- ALL REQUIRED PERMITS SHALL BE IN PLACE PRIOR TO INSTALLATION OF WATERMAIN AND SEWER.
- A ROAD OCCUPANCY PERMIT IS REQUIRED, AND CAN BE OBTAINED AT THE OPERATION CENTRE.
- MINIMUM COVER OVER WATER MAIN TO BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAIN AND SEWER TO BE 2.5m WHERE WATER MAINS CONFLICT WITH SEWER PIPES, DEFLECT WATER MAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATER MAIN AND SEWERS, MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
- ALL BERMS AND 'IS'S SHALL BE RESTRAINED IN ADDITION TO THRUST BLOCKS.
- ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
- SERVICES INSTALLED UNDER FLOORS SHALL BE FULLY RESTRAINED.
- HYDRANTS SHALL BE INSTALLED AS PER BSD-507. ON SITE HYDRANTS SHALL BE CONSIDERED PRIVATE (PAINTED RED), AND ARE TO BE MAINTAINED BY THE OWNER.
- ALL FIRE SERVICES SHALL CONFORM TO THE MOST CURRENT BUILDING CODE AND NATIONAL FIRE PROTECTION ACT. THE REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER. INFORMATION MAY BE OBTAINED FROM THE INSURANCE UNDERWRITER, CITY OF BARRIE PLANNING AND DEVELOPMENT AND THE CITY OF BARRIE FIRE DEPARTMENT.
- ALL NEW CURB STOPS AND BOXES TO BE LOCATED OUT OF DRIVEWAYS AND SIDEWALKS.
- COPPER WATER SERVICES 19mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW.
- ALL COPPER WATER SERVICE FITTINGS SHALL BE COMPRESSION STYLE IF A CONDITION ARISES WHERE A COPPER SERVICE MUST BE JOINED UNDER THE FLOOR. THE COPPER SHALL BE JOINTED BY SILVER SOLDER CONNECTION ONLY.
- CONTRACTOR SHALL INFORM THE CITY OF BARRIE OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.
- THE CITY WILL FLUSH THE NEW SERVICE AND CONTRACTOR WILL PERFORM PRESSURE TEST WITNESSED BY THE WATER FIELD COORDINATOR.
- WATER WILL NOT BE AVAILABLE UNTIL SERVICES HAVE BEEN SAMPLED AND PASSES FOR BACTERIOLOGICAL COMPLIANCE, A CHECK VALVE SHALL BE INSTALLED FOR TEMPORARY WATER.
- REFER TO DRAWING WM-1, WATERMAIN TESTING AND DISINFECTION NOTES.
- A FLAT RATE CONNECTION FEE (\$2600.00) WILL BE REQUIRED FOR EACH OF THE 300mm WATER SERVICE CONNECTIONS.
- AN ANNUAL CHARGE FOR EACH PRIVATE CONNECTION MADE TO THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
- AN ANNUAL CHARGE FOR EACH PRIVATE FIRE HYDRANT SUPPLIED WITH WATER FROM THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
- WATER SERVICES TO BE MECHANICALLY RESTRAINED. WATERMAIN TO BE MECHANICALLY RESTRAINED IN AREAS OF FILL.
- PER FLOW REQUIREMENTS ARE OUTLINED IN THE INFOWATER MODELING BRIEF WATER SUPPLY SCHEME FOR BISTRO 6 WEST SITE (BLOCK 598) BY SCHAEFFER'S CONSULTING ENGINEERS, DATED FEBRUARY 8, 2021. BUILDING DESIGN PARAMETERS RELATED TO FLOW REQUIREMENTS ARE TO BE STRICTLY ADHERED TO.

**100mm DOMESTIC AND 150mm FIRE SERVICES - BUILDINGS A, B, AND C**

- DOMESTIC AND FIRE SERVICE VALVES SHALL BE LOCATED IN THE BOULEVARD, UNLESS OTHERWISE NOTED.
- DOMESTIC AND FIRE SERVICES SHALL BE MECHANICALLY RESTRAINED FROM THE TEE TO THE BUILDINGS.
- DOMESTIC AND FIRE SERVICES ENTERING EACH BUILDING SHALL BE INSTALLED AS PER BSD-505.
- DOMESTIC AND FIRE SERVICE TO BE HAND SWABBED OR A SWAB IS TO BE PLACED IN SERVICE AND REMOVED FROM RISERS.
- THE 100mm DOMESTIC WATER SERVICE WILL REQUIRE A 100mm WATER METER (SUPPLIED AND INSTALLED BY THE OWNER) COMPLETE WITH A BYPASS ASSEMBLY AS PER BSD-533. SHALL BE LOCATED IN AN APPROPRIATELY SIZED MECHANICAL ROOM.
- BACKFLOW PREVENTION SHALL BE PROVIDED ON ALL DOMESTIC AND FIRE SERVICES AS PER CITY OF BARRIE BYLAW 2017-121.

**ENGINEERING NOTES**

- UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO THE WORKS.
- ALL MEASUREMENTS FOR THIS PROJECT ARE IN METRES, EXCEPT PIPE DIAMETERS WHICH IS IN MILLIMETRES, UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF ANY CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
  - ALL MECHANICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, RULES AND REGULATIONS, TO MEET THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AND TO MEET THE DESIGN INTENT.
  - ALL WORK AND MATERIALS WITHIN THE PROPERTY BOUNDARIES SHALL CONFORM TO THE LATEST EDITION OF THE ONTARIO BUILDING CODE, WHERE THERE IS A CONFLICT BETWEEN THE FOLLOWING NOTES AND SPECIFICATIONS AND THE ONTARIO BUILDING CODE, THE DECISION OF THE CHIEF BUILDING OFFICIAL WILL GOVERN.
  - INFORMATION ON EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY UT



LEGEND	
	EX. BUSH LINE
	EX. BORE HOLE
	DIRECTION OF SURFACE DRAINAGE
	PROP. SILTATION CONTROL FENCE AS PER BSD-1233
	EXISTING CONTOUR LINES
	PROP. CEDAR POST
	PROP. ROCK CHECK DAM AS PER BSD-23B DRAINAGE BOUNDARY
	MUD MAT (AS PER BSD-23D)
	PROP. CUT-OFF SWALE (MIN 0.5m DEPTH)
	AREA NO.
	AREA IN HECTARE
	EXTERNAL WORKS BY OTHERS

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I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF PART OF THE PROPOSED HEWITT'S GATE SUBDIVISION SITE LOCATED AT 793 MAPLEVIEW DRIVE EAST AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.

BENCHMARK:				
BENCHMARK NO. 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE OVER LOCKY'S CREEK, 0.85M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.599 E807294.100 ELEV 241.661				
4	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF	
3	ISSUED FOR SAP APPLICATION	21-09-09	MF	
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF	
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF	
NO.	REVISIONS	DATE	INITIAL	



PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE  
EROSION AND SEDIMENT  
CONTROL PLAN

DESIGN MF  
DRAWN KS  
CHECKED DR

		229 Mapleview Dr. E. Unit 1 Barrie, ON L4N 0W5 P. 705.734.2538 F. 705.734.1058	
		SCALE: 1:500	DATE: FEB. 2021
PROJECT: PRA-19078	DWG. NO: ESC-1		

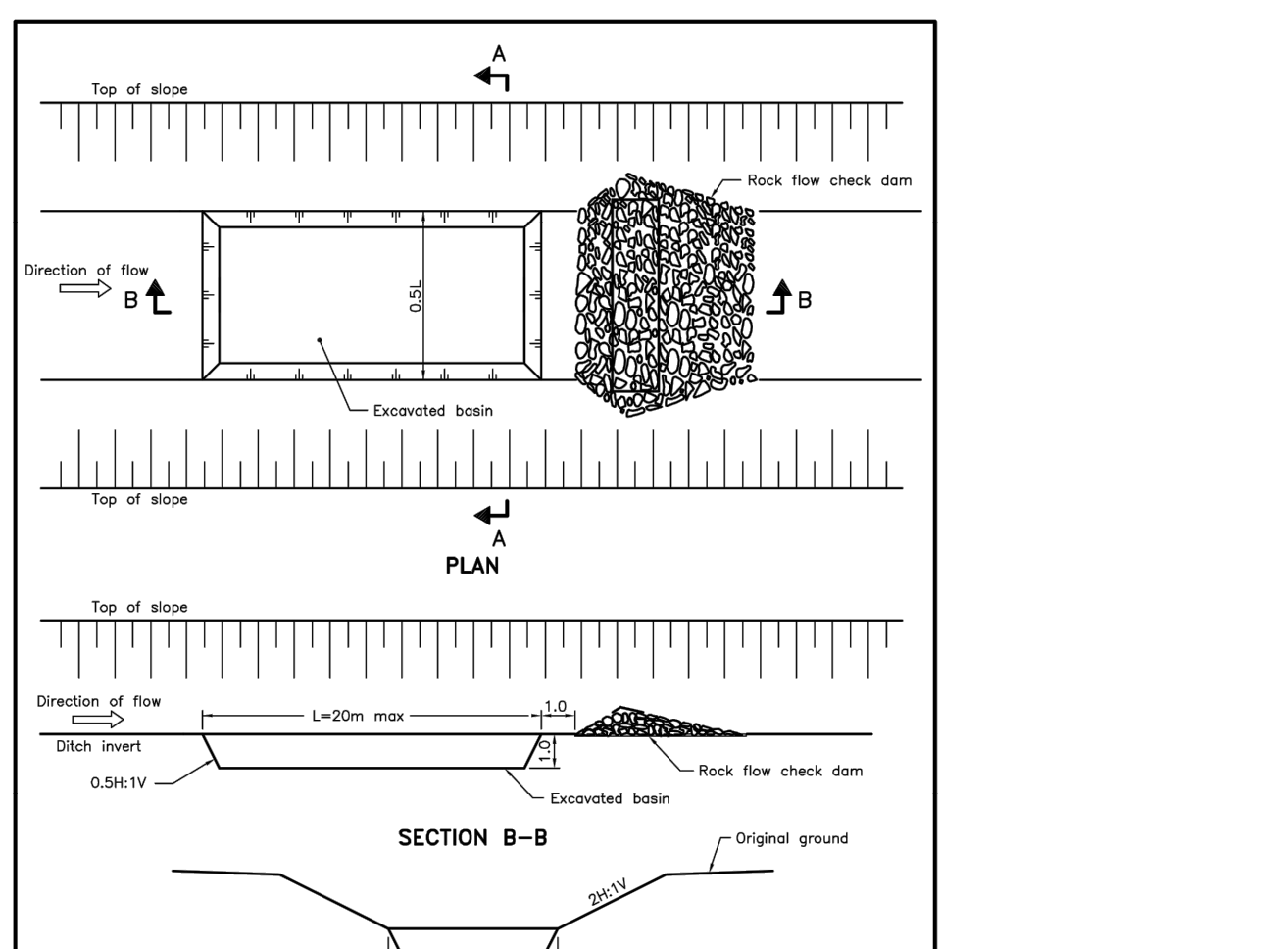
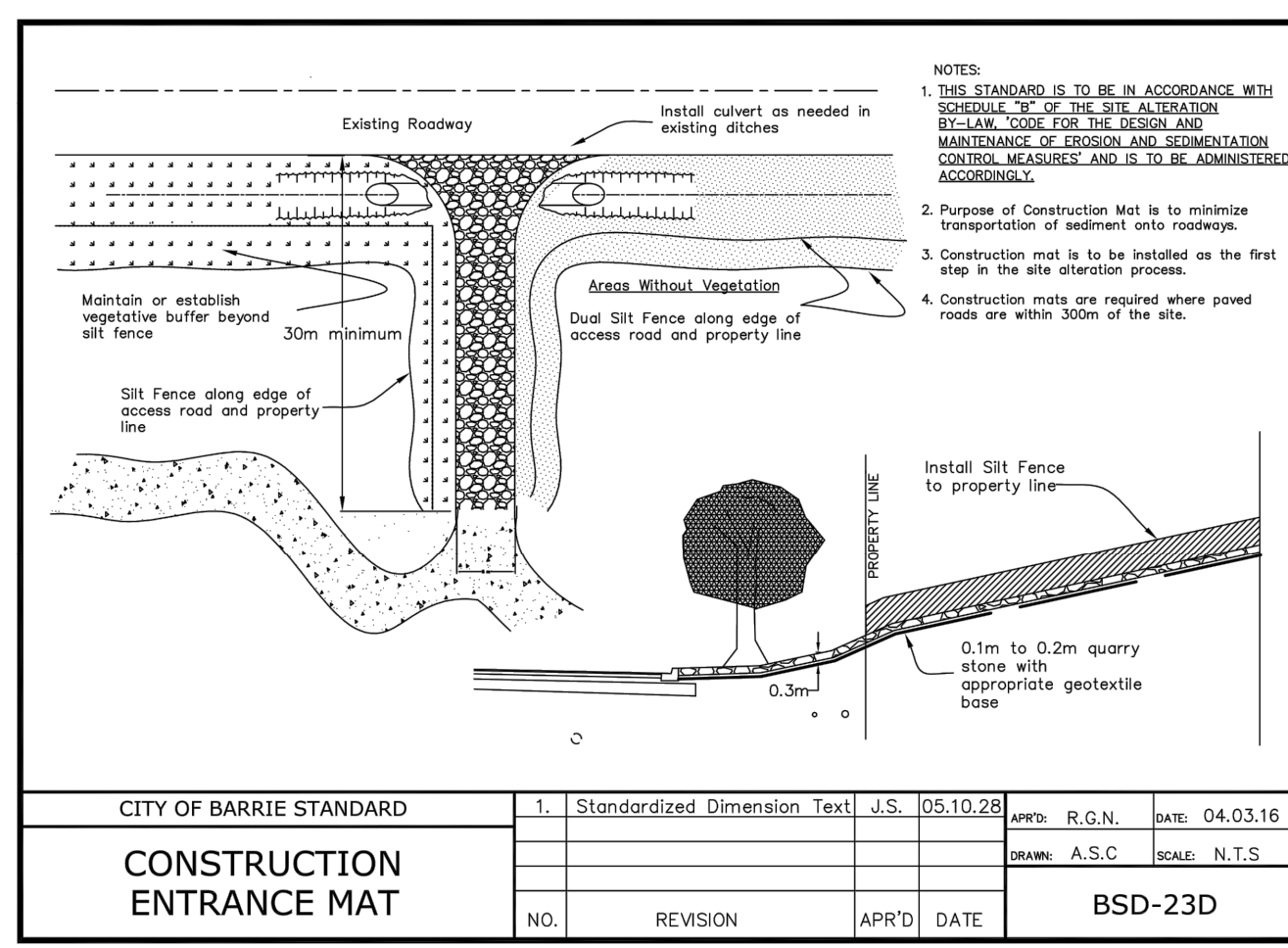
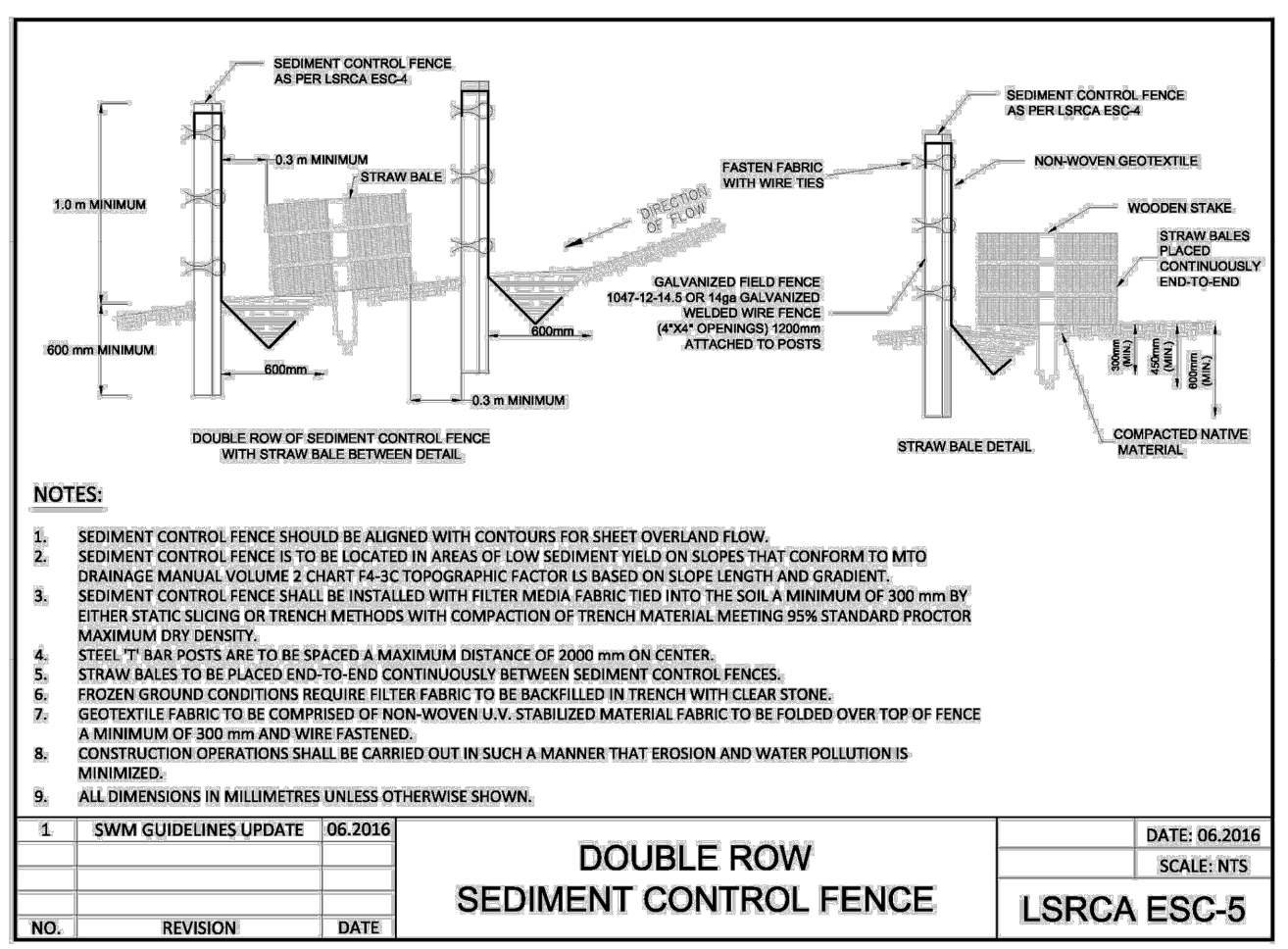
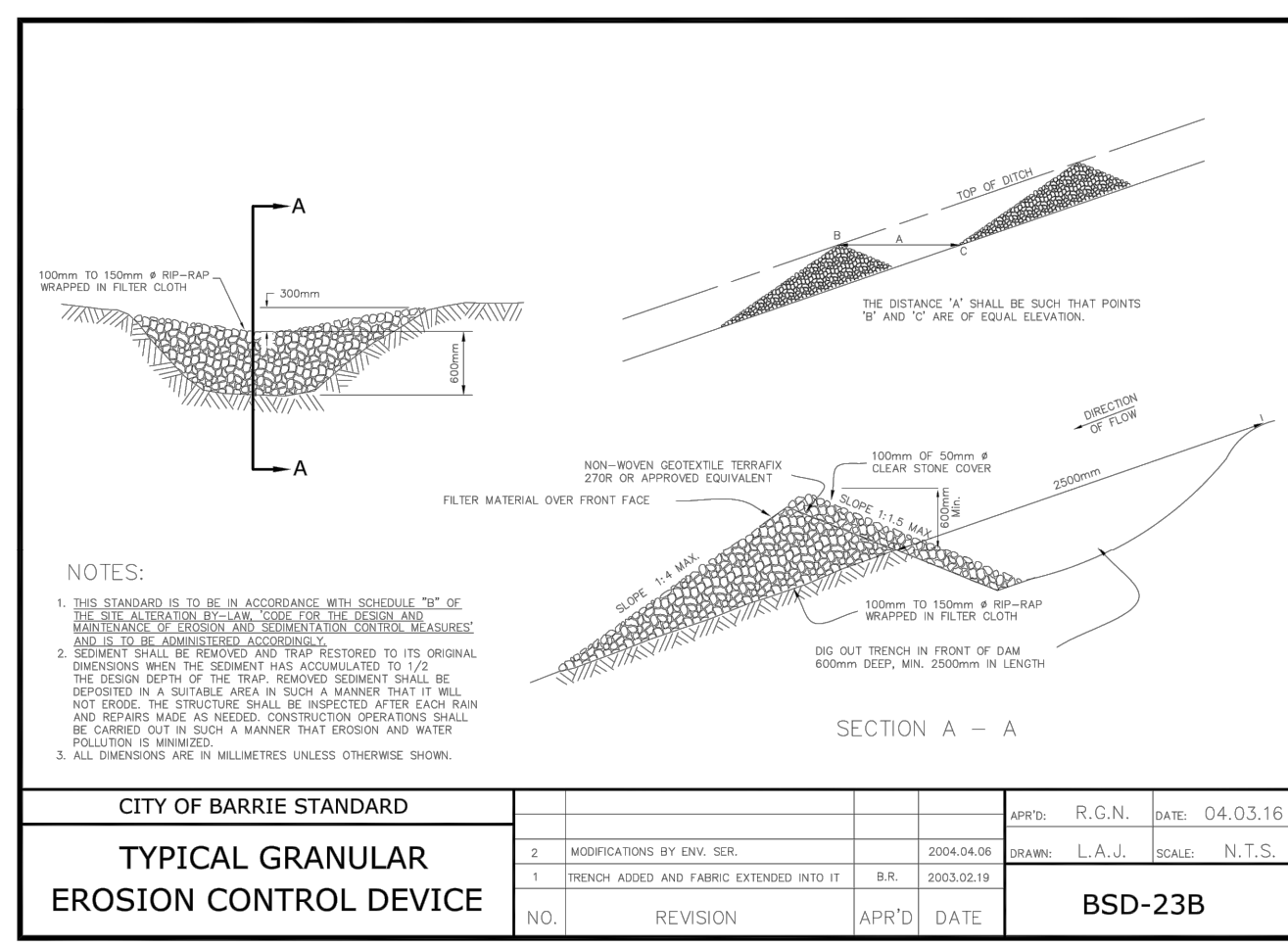
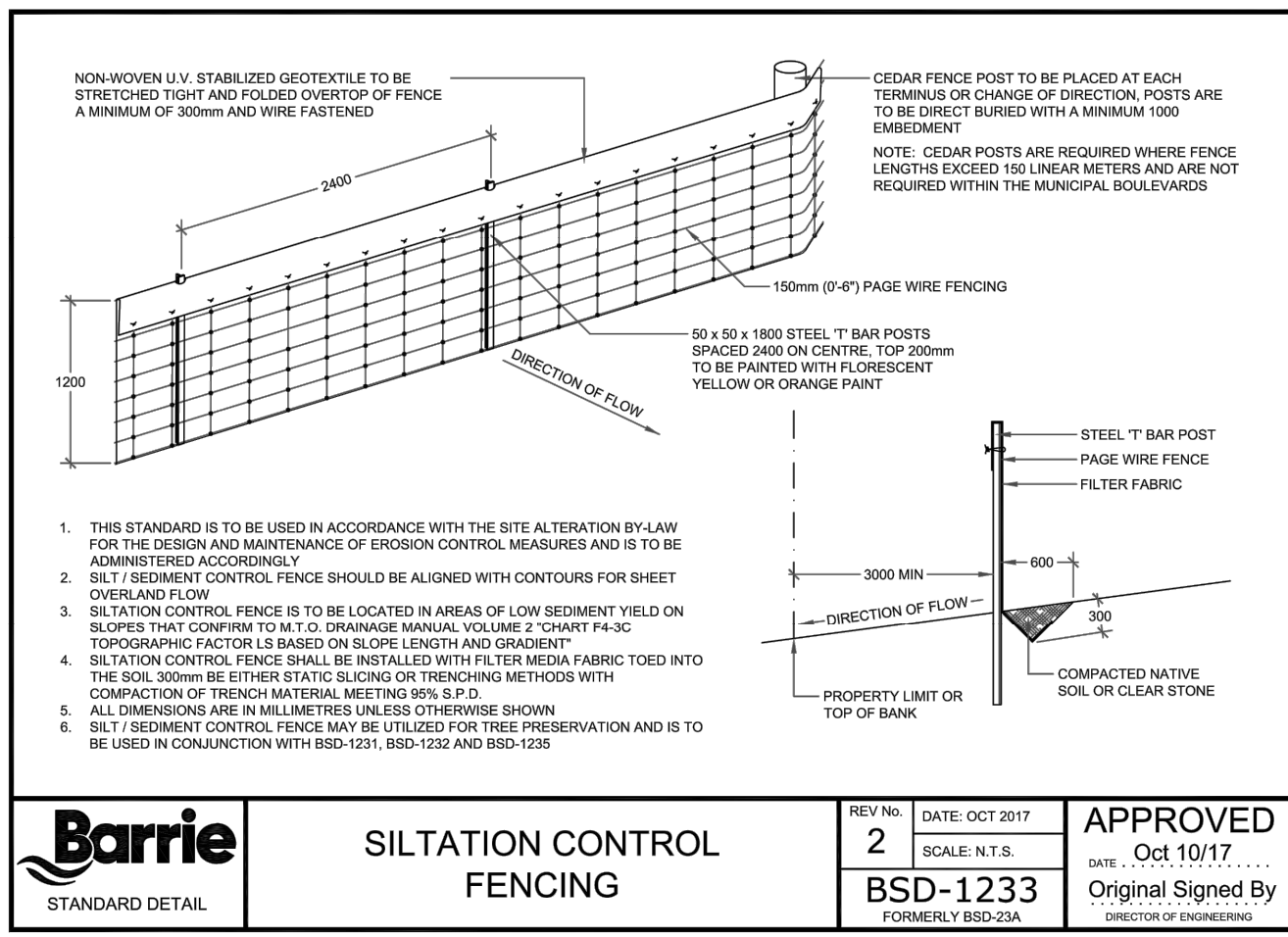
**GENERAL NOTES**

- DRAWINGS
- MEASUREMENTS
- GENERAL

CITY OF BARRIE STANDARD

NO.	REVISION	APPRD.	DATE	SCALE
1	3.E. NOTE 3.E. REVISED & 3.I. ADDED	J.S.	05.01.10	
2	S.D. - "ENGINEERING DEPARTMENT"	B.R.	02.10.28	
3	3.E. TOPSOIL PERMIT		01.12.06	

BSI-N6



**EROSION CONTROL NOTES**

- THE ACCOMPANYING PLANS SET OUT THE MEASURES THAT WILL BE TAKEN BY THE DEVELOPER AND ITS CONTRACTORS TO CONTROL DOWNSTREAM SEDIMENT TO THE LOWEST LEVEL PRACTICALLY ACHIEVABLE. THE CONDITIONS AND TECHNIQUES SET OUT ARE TO BE FOLLOWED UNLESS APPROVED OTHERWISE BY THE CONTRACT ADMINISTRATOR, CONSERVATION AUTHORITY AND/OR MUNICIPALITY.
- ALL TEMPORARY SILT CONTROL AND EROSION PROTECTION DEVICES (I.E. SILT FENCING, DRAINAGE SWALES, ROCK CHECK DAMS, SEDIMENT TRAPS, GRAVEL ACCESS PAD, ETC.) SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF SITE WORKS 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.
- ALL SEDIMENTATION CONTROL MEASURES ARE TO BE INSPECTED REGULARLY (MINIMUM WEEKLY), AS WELL AS AFTER EVERY RAINFALL EVENT AND ANY DAMAGED SILT CONTROL AND EROSION PROTECTION DEVICES SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR.
- THE CONTRACTOR MUST USE MATERIALS, CONSTRUCTION PRACTICES, AND MITIGATION TECHNIQUES IN ORDER TO PREVENT THE UNAUTHORIZED HARMFUL ALTERATION, DISRUPTION OR DESTRUCTION OF VEGETATION OR THE IMPAIRMENT OF WATER QUALITY.
- THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES.
- AREAS WITHOUT STABLE GROUND COVER SHALL BE PROTECTED WITH SILTATION CONTROL FENCING, STRAW MULCH, ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BECOME ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
- ALL EXPOSED SOIL MUST BE GRADED TO A STABLE SLOPE AND TREATED AS QUICKLY AS POSSIBLE TO PREVENT EROSION AND SEDIMENT FROM LEAVING THE SITE. ALL AREA STRIPPED OF VEGETATIVE COVER FOR LONGER THAN 30 DAYS SHALL BE TOPSOILED AND SEEDED AT THE DIRECTION OF THE ENGINEER.
- ALL SITE DRAINAGE TO BE DIRECTED TO THE TEMPORARY SEDIMENT TRAPS AND OTHER CHECK DAMS VIA SHEET DRAINAGE, BERMS OR SWALES (AS NECESSARY) TO FACILITATE THE COMPLETION OF GRADING WORKS. THE CONTRACTOR SHALL CONSTRUCT ANY ADDITIONAL SWALES OR BERMS THAT MAY BE NECESSARY TO DIRECT RUN-OFF IN A CONTROLLED MANNER OF SUITABLE QUALITY.
- ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
- ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30m FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE INSPECTOR.
- TECHNIQUES FOR EROSION AND SEDIMENT CONTROLS ARE TO ADHERE TO ACCEPTED ENGINEERING PRACTICE AND MUNICIPAL CONSERVATION AUTHORITY AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS. THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSS 805; CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, AS WELL AS APPLICABLE MUNICIPAL STANDARDS AND/OR APPROVAL AGENCY STANDARDS.
- THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES, SUCH MEASURES MUST BE PRESENTED IN WRITING FOR APPROVAL BY THE CONTRACT ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE APPLICABLE APPROVAL AGENCIES.

**CONSTRUCTION SEQUENCE**

- THE FOLLOWING CONSTRUCTION SEQUENCE IS PROVIDED FOR CONTRACTOR GUIDANCE:
- CONSTRUCT ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE, TREE PRESERVATION FENCE, MUD MATS, CHECK DAMS, SWALES/BERMS, ETC.
  - CONSTRUCT TEMPORARY SEDIMENT TRAPS, STRIPPING AND REMOVAL OF TOPSOIL. TOPSOIL TO BE REMOVED FROM SITE.
  - PROCEED WITH EARTH EXCAVATION AND PRE-GRADING. PROCEED WITH SEEDING OF RESTORATION OF ALL DISTURBED AREAS AS DIRECTED BY ENGINEER. ALL AREAS STRIPPED OF VEGETATIVE COVER FOR LONGER THAN 15 DAYS SHALL BE HYDROSEED AT THE DIRECTION OF THE ENGINEER. HYDROSEED WITH FIBRETAC AT 100G/HA. HYDROSEED MIXTURE OF 48% ANNUAL RYE GRASS, 48% FALL RYE, 4% RED CLOVER WILL NEED TO BE APPLIED TO ANY EXPOSED AREAS FOLLOWING TOPSOIL STRIPPING.
  - PROCEED WITH SITE WORKS I.E. SITE SERVICING AND SURFACE WORKS INSTALLATIONS.
  - REMOVE TEMPORARY SEDIMENT TRAPS, CONSTRUCT RETAINING WALLS AND LID MEASURES AT EAST PROPERTY LIMIT.
  - RESTORATION OF DISTURBED AREAS.
  - REMOVAL OF REMAINING SEDIMENT AND EROSION CONTROLS.
- \*\*NOTE\*\* SILTATION AND EROSION CONTROL MEASURES ARE TO BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION AND NECESSARY REPAIRS TO BE PROMPTLY COMPLETED AS REQUIRED.

**CONTINGENCY PLAN**

IF UNFORESEEN EVENTS CAUSE THE STRATEGIES SET OUT IN THIS PLAN TO BE INSUFFICIENT OR INAPPROPRIATE TO MEET THE OBJECTIVE, THE CONTRACTOR IS EXPECTED TO RESPOND IN A TIMELY MANNER WITH ALL REASONABLE MEASURES CONSISTENT WITH SAFETY, TO PREVENT, COUNTERACT OR REMEDY DOWNSTREAM SEDIMENTATION AND EROSION.

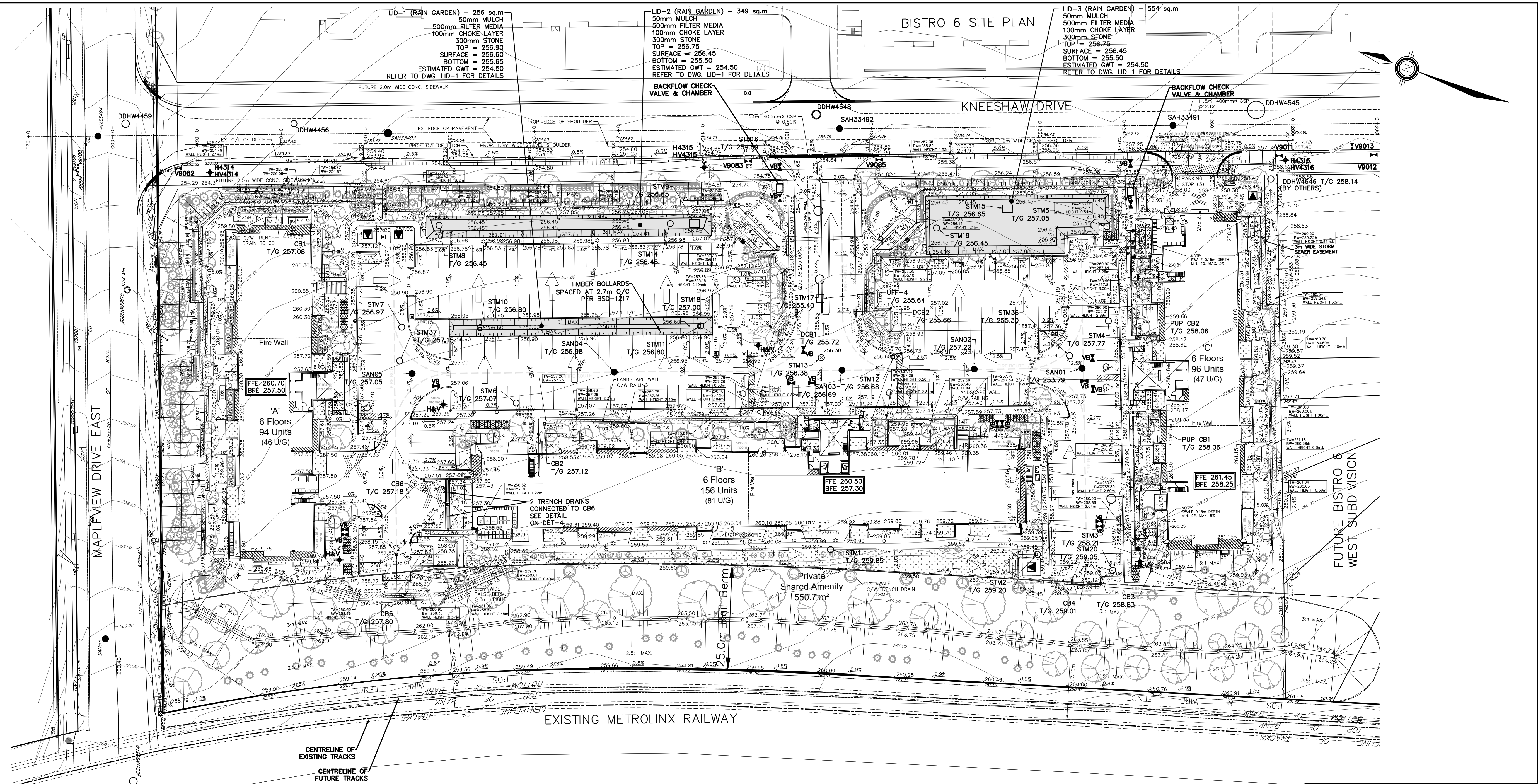
IF A SPILL OCCURS IT SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT & CLIMATE CHANGE & THE MINISTRY OF NATURAL RESOURCES AND FORESTRY. THE ON CALL CITY OF BARRIE ENVIRONMENTAL OFFICER SHOULD ALSO BE NOTIFIED VIA CELL PHONE (705) 725-3374.

IF APPROVAL AGENCIES DETERMINE THAT LONG TERM DAMAGE TO THE NATURAL ENVIRONMENT HAS OCCURRED DUE TO FAILURE OF THIS PLAN TO CONTROL SEDIMENTS, A RESTORATION PLAN WILL BE DEVELOPED BY THE CONTRACTOR IN CONSULTATION WITH AND APPROVAL FROM THE APPROPRIATE AGENCIES FOR IMPLEMENTATION BY THE CONTRACTOR.

SITE DATA		
OVERALL SITE AREA	3.16 Ha	
EXISTING LAND USE	(VACANT) AGRICULTURAL FIELD	
PREDOMINANT SOIL TYPE	SANDY LOAM	
	<b>SEDIMENT TRAP 1</b>	<b>SEDIMENT TRAP 2</b>
BOTTOM ELEVATION	253.20	256.05
TOP ELEVATION	255.00	257.55
OVERFLOW WEIR ELEVATION	254.90	257.45
DIMENSIONS (LxWxD)	20m x 6m x 1.8m	20m x 10m x 1.5m
STORAGE VOLUME	216m <sup>3</sup>	300m <sup>3</sup>
CATCHMENT AREA	1.61 Ha	1.26 Ha
REQUIRED STORAGE VOLUME BASED ON 125m <sup>3</sup> OF DRAINAGE AREA TO POND	201.25m <sup>3</sup>	157.50m <sup>3</sup>

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<p>I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF PART OF THE PROPOSED HEWITTS GATE SUBDIVISION SITE LOCATED AT 793 MAPLEVIEW DRIVE EAST AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.</p>	<p>BENCHMARK: BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE OVER LOCKYER CREEK, 0.50M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 0.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.509 E807294.100 ELEV 241.661</p> <p>BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLET IS ON THE SOUTH FACE OF THE FLAGPOLE BASE. N4911610 E807799 ELEV 250.550</p> <p>BENCHMARK NO: 0310080004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E807601.062 ELEV 248.096</p> <p>BENCHMARK NO: 0312011003 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.251 E806733.690 ELEV 252.807</p>	<table border="1"> <tr> <th>NO.</th> <th>REVISIONS</th> <th>DATE</th> <th>INITIAL</th> </tr> <tr> <td>4</td> <td>3RD DETAILED DESIGN SUBMISSION</td> <td>21-12-20</td> <td>MF</td> </tr> <tr> <td>3</td> <td>ISSUED FOR SAP APPLICATION</td> <td>21-09-09</td> <td>MF</td> </tr> <tr> <td>2</td> <td>2ND DETAILED DESIGN SUBMISSION</td> <td>21-09-03</td> <td>MF</td> </tr> <tr> <td>1</td> <td>1ST DETAILED DESIGN SUBMISSION</td> <td>21-02-12</td> <td>MF</td> </tr> </table>	NO.	REVISIONS	DATE	INITIAL	4	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF	3	ISSUED FOR SAP APPLICATION	21-09-09	MF	2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF	1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF		<p>PRATT HANSEN GROUP INC. ELEMENTS SITE PLAN CITY OF BARRIE EROSION AND SEDIMENT CONTROL DETAILS</p>	<p>229 Mapleview Dr. E. Unit 1 Barrie, ON L4N 0W5 P. 705.734.2538 F. 705.734.1056</p>
	NO.	REVISIONS	DATE	INITIAL																					
4	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF																						
3	ISSUED FOR SAP APPLICATION	21-09-09	MF																						
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF																						
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF																						
<table border="1"> <tr> <td>DESIGN</td> <td>MF</td> <td>SCALE: N/A</td> <td>DATE: FEB. 2021</td> </tr> <tr> <td>DRAWN</td> <td>KS</td> <td>PROJECT</td> <td>DWG. NO</td> </tr> <tr> <td>CHECKED</td> <td>DR</td> <td>PRA-19078</td> <td>ESC-2</td> </tr> </table>	DESIGN	MF	SCALE: N/A	DATE: FEB. 2021	DRAWN	KS	PROJECT	DWG. NO	CHECKED	DR	PRA-19078	ESC-2													
DESIGN	MF	SCALE: N/A	DATE: FEB. 2021																						
DRAWN	KS	PROJECT	DWG. NO																						
CHECKED	DR	PRA-19078	ESC-2																						



**LEGEND**

- 253.10 PROPOSED GROUND ELEVATION
- 253.10 EXISTING GROUND ELEVATION
- 2.5% PROPOSED GRADIENT AND DIRECTION
- 3:1 PROPOSED 3:1 SLOPE (MAX.)
- STM1 PROPOSED STORM MAINTENANCE HOLE
- CBM47 PROPOSED CATCHBASIN MAINTENANCE HOLE
- CB2 PROPOSED CATCHBASIN
- DCB1 PROPOSED DOUBLE CATCHBASIN
- MH1 PROPOSED SANITARY MAINTENANCE HOLE
- MHV PROPOSED HYDRANT
- VB PROPOSED VALVE BOX
- CS PROPOSED CURB STOP
- LS PROPOSED LIGHT STANDARD
- BP PROPOSED BELL PEDESTAL/HANDHOLES
- BD PROPOSED BELL DUCT
- BV PROPOSED BELL VAULT
- RV PROPOSED ROGERS VAULT
- HT PROPOSED HYDRO TRANSFORMER
- EV PROPOSED EV CHARGER STATION
- PROPOSED EMERGENCY OVERLAND FLOW ROUTE

**BENCHMARK:**

3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF

NO. REVISIONS DATE INITIAL



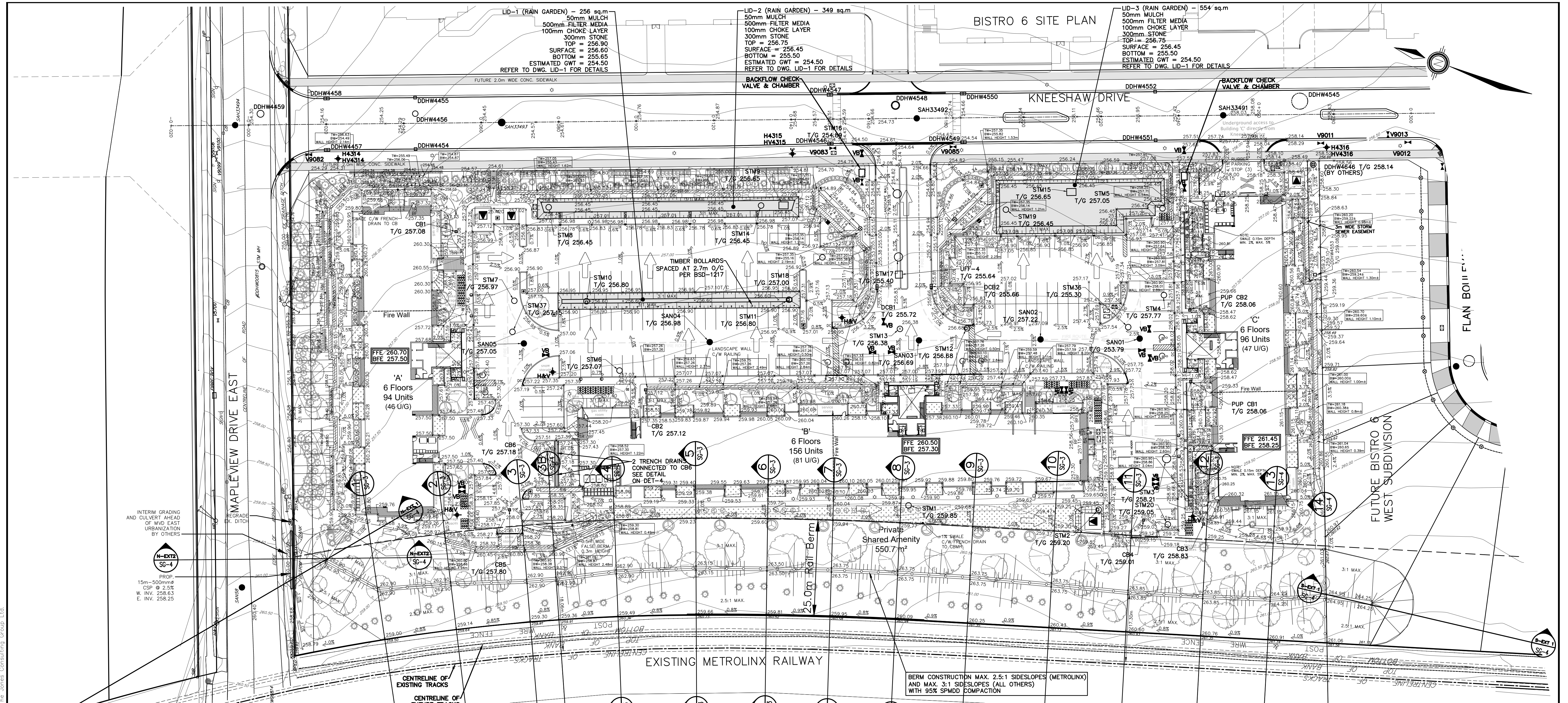
**PRATT HANSEN GROUP INC.**  
ELEMENTS SITE PLAN  
CITY OF BARRIE

**SITE GRADING PLAN  
WITH EXISTING CONDITIONS**

DESIGN MF	SCALE: 1:500	DATE JANUARY 2021
DRAWN KS	PROJECT	DWG. NO
CHECKED DR	PRA-19078	SG-1

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W5  
P. 705.734.2538  
F. 705.734.1056

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**LEGEND**

- 253.10 PROPOSED GROUND ELEVATION
- 253.10 EXISTING GROUND ELEVATION
- 2.25 PROPOSED GRADIENT AND DIRECTION
- PROPOSED 3:1 SLOPE (MAX.)
- STM1 PROPOSED STORM MAINTENANCE HOLE
- CBM47 PROPOSED CATCHBASIN MAINTENANCE HOLE
- CB2 PROPOSED CATCHBASIN
- PCB1 PROPOSED DOUBLE CATCHBASIN
- SAN01 PROPOSED SANITARY MAINTENANCE HOLE
- H&V PROPOSED HYDRANT
- VB PROPOSED VALVE BOX
- PROPOSED CURB STOP
- PROPOSED LIGHT STANDARD
- PROPOSED BELL PEDESTAL/HANDHOLES
- PROPOSED BELL DUCT
- PROPOSED BELL VAULT
- PROPOSED ROGERS VAULT
- PROPOSED HYDRO TRANSFORMER
- PROPOSED EV CHARGER STATION
- LANDSCAPE TREE
- PROPOSED EMERGENCY OVERLAND FLOW ROUTE

G:\Eng\_3D\PRAs-19078\_Elements\DESIGNBASE.dwg Layout\SG-2 Plotted Dec 21, 2021 @ 8:12am by kschultz - The Jones Consulting Group Ltd.

**BENCHMARK:**

BENCHMARK NO. 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE OVER LOWER'S CREEK, 0.83M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 3.43M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.889 E507254.100 ELEV 241.861

BENCHMARK NO. 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509

BENCHMARK NO. 0312008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607601.062 ELEV 248.896

BENCHMARK NO. 0312011003 LOCATED ON LOCHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.257 E606733.590 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

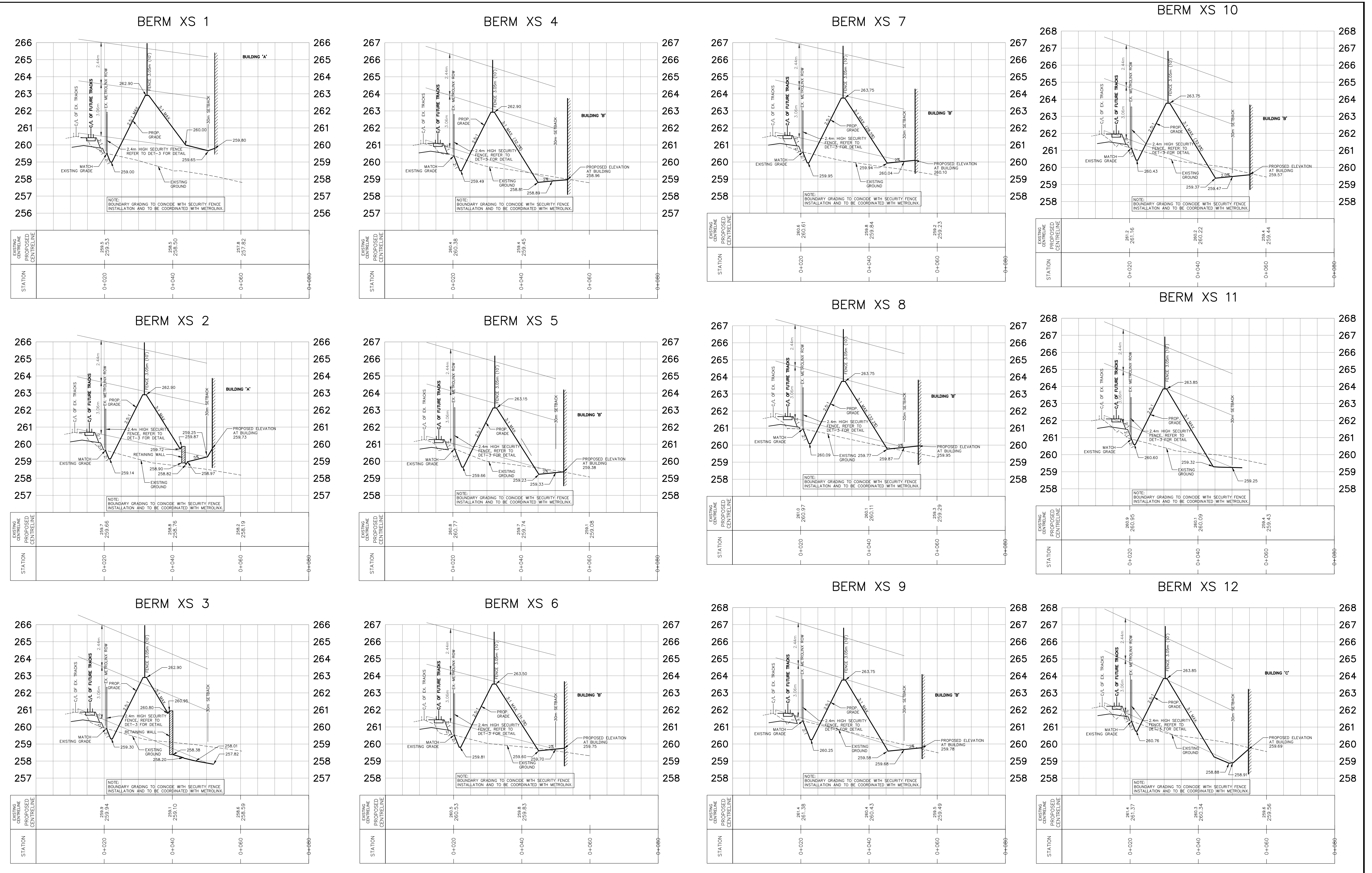
SITE GRADING PLAN  
WITH PROPOSED CONDITIONS

**JONES CONSULTING GROUP LTD.**  
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W5  
P. 705.734.2538  
F. 705.734.1056

DESIGN MF	SCALE: 1:500	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO. SG-2
CHECKED DR		

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**BENCHMARK:**

BENCHMARK NO: 0101988454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE OVER LOWERS CREEK, 0.28KM EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910785.889 E507254.100 ELEV 241.861

BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE METAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509

BENCHMARK NO: 0310000004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607601.062 ELEV 248.096

BENCHMARK NO: 0312011013 LOCATED ON LOCHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.251 E606733.990 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
4	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
3	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
2	ISSUED FOR METROLINK REVIEW	21-06-14	DR
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

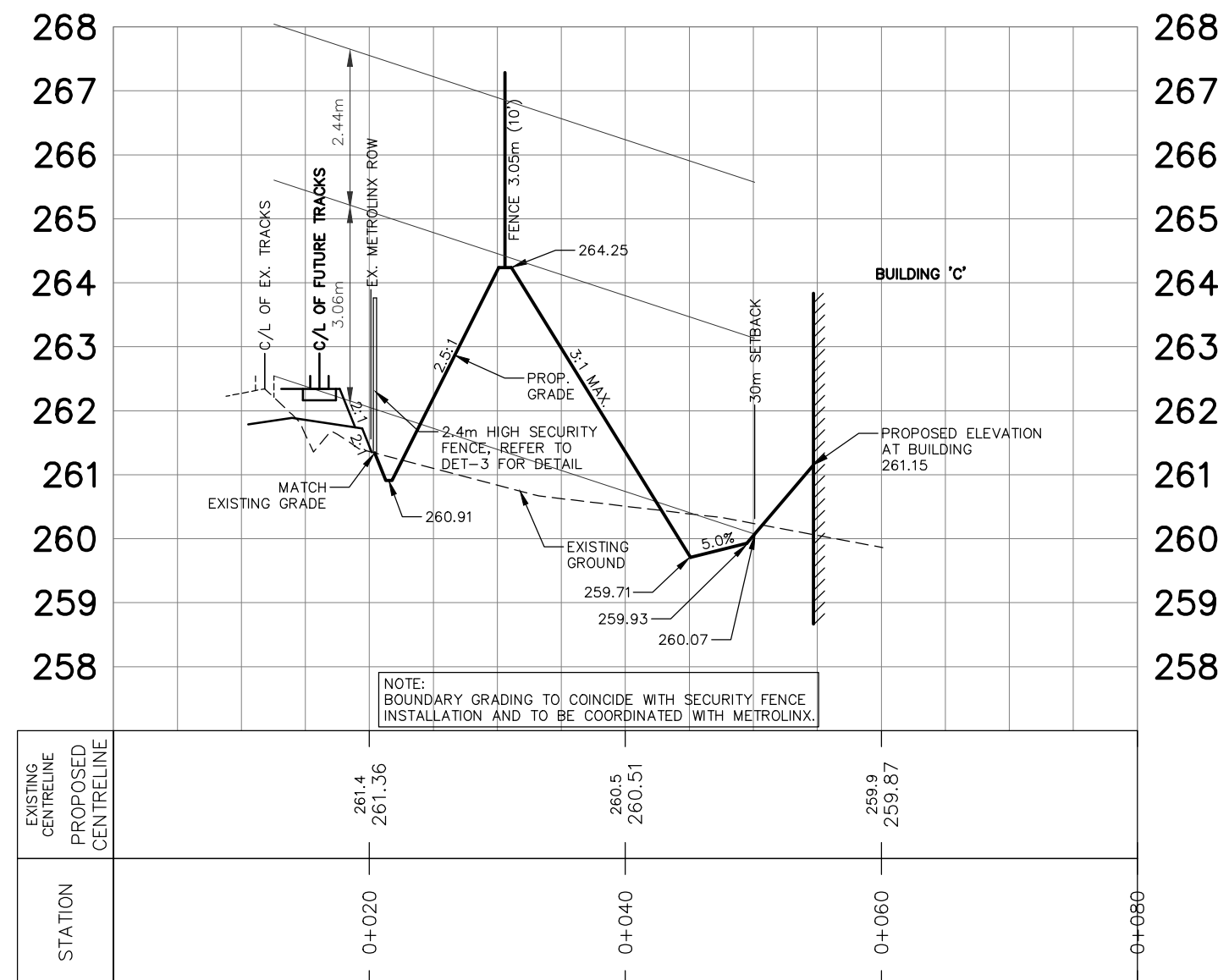


229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W6  
P. 705.734.2538  
F. 705.734.1058

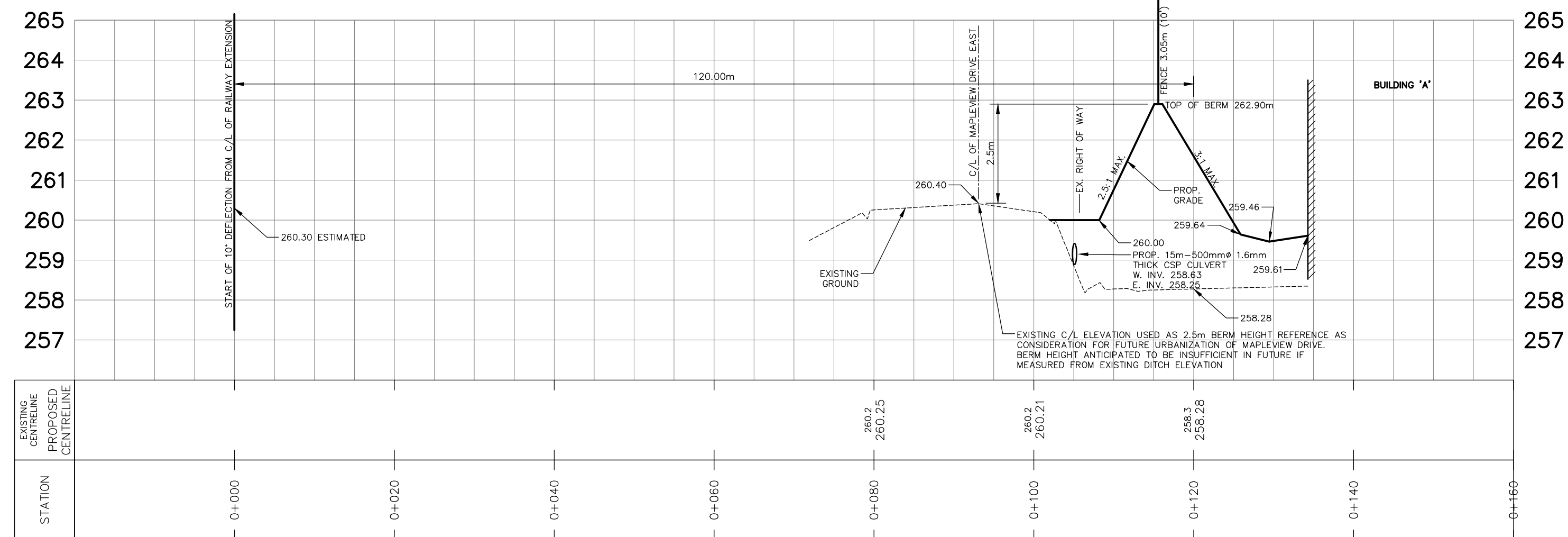
**RAILWAY BERM SECTIONS**

DESIGN MF	SCALE: H:1: 500 V:1:100	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO SG-3
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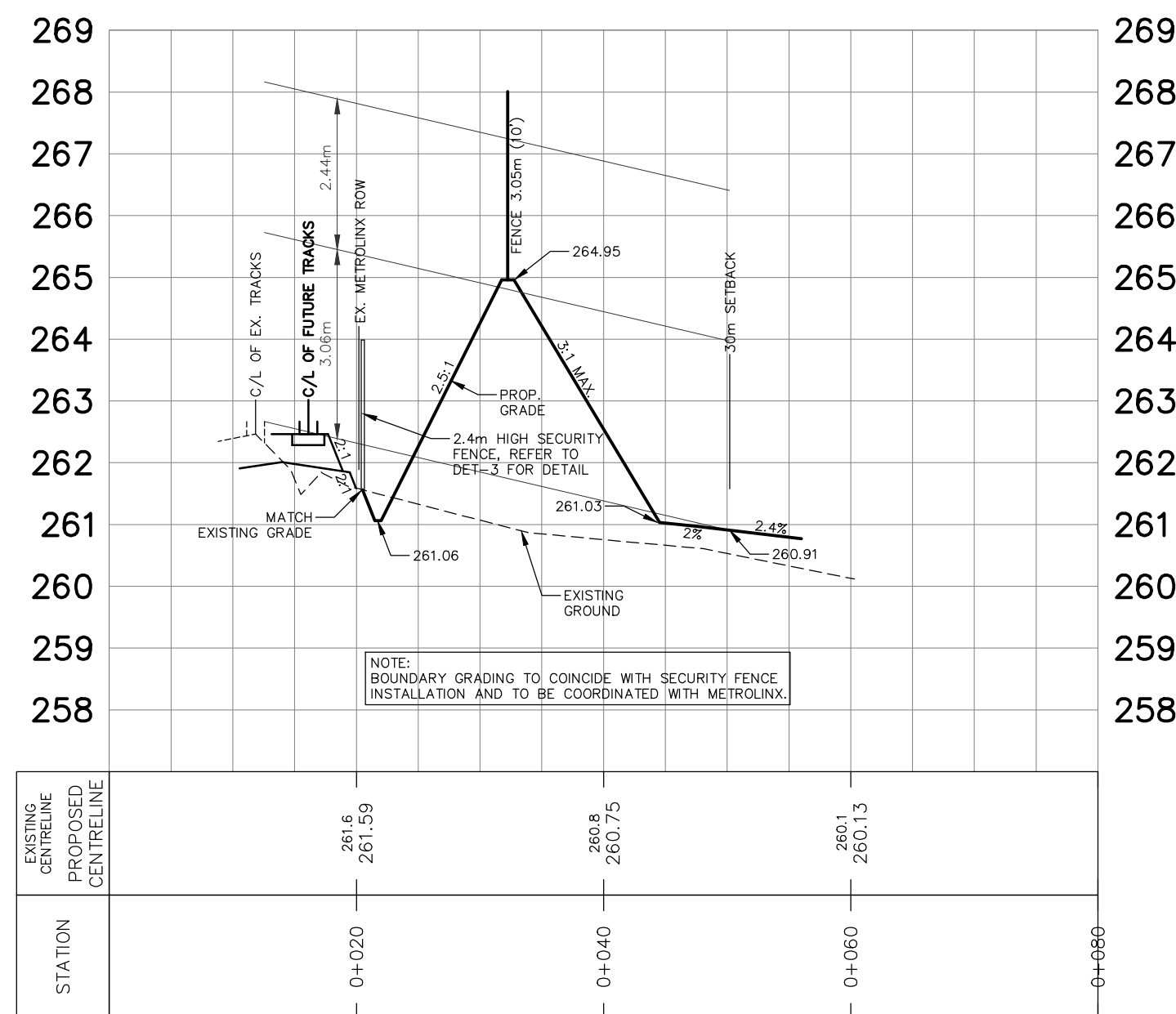
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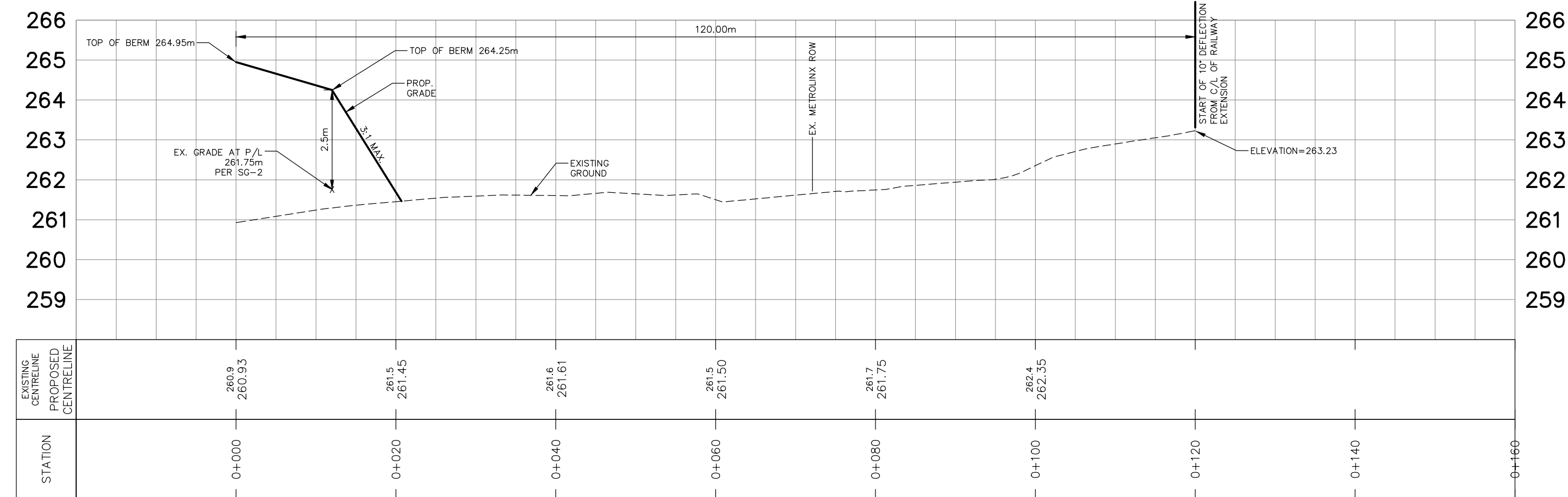
N-EXT 1



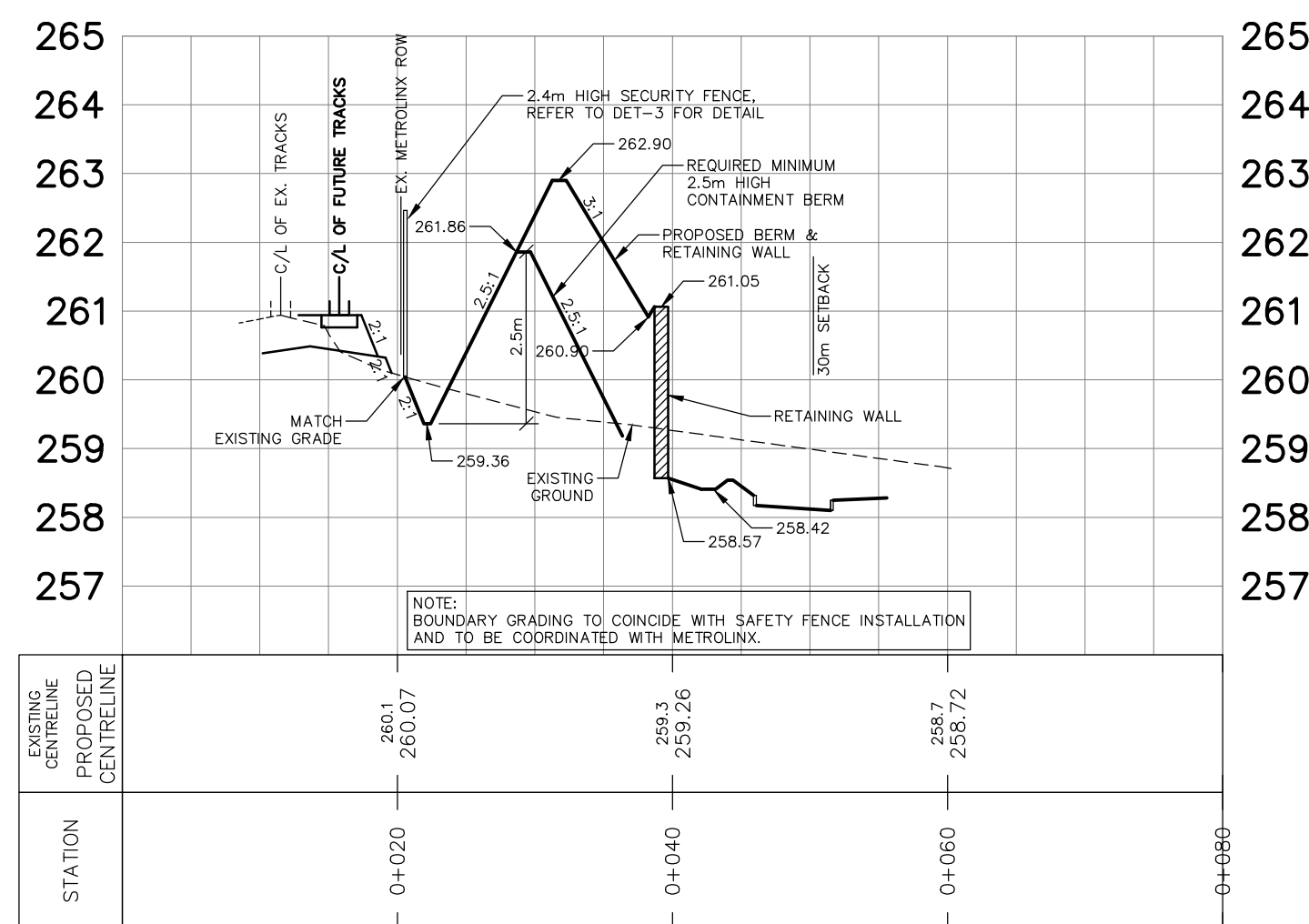
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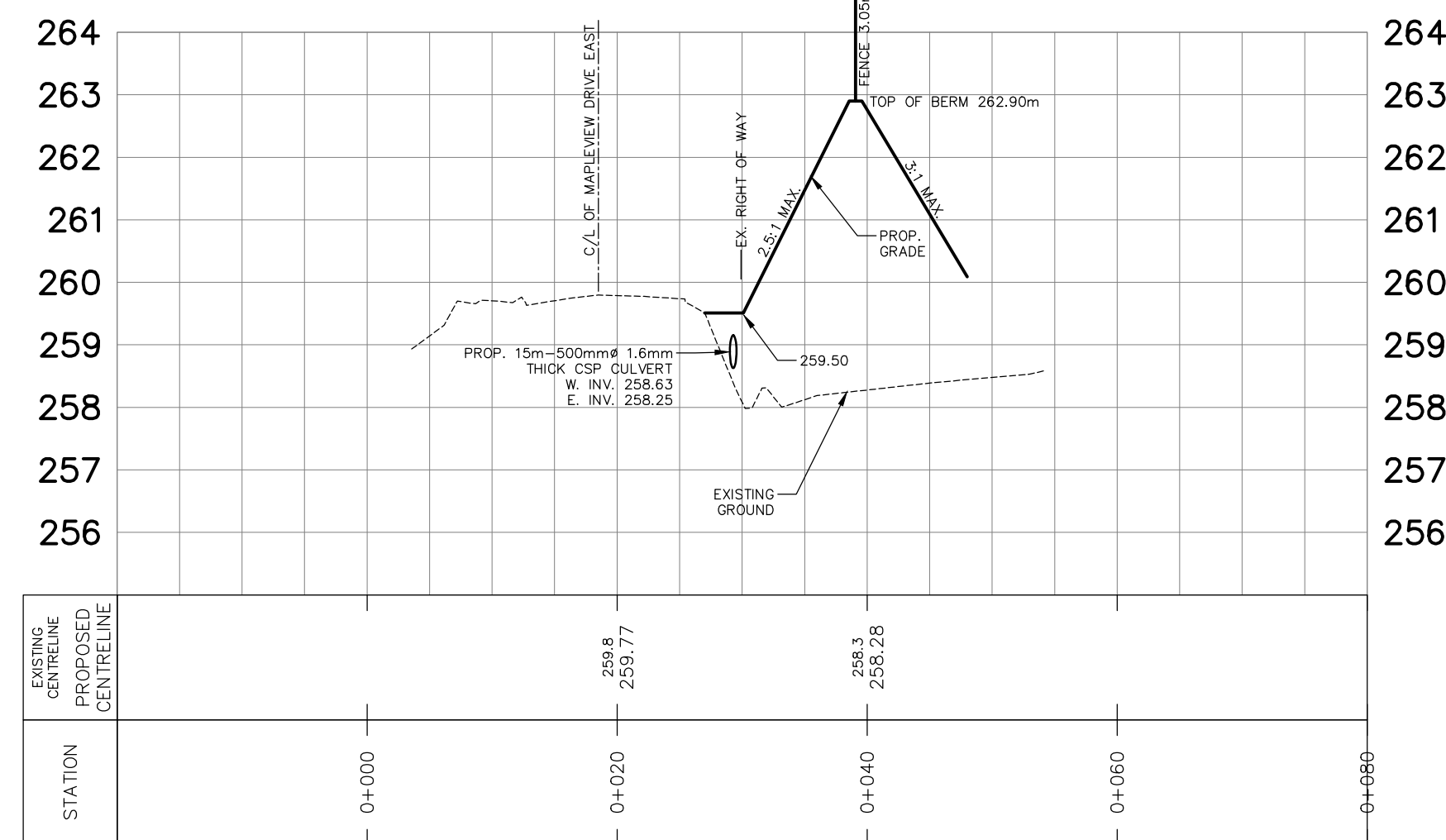
S-EXT 1



BERM XS 3B



N-EXT2



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**BENCHMARK:**

BENCHMARK NO: 0101988454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWERS CREEK, 0.82KM EAST OF HURONIA ROAD. TABLE IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910785.889 E507294.100 ELEV 241.861

BENCHMARK NO: 03120030229 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE METROLINK MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLE IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509

BENCHMARK NO: 03120030228 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896

BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.257 E606733.590 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
4	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
3	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
2	ISSUED FOR METROLINK REVIEW	21-06-14	DR
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF

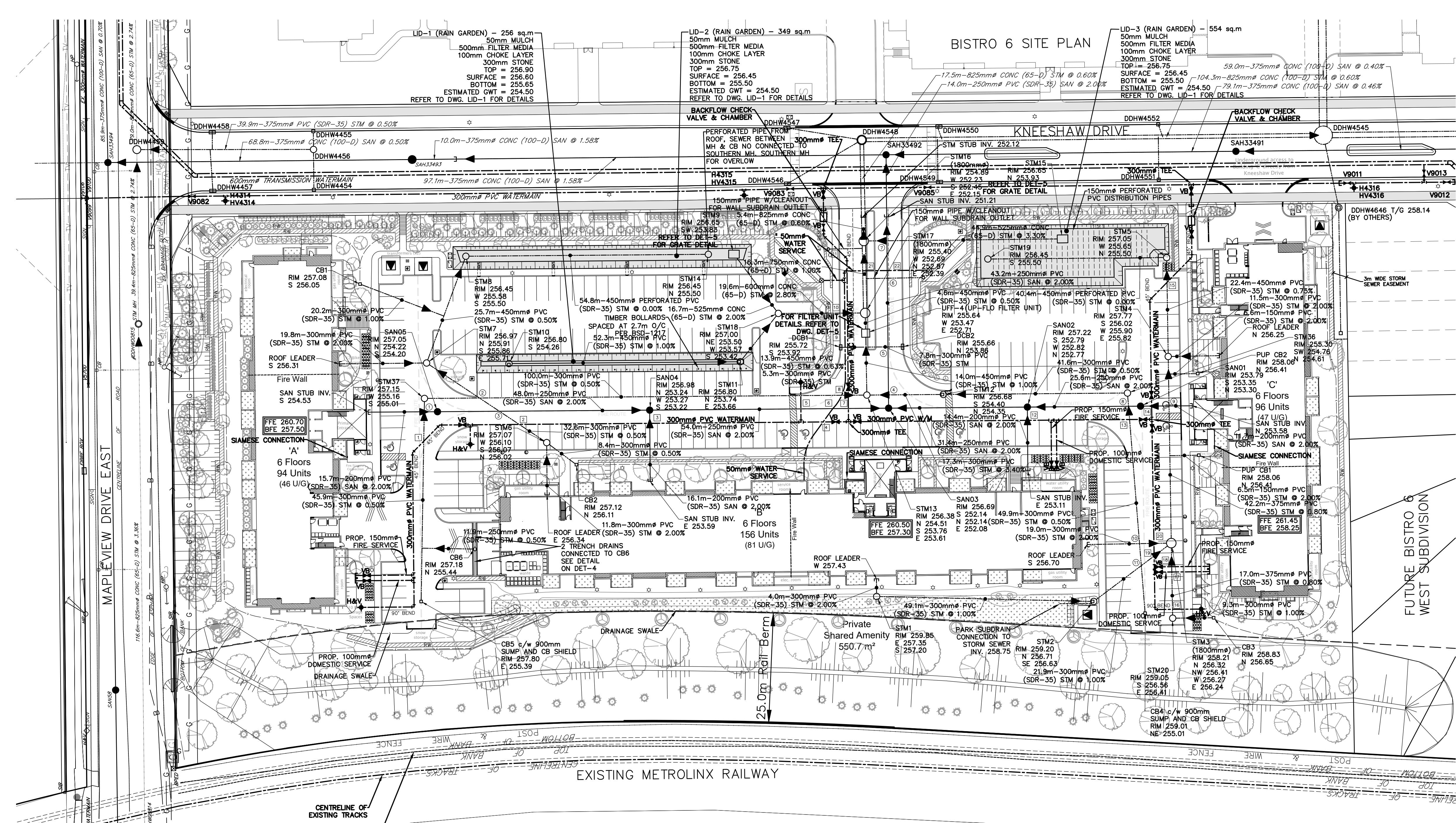
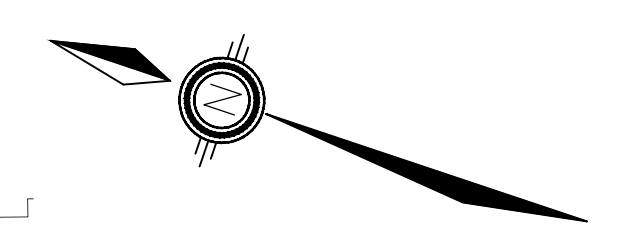


PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE



**RAILWAY BERM SECTIONS**

DESIGN MF	SCALE: H:1: 500 V:1: 100	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO SG-4
CHECKED DR		



FUTURE BISTRO 6 WEST SUBDIVISION

**NOTE**  
 REFER TO PIPE INTERFERENCE TABLES ON DWG. SS-2  
 (S) STORM AND SANITARY PIPE CLEARANCE LABEL  
 (W) WATERMAIN AND STORM OR SANITARY PIPE CLEARANCE LABEL

**NOTE**  
 1. DOMESTIC AND FIRE SERVICE VALVES SHALL BE LOCATED IN THE BOULEVARD, UNLESS OTHERWISE NOTED.  
 2. DOMESTIC AND FIRE SERVICES SHALL BE MECHANICALLY RESTRAINED FROM THE TEE TO THE BUILDINGS.  
 3. DOMESTIC AND FIRE SERVICE RISERS ENTERING EACH BUILDING SHALL BE INSTALLED AS PER BSD-505.  
 4. DOMESTIC AND FIRE SERVICE TO BE HAND SWABBED OR A SWAB IS TO BE PLACED IN SERVICE AND REMOVED FROM RISERS.  
 5. THE 100mm DOMESTIC WATER SERVICE WILL REQUIRE A 100mm WATER METER (SUPPLIED AND INSTALLED BY THE OWNER) COMPLETE WITH A BYPASS ASSEMBLY AS PER BSD-533 AND SHALL BE LOCATED IN AN APPROPRIATELY SIZED MECHANICAL ROOM.  
 6. BACKFLOW PREVENTION SHALL BE PROVIDED ON ALL DOMESTIC AND FIRE SERVICES AS PER CITY OF BARRIE BYLAW 2017-121.  
 7. 50mm WATER SERVICE TO THE LANDSCAPE FEATURES WILL EACH REQUIRE 50mm WATER METERS.

LEGEND	
	PROPOSED STORM MAINTENANCE HOLE
	PROPOSED CATCHBASIN MAINTENANCE HOLE
	PROPOSED CATCHBASIN
	PROPOSED DOUBLE CATCHBASIN
	PROPOSED SANITARY MAINTENANCE HOLE
	PROPOSED HYDRANT
	PROPOSED VALVE BOX
	PROPOSED CURB STOP
	PROPOSED LIGHT STANDARD
	PROPOSED BELL PEDESTAL/HANDHOLES
	PROPOSED BELL DUCT
	PROPOSED BELL VAULT
	PROPOSED ROGERS VAULT
	PROPOSED HYDRO TRANSFORMER
	PROPOSED EV CHARGER STATION
	LANDSCAPE TREE

**BENCHMARK:**

BENCHMARK NO: 0101988544 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWER'S CREEK, 0.83M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 3.43M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.889 E507294.100 ELEV 241.861	3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509	2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
BENCHMARK NO: 0312008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896	1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF
BENCHMARK NO: 0312011003 LOCATED ON LOUGHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.251 E60821.590 ELEV 252.807				

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



PRATT HANSEN GROUP INC.  
 ELEMENTS SITE PLAN  
 CITY OF BARRIE



DESIGN	MF	SCALE: 1:500	DATE	JANUARY 2021
DRAWN	KS	PROJECT	PRA-19078	DWG. NO
CHECKED	DR	SS-1		

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Elements Condominium  
100-Year Storm Sewer Design Sheet

CLIENT: Pratt Hansen Group Inc.

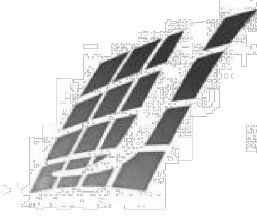
PROJECT: Elements Condominium Site Plan

FILE: PRA-19078 (50)

DATE: December 2021

DESIGN: MG

CHECKED: MF



AREAS	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
	FROM	TO		C	A	CA		TO	IN							
Storm water directed to LID-1																
401	STM10	STM11	52.3	0.99	0.26	0.25	0.25	10.00	0.49	180	0.126	1.00	450	0.285	1.8	44.2
	STM11*	STM18	13.9			0.00	0.25	10.49	0.16	176	0.1251	0.63	450	0.226	1.4	65.3
Storm water directed to LID-2																
402	CB2	STM6	8.4	0.39	0.04	0.01	0.01	10.00	0.14	180	0.007	0.50	300	0.068	1.0	10.2
403	STUB	STM6	11.8	1.00	0.09	0.09	0.09	10.00	0.10	180	0.045	2.00	300	0.137	1.9	32.9
	STM6	STM7	32.6			0.00	0.10	10.14	0.56	179	0.052	0.50	300	0.068	1.0	75.4
404	STUB	STM7	19.8	1.00	0.17	0.17	0.17	10.00	0.17	180	0.086	2.00	300	0.137	1.9	62.6
405	CB1	TEE	20.2	0.30	0.05	0.01	0.01	10.00	0.25	180	0.007	1.00	300	0.097	1.4	7.1
	STM7	STM8	25.7			0.00	0.29	10.71	0.34	174	0.140	0.50	450	0.202	1.3	69.2
406	STM9**	STM18	16.7	0.93	0.32	0.30	0.92	11.04	0.10	171	0.4399	2.00	525	0.608	2.8	72.3
Storm Water Directed to LID-3																
407	STUB	STM1	4.0	1.00	0.10	0.10	0.10	10.00	0.03	180	0.050	2.00	300	0.137	1.9	36.6
	STM1	STM2	49.1			0.00	0.10	10.03	0.60	180	0.050	1.00	300	0.097	1.4	61.6
408	STM2	STM3	21.9	0.34	0.16	0.05	0.15	10.63	0.27	175	0.075	1.00	300	0.097	1.4	77.4
409	STUB	STM3	19.0	1.00	0.08	0.08	0.08	10.00	0.16	180	0.042	2.00	300	0.137	1.9	30.6
410	CB3	STM20	9.3	0.24	0.11	0.03	0.03	10.00	0.11	180	0.013	1.00	300	0.097	1.4	13.3
	STM20	STM3	17.0			0.00	0.03	10.11	0.20	179	0.013	0.80	375	0.157	1.4	8.2
411	PUP CB1	TEE	6.5	0.38	0.01	0.00	0.00	10.00	0.09	180	0.002	2.00	150	0.022	1.2	11.2
412	PUP CB2	TEE	6.6	0.49	0.01	0.01	0.01	10.00	0.09	180	0.003	2.00	150	0.022	1.2	13.7
	STM3	STM4	42.2			0.00	0.27	10.90	0.50	172	0.131	0.80	375	0.157	1.4	83.8
413	STUB	STM4	11.5	1.00	0.17	0.17	0.17	10.00	0.10	180	0.084	2.00	300	0.137	1.9	61.7
	STM4	STM5	22.4			0.00	0.44	11.39	0.24	169	0.207	0.75	450	0.247	1.6	84.0
414	STM15***	STM16	44.9	0.93	0.37	0.34	1.03	11.64	0.21	167	0.4781	3.30	525	0.781	3.6	61.2
Storm Water Directed to 100-Year Trunk Storm Sewer																
	UFF-4	STM17	4.6			0.00	0.26	12.64	0.06	160	0.113	0.50	450	0.202	1.3	56.1
	STM18****	STM17	19.6			0.00	1.18	11.14	0.09	171	0.559	2.80	600	1.027	3.6	64.4
	STM17****	STM16	16.3			0.00	1.44	12.70	0.11	159	0.635	1.00	750	1.113	2.5	67.0
	STM16****	DDHW4548	22.9			0.00	2.47	12.81	0.18	158	1.086	0.60	825	1.112	2.1	97.7

Note: All runoff coefficients for sizing the 100-year storm sewer have been increased by 25% in accordance with Table 3.3 of the City of Barrie Storm Drainage and Stormwater Management Policies and Design Guidelines.  
 \*Total CA has been adjusted so the flow matches the peak flow release rate experienced during the governing 100yr 4hr SCS LID PCSWMM model for LID-1. Qp = 0.1251 m³/s  
 \*\* Total CA has been adjusted so the flow matches the peak flow release rate experienced during the governing 100yr 4hr Chicago LID PCSWMM model for LID-2. Qp = 0.4399 m³/s  
 \*\*\* Total CA has been adjusted so the flow matches the peak flow release rate experienced during the governing 100yr 4hr Chicago LID PCSWMM model for LID-3. Qp = 0.4781 m³/s  
 \*\*\*\* Adjusted total CA values from LIDs have been carried forward through the design sheet.  
 Q = 0.0028 \* C \* I \* A (cms); C = RUNOFF COEFFICIENT; I = RAINFALL INTENSITY (100-Year) = 1426.408 (I.C. + 5.273) \* 0.759; A = AREA (ha)

Elements Condominium  
5-Year Storm Sewer Design Sheet

CLIENT: Pratt Hansen Group Inc.

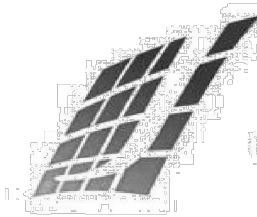
PROJECT: Elements Condominium Site Plan

FILE: PRA-19078 (50)

DATE: December 2021

DESIGN: MG

CHECKED: MF



AREAS	MANHOLE		LENGTH (m)	INCREMENT			TOTAL CA	FLOW TIME (min)		I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
	FROM	TO		C	A	CA		TO	IN							
Storm water directed to UFF-4 bypassing all LIDs																
501	CB5	STM37	45.9	0.35	0.31	0.11	0.11	10.00	0.79	109	0.033	0.50	300	0.068	1.0	48.0
	STM37	STM13	100.0			0.00	0.11	10.79	1.72	105	0.032	0.50	300	0.068	1.0	46.1
502	CB4	STM36	49.9	0.25	0.04	0.01	0.01	10.00	0.86	109	0.003	0.50	300	0.068	1.0	4.1
	STM36	STM12	41.6			0.00	0.01	10.86	0.72	104	0.003	0.50	300	0.068	1.0	4.0
503	STM12	STM13	17.3	0.78	0.05	0.04	0.05	11.58	0.11	101	0.015	3.40	300	0.178	2.5	8.2
504	STM13	UFF-4	14.0	0.86	0.11	0.09	0.26	12.51	0.13	97	0.068	1.00	450	0.285	1.8	24.0
	UFF-4	STM17	4.6			0.00	0.26	12.64	0.06	96	0.068	0.50	450	0.202	1.3	33.8

Q = 0.0028 \* C \* I \* A (cms); C = RUNOFF COEFFICIENT; I = RAINFALL INTENSITY (5-Year) = 853.608 (I.C. + 4.699) \* 0.766; A = AREA (ha)

SANITARY SEWER DESIGN - LOCAL SEWER  
Development Details Basis

DESIGN SHEET 1 of 1  
FILE NO PRA-19078  
CONTRACT / PROJECT Elements Condominium Plan - Pratt Hansen Group Inc.

n ≥ 0.013  
M = 5/P\*0.2 Babbitt  
M = 1 + [14/(4 + P\*0.5)] Harmon  
Qp = P\*q\*M/86.4  
Qe = I\*A  
Qtot = Qp + Qe  
 Numbers in blue or text in red are equations  
 (Harmon or Babbitt peaking factor where; M ≥ 2), the greater of the two is used in the spreadsheet. Please refer to Section 3.3.1.1 of the Barrie Sanitary Design Guidelines for additional guidance on which peaking factor to use.  
 (Peak population flow where; q = 225 L/day/person; P = population in thousands) 225 litres/person/day  
 (Peak extraneous flow; I = 0.1L/s/ha over development area)  
 (Total peak flow as the sum of peak population flow and peak extraneous flow)

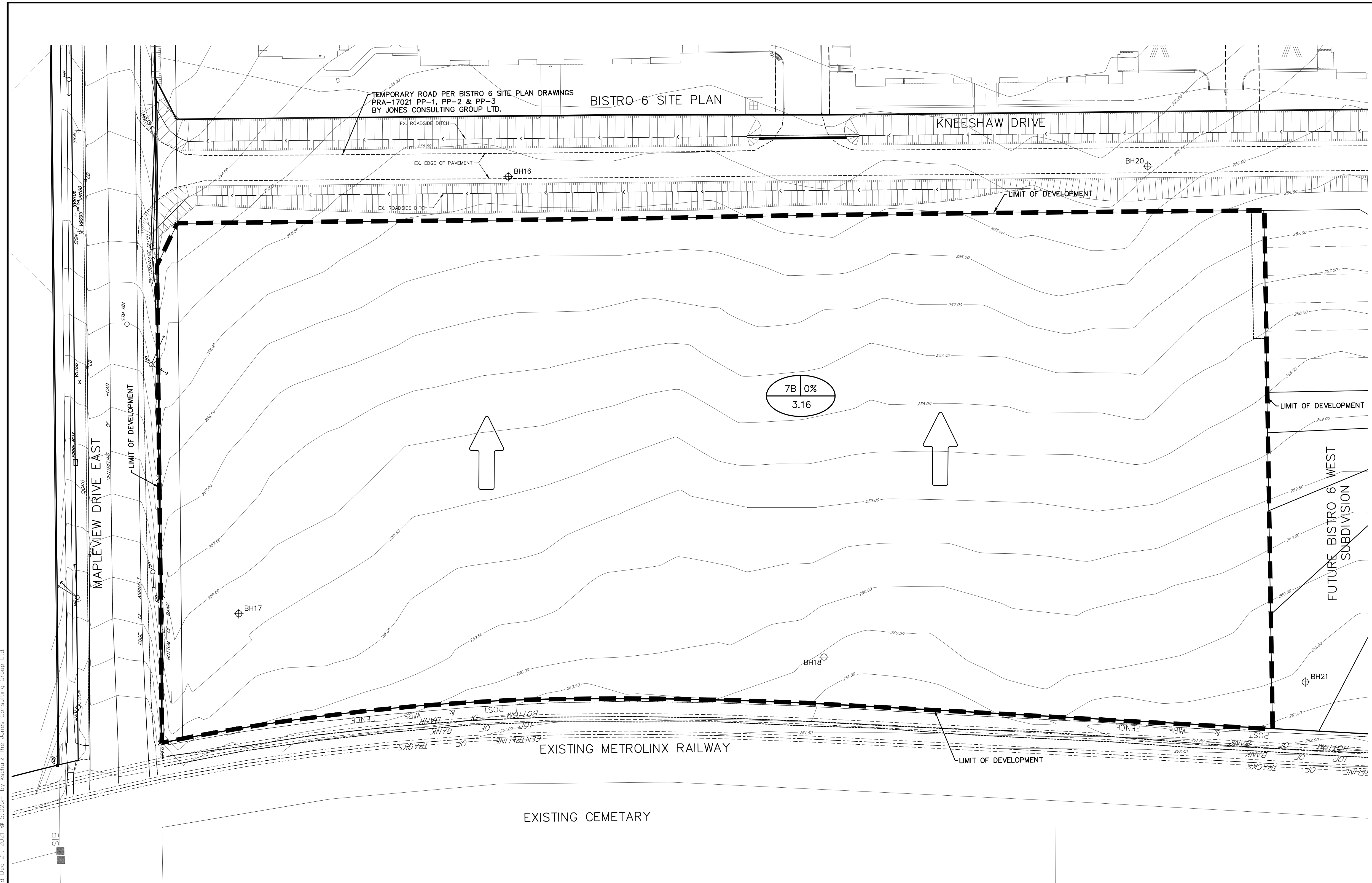
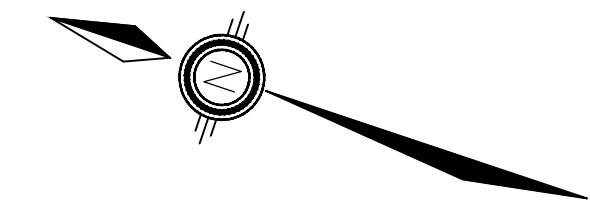
STREET / AREA	MAINTENANCE HOLE		DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBITT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Qp (l/s)	AREA (ha)	AREA (ACC) (ha)	Qi (l/s)	Qtot (l/s)	L (m)	D (mm)	S (%)	Qf FULL (l/s)	d/D <sup>(1)</sup>	d/D <sup>(2)</sup> >0.5 or >0.7	Velocity FULL (m/s)	Velocity Partial <sup>(3)</sup> (m/s)	Velocity <sup>(4)</sup> > 0.6 (m/s)
	FROM	TO																						
Area 1 - Building C	BUILDING C	SAN01	96	96	1.67	160	160	7.211	4.182	7.211	3.010	0.17	0.17	0.017	3.027	11.7	200	2.00%	46.384	0.173	OK	1.476	0.828	OK
Area 2	SAN01	SAN02	0	96	0	160	160	7.211	4.182	7.211	3.010	0.16	0.33	0.033	3.044	25.6	250	2.00%	84.100	0.130	OK	1.713	0.807	OK
Area 3 - Building B (southern half)	BUILDING B	SAN02	78	78	1.67	130	130	7.516	4.210	7.516	2.550	0.14	0.14	0.014	2.564	14.4	200	2.00%	46.384	0.159	OK	1.476	0.791	OK
Area 4	SAN02	SAN03	0	174	0	291	291	6.402	4.084	6.402	4.845	0.09	0.56	0.056	4.901	31.4	250	2.00%	84.100	0.163	OK	1.713	0.928	OK
Area 5 - Building A	BUILDING A	SAN05	94	94	1.67	157	157	7.241	4.185	7.241	2.960	0.17	0.17	0.017	2.977	15.7	200	2.00%	46.384	0.171	OK	1.476	0.827	OK
Area 6	SAN05	SAN04	0	94	0	157	157	7.241	4.185	7.241	2.960	0.17	0.34	0.034	2.994	48.0	250	2.00%	84.100	0.129	OK	1.713	0.803	OK
Area 7 - Building B (northern half)	BUILDING B	SAN04	78	78	1.67	130	130	7.516	4.210	7.516	2.550	0.13	0.13	0.013	2.563	16.1	200	2.00%	46.384	0.159	OK	1.476	0.791	OK
Area 8	SAN04	SAN03	0	172	0	287	287	6.417	4.086	6.417	4.800	0.09	0.56	0.056	4.856	54.0	250	2.00%	84.100	0.163	OK	1.713	0.928	OK
Area 9	SAN03	SAH33492	0	346	0	578	578	5.580	3.941	5.580	8.396	0.13	1.25	0.125	8.521	57.2	250	2.00%	84.100	0.214	OK	1.713	1.094	OK

DATE: December 17th, 2021  
 \* For sizing of the 375mm Trunk Sewer on Kneeshaw Drive, refer to Sanitary Sewer Design - Trunk Sewer worksheet.

- (1) without extraneous flow
- (2) with extraneous flow
- (3) d/D > 0.5 for pipes 375 and less, d/D > 0.85 for pipes greater than 375
- (4) Velocity check based on the lesser of full flow or partial velocity

Watermain Interference Table			
Crossing No.	PIPE 1	PIPE 2	Clearance
1	WM Top 254.71	STM Bottom 255.21	0.50m
2	WM Top 255.48	STM Top 255.98	0.50m
3	WM Bottom 254.02	SAN Top 253.52	0.50m
4	WM Bottom 255.00	300mm WM Top 254.50	0.50m
5	WM Bottom 253.29	SAN Top 252.79	0.50m
6	WM Bottom 253.14	SAN Top 252.64	0.50m
7	WM Bottom 253.07	SAN Top 252.57	0.50m
8	WM Top 254.03	STM Bottom 254.53	0.50m
9	WM Top 253.39	STM Bottom 253.89	0.50m
10	WM Top 252.49	STM Bottom 252.99	0.50m
11	WM Top 252.83	STM Bottom 253.33	0.50m
12	WM Bottom 253.58	SAN Top 253.08	0.50m
13	WM Top 254.29	STM Bottom 254.79	0.50m
14	WM Bottom 254.10	SAN Top 253.60	0.50m
15	WM Top 255.19	STM Bottom 255.69	0.50m
16	WM Top 255.89	STM Bottom 256.39	0.50m
17	WM Top 255.83	STM Bottom 256.33	0.50m
18	WM Top 255.82	STM Bottom 256.32	0.50m
19	WM Top 255.96	STM Bottom 256.46	0.50m
20	WM Top 255.90	STM Bottom 256.40	0.50m
21	WM Top 251.80	STM Bottom 252.30	0.50m
22	WM Bottom 252.20	SAN Top 251.70	0.50m

Pipe Interference Table			
Crossing No.	PIPE 1	PIPE 2	Clearance
1	STM Bottom 255.18	SAN Top 254.47	0.71m
2	STM Bottom 255.93	STM Top 255.25	0.68m
3	STM Bottom 255.96	SAN Top 254.19	1.77m
4	STM Bottom 253.93	SAN Top 252.27	1.66m
5	STM Bottom 253.79	SAN Top 252.05	1.74m
6	STM Bottom 253.32	SAN Top 251.74	1.58m
7	STM Bottom 252.61	SAN Top 251.57	1.04m



**LEGEND**

- STORM CATCHMENT AREA
- EX. BORE HOLE
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA ID NUMBER
- IMPERVIOUS %
- AREA IN HECTARES (ha)

Example callout: 7a 70% 6.81

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**BENCHMARK:**

BENCHMARK NO. 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOXEY'S CREEK, 0.85KM EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORING. N4910788.589 E807294.100 ELEV 241.861			
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
BENCHMARK NO. 03120030229 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.589			
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF
BENCHMARK NO. 03120080094 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896			
BENCHMARK NO. 03120110013 LOCATED ON LOCHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.257 E606733.690 ELEV 232.807			
NO.	REVISIONS	DATE	INITIAL



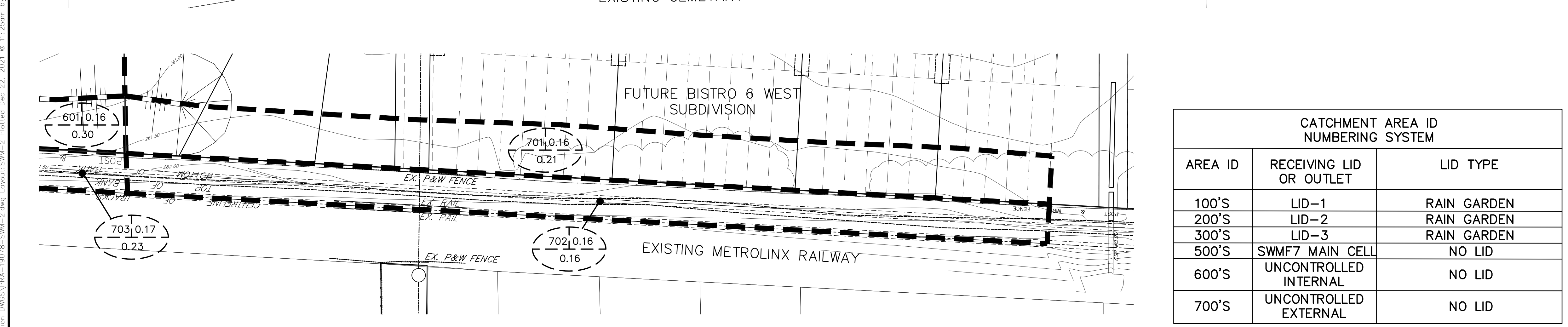
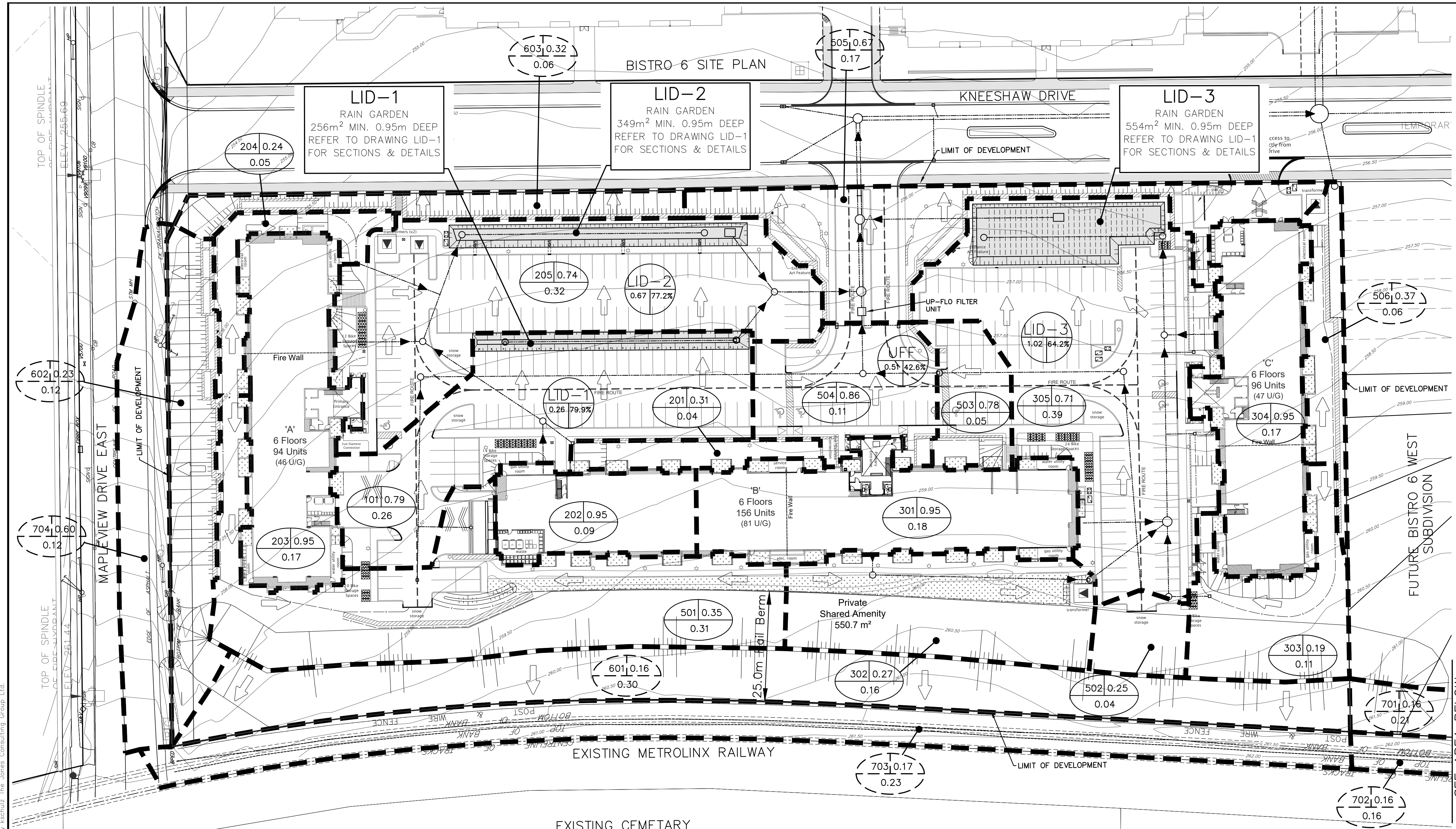
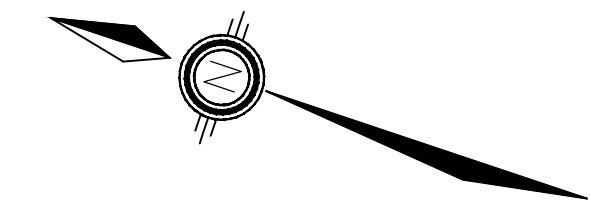
PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

STORMWATER MANAGEMENT PLAN  
PRE-DEVELOPMENT CONDITIONS

**JONES CONSULTING GROUP LTD.**  
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W5  
P. 705.734.2538  
F. 705.734.1056

DESIGN MF	SCALE: 1:500	DATE FEB. 2021
DRAWN KS	PROJECT	DWG. NO
CHECKED DR	PRAs-19078	SWM-1



### LEGEND

- PROPOSED 100 YR STORM SEWER, FLOW DIRECTION AND MAINTENANCE HOLE
- PROPOSED INTERNAL LOCAL STORM SEWER, FLOW DIRECTION AND MAINTENANCE HOLE
- PROPOSED CATCH BASIN
- PROPOSED DOUBLE CATCH BASIN
- PROPOSED LID FOOTPRINT
- PROPOSED SWALE/DITCH
- STORM SUB-CATCHMENT AREA
- PROPOSED OVERLAND DRAINAGE FLOW DIRECTION

INTERNAL CATCHMENT AREA NUMBER: 401 0.15 RUNOFF COEFFICIENT 0.27 AREA (ha)

EXTERNAL CATCHMENT AREA NUMBER: 502 0.32 RUNOFF COEFFICIENT 0.07 AREA (ha)

AREA (ha) LID-1 0.26 79.9% IMPERVIOUS PERCENTAGE

### CATCHMENT AREA ID NUMBERING SYSTEM

AREA ID	RECEIVING LID OR OUTLET	LID TYPE
100'S	LID-1	RAIN GARDEN
200'S	LID-2	RAIN GARDEN
300'S	LID-3	RAIN GARDEN
500'S	SWMF7 MAIN CELL	NO LID
600'S	UNCONTROLLED INTERNAL	NO LID
700'S	UNCONTROLLED EXTERNAL	NO LID

**BENCHMARK:**  
 BENCHMARK NO: 01019885454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVELY'S CREEK, 0.85M EAST OF HURONIA ROAD. TABLE IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N491078.559 E807294.100 ELEV 241.861  
 BENCHMARK NO: 03120000229 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E807799 ELEV 250.500  
 BENCHMARK NO: 03120000094 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1M EAST OF HURONIA ROAD, N4910878.122 E807801.082 ELEV 248.896  
 BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.028M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.251 E808753.590 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



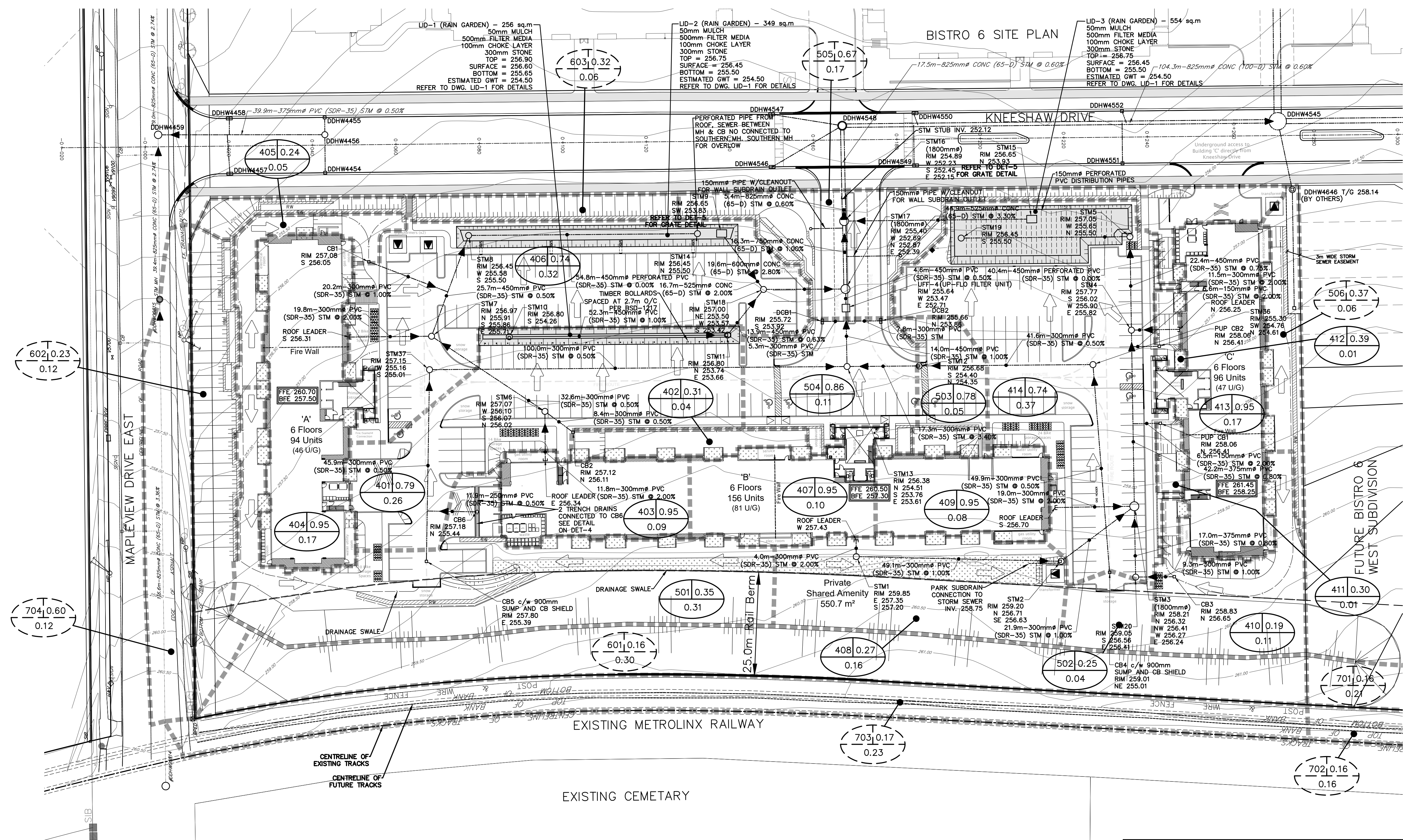
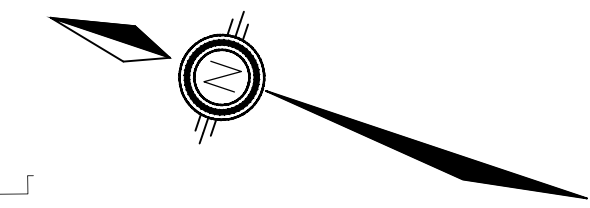
PRATT HANSEN GROUP INC.  
 ELEMENTS SITE PLAN  
 CITY OF BARRIE  
 STORMWATER MANAGEMENT PLAN  
 POST-DEVELOPMENT CONDITIONS  
 LID MODEL CATCHMENT AREAS

**JONES CONSULTING GROUP LTD.**  
 PLANNERS & ENGINEERS  
 229 Mapleview Dr. E. Unit 1  
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 P. 705.734.2538  
 F. 705.734.1056

DESIGN MF SCALE: 1:500 DATE FEB. 2021  
 DRAWN KS PROJECT DWG. NO  
 CHECKED DR PRA-19078 SWM-2

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602 | 0.23  
0.12

704 | 0.60  
0.12

603 | 0.32  
0.06

505 | 0.67  
0.17

405 | 0.24  
0.05

406 | 0.74  
0.32

402 | 0.31  
0.04

504 | 0.86  
0.11

503 | 0.78  
0.05

414 | 0.74  
0.37

404 | 0.95  
0.17

401 | 0.79  
0.26

403 | 0.95  
0.09

407 | 0.95  
0.10

409 | 0.95  
0.08

501 | 0.35  
0.31

408 | 0.27  
0.16

601 | 0.16  
0.30

703 | 0.17  
0.23

506 | 0.37  
0.06

412 | 0.39  
0.01

413 | 0.95  
0.17

411 | 0.30  
0.01

410 | 0.19  
0.11

701 | 0.16  
0.21

702 | 0.16  
0.16

**LEGEND**

- PROPOSED STORM DRAINAGE BOUNDARY
- STM1 PROPOSED STORM MAINTENANCE HOLE
- STM12 PROPOSED CATCHBASIN MAINTENANCE HOLE
- DCB1 PROPOSED DOUBLE CATCHBASIN
- CB2 PROPOSED CATCHBASIN
- ▨ PROPOSED STORM SEWER INSULATION PER DETAIL ON DWG. DET-1

INTERNAL CATCHMENT: AREA NUMBER  $\frac{401}{0.15}$  RUNOFF COEFFICIENT AREA (ha)  $\frac{0.27}{}$

EXTERNAL CATCHMENT: AREA NUMBER  $\frac{502}{0.32}$  RUNOFF COEFFICIENT AREA (ha)  $\frac{0.07}{}$

REFER TO DESIGN SHEET ON DRAWING SS-2

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**BENCHMARK:**

BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWER'S CREEK, 0.83M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 3.43M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.889 E507254.100 ELEV 241.861

BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509

BENCHMARK NO: 0312008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1M EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896

BENCHMARK NO: 0312011003 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02M WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.251 E60723.590 ELEV 232.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



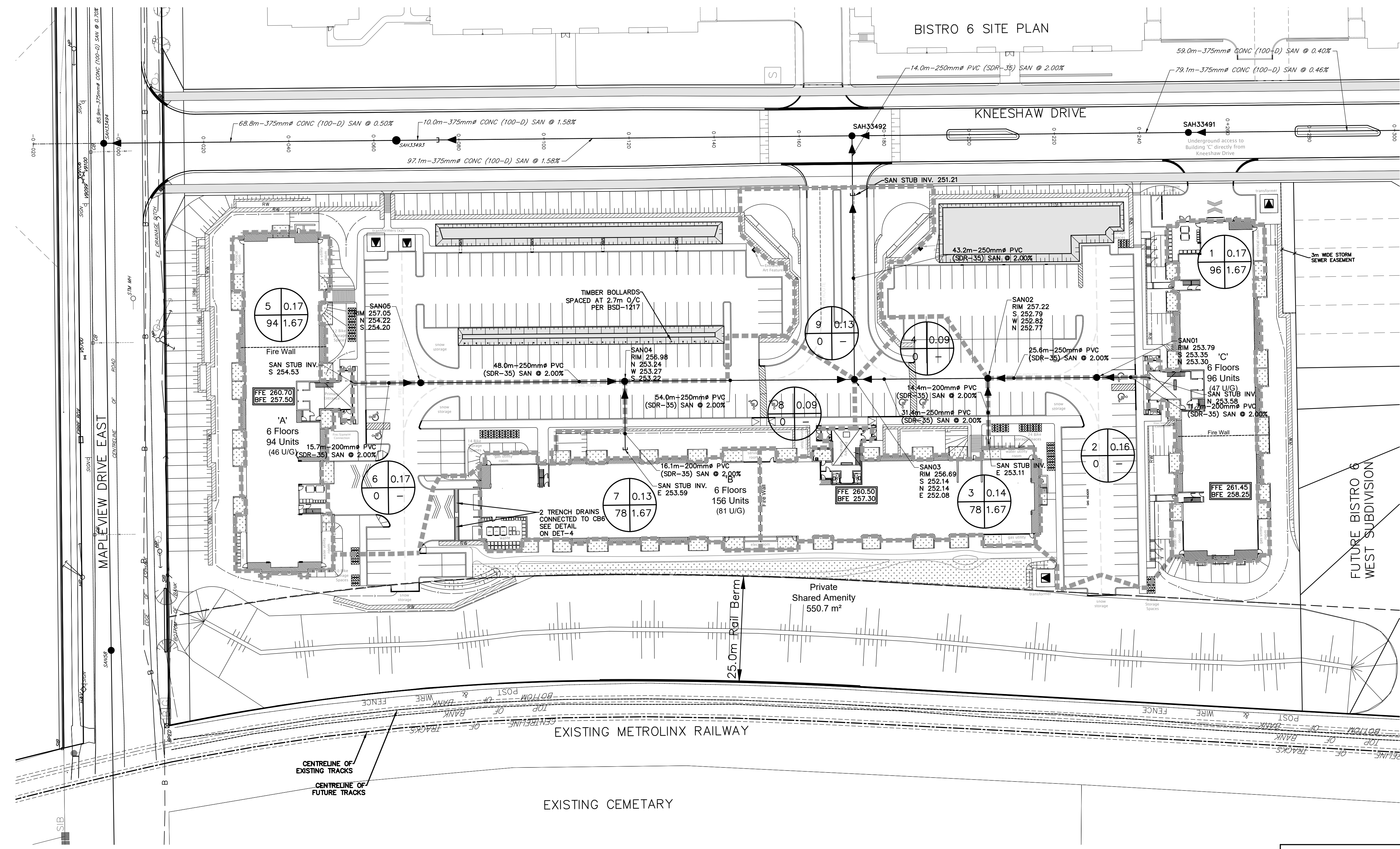
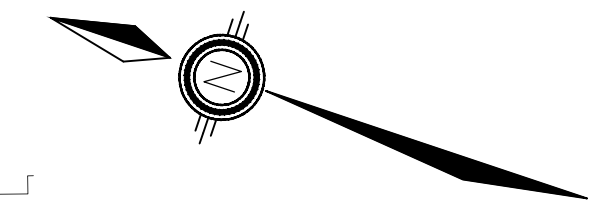
PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

STORM DRAINAGE PLAN

**JONES CONSULTING GROUP LTD.**  
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1  
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F. 705.734.1056

DESIGN MF SCALE: 1:500 DATE: JANUARY 2021  
DRAWN KS PROJECT DWG. NO  
CHECKED DR PRA-19078 STM-1



REFER TO DESIGN SHEET ON DRAWING SS-2

**LEGEND**

- PROPOSED SANITARY DRAINAGE BOUNDARY
- PROPOSED SANITARY DRAINAGE DIRECTION

SANITARY CATCHMENT AREA ID No. 201 0.32 AREA (ha)

NO. OF UNITS 2 3.13 PERSONS PER UNIT

● SAN01 PROPOSED SANITARY MAINTENANCE HOLE

**BENCHMARK:**

BENCHMARK NO. 0101988544 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOWE'S CRICK, 0.83M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 3.43M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.889 E507294.100 ELEV 241.861

BENCHMARK NO. 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7M SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911810 E607799 ELEV 250.509

BENCHMARK NO. 0312008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896

BENCHMARK NO. 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.257 E606733.690 ELEV 232.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



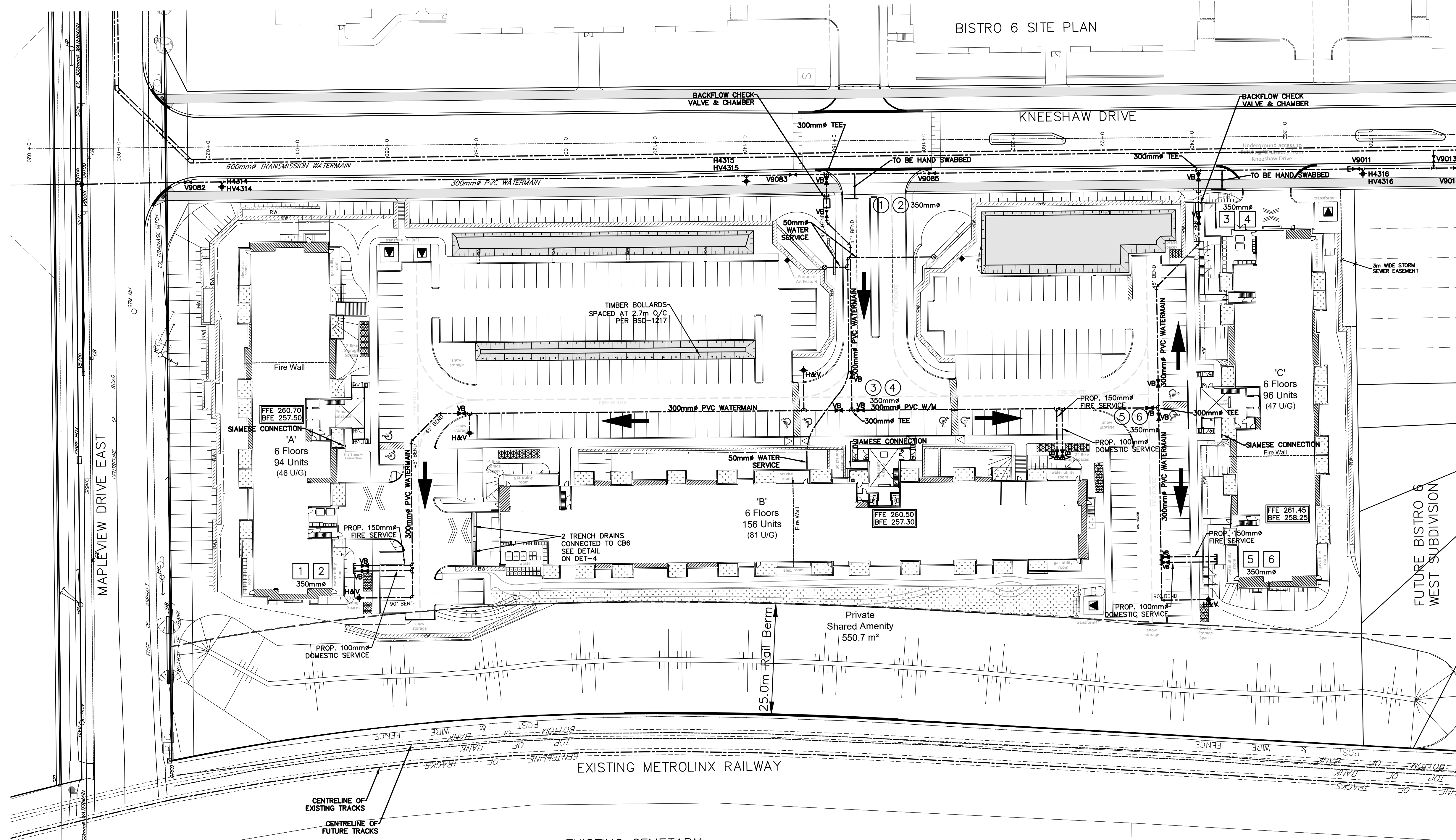
PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

SANITARY DRAINAGE PLAN



DESIGN MF	SCALE: 1:500	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO DWG-1
CHECKED DR		

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**WATERMAIN TESTING AND DISINFECTION NOTES**

1. THE FOLLOWING SEQUENCE WILL BE UTILIZED IN THE COMMISSIONING OF THE WATER SYSTEM: SWAB AND CHANGE THE WATERMAIN, PRESSURE TEST, CHLORINATE, FLUSHING AND SAMPLING.
2. ALL PROCEDURES ARE TO BE COMPLETED THROUGH A BYPASS CONNECTION TO THE EXISTING WATERMAIN, c/w BACKFLOW PREVENTION VALVE.
3. THE VALVES ARE TO BE OPERATED BY CITY REPRESENTATIVES ONLY.
4. THE FINAL CONNECTION TO THE EXISTING SYSTEM WILL NOT BE PERMITTED UNTIL ALL COMPONENTS OF THE TESTING AND DISINFECTION PROCEDURE HAVE BEEN COMPLETED TO THE SATISFACTION OF THE CITY.
5. HYDROSTATIC TESTING SHALL BE PERFORMED ON THE COMPLETED DISTRIBUTION SYSTEM IN SECTIONS NOT EXCEEDING 500 METRES IN LENGTH IN ACCORDANCE WITH AWWA C600. FOR POLYETHYLENE PIPE THE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPS 701. TESTING OF SECTIONS THAT CONSIST OF VARYING PIPE MATERIALS WILL NOT BE PERMITTED. ALL SECONDARY MAIN VALVES MUST BE OPEN DURING TESTING WITH THE EXCEPTION OF THOSE BEING USED TO DIVIDE THE SYSTEM INTO SECTIONS FOR THE PURPOSE OF TESTING.
6. THE SYSTEM SHALL BE DISINFECTED USING THE "CONTINUOUS FEED" METHOD IN ACCORDANCE WITH AWWA C651. FOLLOWING THE REQUIRED 24 HOUR CONTACT TIME, THE SYSTEM IS TO BE FLUSHED. THE CHLORINATED WATER MUST BE NEUTRALIZED USING AN APPROPRIATE CHEMICAL SUCH AS SODIUM THIOSULPHATE. THE DISCHARGED WATER WILL DRAIN TO THE ON-SITE STORM SEWER.
7. SAMPLES FOR BACTERIOLOGICAL TESTING SHALL BE COLLECTED BY THE CITY A MINIMUM OF 24 HOURS AFTER FLUSHING IS COMPLETED IN ACCORDANCE WITH AWWA C651. SAMPLES SHALL BE COLLECTED FROM EVERY 350 METRES OF NEW WATERMAIN PLUS ONE SAMPLE FROM THE END OF EACH OF THE LINES AND AT LEAST ONE SAMPLE FROM EACH BRANCH (OPSS 441.07.25). FOLLOWING THE RECEIPT OF TWO CONSECUTIVE SETS OF ACCEPTABLE TEST RESULTS THE CITY WILL PROVIDE WRITTEN NOTIFICATION THAT A FINAL CONNECTION CAN BE MADE TO THE EXISTING DISTRIBUTION SYSTEM.
8. A CONTINUITY TEST OF THE TRACER WIRE SHALL BE COMPLETED WITH POINT TO POINT READINGS RECORDED AND APPROVED BY THE CITY.
9. THE FINAL CONNECTION SHALL NOT BE MADE UNTIL ALL OF THE ABOVE TESTING REQUIREMENTS HAVE BEEN SATISFACTORILY COMPLETED AND THE CITY HAS PROVIDED WRITTEN NOTIFICATION TO PROCEED. THE LENGTH OF PIPE REQUIRED TO CONNECT THE NEW WATER SYSTEM TO THE EXISTING DISTRIBUTION SYSTEM SHALL NOT EXCEED 5.5 METRES AND SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651.

**NOTE**

1. DOMESTIC AND FIRE SERVICE VALVES SHALL BE LOCATED IN THE BOULEVARD, UNLESS OTHERWISE NOTED.
2. DOMESTIC AND FIRE SERVICES SHALL BE MECHANICALLY RESTRAINED FROM THE TEE TO THE BUILDINGS.
3. DOMESTIC AND FIRE SERVICE RISERS ENTERING EACH BUILDING SHALL BE INSTALLED AS PER BSD-505.
4. DOMESTIC AND FIRE SERVICE TO BE HAND SWABBED OR A SWAB IS TO BE PLACED IN SERVICE AND REMOVED FROM RISERS.
5. THE 100mm DOMESTIC WATER SERVICE WILL REQUIRE A 100mm WATER METER (SUPPLIED AND INSTALLED BY THE OWNER) COMPLETE WITH A BYPASS ASSEMBLY AS PER BSD-533 AND SHALL BE LOCATED IN AN APPROPRIATELY SIZED MECHANICAL ROOM.
6. BACKFLOW PREVENTION SHALL BE PROVIDED ON ALL DOMESTIC AND FIRE SERVICES AS PER CITY OF BARRIE BYLAW 2017-121.
7. 50mm WATER SERVICES TO THE SITE PLAN ENTRANCE FEATURES WILL REQUIRE 50mm WATER METERS.

**LEGEND**

	PROPOSED HYDRANT
	PROPOSED VALVE BOX
	PROPOSED CURB STOP
	350mm# SWAB NUMBER, INSERTION LOCATION & SIZE
	350mm# SWAB NUMBER, REMOVAL LOCATION & SIZE
	SWAB TRAVEL DIRECTION

**BENCHMARK:**

BENCHMARK NO. 0101988544 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVELL'S CREEK, 0.50M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910788.889 E507294.100 ELEV 241.861	3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
BENCHMARK NO. 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509	2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
BENCHMARK NO. 0310008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896	1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF
BENCHMARK NO. 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.257 E606733.690 ELEV 252.807				
NO.		REVISIONS	DATE	INITIAL



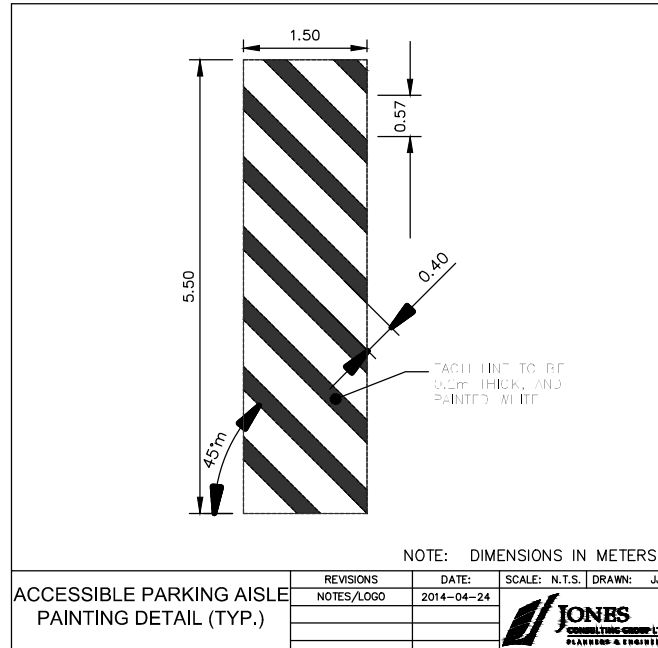
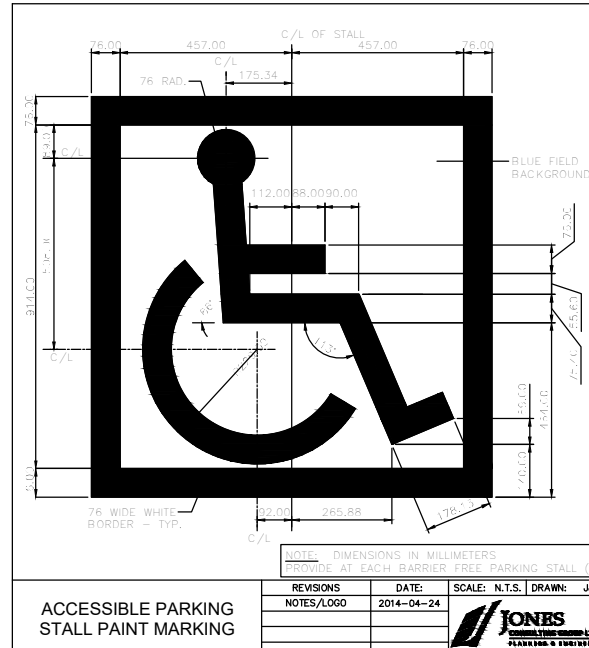
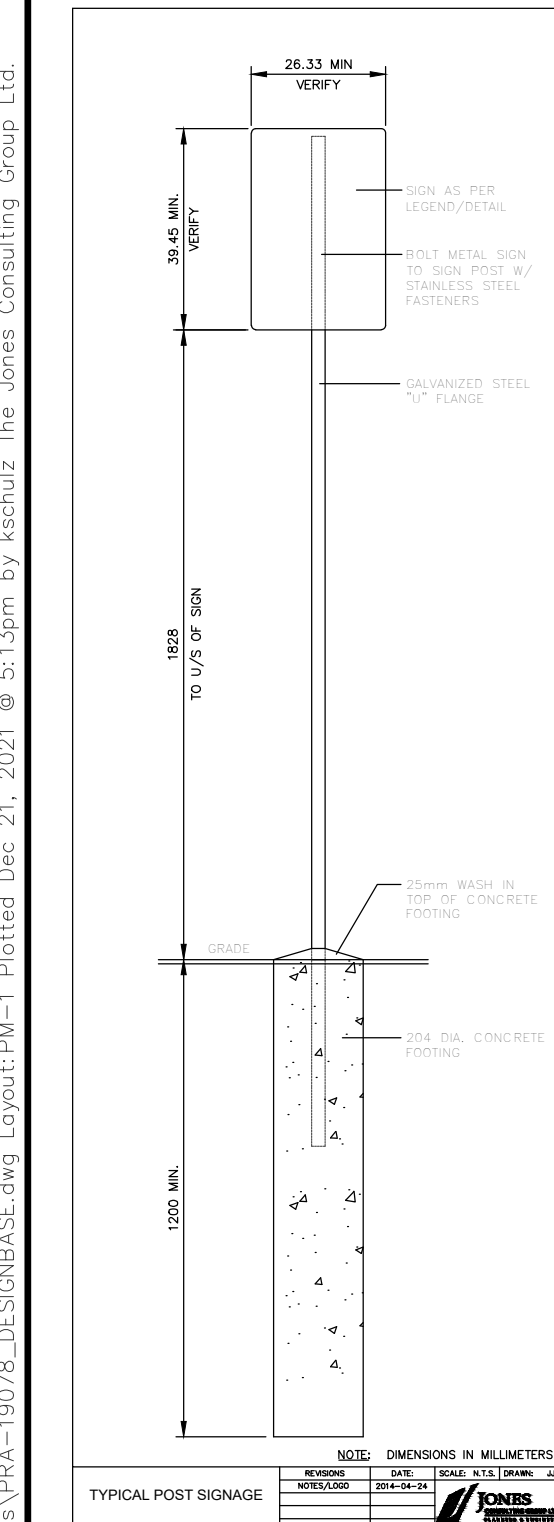
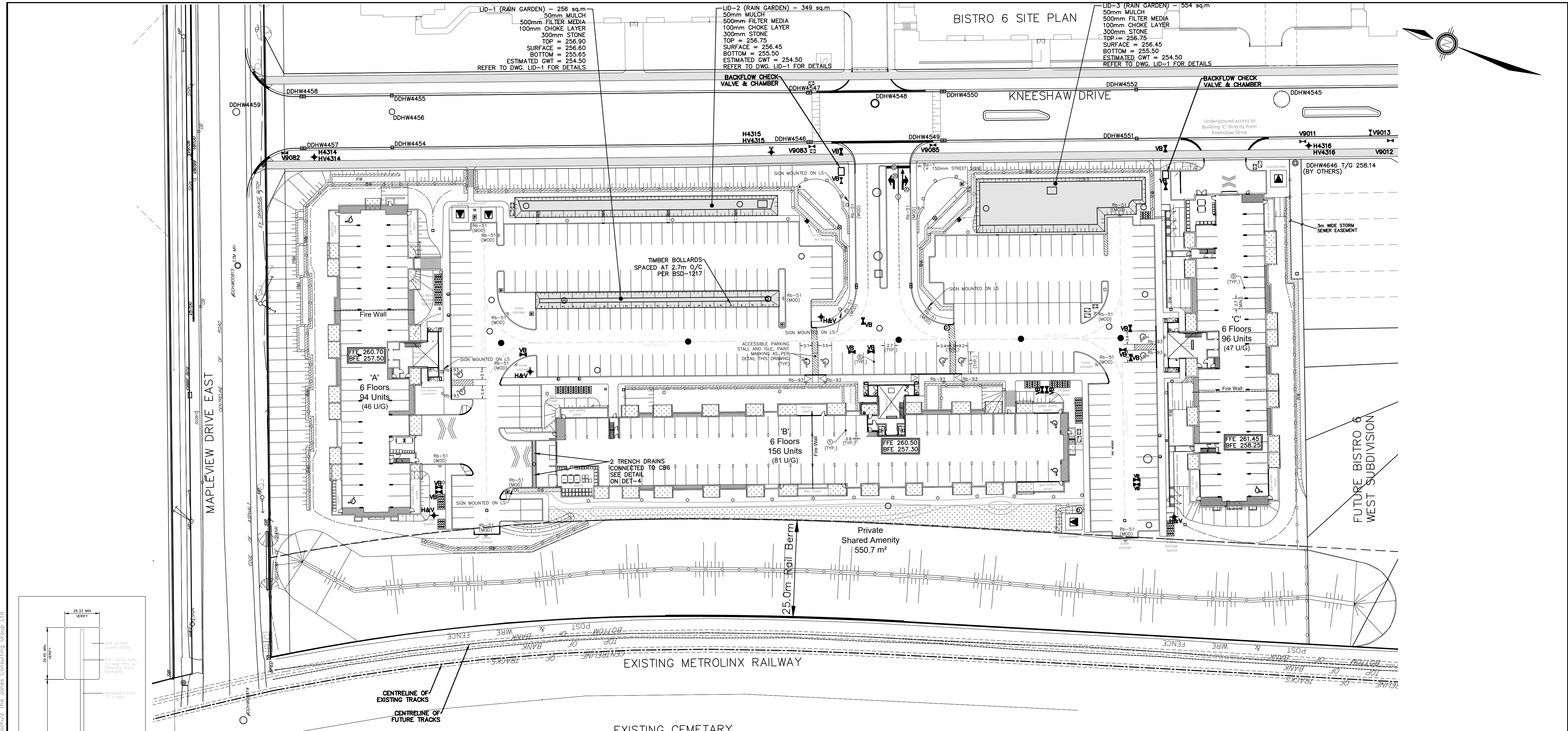
PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

WATERMAIN SWABBING PLAN



DESIGN MF	SCALE: 1:500	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO WM-1
CHECKED DR		

G:\Eng\_3D\PRAs-19078\_02\Drawings\PRAs-19078\_DESIGNBASE.dwg Layouth\WM-1 Plotted Dec. 21, 2021 @ 8:22pm by kschuz The Jones Consulting Group Ltd.



**EXISTING CEMETARY**

REFER TO THE ONTARIO TRAFFIC MANUAL FOR ALL SIGNAGE AND PAVEMENT MARKINGS DETAILS UNLESS NOTED OTHERWISE

STOP SIGN Rb-1

NO PARKING - FIRE ROUTE MODIFIED Rb-51

DISABLED PARKING BY PERMIT ONLY RB-93

**PAVEMENT MARKINGS LEGEND**

1	SOLID YELLOW, 10cm
2	SOLID DOUBLE YELLOW, 10cm
3	363 BROKEN YELLOW, 10cm
4	SOLID YELLOW, 20cm
5	SOLID WHITE, 10cm
6	333 BROKEN WHITE, 10cm
7	363 BROKEN WHITE, 10cm
8	393 BROKEN WHITE, 10cm
9	SOLID WHITE, 20cm
10	111 BROKEN WHITE, 10cm
11	333 BROKEN WHITE, 20cm
12	333 BROKEN WHITE, 30cm
13	SOLID WHITE, 30 cm
14	SOLID WHITE, 45 cm
15	SOLID WHITE, 60cm
20	SYMBOLS
[ ]	LIMITS OF MARKING

**NOTES:**

- 333, 363, 393, DENOTES PAVEMENT MARKING SPACING (ie., 3m LINE, 3m GAP, 3m LINE)
- USE [ ] TO DENOTE PAVEMENT MARKING
- USE [ ] TO DENOTE PAVEMENT MARKING, TEMPORARY
- USE [ ] TO DENOTE PAVEMENT MARKING, TEMPORARY-REMOVABLE
- USE [ ] TO DENOTE PAVEMENT MARKING, DURABLE

**NOTE:**

- ALL PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL CONFORM TO THE ONTARIO TRAFFIC MANUAL.
- PAVEMENT MARKINGS FOR PARKING STALLS SHALL BE PAINTED WHITE AND CONFORM TO OPSS 1712.
- PAINT COLOR SPECIFIED ON DRAWING, PAINT TO BE QUICK DRYING WATER BASED LATEX PAINT (WITHOUT GLASS BEADS)

**LEGEND**

[Symbol]	CURB DROP	[Symbol]	PROPOSED HYDRANT
[Symbol]	CATCH BASIN	[Symbol]	PROPOSED VALVE
[Symbol]	DOUBLE CATCH BASIN	[Symbol]	PROPOSED CURB STOP
[Symbol]	STORM MAINTENANCE HOLE	[Symbol]	PROPOSED LIGHT STANDARD
[Symbol]	CATCH BASIN MAINTENANCE HOLE	[Symbol]	PROPOSED BELL PEDESTAL/HANDHOLES
[Symbol]	DOUBLE CATCH BASIN MAINTENANCE HOLE	[Symbol]	PROPOSED BELL DUCT
[Symbol]	SANITARY MAINTENANCE HOLE	[Symbol]	PROPOSED BELL VAULT
[Symbol]	MAXIMUM GRADING SLOPE UNLESS OTHERWISE NOTED	[Symbol]	PROPOSED ROGERS VAULT
[Symbol]	PROPOSED SIGN & DESIGNATION	[Symbol]	PROPOSED HYDRO TRANSFORMER
[Symbol]		[Symbol]	PROPOSED EV CHARGER STATION

**BENCHMARK:**

BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE OVER LOWER OREK, 0.85M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.4M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 19CM TOP OF CORNER. N4910785.889 E507254.100 ELEV 241.861	3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST SIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.509	2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
BENCHMARK NO: 0312008004 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E607801.062 ELEV 248.896	1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF
BENCHMARK NO: 0312011003 LOCATED ON LOCHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909870.251 E608733.590 ELEV 252.807				

NO.	REVISIONS	DATE	INITIAL



**PRATT HANSEN GROUP INC.**  
ELEMENTS SITE PLAN  
CITY OF BARRIE

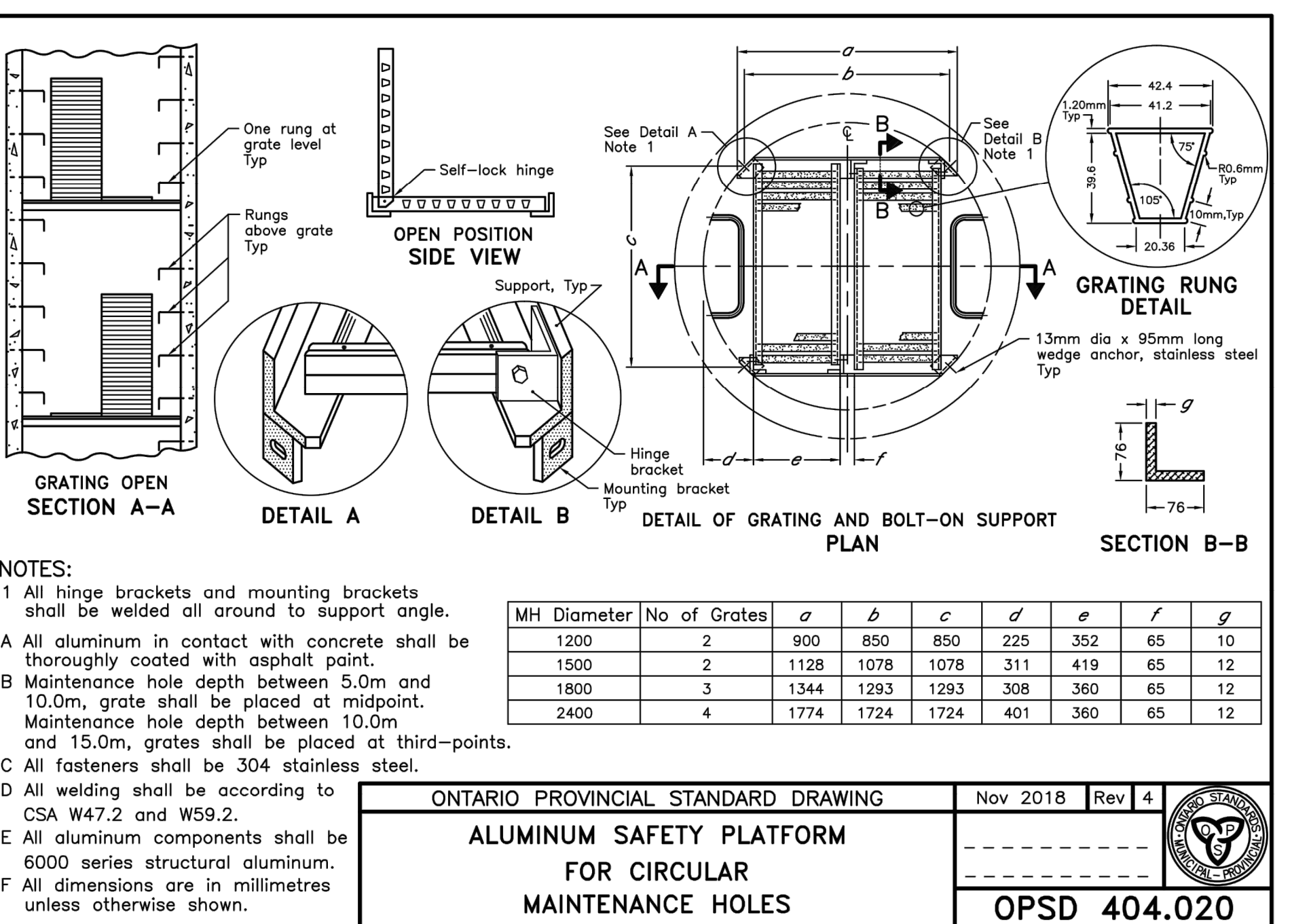
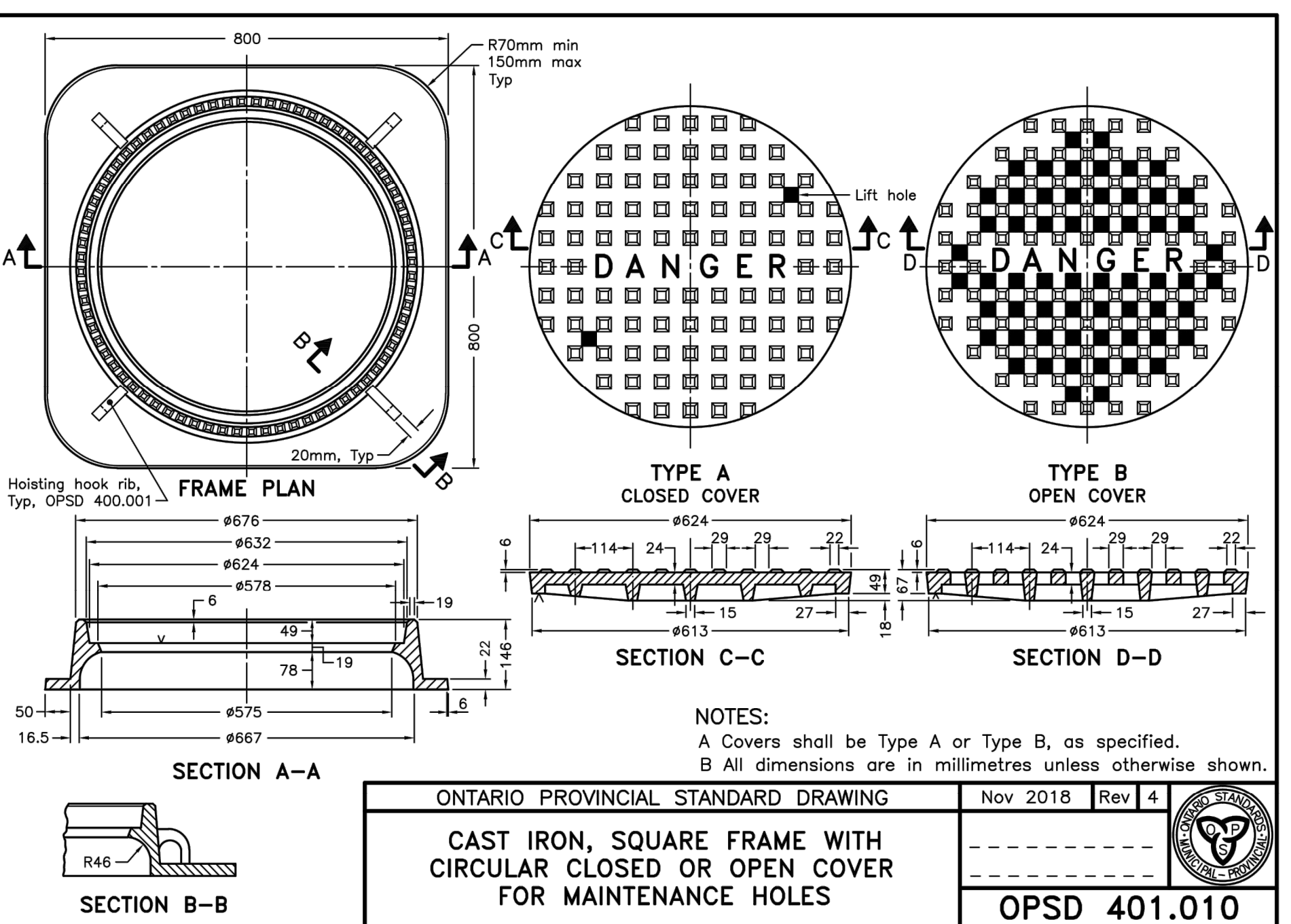
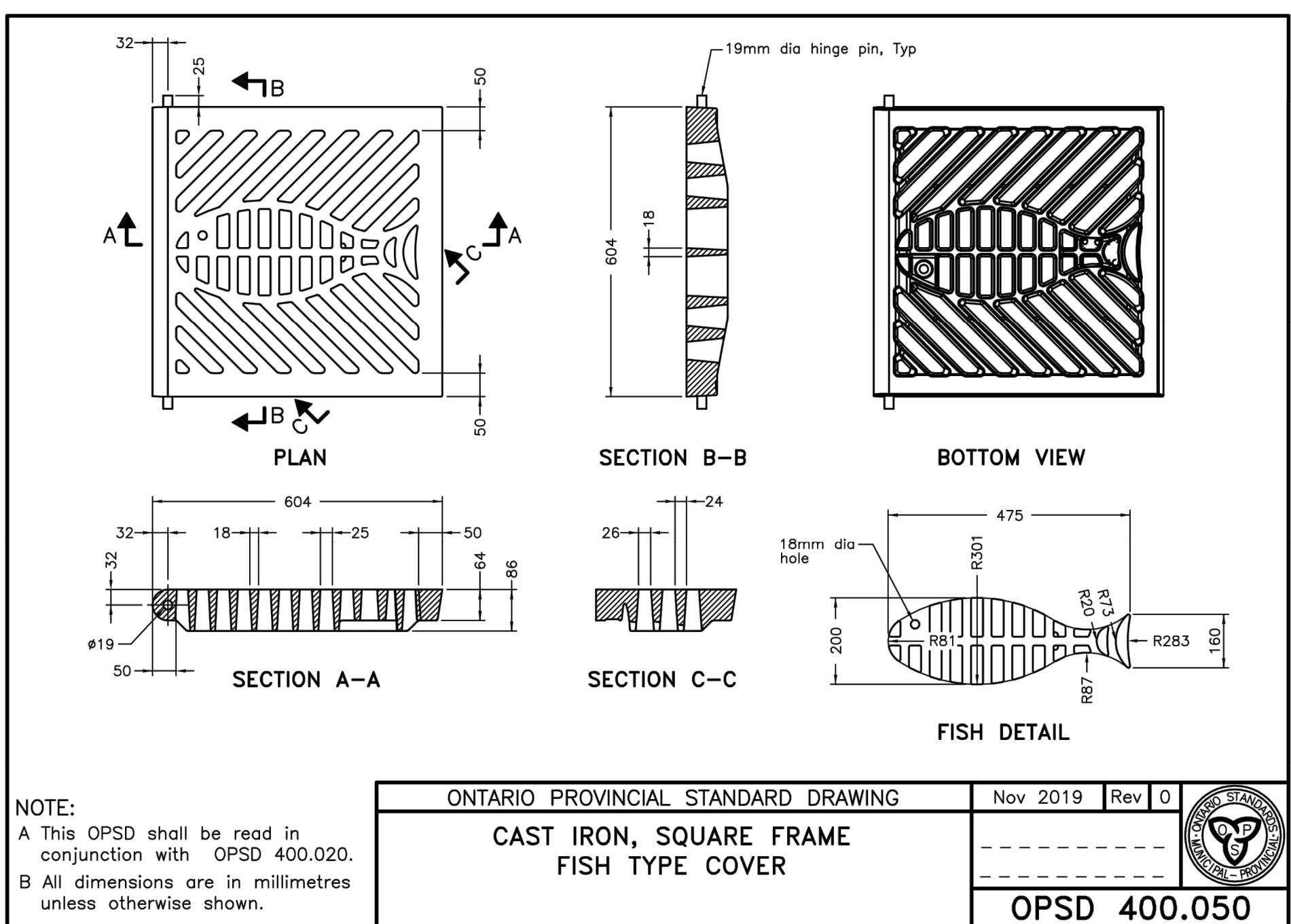
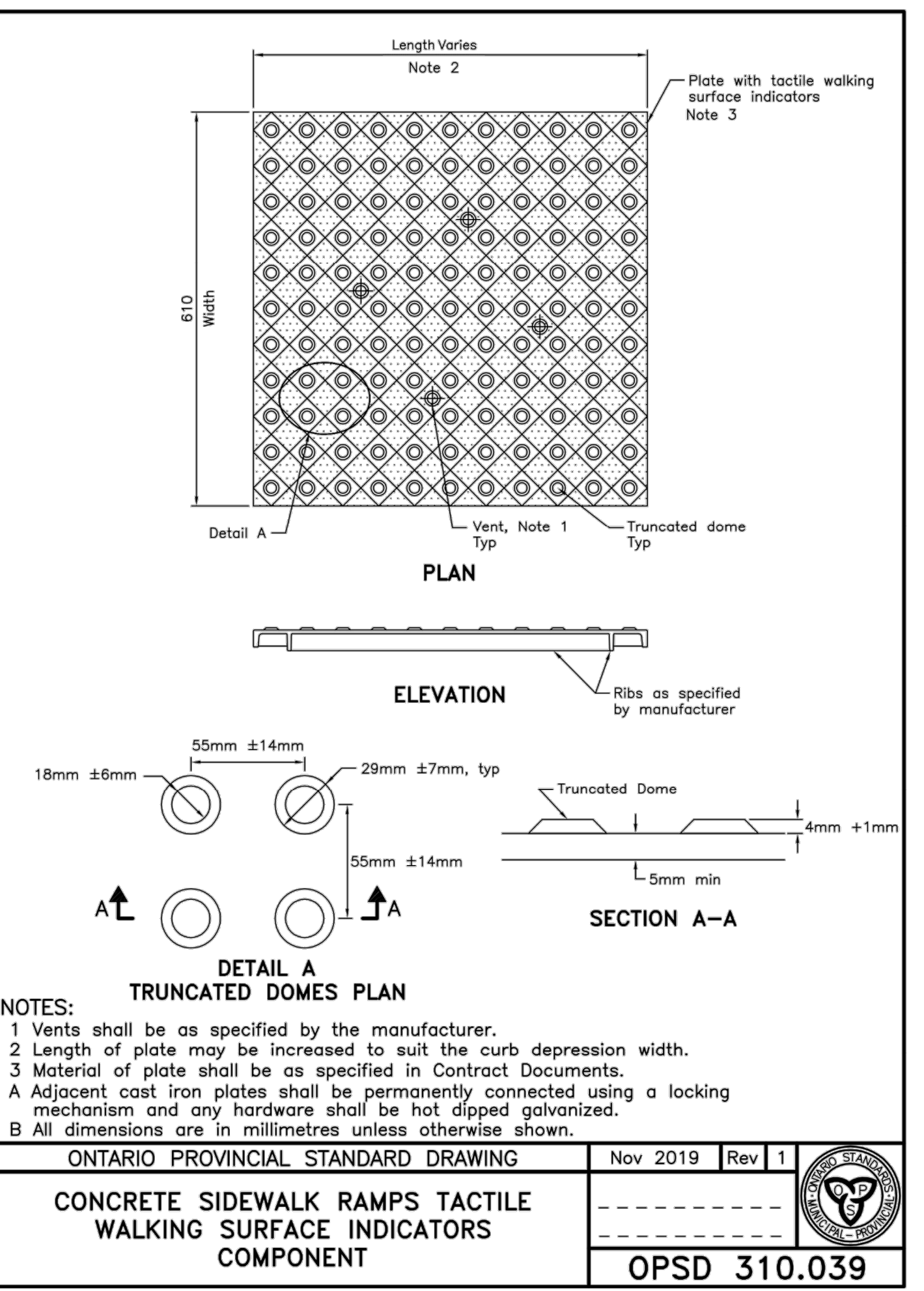
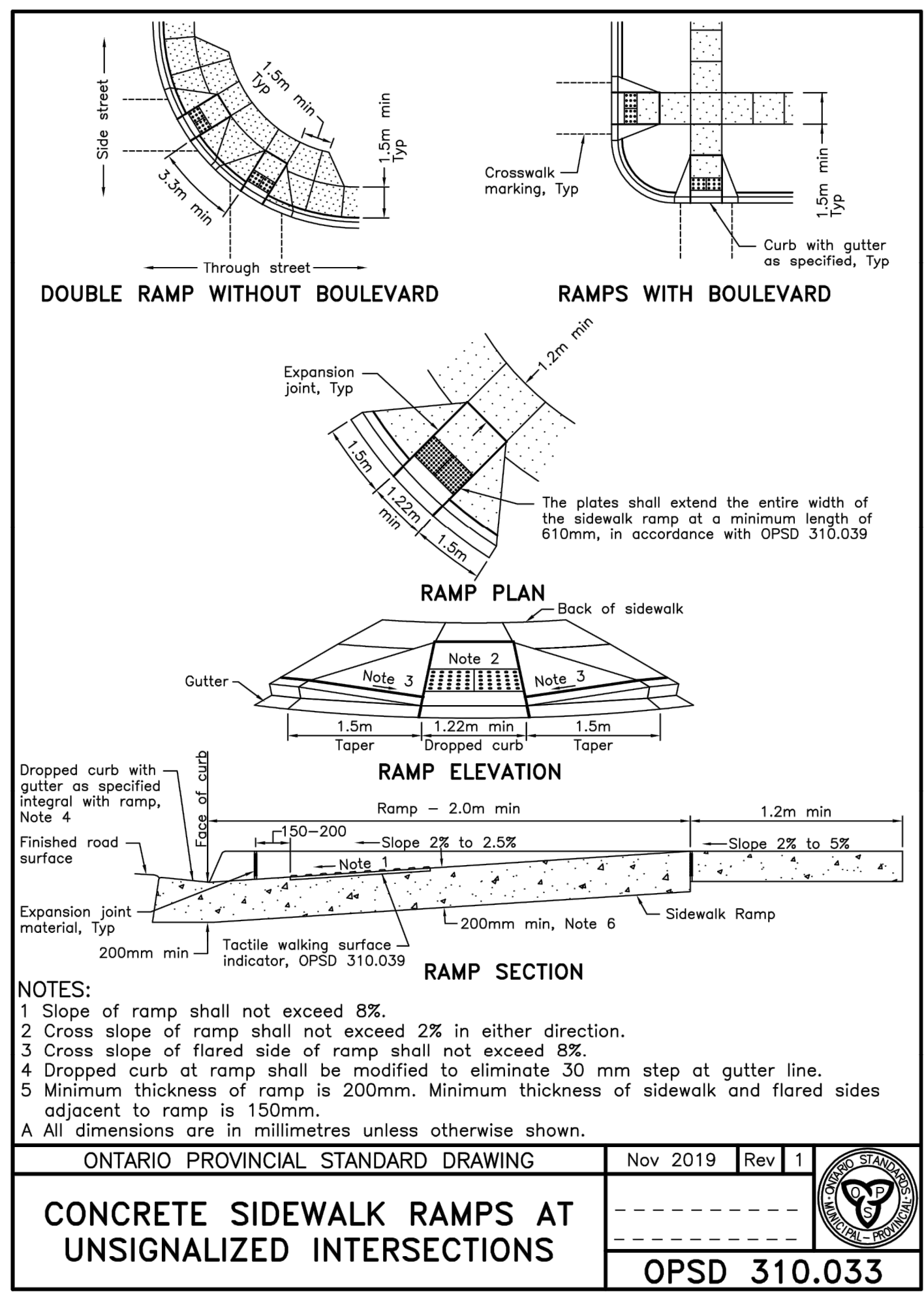
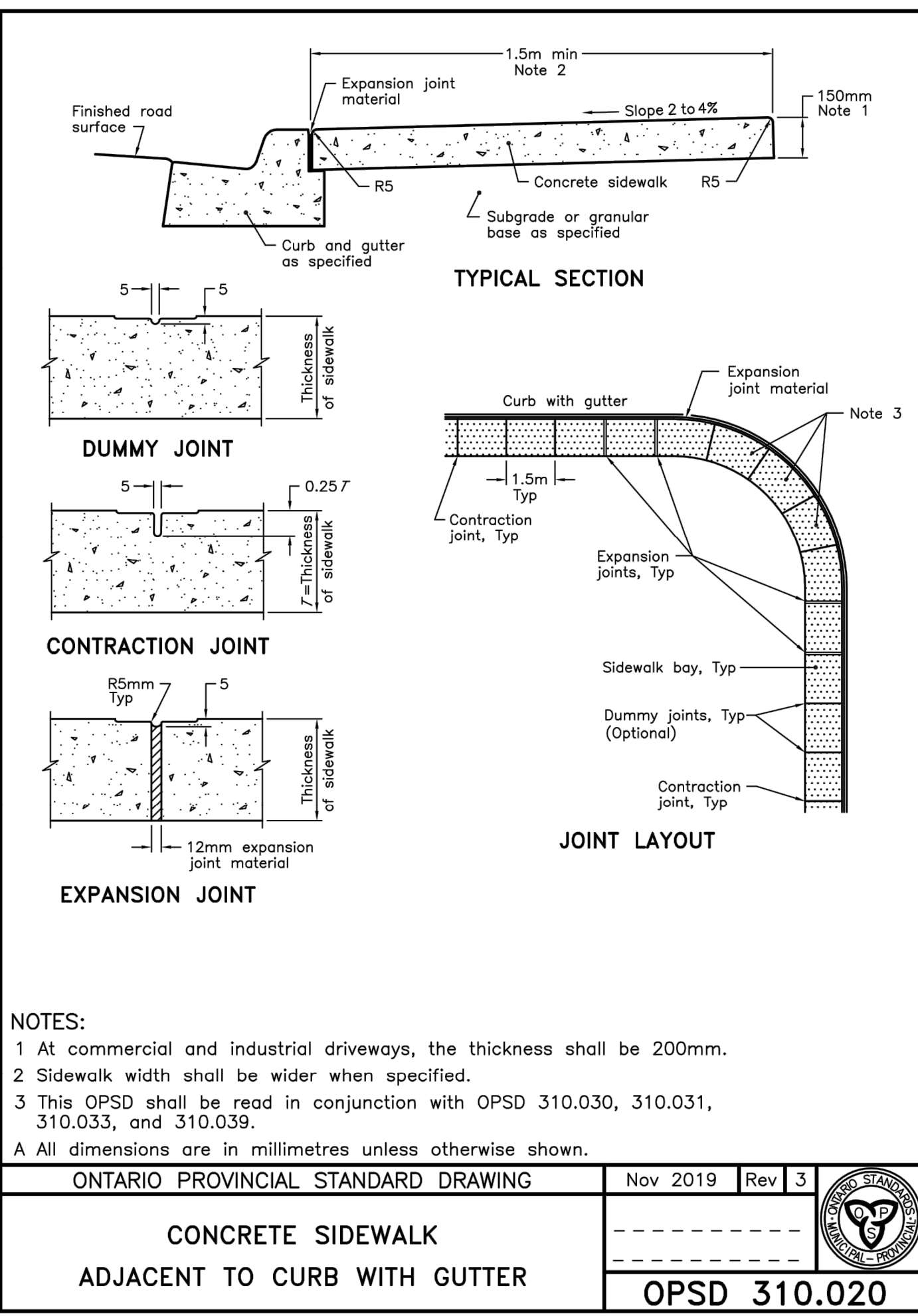
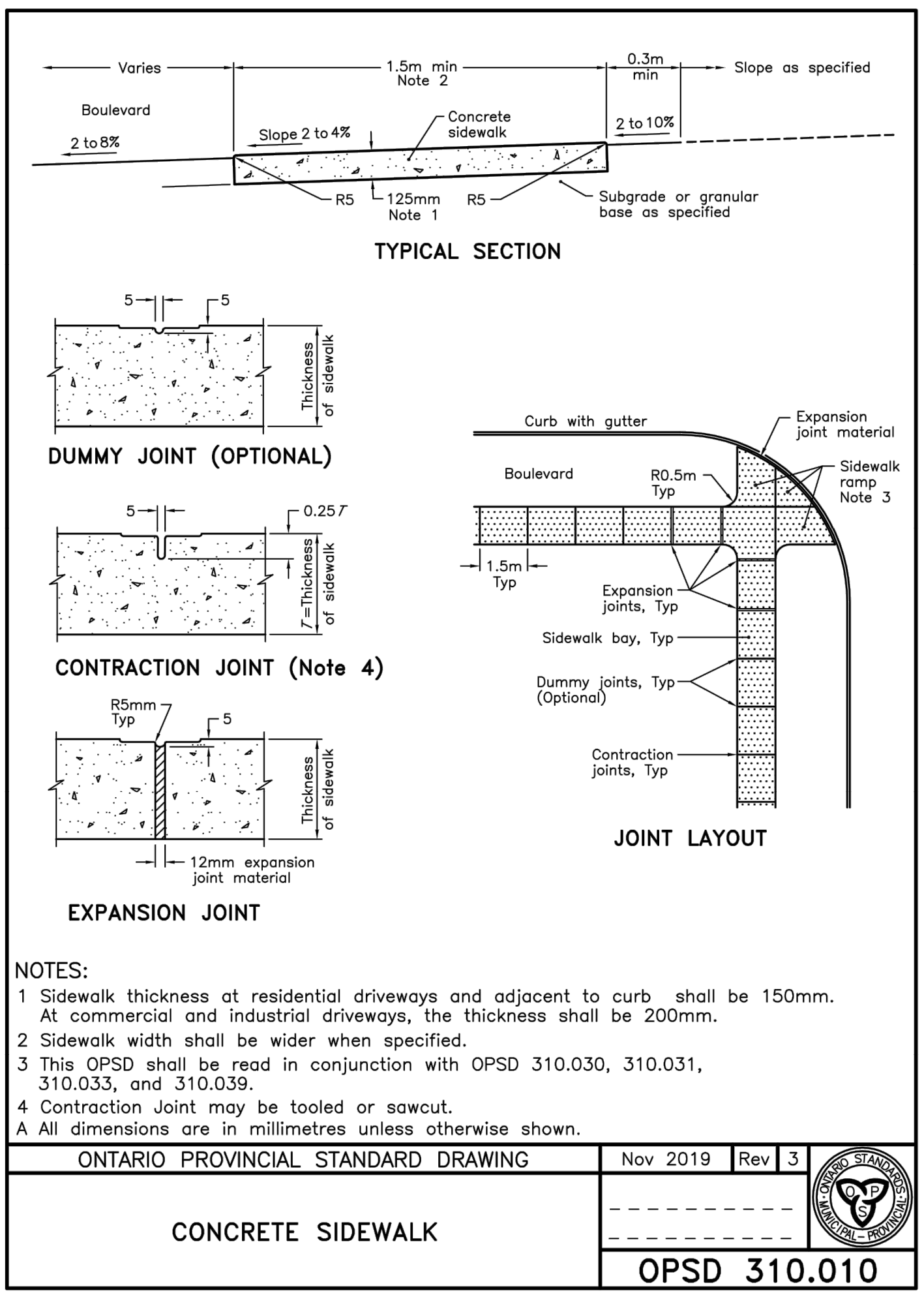
**PAVEMENT MARKING AND SIGNAGE PLAN**

**JONES CONSULTING GROUP LTD.**  
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W5  
P. 705.734.2538  
F. 705.734.1058

DESIGN MF	SCALE: 1:500	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. NO DWG-19078-PM-1
CHECKED DR		

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**BENCHMARK:**

BENCHMARK NO: 0101988544 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVELY'S CREEK, 0.85M EAST OF HURONIA ROAD. TABLET IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 28CM WEST OF THE NORTHEAST END OF BRIDGE, 18cm TOP OF CORNER. N4910788.989 E807284.100 ELEV 241.861

BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.76 SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHWEST FACE OF THE FLAGPOLE BASE. N4911610 E807799 ELEV 250.509

BENCHMARK NO: 0310080894 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD, N4910878.122 E807801.062 ELEV 248.896

BENCHMARK NO: 0312011013 LOCATED ON LOUGHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.257 E808733.690 ELEV 232.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



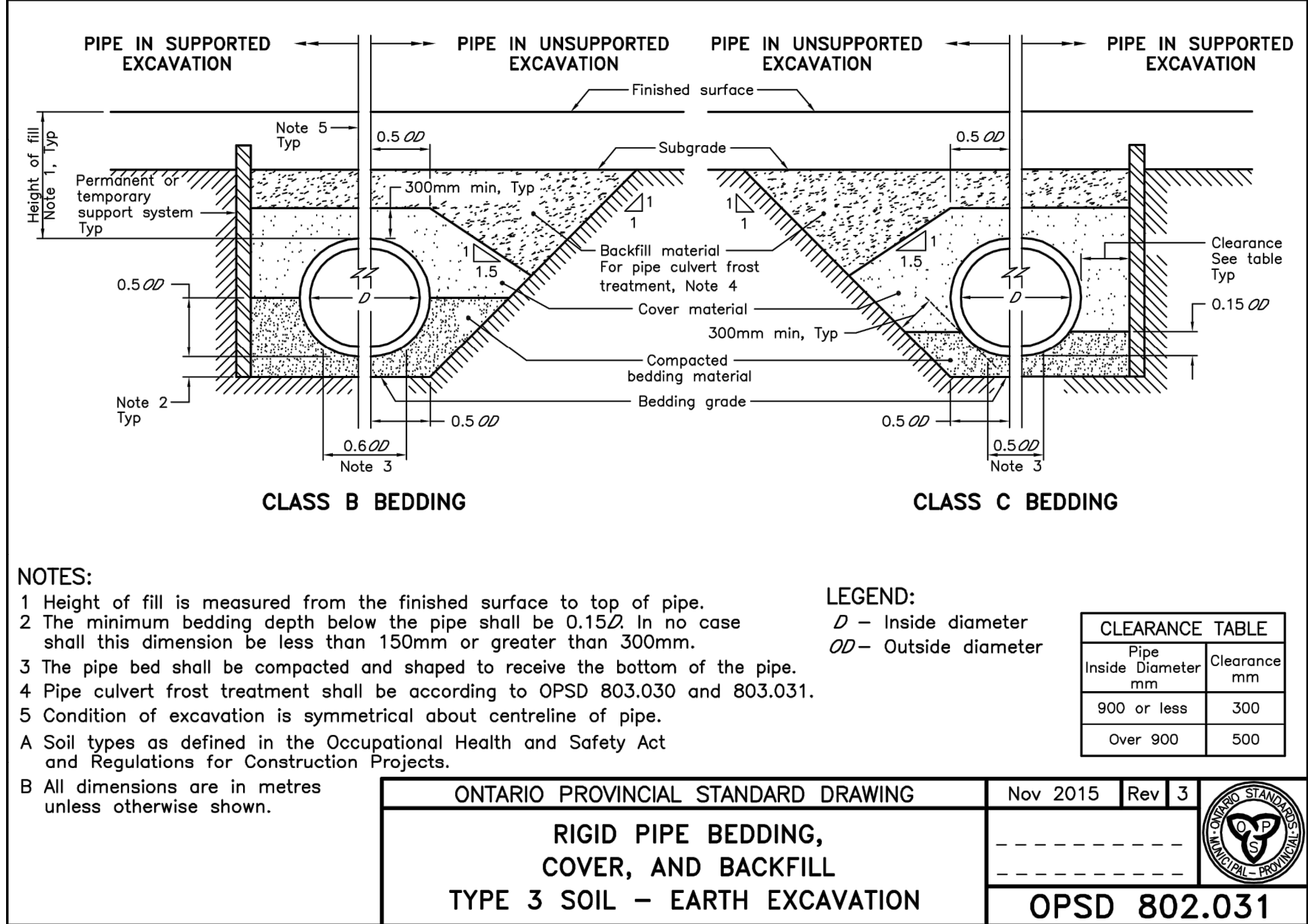
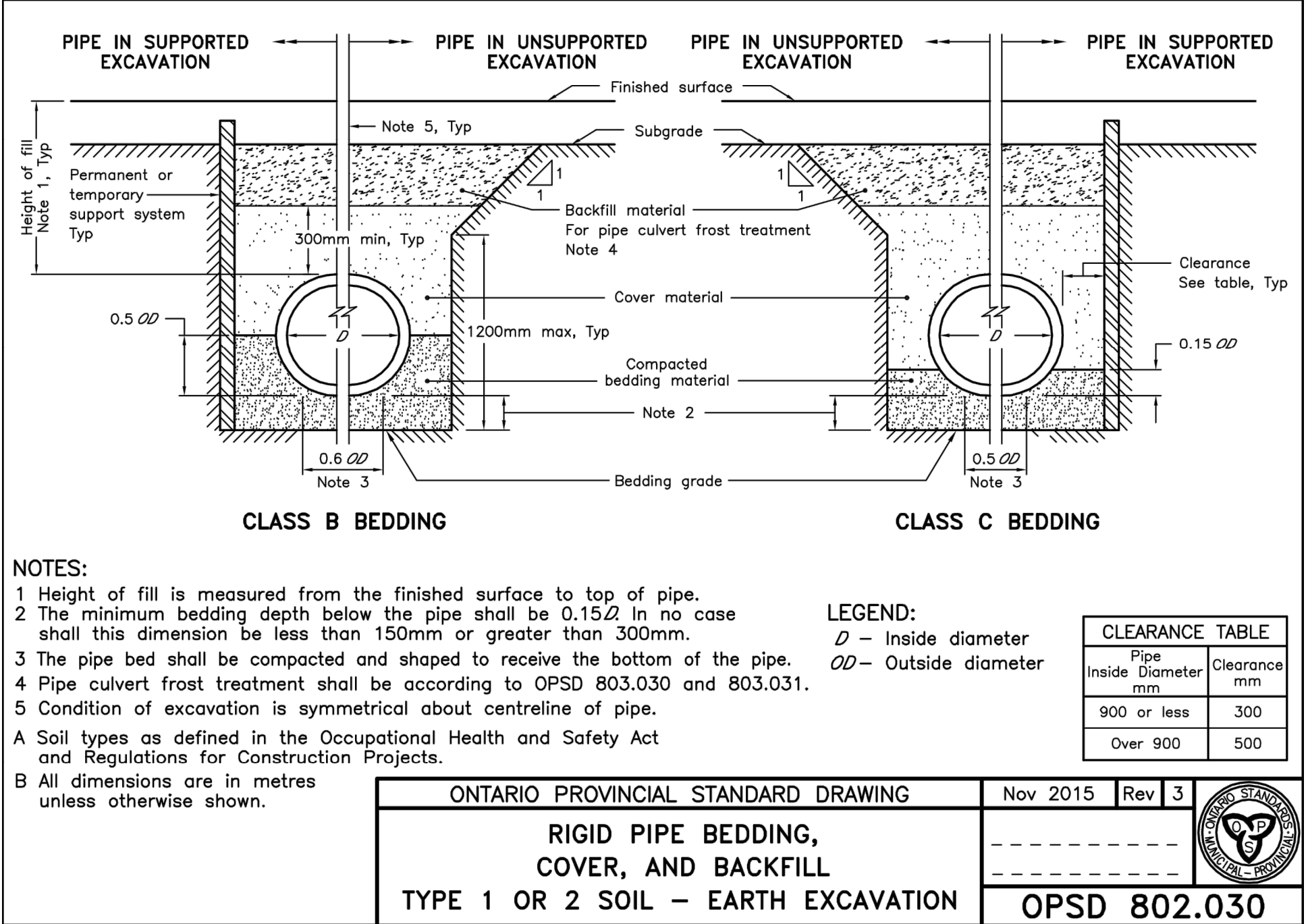
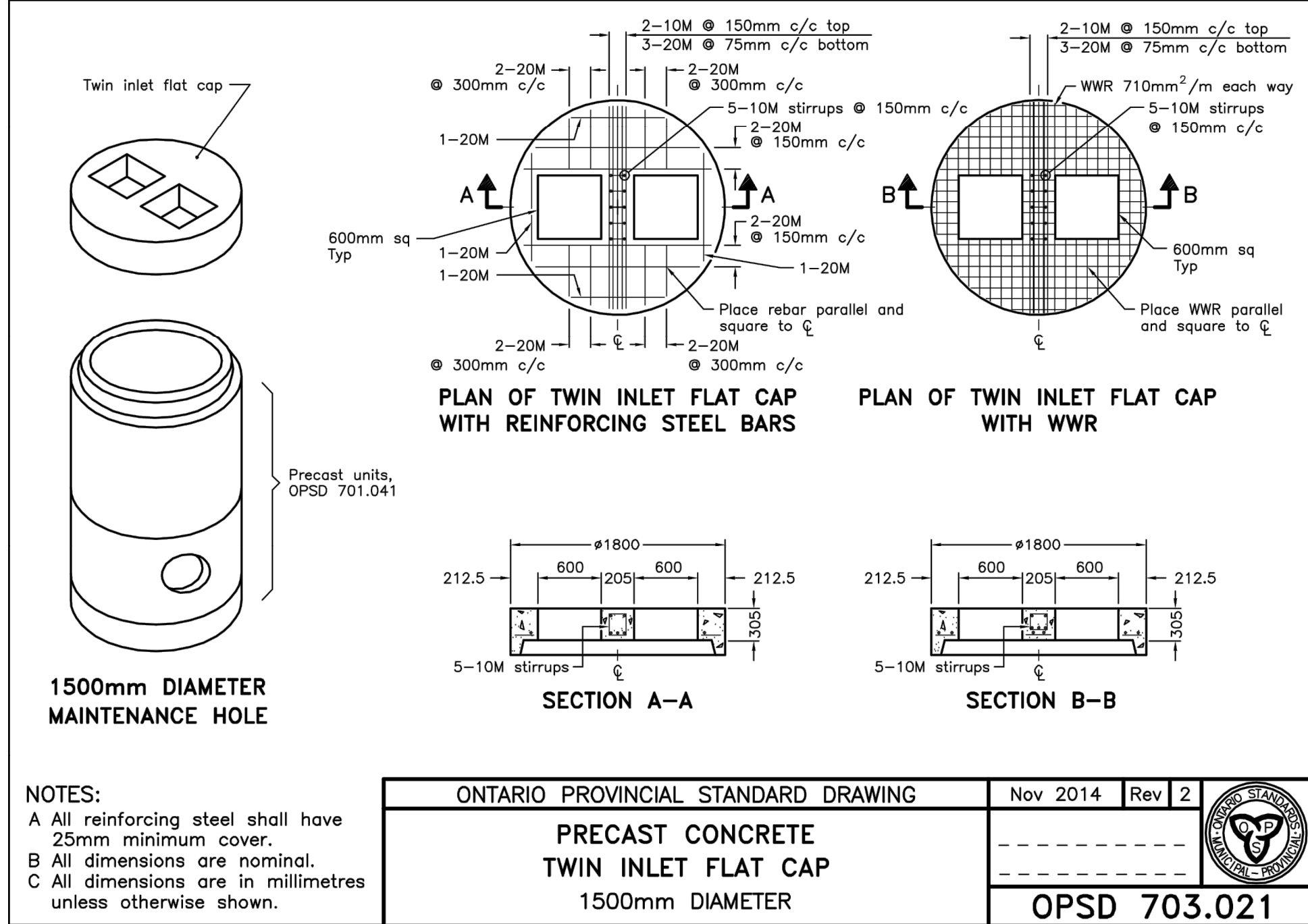
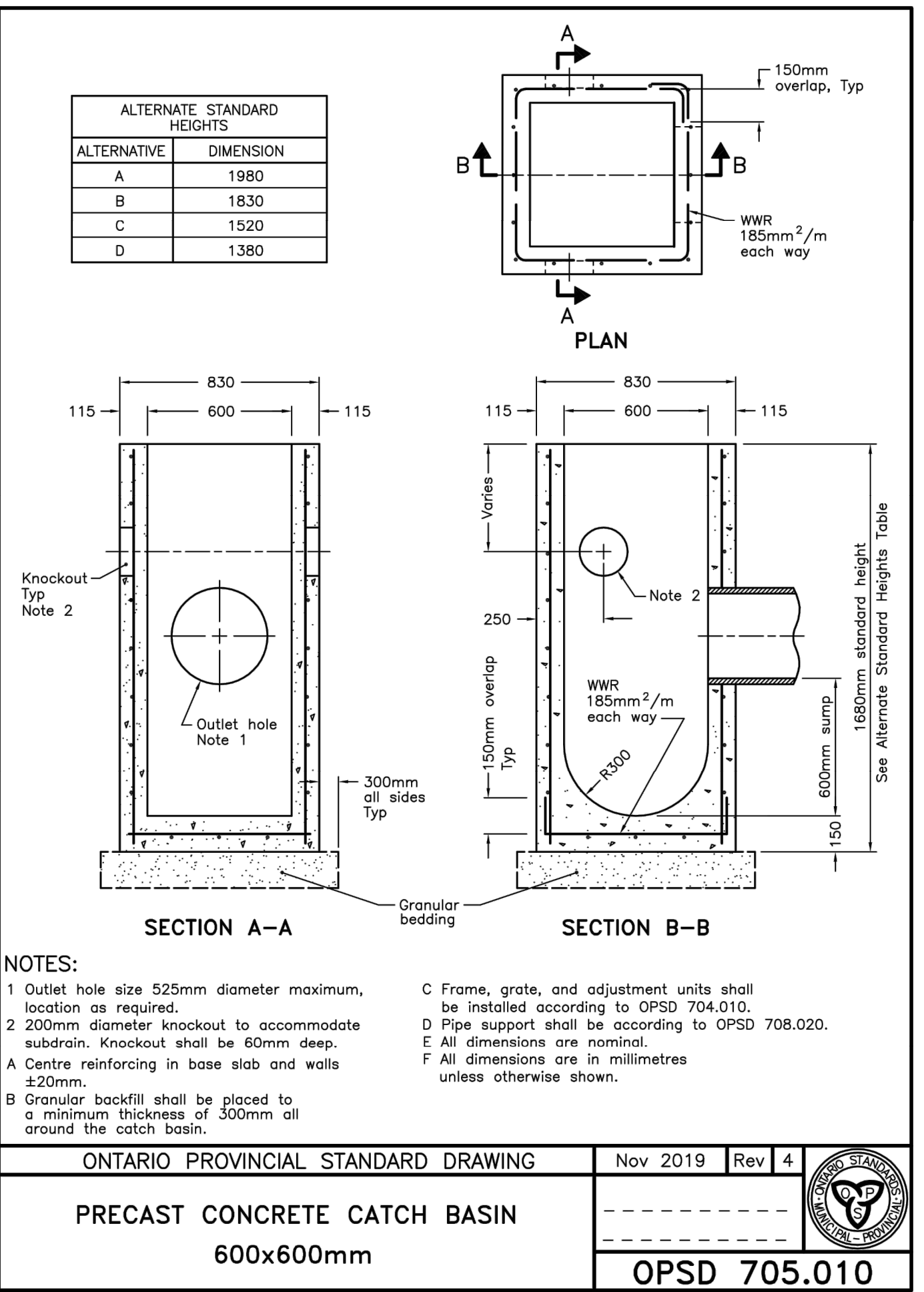
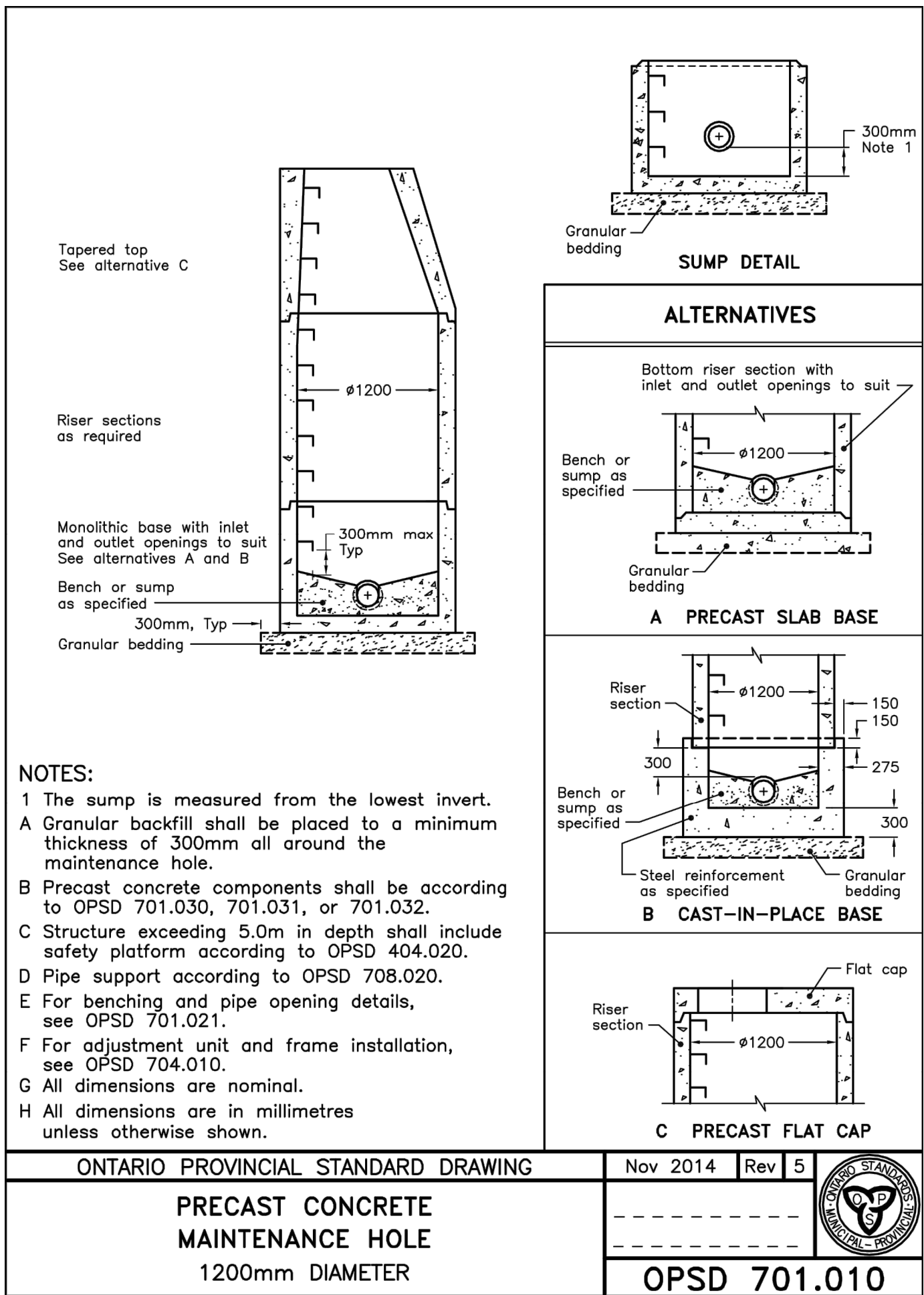
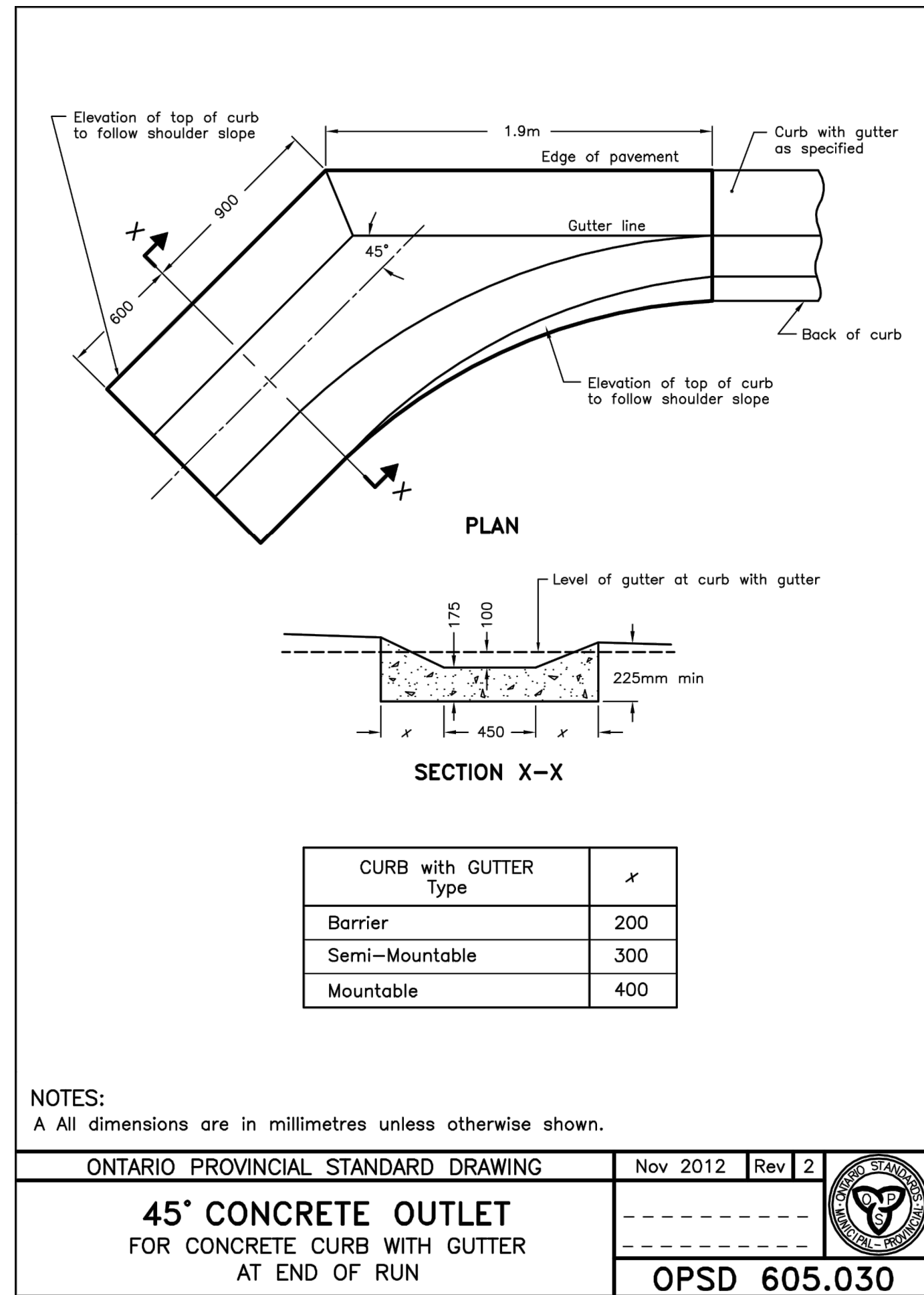
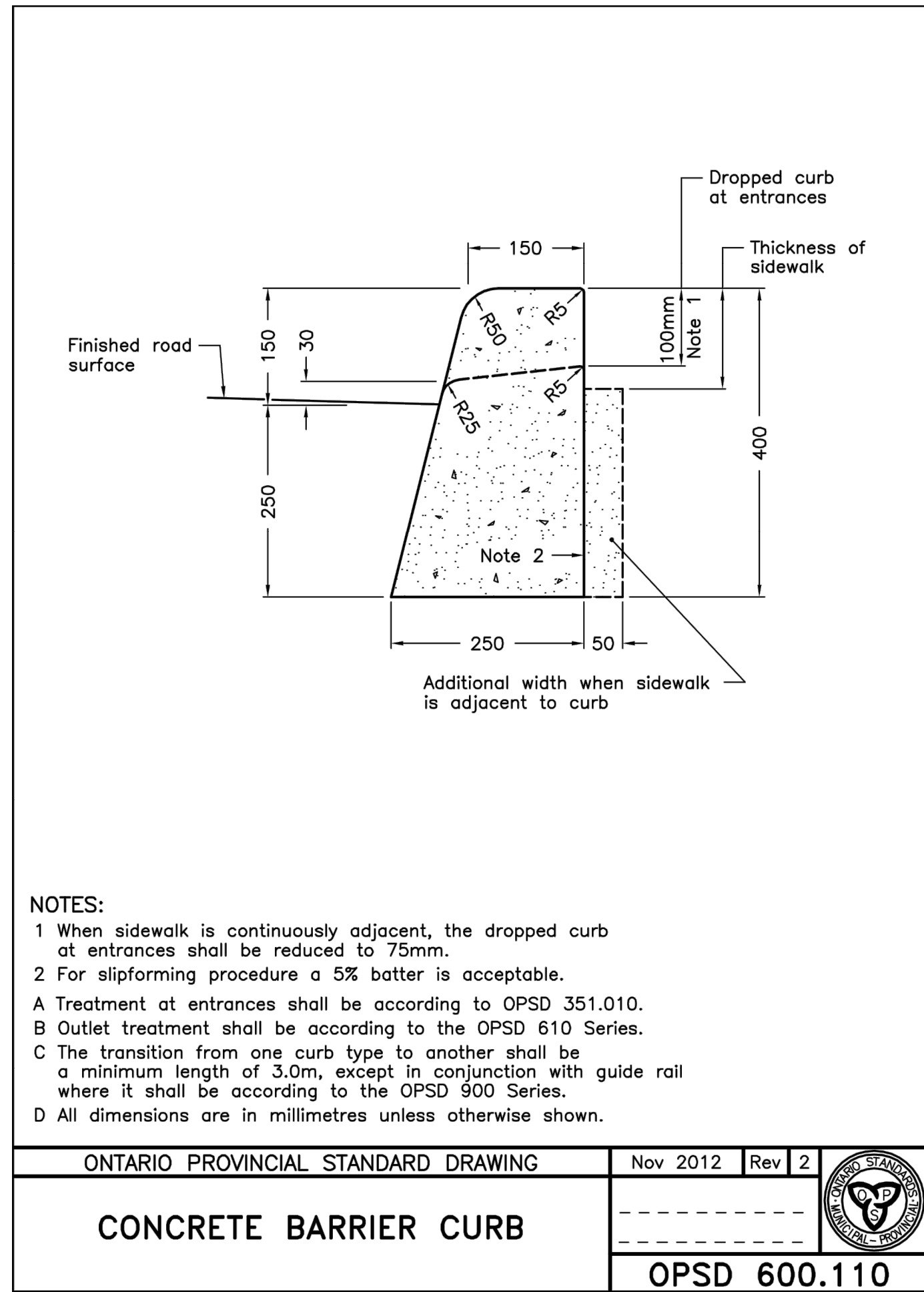
PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

STANDARD DETAILS

**JONES CONSULTING GROUP LTD.**  
PLANNERS & ENGINEERS

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W6  
P. 705.734.2538  
F. 705.734.1056

DESIGN MF	SCALE: N/A	DATE: JANUARY 2021
DRAWN KS	PROJECT	DWG. NO
CHECKED DR	PRA-19078	DET-1



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**BENCHMARK:**

BENCHMARK NO: 0101988454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVELL'S CREEK, 0.85M EAST OF HURONIA ROAD. TABLE IS SET HORIZONTALLY IN THE NORTH FACE, 5.45M NORTH OF CENTRELINE OF ROAD, 282M WEST OF THE NORTHEAST END OF BRIDGE, 11m TOP OF CORING. N4910788.889 E807284.100 ELEV 241.661

BENCHMARK NO: 0312003029 MAPLEVIEW HEIGHTS ELEMENTARY SCHOOL - 180 ESTHER DR. THE VERTICAL MONUMENT IS SET FLUSH IN CONCRETE FLAGPOLE BASE 4.7m SOUTH FROM THE SOUTHWEST CORNER OF THE MAIN ENTRANCE TO SCHOOL, AND TABLE IS ON THE SOUTHWEST FACE OF THE FLAGPOLE BASE. N4911610 E807799 ELEV 250.509

BENCHMARK NO: 0310080084 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 11m EAST OF HURONIA ROAD, N4910878.122 E807801.062 ELEV 248.896

BENCHMARK NO: 0312010013 LOCATED ON LOUGHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION. N4909876.251 E806733.690 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF



**PRATT HANSEN GROUP INC. ELEMENTS SITE PLAN CITY OF BARRIE**

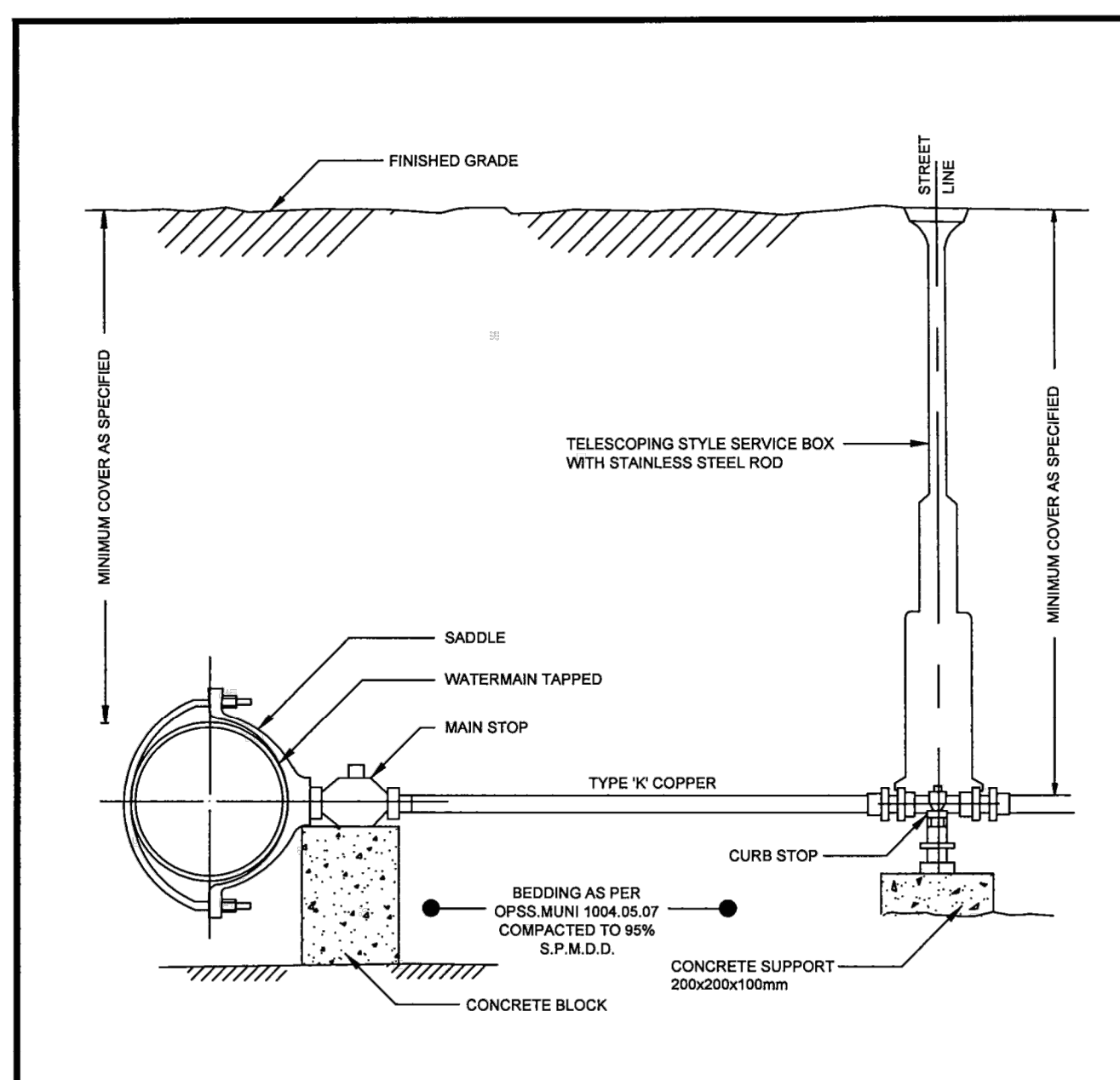
**JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS**

229 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W5  
P. 705.734.2538  
F. 705.734.1058

DESIGN MF SCALE: N/A DATE: JANUARY 2021  
DRAWN KS PROJECT DWG. NO: PRA-19078  
CHECKED DR DET-2







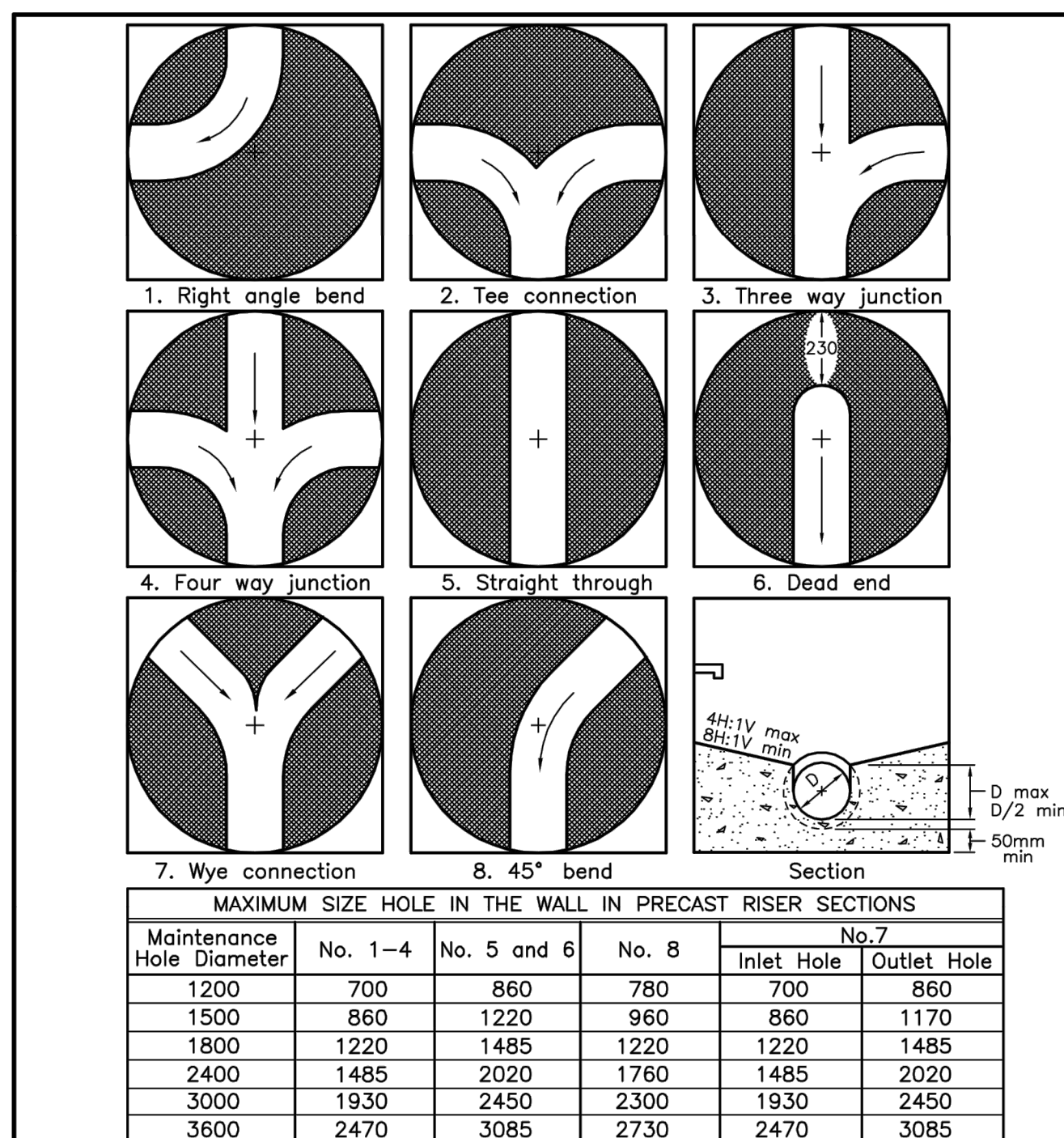
NOTES:

1. ANY JUNCTION MADE IN SERVICE PIPE BETWEEN MAIN STOP AND CURB STOP TO BE MADE WITH APPROVED COUPLINGS (FOR 50mm ONLY).
2. ALL WATER SERVICES TO BE INSTALLED AT RIGHT ANGLE TO THE WATERMAIN.
3. ALL TAPPINGS TO BE AT 90° OR 45° POSITION ONLY.
4. 915mm (36") STAINLESS STEEL SERVICE BOX ROD.
5. SEE BED-LOG FOR 30mm AND 50mm NON-COPPER WATER SERVICES.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

**APPROVED**  
DATE: 6/16/2017  
M. G. FLIS  
DIRECTOR OF ENGINEERING

City of **BARRIE** STANDARD DETAIL  
**COPPER WATER SERVICE CONNECTION DETAIL 38mm AND 50mm DIAMETER SIZES**

REV No. 1 DATE: FEB 2015  
SCALE: N.T.S.  
**BSD-503**  
(PREVIOUSLY BSD-49)

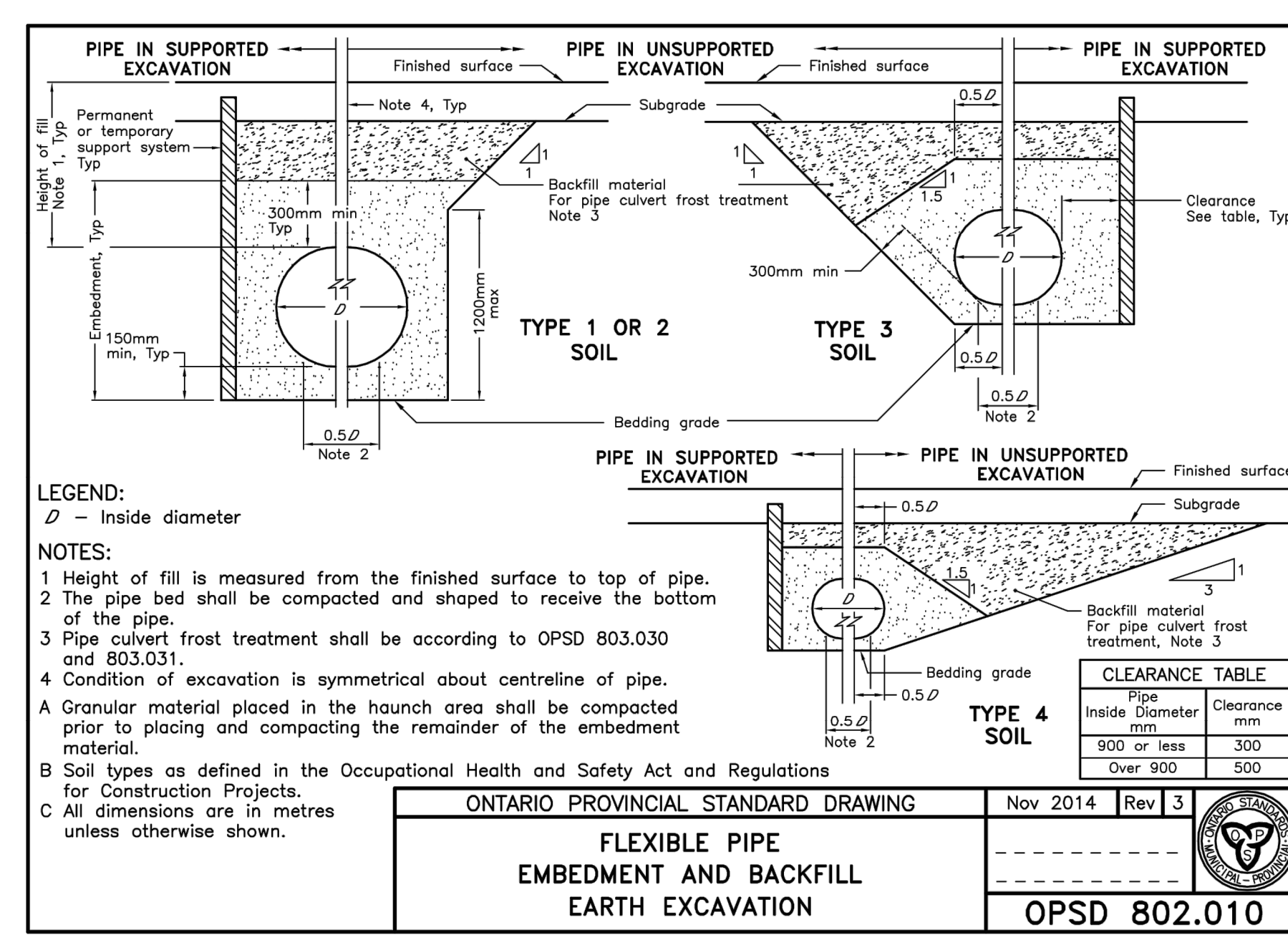
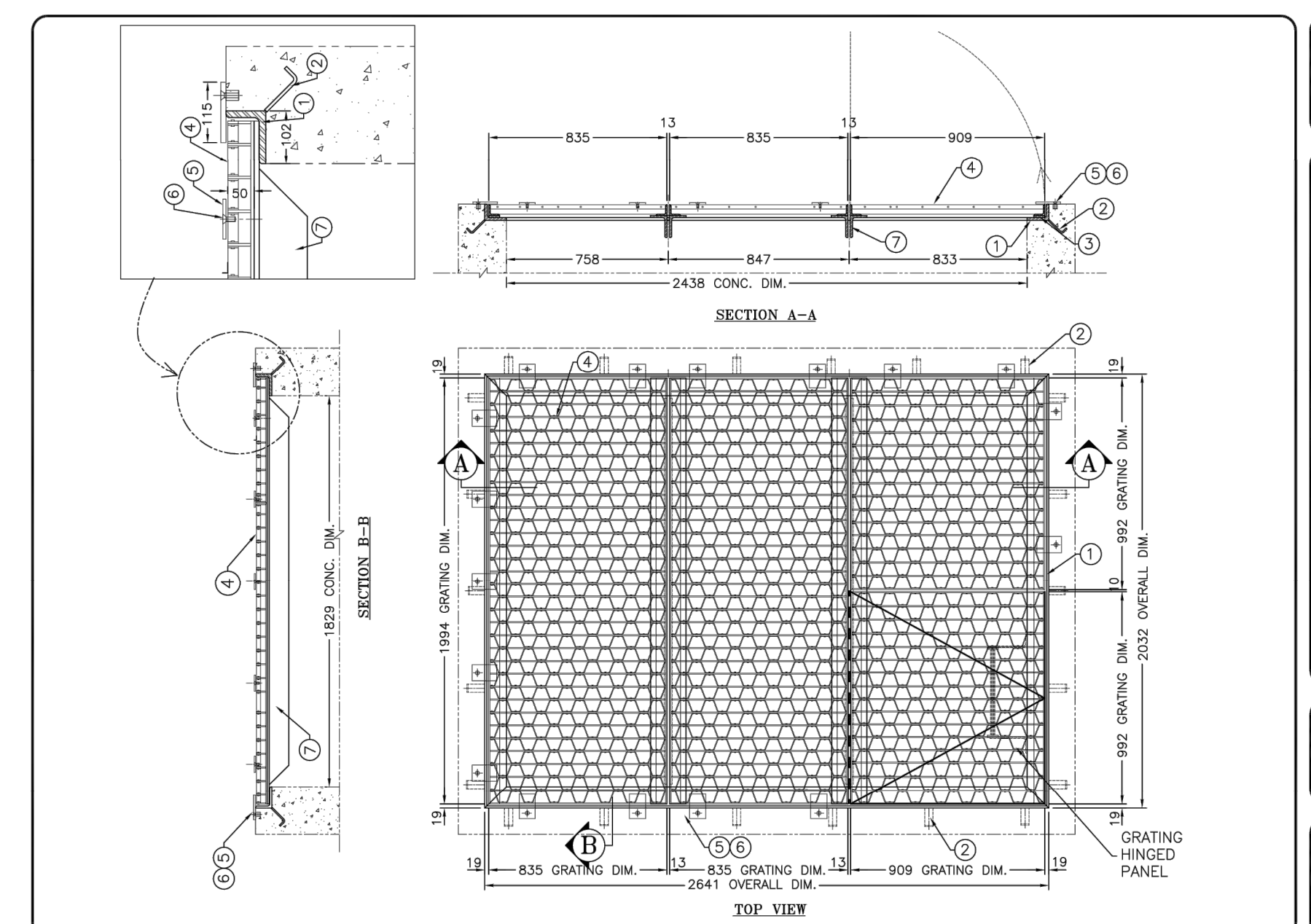
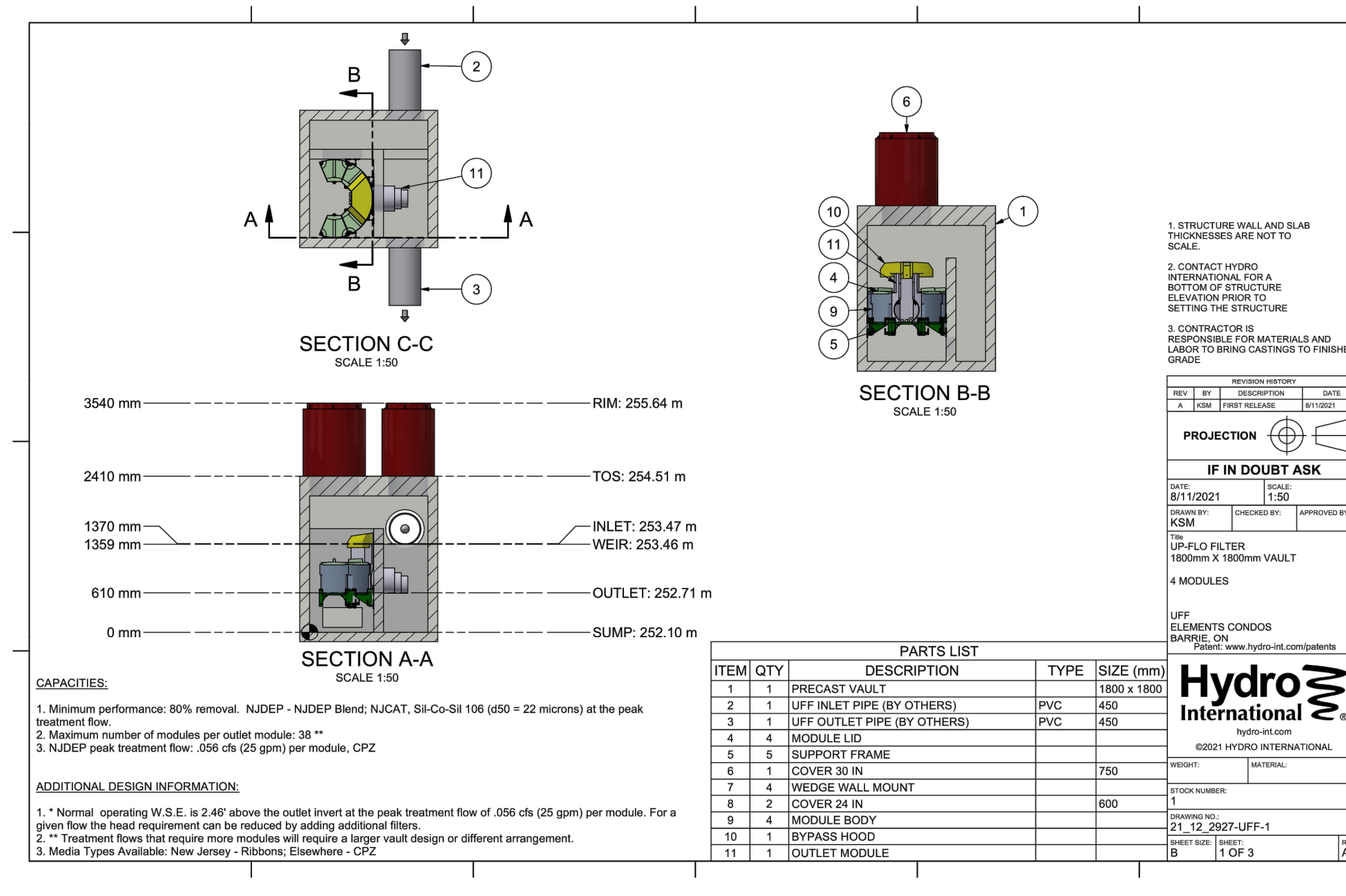
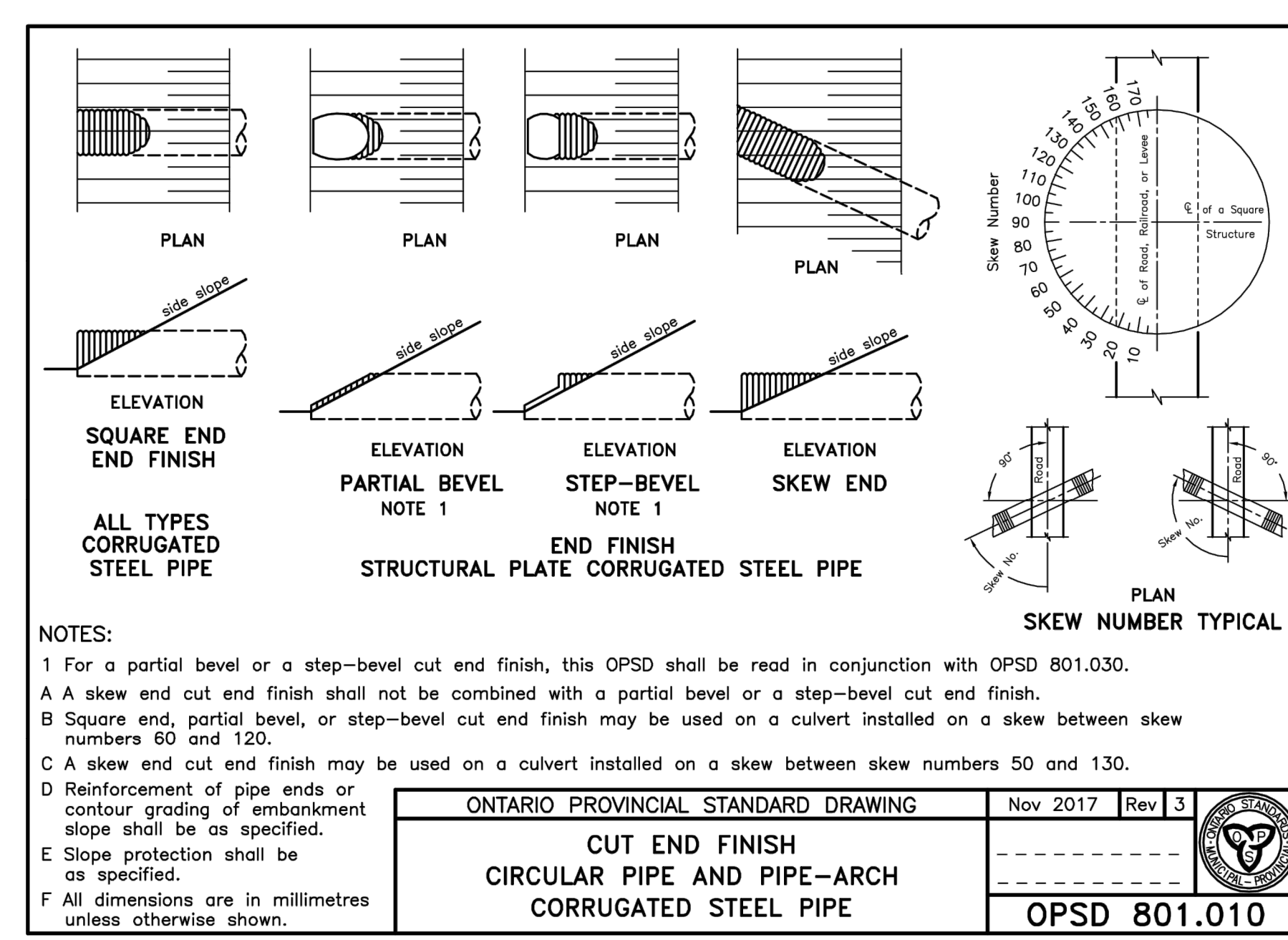
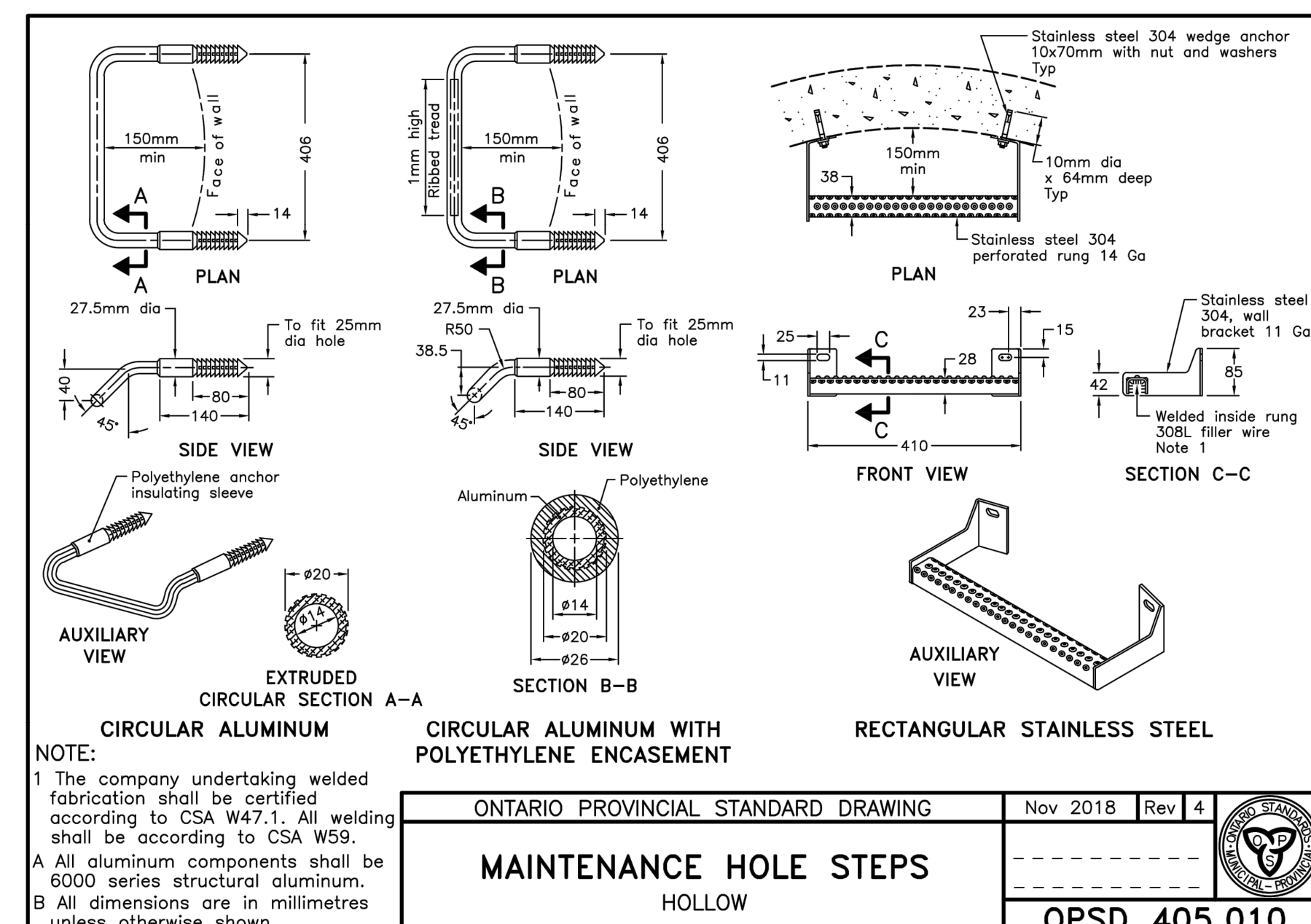


NOTES:

1. Slopes shall be maintained from the outlet hole opening for top of benching.
- A. Concrete for benching shall be 30MPa.
- B. When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
- C. Benchling slope and height shall be as specified.
- D. When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be pre-benched at the manufacturer with standardized benching slope and channel orientation.
- E. All dimensions are nominal.
- F. All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING  
**MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES**

Nov 2014 Rev 4  
**OPSD 701.021**



STEPCON  
2575 BAYVIEW RD. UNIT 20-21  
MARKHAM, ONTARIO L3R 9V8  
VOICE: (905) 897-6000  
FAX: (905) 897-6001  
Toll Free: 1-888-STEPCON

#	QTY.	MATERIAL	DESCRIPTION
1	1	SAFETY STEEL	150x75x10mm (SLIP)
2	1	SAFETY STEEL	150x75x10mm (SLIP)
3	2	SAFETY STEEL	150x75x10mm (SLIP)
4	4	SAFETY STEEL	150x75x10mm (SLIP)
5	1	SAFETY STEEL	150x75x10mm (SLIP)
6	1	SAFETY STEEL	150x75x10mm (SLIP)
7	1	SAFETY STEEL	150x75x10mm (SLIP)
8	1	SAFETY STEEL	150x75x10mm (SLIP)
9	1	SAFETY STEEL	150x75x10mm (SLIP)
10	1	SAFETY STEEL	150x75x10mm (SLIP)

NOTE:  
1) ALL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.  
2) WELDING SHALL CONFORM TO CSA W47.1 & CSA W59 LATEST EDITION.  
3) WELDED SURFACES REMAIN AS WELDED.  
4) ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

ONTARIO PROVINCIAL STANDARD DRAWING  
**DITCH INLET GALVANIZED STEEL GRATING PANELS**

Nov 2014 Rev 3  
**OPSD 1800-4**

BENCHMARK:

NO.	REVISIONS	DATE	INITIAL
3	3RD DETAILED DESIGN SUBMISSION	21-12-20	MF
2	2ND DETAILED DESIGN SUBMISSION	21-09-03	MF
1	1ST DETAILED DESIGN SUBMISSION	21-02-12	MF

PROFESSIONAL ENGINEER  
M. G. FLIS  
100149153  
12-22-2021  
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.  
ELEMENTS SITE PLAN  
CITY OF BARRIE

STANDARD DETAILS

JONES CONSULTING GROUP LTD.  
PLANNERS & ENGINEERS  
220 Mapleview Dr. E. Unit 1  
Barrie, ON L4N 0W6  
P. 705.734.2538  
F. 705.734.1058

DESIGN	MF	SCALE:	N/A	DATE	AUGUST 2021
DRAWN	KS	PROJECT	PRA-19078	DWG. NO	DWG. NO
CHECKED	DR	PROJECT	PRA-19078	DET-5	DET-5