ELEMENTS SITE PLAN
CITY OF BARRIE

DRAWING LEGEND

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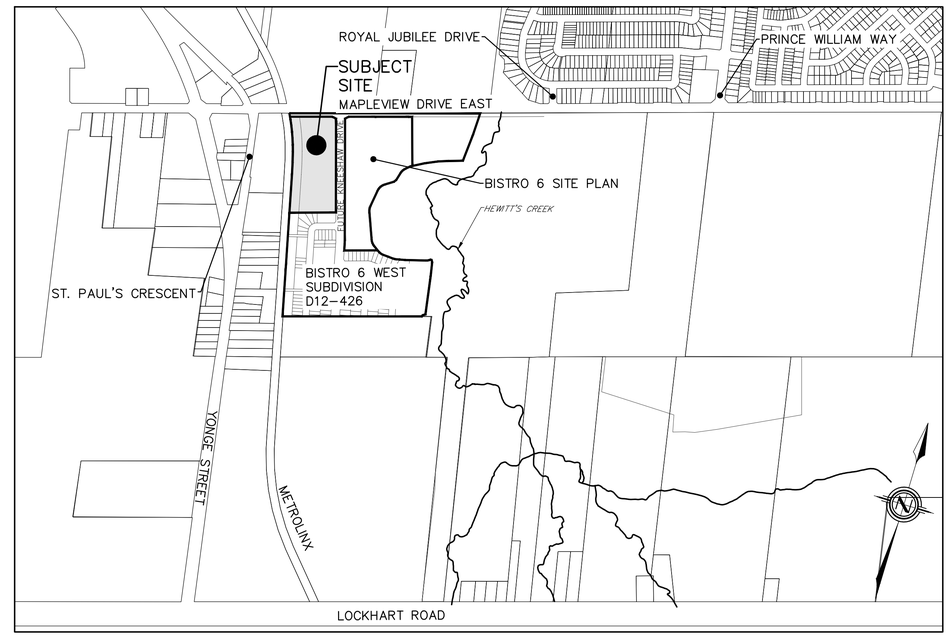

NOT FOR CONSTRUCTION

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2ND DETAILED DESIGN SUBMISSION SEPTEMBER 2021

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1. GRADE AND CROSSFALL ADJUSTEMENT OF MAINTENANCE HOLE AND CATCHBASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND MTO-DSM LISTS, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
3. ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES
4. 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.

Barrie STANDARD DETAIL	GENERAL NOTES ROADWORKS	REV No. 1	DATE: OCT 2017 SCALE: N.T.S.	APPROVED DATE: Oct. 28/17. DIRECTOR OF ENGINEERING
		BSD-N2		

GENERAL NOTES – STORM SEWER

STORM SEWER

A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.

B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE.

C. 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.

D. 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.

E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.

F. 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.

G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A257.2-1982, 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.

H. STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.

I. 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.

J. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.

K. 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 FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED 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	4.	NOTE "K" – SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07	APR'D: R.G.N.	DATE: 92.05.15	
	3.	NOTE "I" & "C" – "DIRECTOR OF ENGINEERING"	B.R.	2002.10.28			
GENERAL NOTES STORM SEWERS	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	BSD-N5		
	NO.	REVISION	APR'D	DATE			

EROSION CONTROL NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. (IF SEEDING IS APPROPRIATE DURING CURRENT SEASON)
7. 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.
8. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
9. 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.
10. 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.
11. 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.

GRADING NOTES

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

WATER SERVICING NOTES, AS REQUIRED BY THE CITY OF BARRIE

GENERAL

1. ALL REQUIRED PERMITS SHALL BE IN PLACE PRIOR TO INSTALLATION OF WATERMAIN AND SERVICES.
2. A ROAD OCCUPANCY PERMIT IS REQUIRED, AND CAN BE OBTAINED AT THE OPERATION CENTRE.
3. MINIMUM COVER OVER WATER MAIN TO BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAIN AND SEWER TO BE 2.5m. WHERE WATER MAIN CONFLICTS WITH SEWER PIPE, 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.
4. ALL BENDS AND TEE'S SHALL BE RESTRAINED IN ADDITION TO THRUST BLOCKS.
5. ALL DOMESTIC AND FIRE WATER SERVICES WILL REQUIRE BACKFLOW PREVENTION AS PER CITY OF BARRIE BYLAW 2010-102.
6. SERVICES INSTALLED UNDER FLOORS SHALL BE FULLY RESTRAINED.
7. 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
8. 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/OWNERS. INFORMATION MAY BE OBTAINED FROM THE INSURANCE UNDERWRITER, CITY OF BARRIE PLANNING AND DEVELOPMENT AND THE CITY OF BARRIE FIRE DEPARTMENT.
9. ALL NEW CURB STOPS AND BOXES TO BE LOCATED OUT OF DRIVEWAYS AND SIDEWALKS.
10. COPPER WATER SERVICES 19mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW.
11. 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.
12. CONTRACTOR SHALL INFORM THE CITY OF BARRIE OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.
13. THE CITY WILL FLUSH THE NEW SERVICE AND CONTRACTOR WILL PERFORM PRESSURE TEST WITNESSED BY THE WATER FIELD COORDINATOR.
14. WATER WILL NOT BE AVAILABLE UNTIL SERVICES HAVE BEEN SAMPLED AND PASSES FOR BACTERIOLOGICAL COMPLIANCE, A CHECK VALVE SHALL BE INSTALLED FOR TEMPORARY WATER.
15. REFER TO DRAWING WM-1, FOR WATERMAIN TESTING AND DISINFECTION NOTES.
16. A FLAT RATE CONNECTION FEE ($2600.00) WILL BE REQUIRED FOR EACH OF THE 300mm WATER SERVICE CONNECTIONS.
17. AN ANNUAL CHARGE FOR EACH PRIVATE CONNECTION MADE TO THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
18. AN ANNUAL CHARGE FOR EACH PRIVATE FIRE HYDRANT SUPPLIED WITH WATER FROM THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
19. WATER SERVICES TO BE MECHANICALLY RESTRAINED. WATERMAIN TO BE MECHANICALLY RESTRAINED IN AREAS OF FILL.
20. FIRE FLOW REQUIREMENTS ARE OUTLINED IN THE INFOWATER MODELING BRIEF WATER SUPPLY SCHEME FOR BISTRO 6 WEST SITE (BLOCK 598) BY SCHAEFFERS CONSULTING ENGINEERS, DATED FEBRUARY 8, 2021. BUILDING DESIGN PARAMETERS RELATED TO FIRE FLOW REQUIREMENTS TO BE STRINGENTLY ADHERED TO.

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

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.

ENGINEERING NOTES

UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO THE WORKS.

1. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METERS, 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.
2. 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.
3. 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.
4. 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 UTILITY LOCATES PRIOR TO COMMENCING CONSTRUCTION.
5. ALL CORRUGATED STEEL PIPE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND AS PER O.P.S.D. 801.010. ALL CSP TO BE 2.0mm THICKNESS GAUGE.
6. CONTRACTOR SHALL INFORM THE SITE (PROJECT) MANAGER A MINIMUM 24 HOURS IN ADVANCE OF HIS INTENTION TO COMMENCE WORK. CONTRACTOR SHALL AT ALL TIMES, PROVIDE SUITABLE BARRICADES AND FLAGGING PROTECTION IN ACCORDANCE WITH THE MINISTRY OF LABOUR PRACTICES, AND OCCUPATIONAL HEALTH AND SAFETY ACT.
7. THESE NOTES ARE GENERAL IN NATURE; FOR SPECIFIC DETAILS REFER TO CITY OF BARRIE AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
8. SEWER PIPE MATERIAL (IF APPLICABLE): -POLYVINYL CHLORIDE PIPE SHALL CONFORM TO CSA-B-182.1 AND CSA-B-182.2 WITH BELL AND SPIGOT RUBBER GASKETED JOINTS COMPLYING WITH CSA-B182.2 AND CSA-B182.3. SANITARY PIPE SHALL BE SDR-35 AND ALL SANITARY SERVICE LATERALS TO BE SDR-28.
9. SEWER BEDDING WILL CONFORM TO O.P.S.D. 802.030 FOR RIGID PIPE INSTALLATION AND O.P.S.D. 802.010 FOR FLEXIBLE PIPE INSTALLATION. NATIVE MATERIAL USED FOR BACKFILL SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
10. ALL TRENCHES ARE TO BE BACKFILLED WITH NATIVE MATERIAL AND COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY OR AS PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. IN ADDITION, ALL STRUCTURES WITHIN TRAVELLED PORTION OF THE ROAD & PARKING AREAS SHALL HAVE NATIVE 4:1 FROST TAPERS FROM FROST LINE TO SUBGRADE.
11. MAINTENANCE HOLES:
   -STEPS SHALL BE ALUMINUM ALLOY O.P.S.D. 405.010 SOLID CIRCULAR ALUMINUM OR APPROVED EQUAL.
   -FRAMES AND COVERS SHALL BE DOMINION WHEEL FOUNDRIES DESIGN STD. 579 OR APPROVED EQUAL AND SELF LEVELLING FRAME AND GRATE/COVER SHALL BE USED FOR ALL NEW MAINTENANCE HOLES WITHIN ASPHALT ROADWAYS AS PER BSD-41 (OCTOBER 2017) O.P.S.D. 401.010 TYPE "A".
   -SANITARY MAINTENANCE HOLES ARE TO HAVE CORE AND SEAL GASKETS ON ALL PIPE CONNECTIONS. 1200 DIAMETER MAINTENANCE HOLES - O.P.S.D. 701.010
   -STORM MAINTENANCE HOLES TO BE 1200mm DIAMETER PER OPSD 701.010 UNLESS OTHERWISE NOTED. 1800mm DIAMETER MAINTENANCE HOLES - O.P.S.D. 701.012.
   -MAINTENANCE HOLE BENCHING SHALL EXTEND TO PIPE OBVERT AND SHALL BE IN ACCORDANCE WITH DETAILS SHOWN AS PER OPSD 701.021.
12.) TEMPORARY ACCESS ROAD MAKE-UP: (REFER TO GEOTECHNICAL INVESTIGATION REPORT)
   -70mm HL8 BINDER ASPHALT
   -150mm OPSS GRANULAR "A"
   -400mm OPSS GRANULAR "B"
   INTERNAL ROAD & PARKING MAKE-UP:
   -40mm HL3 BINDER ASPHALT
   -70mm HL8 BINDER ASPHALT
   -150mm OPSS GRANULAR "A"
   -450mm OPSS GRANULAR "B"
13.) BARRIER CURB TO COMPLY WITH OPSD 600.110.
14.) CATCHBASIN STRUCTURES LOCATED IN THE VICINITY OF THE SNOW STORAGE AREAS TO HAVE MIN. 900mm SUMP DEPTH PER OPSD 705.010 AND BE FITTED WITH CATCHBASIN SHIELDS OR APPROVED EQUIVALENT. DETAIL PROVIDED ON DWG. No. DET-3.

GENERAL NOTES – SANITARY SEWER

SANITARY SEWERS

A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.

B. 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.

C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.

D. 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.

E. 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).

F. 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 PLACE. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.

G. 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.

CITY OF BARRIE STANDARD	4.	NOTE "B" – "ENGINEERING"	B.R.	2002.10.28	APR'D: R.G.N.	DATE: 92.05.15	
	3.	NOTE "B" OPSD NUMBER REVISION	K.C.	2000.03.16			
GENERAL NOTES SANITARY SEWERS	2.	NOTE "I" 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	BSD-N3		
	NO.	REVISION	APR'D	DATE			

GENERAL NOTES

1. DRAWINGS

A. 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.

2. MEASUREMENTS

A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

C. 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.

D. 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.

E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.

F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.

G. GRANULAR MATERIAL , USED FOR BACKFILL , SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.

H. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.

I. 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	3.	3. NOTE; 3.E. REVISED & 3.I. ADDED	J.S.	05.01.10	APR'D: R.G.N.	DATE: 92.05.15	
	2.	3.D. – "ENGINEERING DEPARTMENT"	B.R.	02.10.28			
GENERAL NOTES	1.	3.E. TOPSOIL PERMIT		01.12.06	DRAWN: L.A.J.	SCALE: N.T.S.	
	NO.	REVISION	APR'D	DATE	BSD-N6		

GENERAL NOTES – SANITARY SEWER

SANITARY SERVICE LATERALS

A. SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CAPPED.

B. 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.

C. 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.

D. MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4m MEASURED FROM THE SEWER OBVERT TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.

E. 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.

F. MINIMUM PIPE SLOPE TO BE 2.0% MAXIMUM 8.0% (SEE OPSD-1006.010, 1006.020).

CITY OF BARRIE STANDARD					APR'D: R.G.N.	DATE: 92.05.15	
	2.	OPSD NUMBERS REVISED	K.C.	2000.08.17			
GENERAL NOTES SANITARY SEWERS	1.	CHANGES TO B. TO G.	K.C.	95.04.24	DRAWN: L.A.J.	SCALE: N.T.S.	
	NO.	REVISION	APR'D	DATE	BSD-N4		

GENERAL NOTES - WATERMAIN

1. CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM ON WATER INFRASTRUCTURE.

2. 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 WATER MAINS.

3. 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.

4. 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 OPSS.MUNI 1004.05.07 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).

5. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS.MUNI 1004.05.07.

6. 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.

7. NEW WATERMAINS TO BE PVC DR18 CL150 MINIMUM; DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.

8. 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.

9. 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.

10. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)

11. 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.

12. 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 SCALE: N.T.S.
		BSD-500	

APPROVED DATE: May 28/15. DIRECTOR OF ENGINEERING

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N491078.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N491610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N491087.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 04-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

GENERAL NOTES

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: N/A	DATE JANUARY 2021	
DRAWN KS	PROJECT PRA-19078	DWG. № N-1	
CHECKED DR			

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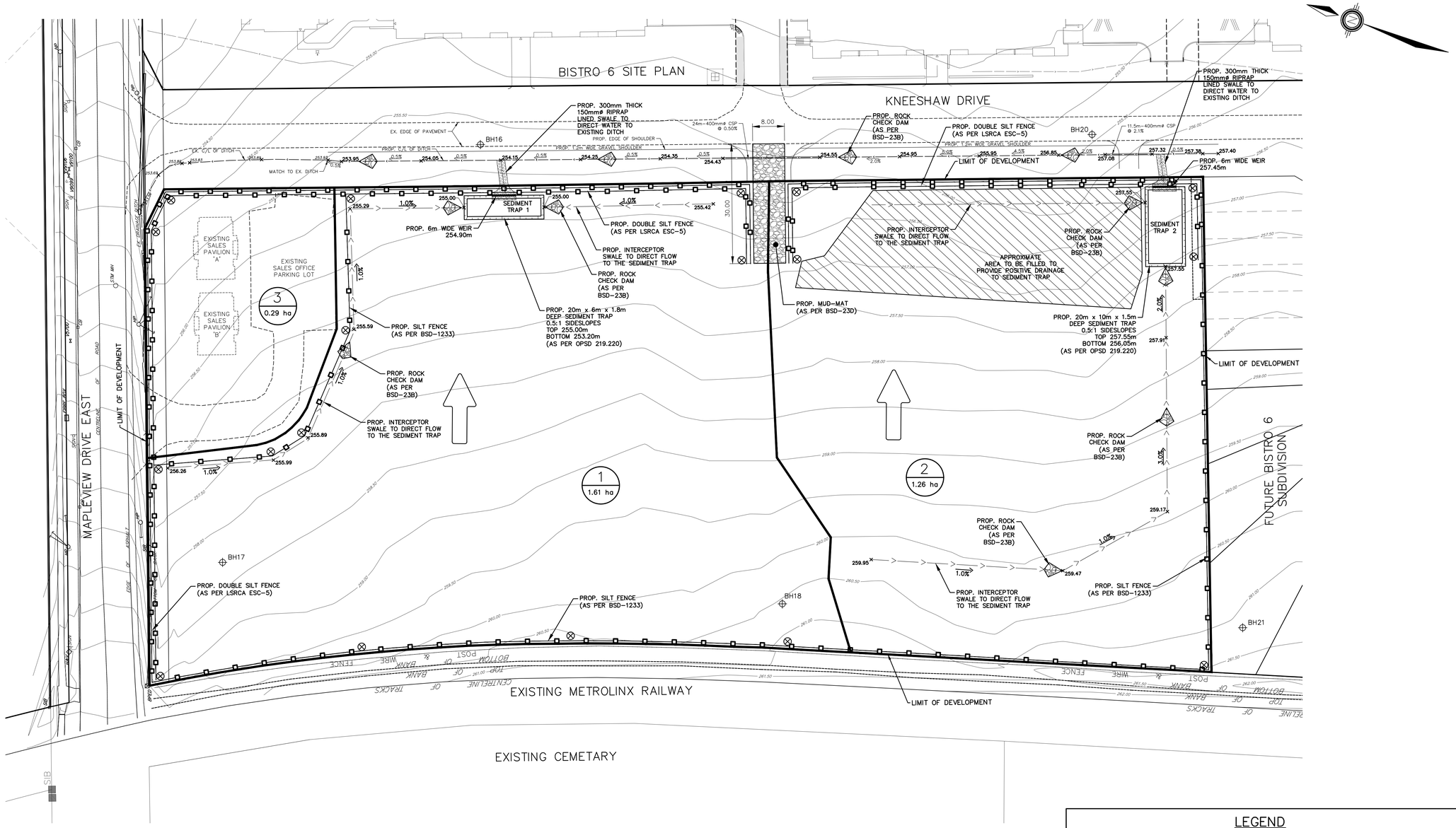

LEGEND

- 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

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101965454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N4900687O.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 09-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

EROSION AND SEDIMENT CONTROL PLAN

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 PRA-19078	DWG. № ESC-1	
CHECKED DR			

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GENERAL NOTES

1. DRAWINGS

A. 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.

2. MEASUREMENTS

A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

C. 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.

D. 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.

E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.

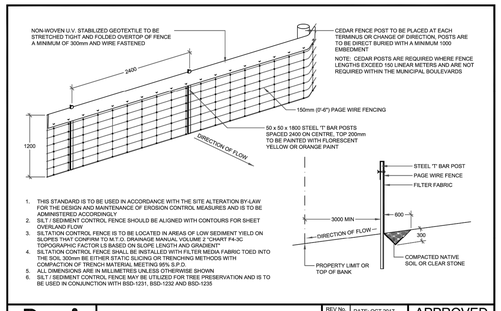
F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.

G. GRANULAR MATERIAL , USED FOR BACKFILL , SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.

H. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.

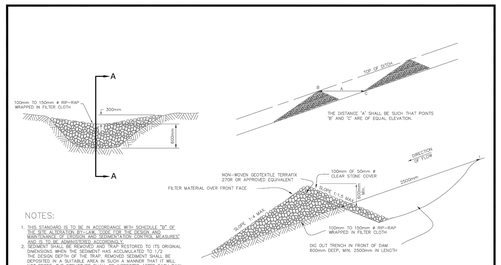
I. ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.

CITY OF BARRIE STANDARD					
GENERAL NOTES	3.	3. NOTE: 3.E. REVISED & 3.I. ADDED	J.S.	05.01.10	APR'D: R.G.N. DATE: 92.05.15
	2.	3.D. – "ENGINEERING DEPARTMENT"	B.R.	02.10.28	DRAWN: L.A.J. SCALE: N.T.S.
	1.	3.E. TOPSOIL PERMIT		01.12.06	
	NO.	REVISION	APR'D	DATE	BSD-N6



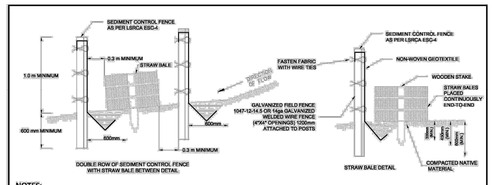
1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY.
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% S.P.D.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH BSD-122, BSD-132 AND BSD-1238

Barrie STANDARD DETAIL	SILTATION CONTROL FENCING	REV No. 2	DATE: OCT 2017 SCALE: N.T.S.	APPROVED Oct 10/17 DATE Original Signed By DIRECTOR OF ENGINEERING
		BSD-1233 FORMERLY BSD-23A		



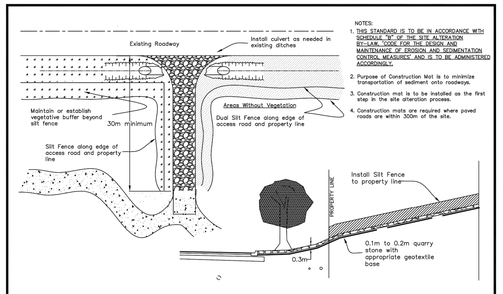
NOTES:
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, "CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES" AND IS TO BE ADMINISTERED ACCORDINGLY.
2. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DEPTH OF THE TRAP. THE REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT IT WILL NOT ERODE. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NECESSARY. MAINTENANCE AND REPAIRS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

CITY OF BARRIE STANDARD					
TYPICAL GRANULAR EROSION CONTROL DEVICE	2	MODIFICATIONS BY ENV. SER.		2004.04.06	APR'D: R.G.N. DATE: 04.03.16
	1	TRENCH ADDED AND FABRIC EXTENDED INTO IT	B.R.	2003.02.14	DRAWN: L.A.J. SCALE: N.T.S.
	NO.	REVISION	APR'D	DATE	BSD-23B



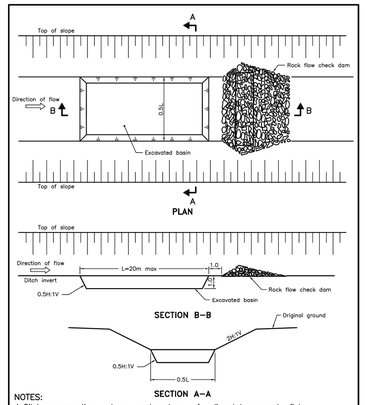
NOTES:
1. SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT.
3. SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TIED INTO THE SOIL A MINIMUM OF 300 mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. STEEL "T" BAR POSTS ARE TO BE SPACED A MAXIMUM DISTANCE OF 2000 mm ON CENTER.
5. STRAW BALES TO BE PLACED END-TO-END CONTINUOUSLY BETWEEN SEDIMENT CONTROL FENCES.
6. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
7. GEOTEXTILE FABRIC TO BE COMPRISED OF NON-WOVEN U.V. STABILIZED MATERIAL FABRIC TO BE FOLDED OVER TOP OF FENCE A MINIMUM OF 300 mm AND WIRE FASTENED.
8. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE			
1	SWM GUIDELINES UPDATE	06.2016	DOUBLE ROW SEDIMENT CONTROL FENCE	DATE: 06.2016 SCALE: NTS	LSRCA ESC-5



NOTES:
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, "CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES" AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. Construction mat is to be installed as the first step in the site alteration process.
4. Construction mats are required where paved roads are within 30m of the site.

CITY OF BARRIE STANDARD					
CONSTRUCTION ENTRANCE MAT	1.	Standardized Dimension Text	J.S.	05.10.28	APR'D: R.G.N. DATE: 04.03.16
					DRAWN: A.S.C SCALE: N.T.S
	NO.	REVISION	APR'D	DATE	BSD-23D



NOTES:
A Ditch cross-section upstream or downstream of sediment trap may be flat bottom or V-shaped. Flat bottom shown.
B This OPSD shall be read in conjuction with OPSD 219.210 or 219.211.
C All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
SEDIMENT TRAP IN DITCH	OPSD 219.220	

NOTE:
PROPOSED SEDIMENT TRAPS HAVE BEEN SIZED FOR 125M3/ha OF CONTRIBUTING AREA IN ACCORDANCE WITH THE GREATER GOLDEN HORSESHOE AREA CONSERVATION AUTHORITIES EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN CONSTRUCTION

EROSION CONTROL NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
10. 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.
11. 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.
12. 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:

1. CONSTRUCT ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE, TREE PRESERVATION FENCE, MUD MATS, CHECK DAMS, SWALES/BERMS, ETC.
2. CONSTRUCT TEMPORARY SEDIMENT TRAPS. STRIPPING AND REMOVAL OF TOPSOIL. TOPSOIL TO BE REMOVED FROM SITE.
3. 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 HYDROSEEDED AT THE DIRECTION OF THE ENGINEER. HYDROSEED WITH FIBRETAC AT 100KG/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.
4. PROCEED WITH SITE WORKS I.E. SITE SERVICING AND SURFACE WORKS INSTALLATIONS.
5. REMOVE TEMPORARY SEDIMENT TRAPS. CONSTRUCT RETAINING WALLS AND LID MEASURES AT EAST PROPERTY LIMIT.
6. RESTORATION OF DISTURBED AREAS.
7. 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	
	SEDIMENT TRAP 1	SEDIMENT TRAP 2
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	$216m^3$	$300m^3$
CATCHMENT AREA	1.61 Ha	1.26 Ha
REQUIRED STORAGE VOLUME BASED ON $125m^3$ OF DRAINAGE AREA TO POND	$201.25m^3$	$157.50m^3$

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FUJS 100149133 04-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

EROSION AND SEDIMENT CONTROL DETAILS

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: N/A	DATE FEB. 2021
DRAWN KS	PROJECT PRA-19078	DWG. № ESC-2
CHECKED DR		

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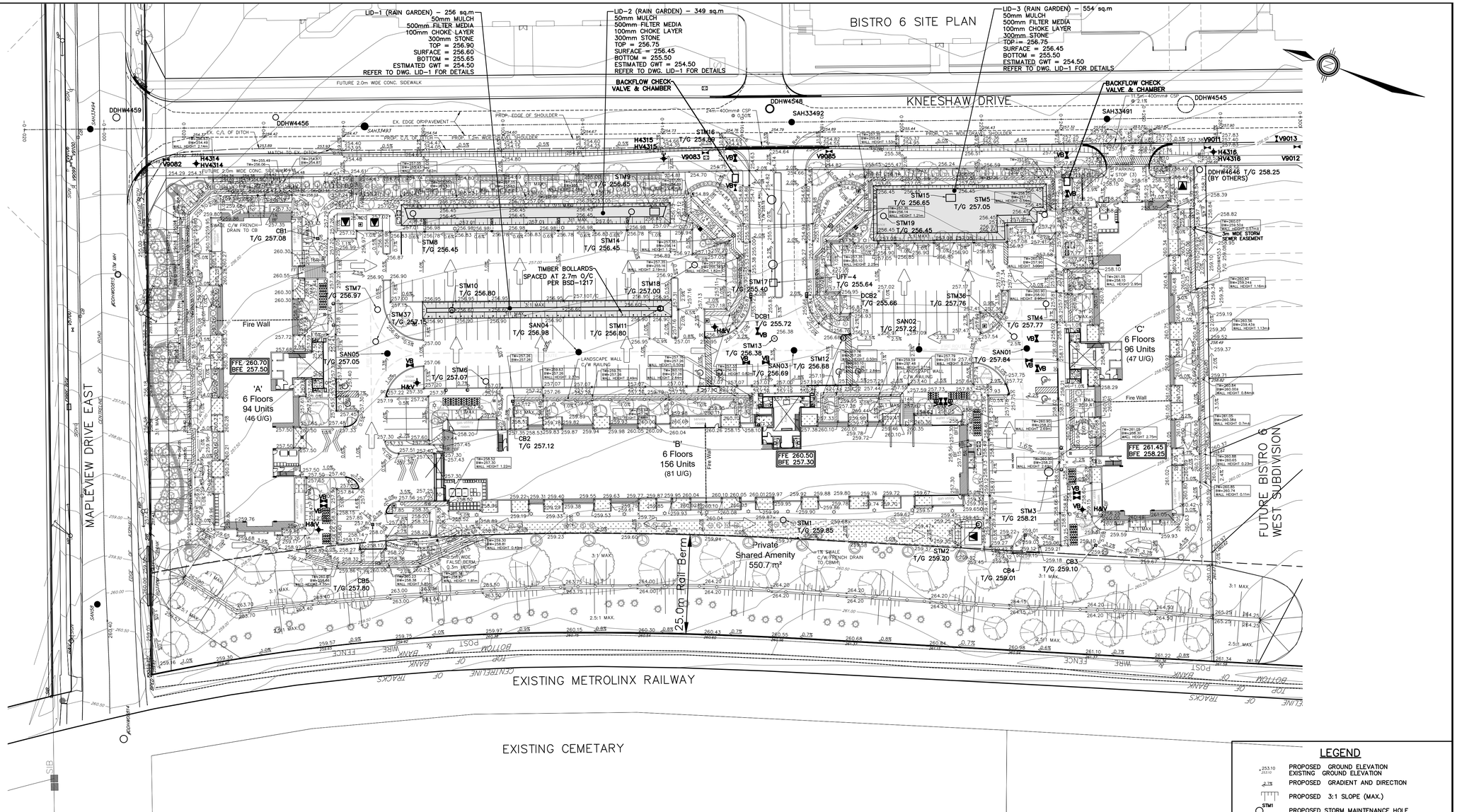

LEGEND

- PROPOSED GROUND ELEVATION / EXISTING GROUND ELEVATION
- PROPOSED GRADIENT AND DIRECTION
- PROPOSED 3:1 SLOPE (MAX.)
- STM1 — PROPOSED STORM MAINTENANCE HOLE
- CBMH7 — PROPOSED CATCHBASIN MAINTENANCE HOLE
- CB2 — PROPOSED CATCHBASIN
- DCB1 — 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
- PROPOSED EMERGENCY OVERLAND FLOW ROUTE

NOT FOR CONSTRUCTION

BENCHMARK:

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BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER
M. G. FLIS
100149153
04-02-2021
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

SITE GRADING PLAN
WITH EXISTING 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-1	
CHECKED DR			

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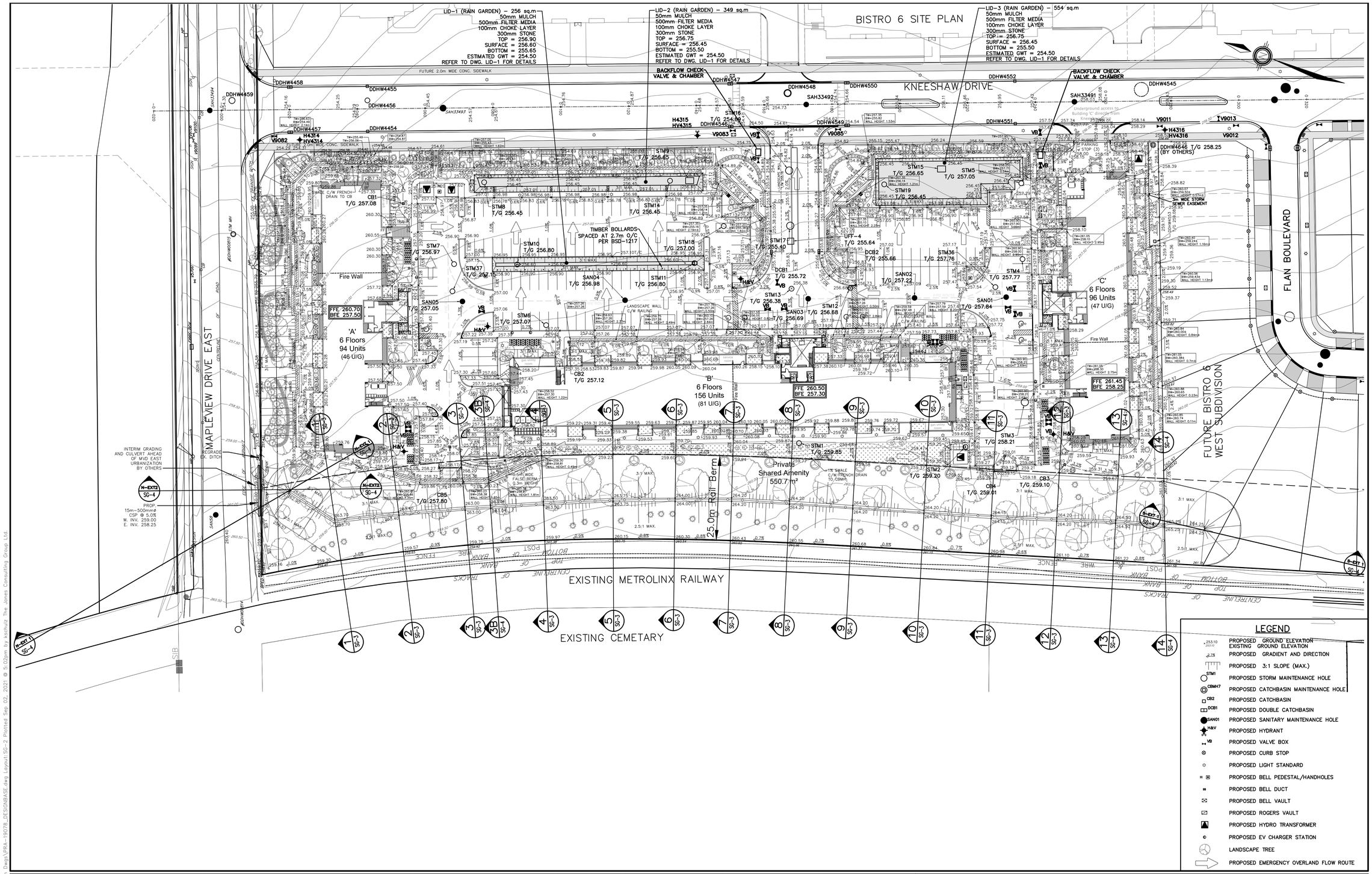

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101965454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 0312030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910578.122 E607601.062 ELEV 248.996

BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.00km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 04-02-2021 PROVINCE OF ONTARIO

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. № SG-2
CHECKED DR		

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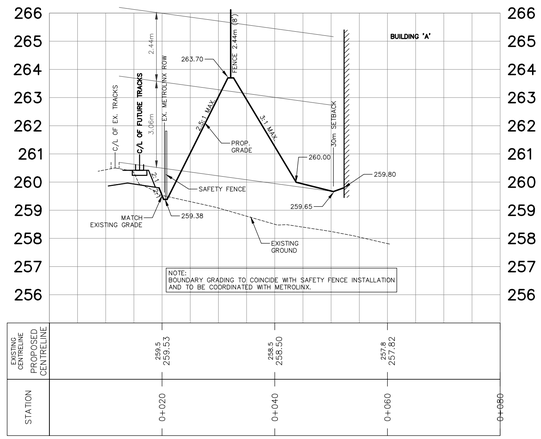
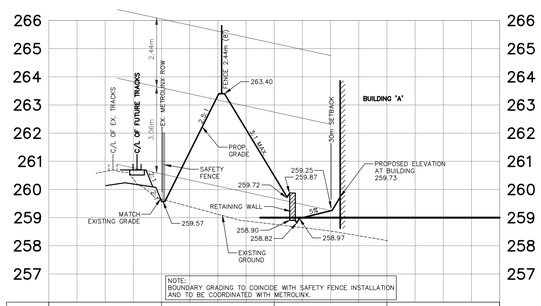
BERM XS 1



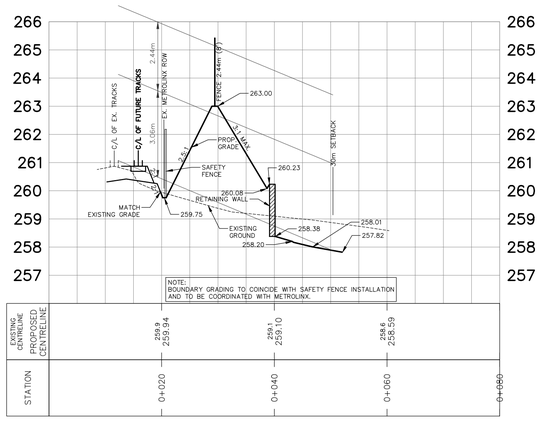
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	259.5	258.5	257.8	
PROPOSED CENTRELINE	259.53	258.50	257.82	

BERM XS 2



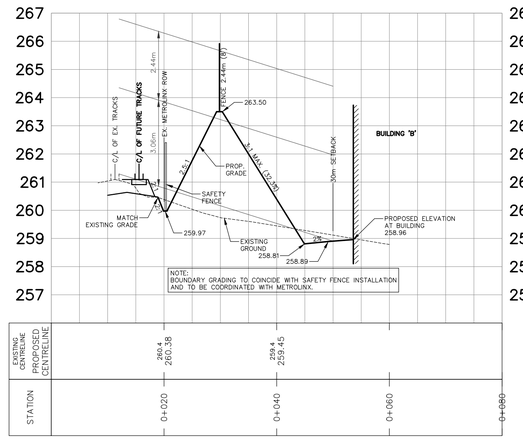
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	259.7	258.8	258.2	
PROPOSED CENTRELINE	259.66	258.76	258.19	

BERM XS 3



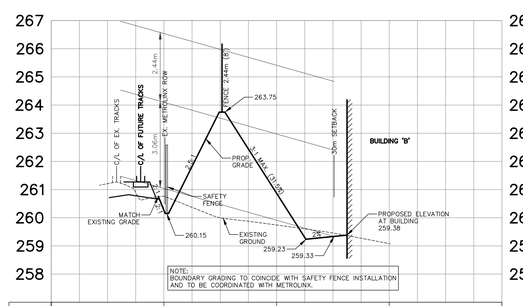
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	259.9	259.1	258.6	
PROPOSED CENTRELINE	259.94	259.10	258.59	

BERM XS 4



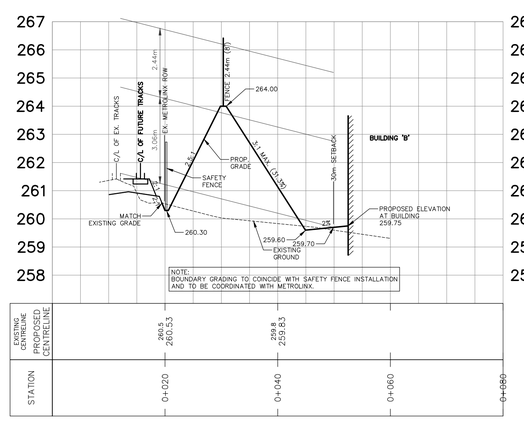
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	260.4	259.4		
PROPOSED CENTRELINE	260.38	259.45		

BERM XS 5



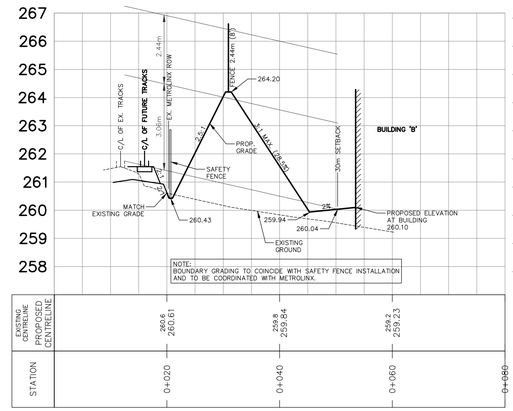
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	260.8	259.7	259.1	
PROPOSED CENTRELINE	260.77	259.74	259.08	

BERM XS 6



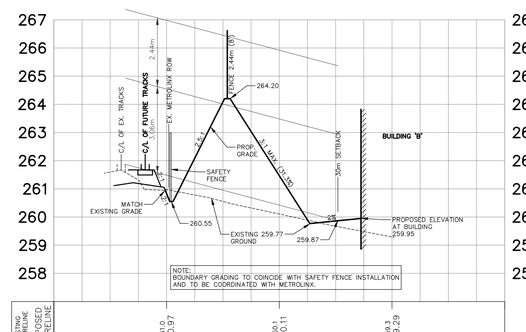
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	260.5	259.8		
PROPOSED CENTRELINE	260.53	259.83		

BERM XS 7



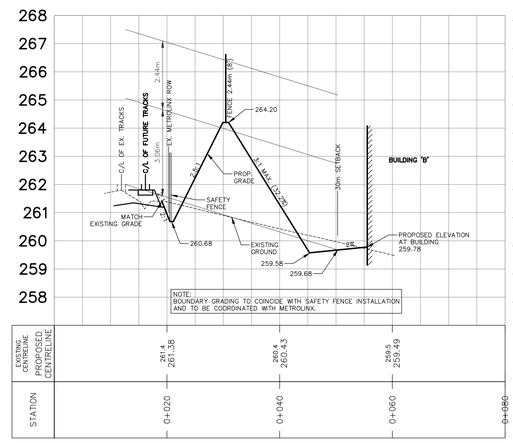
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	260.6	259.8	259.2	
PROPOSED CENTRELINE	260.61	259.84	259.23	

BERM XS 8



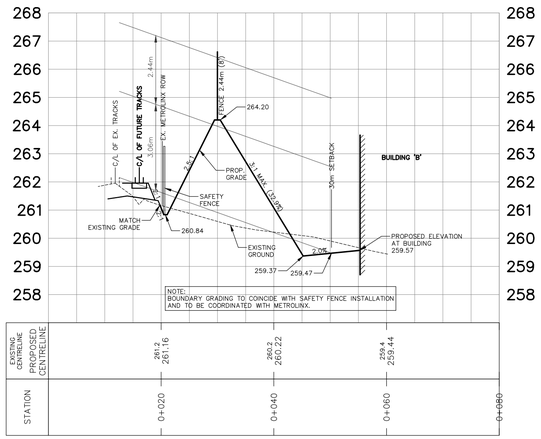
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	261.0	260.1	259.3	
PROPOSED CENTRELINE	260.97	260.11	259.29	

BERM XS 9



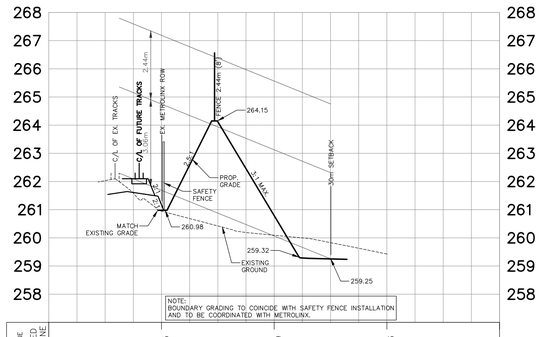
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	261.4	260.4	259.5	
PROPOSED CENTRELINE	261.38	260.43	259.49	

BERM XS 10



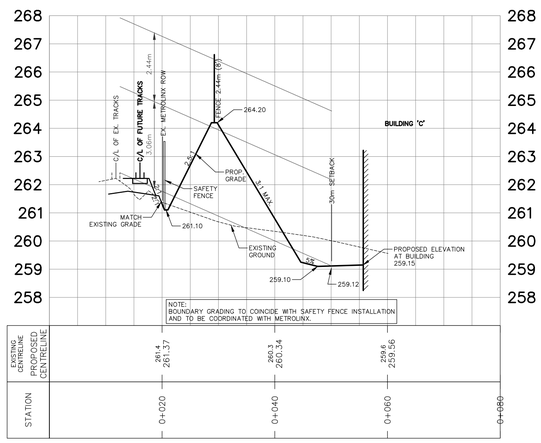
STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	261.2	260.2	259.4	
PROPOSED CENTRELINE	261.16	260.22	259.44	

BERM XS 11



STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	260.9	260.1	259.4	
PROPOSED CENTRELINE	260.95	260.09	259.43	

BERM XS 12



STATION	0+020	0+040	0+060	0+080
EXISTING CENTRELINE	261.4	260.3	259.6	
PROPOSED CENTRELINE	261.37	260.34	259.56	

NOT FOR CONSTRUCTION

BENCHMARK:

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

LICENSED PROFESSIONAL ENGINEER
M. G. FLIS
100149153
04-02-2021
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

RAILWAY BERM SECTIONS

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PLANNERS & ENGINEERS
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DESIGN MF	SCALE: H.1:500 V.1:100	DATE JANUARY 2021	
DRAWN KS	PROJECT PRA-19078	DWG. № SG-3	
CHECKED DR			

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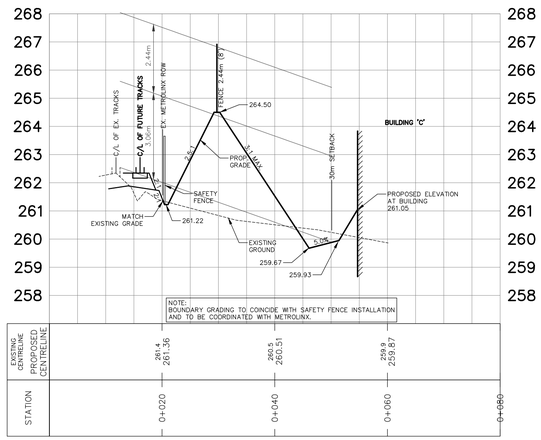
BERM XS 13



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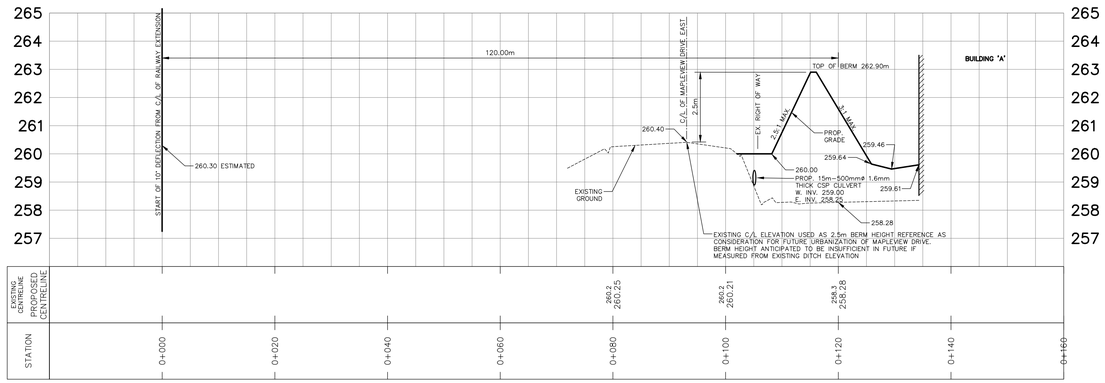

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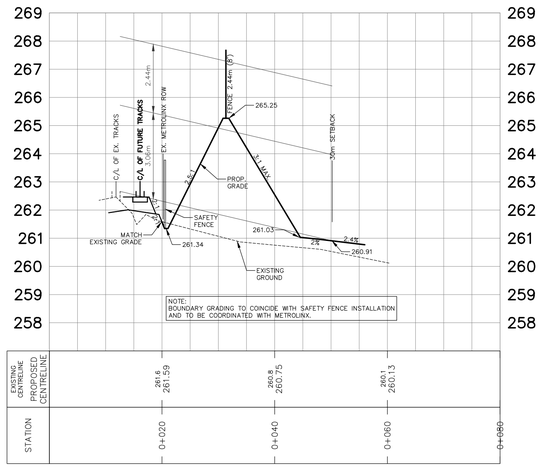

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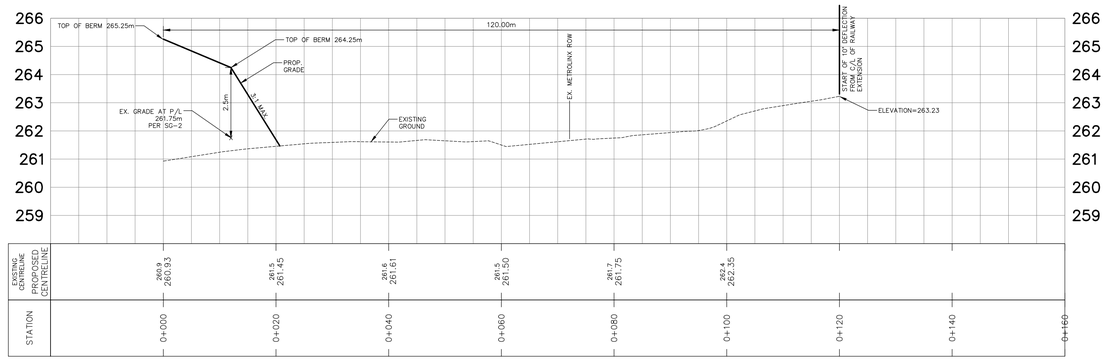

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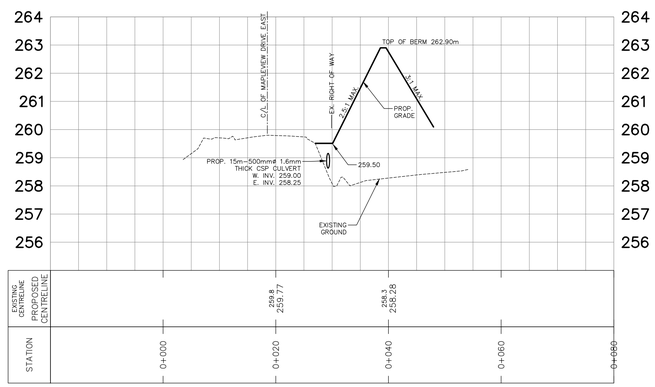
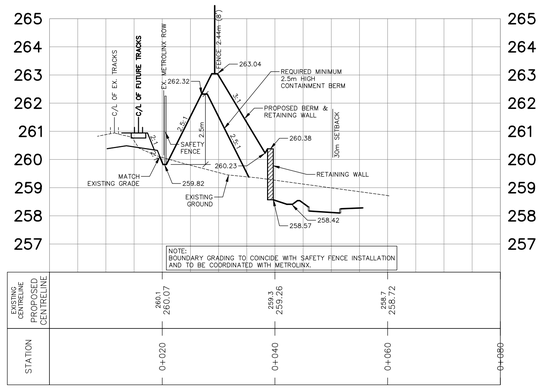


BERM XS 3B



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2	ISSUED FOR METROLINX REVIEW	21–06–14	DR
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. PLIS 100149153 09-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

RAILWAY BERM SECTIONS

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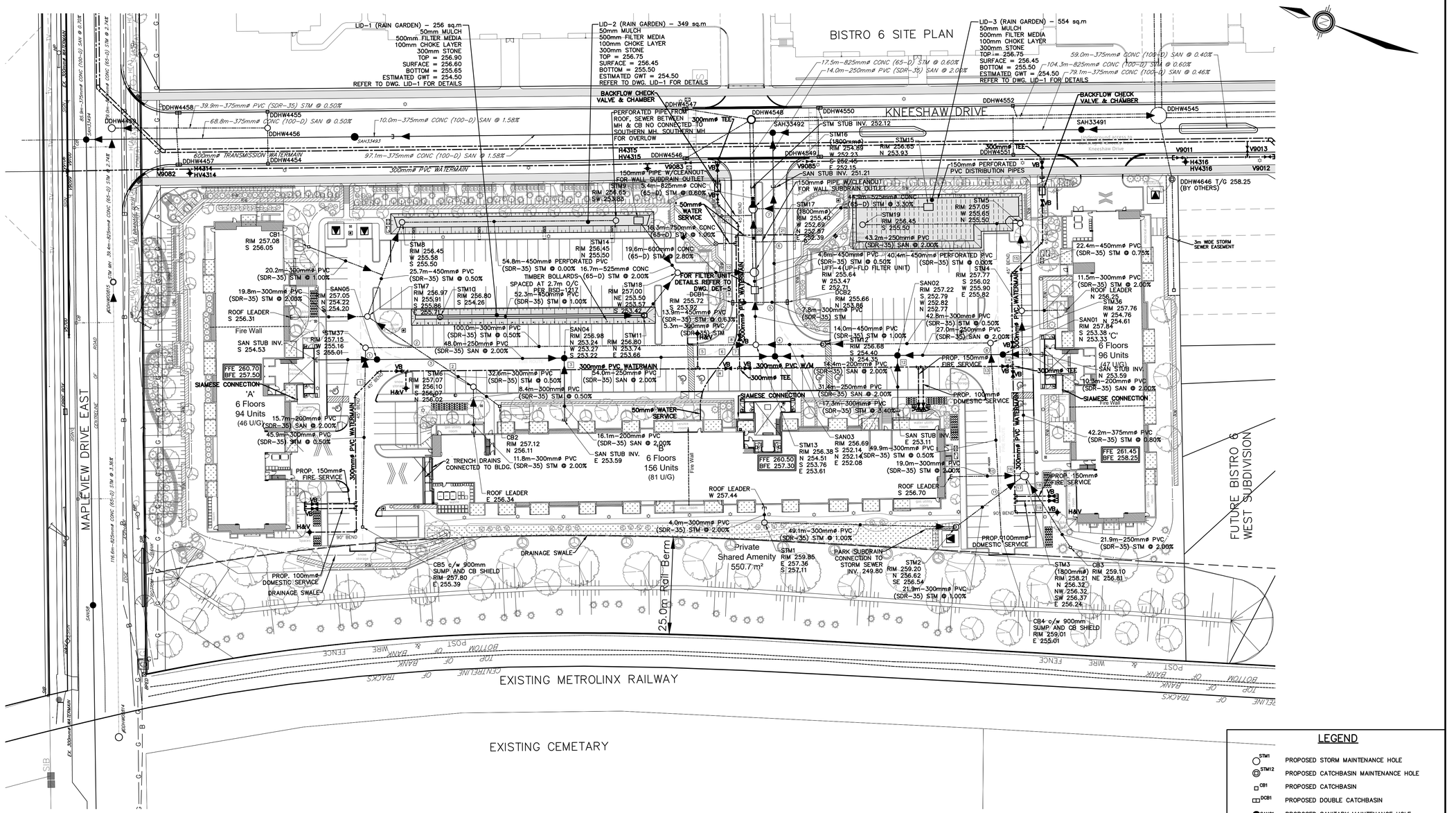
DESIGN MF	SCALE: H.1:500 V.1:100	DATE JANUARY 2021	
DRAWN KS	PROJECT PRA–19078	DWG. № SG–4	
CHECKED DR			

C:\Eng_10\PRA-19078\Design Dwgs\PRA-19078_DESIGNBASE.dwg Layout:SG-4 Plotted Sep 02, 2021 @ 5:30pm by kschulz The Jones Consulting Group Ltd.



NOTE

REFER TO PIPE INTERFERENCE TABLES ON DWG. SS-2

4 STORM AND SANITARY PIPE CLEARANCE LABEL

12 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

STM1	PROPOSED STORM MAINTENANCE HOLE
STM12	PROPOSED CATCHBASIN MAINTENANCE HOLE
CB1	PROPOSED CATCHBASIN
DCB1	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

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER
M. G. RJS
100143153
09-02-2021
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

SITE SERVICING PLAN

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
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DESIGN MF	SCALE: 1:500	DATE JANUARY 2021	
DRAWN KS	PROJECT PRA-19078	DWG. № SS-1	
CHECKED DR			

G:\Eng_3D\PRA-19078\Design Dwgs\PRA-19078_DESIGNBASE.dwg Layout:SS-1 Plotted Sep 02, 2021 @ 5:32pm by kschulz The Jones Consulting Group Ltd.

Elements Condominium
100yr Storm Sewer Design Sheet

CLIENT: Pratt Hansen Group Inc.
PROJECT: Elements Condominium Site Plan
FILE: PRA-19078 (50)

DATE: August 2021
DESIGN: MG
CHECKED: MF

100 Year Storm Sewer Design Sheet

AREAS	MANHOLE FROM	MANHOLE TO	LENGTH (m)	INCREMENT C	INCREMENT A	INCREMENT CA	TOTAL CA	FLOW TIME (min) TO	FLOW TIME (min) IN	I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
Storm water directed to LID-1																
401				0.98	0.26	0.25	0.25									
	STM10	STM11	52.3			0.00	0.25	10.00	0.49	180	0.125	1.00	450	0.285	1.8	**43.9**
	STM11*	STM18	13.9			0.00	0.25	10.49	0.16	176	0.1245	0.63	450	0.226	1.4	**55.0**
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	0.046	2.00	300	0.137	1.9	**34.0**
	STM6	STM7	32.6			0.00	0.11	10.14	0.56	179	0.053	0.50	300	0.068	1.0	**77.5**
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	0.141	0.50	450	0.202	1.3	**69.9**
406	STM9**	STM18	16.7	0.93	0.32	0.30	0.93	11.04	0.10	171	0.4415	2.00	525	0.608	2.8	**72.6**
Storm Water Directed to LID-3																
407	STUB	STM1	4.0	1.00	0.10	0.10	0.10	10.00	0.03	180	0.048	2.00	300	0.137	1.9	**34.9**
	STM1	STM2	49.1			0.00	0.10	10.03	0.60	180	0.048	1.00	300	0.097	1.4	**49.3**
408	STM2	STM3	21.9	0.34	0.16	0.06	0.15	10.63	0.27	175	0.073	1.00	300	0.097	1.4	**75.6**
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	STM3	21.9	0.22	0.10	0.02	0.02	10.00	0.21	180	0.011	2.00	250	0.084	1.7	**13.0**
	STM3	STM4	42.2			0.00	0.26	10.90	0.50	172	0.123	0.80	375	0.157	1.4	**78.2**
411	STUB	STM4	11.5	1.00	0.17	0.17	0.17	10.00	0.10	180	0.085	2.00	300	0.137	1.9	**62.2**
	STM4	STM5	22.4			0.00	0.43	11.39	0.24	169	0.200	0.75	450	0.247	1.6	**80.8**
412	STM15***	STM16	44.9	0.87	0.41	0.35	0.99	11.64	0.21	167	0.4588	3.30	525	0.781	3.6	**58.7**
Storm Water Directed to 100 Year Trunk Storm Sewer																
	UFF-4	STM17	4.6			0.00	0.23	12.64	0.06	160	0.104	0.50	450	0.202	1.3	**51.4**
	STM18****	STM17	19.6			0.00	1.18	11.14	0.09	171	0.560	2.80	600	1.027	3.6	**54.5**
	STM17****	STM16	16.3			0.00	1.42	12.70	0.11	159	0.626	1.00	750	1.113	2.5	**56.2**
	STM16****	DDHW4548	22.9			0.00	2.41	12.81	0.18	158	1.059	0.60	825	1.112	2.1	**95.3**

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 6hr SCS LID PCSWMM model for LID-1. Qp = 0.1245 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 = 0.4415 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 = 0.4588 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/(T.C. + 5.273)^0.759; A=AREA (ha)

Elements Condominium
5yr Storm Sewer Design Sheet

CLIENT: Pratt Hansen Group Inc.
PROJECT: Elements Condominium Site Plan
FILE: PRA-19078 (50)

DATE: August 2021
DESIGN: MG
CHECKED: MF

5 Year Storm Sewer Design Sheet

AREAS	MANHOLE FROM	MANHOLE TO	LENGTH (m)	INCREMENT C	INCREMENT A	INCREMENT CA	TOTAL CA	FLOW TIME (min) TO	FLOW TIME (min) IN	I (mm/h)	TOTAL Q (cms)	S (%)	D (mm)	Q FULL (cms)	V FULL (m/s)	% FULL
Storm water directed to UFF-4 bypassing all LIDs																
501	CB5	STM37	45.9	0.30	0.29	0.09	0.09	10.00	0.79	109	0.026	0.50	300	0.068	1.0	**38.7**
	STM37	STM13	100.0			0.00	0.09	10.79	1.72	105	0.025	0.50	300	0.068	1.0	**37.2**
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	**4.0**
	STM36	STM12	42.8			0.00	0.01	10.86	0.74	104	0.003	0.50	300	0.068	1.0	**3.8**
503	STM12	STM13	17.3	0.78	0.05	0.04	0.05	11.60	0.11	101	0.014	3.40	300	0.178	2.5	**8.1**
504	STM13	UFF-4	14.0	0.86	0.11	0.09	0.23	12.51	0.13	97	0.063	1.00	450	0.285	1.8	**22.0**
	UFF-4	STM17	4.6			0.00	0.23	12.64	0.06	96	0.062	0.50	450	0.202	1.3	**30.9**

Q= 0.0028*C*I*A (cms); C=RUNOFF COEFFICIENT; I-RAINFALL INTENSITY (5 Year) =853.608/(T.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 — Numbers in blue or text in red are equations
M = 5/P^0.2 Babbit
M=1+[14/(4+P^0.5)] Harmon — (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.
Q_p = P*q*M/86.4 — (Peak population flow where; q = 225 L/day/person; P = population in thousands) — 225 litres/person/day
Q_i = I*A — (Peak extraneous flow: I= 0.1L/s/ha over development area)
$Q_{tot} = Q_p + Q_i$ — (Total peak flow as the sum of peak population flow and peak extraneous flow)

STREET / AREA	MAINTENANCE HOLE FROM	MAINTENANCE HOLE TO	DWELL UNITS	DWELL (ACC) UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR BABBIT	M PEAKING FACTOR HARMON	Max PEAKING FACTOR	Q_p (l/s)	AREA (ha)	AREA (ACC) (ha)	Q_i (l/s)	Q_{tot} (l/s)	L (m)	D (mm)	S (%)	Qf FULL (l/s)	d/D(3)	d/D(3) >0.5 or >0.7	Velocity FULL (m/s)	Velocity Partial(1) (m/s)	Velocity(4) > 0.6 (m/s)
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	10.3	200	2.00%	46.384	0.173	Ok	1.476	0.829	Ok
Area 2	SAN01	SAN02	0	96	0	0	160	7.211	4.182	7.211	3.010	0.16	0.33	0.033	3.044	27.0	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	0	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	0	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	0.16	0.16	0.016	2.565	16.1	200	2.00%	46.384	0.159	Ok	1.476	0.791	Ok
Area 8	SAN04	SAN03	0	172	0	0	287	6.417	4.086	6.417	4.800	0.09	0.58	0.058	4.858	54.0	250	2.00%	84.100	0.163	Ok	1.713	0.928	Ok
Area 9	SAN03	SAH33492	0	346	0	0	578	5.580	3.941	5.580	8.396	0.13	1.27	0.127	8.523	57.2	250	2.00%	84.100	0.215	Ok	1.713	1.094	Ok

DATE: August 10th, 2021 — CALCULATED BY: MG — CHECKED BY: MF

* For sizing of the 375mmø 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 1	Clearance
1	WM Top 254.71	STM Bottom 255.21	0.50m
2	WM Top 255.48	STM Bottom 255.98	0.50m
3	WM Bottom 254.02	SAN Top 253.52	0.50m
4	50mmø WM Bottom 255.00	300mmø 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 254.13	SAN Top 253.63	0.50m
15	WM Top 255.22	STM Bottom 255.72	0.50m
16	WM Top 255.87	STM Bottom 256.37	0.50m
17	WM Top 255.85	STM Bottom 256.35	0.50m
18	WM Top 256.01	STM Bottom 256.51	0.50m
19	WM Top 256.09	STM Bottom 256.59	0.50m
20	WM Top 251.80	STM Bottom 252.30	0.50m
21	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
8	STM Bottom 254.78	SAN Top 253.52	1.26m
9	STM Bottom 255.99	SAN Top 253.68	2.31m
10	STM Bottom 256.40	STM Top 255.25	1.15m
11	STM Top 255.26	STM Bottom 256.40	1.14m

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 04-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

SEWER DESIGN SHEETS
AND
PIPE CLEARANCE TABLE

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
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Barrie, ON L4N 0W5
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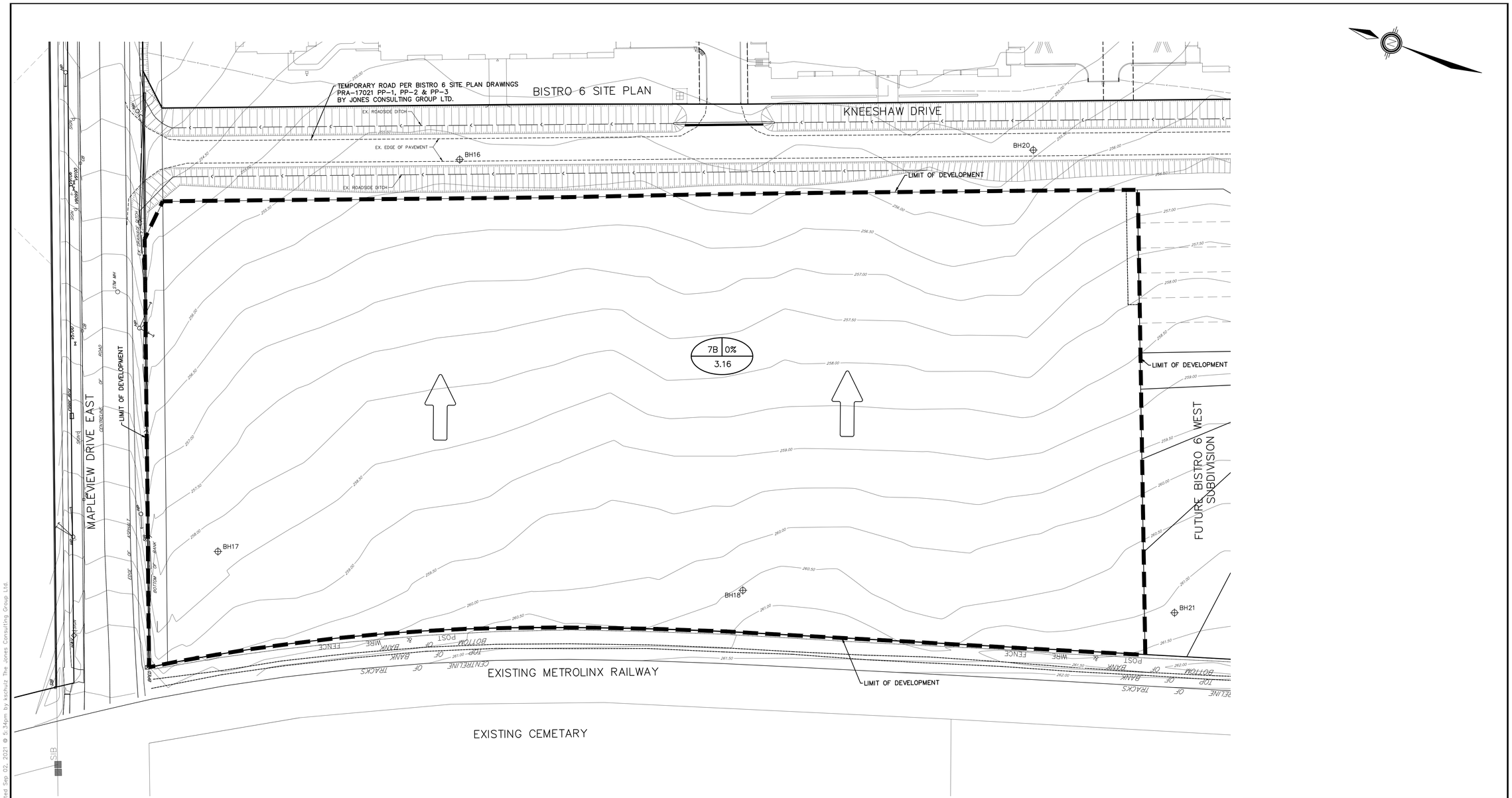
F. 705.734.1056

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

G:\Eng_3D\PRA-19078\Design Data\PRA-19078_DESIGNBASE.dwg Layout:SS-2 Plotted Sep 02, 2021 @ 5:32pm by kschulz The Jones Consulting Group Ltd.



LEGEND

- STORM CATCHMENT AREA
- BH21 — EX. BORE HOLE
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA ID NUMBER — 7a
- IMPERVIOUS % — 70%
- AREA IN HECTARES (ha) — 6.81

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101965454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 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 SOUTHEAST CORNER OF THE MAIN ENTRANCE TO SCHOOL AND TABLET IS ON THE SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N4900987.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER
M. G. RUS
100149153
04-02-2021
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

STORMWATER MANAGEMENT PLAN
PRE-DEVELOPMENT CONDITIONS

JONES CONSULTING GROUP LTD.
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DESIGN	MF	SCALE: 1:500	DATE FEB. 2021
DRAWN	KS	PROJECT PRA-19078	DWG. № SWM-1
CHECKED	DR		

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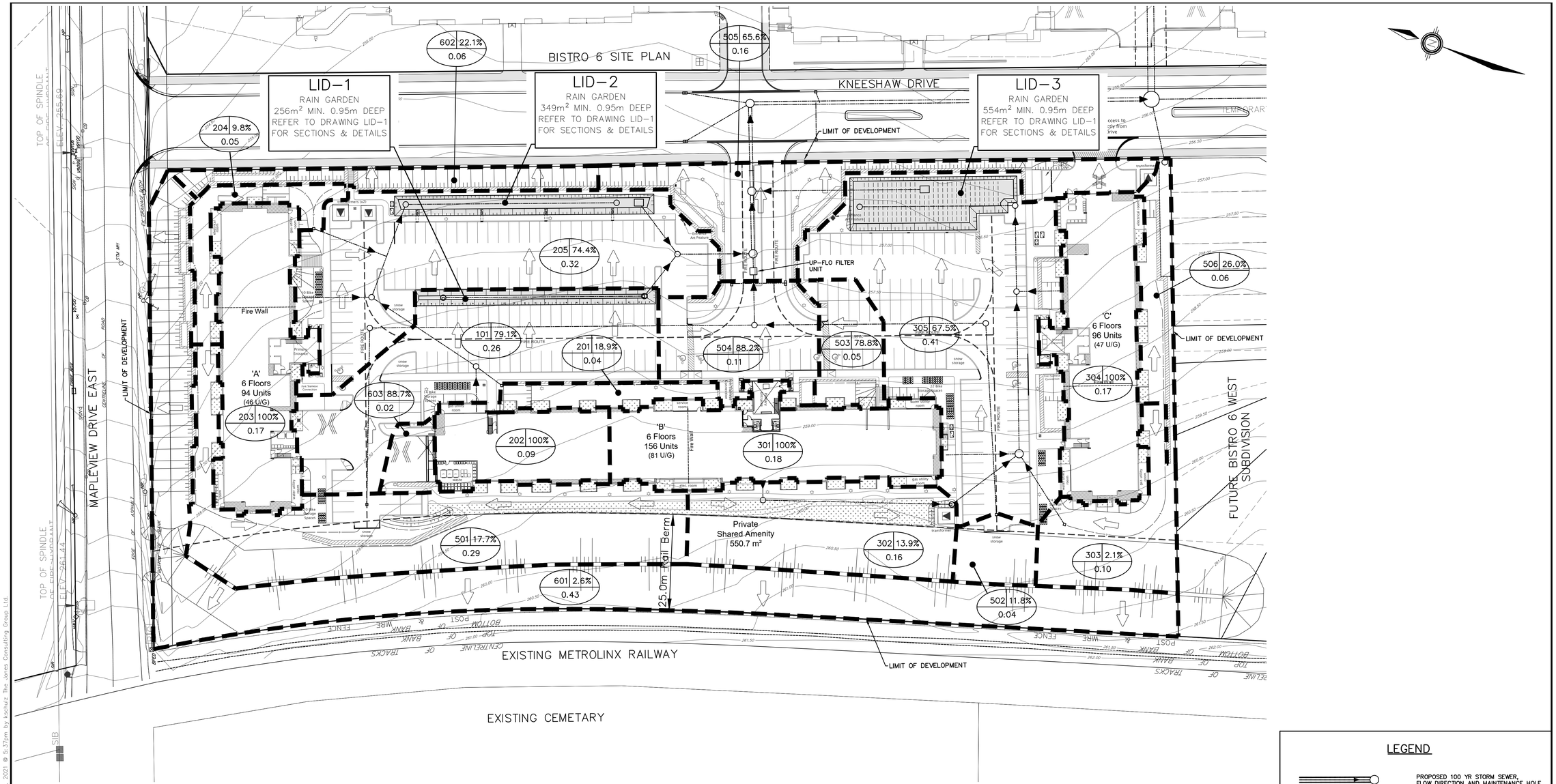

LEGEND

- PROPOSED 100 YR STORM SEWER, FLOW DIRECTION AND MAINTENANCE HOLE
- PROPOSED INTERNAL LOCAL STORM SEWER, FLOW DIRECTION AND MAINTENANCE HOLE
- CB — PROPOSED CATCH BASIN
- DCB — PROPOSED DOUBLE CATCH BASIN
- PROPOSED LID FOOTPRINT
- PROPOSED SWALE/DITCH
- STORM CATCHMENT AREA
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA ID NUMBER — 401 | 70% — IMPERVIOUS %; 0.25 — AREA (ha)

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	NO LID

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 0312011013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149133 09-02-2021 PROVINCE OF ONTARIO

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
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

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

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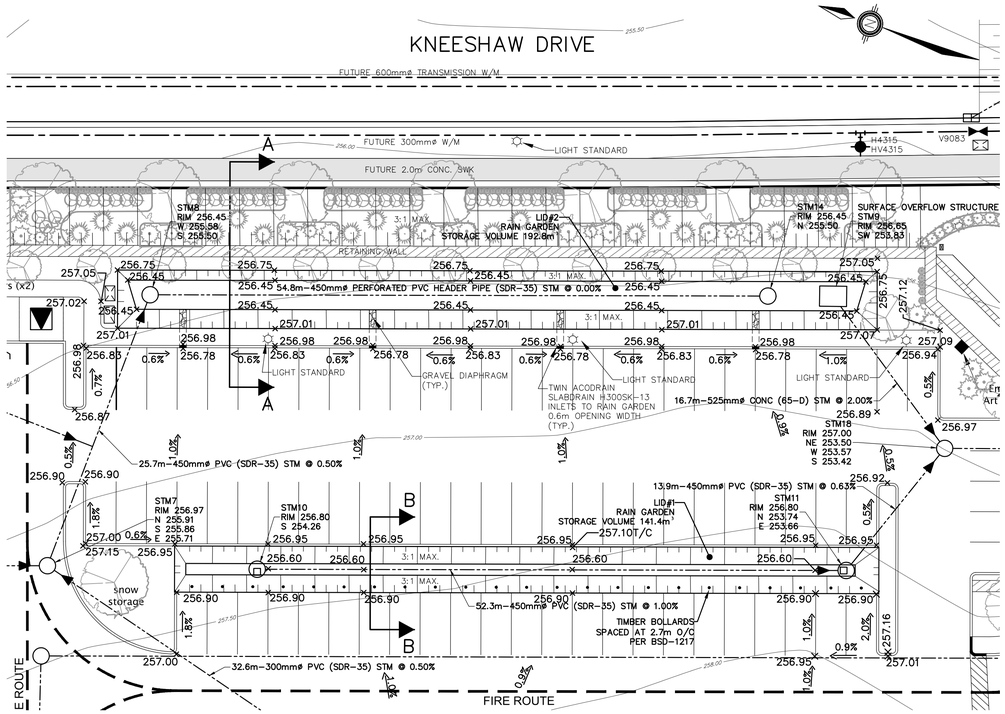
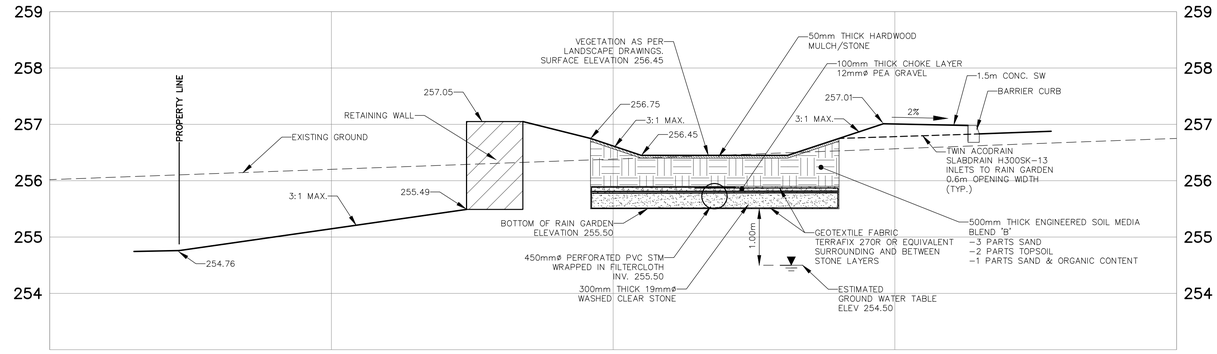


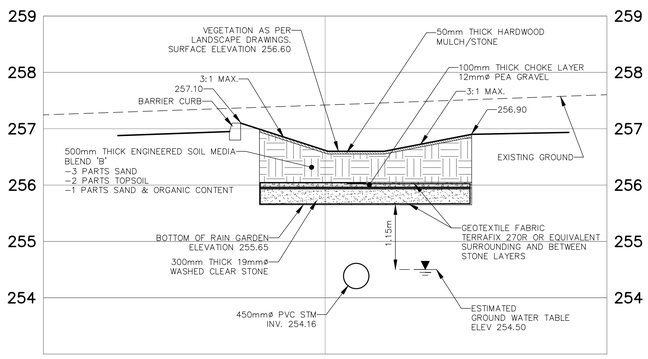
LID#1 & LID#2 RAIN GARDENS PLAN VIEW

1:250



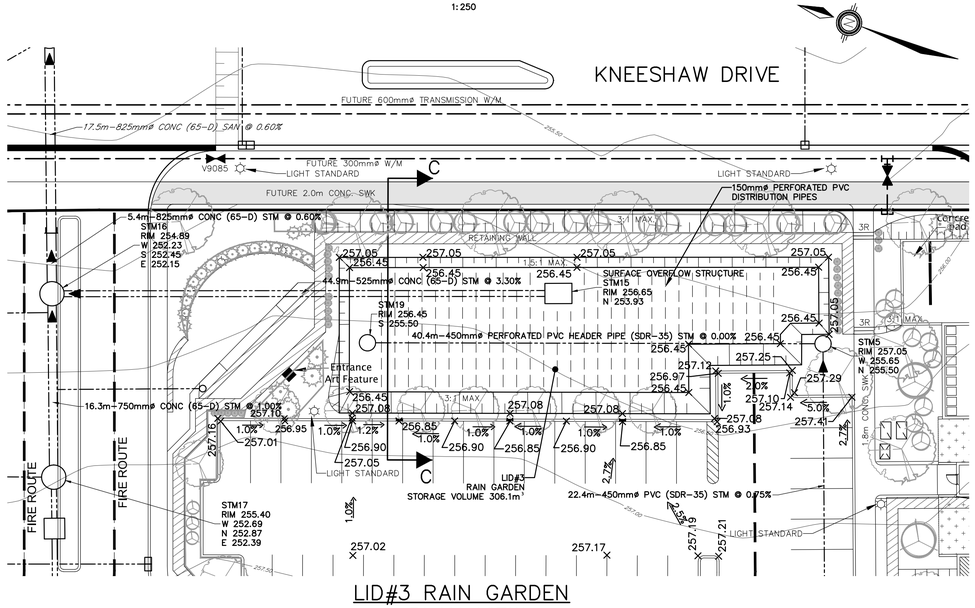
SECTION A–A

1:50



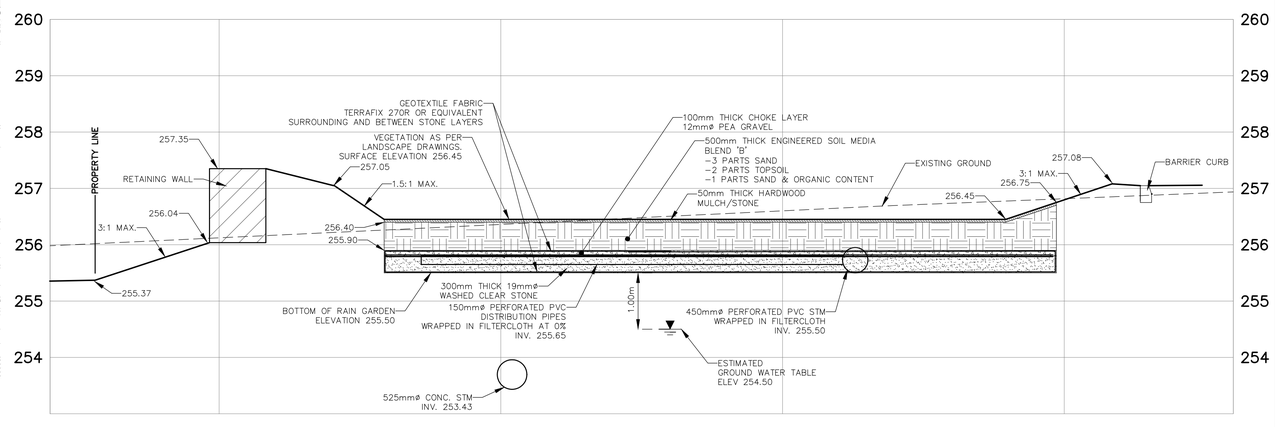
SECTION B–B

1:50



LID#3 RAIN GARDEN PLAN VIEW

1:250



SECTION C–C

1:50

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N491078B.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N491610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N491087B.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. FUS 100149153 04-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

RAIN GARDENS
LID SECTIONS & DETAILS

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: AS NOTED	DATE FEB. 2021
DRAWN KS	PROJECT PRA–19078	DWG. № LID–1
CHECKED DR		

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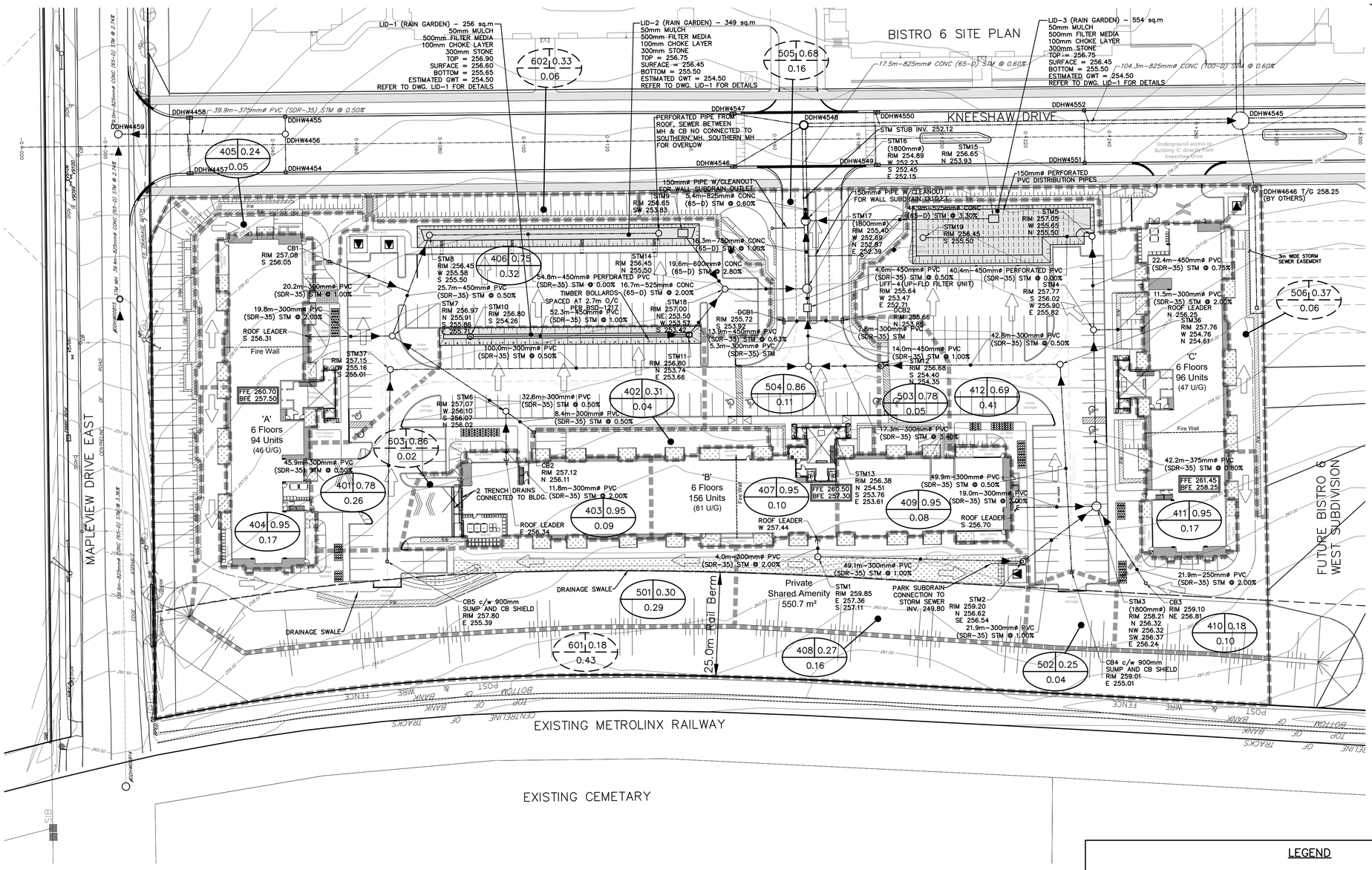

REFER TO DESIGN SHEET ON DRAWING SS-2

LEGEND

- PROPOSED STORM DRAINAGE BOUNDARY
- 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 — 0.07 — AREA (ha)
- 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

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101965454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910786.889 E607264.100 ELEV 241.861

BENCHMARK NO: 0312003002B 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312008005A LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 0312010013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 90049153 09-02-2021 PROVINCE OF ONTARIO

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
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. № STM-1	
CHECKED DR			

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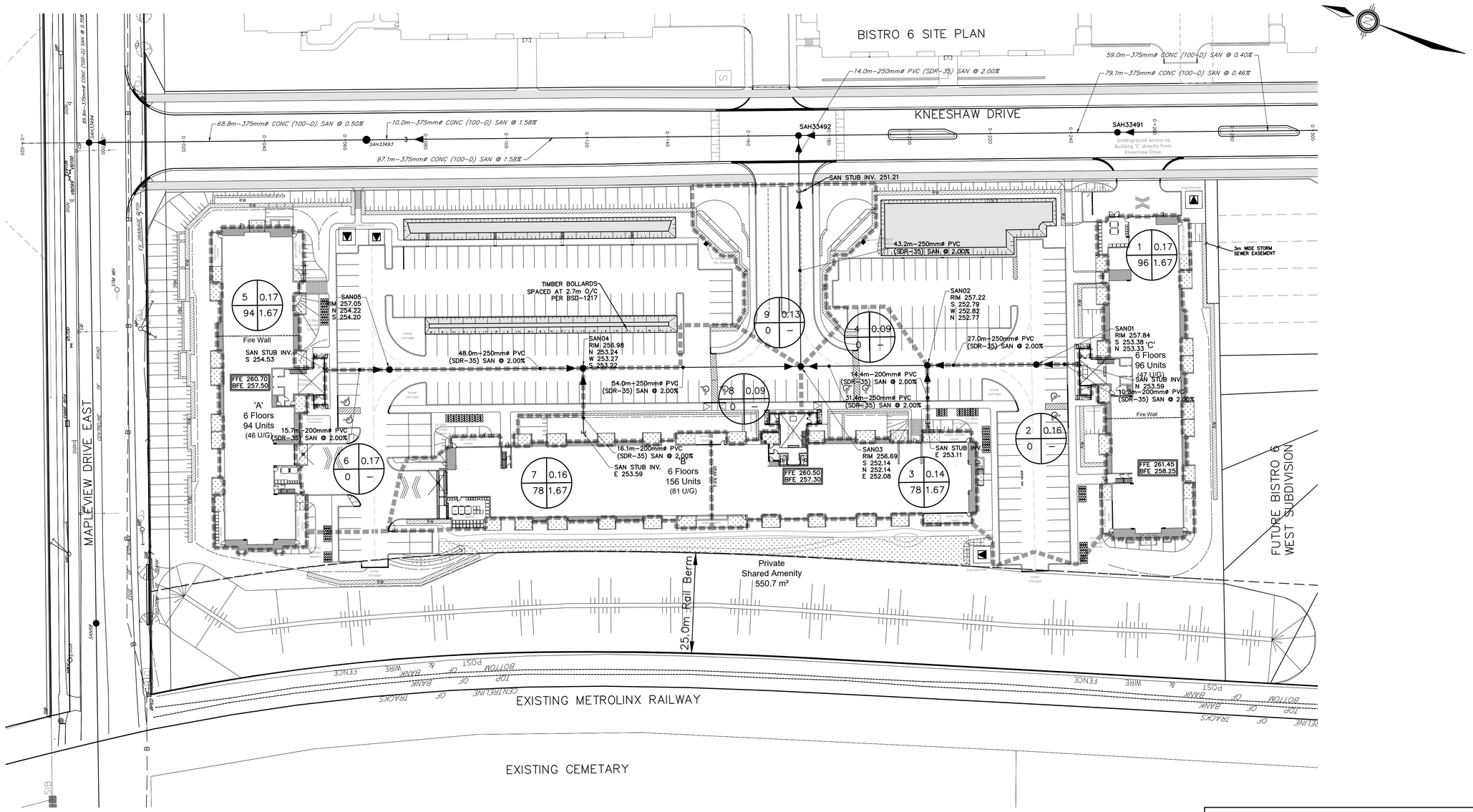

REFER TO DESIGN SHEET ON DRAWING SS-2

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

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 09-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

SANITARY DRAINAGE PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
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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. № SAN-1	
CHECKED DR			

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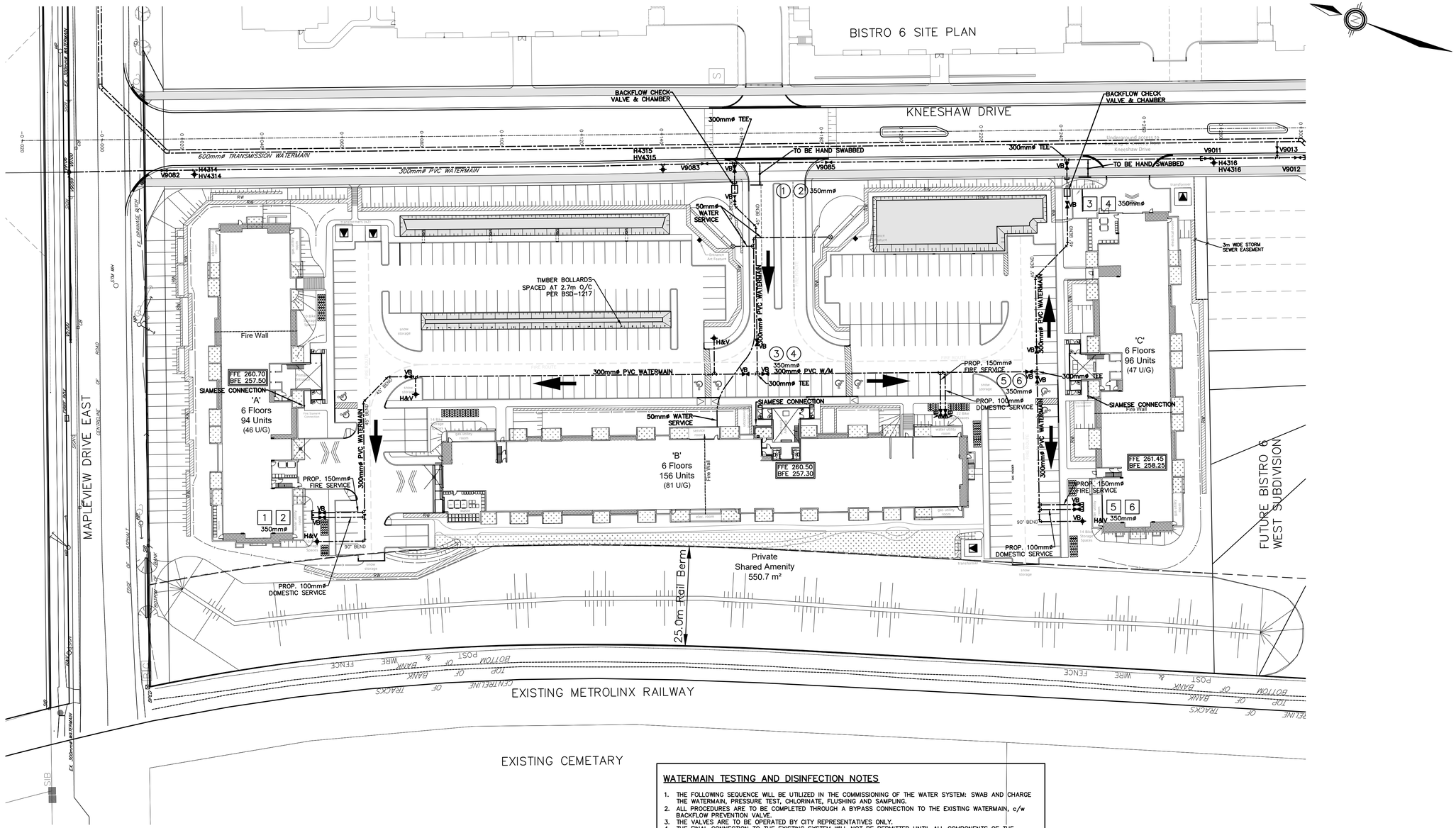

WATERMAIN TESTING AND DISINFECTION NOTES

1. THE FOLLOWNG SEQUENCE WILL BE UTILIZED IN THE COMMISSIONING OF THE WATER SYSTEM: SWAB AND CHARGE 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 OPSS 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

- H&V — PROPOSED HYDRANT
- VB — PROPOSED VALVE BOX
- PROPOSED CURB STOP
- (1) 350mmø — SWAB NUMBER, INSERTION LOCATION & SIZE
- [1] 350mmø — SWAB NUMBER, REMOVAL LOCATION & SIZE
- SWAB TRAVEL DIRECTION

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101965454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607284.100 ELEV 241.861

BENCHMARK NO: 0312030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 0312011013 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 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 90149155 09-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

WATERMAIN SWABBING PLAN

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
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F. 705.734.1056

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

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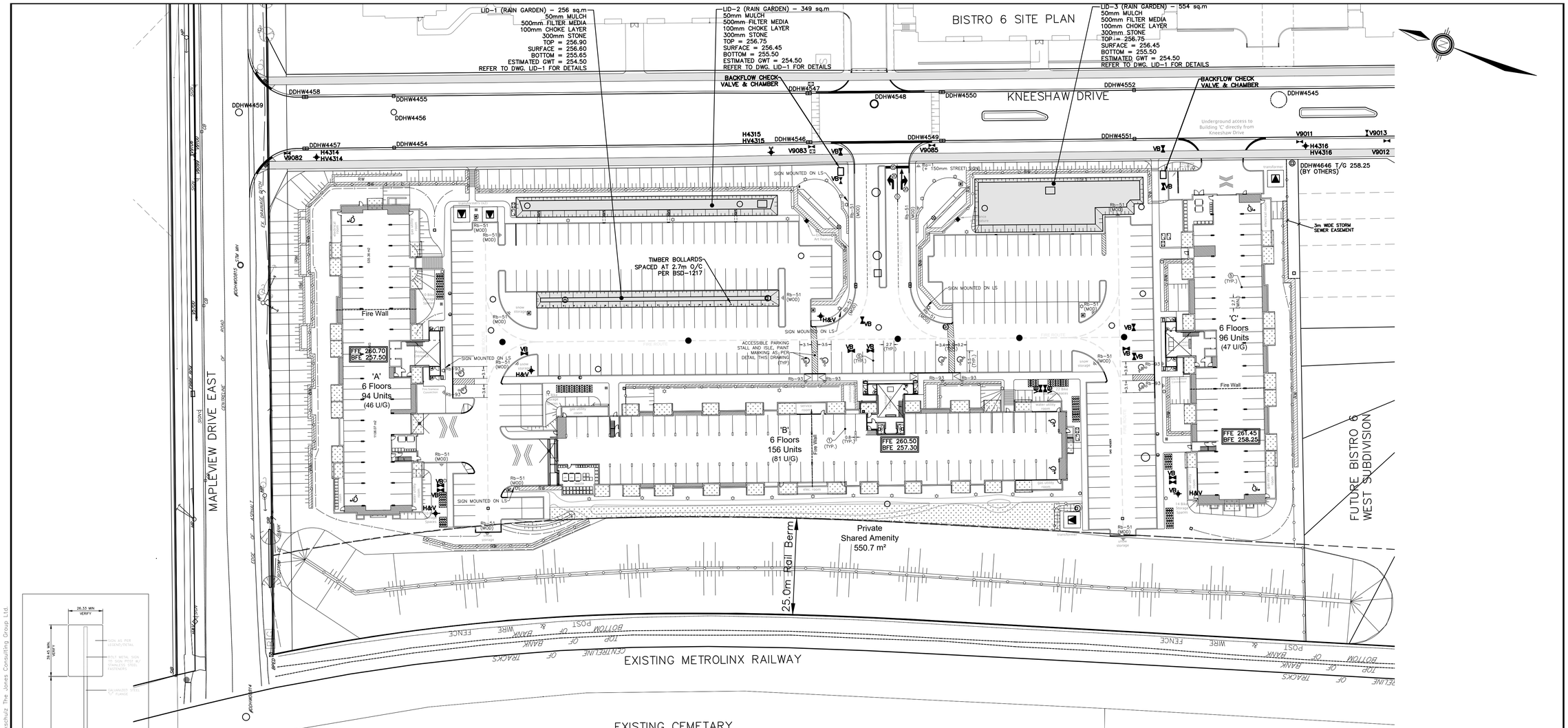

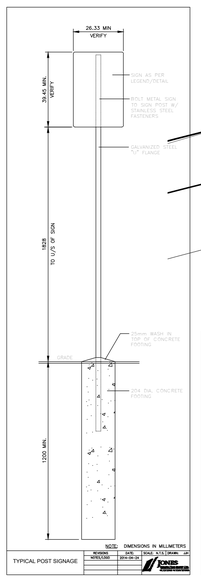

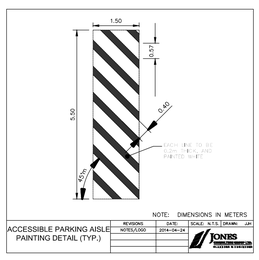

EXISTING CEMETARY

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

STOP SIGN Ra-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

A	BROKEN WHITE, 40cmx40cm
B	BROKEN WHITE, 250cmx60cm

NOTES:

1. 333, 363, 393, DENOTES PAVEMENT MARKING SPACING (ie., 3m LINE, 3m GAP, 3m LINE)
2. USE 1 TO DENOTE PAVEMENT MARKING
3. USE 1 TO DENOTE PAVEMENT MARKING, TEMPORARY
4. USE 1 TO DENOTE PAVEMENT MARKING, TEMPORARY–REMOVABLE
5. USE 1 TO DENOTE PAVEMENT MARKING, DURABLE

NOTE:

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

LEGEND

CURB DROP	PROPOSED HYDRANT
CATCH BASIN	PROPOSED VALVE
DOUBLE CATCH BASIN	PROPOSED CURB STOP
STORM MAINTENANCE HOLE	PROPOSED LIGHT STANDARD
CATCH BASIN MAINTENANCE HOLE	PROPOSED BELL PEDESTAL/HANDHOLES
DOUBLE CATCH BASIN MAINTENANCE HOLE	PROPOSED BELL DUCT
SANITARY MAINTENANCE HOLE	PROPOSED BELL VAULT
3:1 MAXIMUM GRADING SLOPE UNLESS OTHERWISE NOTED	PROPOSED ROGERS VAULT
Rb-93 PROPOSED SIGN & DESIGNATION	PROPOSED HYDRO TRANSFORMER
	PROPOSED EV CHARGER STATION

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607284.100 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 0312008054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 0312011013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD, APPROXIMATELY 1.02km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149133 04-02-2021 PROVINCE OF ONTARIO

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. 705.734.1056

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

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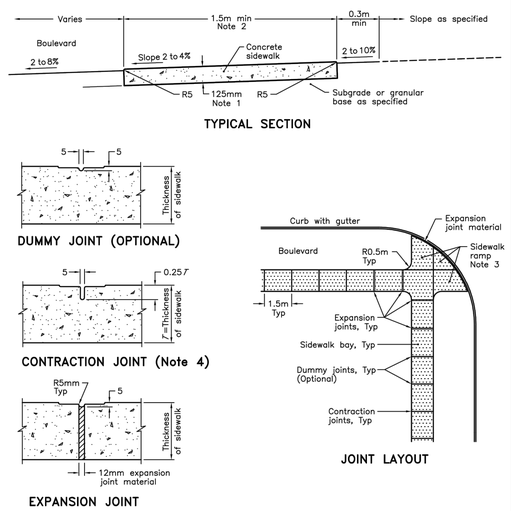
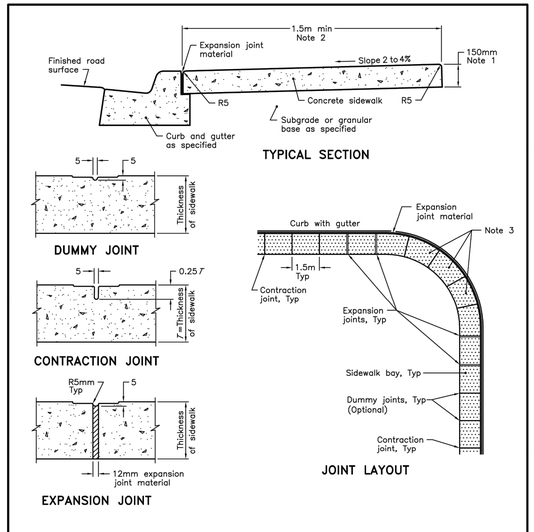


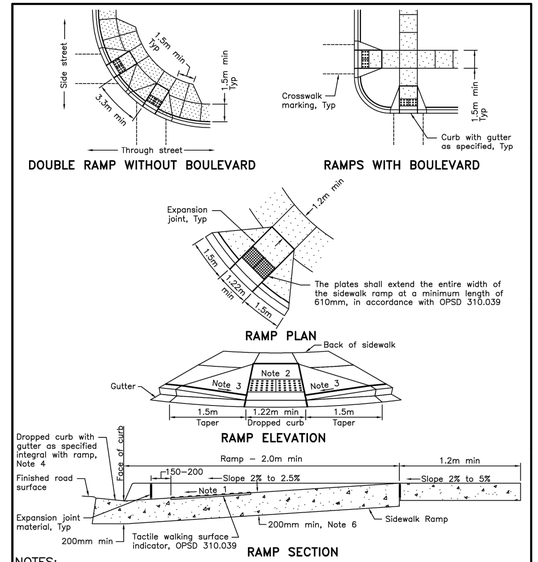
NOTES:
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
4 Contraction Joint may be tooled or sawcut.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK		OPSD 310.010



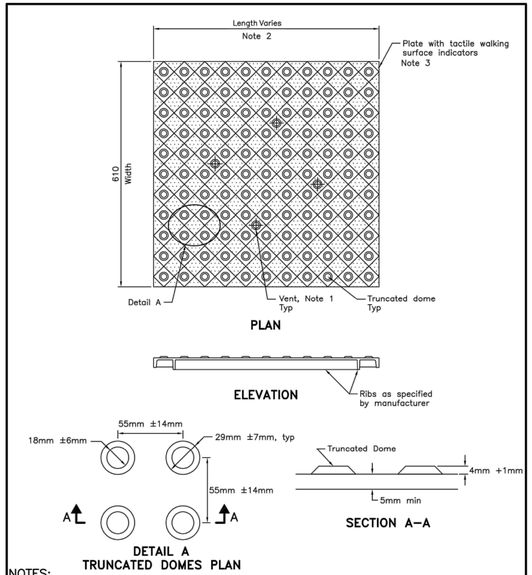
NOTES:
1 At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK ADJACENT TO CURB WITH GUTTER		OPSD 310.020



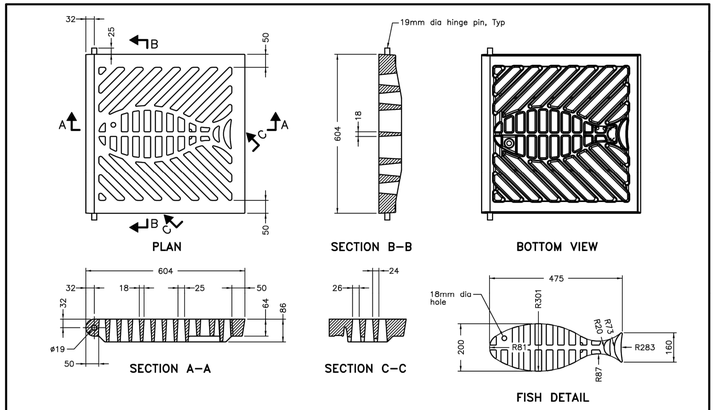
NOTES:
1 Slope of ramp shall not exceed 8%.
2 Cross slope of ramp shall not exceed 2% in either direction.
3 Cross slope of flared side of ramp shall not exceed 8%.
4 Dropped curb at ramp shall be modified to eliminate 30 mm step at gutter line.
5 Minimum thickness of ramp is 200mm. Minimum thickness of sidewalk and flared sides adjacent to ramp is 150mm.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 1
CONCRETE SIDEWALK RAMPS AT UNSIGNALIZED INTERSECTIONS		OPSD 310.033



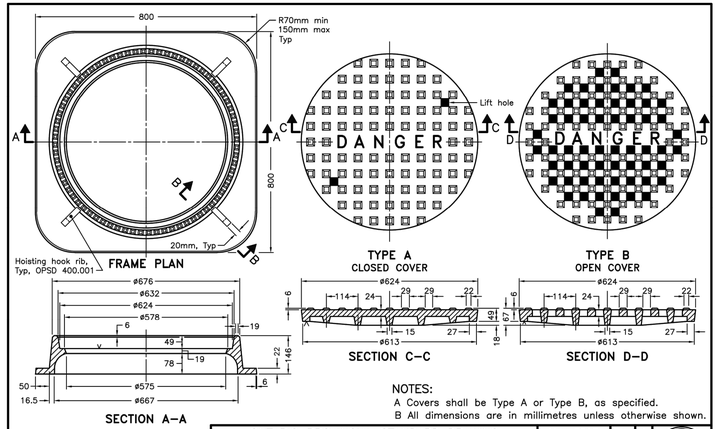
NOTES:
1 Vents shall be as specified by the manufacturer.
2 Length of plate may be increased to suit the curb depression width.
3 Material of plate shall be as specified in Contract Documents.
A Adjacent cast iron plates shall be permanently connected using a locking mechanism and any hardware shall be hot dipped galvanized.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 1
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT		OPSD 310.039



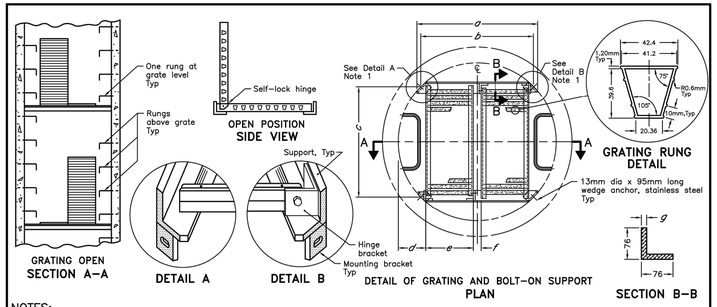
NOTE:
A This OPSD shall be read in conjunction with OPSD 400.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 0
CAST IRON, SQUARE FRAME FISH TYPE COVER		OPSD 400.050



NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES		OPSD 401.010



MH Diameter	No of Grates	a	b	c	d	e	f	g
1200	2	900	850	850	225	352	65	10
1500	2	1128	1078	1078	311	419	65	12
1800	3	1344	1293	1293	308	360	65	12
2400	4	1774	1724	1724	401	360	65	12

NOTES:
1 All hinge brackets and mounting brackets shall be welded all around to support angle.
A All aluminum in contact with concrete shall be thoroughly coated with asphalt paint.
B Maintenance hole depth between 5.0m and 10.0m, grate shall be placed at midpoint. Maintenance hole depth between 10.0m and 15.0m, grates shall be placed at third–points.
C All fasteners shall be 304 stainless steel.
D All welding shall be according to CSA W47.2 and W59.2.
E All aluminum components shall be 6000 series structural aluminum.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
ALUMINUM SAFETY PLATFORM FOR CIRCULAR MAINTENANCE HOLES		OPSD 404.020

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVEJOY'S CREEK, 0.850M 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.020m WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER
M. G. RUS
100149153
04-02-2021
PROVINCE OF ONTARIO

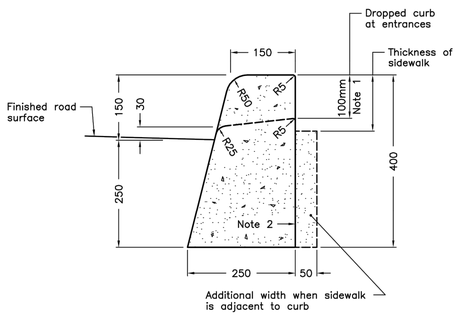
PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

STANDARD DETAILS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

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

G:\Eng_3D\PRA-19078\Production DWGS\PRA-19078-Details.dwg Layout:DET-1 Plotted Sep 02, 2021 @ 6:00pm by kschulz The Jones Consulting Group Ltd.

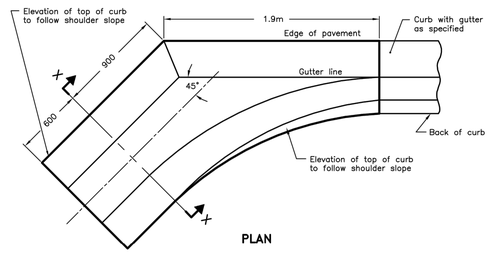


NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2012 | Rev 2

CONCRETE BARRIER CURB

OPSD 600.110



SECTION X–X

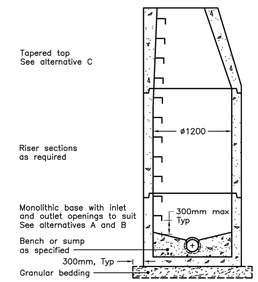
CURB with GUTTER Type	x
Barrier	200
Semi–Mountable	300
Mountable	400

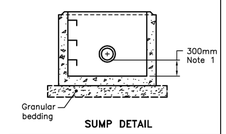
NOTES:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2012 | Rev 2

45° CONCRETE OUTLET
FOR CONCRETE CURB WITH GUTTER AT END OF RUN

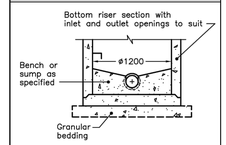
OPSD 605.030



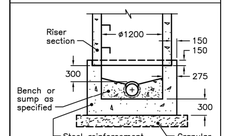


SUMP DETAIL

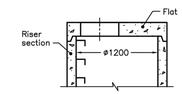
ALTERNATIVES



A PRECAST SLAB BASE



B CAST–IN–PLACE BASE



C PRECAST FLAT CAP

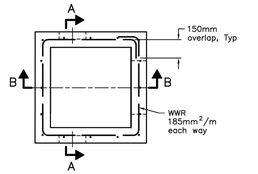
NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

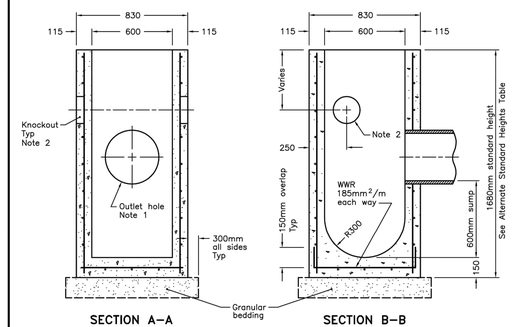
ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 5

PRECAST CONCRETE MAINTENANCE HOLE
1200mm DIAMETER

OPSD 701.010

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



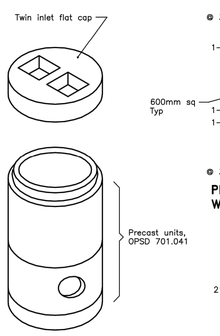


NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

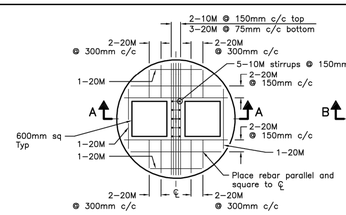
ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2019 | Rev 4

PRECAST CONCRETE CATCH BASIN
600x600mm

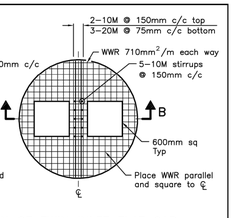
OPSD 705.010



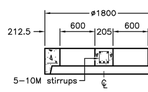
1500mm DIAMETER MAINTENANCE HOLE



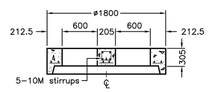
PLAN OF TWIN INLET FLAT CAP WITH REINFORCING STEEL BARS



PLAN OF TWIN INLET FLAT CAP WITH WWR



SECTION A–A



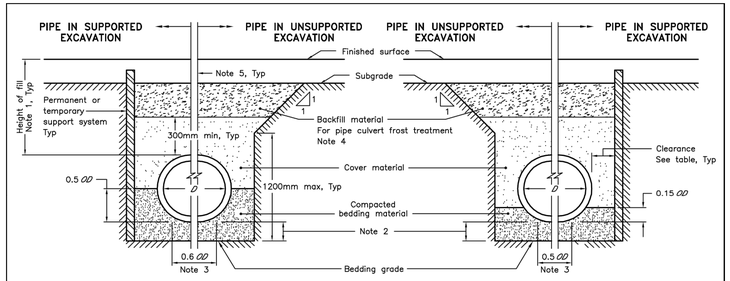
SECTION B–B

NOTES:
A All reinforcing steel shall have 25mm minimum cover.
B All dimensions are nominal.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 2

PRECAST CONCRETE TWIN INLET FLAT CAP
1500mm DIAMETER

OPSD 703.021



CLASS B BEDDING | CLASS C BEDDING

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The minimum bedding depth below the pipe shall be 0.15*D*. In no case shall this dimension be less than 150mm or greater than 300mm.
3 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
4 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
5 Condition of excavation is symmetrical about centreline of pipe.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B All dimensions are in metres unless otherwise shown.

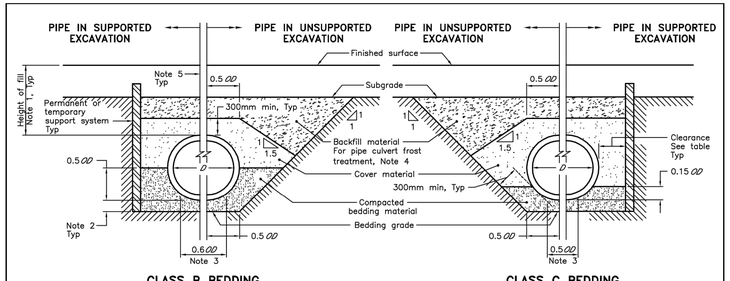
LEGEND:
D – Inside diameter
OD – Outside diameter

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 3

RIGID PIPE BEDDING, COVER, AND BACKFILL
TYPE 1 OR 2 SOIL – EARTH EXCAVATION

OPSD 802.030



CLASS B BEDDING | CLASS C BEDDING

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The minimum bedding depth below the pipe shall be 0.15*D*. In no case shall this dimension be less than 150mm or greater than 300mm.
3 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
4 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
5 Condition of excavation is symmetrical about centreline of pipe.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B All dimensions are in metres unless otherwise shown.

LEGEND:
D – Inside diameter
OD – Outside diameter

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 3

RIGID PIPE BEDDING, COVER, AND BACKFILL
TYPE 3 SOIL – EARTH EXCAVATION

OPSD 802.031

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 0101985454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910785.889 E607284.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.00m WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. PLIS 100149153 (24-02-2021) PROVINCE OF ONTARIO

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 0W5
P. 705.734.2538
F. 705.734.1056

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

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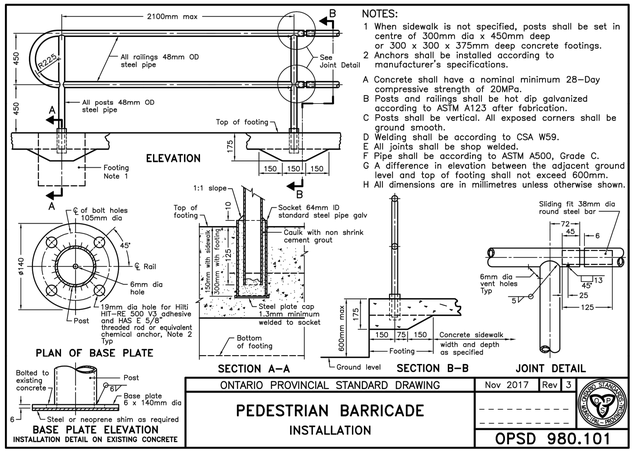
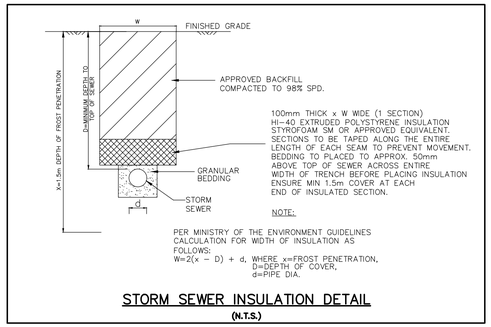
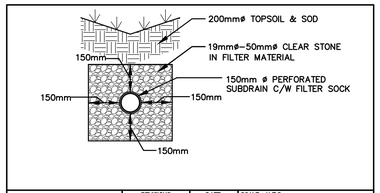


NOTES:
1 When sidewalk is not specified, posts shall be set in centre of 300mm dia x 450mm deep or 300 x 300 x 375mm deep concrete footings.
2 Anchors shall be installed according to manufacturer's specifications.
A Concrete shall have a nominal minimum 28–Day compressive strength of 20MPa.
B Posts and railings shall be hot dip galvanized according to ASTM A123 after fabrication.
C Posts shall be vertical. All exposed corners shall be ground smooth.
D Welding shall be according to CSA W59.
E All joints shall be shop welded.
F Pipe shall be according to ASTM A500, Grade C.
G A difference in elevation between the adjacent ground level and top of footing shall not exceed 600mm.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
PEDESTRIAN BARRICADE INSTALLATION		OPSD 980.101

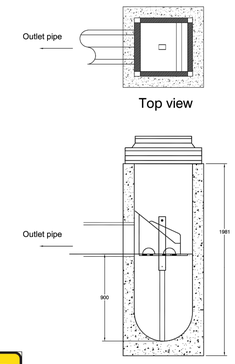


STORM SEWER INSULATION DETAIL
(N.T.S.)

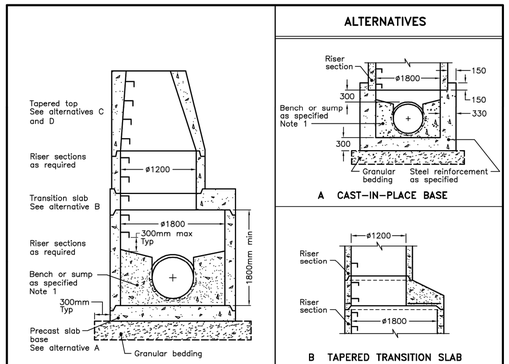


FRENCH DRAIN DETAIL	REVISIONS	DATE	SCALE: N.T.S.
			JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS

Notes
1. CB Shield can be installed at any time. In a non frozen condition.
2. The **frame and cover MUST BE well aligned** with the catchbasin for proper installation.
3. The catchbasin sump must be clean before installation
4. The grate should be at the same level as the standing water in the sump.

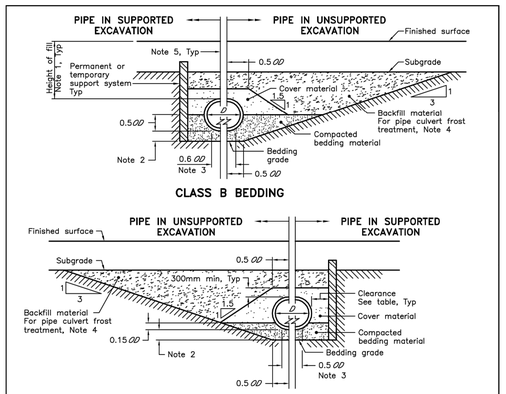


CB Shield (900mm Sump)



NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER		OPSD 701.012

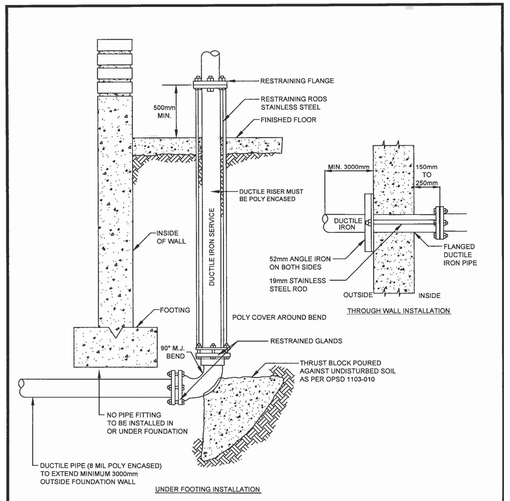


CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

LEGEND:
Ø – Inside diameter
ØØ – Outside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The minimum bedding depth below the pipe shall be 0.15Ø. In no case shall this dimension be less than 150mm or greater than 300mm.
3 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
4 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
5 Condition of excavation is symmetrical about centreline of pipe.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B All dimensions are in metres unless otherwise shown.

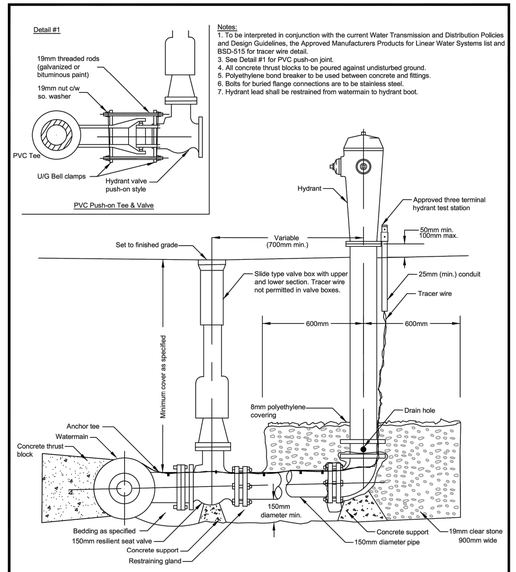
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 3
RIGID PIPE BEDDING, COVER, AND BACKFILL TYPE 4 SOIL – EARTH EXCAVATION		OPSD 802.032



NOTES:
1. INSTALLATION MUST MEET THE CURRENT NATIONAL FIRE PROTECTION ACT.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

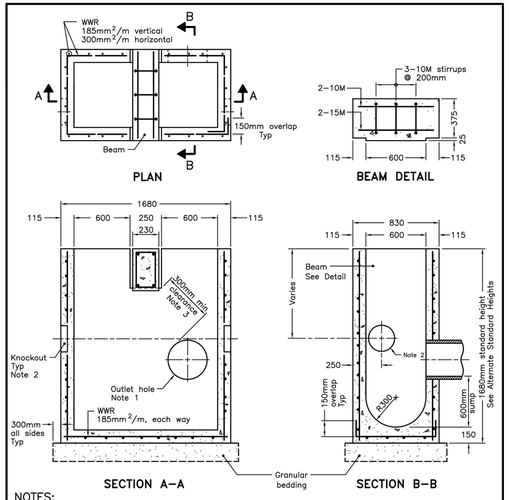
APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE STANDARD DETAIL	TYPICAL SERVICE ENTRY 100mm TO 300mm DIAMETER PIPE	REV No. 1	DATE: FEB 2015 SCALE: N.T.S.	BSD-505 (PREVIOUSLY BSD-61)



Notes:
1. To be interpreted in conjunction with the current Water Transmission and Distribution Policies and Design Guidelines, the Approved Manufacturers Products for Linear Water Systems list and BSD-515 for tracer wire detail.
3. See Detail #1 for PVC push-on joint.
4. All concrete thrust blocks to be poured against undisturbed ground.
5. Polyethylene bond breaker to be used between concrete and fittings.
6. Bolts for buried flange connections are to be stainless steel.
7. Hydrant lead shall be restrained from watermain to hydrant boot.

Barrie	Standard Hydrant and Valve Installation	REV No. 2	DATE: April 2019 SCALE: N.T.S.	BSD-507



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 Minimum clearance between beam recess and hole for pipe shall be 300mm or minimum clearance can be 150mm with addition of two 15M size rebar on 45 degree diagonal.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1680

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE TWIN INLET CATCH BASIN 600 x 1450mm		OPSD 705.020

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E. OVER LOVER'S CREEK, 0.850M 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.020m WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 09-02-2021 PROVINCE OF ONTARIO

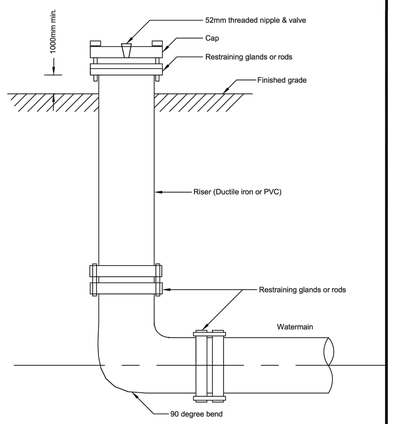
PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

STANDARD DETAILS

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

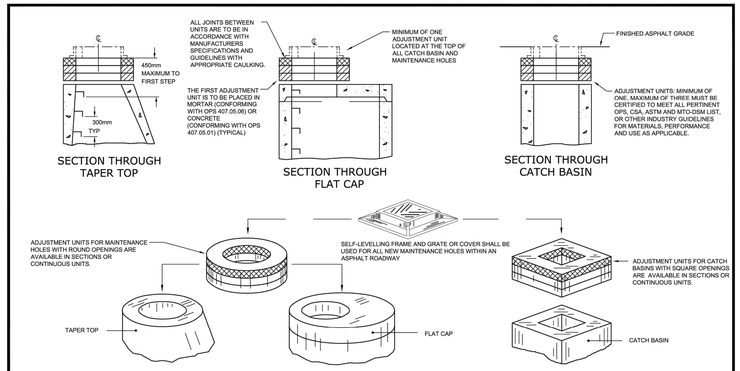
DESIGN MF	SCALE: N/A	DATE JANUARY 2021
DRAWN KS	PROJECT PRA–19078	DWG. № DET–3
CHECKED DR		

G:\Eng_3D\PRA-19078\Production DWGS\PRA-19078-Details.dwg Layout:DET-3 Plotted Sep 02, 2021 @ 6:00pm by kschulz The Jones Consulting Group Ltd.



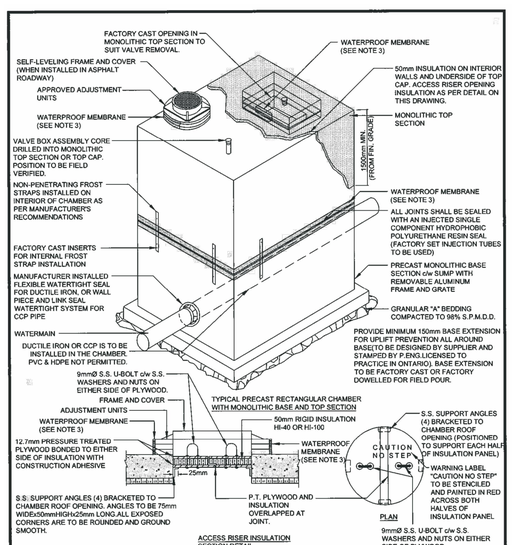
NOTES:
1. All dimensions are in millimeters unless otherwise shown.
2. Restraining glands or rods to be used for restraint.

Barrie	Temporary Riser Installation	REV No. 2	DATE: May 2019
			SCALE: N.T.S.
			BSD-510



NOTES:
1. ADJUSTMENT UNITS SHALL NOT EXTEND BEYOND THE OUTSIDE EDGE OF THE STRUCTURE.
2. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET IN BASE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
4. IF A STEP IS REQUIRED IN AN ADJUSTMENT UNIT, THEN THE ADJUSTMENT UNIT SHALL BE OF THE TYPE MANUFACTURED WITH A STEP IN PLACE.

Barrie STANDARD DETAIL	MAINTENANCE HOLE AND CATCH BASIN ADJUSTMENT UNITS	REV No. 3	DATE: Nov 2019
			SCALE: N.T.S.
			BSD-41

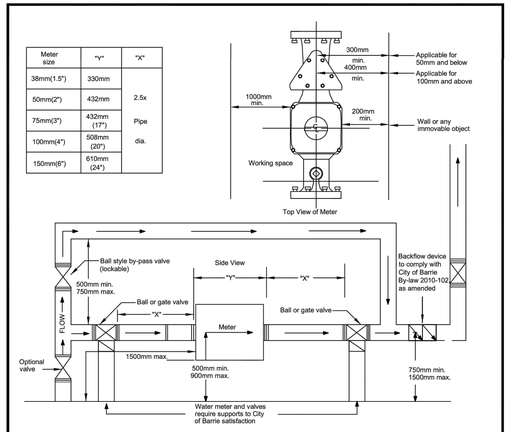


NOTES:
1. MINIMUM CHAMBER SIZE 1800mm×2400mm
2. APPLICATION:NON-PRESSURE REDUCING VALVE CHAMBERS ONLY
3. WATERPROOF MEMBRANE TO EXTEND COMPLETELY AROUND RISER SECTION JOINTS WITH A MINIMUM OF 300mm WIDE STRAP
4. ALL INSULATION TO BE RIGID TYPE EXTRUDED POLYSTRENE FOAM DOW HI-40 OR HI-100. ALL CHAMBER INSULATIONS TO BE INSTALLED WITH CONSTRUCTION ADHESIVE AND TAPCON ANCHORS AT MAX. 600mm SPACING IN ALL DIRECTIONS (MIN. 2 ANCHORS PER SHEET OF INSULATION).
5. SUMP c/w GRATE TO BE LOCATED AT THE BOTTOM OF THE ACCESS LADDER. SUMP SHALL NOT EXTEND THROUGH THE BOTTOM OF BASE.

APPROVED
DATE: Oct 2017
DIRECTOR OF ENGINEERING

Barrie STANDARD DETAIL	TYPICAL TWO PIECE PRECAST RECTANGULAR CHAMBER DETAILS FOR WATERMAINS	REV No. 2	DATE: OCT 2017
			SCALE: N.T.S.
			BSD-525

Meter size	"Y"	"X"
38mm(1.5")	330mm	2.5x Pipe dia.
50mm(2")	432mm	
75mm(3")	432mm (17")	
100mm(4")	508mm (20")	
150mm(6")	610mm (24")	



• A key to the mechanical room to be supplied to the City of Barrie for meter reading and maintenance.

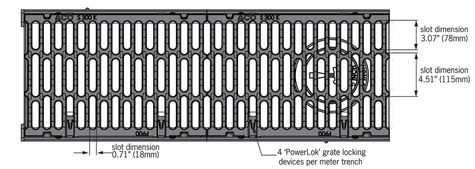
NOTES:
1. The diameter of the by-pass line shall match the diameter of the internal plumbing.
2. All materials to be supplied by the contractor except water meters. All meters larger than 50mm are to be supplied and installed by the contractor.
3. Butterfly valves or globe valves shall not be used.
4. All piping between water service entering the building and backflow device must be labeled 'No connection permitted'.
5. Backflow device must be installed within a maximum of 3 meters downstream of the water meter.
6. Meter wire, installed in conduit, to be run from meter location to outside of building at the direction of the Barrie Water Operations representative. Meter wire (22 gauge, 2 conductor, metgray, UV rated) supplied by the City of Barrie.
7. All dimension are in millimeters unless otherwise shown.
8. Contractor to provide flat secure (vertical) surface for the smart point to be mounted on.

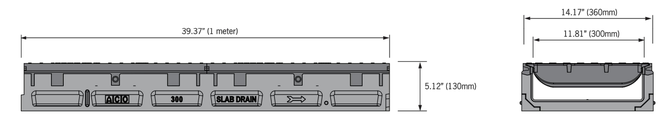
Barrie	Typical Meter Installation for Domestic Services Requiring By-passes	REV No. 3	DATE: May 2019
			SCALE: N.T.S.
			BSD-533

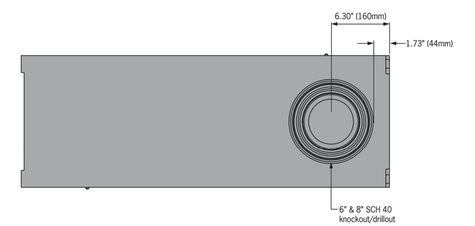
ACO DRAIN

SlabDrain - H300SK-13 iron edged channel system with slotted grate

H300SK-13







Outlet flow rates

Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
H300SK-13 channel	6" round	4.00	243	0.54
H300SK-13 channel	8" round	4.00	432	0.96

Note: These are the pipe flow rates at the specified outlet, **NOT** channel flow rates.

Apr 13/1

www.ACODrain.us

ACO Specification Information

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607284.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

BENCHMARK NO: 03120110013 LOCATED ON LOCKHART ROAD ON THE NORTH SIDE OF THE BOULEVARD. APPROXIMATELY 1.00km WEST OF THE YONGE STREET AND HURONIA ROAD INTERSECTION N49009870.257 E608733.580 ELEV 252.807

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

LICENSED PROFESSIONAL ENGINEER M. G. FLIS 100149153 04-02-2021 PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

STANDARD DETAILS

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

DESIGN MF	SCALE: N/A	DATE JANUARY 2021
DRAWN KS	PROJECT PRA-19078	DWG. № DET-4
CHECKED DR		

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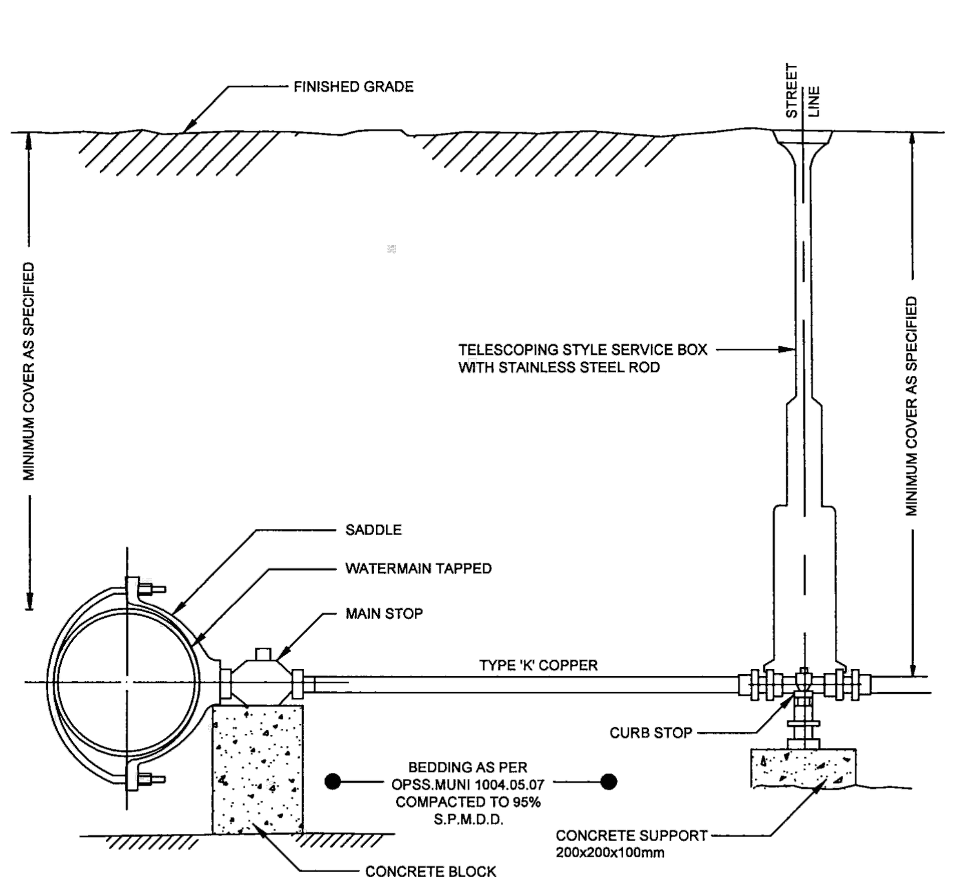


NOTES

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 3 OR 9 O'CLOCK POSITION ONLY.
4. 915mm (36") STAINLESS STEEL SERVICE BOX ROD.
5. SEE BSD-504 FOR 38mm AND 50mm NON-COPPER WATER SERVICES.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

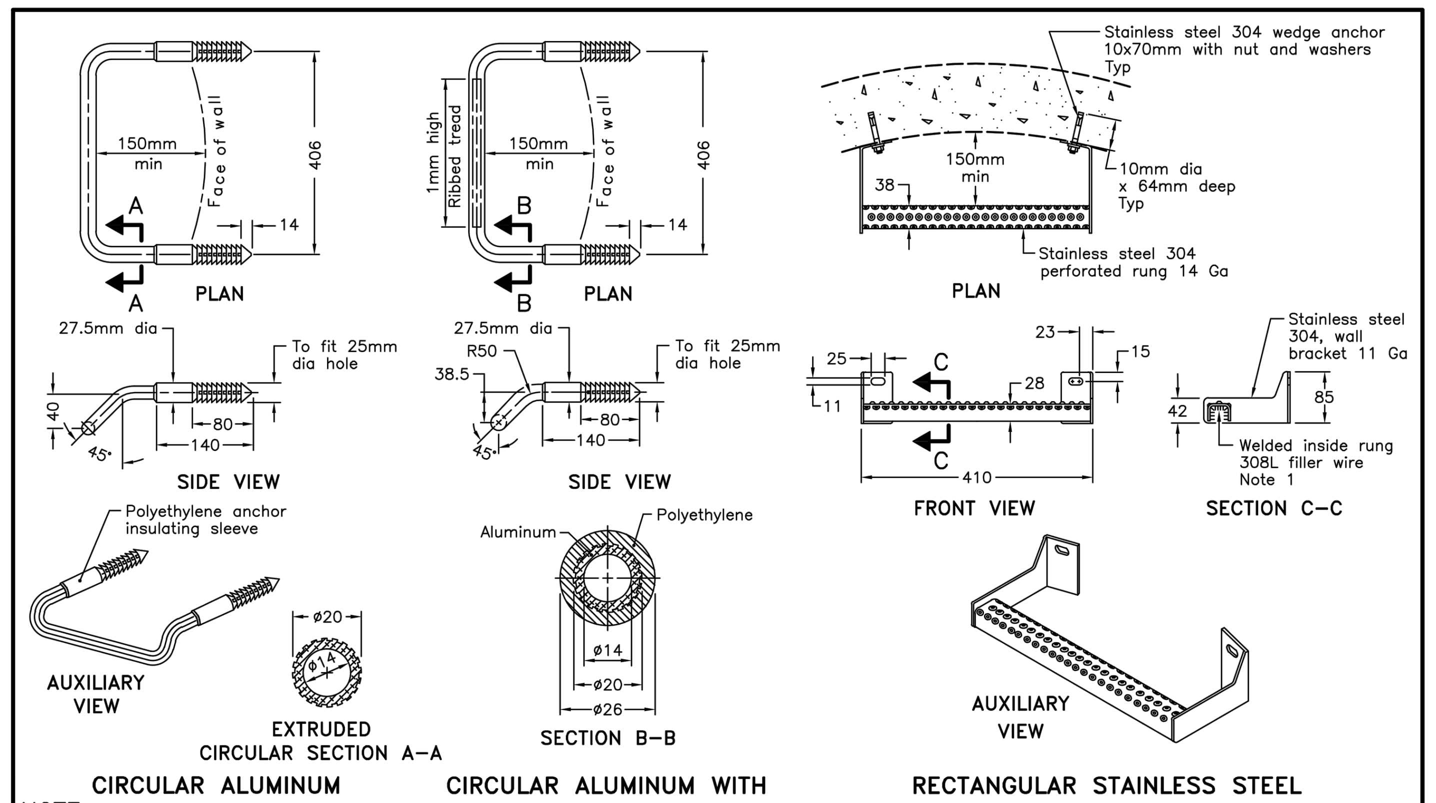
APPROVED
DATE 6/Feb/2015
DIRECTOR OF ENGINEERING

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)



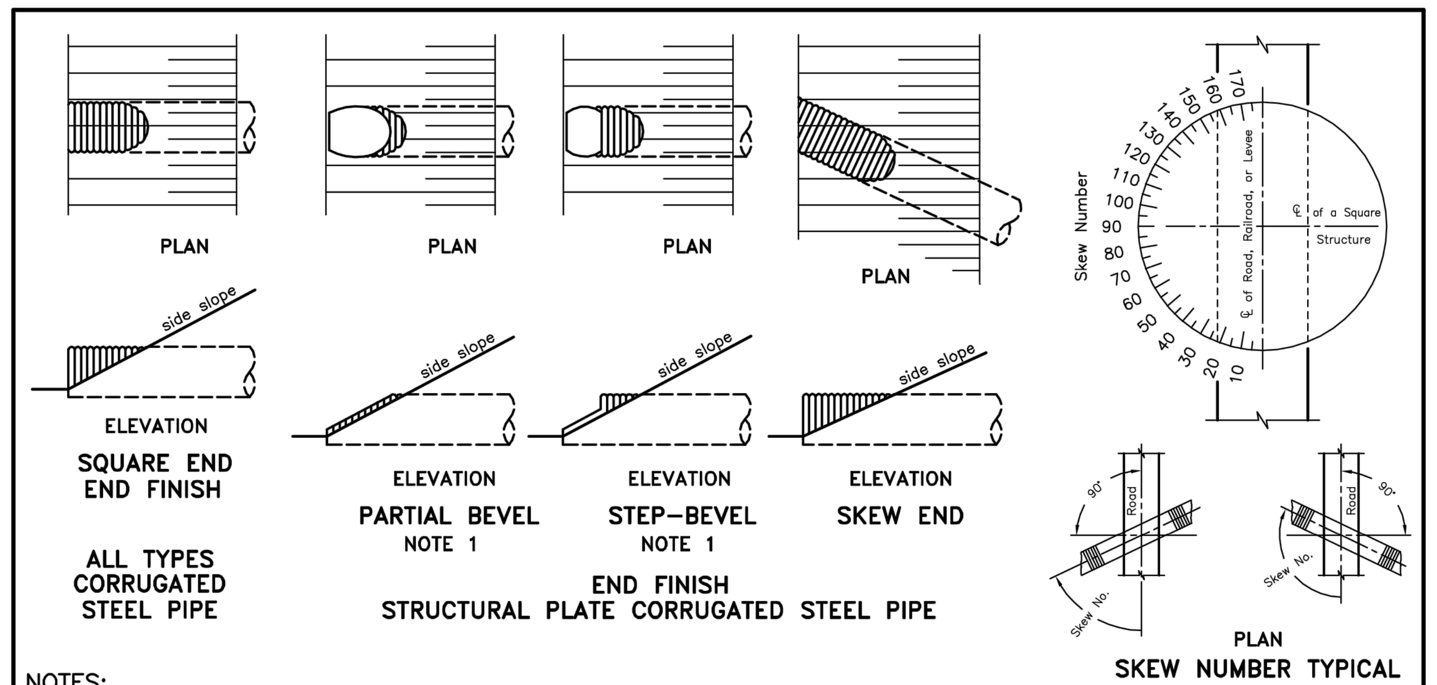
NOTE:

1 The company undertaking welded fabrication shall be certified according to CSA W47.1. All welding shall be according to CSA W59.
A All aluminum components shall be 6000 series structural aluminum.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 4

MAINTENANCE HOLE STEPS
HOLLOW

OPSD 405.010



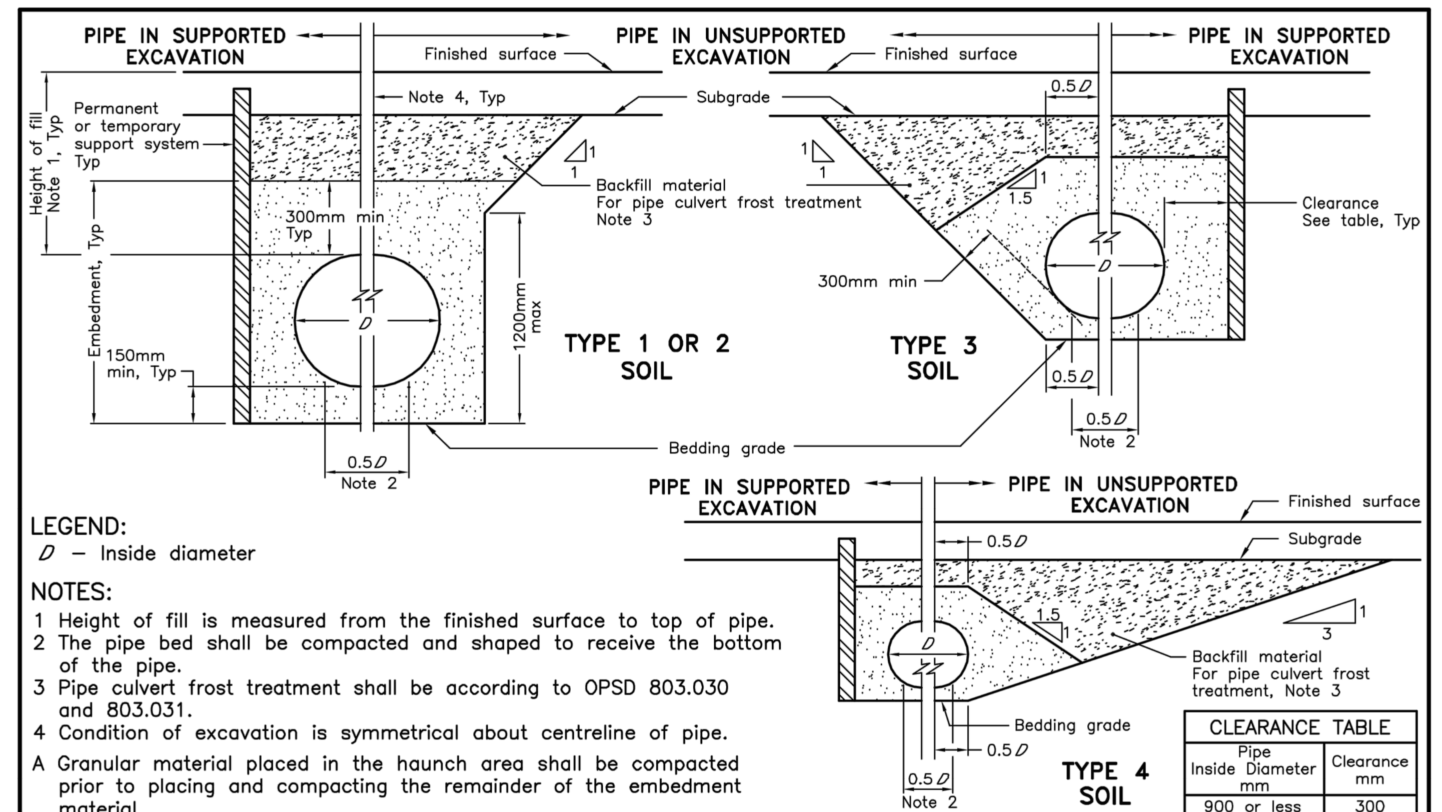
NOTES:

1 For a partial bevel or a step–bevel cut end finish, this OPSD shall be read in conjunction with OPSD 801.030.
A A skew end cut end finish shall not be combined with a partial bevel or a step–bevel cut end finish.
B Square end, partial bevel, or step–bevel cut end finish may be used on a culvert installed on a skew between skew numbers 60 and 120.
C A skew end cut end finish may be used on a culvert installed on a skew between skew numbers 50 and 130.
D Reinforcement of pipe ends or contour grading of embankment slope shall be as specified.
E Slope protection shall be as specified.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2017 | Rev 3

CUT END FINISH
CIRCULAR PIPE AND PIPE–ARCH
CORRUGATED STEEL PIPE

OPSD 801.010



LEGEND:

D – Inside diameter

NOTES:

1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

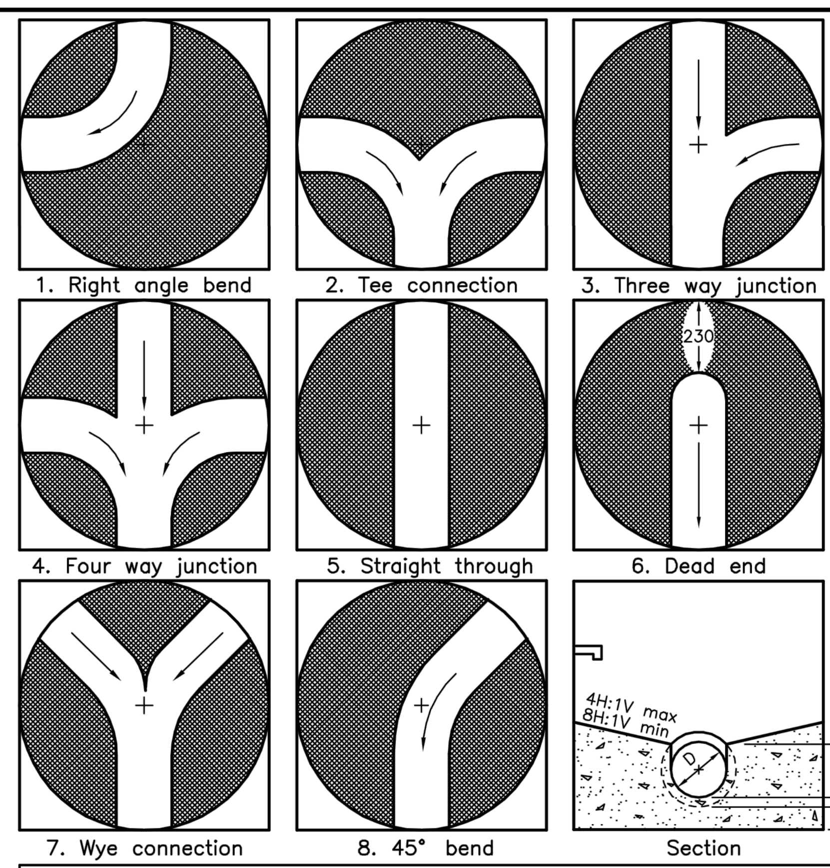
CLEARANCE TABLE

Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 3

FLEXIBLE PIPE
EMBEDMENT AND BACKFILL
EARTH EXCAVATION

OPSD 802.010



MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7 Inlet Hole	No.7 Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

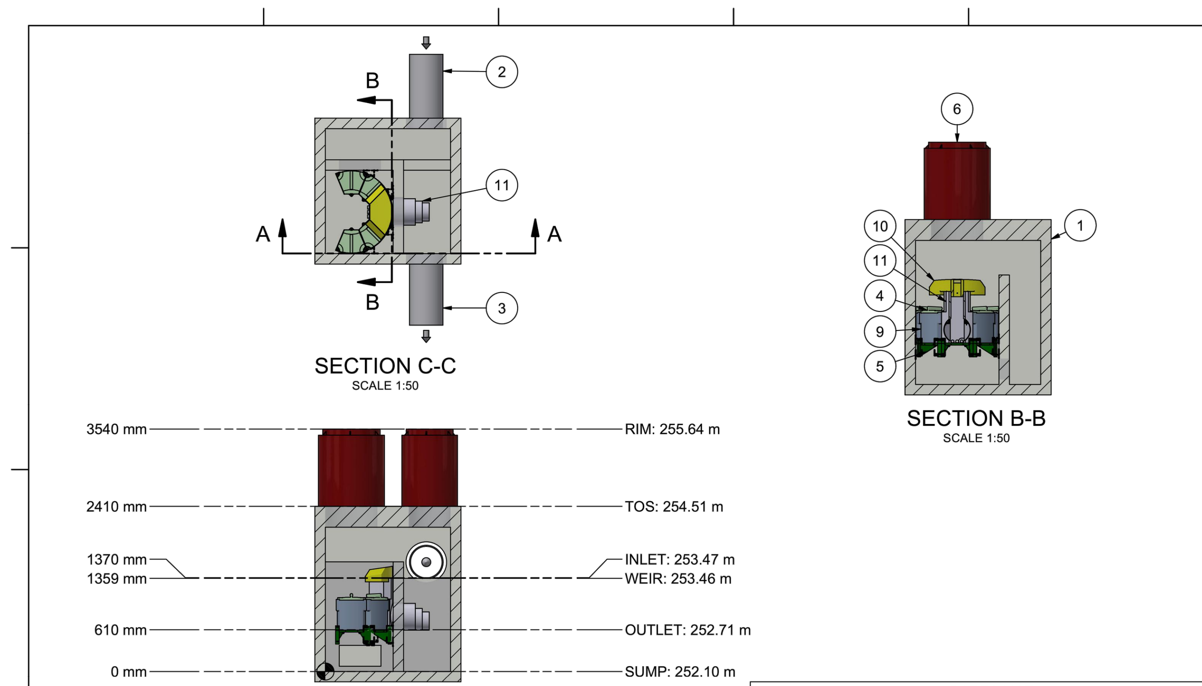
NOTES:

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–finshed, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching 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 prebenched 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 | Nov 2014 | Rev 4

MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES

OPSD 701.021



CAPACITIES:

1. Minimum performance: 80% removal. NJDEP - NJDEP Blend; NJCAT, Sil-Co-Sil 106 (d50 = 22 microns) at the peak treatment flow.
2. Maximum number of modules per outlet module: 38 **
3. NJDEP peak treatment flow: .056 cfs (25 gpm) per module, CPZ

ADDITIONAL DESIGN INFORMATION:

1. * Normal operating W.S.E. is 2.46' above the outlet invert at the peak treatment flow of .056 cfs (25 gpm) per module. For a given flow the head requirement can be reduced by adding additional filters.
2. ** Treatment flows that require more modules will require a larger vault design or different arrangement.
3. Media Types Available: New Jersey - Ribbons; Elsewhere - CPZ

PARTS LIST

ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		1800 x 1800
2	1	UFF INLET PIPE (BY OTHERS)	PVC	450
3	1	UFF OUTLET PIPE (BY OTHERS)	PVC	450
4	4	MODULE LID		
5	5	SUPPORT FRAME		
6	1	COVER 30 IN		750
7	4	WEDGE WALL MOUNT		
8	2	COVER 24 IN		600
9	4	MODULE BODY		
10	1	BYPASS HOOD		
11	1	OUTLET MODULE		

1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE
3. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE

REVISION HISTORY

REV	BY	DESCRIPTION	DATE
A	KSM	FIRST RELEASE	8/11/2021

PROJECTION

IF IN DOUBT ASK

DATE: 8/11/2021 | SCALE: 1:50
DRAWN BY: KSM | CHECKED BY: | APPROVED BY

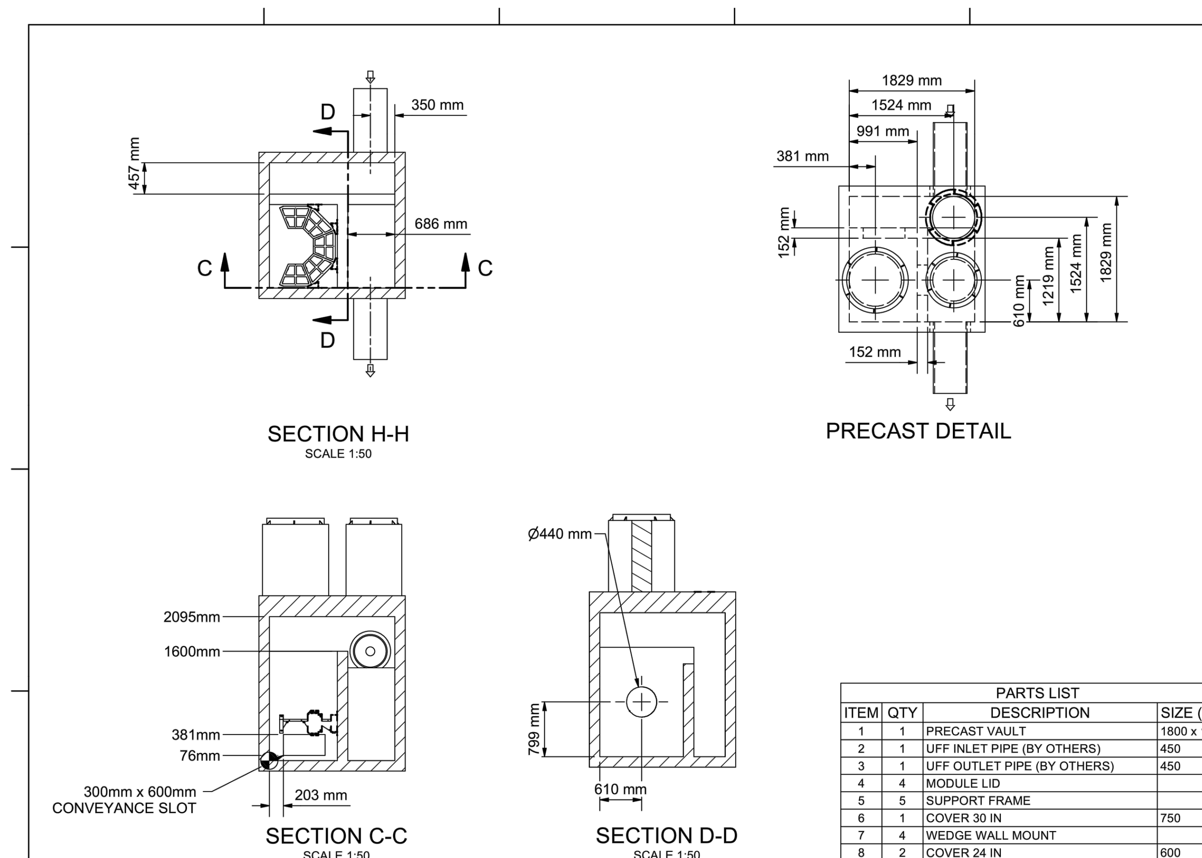
Title
UP-FLO FILTER
1800mm X 1800mm VAULT

4 MODULES

UFF
ELEMENTS CONDOS
BARRIE, ON
Patent: www.hydro-int.com/patents

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

WEIGHT: | MATERIAL:
STOCK NUMBER: 1
DRAWING NO.: 21_12_2927-UFF-1
SHEET SIZE: B | SHEET: 1 OF 3 | Rev: A



PARTS LIST

ITEM	QTY	DESCRIPTION	SIZE (mm)
1	1	PRECAST VAULT	1800 x 1800
2	1	UFF INLET PIPE (BY OTHERS)	450
3	1	UFF OUTLET PIPE (BY OTHERS)	450
4	4	MODULE LID	
5	5	SUPPORT FRAME	
6	1	COVER 30 IN	750
7	4	WEDGE WALL MOUNT	
8	2	COVER 24 IN	600
9	4	MODULE BODY	
10	1	BYPASS HOOD	
11	1	OUTLET MODULE	

1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE
3. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE

PROJECTION

IF IN DOUBT ASK

DATE: 8/11/2021 | SCALE: 1:50
DRAWN BY: KSM | CHECKED BY: | APPROVED BY

Title
UP-FLO FILTER
1800mm X 1800mm VAULT

4 MODULES

UFF
ELEMENTS CONDOS
BARRIE, ON

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

WEIGHT: | MATERIAL:
STOCK NUMBER: 1
DRAWING NO.: 21_12_2927-UFF-1
SHEET SIZE: B | SHEET: 2 OF 3 | Rev: A

NOT FOR CONSTRUCTION

BENCHMARK:

BENCHMARK NO: 01019865454 LOCATED ON CONCRETE BRIDGE CARRYING MAPLEVIEW DRIVE E OVER LOVER'S CREEK, 0.65KM 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 COPING. N4910788.889 E607264.100 ELEV 241.861

BENCHMARK NO: 03120030029 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 SOUTHSIDE OF THE FLAGPOLE BASE. N4911610 E607799 ELEV 250.508

BENCHMARK NO: 03120080054 LOCATED ON THE SOUTH LIMIT OF MAPLEVIEW DRIVE WEST APPROXIMATELY 1km EAST OF HURONIA ROAD. N4910878.122 E607601.062 ELEV 248.996

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 N49009870.257 E608733.580 ELEV 252.807

NO.	REVISIONS	DATE	INITIAL
2	2ND DETAILED DESIGN SUBMISSION	21–09–03	MF
1	1ST DETAILED DESIGN SUBMISSION	21–02–12	MF

LICENSED PROFESSIONAL ENGINEER
M. G. FLIS
100149153
09-02-2021
PROVINCE OF ONTARIO

PRATT HANSEN GROUP INC.
ELEMENTS SITE PLAN
CITY OF BARRIE

STANDARD DETAILS

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

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