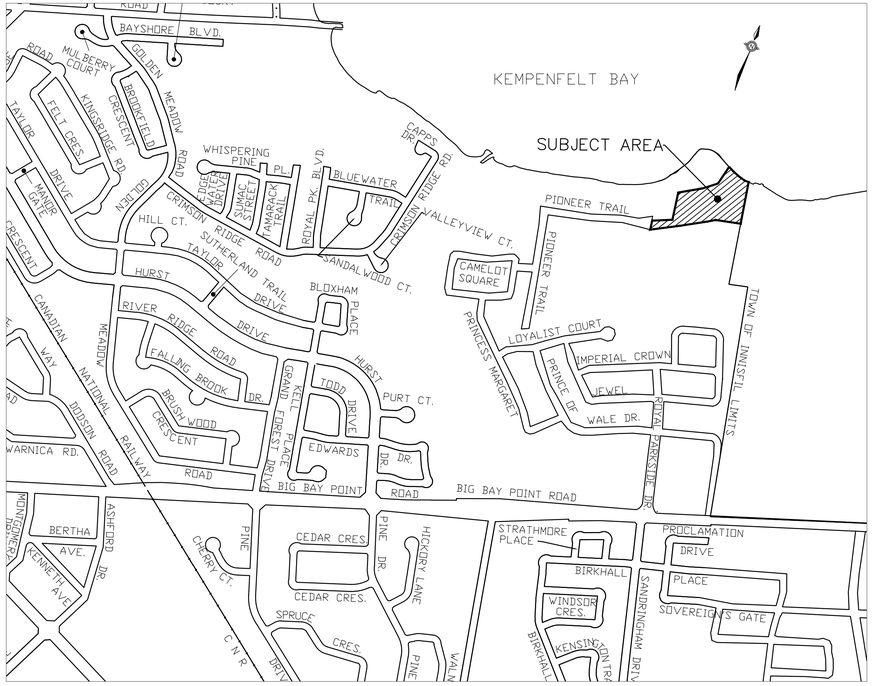
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DRAWING LEGEND

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92496–F–002	PARKSIDE SUBDIVISION PRV



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FER–15101 – SECOND SUBMISSION – AUGUST 2022

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. 30/17 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 A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.

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 OPS3, 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 'Y' & '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	

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 "F" CHANGED	K.C.	98.03.30	DRAWN: L.A.J. SCALE: N.T.S.
	1.	CHANGES TO B. TO G.	K.C.	95.04.24	BSD-N3
	NO.	REVISION	APR'D	DATE	

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 LEVEL.

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

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					APR'D: R.G.N. DATE: 92.05.15
	3.	3. NOTE: 3.E. REVISED & 3.I. ADDED	J.S.	05.01.10	
GENERAL NOTES	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	BSD-N6
	NO.	REVISION	APR'D	DATE	

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 WORK 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 WATERMAINS.
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.
13. HYDRANTS WITHIN THE SITE TO BE CONSIDERED PRIVATE AND PAINTED RED.

City of BARRIE STANDARD DETAIL	GENERAL NOTES - WATERMAIN (MODIFIED)	REV No. 2 / DATE: MAY 2015 / SCALE: N.T.S.	APPROVED DATE: May 29/15 DIRECTOR OF ENGINEERING
		BSD-500	

EROSION CONTROL NOTES

1. ALL TEMPORARY SILT CONTROL AND EROSION PROTECTION DEVICES (I.E. SILT FENCING, DRAINAGE SWALES, ROCK CHECK DAMS, SEDIMENT BASINS, 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 BASINS 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 BASINS.
8. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM THE PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD. ANY CONSTRUCTION ACCESS ROUTES INTERNAL TO THE SITE SHALL NOT IMPEDE THE INTENDED DRAINAGE PATTERNS SET OUT ON THE ESC PLAN.
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 EROSION AND SEDIMENT 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

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 WATERMAIN TO BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWER TO BE 2.5m. WHERE WATERMAIN CONFLICTS WITH SEWER PIPE, 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. ALL BENDS AND TEES 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 CONDOMINIUM CORPORATION.
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. WATER SERVICE FROST COLLAR TO BE INSTALLED ON ALL CURB STOPS LOCATED WITHIN DRIVEWAYS.
10. COPPER WATER SERVICES 25mm 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. AN ANNUAL CHARGE FOR EACH PRIVATE CONNECTION MADE TO THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
17. AN ANNUAL CHARGE FOR EACH PRIVATE FIRE HYDRANT SUPPLIED WITH WATER FROM THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.

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 ARE 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. 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. THE OPERATION OF ANY CONSTRUCTION EQUIPMENT IN CONNECTION WITH CONSTRUCTION IS PROHIBITED BETWEEN 7:00 PM OF ONE DAY TO 7:00 AM OF THE NEXT DAY AND ALL DAY SUNDAYS AND STATUTORY HOLIDAYS UNLESS OTHERWISE DIRECTED BY THE CITY OF BARRIE.
6. THESE NOTES ARE GENERAL IN NATURE; FOR SPECIFIC DETAILS REFER TO CITY OF BARRIE AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
7. SEWER PIPE MATERIAL: -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. POLYVINYL CHLORIDE PIPE SHALL BE SDR-35 AND ALL SANITARY SERVICE LATERALS TO BE SDR-28. CONCRETE PIPE SHALL BE CLASS 65-D, 100-D, OR 140-D AS SPECIFIED.
8. 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 C/W CLASS B BEDDING INSTALLATION. NATIVE MATERIAL USED FOR BACKFILL SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
9. 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.
10. 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 (NOVEMBER 2019) AND SHALL CONFORM TO 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; 1500 DIAMETER MAINTENANCE HOLES – O.P.S.D. 701.011; 1800 DIAMETER MAINTENANCE HOLES – O.P.S.D. 701.012; 2400 DIAMETER MAINTENANCE HOLES – O.P.S.D 701.013.
-MAINTENANCE HOLE BENCHING SHALL EXTEND TO PIPE OBVERT AND SHALL BE IN ACCORDANCE WITH DETAILS SHOWN AS PER OPSD 701.021 -SAFETY PLATFORMS SHALL BE AS PER OPSD 404.020.
11. ROAD MAKE-UP FOR LIGHT DUTY (LOCAL RESIDENTIAL ROADS)-PER GEI CONSULTANTS GEOTECHNICAL UPDATE REPORT FOR PROPOSED RESIDENTIAL DEVELOPMENT, DATED AUGUST 14, 2022.
-40mm HL3 TOP COURSE ASPHALT
-70mm HL8 BOTTOM COURSE ASPHALT
-150mm GRANULAR A BASE COURSE
-450mm GRANULAR B SUBBASE COURSE
12. CURBS TO BE CITY OF BARRIE APPROVED MODIFIED ROLLOVER CURBS. SEE BSD-313 ON DET-3.
15. ALL PROPOSED CATCHBASIN, DOUBLE CATCHBASIN, & CATCHBASIN MAINTENANCE STRUCTURES TO HAVE MIN. 900mm SUMP DEPTH PER OPSD 705.010 AND OPSD 705.020 RESPECTIVELY.
16. FROST STRAPS TO BE PROVIDED ON ALL SANITARY MAINTENANCE HOLES (AND STORM MAINTENANCE HOLES WHERE NECESSARY) PER OPSD 701.100.
17. SANITARY ORINDER PUMP IS TO BE E-ONE MODEL DH151-93.
18. RECOMMENDATIONS FROM SECTION OF THE ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL, CITY OF BARRIE COMPLETED BY AZIMUTH ENVIRONMENTAL CONSULTING, INC. ARE TO BE ADHERED TO. SECTION 8 RECOMMENDATIONS COVERS INFORMATION REGARDING SPECIES AT RISK, MIGRATORY BREEDING BIRDS AND BATS, SEDIMENT AND EROSION CONTROLS, OPERATIONS (INCLUDING REFUELING AND SPILL MANAGEMENT), BUTTERNUT REGISTRATION AND COMPENSATION, LSRCA ECOLOGICAL OFFSETTING POLICY, TREE INVENTORY, ANALYSIS AND PRESERVATION REPORT AND FISH AND FISH HABITAT.

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #0312008O059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #0312008O010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GENERAL NOTES

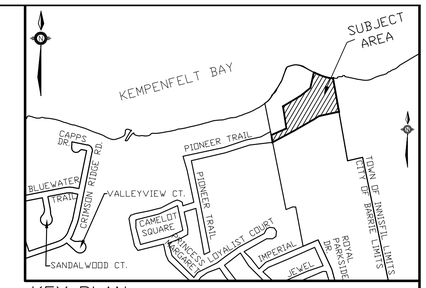
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN MG	SCALE: AS NOTED	DATE DEC 2021	
DRAWN JH	PROJECT FER-15101	DWG. Nº GN-1	
CHECKED JWI			

C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg, Layout:GN-1 Plotted: Aug 18, 2022 @ 1:17pm by kcopsin The Jones Consulting Group Ltd.

LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- LIMIT OF DEVELOPMENT/ PROPOSED SEDIM CONTROL FENCE PER LSRCA ESC-2
- TREE PRESERVATION LIMIT
- ~~SHRUB PRESERVATION~~ LIMIT
- LIMIT OF EASEMENT
- EX. CONTOUR
- PROPOSED CEDAR POST PER BSD-1233
- CATCHMENT AREA ID NUMBER
- E1 | 0.30 / 1.50 — RUN-OFF COEFFICIENT / AREA (ha.)
- BOREHOLE ID AND ELEV.
- STORM CATCHMENT AREA BOUNDARY
- PROPOSED CUT-OFF SWALE
- PROPOSED CONSTRUCTION ACCESS MAT PER C.O.B. BSD-23D
- PROPOSED ROCK CHECK DAM PER LSRCA ESC-4
- DIRECTION OF STORM DRAINAGE
- 226.50 / 227.38 — PROPOSED GROUND ELEVATION / EXISTING STRIPPED GROUND ELEVATION
- 0.5% — PROPOSED DRAINAGE FLOW DIRECTION AND GRADIENT
- PROPOSED CLEARING AND GRUBBING
- PROPOSED TOPSOIL STOCKPILE PER LSRCA ESC-6
- PROPOSED CATCHBASIN SEDIMENT TRAP



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

PROPERTY LIMITS

PROPERTY LINE

WATER'S EDGE

TOP OF SLOPE

EX. BUILDING

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

PROP. BERM 1.0m WIDE TOP WITH SIDESLOPES AT 3:1 TO ENSURE 1.0m (min) DEPTH FOR CUT-OFF SWALE TOP OF BERM ELEV. 228.10 MIN

PROP. LIMIT OF SLOPE

PROP. TREE PRESERVATION FENCE

PROP. STRAWBALE AS PER LSRCA ESC-2

PROP. DOUBLE SILTATION CONTROL FENCING PER BSD-1233

3:1 MAX.

PROP. 1.4m OVERFLOW WEIR

SEDIMENT BASIN
BOT 226.10
PP 226.80
TOP 228.10

30m BUFFER

4m WOF ACCESS ROAD

CONTROL-MH2 (1200mmø)

CONTROL-MH1 (1200mmø)

150mmø RIP RAP ON TERRAFIX 270R FILTER FABRIC

REFER TO TYPICAL BERM DETAIL ON DRAWING ESC-2

PROP. BERM 1.0m WIDE TOP WITH SIDESLOPES AT 3:1 TO ENSURE 1.0m (min) DEPTH FOR CUT-OFF SWALE

PROP. ROCK CHECK DAM PER LSRCA ESC-2 (TYP.)

EXISTING INTERMITTENT WATER COURSE

PROP. SINGLE SILTATION CONTROL FENCING PER BSD-1233

PROP. 0.5 (min) DEEP CUT-OFF SWALE PER LSRCA ESC-2

STM 01 (1200mmø)

STM 02 (1200mmø)

STM 03 (1200mmø)

DCBMH STM 04 (1500mmø)

E1 | 0.12 / 0.94

E2 | 0.12 / 0.48

EX HP & BPED TO BE REMOVED

EX. WELL TO BE DECOMMISSIONED

PROP. TOPSOIL STOCK PILE PER LSRCA ESC-6

PROP. LIMIT OF SLOPE

PROP. TREE PRESERVATION FENCE

PROP. 0.5 (min) DEEP CUT-OFF SWALE PER LSRCA ESC-2

PROP. BERM 1.0m WIDE TOP WITH SIDESLOPES AT 3:1 TO ENSURE 1.0m (min) DEPTH FOR CUT-OFF SWALE TOP OF BERM ELEV. 228.10 MIN

PROP. CONSTRUCTION ACCESS MAT PER BSD-23D TO BE INSTALLED AT END OF THE EXISTING ASPHALT DRIVEWAY

EX. BARN (DEMOLISHED)

EX. PIONEER TRAIL

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. 200mmø WATERMAIN

EX. SANITARY MH

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H3038 TO BE RELOCATED

HSE. #60

HSE. #68

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

STREET 'A'

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

CONCEPTUAL: NOT FOR CONSTRUCTION

NOTE:
"I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF 70 PIONEER TRAIL AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES."

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
22-08-18
PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº ESC-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_ESC-01.dwg Layout:ESC-1 Plotted: Aug 19, 2022 @ 6:33pm by mgilpin The Jones Consulting Group Ltd.

EROSION AND SEDIMENT CONTROL NOTES:

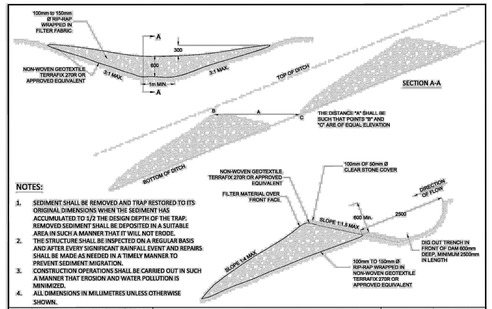
1. ALL SEDIMENT CONTROL MEASURES SUCH AS SEDIMENT CONTROL FENCE, TEMPORARY PONDS, CONSTRUCTION ACCESS MATS, SEDIMENT TRAPS, SWALES AND CHECK DAMS MUST BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE WORKS.
2. SEDIMENT CONTROLS SHOULD BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT. REPAIRS TO ESC MEASURES MUST BE COMPLETED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. ADDITIONAL MATERIALS SUCH AS CLEAR STONE, FILTER FABRIC, PUMPS, HOSES AND/SILTSOXX TO BE KEPT ONSITE AT ALL TIMES FOR CONDUCTING REPAIRS TO SEDIMENT CONTROL MEASURES.
4. ALL DISTURBED AREAS LEFT INACTIVE FOR MORE THAN THIRTY DAYS ARE TO BE STABILIZED.
5. THE STABILIZATION SEED MIXTURE IS TO BE AS SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLAN.
6. THE STABILIZATION SEED MIXTURE IS TO BE APPLIED AT A MINIMUM RATE OF 25 kg/ha.
7. ENGINEERED CHANGES TO THE ESC MEASURES MAY BE NEEDED AS SITE CONDITIONS CHANGE THROUGHOUT THE CONSTRUCTION PROCESS. THESE UPDATES MUST REFLECT BEST MANAGEMENT PRACTICES TO CONTROL SEDIMENT AND EROSION ONSITE AND SHOULD BE COMPLETED BASED ON DIRECTION FROM THE SITE ENGINEER. ADDITIONAL MEASURES MAY BE REQUIRED AS DIRECTED BY AN ENGINEER THROUGHOUT THE CONSTRUCTION PROCESS.
8. THE CONSTRUCTION ENTRANCE MAT IS TO BE INSTALLED AS THE FIRST STEP IN THE SITE ALTERATION PROCESS.
9. SEDIMENT CONTROL FENCE IS TO BE INSTALLED DOWNSLOPE OF ALL DISTURBED AREAS. A DOUBLE ROW OF SEDIMENT CONTROL FENCE IS TO BE INSTALLED SURROUNDING ALL NATURAL HERITAGE FEATURES AND AS DIRECTED BY THE SITE ENGINEER. SEDIMENT CONTROL FENCE IS TO BE AS PER LSRCA STANDARD ESC-4 or ESC-5 AS A MINIMUM. LIGHT DUTY SILT FENCE IS NOT PERMITTED.
10. CUT OFF DITCH OR DITCHES ARE TO BE INSTALLED AS SHOWN ON THE ESC PLANS AND AS NECESSARY BASED ON CHANGING SITE CONDITIONS TO DIRECT OVERLAND FLOW TO THE APPROPRIATE SEDIMENT TRAP OR TEMPORARY SEDIMENT POND.
11. CHECK DAMS ARE TO BE INSTALLED IN ALL SWALES AND DITCHES IN ACCORDANCE WITH DRAWING LSRCA ESC-2, AS A MINIMUM
12. TEMPORARY SEDIMENT TRAP(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION. IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT TRAP(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
13. TEMPORARY SEDIMENT POND(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION. IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT POND(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
14. FILTREXX SILTSOXX OR APPROVED EQUIVALENT TO BE INSTALLED DOWNSTREAM FROM SEDIMENT TRAP AND TEMPORARY SEDIMENT POND OUTLETS TO A MINIMUM HEIGHT OF 300mm.
15. IF STOCKPILES ARE USED ON-SITE FOR THE STORAGE OF EXCESS MATERIAL, THEY ARE TO BE IN ACCORDANCE WITH DETAIL DRAWING LSRCA ESC-6 OR BETTER.
16. ANY DEWATERING OCCURRING ONSITE MUST BE IN ACCORDANCE WITH AN APPROVED DEWATERING PLAN. ADDITIONAL DEWATERING REQUIREMENTS MAY BE DEEMED NECESSARY AND SHALL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.
17. THE SITE TRAILER IS TO BE LOCATED ONLY AT THE DESIGNATED LOCATION SHOWN ON THE PLANS.
18. EQUIPMENT AND HYDROCARBON STORAGE IS TO OCCUR ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS.
19. REFUELING IS TO TAKE PLACE ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS AND SHALL BE A MINIMUM OF THIRTY METRES FROM ANY WATERCOURSE OR ENVIRONMENTALLY SENSITIVE AREA.
20. AN APPROVED SPILLS MANAGEMENT PLAN IS TO BE KEPT ONSITE.
21. SPILL CLEANUP EQUIPMENT SUCH AS ABSORPTIVE MEDIA IS TO BE MAINTAINED ONSITE FOR IMMEDIATE USE IN THE EVENT OF A SPILL.
22. SPILLS ARE TO BE REPORTED IMMEDIATELY TO THE MOECC SPILLS ACTION CENTRE AT 1-800-268-6060.
23. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEAN-UP AND RESTORATION, INCLUDING ALL COSTS, DUE TO THE RELEASE OF SEDIMENT FROM THE SITE.
24. LOW IMPACT DEVELOPMENT (LID) MEASURES ARE NOT TO BE USED AS SEDIMENT CONTROL DEVICES.
25. ADDITIONAL SEDIMENT CONTROL DEVICES MAY BE DEEMED NECESSARY AND AS SITE CONDITIONS CHANGE AND SHALL BE INSTALLED AS DIRECTED BY THE SITE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

EROSION AND SEDIMENT CONTROL PLAN NOTES

DATE: 06.2016
SCALE: NTS
LSRCA ESC-1

G9



NOTES:

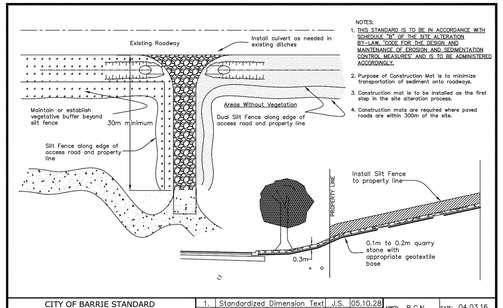
1. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE STRUCTURE SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT AND REPAIRS SHALL BE MADE AS NEEDED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

SWALE AND ROCK CHECK DAM

DATE: 06.2016
SCALE: NTS
LSRCA ESC-2

G7



NOTES:

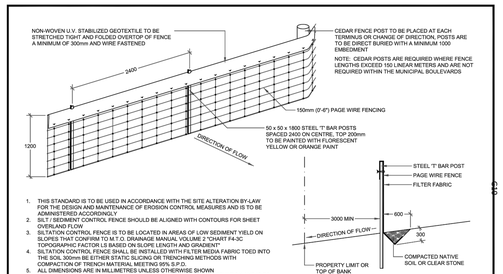
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "N" OF THE SITE ALTERATION BY-LAW, UNDE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. 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 300m of the site.

NO.	REVISION	APR'D	DATE
1.	Standardized Dimension Text	J.S.	05.10.28

CITY OF BARRIE STANDARD

CONSTRUCTION ENTRANCE MAT

APR'D: R.G.N. DATE: 04.03.16
DRAWN: A.S.C SCALE: N.T.S
BSD-23D



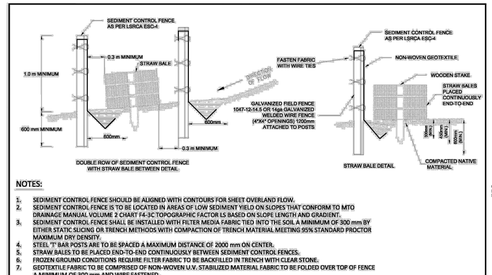
1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY.
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
3. SILTATION CONTROL FENCE IS TO BE 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% STANDARD PROCTOR MAXIMUM DRY DENSITY.
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-1231, BSD-1232 AND BSD-1233

REV No.	DATE: OCT 2017	APPROVED
2	SCALE: N.T.S.	Oct 19/17
BSD-1233	FORMERLY BSD-23A	Original Signed By

Barrie STANDARD DETAIL

SILTATION CONTROL FENCE

DIRECTOR OF ENGINEERING



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

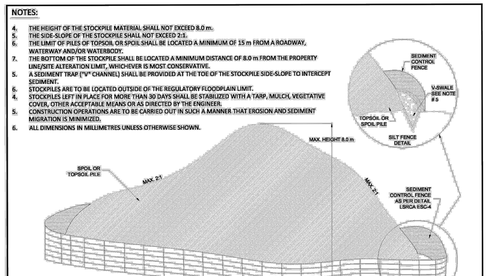
DATE: 06.2016
SCALE: NTS
LSRCA ESC-5

G10

G11

NOTES:

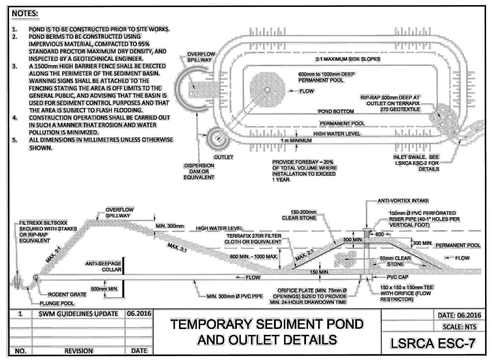
4. THE HEIGHT OF THE STOCKPILE MATERIAL SHALL NOT EXCEED 8.0 m.
5. THE SIDE-SLOPE OF THE STOCKPILE SHALL NOT EXCEED 2:1.
6. THE LIMIT OF PILES OF TOPSOIL OR SPOIL SHALL BE LOCATED A MINIMUM OF 15 m FROM A ROADWAY, WATERWAY AND/OR WATERBODY.
7. THE BOTTOM OF THE STOCKPILE SHALL BE LOCATED A MINIMUM DISTANCE OF 8.0 m FROM THE PROPERTY LINE/SITE ALTERATION LIMIT, WHICHEVER IS MOST CONSERVATIVE.
5. A SEDIMENT TRAP ("V"-CHANNEL) SHALL BE PROVIDED AT THE TOE OF THE STOCKPILE SIDE-SLOPE TO INTERCEPT SEDIMENT.
6. STOCKPILES ARE TO BE LOCATED OUTSIDE OF THE REGULATORY FLOODPLAIN LIMIT.
4. STOCKPILES LEFT IN PLACE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH A TARP, MULCH, VEGETATIVE COVER, OTHER ACCEPTABLE MEANS OR AS DIRECTED BY THE ENGINEER.
5. CONSTRUCTION OPERATIONS ARE TO BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT MIGRATION IS MINIMIZED.
6. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.



NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

STOCKPILE SILTATION CONTROL

DATE: 06.2016
SCALE: NTS
LSRCA ESC-6



NOTES:

1. POND IS TO BE CONSTRUCTED PRIOR TO SITE WORKS.
2. POND BERMS TO BE CONSTRUCTED USING IMPERVIOUS MATERIAL, COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, AND INSPECTED BY A GEOTECHNICAL ENGINEER.
3. A 1500mm HIGH BARBER FENCE SHALL BE ERECTED ALONG THE PERIMETER OF THE SEDIMENT BASIN. WARNING SIGNS SHALL BE ATTACHED TO THE FENCING STATING THE AREA IS OFF LIMITS TO THE GENERAL PUBLIC, AND ADVISING THAT THE BASIN IS USED FOR SEDIMENT CONTROL PURPOSES AND THAT THE AREA IS SUBJECT TO FLASH FLOODING.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
5. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

TEMPORARY SEDIMENT POND AND OUTLET DETAILS

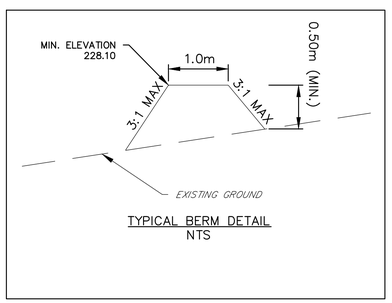
DATE: 06.2016
SCALE: NTS
LSRCA ESC-7

G12

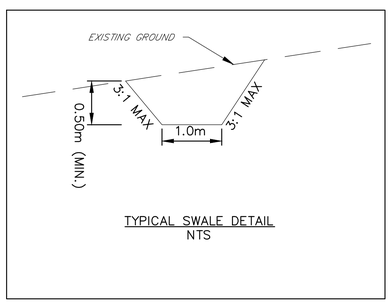
ENVIRONMENTAL IMPACT STUDY RECOMMENDATIONS

ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL, COMPLETED BY AZIMUTH ENVIRONMENTAL CONSULTING INC., DATED FEBRUARY 2022.

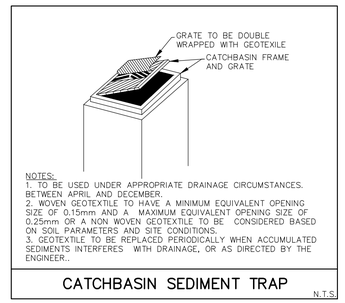
1. THE DEVELOPMENT HAS NOT BEEN DESIGNATED AS A SPECIES AT RISK AREA. THE CONTRACTOR WILL KEEP UP TO DATE ON SPECIES AT RISK POLICY AND THE CHANGING NATURAL ENVIRONMENT OF THE SITE WHICH COULD SHIFT THE CURRENT WILDLIFE HABITATS. WORKERS WILL BE TRAINED IN THE IDENTIFICATION OF SPECIES AT RISK THAT MAY POTENTIALLY OCCUR IN THE AREA.
2. IN THE EVENT A SPECIES AT RISK IS IDENTIFIED WITHIN THE DEVELOPMENT LIMITS, STOP WORK AND CONTACT THE MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS. WORKERS SHOULD ENSURE THAT THEY ARE NOT WANTONLY INJURED OR KILLED AND TO ENSURE THAT DAMAGE TO THE HABITAT IS AVOIDED.
3. REMOVAL OF VEGETATION SHOULD BE AVOIDED BETWEEN APRIL 1 THROUGH AUGUST 31 OF ANY YEAR. IF CLEARING IS REQUIRED DURING THIS TIME, SCREENING BY AN ECOLOGIST KNOWLEDGEABLE ABOUT LOCAL BIRD SPECIES WILL BE COMPLETED.
4. TREE REMOVAL SHOULD BE AVOIDED BETWEEN APRIL 1 THROUGH SEPTEMBER 30 OF ANY YEAR.
5. MATERIAL STORAGE (I.E. STOCKPILES) WILL BE LOCATED OVER 30m FROM FISH HABITATS AND WOODLANDS. FENCING SHALL BE USED TO AVOID INTRUSION OF MACHINERY INTO UNDISTURBED NATURAL AREAS.
6. THE CONTRACTOR SHALL HAVE A CONTAMINANT AND SPILL MANAGEMENT PLAN IN PLACE PRIOR TO THE START OF WORK. THIS WILL INCLUDE KEEPING A SPILL KIT ON SITE AT ALL TIMES.
7. GRADING WORK WILL REMAIN 50m AWAY FROM THE IDENTIFIED BUTTERNUT TREE 005. IF GRADING ENCROACHES WITHIN THAT BOUNDARY IT SHALL BE CONSIDERED HARMFUL TO THE TREE AND COMPENSATION SHALL BE REQUIRED. THE TREE MAY QUALIFY FOR AN ESA EXEMPTION, REFER TO SECTION 8.5 OF THE ENVIRONMENTAL IMPACT STUDY – 70 PIONEER TRAIL FOR DETAILS.
8. THE CONTRACTOR SHALL COMPLY WITH THE LSRCA'S ECOLOGICAL OFFSETTING POLICY (LSRCA, 2021).
9. REMOVAL OF TREES SHALL COMPLY WITH THE CITY OF BARRIE TREE PRESERVATION BY-LAW (2014-115).
10. IT IS RECOMMENDED THAT CONSTRUCTION TAKE PLACE DURING DIRER MONTHS TO MINIMIZE DISTURBANCES OF FISH HABITATS.
11. IF DEWATERING IS REQUIRED, ALL WATER SHALL BE PUMPED TO A FILTER BAG PRIOR TO BEING RELEASED INTO THE SWALE ALONG THE EASTERN BOUNDARY. FILTER BAGS SHALL BE PLACED ON STABLE VEGETATED GROUND A MINIMUM OF 30m FROM THE LAKE.
12. SCOUR PROTECTION ELEMENTS ARE RECOMMENDED AT THE STORMWATER OUTLET TO LIMIT EROSIONS.



TYPICAL BERM DETAIL
NTS



TYPICAL SWALE DETAIL
NTS



NOTES:
1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES. BETWEEN APRIL AND DECEMBER.
2. WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm OR A NON WOVEN GEOTEXTILE TO BE CONSIDERED BASED ON SOIL PARAMETERS AND SITE CONDITIONS.
3. GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE, OR AS DIRECTED BY THE ENGINEER..

CATCHBASIN SEDIMENT TRAP

N.T.S.

SITE DATA	
OVERALL SITE AREA TO BE DISTURBED	1.77 Ha
EXISTING LAND USE	TREED VACANT LAND
PREDOMINANT SOIL TYPE	GRAVELLY SANDY LOAM

CATCHMENT E1–E2 TSP DATA	
BOTTOM OF POND ELEVATION	226.10
PERMANENT POOL ELEVATION	226.85
ORIFICE DIAMETER	75 mm
OVERFLOW WEIR ELEVATION	227.8
WEIR LENGTH	1.4m
WEIR SIDE SLOPES	3:1
TOP OF POND ELEVATION	228.10
PERMANENT POOL VOLUME	275.66 cu.m
EXTENDED DETENTION VOLUME	802.58 cu.m
ACTIVE STORAGE VOLUME	1078.24 cu.m
REQUIRED PERMANENT POOL VOLUME BASED ON 185cu.m/Ha OF DRAINAGE AREA TO POND	262.7 cu.m
REQUIRED ACTIVE STORAGE VOLUME BASED ON 185cu.m/Ha OF DRAINAGE AREA TO POND	262.7 cu.m
CATCHMENT AREA	1.42 ha

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 BASIN, 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 SIGNIFICANT 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 (HADD) OF VEGETATION OR THE IMPAIRMENT OF RECEIVER 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 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 AND MIXTURE OF 48% ANNUAL RYE GRASS, 48% FALL RYE, 4% RED CLOVER WILL NEED TO BE APPLIED TO THE SIDE SLOPES OF THE SEDIMENT CONTROL PONDS AND ANY EXPOSED AREAS FOLLOWING TOPSOIL STRIPPING.
8. ALL SITE DRAINAGE TO BE DIRECTED TO THE TEMPORARY SEDIMENT BASINS 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 TO A SUITABLE TREATMENT PRACTICE.
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 PRIOR TO RELEASE. 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 AND TEMPORARY SEDIMENT BASIN, ETC.
2. STRIPPING AND REMOVAL OF TOPSOIL. TOPSOIL TO BE REMOVED FROM SITE OR STOCKPILED AT THE DESIGNATED LOCATION AS DIRECTED BY THE ENGINEER.
3. PROCEED WITH EARTH EXCAVATION AND PRE-GRADING.
4. PROCEED WITH SEEDING OF RESTORATION AREAS AS DIRECTED BY ENGINEER.
5. PROCEED WITH SITE WORKS I.E. SITE SERVICING AND SURFACE WORKS INSTALLATIONS. COMPLETE TEMPORARY CONNECTIONS FROM SEDIMENT BASINS TO INTERNAL STORM SEWERS.
6. RESTORATION OF DISTURBED AREAS.
7. REMOVAL OF SEDIMENT AND EROSION CONTROLS.

NOTE SILTATION AND EROSION CONTROL MEASURES ARE TO BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION AND NECESSARY REPAIRS TO BE COMPLETED PROMPTLY, AS REQUIRED.

NOTE SERVICING WORKS PENDING FURTHER APPROVALS FROM THE CITY OF BARRIE.

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.

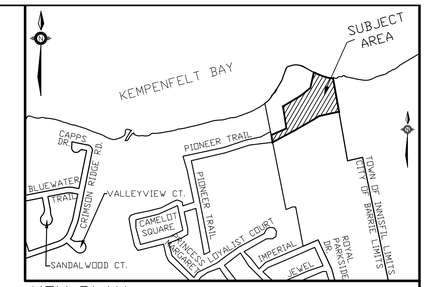
IF A SPILL OCCURS IT SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE AND THE MINISTRY OF NATURAL RESOURSES. THE ON CALL CITY OF BARRIE ENVIRONMENTAL OFFICER SHOULD ALSO BE NOTIFIED VIA CELL PHONE (705) 725-3374.

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

NOTE:
**"I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF 70 PIONEER TRAIL AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DR

LEGEND

- EX. SAN03052 — EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- VB — EX. VALVE & BOX
- H&V — EX. HYDRANT & VALVE
- CS — EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HP — EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION
- STM 01 — PROP. STM MH
- STM DCBMH — PROP. STM DCBMH
- CB — PROP. STM CATCHBASIN
- DCB — PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- VB — PROP. VALVE & BOX
- H&V — PROP. HYDRANT & VALVE
- CS — PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- BOREHOLE 103 260.00 — BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

LOT 8 - 710 -

HSE. #56

HSE. #60

HSE. #68

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H3038 TO BE RELOCATED

STREET 'A'

WATER'S EDGE

TOP OF SLOPE

PROPERTY LINE

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE- PROP. WOOD BOLLARDS- SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

75mmø HDPE SAN FORCEMAIN TO BE CONNECT TO EX. FORCEMAIN IN SAH03051

PROP. WATERMAIN TO BE CONNECTED TO EXISTING VB AND CAP TO BE REMOVED

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

ADJUST GRATE TO FINISHED GRADE

EX. SAH03052

EX. SAH03051

EX-200mmø WATERMAIN

22.5° BEND

200mmø PVC (DR-18) W/M

1.5m SIDEWALK

PROP. 75mmø HDPE SANITARY FORCEMAIN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. FLUSHING MH STATION #2

STM 03 (1200mmø)

25.8m-375mmø PVC STM @ 0.50%

STM 02 (1200mmø)

42.7m-300mmø PVC STM @ 0.50%

STM 01 (1200mmø)

PROP. FLUSHING MH STATION #1

PROP UTILITY DUCT CROSSING

EX HP & BPED TO BE REMOVED

END CHAINLINK FENCE (TRANSITION)

LIMIT OF GRADING

PROPERTY LINE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

EXISTING BUILDING

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVETMENT

30m BUFFER

5.9m-375mmø PVC STM @ 2.00%

17.5m-375mmø PVC STM @ 2.00%

UNDERGROUND INFILTRATION GALLERY (ADS STORMTECH MC-4500)

3.0m SERVICING EASEMENT

PROP. 75mmø HDPE SANITARY FORCEMAIN

3.1m-375mmø PVC STM @ 5.00%

4m WIDE ACCESS ROAD

50mmø COPPER W/M

25.0m-375mmø PVC STM @ 1.30%

UFF-10

1.5m SIDEWALK

DCBMH STM 04 (1500mmø)

61.7m-375mmø PVC STM @ 0.50%

200x50mmø TEE

260mmø PVC (DR-18) W/M

50mmø COPPER W/M

EX WELL TO BE DECOMMISSIONED

ACTIVE WELL

3.0m SERVICING EASEMENT

PROP. 75mmø HDPE SANITARY FORCEMAIN

EX BARN TO BE REMOVED

EASEMENT LIMIT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

16.0m-375mmø PVC STM @ 2.00%

CONTROL-MH2 (1200mmø)

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

CONTROL-MH1 (1200mmø)

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

4.6m-375mmø PVC STM @ 1.30%

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PRIVATE PROPERTY

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

PROP. TREE PRESERVATION FENCE

BENCHMARK:

ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GENERAL SERVICING

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	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº GS-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GENERAL_SERVICING.dwg Layout: GS-1 Plotted: Aug 19, 2022 @ 7:08pm by mgolland The Jones Consulting Group Ltd

LEGEND

- EX. SAN0,SO52 — EX. SANITARY MAINTENANCE HOLE
- EX. VALVE & BOX
- H&V — EX. HYDRANT & VALVE
- CS — EX. CURB STOP
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
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- CS — PROP. CURB STOP
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- MAJOR OVERLAND FLOW ROUTE
- SD — SPLIT DRAINAGE LOT
- WO — WALK OUT LOT
- LO — LOOK OUT LOT
- FD — FRONT DRAINING LOT
- TR — TRANSITION LOT
- R=3 — NUMBER OF RISERS

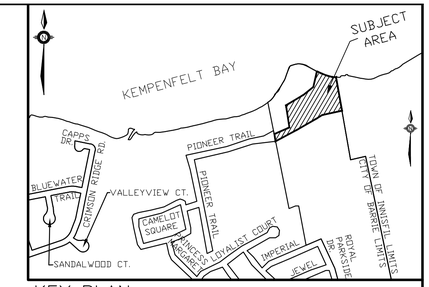
LOT TYPE
ORIGINAL GROUND ELEVATION
PROPOSED ELEVATION
HOUSE ELEVATION DICTATED BY WATER TABLE
3:1 SLOPE (MAX)
DRAFT PLAN LOT NUMBER
SURFACE DRAINAGE DIRECTION & GRADE
CONCEPTUAL BUILDING ENVELOPE
RECOMMENDED FINISHED FLOOR ELEVATION
RECOMMENDED BASEMENT FLOOR ELEVATION
HIGH GROUNDWATER ELEVATION
ENGINEERED FILL
CURB STOP
LIMIT OF ROW
SIDEWALK PER OPSD 310.010
ASPHALT DRIVEWAY APRON
TWO-STAGE BARRIER CURB & GUTTER OPSD-M600.070
DROPPED CURB
GRADE CHANGE FLAG
ROAD LENGTH & GRADE
STATION & ELEVATION
BOREHOLE ID AND ELEV.

ENGINEERED FILL DETAIL
N.T.S.

STREETLINE — VARIES — 5m — REAR LOT LINE
VARIES FINAL GRADE
TYP. PREGRADE DEPTH
ENGINEERED FILL
GRADE APPROVED FOR FILL PLACEMENT
EX. TOPSOIL DELETERIOUS MAT'L TO BE REMOVED

FINISHED FLOOR ELEVATION DICTATED BY WATER TABLE AND APPROXIMATED BUILDING ENVELOPE. GROUND WATER AND FINIHSED FLOOR ELEVATION TO BE CONFIRMED PRIOR TO ISSUANCE OF BUILDING PERMIT

KEY PLAN
NTS



KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 -TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE- PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX. POWER POLE TO BE REMOVED

EX. HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

HSE. #68
HSE. #56
HSE. #60
LOT 8
710 - 1
LOT 9
LOT 10
EXISTING RESIDENTIAL

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H.3038 TO BE RELOCATED

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

EX. BARN TO BE REMOVED

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

4m WIDE ACCESS ROAD EASEMENT LIMIT

30m BUFFER

CONTROL-MH1

CONTROL-MH2

4m WIDE ACCESS ROAD

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 -TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE
1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

3.0m SERVICING EASEMENT

PROP. FLUSHING MH STATION #1

PROP. FLUSHING MH STATION #2

1.5m SIDEWALK

DCBMH STM 04

STM 01

STM 02

STM 03

STREET 'A'

EASEMENT LIMIT

PROPERTY LINE

PRIVATE PROPERTY

CONCEPTUAL: NOT FOR CONSTRUCTION

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

GRADING PLAN

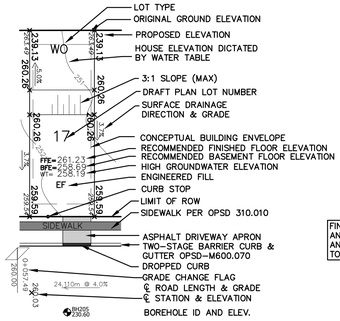
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

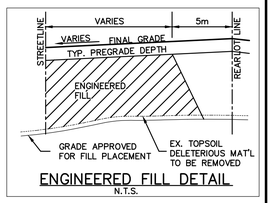
DESIGN	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº GP-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GRADING-PLAN.dwg Layout:GP-1 Plotted: Aug 19, 2022 @ 7:11pm by mgallant The Jones Consulting Group Ltd

LEGEND

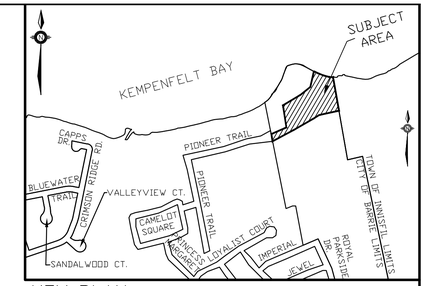
- EX. SANITARY MAINTENANCE HOLE (EX. SAN0,5052)
- EX. VALVE & BOX (VB)
- EX. HYDRANT & VALVE (H&V)
- EX. CURB STOP (CS)
- EX. BELL PEDESTAL
- EX. HYDRO POLE (EX. HP)
- EX./PROP. STREETLIGHT (SL)
- PROP. STREETLIGHT CONTROL
- PROP. SAN MH FLUSHING STATION (FLUSHING STATION)
- PROP. 32mmø SANITARY BALL/CHECK VALVE
- PROP. STM MH (STM 01)
- PROP. STM DCBMH (STM DCBMH)
- PROP. STM CATCHBASIN (CB)
- PROP. STM DOUBLE CATCHBASIN (DCB)
- PROP. VALVE & BOX (VB)
- PROP. HYDRANT & VALVE (H&V)
- PROP. CURB STOP (CS)
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- EX. CONTOUR (260.00)
- MAJOR OVERLAND FLOW ROUTE
- SD SPLIT DRAINAGE LOT
- WO WALK OUT LOT
- LO LOOK OUT LOT
- FD FRONT DRAINING LOT
- TR TRANSITION LOT
- R=3 NUMBER OF RISERS



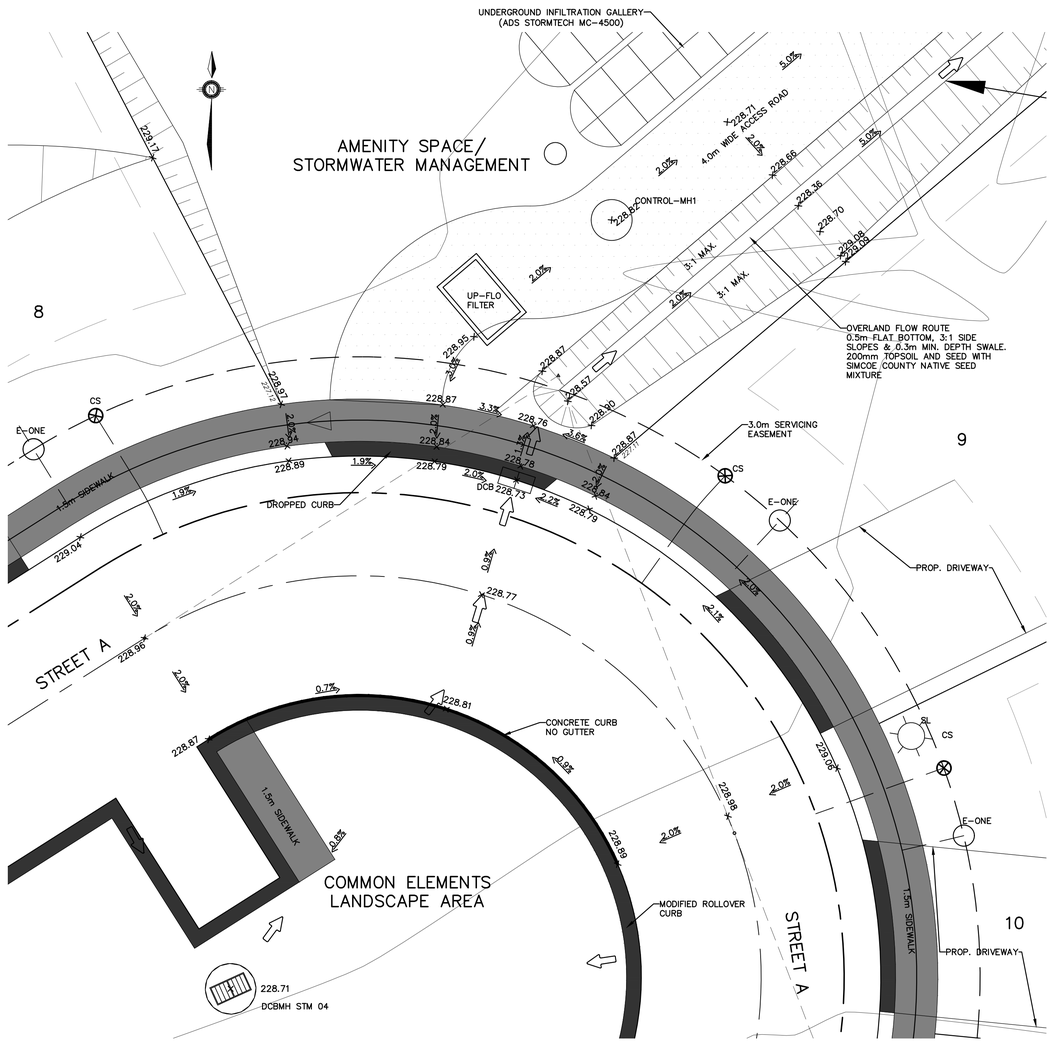


ENGINEERED FILL DETAIL
N.T.S.

FINISHED FLOOR ELEVATION DICTATED BY WATER TABLE AND APPROXIMATED BUILDING ENVELOPE. GROUND WATER AND FINIHSED FLOOR ELEVATION TO BE CONFIRMED PRIOR TO ISSUANCE OF BUILDING PERMIT



KEY PLAN
NTS



CONCEPTUAL: NOT FOR CONSTRUCTION

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILED GRADING 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	VBS	SCALE: 1:100	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº GP-2
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_GRADING-PLAN.dwg Layout:GP-2 Plotted Aug 19, 2022 @ 7:12pm by mgilliet The Jones Consulting Group Ltd.

LEGEND

- STM 01 — PROP. STM MH
- STM DCBMH — PROP. STM DCBMH
- CB — PROP. STM CATCHBASIN
- DCB — PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXISTING EXTERNAL OVERLAND FLOW
- 101 / 0.13 / 0.60 — CATCHMENT AREA ID NUMBER, RUN-OFF COEFFICIENT, AREA (ha.)
- CATCHMENT BOUNDARY
- 301 / 33 / 5.56 — CATCHMENT AREA ID NUMBER, CURVE NUMBER OR % IMPERVIOUS, AREA (ha.)
- CATCHMENT BOUNDARY
- BOREHOLE ID AND ELEV.

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

205 — 0.42 / 0.08 — OPEN SPACE

204 — 0.21 / 0.19 — OPEN SPACE

203 — 0.13 / 0.20

202 — 0.63 / 0.47

201D — 0.52 / 0.73

201C — 0.14 / 0.76

201B — 0.11 / 0.76

201A — 0.11 / 0.87

206 — 0.50 / 0.57

208 — 0.03 / 0.10

207 — 0.09 / 0.10

303 / 25 / 0.33

301 / 29 / 6.32

302 / 27 / 1.68

KEY PLAN
NTS

SUBJECT AREA

KEMPENFELT BAY

CAPPS DR.

CRIMSON RIDGE RD.

BLUEWATER TRAIL

PIONEER TRAIL

VALLEYVIEW CT.

CAMELOT SQUARE

PIONEER TRAIL

LOYALIST COURT

IMPERIAL

JEWEL

ROYAL PARK RIDGE

SANDALWOOD CT.

TOWN OF INNISFIL LIMITS
CITY OF BARRIE LIMITS

2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI
NO.	REVISIONS	DATE	INITIAL

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº STM-1
CHECKED	JWI		

G:\Eng_30\FER-15101-01\Production DWGS\FER-15101_STORM-DRAINAGE.dwg Layout:STM-1 Plotted: Aug 19, 2022 @ 9:44pm by mgallant The Jones Consulting Group Ltd

LEGEND

- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 EX. CONTOUR
- DIRECTION OF EXISTING OVERLAND FLOW
- CATCHMENT AREA ID NUMBER
- 301 | 33 / 5.56 — CURVE NUMBER / AREA (ha.)
- CATCHMENT BOUNDARY
- BH205 230.00 BOREHOLE ID AND ELEV.

KEY PLAN
NTS



BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

J. W. INGRAM 100145779 — 22-08-18 — PROVINCE OF ONTARIO — LICENCED PROFESSIONAL ENGINEER

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

STORMWATER MANAGEMENT PRE-DEVELOPMENT AREAS

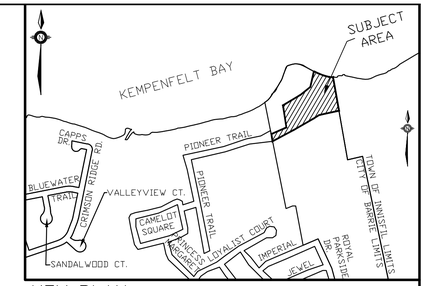
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: 1:500	DATE OCTOBER 2020
DRAWN	VBS	PROJECT FER-15101	DWG. Nº SWM-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PRE_DEVELOPMENT.dwg Layout:SWM-1 Plotted Aug 19, 2022 @ 4:13pm by kcronin The Jones Consulting Group Ltd.

LEGEND

- PROP. STM MH
- PROP. STM DCBMH
- PROP. STM CATCHBASIN
- PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 EX. CONTOUR
- DIRECTION OF OVERLAND FLOW
- DIRECTION OF EXTERNAL OVERLAND FLOW
- CATCHMENT AREA ID NUMBER / CURVE NUMBER / AREA (ha.) (101 | 0.13 | 33)
- CATCHMENT BOUNDARY
- CATCHMENT AREA ID NUMBER / CURVE NUMBER / AREA (ha.) (301 | 33 | 5.56)
- EXTERNAL CATCHMENT BOUNDARY
- BH205 228.90 BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

205 | 0.42 | 28

OPEN SPACE

204 | 0.21 | 42

203 | 0.13 | 46

206 | 0.50 | 72

303 | 25 | 0.33

208 | 0.03 | 39

201 | 0.88 | 86

202 | 0.63 | 65

207 | 0.10 | 37

301 | 29 | 6.32

302 | 27 | 1.68

WATER'S EDGE
TOP OF SLOPE
PROPERTY LINE
EX. BUILDING
END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.
END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.
9.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 - TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE
SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE
CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.
END CHAINLINK FENCE (TRANSITION)
PROP. TREE PRESERVATION FENCE
LIMIT OF GRADING
PROPOSED OVERLAND FLOW
PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN
DIRECTION OF OVERLAND FLOW
300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.
HEADWALLS AS PER OPSD 804.030
HANDRAIL AS PER OPSD 980.101 (TYP.)
EX HP & BPED TO BE REMOVED
STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE
START C.L. FENCE
PROP. WOOD BOLLARDS SPACED 1.0m O.C.
EX POWER POLE TO BE REMOVED
HSE. #68
HSE. #56
HSE. #60
LOT 8
LOT 9
LOT 10
EXISTING RESIDENTIAL
EXISTING LOT LINE
EX. PIONEER TRAIL
EXISTING MUNICIPAL CUL-DE-SAC
STREET 'A'
1.5m SIDEWALK
3.0m SERVICING EASEMENT
DROPPED CURB
EX. WELL TO BE DECOMMISSIONED
ACTIVE WELL
3-TWN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030
MATCHING EXISTING GROUND
0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM
PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10
EASEMENT LIMIT
EX. BARN TO BE REMOVED
4m WIDE ACCESS ROAD
EASEMENT LIMIT
EXISTING ROCK REVETMENT
30m BUFFER
OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE
TERRAFIX FM200 - TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE
1.0m WIDE BERM MIN. 0.3m ABOVE SWALE
CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.
MATCH EXISTING DRAINAGE COURSE
STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE
150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE
OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE
PROP. TREE PRESERVATION FENCE
PRIVATE PROPERTY
PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE
CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE
STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APPROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

OVERALL STORMWATER MANAGEMENT POST DEVELOPMENT AREAS

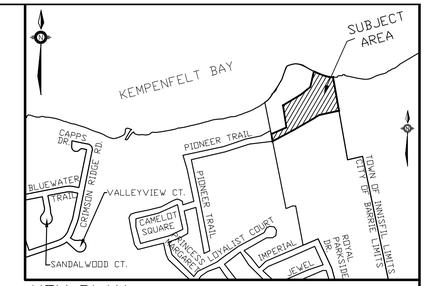
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN VBS	SCALE: 1:500	DATE OCTOBER 2020	
DRAWN VBS	PROJECT FER-15101	DWG. Nº SWM-2	
CHECKED JWI			

C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_POST-DEVELOPMENT.dwg Layout: SWM-2 Plotted: Aug 19, 2022 @ 7:23pm by mpollard The Jones Consultiing Group Ltd.

LEGEND

- CATCHMENT BOUNDARY
- AREA (ha.) 0.42 | 2.34 PERSONS PER UNIT
- No. OF UNITS 10 | 13 CATCHMENT AREA ID NUMBER
- EX. SAN03052 — EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- 260.00 — EX. CONTOUR
- BH205 EL.260.00 — BOREHOLE ID AND ELEV.



KEY PLAN
NTS

KEMPENFELT BAY

WATER'S EDGE

TOP OF SLOPE

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

PROPERTY LINE

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

END CHAINLINK FENCE (TRANSITION)

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

LIMIT OF GRADING

PROPERTY LINE

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

PROP. TREE PRESERVATION FENCE

300mm DEEP, 100–150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

75mmø HDPE SAN FORCEMAIN TO BE CONNECT TO EX. FORCEMAIN IN SAH03051

PROP. 75mmø HDPE SANITARY FORCEMAIN

EX HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

ADJUST GRATE TO FINISHED GRADE

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

EX. SAH03052

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

3–TWIN 15.8m– 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROPERTY LINE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. TREE PRESERVATION FENCE

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

MATCHING EXISTING GROUND

EASEMENT LIMIT

EX BARN TO BE REMOVED

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

E/ONE GRINDER PUMP MODEL DH151–93 — 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

PROP. FLUSHING MH STATION #2

PROP. FLUSHING MH STATION #1

3.0m SERVICING EASEMENT

PROP. 75mmø HDPE SANITARY FORCEMAIN

STREET 'A'

1.5m SIDEWALK

DROPPED CURB

2.03 | 2.34

18 | 1

4m WIDE ACCESS ROAD

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVEMENT

30m BUFFER

EXISTING BUILDING

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

EX. WELL TO BE DECOMMISSIONED

ACTIVE WELL

PROP. 75mmø HDPE SANITARY FORCEMAIN

PROP. PRIVATE PROPERTY

PROPERTY LINE

EASEMENT LIMIT

PROP. TREE PRESERVATION FENCE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

MATCH EXISTING DRAINAGE COURSE

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

LOT 8 710 – 1

HSE. #56

HSE. #60

HSE. #68

EXISTING LOT LINE

SS

CB

EX. 75mmø HDPE SAN. SANITARY FORCEMAIN

AMD #3

V57726

EX. SAH03051

EX. HP

EX. SAH03052

SL

13.25° BEND

5.5m SIDEWALK

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

INTERNAL SANITARY DRAINAGE AREA 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	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº SAN–1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_SANITARY-DRAINAGE.dwg, Layout:SAN-1 Plotted: Aug 19, 2022 @ 7:29pm by mpellant The Jones Consulting Group Ltd.

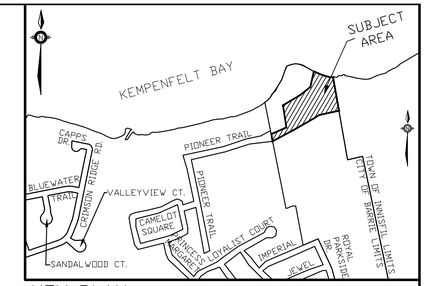
LEGEND

- PROP. VALVE & BOX
- PROP. HYDRANT & VALVE
- PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- 1 & 2 IN 350mmø — SWAB NUMBER, INSERTION LOCATION AND SIZE
- 1 & 2 OUT 350mmø — SWAB NUMBER, REMOVAL LOCATION AND SIZE
- SWAB TRAVEL DIRECTION
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX. TREES
- EX./PROP. STREETLIGHT
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- EX. CONTOUR
- BOREHOLE ID AND ELEV.

WATERMAIN TESTING AND DISINFECTION NOTES

1. THE FOLLOWING SEQUENCE WILL BE UTILIZED IN THE COMMISSIONING OF THE WATER SYSTEM: SWAB AND CHARGE THE WATERMAIN, PRESSURE TEST, CHLORINATE, FLUSH AND SAMPLING.
2. ALL PROCEDURES ARE TO BE COMPLETED THROUGH A BY-PASS CONNECTION TO THE EXISTING WATERMAIN, c/w BACKFLOW PREVENTION VALVE.
3. ALL 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 PREFORMED 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. SAMPLING SHOULD BE CONDUCTED TO ENSURE NO RESIDUAL OR FREE CHLORINE IS DETECTED IN THE DISCHARGED WATER.
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 COMPETED 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.

ALL WATERMAIN SWABS TO BE 50mm LARGER IN DIAMETER THAN PROPOSED WATERMAIN



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

OPEN SPACE

OPEN SPACE

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

EXISTING RESIDENTIAL LOT 9

EXISTING RESIDENTIAL LOT 10

LOT 8
710 - 1

HSE. #68

HSE. #60

HSE. #56

EX. PIONEER TRAIL

EXISTING MUNICIPAL CUL-DE-SAC

EXISTING HYDRANT H.1038 TO BE RELOCATED

STREET 'A'

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

END CHAINLINK FENCE (TRANSITION)

LIMIT OF GRADING

PROPERTY LINE

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

START C.L. FENCE- PROP. WOOD BOLLARDS SPACED 1.0m O.C.

EX POWER POLE TO BE REMOVED

TEMPORARY BY-PASS PER BSD-534

PROP. WATERMAIN TO BE CONNECTED TO EXISTING VB AND CAP TO BE REMOVED

1 & 2 IN 250mmø

EX. HP & BPED TO BE REMOVED

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

1.5m SIDEWALK

200mmø PVC (DR-18) W/M

1&2

22.5° BEND

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

EX. BARN TO BE REMOVED

3.0m SERVICING EASEMENT

50mmø COPPER W/M

DROPPED CURB

50mmø COPPER WATERMAIN TO BE FLUSHED FROM TEE TO HYDRANT

200x50mmø TEE

200mmø PVC (DR-18) W/M

1 & 2 OUT 250mmø

EX. WELL TO BE DECOMMISSIONED

4m WIDE ACCESS ROAD

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVEMENT

30m BUFFER

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

MATCH EXISTING DRAINAGE COURSE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. TREE PRESERVATION FENCE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

PRIVATE PROPERTY

EASEMENT LIMIT

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

BENCHMARK:
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ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

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1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

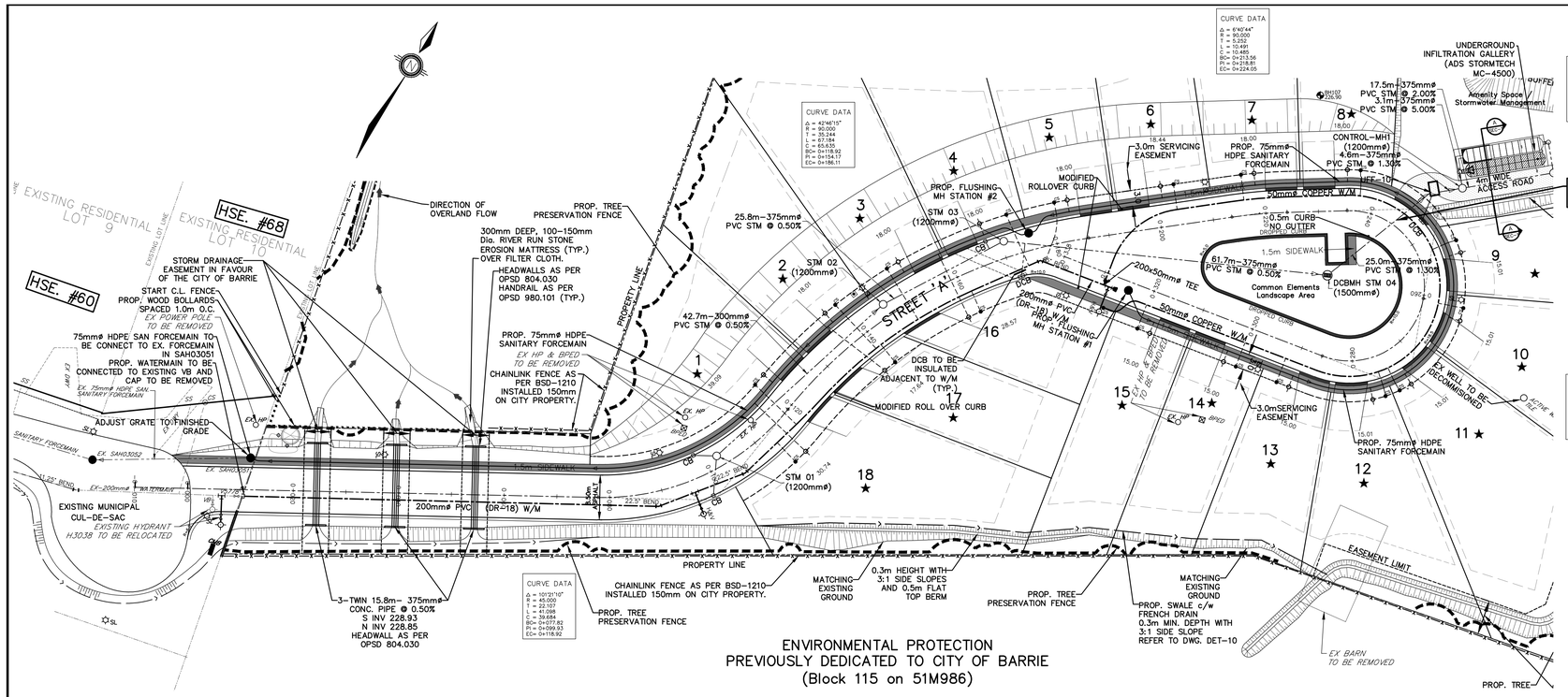
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

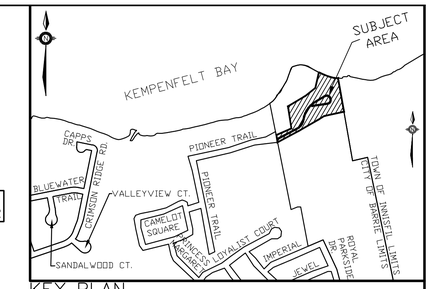
WATERMAIN SWABBING PLAN

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	VBS	SCALE: 1:500	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº WM-1
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_WATER-SWABBING.dwg Layout: WM-1 Plotted: Aug 19, 2022 @ 7:35pm by mgallant The Jones Consulting Group Ltd.

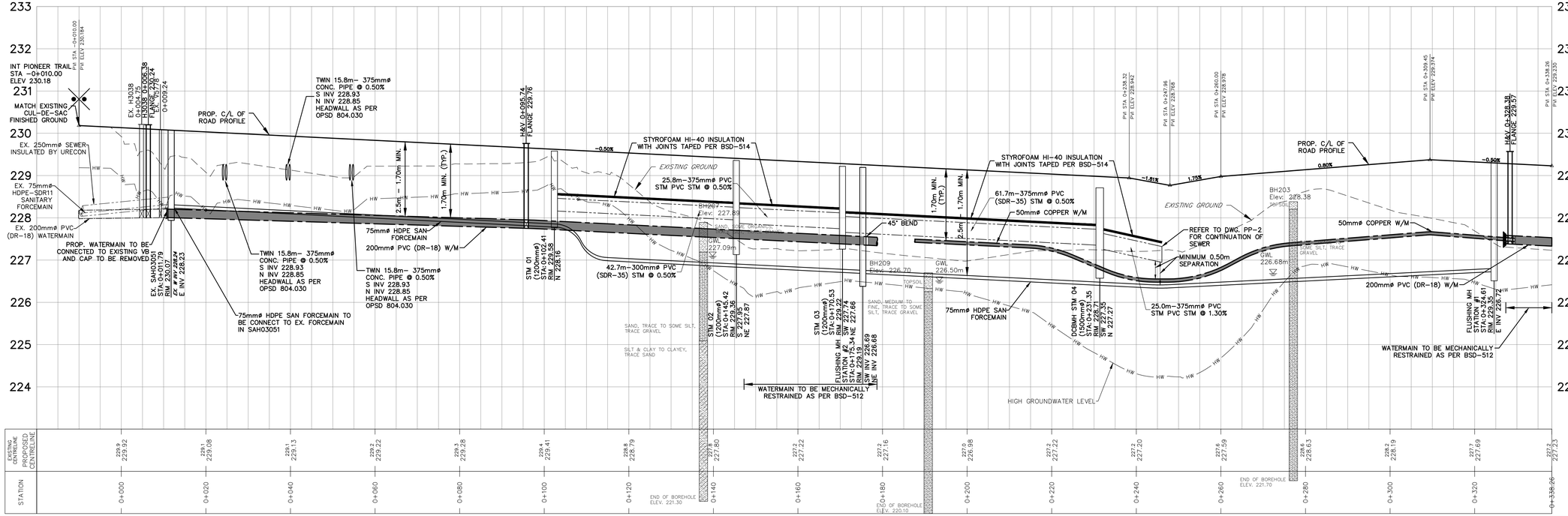




KEY PLAN
NTS

LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND EY. WATER SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX. TREES
- EX./PROP. STREET LIGHT POLE
- PROP. STM MH
- PROP. STM DCBMH
- PROP. STM CATCHBASIN
- PROP. STM DOUBLE CATCHBASIN
- PROP. STORM SEWER PIPE AND FLOW DIRECTION
- PROP. VALVE & BOX
- PROP. HYDRANT & VALVE
- PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- DEPRESSED CURB
- TACTILE WARNING PLATES
- BOREHOLE ID AND ELEV.
- LOT FRONTAGE (m)
- LOT TYPE (SINGLE)
- PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION



ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

BENCHMARK:
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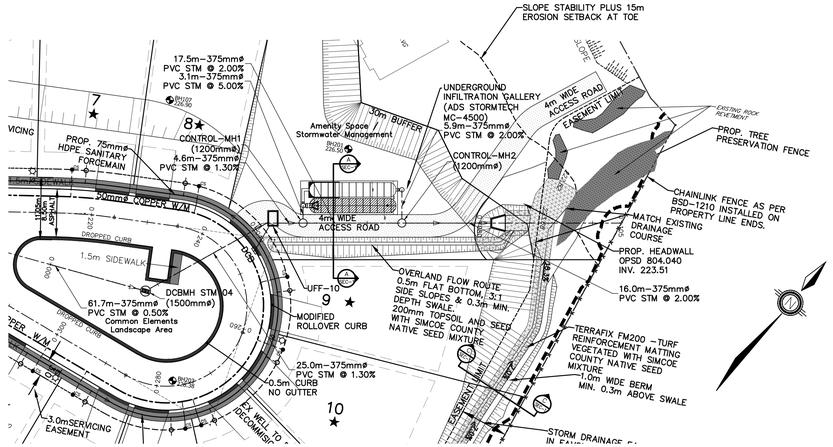
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

PLAN AND PROFILE
STREET 'A'
STA. -0+010 TO 0+345

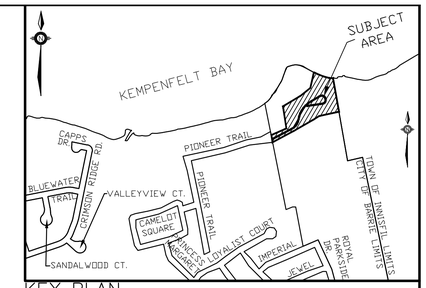
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	VBS	SCALE: H 1:500 V 1:50	DATE APRIL 2021
DRAWN	VBS	PROJECT FER-15101	DWG. Nº PP-1
CHECKED	JWI		

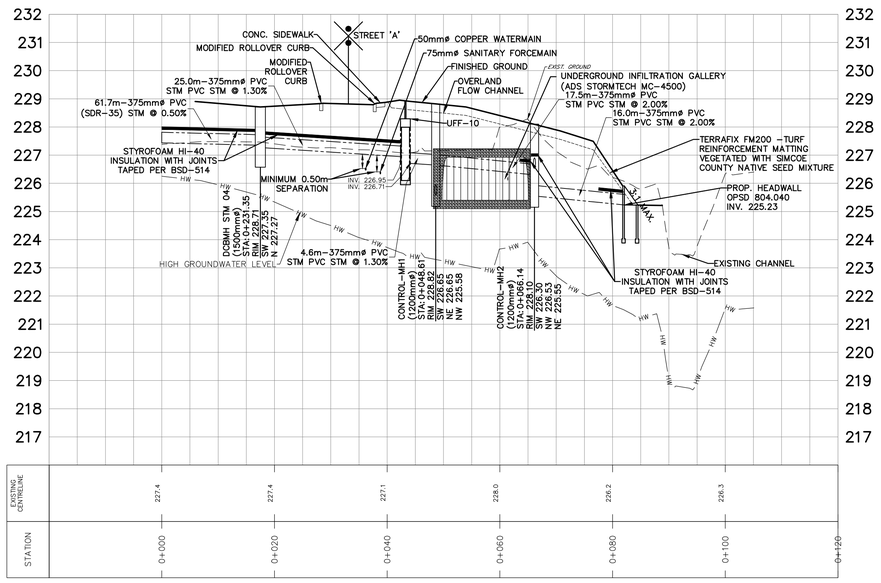
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SCALE 1:500



KEY PLAN
NTS



SCALE H 1:500 V 1:100

LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. SANITARY SEWER PIPE AND FLOW DIRECTION
- EX. SANITARY SERVICE
- EX. WATER MAIN
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND EY. WATER SERVICE
- EX. BELL PEDESTAL
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- PROP. CURB STOP AND WATER SERVICE
- PROP. WATER MAIN
- LIMIT OF DEVELOPMENT
- TREE PRESERVATION LIMIT
- 5m BUFFER
- LIMIT OF EASEMENT
- DEPRESSED CURB
- TACTILE WARNING PLATES
- BOREHOLE ID AND ELEV.
- LOT FRONTAGE (m)
- LOT TYPE (SINGLE)
- PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP HDPE SANITARY FORCEMAIN AND FLOW DIRECTION

BENCHMARK:
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FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

PLAN AND PROFILE STORM WATER FACILITY STA. 0+000 TO 0+106

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
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DESIGN	VBS	SCALE: AS NOTED	DATE APRIL 2021
DRAWN	VBS	PROJECT FER–15101	DWG. Nº PP–2
CHECKED	JWI		

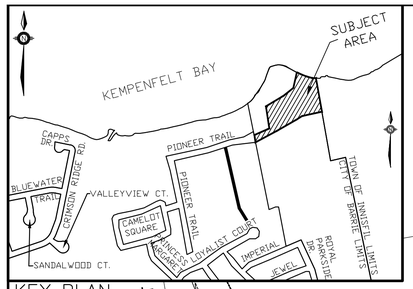
G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PROF_SWM.dwg Layout: PP-2 Plotted Aug 19, 2022 @ 9:15pm by mpollard The Jones Consulting Group Ltd

LOYALIST CRESCENT RESTORATION:
ASPHALT:
–40mm HL3
–70mm HL8
–150mm GRANULAR 'A'
–350mm GRANULAR 'B'

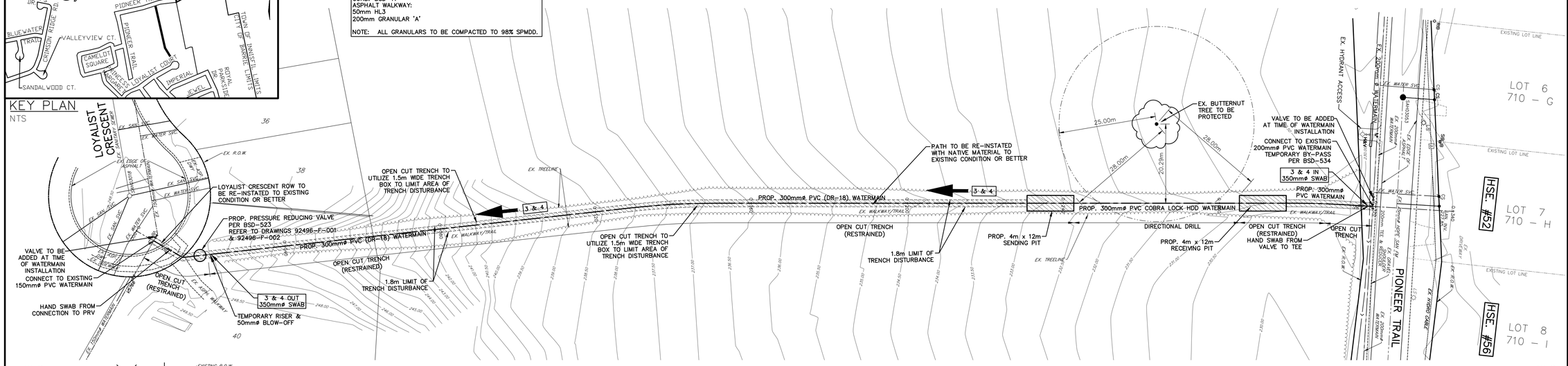
NOTE: HIGH PERFORMANCE BEDDING TO BE USED TO BRING SUBGRADE TO BOTTOM OF GRANULAR 'B'. ASPHALT TO BE RE–INSTATED WITH BUTT JOINT.

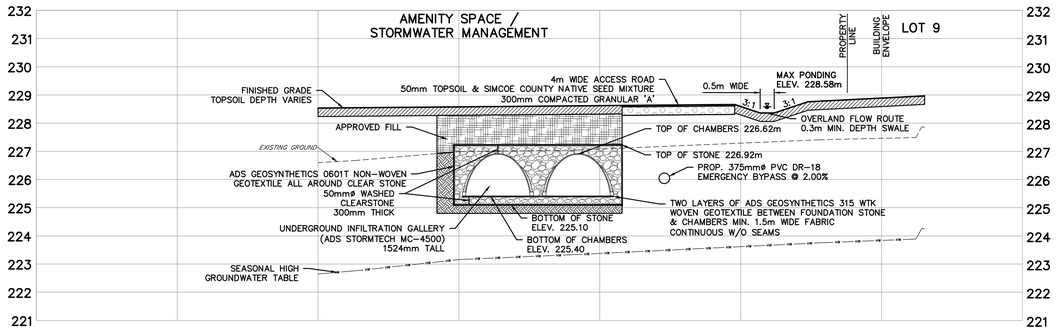
SIDEWALK: OPSD 310.010
CURB: BSD–17
ASPHALT WALKWAY:
50mm HL3
200mm GRANULAR 'A'

NOTE: ALL GRANULARS TO BE COMPACTED TO 98% SPMDD.

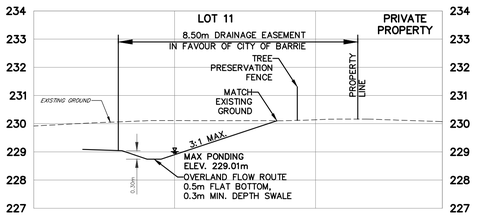


KEY PLAN
NTS

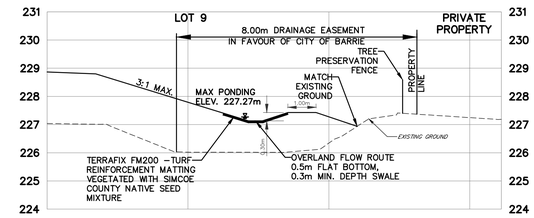

LOYALIST CRESCENT
EX. R.O.W.
LOYALIST CRESCENT ROW TO BE RE–INSTATED TO EXISTING CONDITION OR BETTER
PROP. PRESSURE REDUCING VALVE PER BSD–523 REFER TO DRAWINGS 92496–F–001 & 92496–F–002
PROP. 300mmø PVC (DR–18) WATERMAIN
VALVE TO BE ADDED AT TIME OF WATERMAIN INSTALLATION
CONNECT TO EXISTING 150mmø PVC WATERMAIN
OPEN CUT TRENCH (RESTRAINED)
HAND SWAB FROM CONNECTION TO PRV
3 & 4 OUT 350mmø SWAB
TEMPORARY RISER & 50mmø BLOW–OFF
OPEN CUT TRENCH TO UTILIZE 1.5m WIDE TRENCH BOX TO LIMIT AREA OF TRENCH DISTURBANCE
1.8m LIMIT OF TRENCH DISTURBANCE
PATH TO BE RE–INSTATED WITH NATIVE MATERIAL TO EXISTING CONDITION OR BETTER
PROP. 300mmø PVC COBRA LOCK HDD WATERMAIN
DIRECTIONAL DRILL
PROP. 4m x 12m SENDING PIT
PROP. 4m x 12m RECEIVING PIT
EX. BUTTERNUT TREE TO BE PROTECTED
25.00m
28.00m
20.29m
VALVE TO BE ADDED AT TIME OF WATERMAIN INSTALLATION
CONNECT TO EXISTING 200mmø PVC WATERMAIN TEMPORARY BY–PASS PER BSD–534
3 & 4 IN 350mmø SWAB
PROP. 300mmø PVC WATERMAIN
EX. HYDRANT ACCESS
EX. 200mmø S.W.I.D. WATERMAIN
EX. WATER SVC
EX. 200mmø WATERMAIN
EX. 300mmø WATERMAIN
EX. 250mmø WATERMAIN
EX. 200mmø WATERMAIN
EX. 200mmø STORM SEWER
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EX. 250mmø WATERMAIN
EX. 200mmø WATERMAIN
EX. 200mmø WATERMAIN
EX. 200



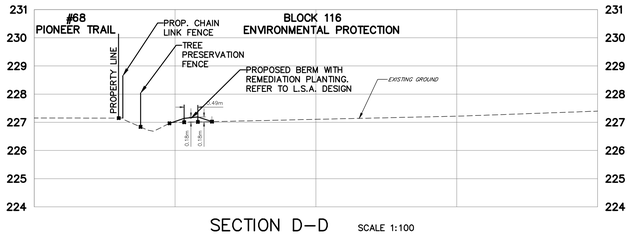
SECTION A–A SCALE 1:100



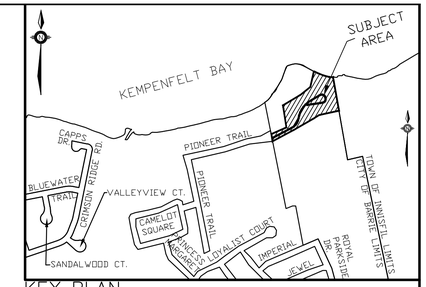
SECTION B–B SCALE 1:100



SECTION C–C SCALE 1:100



SECTION D–D SCALE 1:100



KEY PLAN
NTS

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
22-08-18
PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

SECTIONS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1556

DESIGN JJH	SCALE: AS NOTED	DATE APRIL 2021	
DRAWN JJH	PROJECT FER–15101	DWG. Nº SEC–1	
CHECKED JWI			

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PROF_SWM.dwg Layout:SEC-1 Plotted Aug 19, 2022 @ 9:18am by mpollard The Jones Consulting Group Ltd

LEGEND

- EX. SANITARY MAINTENANCE HOLE
- EX. VALVE & BOX
- EX. HYDRANT & VALVE
- EX. CURB STOP AND WATER SERVICE
- EX. BELL PEDESTAL
- EX. HYDRO POLE
- EX./PROP. STREETLIGHT
- PROP. STREETLIGHT CONTROL
- FLUSHING STATION — PROP. SAN MH FLUSHING STATION
- PROP. 32mmø P.E. SANITARY SERVICE & BALL/CHECK VALVE
- PROP. VALVE & BOX
- PROP. HYDRANT & VALVE
- PROP. CURB STOP AND WATER SERVICE
- STOP SIGN Rb-1
- NO PARKING SIGN Rb-51
- PEDESTRIAN X (CROSSOVER) SIGN Ra-4
- NO PARKING SNOW ROUTE SIGN Rb-57

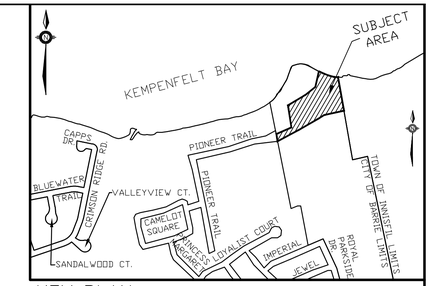
1	SOLID YELLOW,10cm
2	SOLID DOUBLE YELLOW,10cm
3	3&3 BROKEN YELLOW,10cm
4	SOLID YELLOW,20cm
5	SOLID WHITE,10cm
6	3&3 BROKEN WHITE,10cm
7	3&3 BROKEN WHITE,10cm
8	3&9 BROKEN WHITE,10cm
9	SOLID WHITE,20cm
10	11&1 BROKEN WHITE, **10cm**
11	3&3 BROKEN WHITE,20cm
12	3&3 BROKEN WHITE,30cm
13	SOLID WHITE,30cm
14	SOLID WHITE,45cm
15	SOLID WHITE,60cm
20	SYMBOLS
] [	LIMITS OF MARKINGS

NOTES:
1. 3&3, 3&3, 3&9, Denotes Pavement Marking Spacing (ie., 3 m line, 3 m gap, 3 m line)
2. Use (1) to Denote PAVEMENT MARKING
3. Use (2) to Denote PAVEMENT MARKING, TEMPORARY
4. Use (3) to Denote PAVEMENT MARKING, TEMPORARY-REMOVABLE
5. Use (1) to Denote PAVEMENT MARKING, DURABLE

MINISTRY OF TRANSPORTATION ONTARIO DRAWING — LEGEND PAVEMENT MARKINGS — Date 1994 04 01 — Rev — Issue Date — WP — Issued By — MTOD – 101.070

PAVEMENT MARKING NOTES:
1. UPON COMPLETION OF THE ASPHALT AND UPON NOTIFICATION FROM THE CITY, PAVEMENT MARKINGS SHALL BE PAINTED CONFIRMING WITH THE STANDARDS OF THE MINISTRY OF TRANSPORTATION ONTARIO, BOOK 11 AT ALL INTERSECTIONS, SCHOOL CROSSINGS, WALKWAYS AND RAIL CROSSINGS.
2. LANE MARKINGS ARE TO BE DURABLE TRAFFIC PAINT COMPLETE WITH GLASS BEADS.
3. ALL LANE MARKING APPLICATIONS TO NEW ASPHALT REQUIRE TWO APPLICATIONS OF PAINT. THE SECOND APPLICATION SHALL NOT BE APPLIED UNTIL THE FIRST IS TACK FREE. PAVEMENT MARKINGS ARE TO CONFORM WITH OPSS 710 AND OPSS 1712.
4. TRAFFIC LANE SYMBOLS, STOP BARS AND PEDESTRIAN CROSSWALKS ARE TO BE DURABLE PAVEMENT MARKINGS OR FIELD REACTED POLYMERIC PAVEMENT MARKINGS IN ACCORDANCE WITH OPSS 710, OPSS 1713 AND OPSS 1714.

STREET SIGN NOTES:
1. WHERE SIGNS ARE WITHIN 1m OF EACH OTHER, THEY SHOULD BE COMBINED ONTO ONE SIGN.
2. WHERE Rb-51 SIGNS ARE COMBINED WITH OTHER SIGNS, ONLY THE Rb-51 SIGN SHALL BE ORIENTED AT 45 DEGREES TO THE ROADWAY BY INSTALLING A POST CAP FOR Rb-51 SIGNS.
3. STOP SIGNS ARE NOT TO BE IMPEDED BY STREET LIGHT POLES AND SHOULD EITHER BE MOUNTED TO THE STREET LIGHT OR PLACED IN FRONT OF THE STREET LIGHT POLE AT INTERSECTIONS.



KEY PLAN
NTS

KEMPENFELT BAY

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 116 on 51M986)

ENVIRONMENTAL PROTECTION
PREVIOUSLY DEDICATED TO CITY OF BARRIE
(Block 115 on 51M986)

OPEN SPACE

OPEN SPACE

EXISTING RESIDENTIAL LOT 8
EXISTING RESIDENTIAL LOT 9
EXISTING RESIDENTIAL LOT 10
HSE. #56
HSE. #60
HSE. #68
EX. PIONEER TRAIL
EXISTING MUNICIPAL CUL-DE-SAC
STREET 'A'
LANDSCAPE\ SNOW STORAGE
EX. BUILDING
EXISTING BUILDING
WATER'S EDGE
TOP OF SLOPE
PROPERTY LINE
EASEMENT LIMIT
PRIVATE PROPERTY
1.5m SIDEWALK
DROPPED CURB
Rb-51
Rb-57
LS-238
EX. HP & BPED TO BE REMOVED
EX. WELL TO BE DECOMMISSIONED
ACTIVE WELL
EX. BARN TO BE REMOVED
EX. 75mmø HDPE SAN. SANITARY FORCEMAIN
EX. SAN03052
SAN03051
V5778
AMD #3
SS
SCS
SL
EX. HP
EX. BPED
EX. SCS
EX. SS
EX. HMD
EX. CBMH
EX. CB
EX. MH
EX. HYDRO
EX. BELL
EX. GAS
EX. TEL
EX. CATV
EX. POWER POLE TO BE REMOVED
0.25° BEND
90°
45°

END PROPERTY BOUNDARY C.L. FENCE AT TOP OF BANK LIMIT. LIMIT TO BE STAKED IN THE FIELD.

END CHAIN LINK FENCE AT TOP OF BANK LIMIT TO BE STAKED OUT ONSITE.

0.3m WIDE SPILLWAY, 3:1 SIDE SLOPE MAX. LINED WITH TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

LIMIT OF GRADING

PROPOSED OVERLAND FLOW

PROPOSED BERM WITH REMEDIATION PLANTING. REFER TO L.S.A. DESIGN

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

DIRECTION OF OVERLAND FLOW

300mm DEEP, 100-150mm Dia. RIVER RUN STONE EROSION MATTRESS (TYP.) OVER FILTER CLOTH.

HEADWALLS AS PER OPSD 804.030 HANDRAIL AS PER OPSD 980.101 (TYP.)

START C.L. FENCE PROP. WOOD BOLLARDS SPACED 1.0m O.C.

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

3-TWIN 15.8m- 375mmø CONC. PIPE @ 0.50% S INV 228.93 N INV 228.85 HEADWALL AS PER OPSD 804.030

CHAINLINK FENCE AS PER BSD-1210 INSTALLED 150mm ON CITY PROPERTY.

PROP. TREE PRESERVATION FENCE

MATCHING EXISTING GROUND

0.3m HEIGHT WITH 3:1 SIDE SLOPES AND 0.5m FLAT TOP BERM

PROP. SWALE c/w FRENCH DRAIN 0.3m MIN. DEPTH WITH 3:1 SIDE SLOPE REFER TO DWG. DET-10

SLOPE STABILITY PLUS 15m EROSION SETBACK AT TOE

CHAINLINK FENCE AS PER 150mm ON CITY PROPERTY.

END CHAINLINK FENCE (TRANSITION)

3.0m SERVICING EASEMENT

30m BUFFER

4m WIDE ACCESS ROAD EASEMENT LIMIT

EXISTING ROCK REVEMENT

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

TERRAFIX FM200 – TURF REINFORCEMENT MATTING VEGETATED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

1.0m WIDE BERM MIN. 0.3m ABOVE SWALE

MATCH EXISTING DRAINAGE COURSE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

150mmø SUBDRAIN TO DAYLIGHT INTO SWALE WITH 2.5m CSP c/w RODENT GRATE

OVERLAND FLOW ROUTE 0.5m FLAT BOTTOM, 3:1 SIDE SLOPES & 0.3m MIN. DEPTH SWALE

PROP. 200mm TOPSOIL AND SEED WITH SIMCOE COUNTY NATIVE SEED MIXTURE

CHAINLINK FENCE AS PER BSD-1210 INSTALLED ON PROPERTY LINE ENDS.

PROP. TREE PRESERVATION FENCE

STORM DRAINAGE EASEMENT IN FAVOUR OF THE CITY OF BARRIE

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101_PM-1.dwg Layout:PM-1 Plotted Aug 19, 2022 @ 9:21pm by mgallant The Jones Consulting Group Ltd.

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

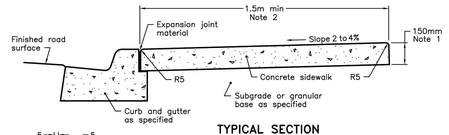
NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

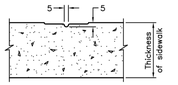
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL
PAVEMENT MARKING AND SIGNAGE PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
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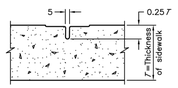
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DRAWN	VBS	PROJECT FER-15101	DWG. Nº PM-1
CHECKED	JWI		



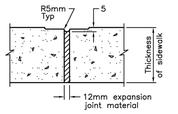
TYPICAL SECTION



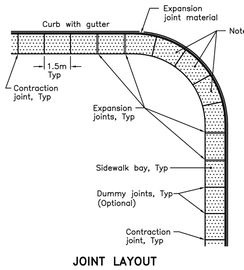
DUMMY JOINT



CONTRACTION JOINT



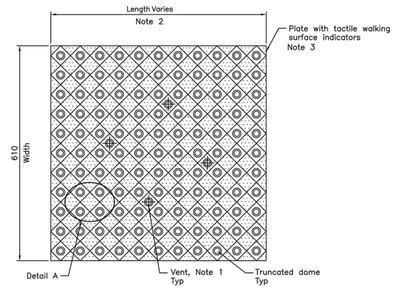
EXPANSION JOINT



JOINT LAYOUT

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.

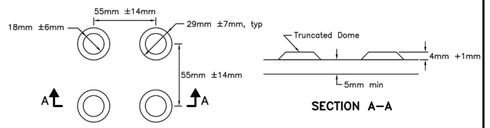
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK ADJACENT TO CURB WITH GUTTER		OPSD 310.020



PLAN



ELEVATION

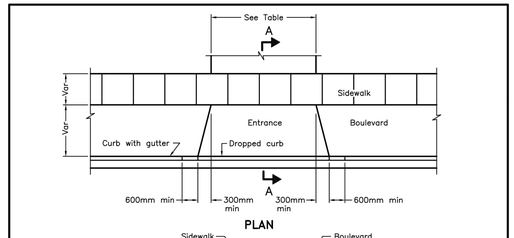


DETAIL A
TRUNCATED DOMES PLAN

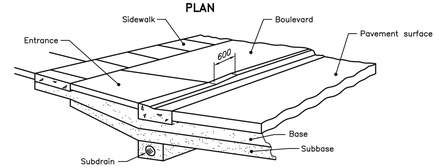
SECTION A–A

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.

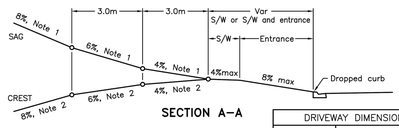
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 1
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT		OPSD 310.039



PLAN



ISOMETRIC VIEW

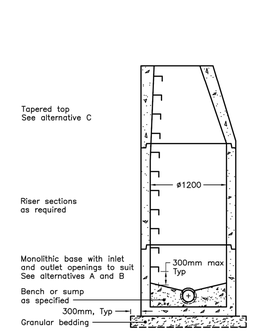


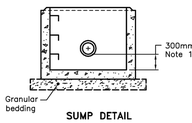
SECTION A–A

DRIVEWAY DIMENSIONS				
LAND USE	WIDTH m			
	Single		Double	
	min	max	min	max
Residential	3.0	4.3	6.0	7.3

NOTES:
1 Maximum upgrade shall be 10%.
2 Maximum downgrade shall be 8%.
A All dimensions are in millimetres unless otherwise shown.

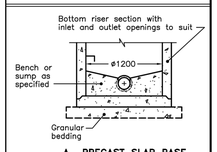
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
URBAN RESIDENTIAL ENTRANCE		OPSD 351.010



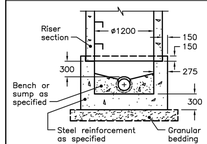


SUMP DETAIL

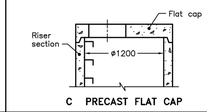
ALTERNATIVES



A PRECAST SLAB BASE



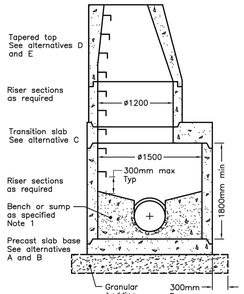
B CAST–IN–PLACE BASE



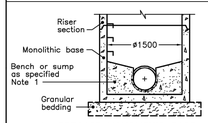
C PRECAST FLAT CAP

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.

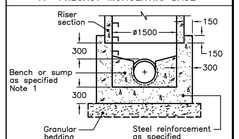
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010



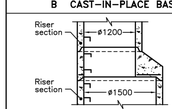
ALTERNATIVES



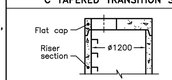
A PRECAST MONOLITHIC BASE



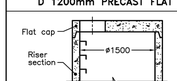
B CAST–IN–PLACE BASE



C TAPERED TRANSITION SLAB



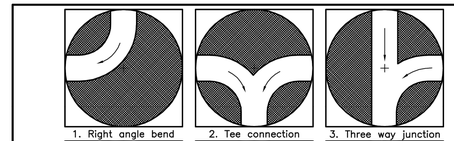
D 1200mm PRECAST FLAT CAP



E 1500mm PRECAST FLAT CAP

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, 701.040, 701.041, 703.011, 703.021, and 706.010.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
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 1500mm DIAMETER		OPSD 701.011

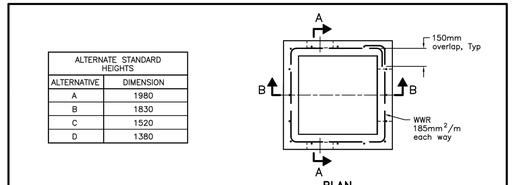


MAXIMUM SIZE HOLE IN THE WALL IN THE PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7	
				Inlet Hole	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

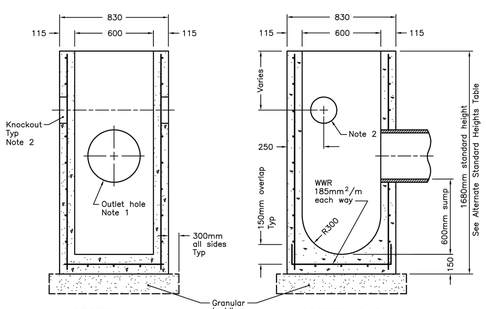
NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, 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



PLAN

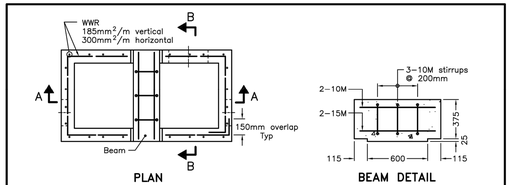
ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



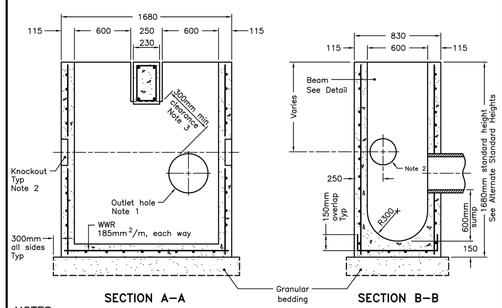
SECTION A–A SECTION B–B

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



PLAN BEAM DETAIL



SECTION A–A SECTION B–B

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

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

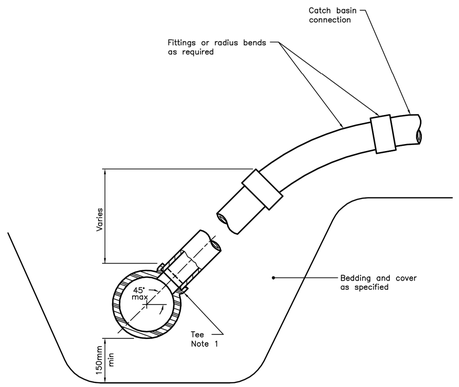
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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 MG	SCALE: AS NOTED	DATE DEC 2021
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–1
CHECKED JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg, Layout: DET-1 Plotted: Aug 18, 2022 @ 1:26pm by kcaplin The Jones Consulting Group Ltd.

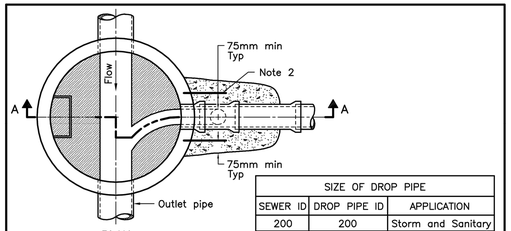


NOTES:
1 For catch basin connections 300mm in diameter or less, factory made tees shall be used.

A For catch basin connections greater than 300mm in diameter, maintenance holes shall be used at the main sewer.

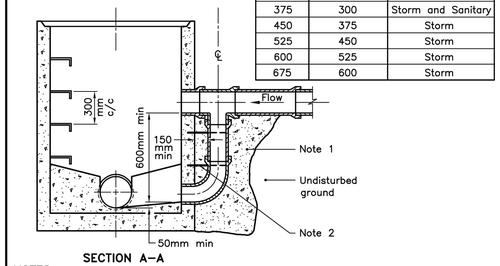
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CATCH BASIN CONNECTION FOR FLEXIBLE MAIN PIPE SEWER		OPSD 708.030



PLAN

SIZE OF DROP PIPE		
SEWER ID	DROP PIPE ID	APPLICATION
200	200	Storm and Sanitary
250	200	Storm and Sanitary
300	250	Storm and Sanitary
375	300	Storm and Sanitary
450	375	Storm
525	450	Storm
600	525	Storm
675	600	Storm

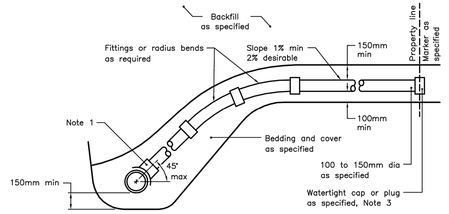


SECTION A–A

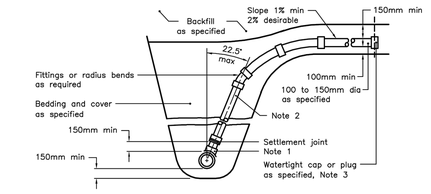
NOTES:
1 Concrete shall be placed to undisturbed ground and the outside face of the maintenance hole, but there shall be a minimum of 150mm of 15MPa concrete around the drop pipe.
2 Concrete shall be secured to the maintenance hole with 450mm long, 13mm diameter threaded rods and drilled expansion anchors down either side of the drop pipe at 300mm centres.

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CAST–IN–PLACE MAINTENANCE HOLE DROP STRUCTURE TEE		OPSD 1003.010



CONNECTION WITHOUT VERTICAL RISER

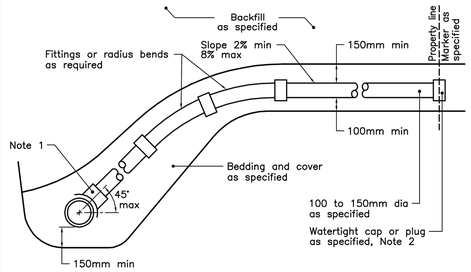


CONNECTION WITH VERTICAL RISER

NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees, strap–on–saddles, or other approved saddles.
2 Vertical risers shall be as specified.
3 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut–in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

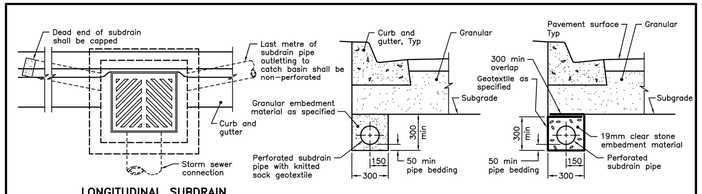
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER		OPSD 1006.010



NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees or wyes, strap–on–saddles, or other approved saddles.
2 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut–in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

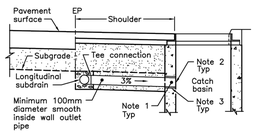
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2011	Rev 2
SEWER SERVICE CONNECTIONS FOR FLEXIBLE MAIN PIPE SEWER		OPSD 1006.020



LONGITUDINAL SUBDRAIN CONNECTION TO CATCH BASIN

UNWRAPPED TRENCH

WRAPPED TRENCH

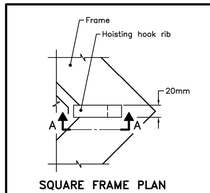


LATERAL SUBDRAIN OUTLET PIPE CONNECTION TO CATCH BASIN

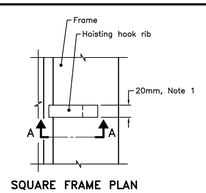
NOTES:
1 Core hole diameter to allow outlet pipe into structure.
2 Install outlet pipe flush with inside face of catch basin.
3 Annular space around pipe shall be filled with non–shrink grout.

A Use compatible manufactured fittings for all connectors, couplings, and caps.
B Trench dimensions shown to accommodate 100 or 150mm diameter subdrain pipe.
C Longitudinal subdrain pipe shall be installed parallel to the grade of the gutter.
D All dimensions are in millimetres unless otherwise shown.

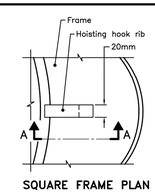
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
SUBDRAIN PIPE CONNECTION AND OUTLET URBAN SECTION		OPSD 216.021



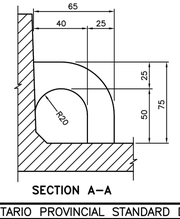
SQUARE FRAME PLAN
SQUARE CORNER



SQUARE FRAME PLAN
MID–SECTION



SQUARE FRAME PLAN
ROUND CORNER

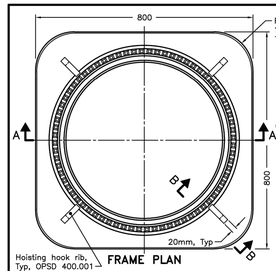


SECTION A–A

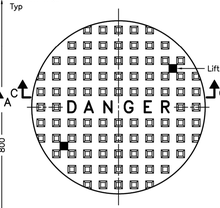
NOTES:
1 For OPSD 402.030, the hoisting hook rib thickness shall be 29mm.

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
HOISTING HOOK RIB FOR CAST IRON FRAMES FOR CATCH BASINS, MAINTENANCE HOLES, AND VALVE CHAMBERS		OPSD 400.001

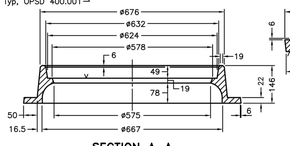


FRAME PLAN

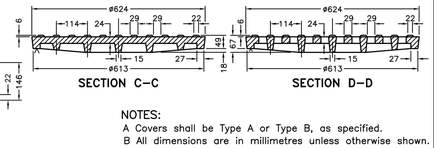


TYPE A
CLOSED COVER

TYPE B
OPEN COVER

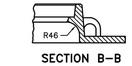


SECTION A–A



SECTION C–C

SECTION D–D



SECTION B–B

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

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

J. W. INGRAM 100143779 22-08-18 LICENCED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

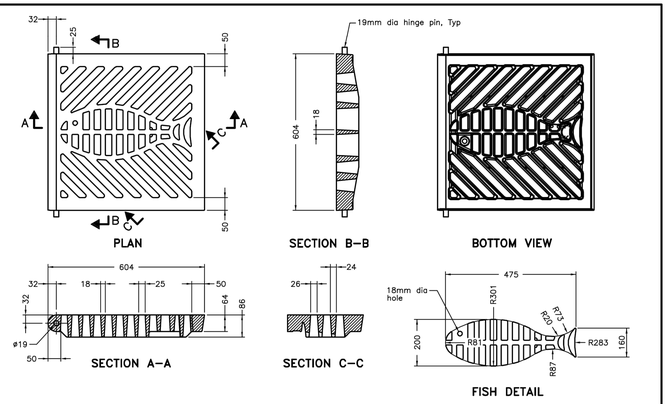
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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

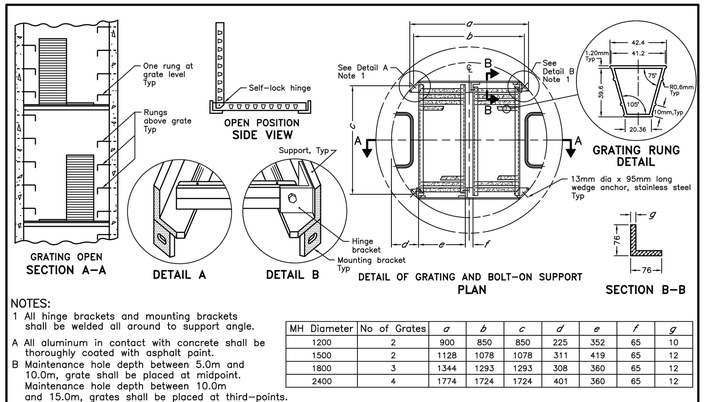
DESIGN MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–2
CHECKED JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-2 Plotted Aug 18, 2022 @ 1:33pm by kcaputo The Jones Consulting Group Ltd.



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

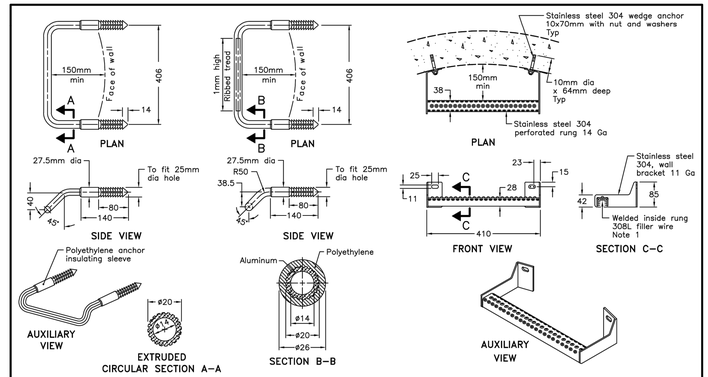
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 1
CAST IRON, SQUARE FRAME FISH TYPE COVER		
		OPSD 401.081



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.

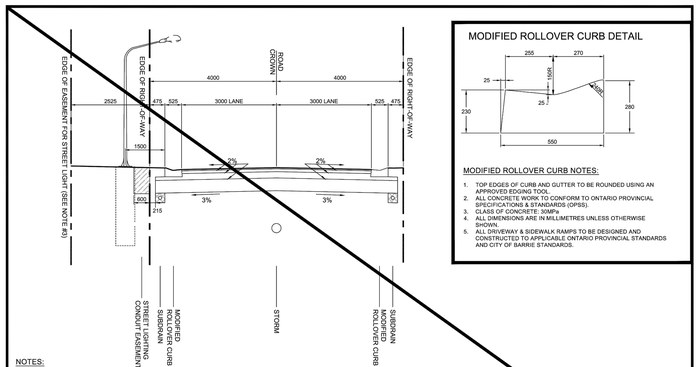
MH Diameter	No. of Grates	a	b	c	d	e	f	g
1200	2	900	850	850	225	352	65	10
1500	2	1128	1078	1078	311	419	65	12
1800	3	1344	1293	1293	308	360	65	12
2400	4	1774	1724	1724	401	360	65	12

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



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

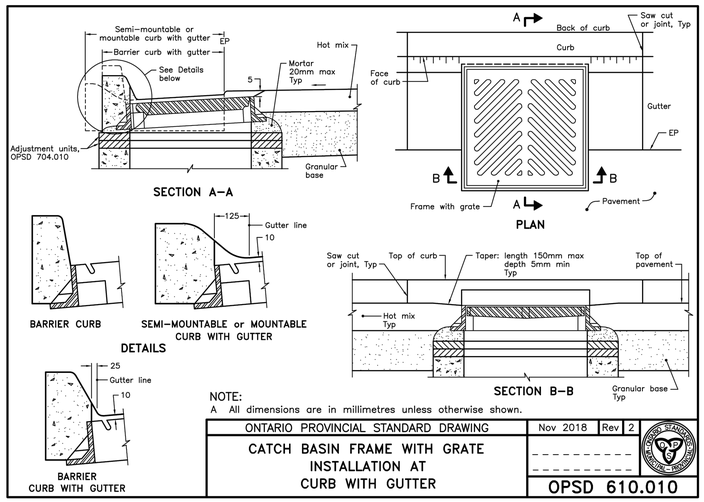


NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. STORMWATER SYSTEMS TO BE DESIGNED IN ACCORDANCE WITH CITY OF BARRIE ENGINEERING GUIDELINES AND STANDARDS.
3. STREET LIGHTING IS TO BE PLACED IN: A 2.4m WIDE BY 2.525m DEEP EASEMENT FROM THE EDGE OF RIGHT-OF-WAY (3.0m DEEP FROM THE OUTSIDE EDGE OF CURB). CONDUIT AND POWER FEEDS ARE TO BE PLACED IN A 0.6m LINEAR EASEMENT ALONG THE OUTSIDE EDGE OF THE RIGHT-OF-WAY. REFER TO THE CITY OF BARRIE ROADWAY ILLUMINATION POLICIES AND DESIGN GUIDELINES AND ASSOCIATED BSD'S FOR LIGHT STANDARD AND POLE BASE LOCATION AND DEPTH.
4. REFER TO TRANSPORTATION DESIGN MANUAL FOR PAVEMENT DESIGN METHODOLOGY.
5. TREE/LANDSCAPING ARE TO BE ACCOMMODATED WHEREVER POSSIBLE IN LOCATIONS APPROVED BY THE PARKS, PLANNING, AND DEVELOPMENT BRANCH AND IN ACCORDANCE WITH CITY OF BARRIE GUIDELINES.
6. STRAIGHT RUNS PREFERRED.
7. UTILITIES AND SITE SERVICING ARE TO BE PROVIDED FROM FRONT FACE OF STREET (WHEREVER POSSIBLE).

MODIFIED ROLLOVER CURB DETAIL

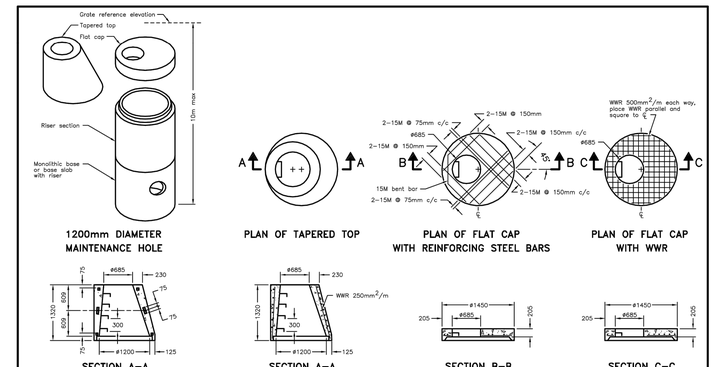
MODIFIED ROLLOVER CURB NOTES:
1. TOP EDGES OF CURB AND GUTTER TO BE ROUNDED USING AN APPROVED EDGING TOOL.
2. ALL CONCRETE WORK TO CONFORM TO ONTARIO PROVINCIAL SPECIFICATIONS & STANDARDS (OPSS).
3. CLASS OF CONCRETE: 30MPa
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
5. ALL DRIVEWAY & SIDEWALK RAMPS TO BE DESIGNED AND CONSTRUCTED TO APPLICABLE ONTARIO PROVINCIAL STANDARDS AND CITY OF BARRIE STANDARDS.

Barrie STANDARD DETAIL	~~8.0 m LANEWAY~~ ROAD ALLOWANCE ~~6.0 m ASPHALT~~	REV No. 1	DATE: OCT 2017
			SCALE: N.T.S.
		BSD-313	APPROVED DATE ..... DIRECTOR OF ENGINEERING



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 2
CATCH BASIN FRAME WITH GRATE INSTALLATION AT CURB WITH GUTTER		
		OPSD 610.010



NOTES:
A This drawing shall be read in conjunction with OPSD 701.031 and 701.032.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER TAPERED TOP AND FLAT CAP		
		OPSD 701.030

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

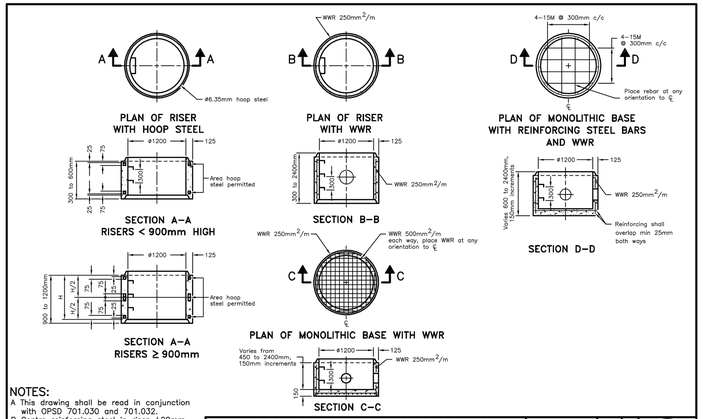
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

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

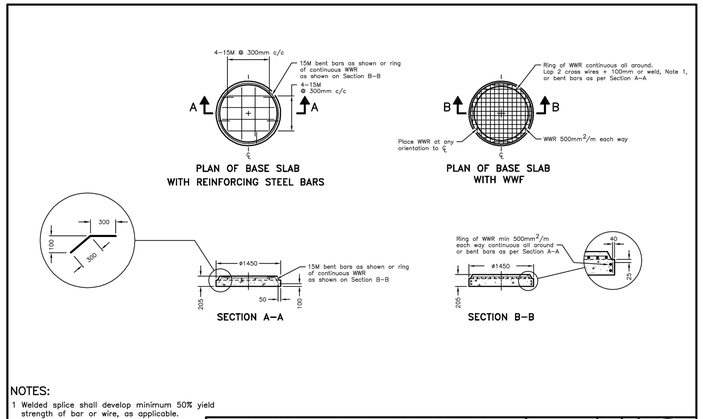
DESIGN MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–3
CHECKED JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-3 Plotted Aug 18, 2022 @ 1:34pm by kcaspin The Jones Consulting Group Ltd.



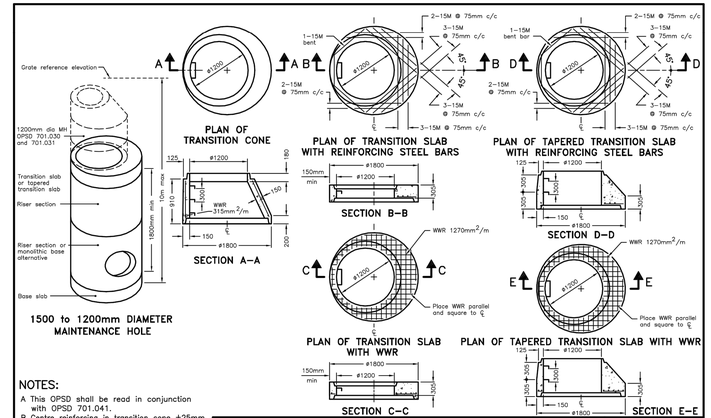
NOTES:
A This drawing shall be read in conjunction with OPSD 701.030 and 701.032.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER RISER AND MONOLITHIC BASE		
		OPSD 701.031



NOTES:
1 Welded splice shall develop minimum 50% yield strength of bar or wire, as applicable.
A This drawing shall be read in conjunction with OPSD 701.030 and 701.031.
B Centre reinforcing steel in riser ±20mm. All other reinforcing steel shall have 25mm minimum cover.
C All dimensions are nominal.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER BASE SLAB		
		OPSD 701.032



NOTES:
A This OPSD shall be read in conjunction with OPSD 701.041.
B Centre reinforcing in transition cone ±25mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1500mm DIAMETER TRANSITION CONE AND SLABS		
		OPSD 701.040

NOTES:
1 Welded splice shall develop minimum 50% yield strength of bar or wire, as applicable.
A This OPSD shall be read in conjunction with OPSD 701.040.
B If single cage of reinforcing in riser, centre reinforcing in wall ±25mm. All other reinforcing steel shall have 25mm minimum cover.
C Steps shall be according to OPSD 405.010 or 405.020.
D All dimensions are nominal.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1500mm DIAMETER RISER AND BASES		
		OPSD 701.041

NOTES:
1 Depth of frost strap shall be as specified.
A Frost straps shall be placed so they do not interfere with sewer pipe openings and the steps.
B Frost straps shall be placed when specified.
C Galvanizing shall be according to CAN/CSA G164.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
FROST STRAP INSTALLATION		
		OPSD 701.100

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 SINGLE INLET FLAT CAP 1500mm DIAMETER		
		OPSD 703.011

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

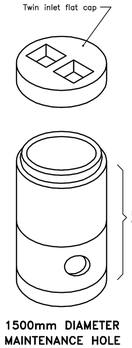
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

DETAILS

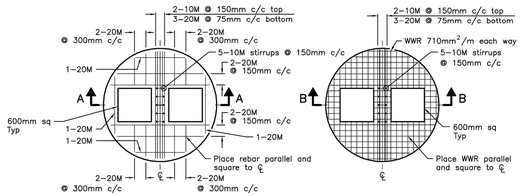
JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER–15101	DWG. Nº DET–4
CHECKED	JWI		

G:\Eng_JD\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-4 Plotted Aug 18, 2022 @ 1:36pm by kcopin The Jones Consulting Group Ltd

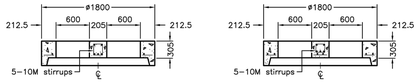


1500mm DIAMETER MAINTENANCE HOLE



PLAN OF TWIN INLET FLAT CAP WITH REINFORCING STEEL BARS

PLAN OF TWIN INLET FLAT CAP WITH WWR

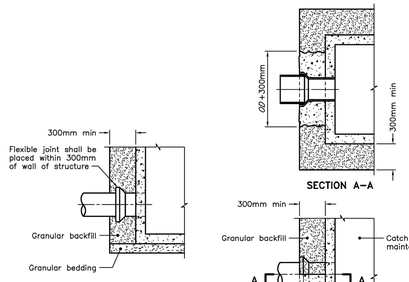


SECTION A–A

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



ELEVATION
FLEXIBLE JOINT RIGID AND FLEXIBLE PIPE

ELEVATION
CONCRETE CRADLE RIGID PIPE

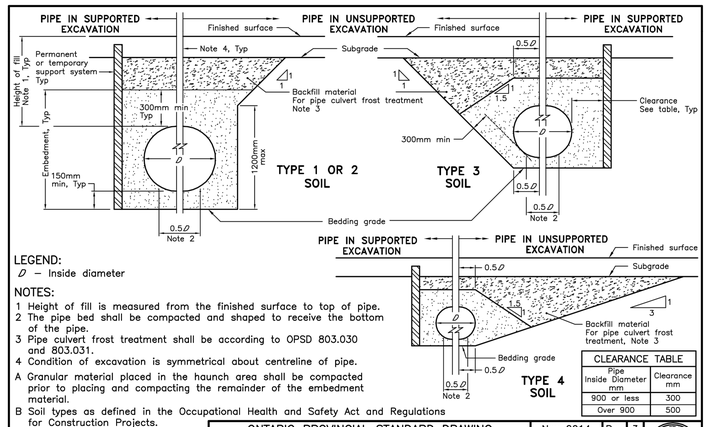
For installation of these connectors refer to manufacturer's instructions.

A full length of pipe may be used in conjunction with a flexible watertight connector.

FLEXIBLE, WATERTIGHT CONNECTOR RIGID AND FLEXIBLE PIPE

NOTES:
1 Pipe shall be supported with concrete or unshrinkable fill to the first pipe joint.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 4
SUPPORT FOR PIPE AT CATCH BASIN OR MAINTENANCE HOLE		OPSD 708.020

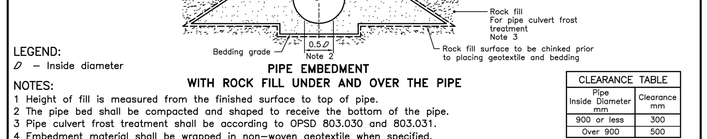


LEGEND:
Ø – Inside diameter

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



PIPE INVERT ABOVE ORIGINAL GROUND

PIPE INVERT AT OR BELOW ORIGINAL GROUND

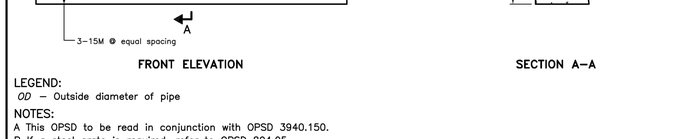
PIPE EMBEDMENT WITH ROCK FILL UNDER AND OVER THE PIPE

LEGEND:
Ø – 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 Embedment material shall be wrapped in non–woven geotextile when specified.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B 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 IN EMBANKMENT ORIGINAL GROUND: EARTH OR ROCK		OPSD 802.014



FRONT ELEVATION

SECTION A–A

LEGEND:
OD – Outside diameter of pipe

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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 2
CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER		OPSD 804.030

PIPE DIA mm	AREA m²	TRENCH WIDTH	MAXIMUM HEIGHT OF FILL					
			210 kPa Stiffness PSM DR 41		320 kPa Stiffness PSM DR 35		625 kPa Stiffness PSM DR 28	
			Trench	Embankment	Trench	Embankment	Trench	Embankment
100	0.008	0.40	10.4	6.2	10.8	6.5	11.9	7.0
135	0.014	0.54	10.4	6.2	10.8	6.5	11.9	7.0
150	0.020	0.95	10.4	6.2	10.8	6.5	11.9	7.0
200	0.030	1.00	10.4	6.2	10.8	6.5	N/A	N/A
250	0.050	1.05	10.4	6.2	10.8	6.5	N/A	N/A
300	0.070	1.10	10.4	6.2	10.8	6.5	N/A	N/A
375	0.110	1.20	10.4	6.2 *	10.8	6.5 *	N/A	N/A
450	0.160	1.25	10.4	6.2 **	10.8	6.5 **	N/A	N/A
525	0.220	1.30	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
600	0.280	1.40	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
675	0.360	1.50	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
750	0.440	1.60	10.4 *	6.2 **	10.8 *	6.5 **	N/A	N/A
900	0.640	1.70	10.4 **	6.2 **	10.8 **	6.5 **	N/A	N/A

NOTES:
1 For installations in Type 4 soil, height of fill shall be calculated from first principles.
2 For installations in Type 3 soil, height of fill shall be calculated from first principles.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B Minimum height of fill over top of pipe shall be 300mm or one pipe diameter, whichever is greater.
C The table based on backfill density of 2243 kg/m³.
D This OPSD shall be read in conjunction with OPSD 802.010 and 802.013.
E Height of fill greater than 12.0m shall be calculated from first principles.
F All dimensions are in metres unless otherwise shown.

LEGEND:
* Note 1
** Note 1 and 2
N/A Not Available

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
HEIGHT OF FILL TABLE POLYVINYL CHLORIDE GRAVITY SEWER PIPE 210, 320, and 625kPa		OPSD 806.040

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

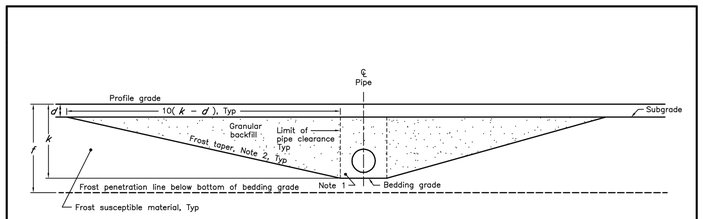
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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 MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–5
CHECKED JWI		

C:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-5 Printed Aug 18, 2022 @ 1:35pm by kcoppin The Jones Consulting Group Ltd.

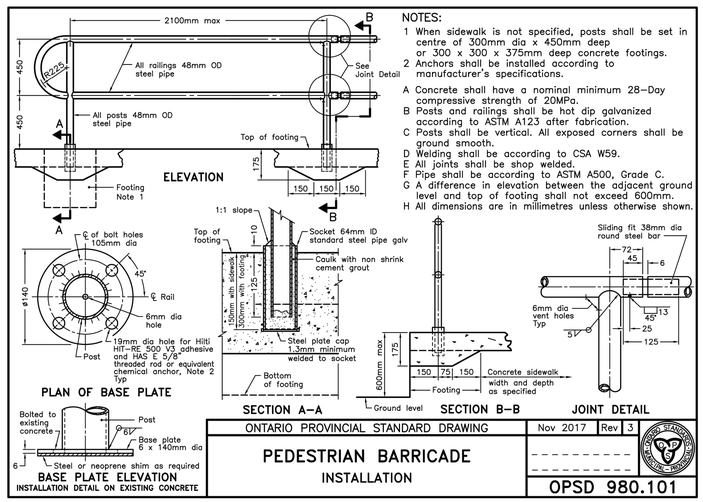


FROST TREATMENT
RIGID AND FLEXIBLE PIPE

NOTES:
1 Pipe embedment or bedding, cover, and backfill shall be according to:
  a) Flexible OPSD 802.010, 802.013, 802.014, 802.020, 802.023, and 802.024.
  b) Rigid – OPSD 802.030, 802.031, 802.032, 802.033, 802.034, 802.050, 802.051, 802.052, 802.053, and 802.054.
2 Frost tapers shall start at bedding grade.

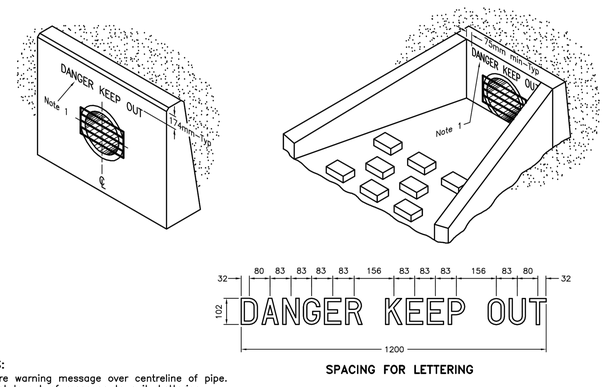
LEGEND:
d –depth of roadbed granular
k –depth of frost treatment below profile grade
f –depth of frost penetration below profile grade

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 3
FROST TREATMENT – PIPE CULVERTS FROST PENETRATION LINE BELOW BEDDING GRADE		
	OPSD 803.030	



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	

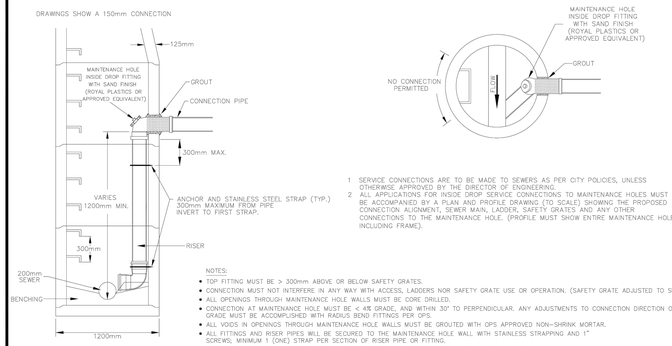


SPACING FOR LETTERING

NOTES:
1 Centre warning message over centreline of pipe. Adjust layout of message to suit. Lettering to be set in concrete.
A This OPSD to be read in conjunction with OPSD 3940.151.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2010	Rev 2
FIGURES IN CONCRETE WARNING MESSAGE LAYOUT		
	OPSD 3940.150	

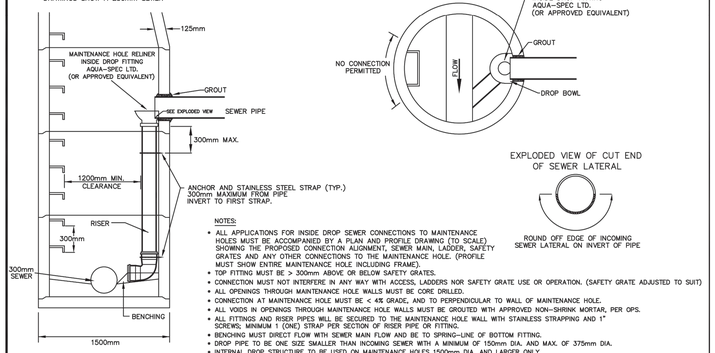
AS SPECIFIED FOR CONVENTIONAL SEWER CONNECTIONS, OWNERS ARE RESPONSIBLE FOR MAINTENANCE OF THE CONNECTION FROM THE SEWER TO THE BUILDING. THIS INCLUDES ALL FITTINGS AND PIPE FROM THE MAINTENANCE HOLE BENCHING TO THE BUILDING.



1 SERVICE CONNECTIONS ARE TO BE MADE TO SEWERS AS PER CITY POLICIES, UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2 ALL APPLICATIONS FOR INSIDE DROP SERVICE CONNECTIONS TO MAINTENANCE HOLES MUST BE ACCOMPANIED BY A PLAN AND PROFILE DRAWING (TO SCALE) SHOWING THE PROPOSED CONNECTION ALIGNMENT, SEWER MAIN, LADDER, SAFETY GRATES AND ANY OTHER CONNECTIONS TO THE MAINTENANCE HOLE. (PROFILE MUST SHOW ENTIRE MAINTENANCE HOLE INCLUDING FRAME).

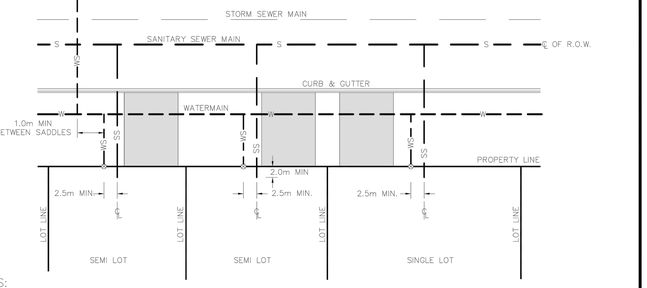
NOTES:
- TOP FITTING MUST BE > 300mm ABOVE OR BELOW SAFETY GRATES.
- CONNECTION MUST NOT INTERFERE IN ANY WAY WITH ACCESS, LADDERS NOR SAFETY GRATE USE OR OPERATION. (SAFETY GRATE ADJUSTED TO SUIT)
- ALL OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE CORE DRILLED.
- CONNECTION AT MAINTENANCE HOLE MUST BE < 4% GRADE, AND WITHIN 30° TO PERPENDICULAR. ANY ADJUSTMENTS TO CONNECTION DIRECTION OR GRADE MUST BE ACCOMPLISHED WITH RADIUS BEND FITTINGS PER OPS.
- ALL VOIDS IN OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE GROUTED WITH OPS APPROVED NON-SHRINK MORTAR.
- ALL FITTINGS AND RISER PIPES WILL BE SECURED TO THE MAINTENANCE HOLE WALL WITH STAINLESS STRAPPING AND 1" SCREWS, MINIMUM 1 (ONE) STRAP PER SECTION OF RISER PIPE OR FITTING.
- BENCHING MUST DIRECT FLOW WITH SEWER MAIN FLOW AND BE TO SPRING–LINE OF BOTTOM FITTING.

CITY OF BARRIE NON TYPICAL					
PVC INSIDE DROP SEWER SERVICE CONNECTION	3.	SAFETY GRATE ADJUSTED TO SUIT	B.R.	03.01.07	APR'D: R.G.N. DATE: 98.04.22
	2.	REVISED DRAWING & S.S. STRAPS	B.R.	02.11.05	DRAWN: L.V.R. SCALE: NTS
	1.	REVISED DRAWING AND NOTES	GAM	99.05.05	
	NO.	REVISION	APR'D	DATE	BSD-15A



NOTES:
- ALL APPLICATIONS FOR INSIDE DROP SEWER CONNECTIONS TO MAINTENANCE HOLES MUST BE ACCOMPANIED BY A PLAN AND PROFILE DRAWING (TO SCALE) SHOWING THE PROPOSED CONNECTION ALIGNMENT, SEWER MAIN, LADDER, SAFETY GRATES AND ANY OTHER CONNECTIONS TO THE MAINTENANCE HOLE. (PROFILE MUST SHOW ENTIRE MAINTENANCE HOLE INCLUDING FRAME).
- TOP FITTING MUST BE > 300mm ABOVE OR BELOW SAFETY GRATES.
- CONNECTION MUST NOT INTERFERE IN ANY WAY WITH ACCESS, LADDERS NOR SAFETY GRATE USE OR OPERATION. (SAFETY GRATE ADJUSTED TO SUIT)
- ALL OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE CORE DRILLED.
- CONNECTION AT MAINTENANCE HOLE MUST BE < 4% GRADE, AND TO PERPENDICULAR TO WALL OF MAINTENANCE HOLE.
- ALL VOIDS IN OPENINGS THROUGH MAINTENANCE HOLE WALLS MUST BE GROUTED WITH APPROVED NON–SHRINK MORTAR, PER OPS.
- ALL FITTINGS AND RISER PIPES WILL BE SECURED TO THE MAINTENANCE HOLE WALL WITH STAINLESS STRAPPING AND 1" SCREWS, MINIMUM 1 (ONE) STRAP PER SECTION OF RISER PIPE OR FITTING.
- BENCHING MUST DIRECT FLOW WITH SEWER MAIN FLOW AND BE TO SPRING–LINE OF BOTTOM FITTING.
- DROP PIPE TO BE ONE SIZE SMALLER THAN INCOMING SEWER WITH A MINIMUM OF 150mm DIA. AND MAX. OF 375mm DIA.
- INTERNAL DROP STRUCTURE TO BE USED ON MAINTENANCE HOLES 1500mm DIA. AND LARGER ONLY.

Barrie	PVC INSIDE DROP SEWER MAINTENANCE HOLE	REV NO: 5	DATE: APRIL 2022
			SCALE: N.T.S
		BSD–15B	



NOTES:
1. SANITARY SERVICES ARE TO BE BROUGHT 2.0m MIN. PAST PROPERTY LINE AND PROPERLY MARKED WITH A 50x100mm STAKE EXTENDING FROM THE INVERT OF THE SERVICE TO GROUND LEVEL. WATER SERVICES ARE TO BE BROUGHT TO PROPERTY LINE, TERMINATED WITH A CURB STOP AND PROPERLY MARKED WITH A 50x100mm STAKE EXTENDING FROM THE BOTTOM OF THE CURB STOP TO GROUND LEVEL. (REFER TO BSD–48)
   SANITARY SERVICES TO BE MARKED GREEN AND WATER SERVICES TO BE MARKED BLUE.
2. SANITARY SERVICE TO BE LOCATED AT THE CENTRE LINE OF EACH LOT/UNIT.
3. WATER SERVICE TO BE LOCATED 2.5m OFFSET NORTH OR WEST OF THE SANITARY SERVICE TO AVOID DRIVEWAY APPROACHES.
4. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

CITY OF BARRIE STANDARD					
STANDARD RESIDENTIAL SERVICE LOCATIONS	4.	DRIVEWAYS ADDED	J.S.	2005.01.11	APR'D: R.G.N. DATE: 92.05.15
	3.	REVISED LINETYPE AND CENTERLINE OF LOTS	B.R.	2002.02.05	DRAWN: L.A.J. SCALE: N.T.S.
	2.	SAN. SERVICE 2.0m MIN PAST P/L	K.C.	2000.10.20	
	1.	NOTE 1, 2, AND 3 CHANGED	K.C.	2000.03.20	
	NO.	REVISION	APR'D	DATE	BSD-25

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

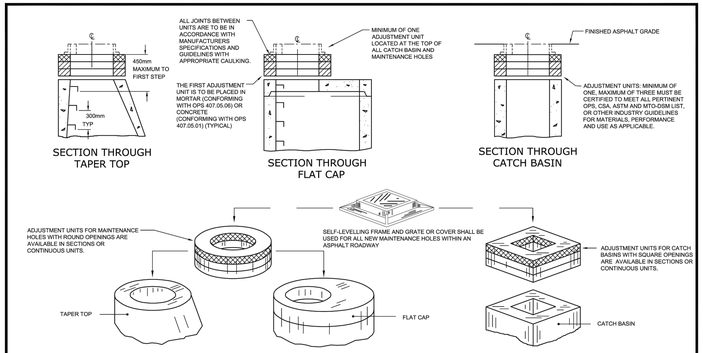
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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 MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN JH	PROJECT FER–15101	DWG. Nº DET–6
CHECKED JWI		

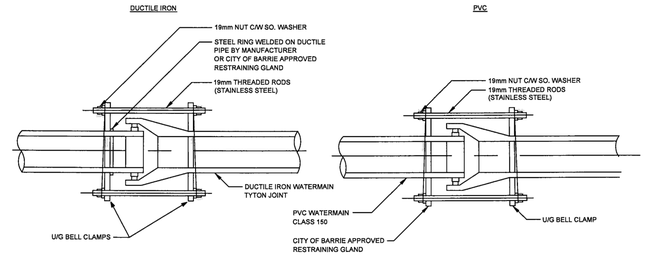
G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-6 Plotted Aug 18, 2022 @ 1:48pm by kcopin The Jones Consulting Group Ltd



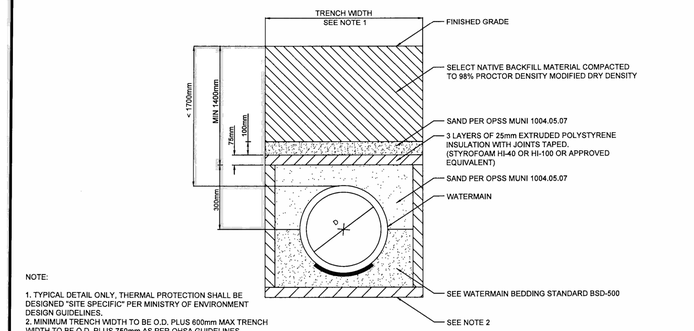
NOTES:

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	



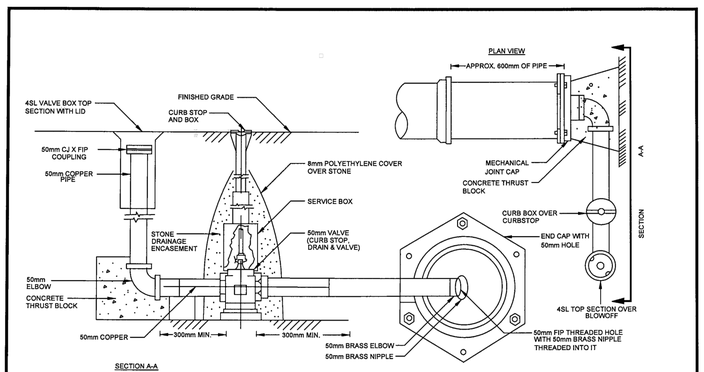
City of BARRIE STANDARD DETAIL	TYPICAL RESTRAINED WATERMAIN DUCTILE IRON OR PVC	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-512 (PREVIOUSLY BSD-47)	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING



NOTE:

1. TYPICAL DETAIL ONLY, THERMAL PROTECTION SHALL BE DESIGNED "SITE SPECIFIC" PER MINISTRY OF ENVIRONMENT DESIGN GUIDELINES.
2. MINIMUM TRENCH WIDTH TO BE O.D. PLUS 600mm MAX TRENCH WIDTH TO BE O.D. PLUS 750mm AS PER OHSA GUIDELINES
3. INSULATING THE BOTTOM OF THE TRENCH MAY BE REQUIRED IF STORMWATER INFRASTRUCTURE IS UNDER WATERMAIN
4. ALL UNITS IN MILLIMETERS UNLESS OTHERWISE NOTED.

City of BARRIE STANDARD DETAIL	TYPICAL INSULATION DETAIL	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-514	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

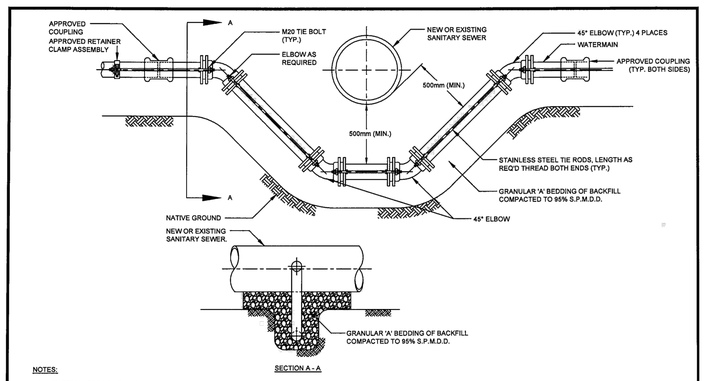


SECTION A-A

NOTES:

1. POLYETHYLENE COVER IS TO BE USED BETWEEN STONE AND BACKFILL.
2. BLOW OFFS ARE TO BE SELF DRAINING.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

City of BARRIE STANDARD DETAIL	50mm BLOW OFF DETAIL	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-516 (PREVIOUSLY BSD-51)	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

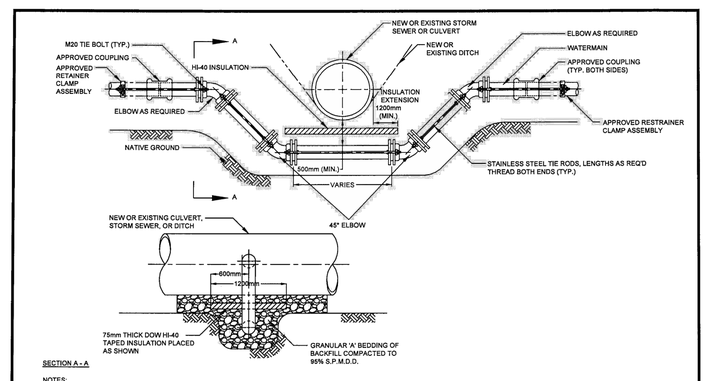


SECTION A - A

NOTES:

1. MATERIAL FOR LOWERING SHALL BE DUCTILE IRON IF EXISTING MATERIAL IS METALLIC.
2. UNITS IN MILLIMETERS UNLESS OTHERWISE NOTED.
3. ALL JOINTS TO BE MECHANICALLY RESTRAINED, INCLUDING JOINTS ON EXISTING WATERMAIN.

City of BARRIE STANDARD DETAIL	LOWERING DETAIL AT NEW OR EXIST. WATERMAIN CROSSING OF NEW OR EXIST. SANITARY SEWER	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-518	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING



SECTION A - A

NOTES:

1. LOWERED SECTION OF WATERMAIN TO BE SAME MATERIAL AND CLASS AS EXISTING.
2. ALL JOINTS TO BE MECHANICALLY RESTRAINED, INCLUDING JOINTS ON EXISTING WATERMAIN.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.

City of BARRIE STANDARD DETAIL	LOWERING DETAILOF NEW OR EXIST. WATERMAIN CROSSING NEW OR EXIST. CULVERT, STORM SEWER OR DITCH	REV No. 1	DATE: FEB 2015
			SCALE: N.T.S.
		BSD-519	APPROVED DATE: 6 Feb 2015 DIRECTOR OF ENGINEERING

BENCHMARK:

ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 22-08-18 PROVINCE OF ONTARIO

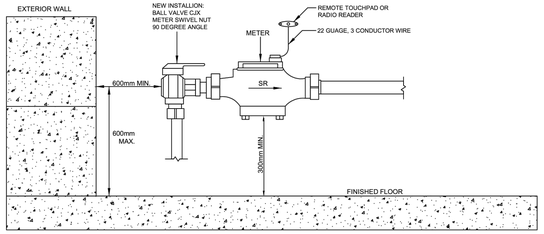
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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 MG	SCALE: AS NOTED	DATE JAN 2022	
DRAWN JH	PROJECT FER-15101	DWG. Nº DET-7	
CHECKED JWI			

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg, Layout:DET-7 Plotted Aug 18, 2022 @ 1:50pm by kcaplin The Jones Consulting Group Ltd.



NOTES:

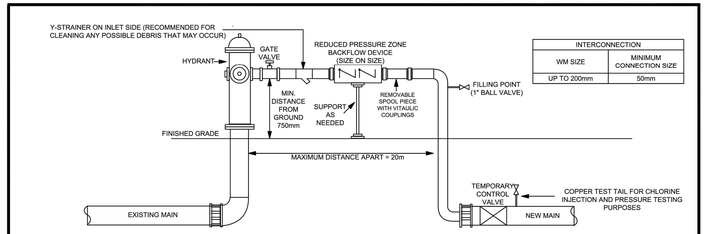
1. MIN 300mm CLEAR SPACE REQUIRED FROM CENTER OF METER TO EXTERIOR WALL(ONE WALL), MIN. 600mm CLEAR SPACE REQUIRED (THREE SIDES)
2. AVERAGE SIZE PERSON SHOULD BE ABLE TO ACCESS METER.
3. PROVIDE SUPPORT FOR THE METER AS REQUIRED.
4. METER WIRE TO BE BROUGHT TO OUTSIDE OF BUILDING BESIDE HYDRO METER, OR ON NEAREST EXTERIOR WALL TO WATER METER IF HYDRO METER IS UNAVAILABLE.
5. NO CONNECTIONS PERMITTED UPSTREAM OF THE WATER METER.
6. METER TO BE INSPECTED AND SEALED PRIOR TO OCCUPANCY, CALL WATER OPERATIONS BRANCH FOR INSPECTION AND SEAL OF WATER METER.
7. PIPING SUPPORT REQUIRED TO CITY OF BARRIE SATISFACTION.
8. WATER METERS LOCATED IN A CRAWL SPACE, UNDER STAIR LANDING, IN WALLS OR OTHER INACCESSIBLE AREAS WILL NOT BE ACCEPTED.
9. A FLAT SURFACE MUST BE PROVIDED FOR THE INSTALLATION OF THE EXTERIOR REMOTE READING DEVICE (SMARTPOINT).
10. IF METER WIRE PASSES THROUGH ANOTHER DWELLING OR IS RUN UNDER THE FLOOR IT MUST BE PLACED IN A DEDICATED CONDUIT.

Barrie
STANDARD DETAIL

WATER METER INSTALLATION PACKAGE

REV No.	DATE: MAY 2021
3	SCALE: N.T.S.

BSD-532



INTERCONNECTION	
WM SIZE	MINIMUM CONNECTION SIZE
UP TO 200mm	50mm

NOTES:

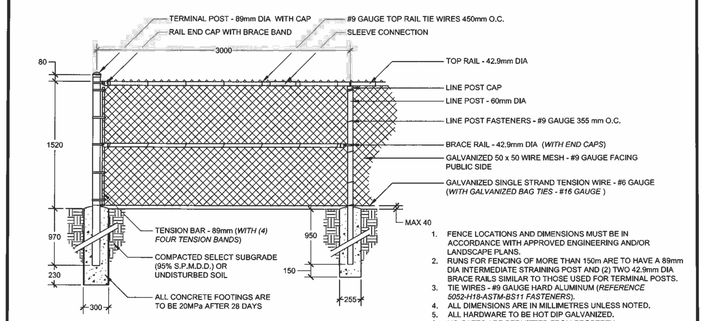
1. THE REDUCED PRESSURE ZONE BACKFLOW PREVENTER (RPZ) MUST BE PROVIDED BY THE CONTRACTOR, IN GOOD WORKING ORDER, AND TESTED AS PER CSA B64.10-01 (AS AMENDED) WITH THE EXCEPTION OF REDUCED PRESSURE ZONES INITIALLY TESTED AND THEN RELOCATED WITHIN THE SAME DAY.
2. THE BACKFLOW PREVENTION ASSEMBLY AND THE BACKFLOW PREVENTION VALVE ASSEMBLY SHALL BE PHYSICALLY SEPERATED FROM THE NEW MAIN DURING WATERMAIN PRESSURE TESTS.THE FINAL CONNECTION OF THE WATERMAIN SHALL BE COMPLETED ONLY AFTER AUTHORIZATION BY THE CITY OF BARRIE.
3. THE WATERMAIN SHALL BE DRAINED BY CONTROLLED MEANS, DE-CHLORINATING AS REQUIRED AS PER AWWA, AND TEMPORARY CAPS OR PLUGS INSTALLED AS REQUIRED.
4. THE WATERMAIN SHALL BE CUT BACK TO REMOVE THE TAPPING POINTS OF THE TEMPORARY WATERMAIN BY-PASS ASSEMBLY. ENSURE COMPLETION PIECE IS LESS THAN 5.5m AND DISINFECTED ACCORDING TO AWWA 651 (AS AMENDED).
5. ONLY CITY OF BARRIE WATER OPERATIONS SHALL OPERATE VALVES AND/OR OTHER APPURTENANCES WITHIN THE NEW SYSTEM ONCE COMMISSIONING PROCEDURES ARE INITIATED. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL RESULT IN A CHARGE, AS OUTLINED IN CITY OF BARRIE FEES BY-LAW (AS AMENDED).
6. ALL PIPING AND APPURTENANCES PLACED IN THE CONNECTION SHALL BE NEW MATERIAL DISINFECTED AS PER AWWA C651: DISINFECTING WATERMAIN (AS AMENDED).
7. A PHYSICAL SEPARATION MUST BE MAINTAINED AT ALL CONNECTION POINTS OF NEW WATERMAINS TO THE EXISTING SYSTEM UNTIL BACTERIOLOGICAL SAMPLES CONFIRM SATISFACTORY RESULTS. A SAMPLING TAP MUST BE PROVIDED AT THE END OF EACH BRANCH OR STUB.
8. THE ACTUAL CONFIGURATION USED MUST SATISFY THE INTENT OF THIS DRAWING AND AT THE DISCRETION OF THE CITY REPRESENTATIVE. (THE CITY OF BARRIE WATER OPERATIONS BRANCH MUST BE CONSULTED PRIOR TO ANY CONNECTION TO THE EXISTING DRINKING WATER SYSTEM)
9. WINTER PROTECTION MUST BE PROVIDED WHEN APPLICABLE.
10. ALL TEMPORARY CAPS TO BE RESTRAINED. ALL RESTRAINED JOINTS AS PER PIPE MANUFACTURER'S SPECIFICATION.
11. CITY OF BARRIE WATER OPERATIONS MAINTAINS THE RIGHT TO REQUEST ALTERNATE BY-PASS ASSEMBLY SIZING IN AREAS WHERE PRESSURE AND FLOW RATES MAY BE AN ISSUE.

Barrie

WATERMAIN CONNECTION FROM HYDRANT (FOR WATERMAINS UP TO 200MM)

REV No.	DATE: NOV 2019
2	SCALE: N.T.S.

BSD-535



1. FENCE LOCATIONS AND DIMENSIONS MUST BE IN ACCORDANCE WITH APPROVED ENGINEERING AND/OR LANDSCAPE PLANS.
2. RUNS FOR FENCING OF MORE THAN 150m ARE TO HAVE A 89mm DIA INTERMEDIATE STRAINING POST AND (2) TWO 42.9mm DIA BRACE RAILS SIMILAR TO THOSE USED FOR TERMINAL POSTS.
3. TIE WIRES - #9 GAUGE HARD ALUMINUM (*REFERENCE 5052-H18-ASTM-B511 FASTENERS*).
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.
5. ALL HARDWARE TO BE HOT DIP GALVANIZED.
6. NO GATES ARE PERMITTED FROM PROPERTY.
7. ONLY USE SCHEDULE 40 GALVANIZED PIPE.
8. FENCING TO BE INSTALLED SOLELY ON MUNICIPAL PROPERTY WITH AN INSET OF 150 TO FENCE CENTRE LINE.
9. THE TOP OF WIRE MESH SHALL BE KNUCKLED OVER SUCH THAT NO SHARP PROJECTIONS ARE VISIBLE OVER THE TOP RAIL.

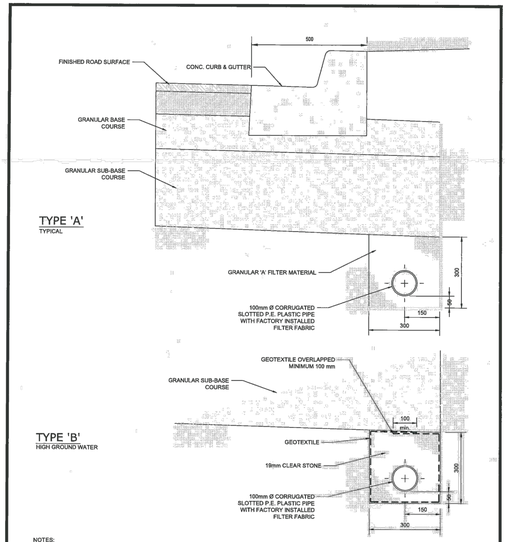
The City of BARRIE
STANDARD DETAIL

1.52m CHAIN LINK PARK FENCING

REV No.	DATE: JUNE 2015
1	SCALE: N.T.S.

BSD-1210
FORMERLY BSD-21

APPROVED
DATE June 11/15
DIRECTOR OF ENGINEERING



NOTES:

1. ALL CONNECTIONS TO BE MADE ON THE UPSTREAM SIDE OF ALL CATCH BASINS. MORTARED INSIDE AND OUTSIDE.
2. SUBDRAINS TO BE PLUGGED AT THE HIGH END WITH A MANUFACTURED PLUG.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
4. FOR SELECTION OF TYPE 'A' AND TYPE 'B' SUBDRAINS REFER TO CITY OF BARRIE TRANSPORTATION DESIGN MANUAL.
5. TYPE 'B' : THE SUBDRAIN TRENCH SHALL BE LINED WITH CLASS II, NON-WOVEN GEOTEXTILE, WITH AN F.D.S. OF 75-150 µm AND A MINIMUM THICKNESS OF 1 mm.

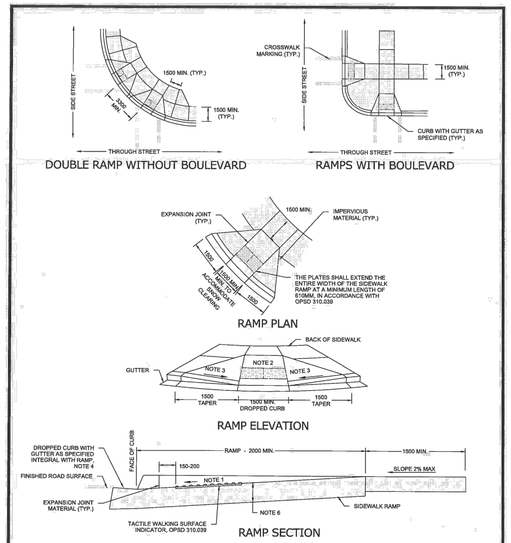
APPROVED
DATE Oct. 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

TYPICAL 100mm SUBDRAIN DETAIL

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.

BSD-315



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 10mm STEP AT GUTTER LINE
5. ACCESSIBLE PEDESTRIAN SIGNAL TO HAVE TACTILE ARROW THAT ALIGNS WITH DIRECTION OF CROSSWALK
6. MINIMUM THICKNESS OF RAMP IS 200mm. MINIMUM THICKNESS OF SIDEWALK AND FLARED SIDES ADJACENT TO RAMP IS 150mm.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
8. FOR CROSSWALK MARKINGS AND SIGNAGE REFER TO OTM BOOK 15

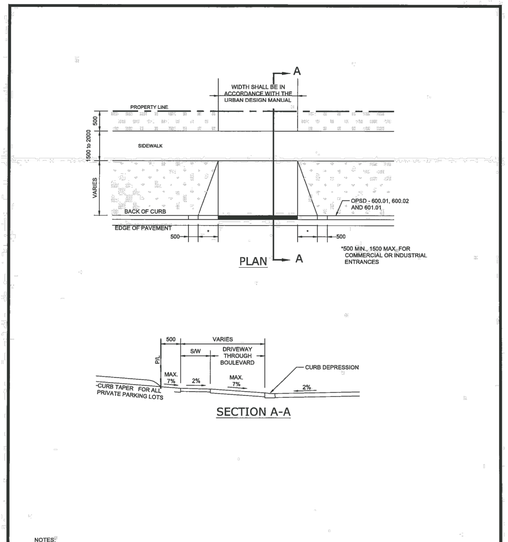
APPROVED
DATE Oct. 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

CONCRETE SIDEWALK RAMPS AT UNSIGNALIZED INTERSECTIONS

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.

BSD-318



NOTES:

1. CROSSFALL OF SIDEWALK 2.0% UNLESS OTHERWISE APPROVED.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
3. UPON THE APPROVAL OF THE DIRECTOR OF ENGINEERING, STEEPER SLOPES MAY BE CONSIDERED WHEN THE BOULEVARD WIDTH IS LESS THAN 2.4M OR DURING ROAD RECONSTRUCTION.
4. REVERSE GRADES ARE NOT APPROVED.

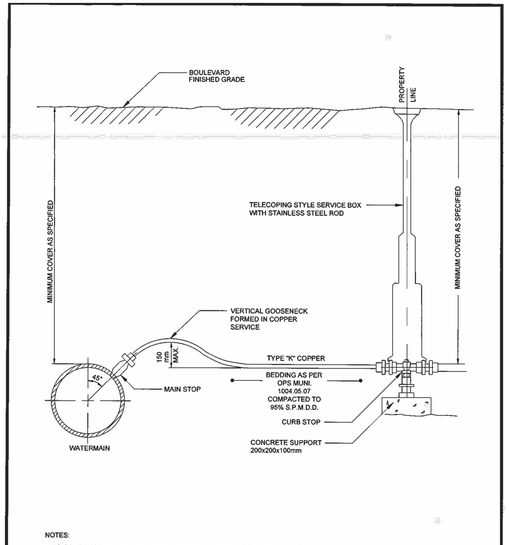
APPROVED
DATE Oct. 26/17.
DIRECTOR OF ENGINEERING

Barrie
STANDARD DETAIL

DRIVEWAY AND ENTRANCE DETAIL

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.

BSD-319



NOTES:

1. NO COUPLINGS WILL BE PERMITTED BETWEEN MAIN STOP AND CURB STOP.
2. ALL WATER SERVICES TO BE INSTALLED AT RIGHT ANGLE TO THE WATERMAIN.
3. CONNECTIONS TO PVC MAINS TO BE MADE USING APPROVED SERVICE SADDLES.
4. TAPPING TO BE AT 2 OR 10 O'CLOCK POSITION ONLY.
5. WATERMAIN TO BE DRILLED AND TAPPED WITH AWWA INLET THREAD
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

APPROVED
DATE May 29/15.
DIRECTOR OF ENGINEERING

City of BARRIE
STANDARD DETAIL

COPPER WATER SERVICE CONNECTION DETAIL 25mm DIAMETER SIZE

REV No.	DATE: MAY 2015
2	SCALE: N.T.S.

BSD-502

BENCHMARK:

ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCE PROFESSIONAL ENGINEER
J. W. INGRAM
100145779
22-08-18
PROVINCE OF ONTARIO

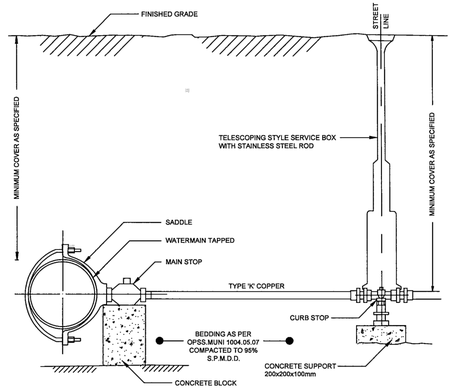
FERNBROOK LTD. – PARKSIDE
WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER–15101	DWG. Nº DET–8
CHECKED	JWI		

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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. 9/15mm (3/5") 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.

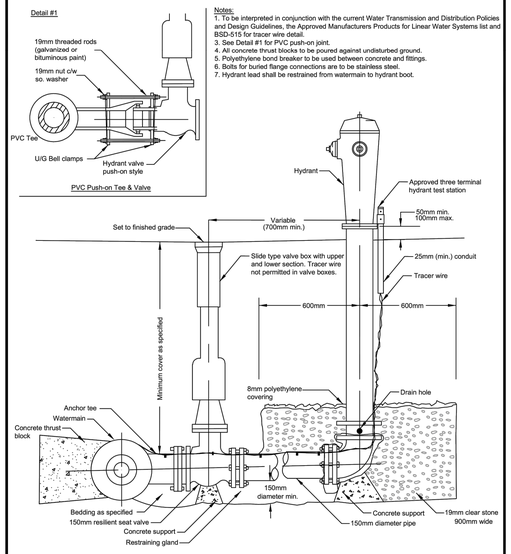
APPROVED
DATE 6/Feb/2015
DIRECTOR OF ENGINEERING

City of BARRIE — STANDARD DETAIL

COPPER WATER SERVICE CONNECTION DETAIL 38mm AND 50mm DIAMETER SIZES

REV No.	DATE: FEB 2015
1	SCALE: N.T.S.

BSD-503 (PREVIOUSLY BSD-49)

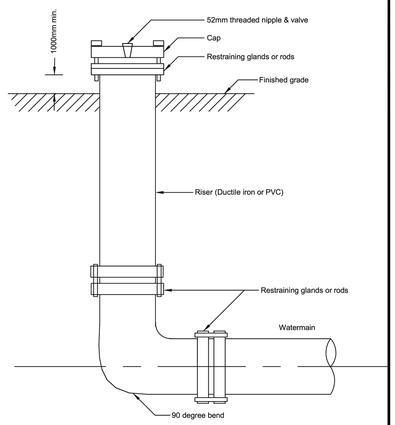


Notes:
1. To be interpreted in conjunction with the current Water Transmission and Distribution Policies and Design Guidelines, the Approved Manufacturers Products for Linear Water Systems list and BSD-515 for tracer wire detail.
3. See Detail #1 for PVC push-on joint.
4. All concrete thrust blocks to 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.	DATE: April 2019
2	SCALE: N.T.S.

BSD-507

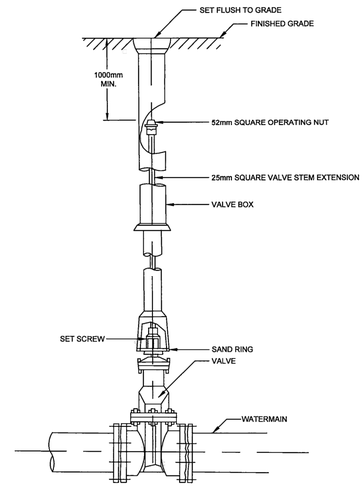


NOTES:
1. All dimensions are in millimeters unless otherwise shown.
2. Restraining glands or rods to be used for restraint.

Barrie — Temporary Riser Installation

REV No.	DATE: May 2019
2	SCALE: N.T.S.

BSD-510



NOTES:
1. EXTENSION REQUIRED WHEN DISTANCE FROM THE TOP OF VALVE TO FINISHED GRADE IS MORE THAN 1.7m.

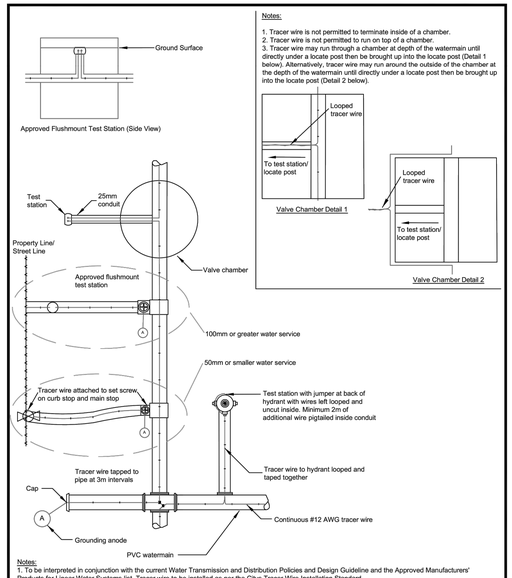
APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE — STANDARD DETAIL

VALVE STEM EXTENSION IN VALVE BOX

REV No.	DATE: FEB 2015
1	SCALE: N.T.S.

BSD-511 (PREVIOUSLY BSD-46)



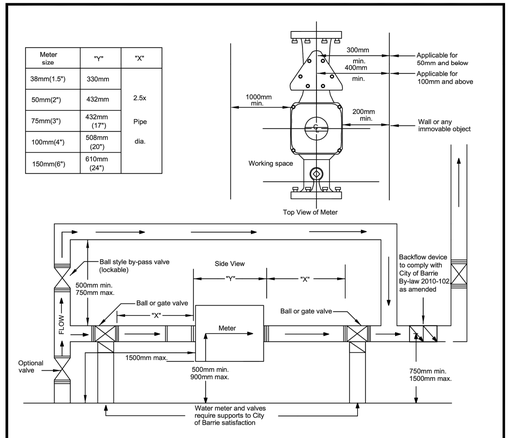
Notes:
1. Tracer wire is not permitted to terminate inside of a chamber.
2. Tracer wire is not permitted to run on top of a chamber.
3. Tracer wire may run through a chamber at depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 1 below). Alternatively, tracer wire may run around the outside of the chamber at the depth of the watermain until directly under a locate post then be brought up into the locate post (Detail 2 below).

Notes:
1. To be interpreted in conjunction with the current Water Transmission and Distribution Policies and Design Guideline and the Approved Manufacturers' Products for Linear Water Systems list. Tracer wire to be installed as per the Citys Tracer Wire Installation Standard.
2. Hydrant test station conduit shall be a minimum of 25mm installed to a depth of 600mm below grade.
3. All connections must be waterproofed.
4. Splicing of tracer wire is not allowed unless specified or approved.
5. Heat shrink is to be completed by a heat gun and not using an open flame.
6. SnakePits are to be placed inside of a SSL road leveler with lid.

Barrie — Tracer Wire Detail

REV No.	DATE: Jan 2021
4	SCALE: N.T.S.

BSD-515



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")	

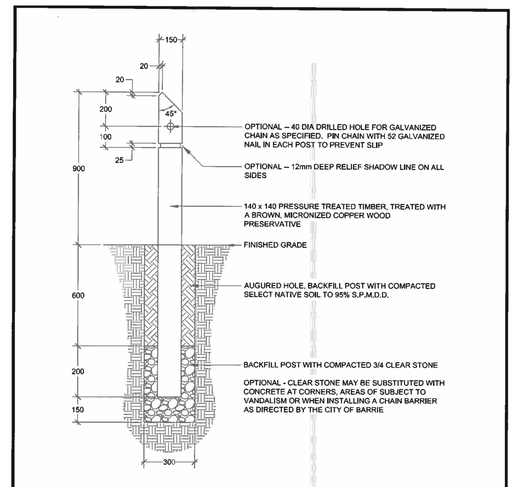
• A key to the mechanical room to be supplied to the City of Barrie for meter reading and maintenance.

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.	DATE: May 2019
3	SCALE: N.T.S.

BSD-533



1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. CHAMFER CUTS ARE TO BE MADE FOLLOWING INSTALLATION OF BOLLARD(S) USING A TEMPLATE OR GUIDE FOR UNIFORM CUTS.
3. ALL BOLLARD HEIGHTS ARE TO BE UNIFORM.
4. FOR MULTIPLE BOLLARDS, SPACING SHALL BE AT A STANDARD 1000 ON CENTRE.
5. BOLLARDS ARE TO BE INSET 150mm ONTO MUNICIPAL PROPERTY AND CHAMFER FACE IS TO BE SET ORIENTATED OUT FROM THE SUBJECT PROPERTY.
6. ALL FENCE FOOTINGS ARE TO BE INSTALLED SOLELY ON MUNICIPAL PROPERTY.

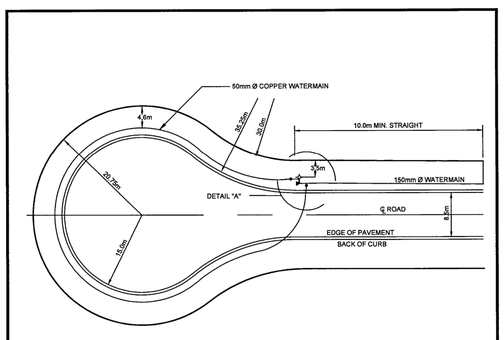
APPROVED
DATE June.11/15
DIRECTOR OF ENGINEERING

The City of BARRIE — STANDARD DETAIL

TIMBER BOLLARD DETAIL

REV No.	DATE: JUNE 2015
1	SCALE: N.T.S.

BSD-1217 FORMERLY BSD-38



DETAIL "A"

APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE — STANDARD DETAIL

TYPICAL CUL-DE-SAC WATERMAIN DESIGN (50mm DIA. COPPER LOOPING)

REV No.	DATE: FEB 2015
1	SCALE: N.T.S.

BSD-513 (PREVIOUSLY BSD-55)

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

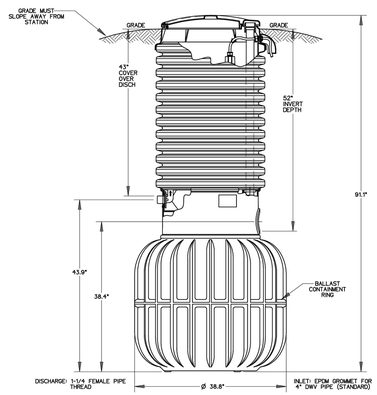
DETAILS

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	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER-15101	DWG. Nº DET-9
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-9 Plotted Aug 18, 2022 @ 1:56pm by kcopin The Jones Consulting Group Ltd

OPTIONS : ☐ DH151-93 (HARD WIRED LEVEL CONTROLS)
☐ DR151-93 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS

AD	CAH	7/13/07	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL DH151-93 / DR151-93

NA0051P06

HYDRO-GUARD® HG-4 Sub-Surface Discharge Unit

Installation Instructions

GENERAL

Overview

The Hydro-Guard® HG-4 Sub-Surface Discharge Unit, the industry's premium patented, program-mable flushing apparatus, is suitable for year-round use in cold to extreme cold climates. This Automatic Flushing System has been designed, engineered, and manufactured to provide outstanding dependability and performance.

Please read and retain this manual for future training, reference, troubleshooting, and maintenance.

Site Evaluation

Each Hydro-Guard® System installation is unique and will require a minimum of advance planning. Prior tothe installation of the device, the drainage patterns for the intended installation location should be reviewed. The drainage pattern must permit discharged water to flow away from the Hydro-Guard® Unit. Discharged water flushed from the Hydro-Guard® Unit must be routed away from the device. It is recommended that a 6" catch pipe (by others) be installed inside of the HG-4's external cabinet. The catch pipe shall be mounted at least 3" under the discharge piping of the HG-4 (see Typical Installation illustration). The 6" pipe shall be installed a minimum of 24" below grade before a 90-degree bend or pipe size reduction. If desired, the 6" pipe can be reduced to a 3" or 4" pipe to continue the routing of the flow to a final discharge point. The recommended final discharge points may include a storm drain, drainage or retention pond, or a storm swale.

INSTALLATION

Hydro-Guard® HG-4 Unit

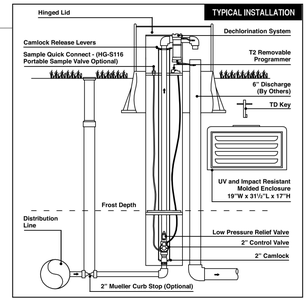
1. Remove the Hydro-Guard® Unit from its packaging and inspect for possible damage during shipping.

2. Excavate a suitably-sized ditch ensuring it is connected on one side to the utility's service line trench. Remove any debris that might create uneven pressure on the Unit. Compact the bottom of the hole in order to minimize settling after installation. Place #57 stone, then non-compacted clean bedding material within the bottom of the hole. Turn off service line feed.

3. Slowly lower the Hydro-Guard® Unit into place, pressing it firmly into the noncompacted bedding material until it is fully seated. Ensure that the Unit is level before beginning the backfilling operation (the bottom of the ground plate should be approxi-mately 1" above the final grade).

4. Connect the utility's water system to the Hydro-Guard® Unit by means of the 2" threaded connection.

5. Backfill the hole around and under the Unit's below grade base with clean fill and/or #57 stone. Backfilling should be accomplished in 6" compacted lifts. Check that the Unit is level.



6. After installation is complete, sod the area around the Hydro-Guard® Unit or take other steps in order to prevent erosion. Inspect the area immediately around the Unit in order to ensure that the existing ground cover is not subject to severe erosion. You may opt to create a custom installation to best suit your needs.

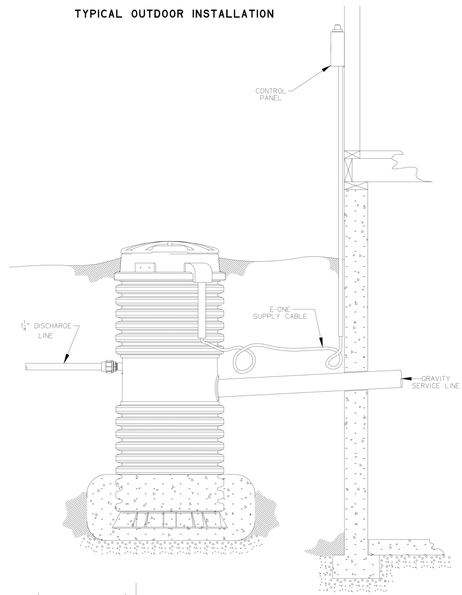
7. Disinfect the Hydro-Guard® Flushing Device in accordance with the utility's policy. DO NOT exceed the dosage and contact times recommended by the AWWA.

8. The Hydro-Guard® Automatic Flushing Device may now be pro-grammed and placed into service.

AUTO-FLUSHER DETAIL
MUELLER HYDRO-GUARD HG-4

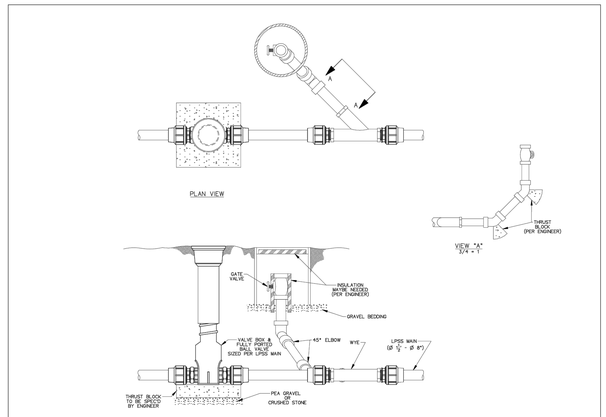
TO BE INSTALLED WITH 50mm WATER SUPPLY AS PER BSD-503

TYPICAL OUTDOOR INSTALLATION



environment one CORPORATION

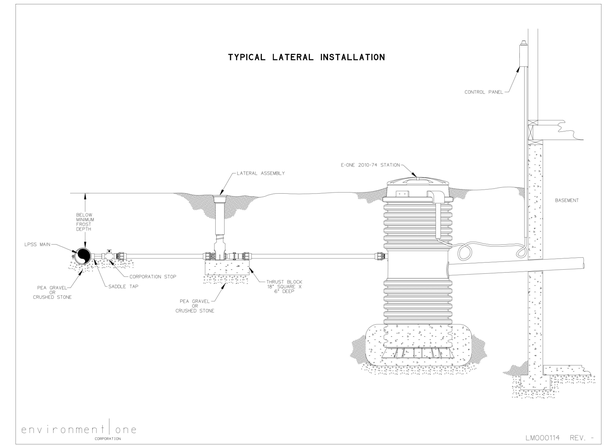
LM00112 REV. A



TYPICAL FLUSHING CONNECTION ON LPSS MAIN

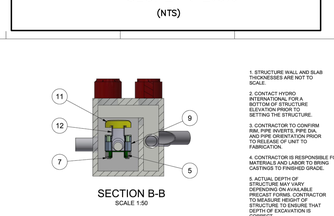
environment one CORPORATION

LM00113 REV. A



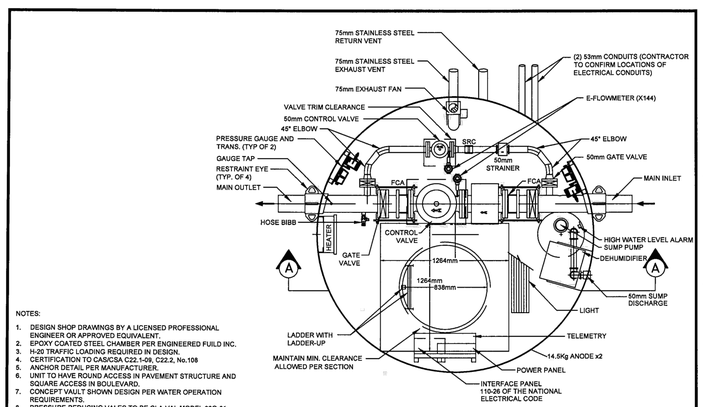
environment one CORPORATION

LM00114 REV. -



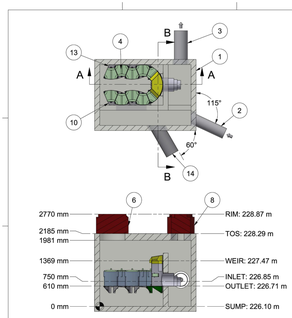
TYPICAL SWALE DETAIL
SLOPE < 2.0%

(NTS)



NOTES:
1. DESIGN SHOP DRAWINGS BY A LICENSED PROFESSIONAL ENGINEER OR APPROVED EQUIVALENT.
2. EPOXY COATED STEEL CHAMBER PER ENGINEERED FUILD INC.
3. H-20 TRAFFIC LOADING REQUIRED IN DESIGN.
4. CERTIFICATION TO CAS/CSA C22.1-09, C22.2, No.108
5. ANCHOR DETAIL PER MANUFACTURER.
6. UNIT TO HAVE ROUND ACCESS IN PAVEMENT STRUCTURE AND SQUARE ACCESS IN BOULEVARD.
7. CONCEPT VAULT SHOWN DESIGN PER WATER OPERATION REQUIREMENTS.
8. PRESSURE REDUCING VALES TO BE CLA-VAL MODEL 90G-01.
9. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHER WISE SHOWN.

City of BARRIE STANDARD DETAIL	TYPICAL EPOXY COATED STEEL PRESSURE REDUCING VALVE CHAMBER	REV No. 1 / DATE: FEB 2015 / SCALE: N.T.S.	APPROVED DATE - 6 Feb 2015 DIRECTOR OF ENGINEERING
		BSD-523	



SECTION A-A
SCALE 1:50

SECTION B-B
SCALE 1:50

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
4. Unit shall conform to HS20-44 load ratings.

PARTS LIST				
ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		6ft x 9ft
2	1	UFF INLET PIPE	PVC	300
3	1	UFF OUTLET PIPE	PVC	375
4	10	MODULE LID		
5	3	SUPPORT FRAME		
6	1	COVER 30 IN		762
7	2	WEDGE WALL MOUNT		
8	2	COVER 24 IN		609.6
9	10	MODULE BODY		
10	2	SUPPORT FRAME LH		
11	1	BYPASS HOOD-S		
12	1	OUTLET MODULE		
13	2	SUPPORT FRAME RH		
14	1	AUX PIPE INLET - INVERT 226.95 m	PVC	375

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 TO CONFIRM RIM, PIPE INVERTS, PIPE DIA, AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.
4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT

REVISION HISTORY		
REV	BY	DESCRIPTION / DATE
-	DKCB	FIRST RELEASE / 8/16/2022

PROJECTION

IF IN DOUBT ASK

DATE: 8/16/2022 | SCALE: 1:50
DRAWN BY: WCS | CHECKED BY: | APPROVED BY:

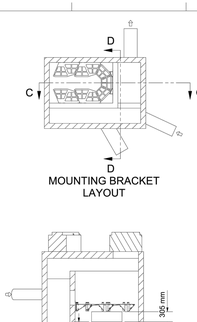
TITLE: UF-FLO FILTER 1.83m x 2.74m

10 MODULES

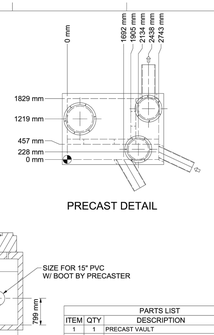
UFF-1
PARKSIDE WATERFRONT CONDOMINIUM 276702
BARRIE, ONTARIO

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

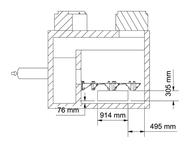
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STOCK NUMBER:
DRAWING NO: 22_12_0234-UFF-1
SHEET SIZE: B | SHEET: 1 OF 2 | Rev: -



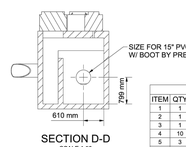
MOUNTING BRACKET LAYOUT



PRECAST DETAIL



SECTION C-C
SCALE 1:50



SECTION D-D
SCALE 1:50

PARTS LIST				
ITEM	QTY	DESCRIPTION	TYPE	SIZE (mm)
1	1	PRECAST VAULT		6ft x 9ft
2	1	UFF INLET PIPE		300
3	1	UFF OUTLET PIPE		375
4	10	MODULE LID		
5	3	SUPPORT FRAME		
6	1	COVER 30 IN		762
7	2	WEDGE WALL MOUNT		
8	2	COVER 24 IN		609.6
9	10	MODULE BODY		
10	2	SUPPORT FRAME LH		
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12	1	OUTLET MODULE		
13	2	SUPPORT FRAME RH		
14	1	AUX PIPE INLET - INVERT 226.95 m		375

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 TO CONFIRM RIM, PIPE INVERTS, PIPE DIA, AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.
4. CONTRACTOR IS RESPONSIBLE FOR MATERIALS AND LABOR TO BRING CASTINGS TO FINISHED GRADE.
5. ACTUAL DEPTH OF STRUCTURE MAY VARY DEPENDING ON AVAILABLE PRECAST FORMS. CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT

PROJECTION

IF IN DOUBT ASK

DATE: 8/16/2022 | SCALE: 1:50
DRAWN BY: WCS | CHECKED BY: | APPROVED BY:

TITLE: UF-FLO FILTER 1.83m x 2.74m

10 MODULES

UFF-1
PARKSIDE WATERFRONT CONDOMINIUM 276702
BARRIE, ONTARIO

Hydro International
hydro-int.com
©2021 HYDRO INTERNATIONAL

WEIGHT: | MATERIAL:
STOCK NUMBER:
DRAWING NO: 22_12_0234-UFF-1
SHEET SIZE: B | SHEET: 2 OF 2 | Rev: -

BENCHMARK:
ELEVATION 223.918 SURVEY CAP LOCATED APROX. 13 km SOUTH OF CENTERLINE OF ROAD OF BIG BAY POINT ROAD AND APPROX. 195 m WEST OF CENTERLINE OF ROAD OF SANDRINGHAM DRIVE. MONUMENT #03120080059

ELEVATION 221.186 SURVEY CAP LOCATED IN HURST PARK APPROX. 16 m NORTH OF THE CENTERLINE OF ROAD OF HURST DRIVE APPROX. 1.3 km WEST OF YONGE STREET AND APPROX. 370 m NORTH OF BIG BAY POINT ROAD. MONUMENT #03120080010

NO.	REVISIONS	DATE	INITIAL
2.	SECOND SUBMISSION	AUG 2022	JWI
1.	FIRST SUBMISSION	FEB 2022	JWI

PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 22-08-18 — PROVINCE OF ONTARIO

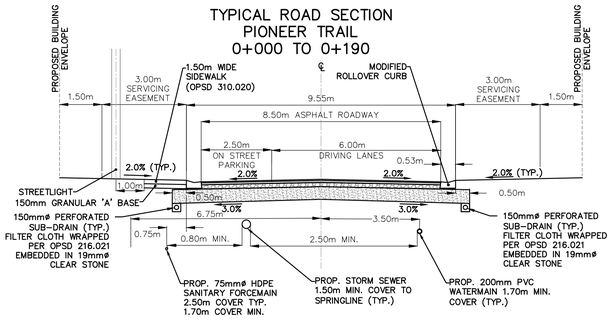
FERNBROOK LTD. – PARKSIDE WATERFRONT CONDOMINIUM
70 PIONEER TRAIL

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	MG	SCALE: AS NOTED	DATE JAN 2022
DRAWN	JH	PROJECT FER-15101	DWG. Nº DET-10
CHECKED	JWI		

G:\Eng_3D\FER-15101-01\Production DWGS\FER-15101-COVER AND DETAILS-01.dwg Layout:DET-10 Plotted Aug 19, 2022 @ 7:00pm by mpalliser The Jones Consulting Group Ltd



TYPICAL ROAD SECTION PIONEER TRAIL 0+000 TO 0+190

PAVEMENT STRUCTURE:
40mm HL3 TOP COURSE ASPHALT
70mm HL8 BOTTOM COURSE ASPHALT
150mm GRANULAR 'A' BASE COURSE
450mm GRANULAR 'B' SUBBASE COURSE

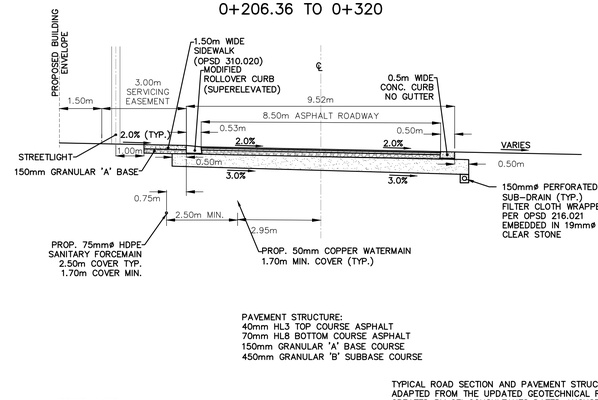
SCALE: 1:100

TYPICAL ROAD SECTION AND PAVEMENT STRUCTURE ADAPTED FROM THE UPDATED GEOTECHNICAL REPORT CREATED BY GEI CONSULTANTS DATED AUGUST 14, 2022.

TYPICAL ROAD SECTION
PIONEER TRAIL
0+000 TO 0+190

REVISIONS	DATE	SCALE: 1:100	DRAWN: JH

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Drive East, Unit 1, Barrie, Ontario, L4N 0W5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com



TYPICAL ROAD SECTION PIONEER TRAIL 0+206.36 TO 0+320

PAVEMENT STRUCTURE:
40mm HL3 TOP COURSE ASPHALT
70mm HL8 BOTTOM COURSE ASPHALT
150mm GRANULAR 'A' BASE COURSE
450mm GRANULAR 'B' SUBBASE COURSE

SCALE: 1:100

TYPICAL ROAD SECTION AND PAVEMENT STRUCTURE ADAPTED FROM THE UPDATED GEOTECHNICAL REPORT CREATED BY GEI CONSULTANTS DATED AUGUST 14, 2022.

TYPICAL ROAD SECTION
PIONEER TRAIL
0+206.36 TO 0+320

REVISIONS	DATE	SCALE: 1:100	DRAWN: JH

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Drive East, Unit 1, Barrie, Ontario, L4N 0W5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

ADS Advanced Drainage Systems, Inc.

SiteAssist™ FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

70 PIONEER TRAIL LID-1

BARRIE, ONTARIO, CANADA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" OR ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". THE MINIMUM INSTALLATION REQUIREMENTS ARE DETERMINED ASSUMING 1) MINIMUM 457 mm (18") COVER OVER THE CROWN OF THE CHAMBER, INCLUDING 150 mm (6") OF STONE ABOVE THE CHAMBERS, AND 2) A 305 mm (12") MINIMUM SPACING BETWEEN THE CHAMBER ROWS AND BETWEEN THE CHAMBER ROWS AND THE WALL OF THE STONE FOUNDATION. 3) HS-20 WHEEL LOAD WITH 0.345 MPa (50 PSI) TIRE PRESSURE ON MINIMUM COVER 4) MAXIMUM COVER OF 2.4 m (8'). 5) LIVE LOAD FACTOR OF 1.75 AND 6) MINIMUM PAVEMENT (75 YR) COVER LOAD PER 3) ALLOWABLE COVER WITH PAVED (1 WHEEL) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 76 mm (3").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/% , AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD WHEN LIVE LOAD, THE LOAD FACTOR REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

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IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 230 mm (9") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm).
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 300 mm (12") BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

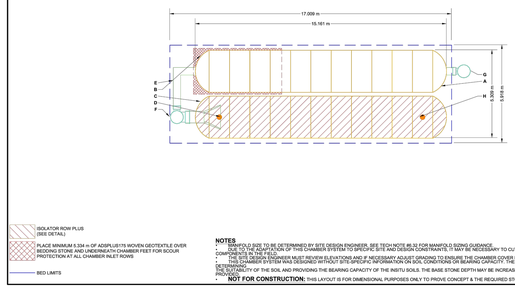
1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO EQUIPMENT WITH GREATER THAN 9,072 kg (20,000 lbs) WHEEL LOADS/STATIC AXLE LOADS/CLASS 4 LIFT ALLOWANCES MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
   - WHEEL LOADS OR LIFT ALLOWANCES ABOVE 13,608 kg (30,000 lbs) REQUIRE SPECIAL DESIGN CONSIDERATIONS.
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3000/MC-4000 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT	
#2	STORMTECH MC-4500 CHAMBERS
#1	STORMTECH MC-4500 END CAPS
305	STONE ABOVE (mm)
305	STONE BELOW (mm)
40	STONE VOID
	INSTALLED SYSTEM VOLUME (m³)
126.4	INSTALLED SYSTEM VOLUME (CY) (COVER STONE INCLUDED)
	BASE STONE INCLUDED)
100.3	SYSTEM AREA (m²)
83.9	SYSTEM PERIMETER (m)

PROPOSED ELEVATIONS				*INVERT ABOVE BASE OF CHAMBER	
		PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
223.000	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)					
222.810	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)					
222.620	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)					
222.620	MINIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/PAVEMENT)					
222.620	STONE COVER	PREFABRICATED END CAP	A	375 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500EPP10B / TYP OF ALL 375 mm BOTTOM CONNECTIONS	43 mm	
222.620	MINIMUM ALLOWABLE GRADE (TOP OF EXPOSED PAVEMENT)	PREFABRICATED END CAP	B	375 mm TOP PARTIAL CUT END CAP, PART#: MC4500EPP10T / TYP OF ALL 375 mm TOP CONNECTIONS	301 mm	
221.000	TOP OF STONE					
221.000	TOP OF MC-4500 CHAMBER	PREFABRICATED END CAP	C	600 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500EPP24B / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	57 mm	
220.810	12" (305 mm) TOP MANIFOLD INVERT		D	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MC4500DRAMP		
220.620	24" (600 mm) BOTTOM MANIFOLD INVERT		E	375 mm x 375 mm TOP MANIFOLD, 45[D] N.T.S.	833 mm	
220.620	INVERT OF MC-4500 CHAMBERS		F	750 mm DIAMETER (INLET W/ 90[D] PLUG ROW)		59 L/s IN
220.130	BOTTOM OF STONE		G	750 mm DIAMETER DESIGN BY ENGINEER		76 L/s OUT
			H	INSPECTION PORT (2 PLACES)		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES
- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE 86.30 FOR MANIFOLD SIZING GUIDANCE.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND, IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- STORMTECH RECOMMENDS 3 BACKFILL METHODS: STONESHOOTER LOCATED OFF THE CHAMBER BED, BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE, BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE IN-SITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS KNOWN.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

70 PIONEER TRAIL LID-1			
BARRIE, ONTARIO, CANADA			
DRAWN: MG	CHECKED: TL/BL		
DATE:	PROJECT #:		
DATE	DESCRIPTION	BY	APP

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SCALE = 1 : 100

SHEET 2 OF 6

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

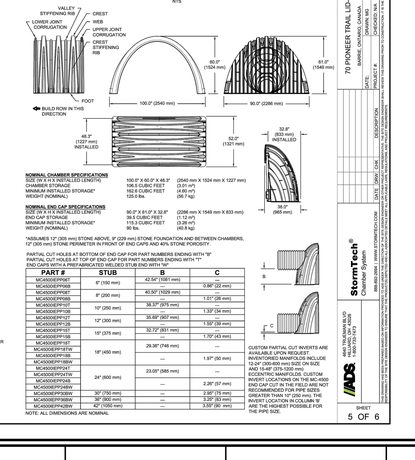
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEERS PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEERS PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[2]: A-1, A-2-4, A-3 OR AASHTO M43[3]: 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[3]: 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[3]: 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[1,2]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR AN STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR GRADING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3"
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/% , THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

MC-4500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS		
SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.4 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS		
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.9"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500EPP06T	6" (150 mm)	42.04" (1081 mm)	—
MC4500EPP06B			0.99" (22 mm)
MC4500EPP08T	8" (200 mm)	40.50" (1029 mm)	—
MC4500EPP08B			1.01" (26 mm)
MC4500EPP10T	10" (250 mm)	38.37" (975 mm)	—
MC4500EPP10B			1.02" (26 mm)
MC4500EPP12T	12" (300 mm)	35.69" (907 mm)	—
MC4500EPP12B			1.03" (26 mm)
MC4500EPP15T	15" (375 mm)	32.73" (831 mm)	—
MC4500EPP15B			1.70" (43 mm)
MC4500EPP18T	18" (450 mm)	29.36" (746 mm)	—
MC4500EPP18TW			—
MC4500EPP18B			1.97" (50 mm)
MC4500EPP18BW			—
MC4500EPP24T	24" (600 mm)	23.05" (585 mm)	—
MC4500EPP24TW			—
MC4500EPP24B			2.26" (57 mm)
MC4500EPP24BW		—	2.26" (57 mm)
MC4500EPP30BW	30" (750 mm)	—	2.55" (74 mm)
MC4500EPP36BW	36" (900 mm)	—	3.20" (83 mm)
MC4500EPP42BW	42" (1050 mm)	—	3.59" (91 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12.04" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) x 12" (300 mm) SIZE ON SIZE. CUSTOM INVERTS ARE LOCATED ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR FLOWS GREATER THAN 107 CFS (3 m³/s). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS

NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

70 PIONEER TRAIL LID-1			
BARRIE, ONTARIO, CANADA			
DRAWN: MG	CHECKED: TL/BL		
DATE:	PROJECT #:		
DATE	DESCRIPTION	BY	APP

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SHEET 5 OF 6

MC-4500 ISOLATOR ROW PLUS DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A DIPSTICK, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ACCESS PORTS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CLEANING NOZZLE WITH MINIMUM 3 REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF AT LEAST 3,800 PSI (262 BAR) WATER FLOW
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

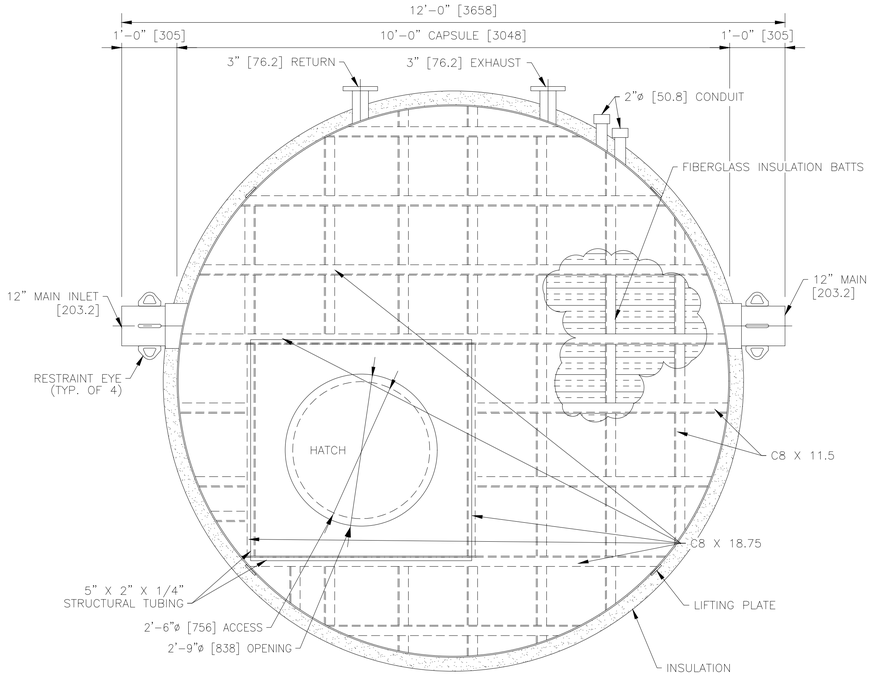
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

12" (300 mm) MIN WIDTH
CONCRETE COLLAR
PAVEMENT
CONCRETE SLAB 6" (150 mm) MIN THICKNESS
STORMTECH CHAMBER
CONCRETE COLLAR NOT REQUIRED

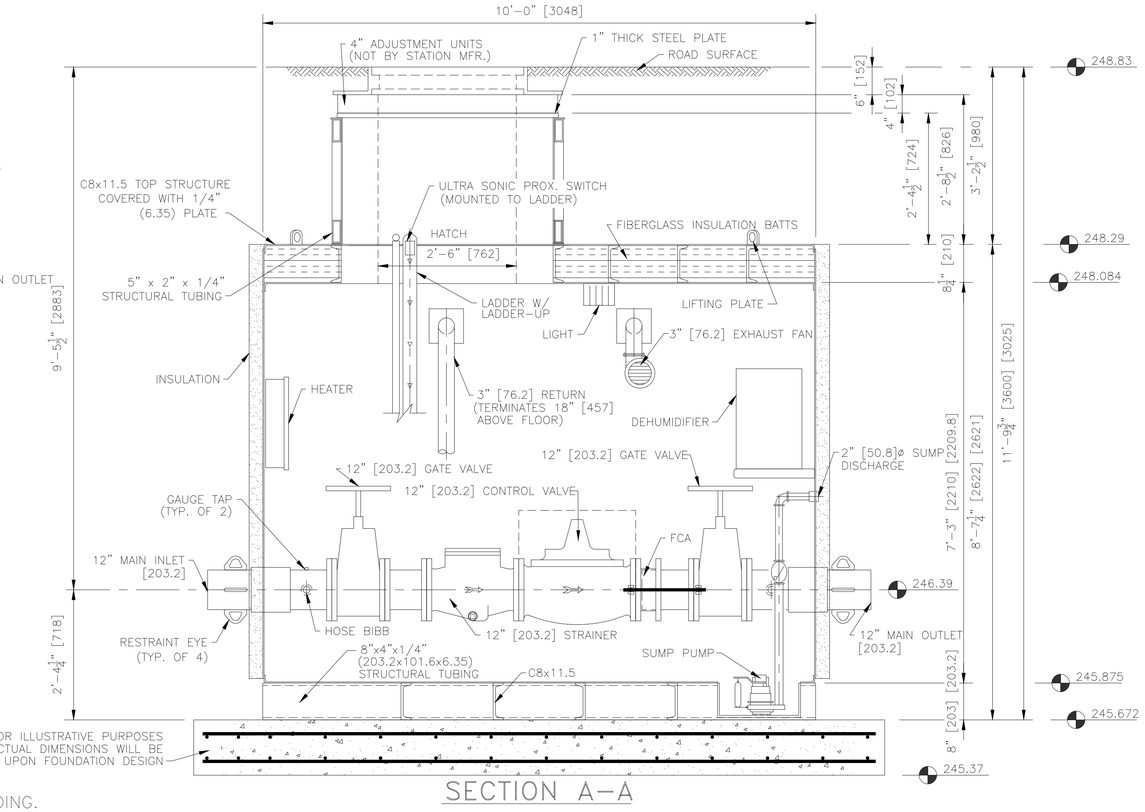
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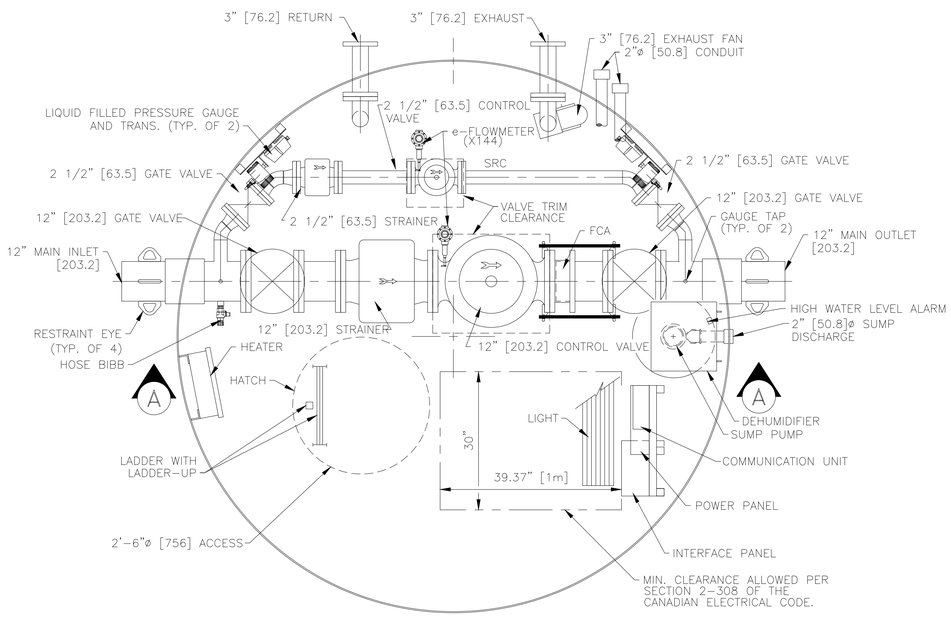


EXTERIOR PLAN

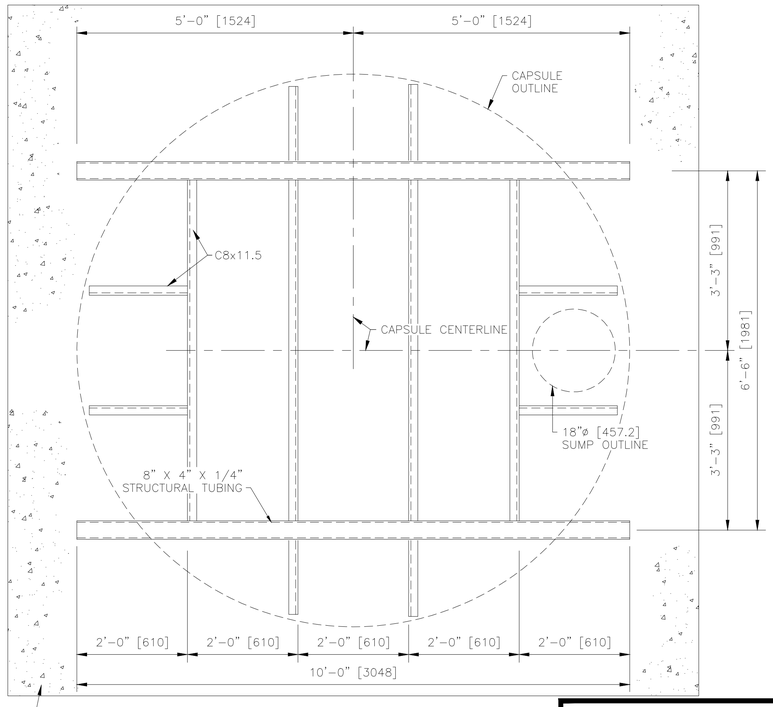
NOTE:
CAPSULE IS DESIGNED FOR H–20 TRAFFIC LOADING.



SECTION A–A

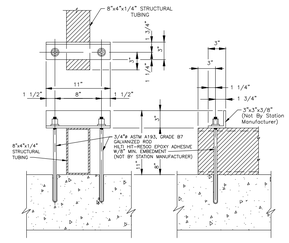


INTERIOR PLAN



SKID PLAN

PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY – ACTUAL DIMENSIONS WILL BE PROVIDED UPON FOUNDATION DESIGN



TYPICAL ANCHOR DETAIL

NOTES: ANCHOR ANGLE, BOLTS, NUTS, & ADHESIVE CAPSULE NOT BY STATION MFR.
CONCRETE MUST HAVE A MINIMUM F'c OF 3500 PSI FOR PROPER ANCHORAGE.

REVISION #	DATE	REVISED BY	DESCRIPTION
DESIGNED BY: CF		MECHANICAL CHECKED BY (C.E.):	ELECTRICAL CHECKED BY:
DRAWN BY: AB			SCALE: 3/4" = 1'–0"

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PRESSURE REDUCING STATION

PARKSIDE SUBDIVISION PRV

BARRIE, ONTARIO, CANADA

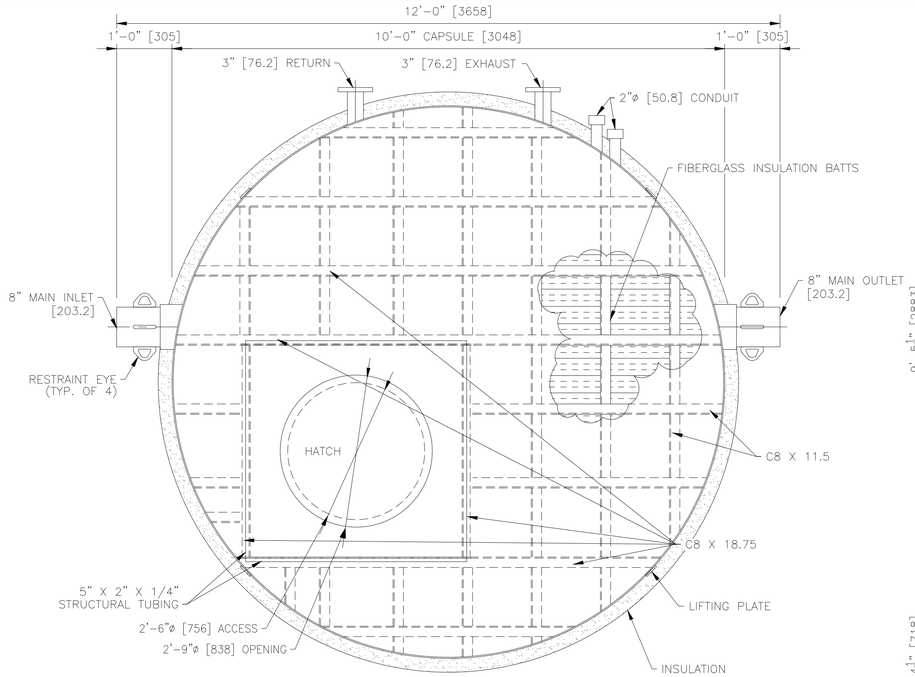
This drawing is conceptual and does not reveal certain details and manufacturing processes required to successfully build the equipment. As such, Engineered Fluid, Inc. is not responsible for injury or damages caused by any unauthorized fabrication or assembly using all or any part of this drawing.

JOB REF NO. 92496

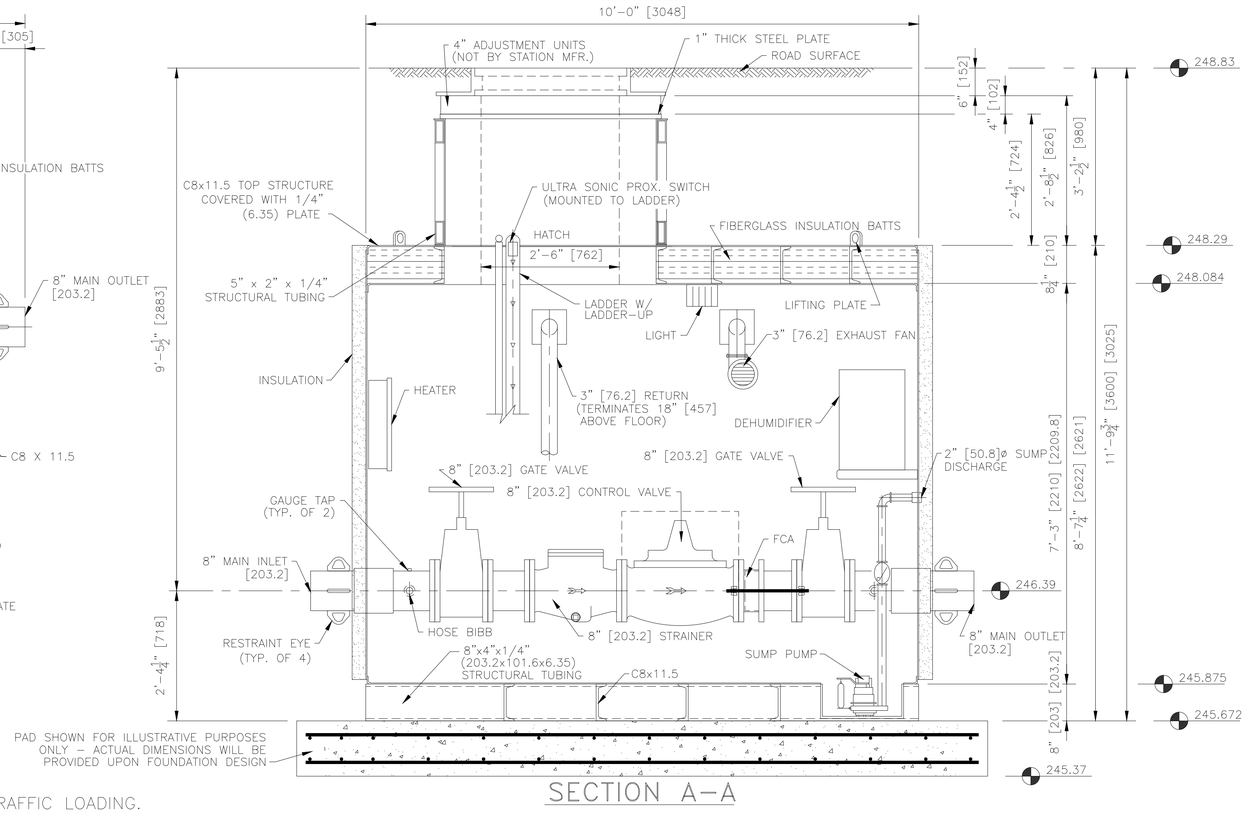
DRWG. NO. 92496–F–001.

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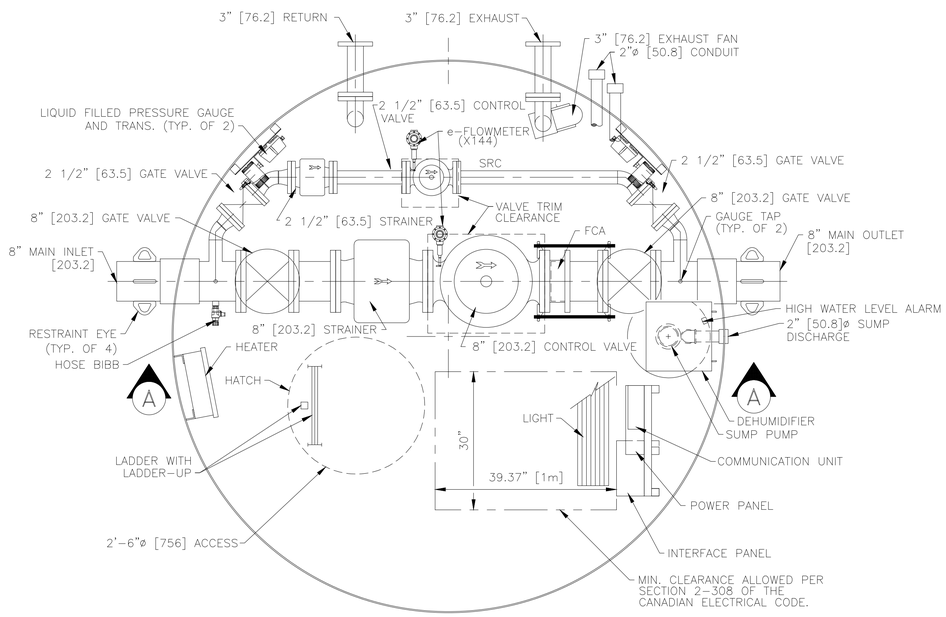


EXTERIOR PLAN

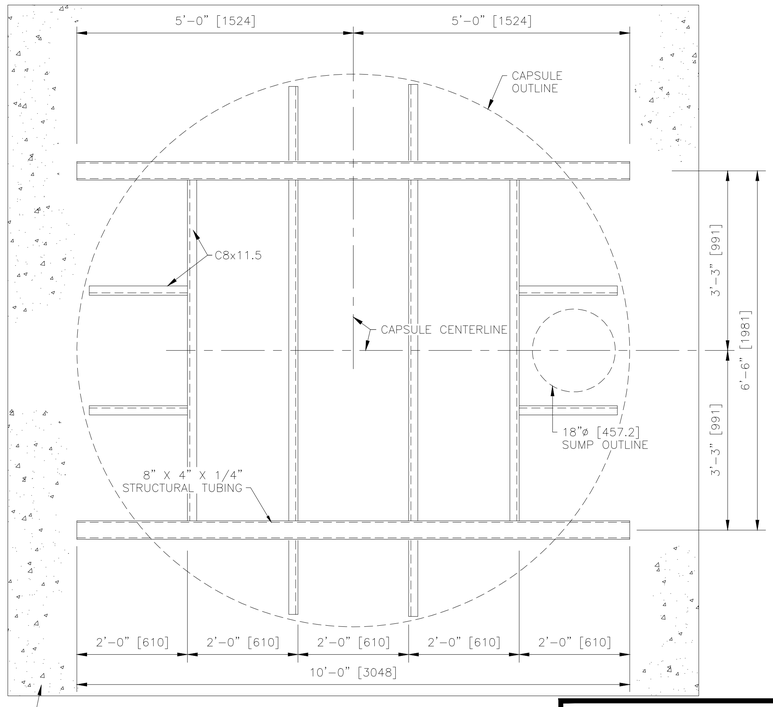


SECTION A–A

NOTE:
CAPSULE IS DESIGNED FOR H–20 TRAFFIC LOADING.

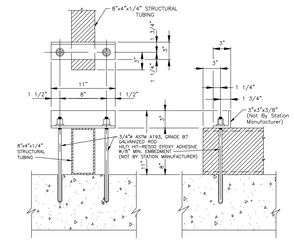


INTERIOR PLAN



PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY – ACTUAL DIMENSIONS WILL BE PROVIDED UPON FOUNDATION DESIGN

SKID PLAN



TYPICAL ANCHOR DETAIL

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