

30 HANMER STREET WEST CITY OF BARRIE

DRAWING LEGEND

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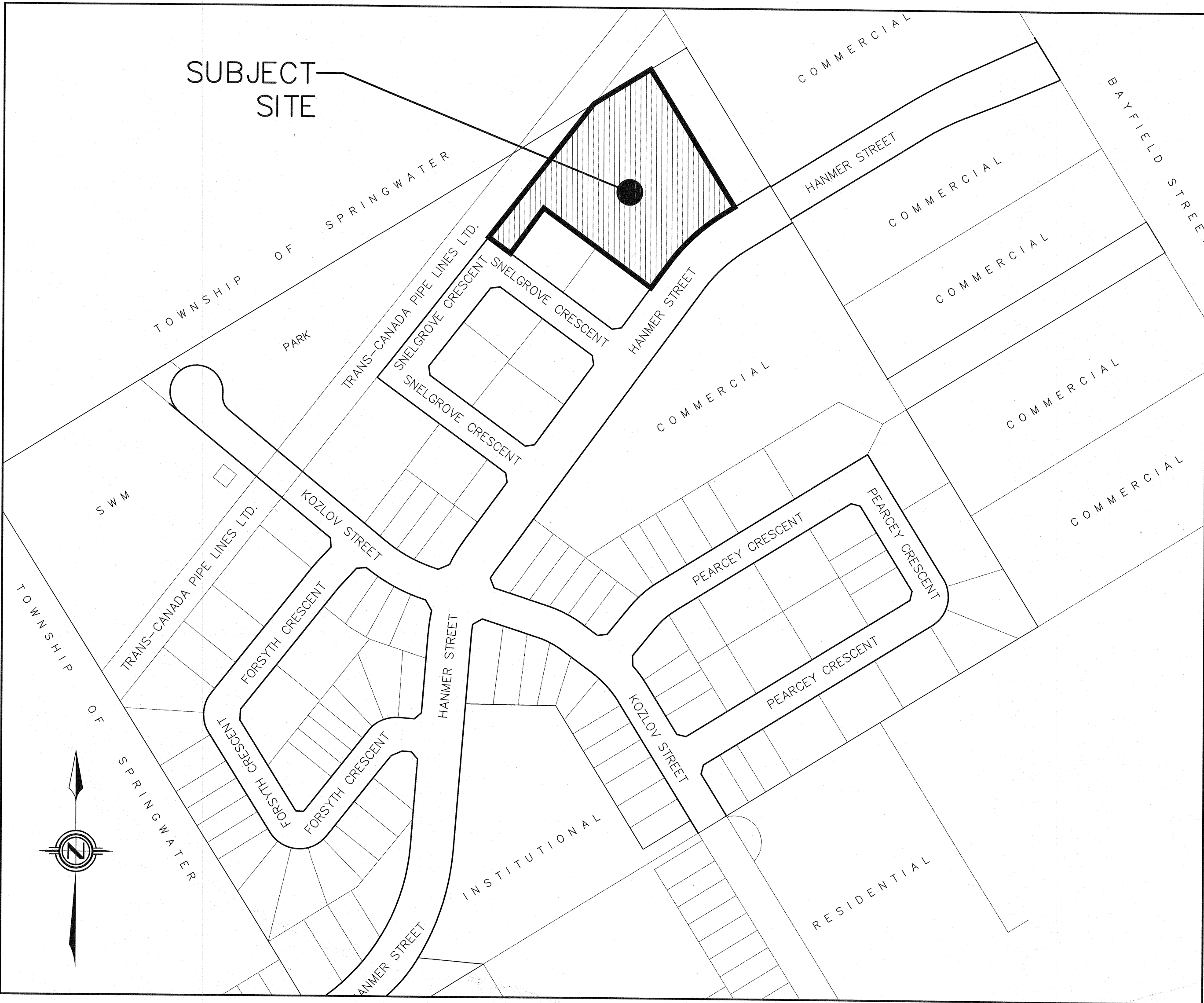
NOT FOR CONSTRUCTION

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GENERAL NOTES

1. DRAWINGS

A. ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS & SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.

2. MEASUREMENTS

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

3. GENERAL

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

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

C. LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

D. A ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE ROADS AND PARKS OPERATIONS BRANCH PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.

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

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

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

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

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

CITY OF BARRIE STANDARD		3.	3(NOTE: 3.E. REVISED & 3.L. ADDED	J.S.	05.01.10	APPR'D	R.G.N.	DATE	92.05.15
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				
		NO.	REVISION	APR'D	DATE				BSD-N6

GENERAL NOTES - SANITARY SEWER

SANITARY SEWERS

A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD, UNLESS OTHERWISE SPECIFIED.

B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDEMMENT 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 PLACED. 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	APPR'D	R.G.N.	DATE	92.05.15
GENERAL NOTES SANITARY SEWERS		3.	NOTE 'B' OPSD NUMBER REVISION	K.C.	2000.03.16	DRAWN	L.A.J.	SCALE	N.T.S.
		2.	NOTE 'C' CHANGED	K.C.	98.03.30				
		1.	CHANGES TO B. TO G.	K.C.	95.04.24				
		NO.	REVISION	APR'D	DATE				BSD-N3

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' EMBEDEMMENT 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-708.001 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 OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.

J. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNBELLS 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 TO BE CAPED AT THE UPSTREAM END AND IS TO BE OUTLET INTO THE NEAREST CATCH-BASIN 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 'X' - SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07	APPR'D	R.G.N.	DATE	92.05.15
GENERAL NOTES STORM SEWERS		3.	NOTE 'Y & 'C' - "DIRECTOR OF ENGINEERING"	B.R.	2002.10.28	DRAWN	L.A.J.	SCALE	N.T.S.
		2.	NOTE 'C' OPSD NUMBER REVISION	K.C.	2000.03.16				
		1.	NOTE 'D' CHANGED	K.C.	98.03.30				
		NO.	REVISION	APR'D	DATE				BSD-N5

GENERAL NOTES - ROADWORKS

ROADS

A. SINGLE - STAGE CURB & GUTTER TO COMPLY WITH OPSD 600.040

B. TWO - STAGE CURB & GUTTER TO COMPLY WITH OPSD 600.070

C. SIDEWALKS TO COMPLY WITH OPSD-310.010 AND ARE TO BE 1.5 METRES WIDE. 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.

D. NATIVE SUBGRADE SHALL HAVE A CROSSFALL OF 3% AND THE MATERIAL SHALL BE APPROVED BY A SOILS CONSULTANT AND IS SUBJECT TO APPROVAL BY THE DIRECTOR OF ENGINEERING.

E. THE ROAD BASE SHALL INCORPORATE 100mm DIAMETER SUBDRAIN WITH FACTORY INSTALLED FILTER FABRIC AS PER CITY OF BARRIE STANDARD BSD-34

F. ALL CURB RADI TO BE MINIMUM OF 10.0 METRES AT THE EDGE OF ASPHALT.

G. NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR MAXIMUM DRY DENSITY AND SHALL BE PROOF ROLLED.

H. GRADE AND CROSS FALL ADJUSTMENT OF MAINTENANCE HOLE AND CATCH BASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. THE TOP ADJUSTMENT UNIT OF ALL CATCH BASIN AND MAINTENANCE HOLES SHALL BE RUBBER.

I. ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND MTO-DSM LIST, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.

J. ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES.

K. 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.

L. NON-COMPRESSIBLE BACK FILL WILL BE USED DURING REBUILDING, ADJUSTING, OR ANY OTHER APPLICABLE CATCH BASIN OR MAINTENANCE HOLE WORKS.

CITY OF BARRIE STANDARD		4.	REVISED OPSD NUMBERS IN NOTES	K.C.	2000.08.17	APPR'D	R.G.N.	DATE	92.05.15
GENERAL NOTES ROADWORKS		3.	REVISED NOTE E	K.C.	99.02.18	DRAWN	L.A.J.	SCALE	N.T.S.
		2.	NOTE 'H-L' ADDED	K.C.	98.03.30				
		1.	NOTE 'C'	K.C.	95.07.10				
		NO.	REVISION	APR'D	DATE				BSD-N2

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 OVERT TO FINISHED GROUND SURFACE ELEVATION 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		2.	OPSD NUMBERS REVISED	K.C.	2000.08.17	APPR'D	R.G.N.	DATE	92.05.15
GENERAL NOTES SANITARY SEWERS		1.	CHANGES TO B. TO G.	K.C.	95.04.24	DRAWN	L.A.J.	SCALE	N.T.S.
		NO.	REVISION	APR'D	DATE				BSD-N4

GENERAL NOTES - WATERMAIN

1. CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM 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' EMBEDEMMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS B (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'X' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDEMMENT MATERIAL, SAND MEETING GRAVATION REQUIREMENTS OF OPSD MUNI 1004.010, BE 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 40 METRES, THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDEMMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).

5. COPPER WATER MAINS AND SERVICES 15mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD MUNI 1004.010.

6. RESTRAININGS WILL BE REQUIRED ON ALL HYDRANTS, THRUST BLOCKS, AS PER OPSD 1160.010 AND 1150.020. 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 CL25 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.

8. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HSCS) 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 18mm 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-410 AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.

12. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

City of BARRIE STANDARD DETAIL		GENERAL NOTES - WATERMAIN		REV NO.	DATE: FEB 2015	APPROVED
				1	SCALE: N.T.S.	DATE: 6/10/2015
				BSD-500		(PREVIOUSLY BSD-N10)

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 ON EP-1 AND EP-2 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 RAINFALL EVENT AND ANY DAMAGED SILT CONTROL AND EROSION PROTECTION DEVICES SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR.
4. THE CONTRACTOR MUST USE MATERIALS, CONSTRUCTION PRACTICES, AND MITIGATION TECHNIQUES IN ORDER TO PREVENT THE UNAUTHORIZED HARMFUL ALTERATION, DISRUPTION OR DESTRUCTION OF VEGETATION OR THE IMPAIRMENT OF WATER QUALITY.
5. THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES.
6. AREAS WITHOUT STABLE GROUND COVER SHALL BE PROTECTED WITH SILTATION CONTROL FENCING, STRAW MULCH, ETC, AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BECOME ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
7. ALL EXPOSED SOIL MUST BE GRADED TO A STABLE SLOPE AND TREATED AS QUICKLY AS POSSIBLE TO PREVENT EROSION AND SEDIMENT FROM LEAVING THE SITE. ALL AREA STRIPPED OF VEGETATIVE COVER FOR LONGER THAN 30 DAYS SHALL BE PROTECTED AND SEEDED AT THE DIRECTION OF THE ENGINEER.
8. ALL SITE DRAINAGE TO OUTLET VIA SHEET DRAINAGE, BERMS OR SWALES (AS NECESSARY) TO FACILITATE THE COMPLETION OF GRADING WORKS. THE CONTRACTOR SHALL CONSTRUCT ANY ADDITIONAL SWALES OR BERMS THAT MAY BE NECESSARY TO DIRECT RUN-OFF IN A CONTROLLED MANNER OF SUITABLE QUALITY.
9. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE FROM PROPOSED CONSTRUCTION ACCESS VIA THE GRAVEL ACCESS PAD.
10. ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30M FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE INSPECTOR.
11. TECHNIQUES FOR EROSION AND SEDIMENT CONTROLS ARE TO ADHERE TO ACCEPTED ENGINEERING PRACTICE AND MUNICIPAL, CONSERVATION AUTHORITY AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS. THE CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSD 806 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.
13. REFER TO DRAWINGS EP-1 TO EP-2 FOR ADDITIONAL INFORMATION.

GRADING NOTES

1. ALL DISTURBED AREAS TO BE RESTORED TO EXISTING CONDITIONS OR BETTER. GRASSED LANDSCAPE AREAS TO RECEIVE 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, UNLESS OTHERWISE NOTED.

WATER SERVICING NOTES

GENERAL

1. ALL REQUIRED PERMITS SHALL BE IN PLACE PRIOR TO INSTALLATION OF WATERMAIN AND SERVICES.
2. A RIGHT OF WAY ACTIVITY PERMIT IS REQUIRED, AND CAN BE OBTAINED AT THE OPERATION CENTRE.
3. MINIMUM COVER OVER WATER MAIN TO BE 1.7M. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER MAIN AND SEWER TO BE 2.5M. WHERE WATER MAIN CONFLICTS WITH SEWER PIPE, DEFLECT WATER MAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5M CLEARANCE BETWEEN WATER MAIN AND SEWERS, MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
4. ALL BENDS AND TEES SHALL BE RESTRAINED IN ADDITION TO THRUST BLOCKS.
5. SERVICES INSTALLED UNDER FLOORS SHALL BE FULLY RESTRAINED.
6. HYDRANTS SHALL BE INSTALLED AS PER OPSD-807. ON EXISTING HYDRANTS SHALL BE CONSIDERED PRIVATE (PAINTED RED), AND ARE TO BE MAINTAINED BY THE OWNER.
7. 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.
8. ALL NEW CURB STOPS AND BOXES TO BE LOCATED OUT OF DRIVEWAYS AND SIDEWALKS.
9. COPPER WATER SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW.
10. 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.
11. CONTRACTOR SHALL INFORM THE CITY OF BARRIE OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.
12. THE CITY WILL FLUSH THE NEW SERVICE AND CONTRACTOR WILL PERFORM PRESSURE TEST WITNESSED BY THE WATER FIELD COORDINATOR.
13. WATER WILL NOT BE AVAILABLE UNTIL SERVICES HAVE BEEN SAMPLED AND PASSES FOR BACTERIOLOGICAL COMPLIANCE, A CHECK VALVE SHALL BE INSTALLED FOR TEMPORARY WATER.
14. A FLAT RATE CONNECTION FEE WILL BE REQUIRED FOR THE 100MM WATER SERVICE CONNECTION.
15. AN ANNUAL CHARGE FOR EACH PRIVATE CONNECTION MADE TO THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.
16. AN ANNUAL CHARGE FOR EACH PRIVATE FIRE HYDRANT SUPPLIED WITH WATER FROM THE MUNICIPAL WATER DISTRIBUTION SYSTEM WILL APPLY.

100MM DOMESTIC AND 200MM FIRE SERVICES

1. DOMESTIC AND FIRE SERVICE VALVES SHALL BE LOCATED IN THE BOULEVARD, UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.
2. DOMESTIC AND FIRE SERVICES SHALL BE MECHANICALLY RESTRAINED FROM THE TEE TO THE BUILDINGS.
3. DOMESTIC AND FIRE SERVICE RISERS ENTERING EACH BUILDING SHALL BE INSTALLED AS PER BSD-505.
4. THE 100MM DOMESTIC WATER SERVICE WILL REQUIRE A 100MM WATER METER (SUPPLIED AND INSTALLED BY THE OWNER) COMPLETE WITH A BYPASS ASSEMBLY AS PER BSD-533 AND SHALL BE LOCATED IN AN APPROPRIATELY SIZED MECHANICAL ROOM.
5. BACKFLOW PREVENTION SHALL BE PROVIDED AS PER CITY OF BARRIE BYLAW 2010-102.

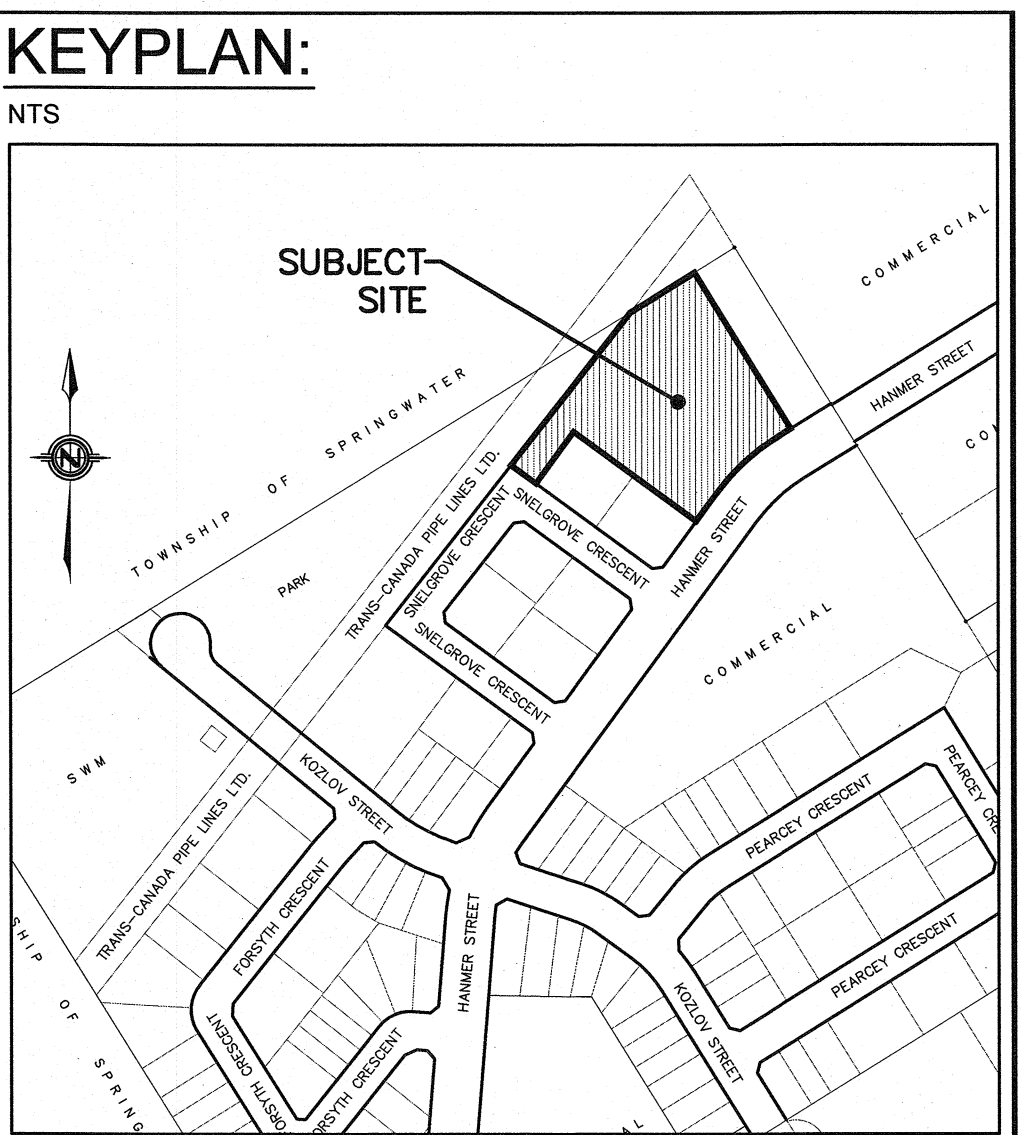
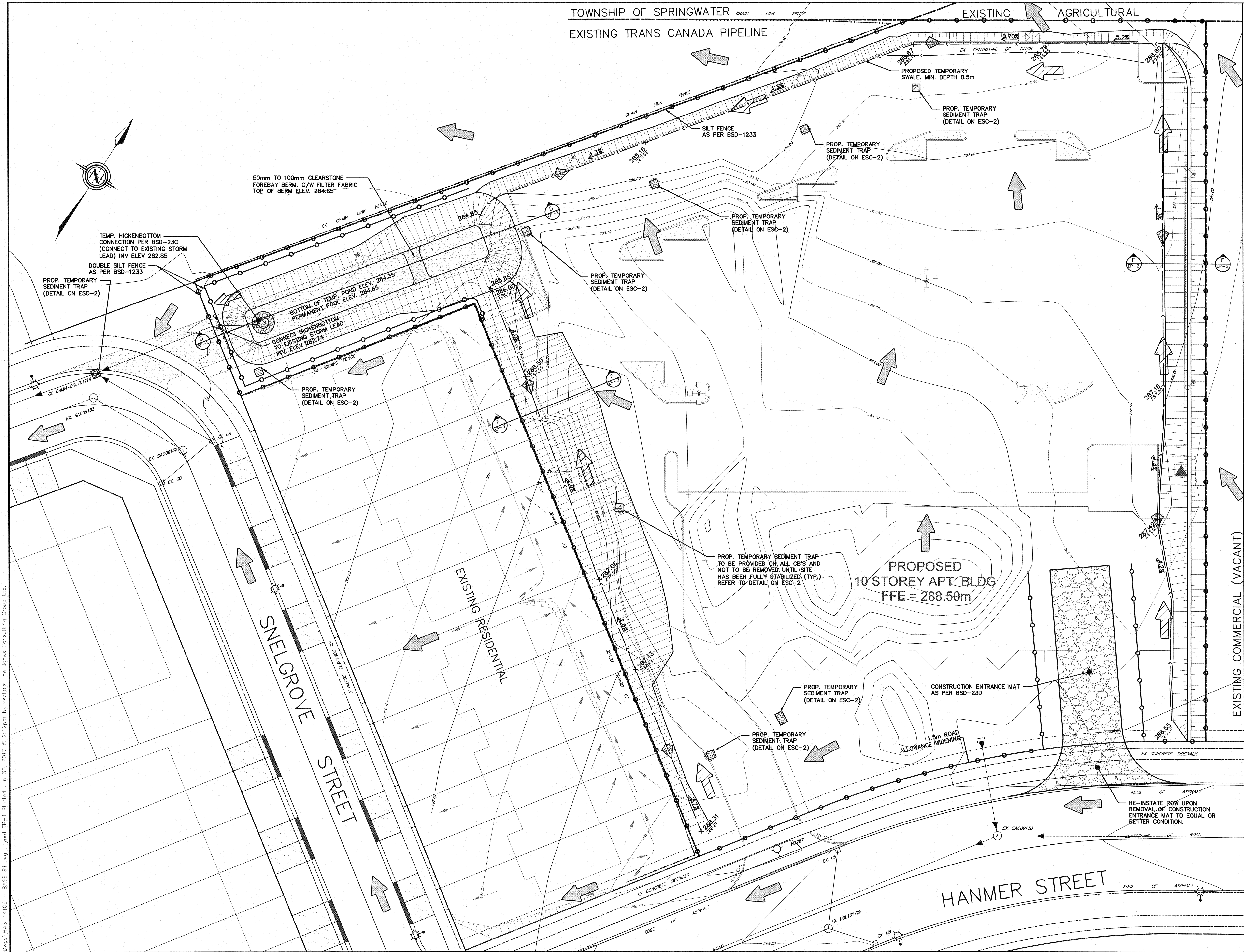
WATERMAIN TESTING AND DISINFECTION

1. THE FOLLOWING SEQUENCE WILL BE UTILIZED IN THE COMMISSIONING OF THE WATER SYSTEM: SWAB AND CHARGE THE WATERMAIN, PRESSURE TEST, CHLORINATE, FLUSHING AND SAMPLING.
2. ALL PROCEDURES ARE TO BE COMPLETED THROUGH A BY-PASS CONNECTION TO THE EXISTING WATERMAIN, C/W BACKFLOW PREVENTION VALVE.
3. ALL VALVES ARE TO BE FULLY OPENED AND THE WATERMAIN IS TO BE CHARGED TO THE OPERATING PRESSURE.
4. THE FINAL CONNECTION TO THE EXISTING SYSTEM WILL NOT BE PERMITTED UNTIL ALL COMPONENTS OF THE TESTING AND DISINFECTION PROCEDURE HAVE BEEN COMPLETED TO THE SATISFACTION OF THE CITY.
5. HYDROSTATIC TESTING SHALL BE PERFORMED ON THE COMPLETED DISTRIBUTION SYSTEM IN SECTIONS NOT EXCEEDING 500 METRES IN LENGTH IN ACCORDANCE WITH AWWA C600. FOR POLYETHYLENE PIPE THE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSD 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 CHLORINATE SHALL 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 DISCHARGE 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 COMPLETED AND THE CITY HAS PROVIDED WRITTEN NOTIFICATION TO PROCEED. THE LENGTH OF PIPE REQUIRED TO CONNECT THE NEW WATER SYSTEM TO THE EXISTING DISTRIBUTION SYSTEM SHALL NOT EXCEED 5.5 METRES AND SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651.

ENGINEERING NOTES

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

1. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METERS, EXCEPT PIPE DIAMETERS WHICH IS IN MILLIMETRES, UNLESS OTHERWISE NOTED. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF ANY CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
2. ALL MECHANICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, RULES AND REGULATIONS, TO MEET THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AND TO THE SATISFACTION OF THE ENGINEER.
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. THE INFORMATION FOR 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 LAGGING PROTECTION IN ACCORDANCE WITH THE MINISTRY OF LABOUR PRACTICES, AND OCCUPATIONAL HEALTH AND SAFETY ACT.
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 (IF APPLICABLE): -POLYVNYL CHLORIDE PIPE SHALL CONFORM TO CSA-B-182.1 AND CSA-B-182.2 WITH BELL AND SPIGOT RUBBER GASKETED JOINTS COMPLYING WITH CSA-B182.2 AND CSA-B182.3. SANITARY PIPE SHALL BE SDR-35 AND ALL SANITARY SERVICE LATERALS TO BE SDR-28.
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 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 1:4 FROST TAPERS FROM FROST LINE TO SUBGRADE.
10. MANHOLES 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 SHALL CONFORM TO O.P.S.D. 401.010 TYPE 'A'.
-SANITARY MANHOLES ARE TO HAVE CORE AND SEAL GASKETS ON ALL PIPE CONNECTIONS. 1200 DIAMETER MANHOLES - O.P.S.D. 701.010
-MANHOLE BENCHING SHALL EXTEND TO PIPE OVERT AND SHALL BE IN ACCORDANCE WITH DETAILS SHOWN AS PER OPSD 1004.010 -SAFETY PLATFORMS SHALL BE AS PER OPSD 404.020.
11. ROAD MAKE-UP: (REFER TO GEOTECHNICAL INVESTIGATION REPORT)
HEAVY DUTY
-40mm HL3 SURFACE ASPHALT
-75mm HL3 BINDER ASPHALT
-150mm OPSS GRANULAR "A" OR EQUIVALENT
-40mm OPSS GRANULAR "B" OR EQUIVALENT
-250mm OPSS GRANULAR "B" OR EQUIVALENT
12. BARRIER CURB TO COMPLY WITH OPSD 600.110
13. THE SUBGRADE WITHIN 1.0m BELOW THE UNDERSIDE OF GRANULAR BASE SHALL BE COMPACTED TO 98% SPMD. GRANULAR BASE AND SUB-BASE SHOULD BE COMPACTED TO 100% SPMD.



LEGEND

- EX. CONTOUR AND ELEVATION
- EX. LIGHT STANDARD
- EX. HYDRANT AND VALVE
- EX. VALVE
- EX. SANITARY MANHOLE
- EX. STORM MANHOLE
- EX. CB
- BH1
- SILT FENCE
- TEMPORARY SWALE OR BERM
- EX. DIRECTION OF OVERLAND FLOW
- PROP. DIRECTION OF OVERLAND FLOW
- TEMP. ROCK CHECK DAM PER BSD-23B
- TEMP. SEDIMENT TRAP

TRAFFIC CONTROL NOTES

- THE CONTRACTOR IS TO PROVIDE, ERECT & MAINTAIN THE NECESSARY DELINEATIONS, BARRIERS, TRAFFIC CONTROL DEVICES, JERSEY BARRIERS, FENCES OR OTHER PROPER PROTECTION WITH WATCHMEN & LIGHTS REQUIRED TO ENSURE PUBLIC SAFETY & FOR THOSE ENGAGED IN THE WORKS.
- THE CONTRACTOR MUST KEEP ALL ROADWAYS, SIDEWALKS & ACCESSES OPEN FOR THE USE OF THE PUBLIC.

"I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF 30 HANMER STREET WEST DEVELOPMENT 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:
VERTICAL MONUMENT #03120000033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 36m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT.
ELEV 277.888

VERTICAL MONUMENT #03120000005
BARRIE SPORTS DOME - 89 HANMER STREET, EAST THE VERTICAL MONUMENT IS SET FLUSH IN THE EAST FACE OF THE CULVERT HEADWALL. THE CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN A DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE WEST SIDE OF THE BARRIE SPORTS DOME. NOTE: TABLET IS SET 110M BELOW TOP OF HEADWALL AND 26CM SOUTH OF THE NORTH-EAST CORNER OF HEADWALL.
ELEV 269.220

BENCHMARK:
HORIZONTAL MONUMENT #03120040002
THE HORIZONTAL MONUMENT IS LOCATED AT THE END OF THE NORTH CURB LINE OF SUNNIDALE ROAD AT THE CITY LIMITS AND IS APPROXIMATELY 200m WEST OF THE INTERSECTION OF SUNNIDALE ROAD AND LIVINGSTONE STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP.
N 4917972.231, E 286334.186

HORIZONTAL MONUMENT #01019860480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS.
N 4919812.979, E 287652.204

3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI
NO.	REVISIONS	DATE	INITIAL

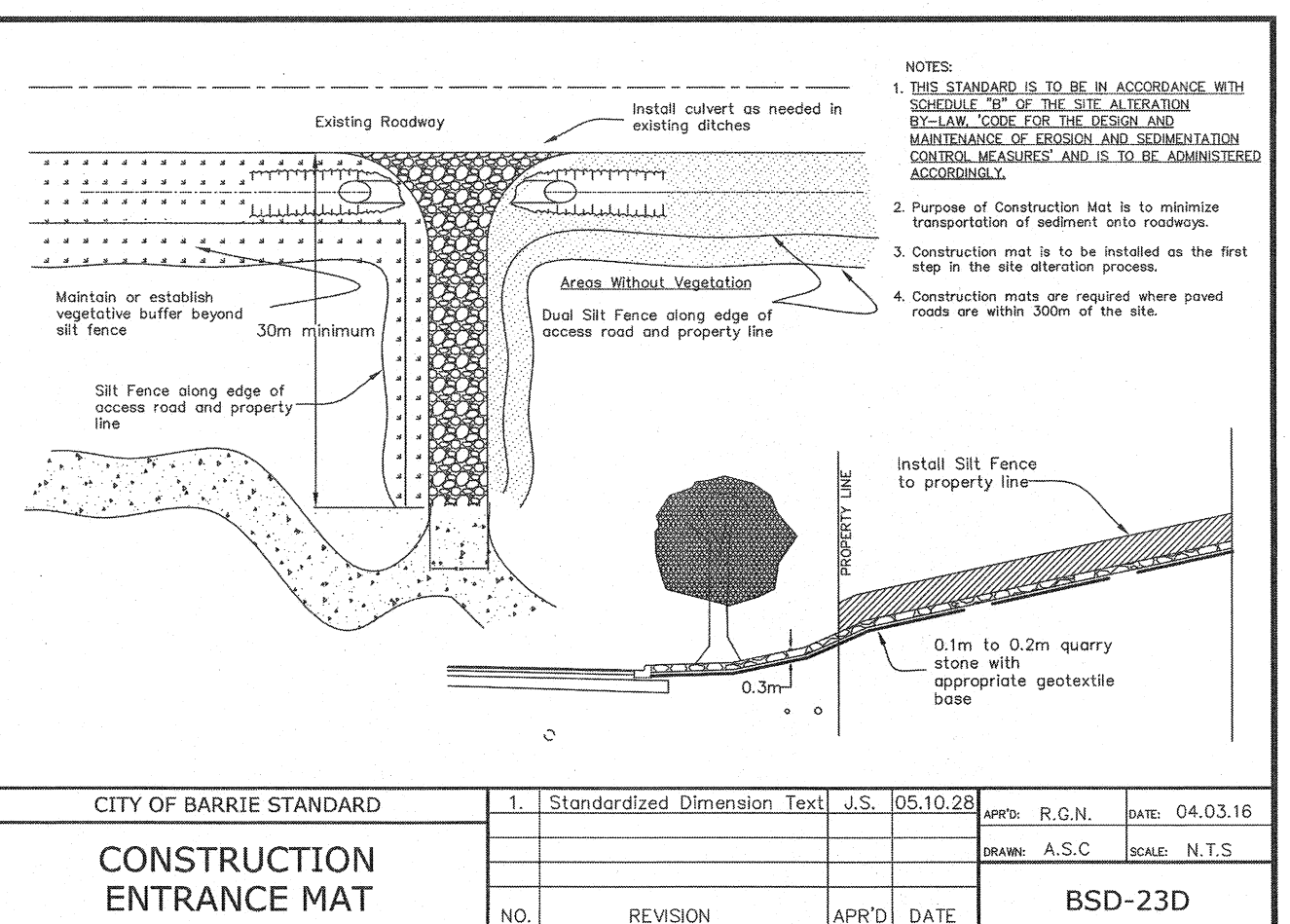
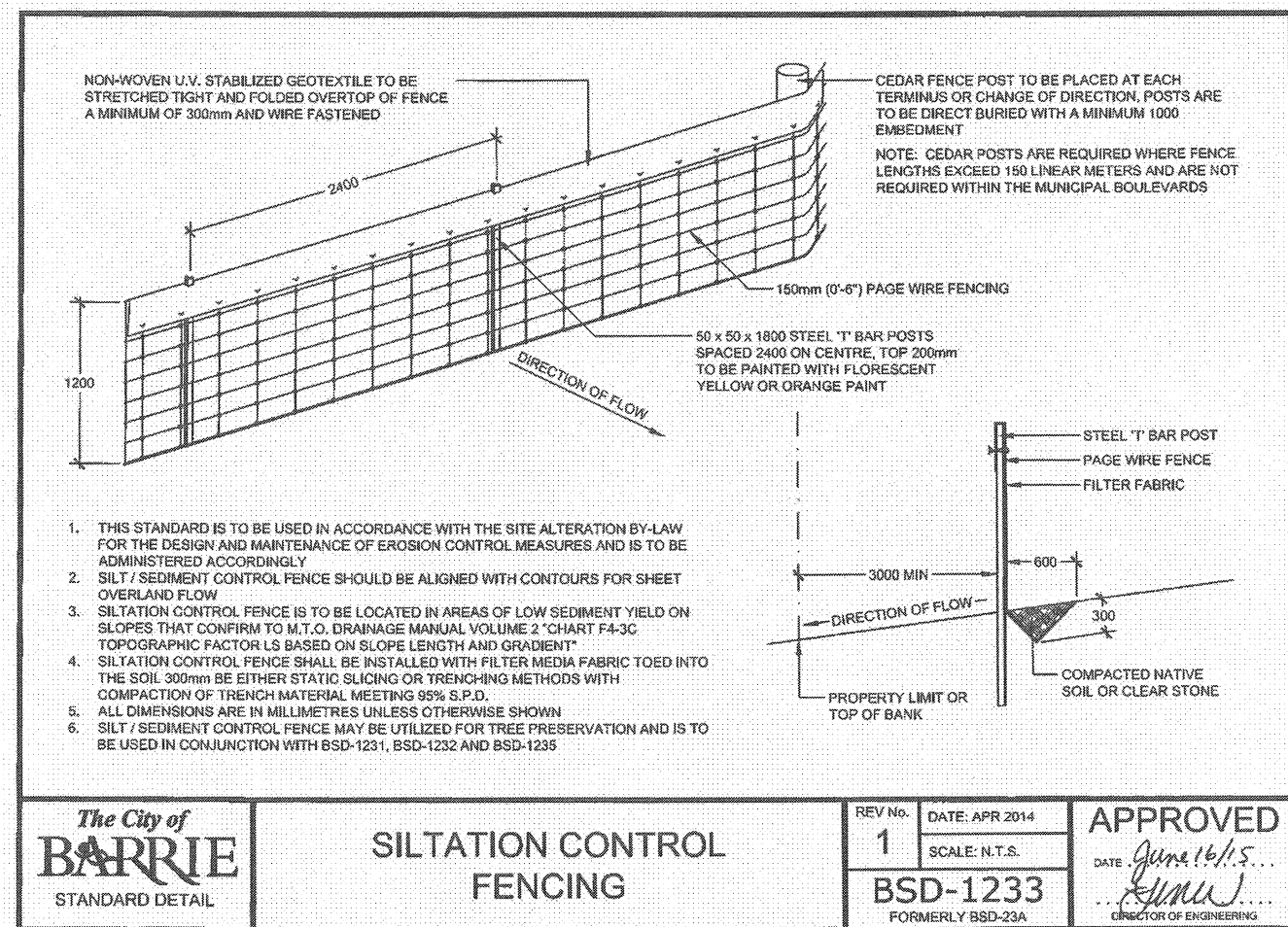
FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

ENVIRONMENTAL PROTECTION PLAN

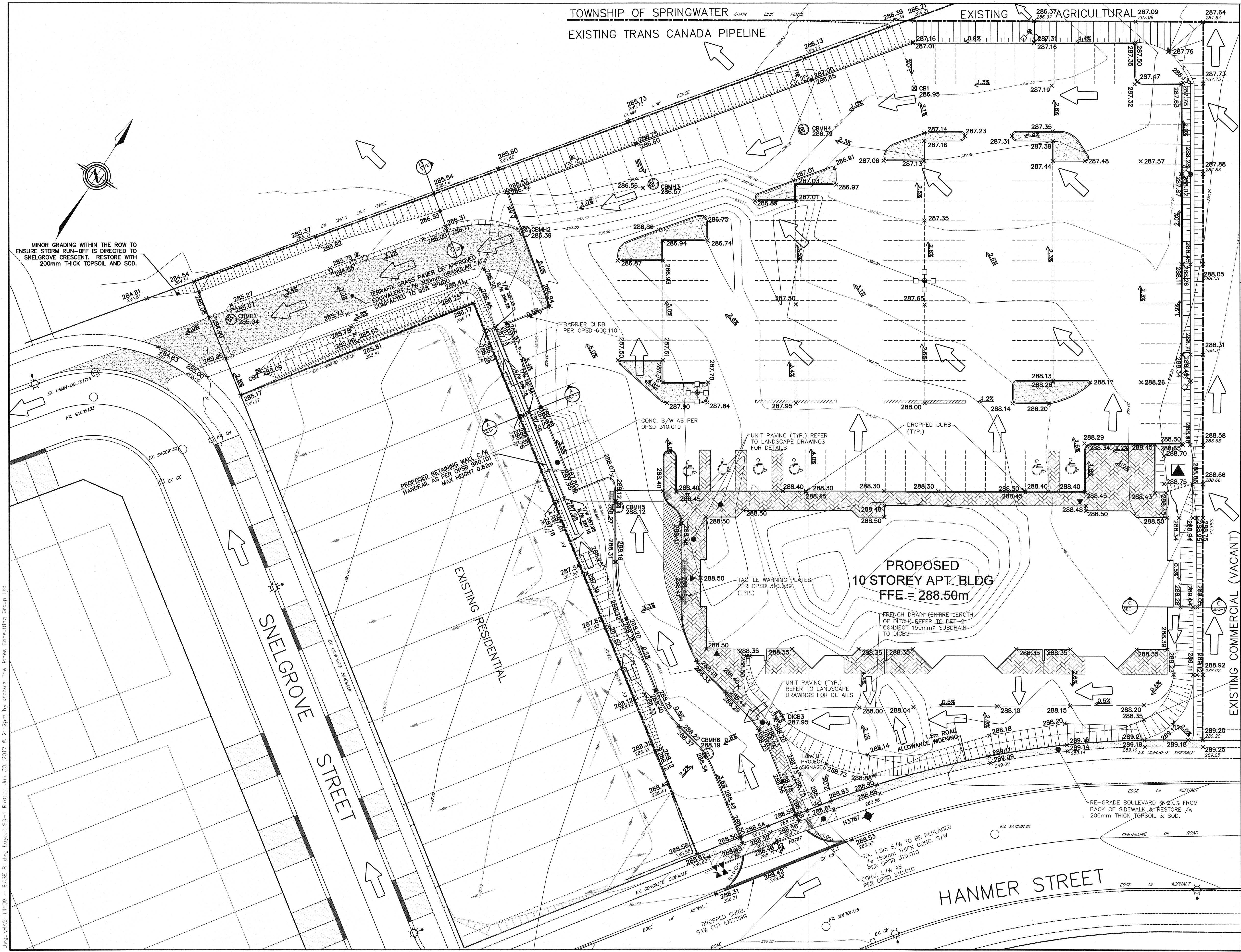
JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

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

DESIGN	JDKA	SCALE: 1:250	DATE	SEPTEMBER 2016
DRAWN	JDKA	PROJECT	DWG. NO	
CHECKED	JWI	HAS-14190	EP-1	



229 Maplevlew Dr. E, Unit 1
Barrle, ON L4N 0W5
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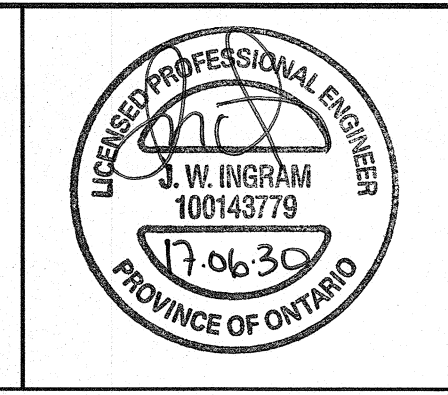
KEYPLAN:
NTS

LEGEND
EX. CONTOUR AND ELEVATION
PROP. SLOPE (3:1 MAX.)
PROP. SWALE
PROP. DROPPED CURB
PROPOSED MINOR DRAINAGE FLOW DIRECTION AND GRADIENT
PROP. ELEVATION
OVERLAND FLOW DIRECTION
EX. LIGHT STANDARD
EX. HYDRANT AND VALVE
EX. VALVE
EX. SANITARY MANHOLE
EX. STORM MANHOLE
EX. CATCHBASIN
BOREHOLE
PROP. LIGHT STANDARD
PROP. HYDRO TRANSFORMER
PROP. HYDRANT AND VALVE
PROP. VALVE
PROP. SANITARY MANHOLE
PROP. CATCHBASIN MANHOLE
PROP. CATCHBASIN
PROP. TACTILE WARNING PLATES (OPSD 310.039)
EX. RESIDENTIAL DRAINAGE DIRECTION

BENCHMARK:
VERTICAL MONUMENT #03120080033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 36m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT.
ELEV 277.888
VERTICAL MONUMENT #03120030005
BARRIE SPORTS DOME - 99 HANMER STREET, EAST. THE VERTICAL CONTROL MONUMENT IS SET FLUSH IN THE EAST FACE OF THE CULVERT HEADWALL. THE CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN A DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE WEST SIDE OF THE BARRIE SPORTS DOME. NOTE: TABLET IS SET 110m BELOW TOP OF HEADWALL AND 260m SOUTH OF THE NORTH-EAST CORNER OF HEADWALL.
ELEV 269.220

BENCHMARK:
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N 4917972.231, E 286334.186
HORIZONTAL MONUMENT #0101980480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS.
N 4919812.979, E 287652.204

NO.	REVISIONS	DATE	INITIAL
3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI

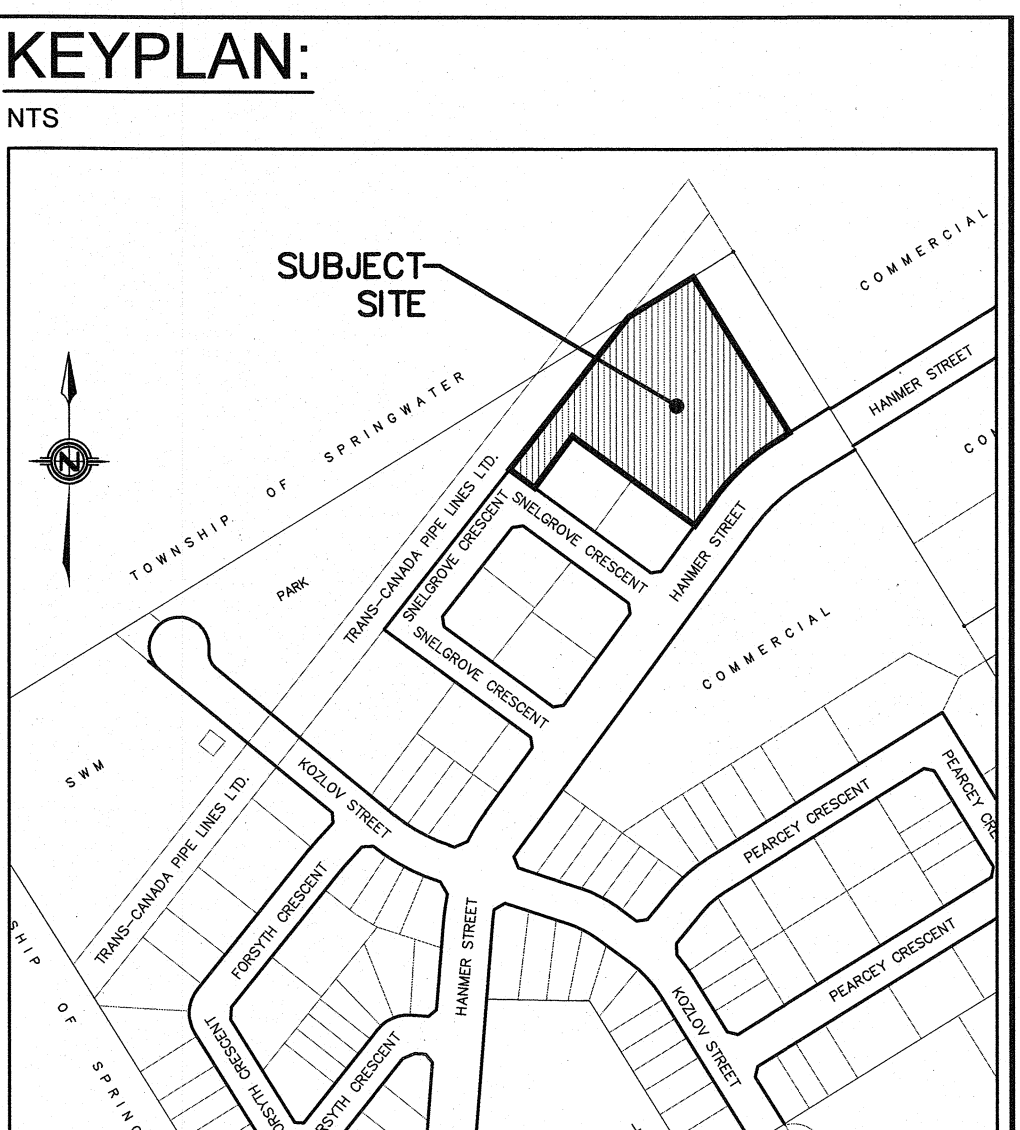
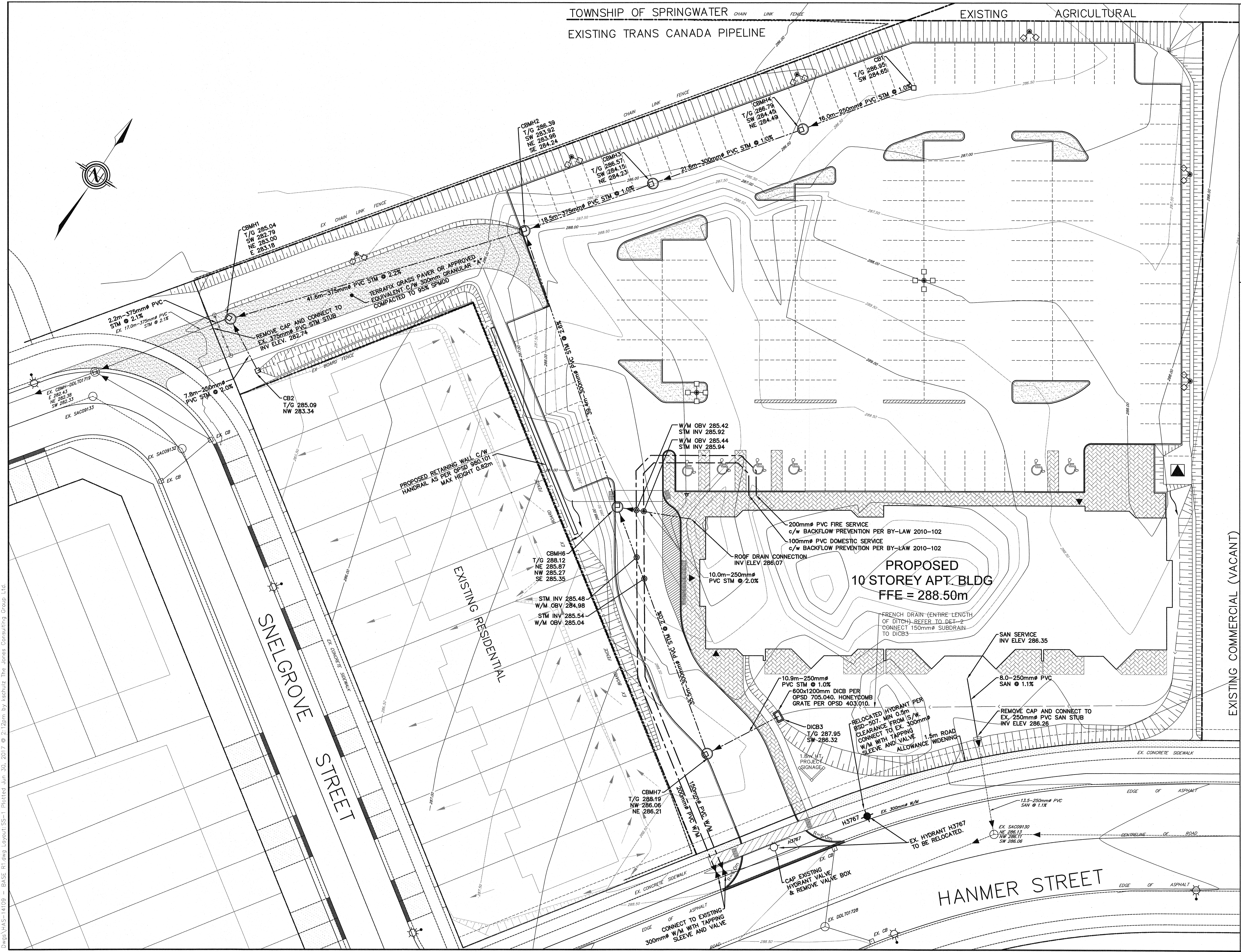


FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

SITE GRADING
PLAN

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
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F. 705.734.1058

DESIGN	JT	SCALE: 1:250	DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT	DWG. NO.	
CHECKED	JWI	HAS-14190	SC-1	

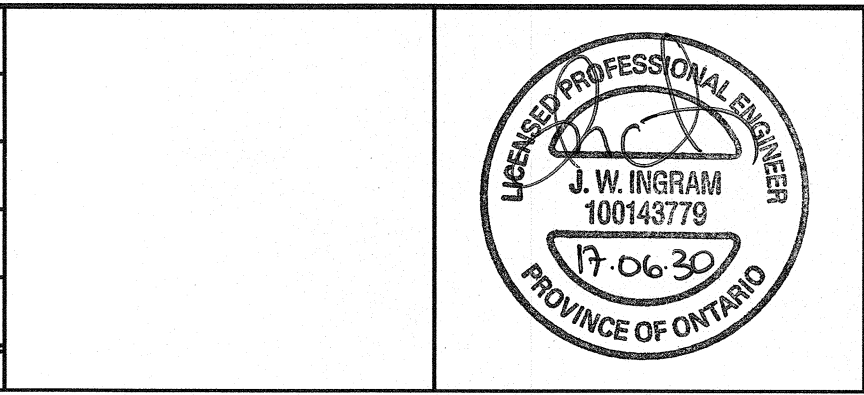


LEGEND	
	EX. LIGHT STANDARD
	EX. HYDRANT AND VALVE
	EX. VALVE
	EX. SANITARY MANHOLE
	EX. STORM MANHOLE
	EX. CATCHBASIN
	BOREHOLE
	PROP. LIGHT STANDARD
	PROP. HYDRO TRANSFORMER
	PROP. HYDRANT AND VALVE
	PROP. VALVE
	PROP. SANITARY MANHOLE
	PROP. CATCHBASIN MANHOLE
	PROP. CATCHBASIN
	PROP. SANITARY SEWER & DIRECTION OF FLOW
	PROP. STORM SEWER & DIRECTION OF FLOW
	PROP. WATERMAIN

BENCHMARK:
VERTICAL MONUMENT #03120080033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 38m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT
ELEV 277.888
VERTICAL MONUMENT #03120030005
BARRIE SPORTS DOME - 98 HANMER STREET, EAST THE VERTICAL CONTROL MONUMENT IS SET FLUSH IN THE EAST FACE OF THE CULVERT HEADWALL. THE CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN A DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE WEST SIDE OF THE BARRIE SPORTS DOME. NOTE: TABLET IS SET 11cm BELOW TOP OF HEADWALL AND 28cm SOUTH OF THE NORTH-EAST CORNER OF HEADWALL
ELEV 269.220

BENCHMARK:
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HORIZONTAL MONUMENT #01019860480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS
N 4919812.979, E 287652.204

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2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI



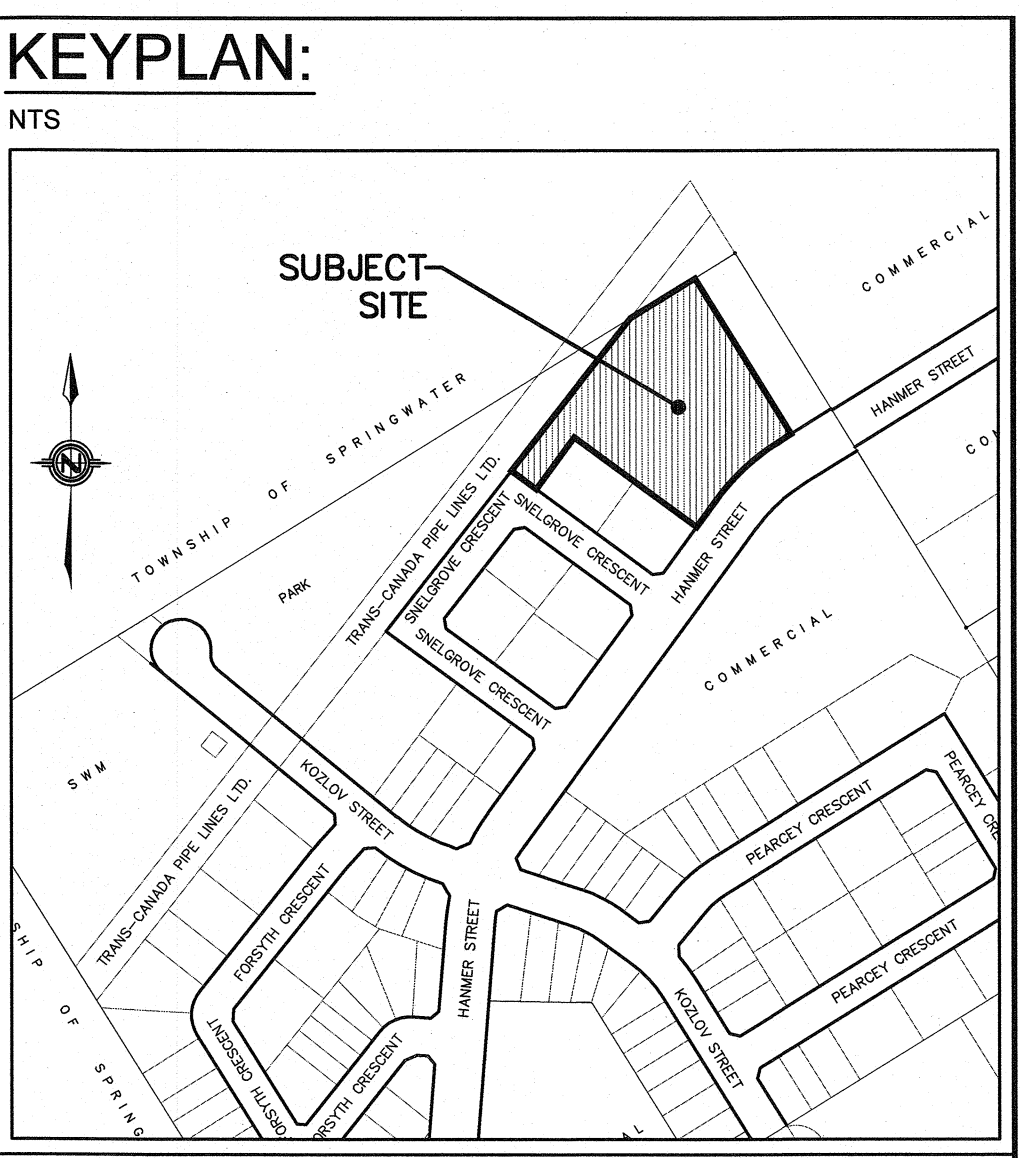
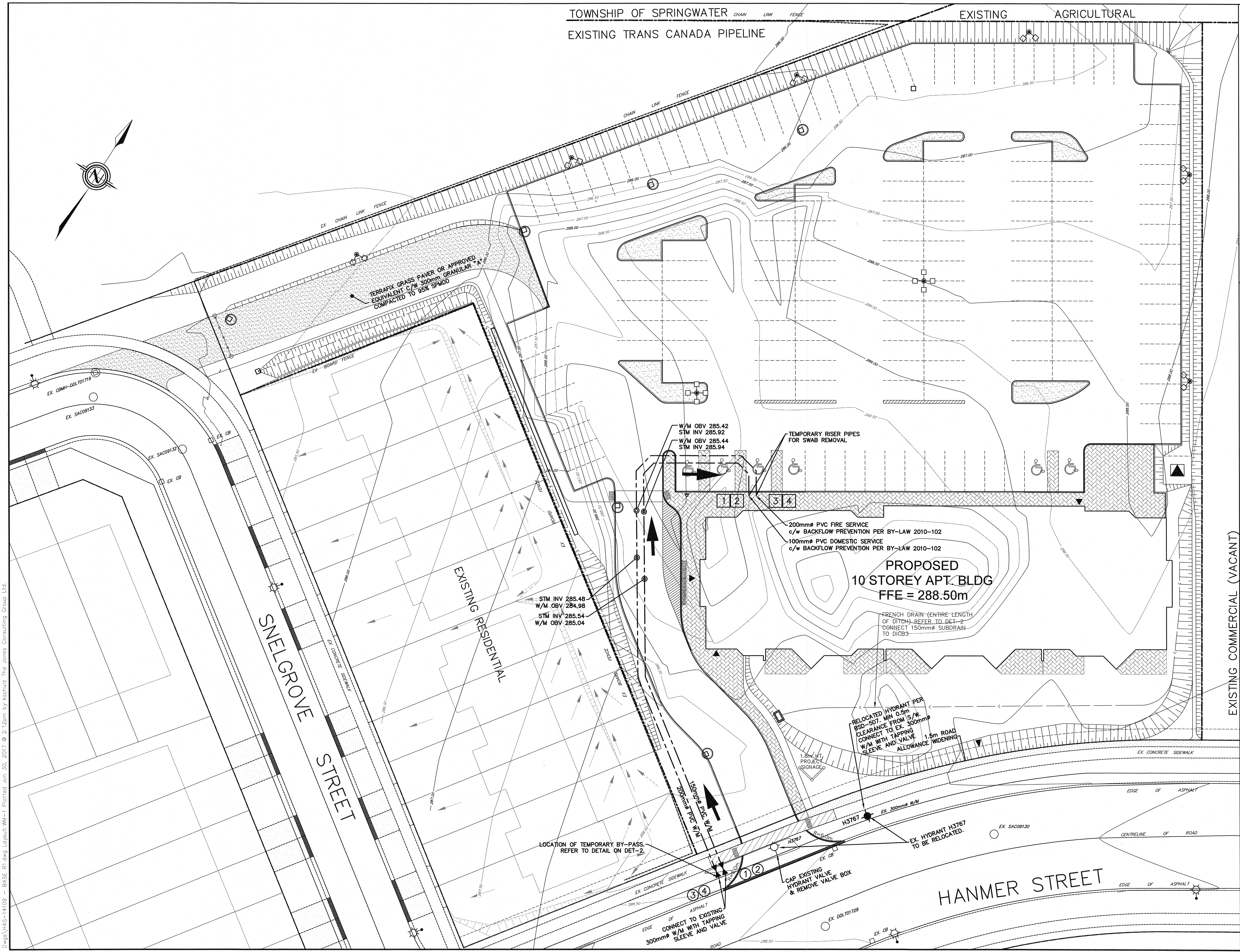
FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

SITE SERVICING
PLAN

DESIGN	JT	SCALE: 1:250	DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT	DWG. NO	
CHECKED	JWI	HAS-14190	SS-1	

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

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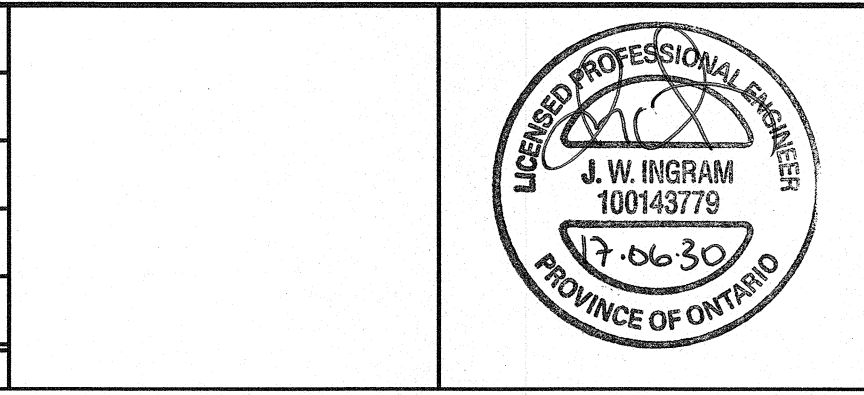


LEGEND	
	EX. LIGHT STANDARD
	EX. HYDRANT AND VALVE
	EX. VALVE
	EX. SANITARY MANHOLE
	EX. STORM MANHOLE
	EX. CATCHBASIN
	BOREHOLE
	PROP. LIGHT STANDARD
	PROP. HYDRO TRANSFORMER
	PROP. HYDRANT AND VALVE
	PROP. VALVE
	PROP. SANITARY MANHOLE
	PROP. CATCHBASIN MANHOLE
	PROP. CATCHBASIN
	SWAB NUMBER AND INSERTION LOCATION (150mm)
	SWAB NUMBER AND INSERTION LOCATION (250mm)
	SWAB NUMBER AND REMOVAL LOCATION (150mm)
	SWAB NUMBER AND REMOVAL LOCATION (250mm)
	SWAB TRAVEL DIRECTION
	PROP. WATERMAIN

BENCHMARK:
VERTICAL MONUMENT #03120080033
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ELEV 277.888
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ELEV 269.220

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HORIZONTAL MONUMENT #01019860480
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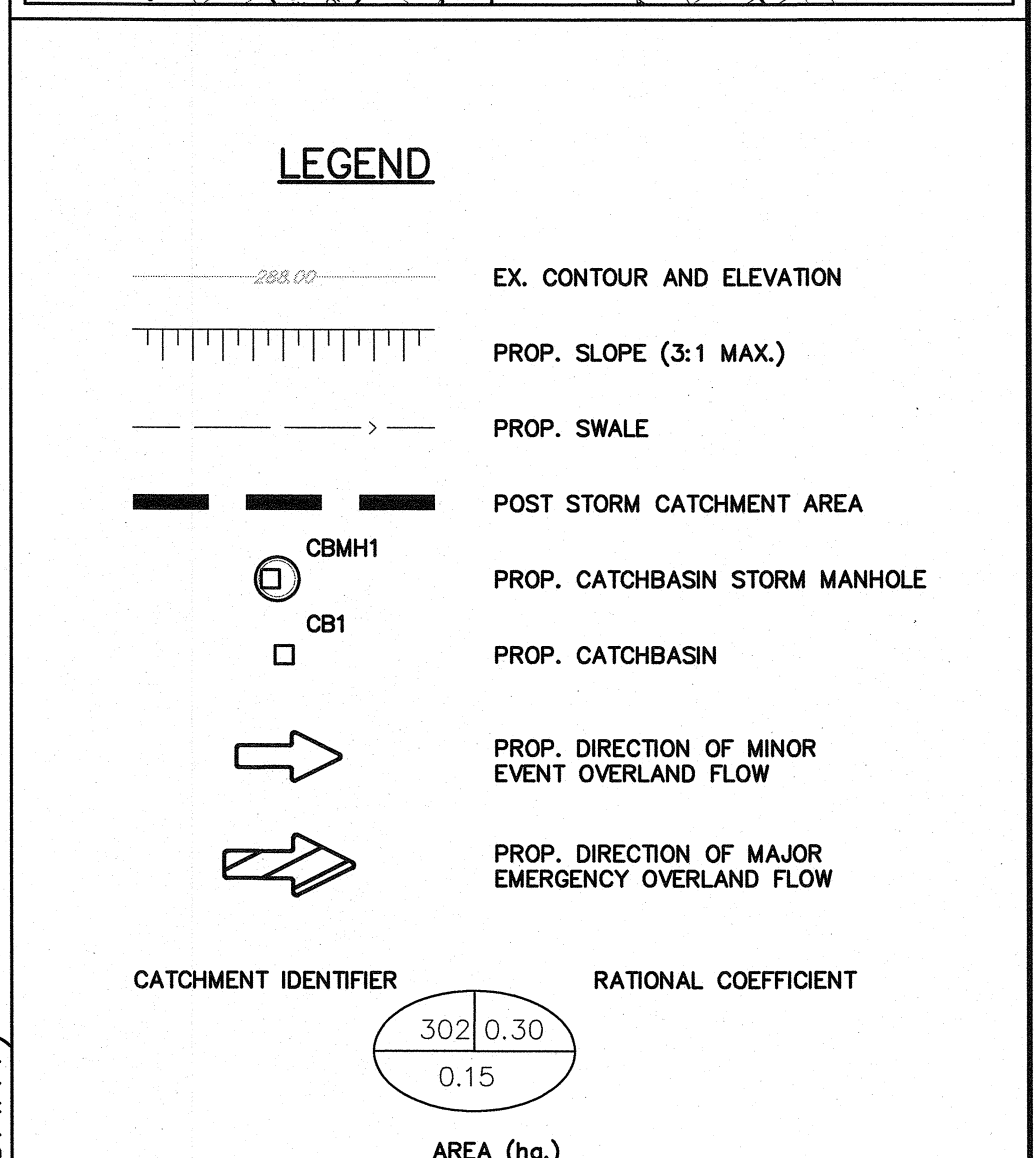
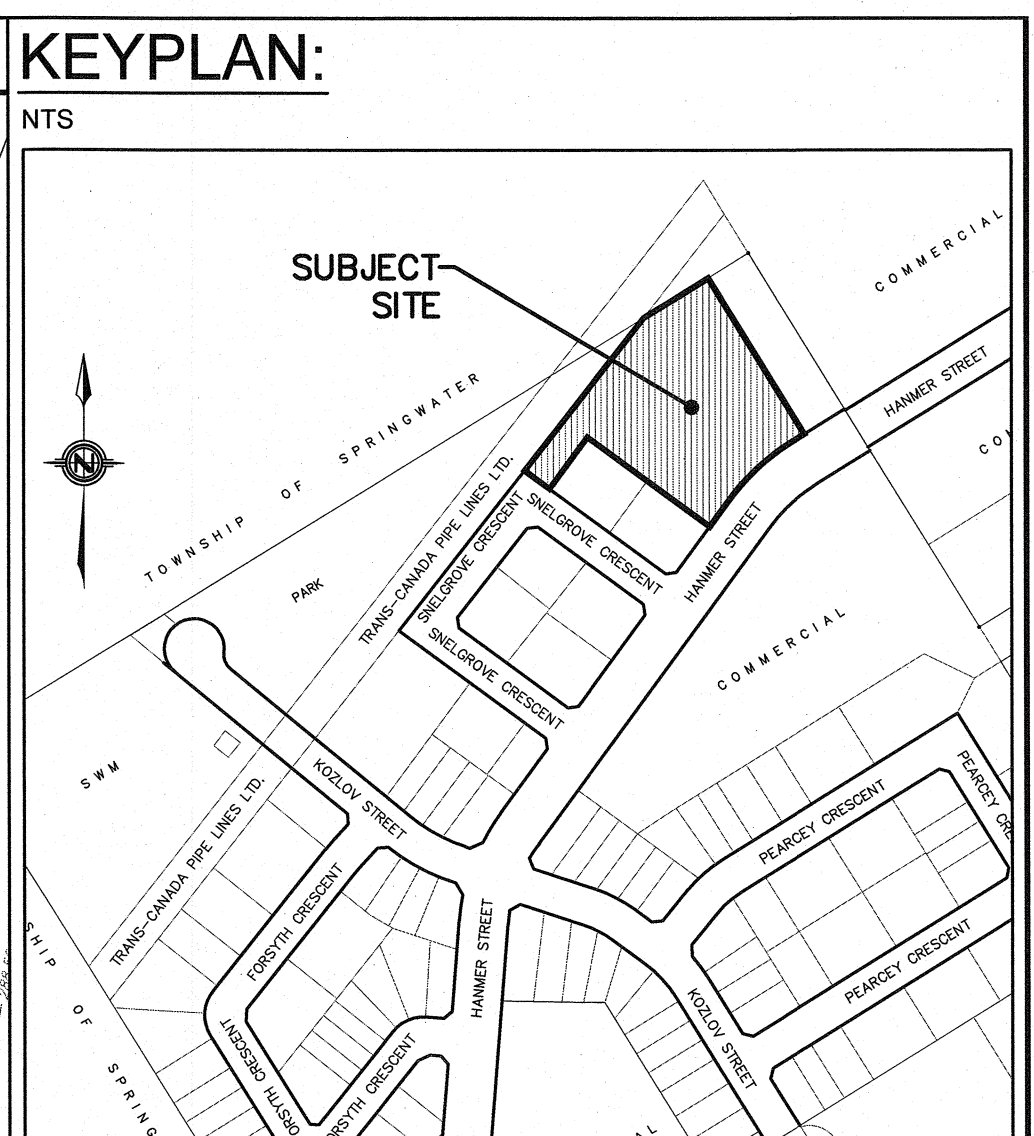
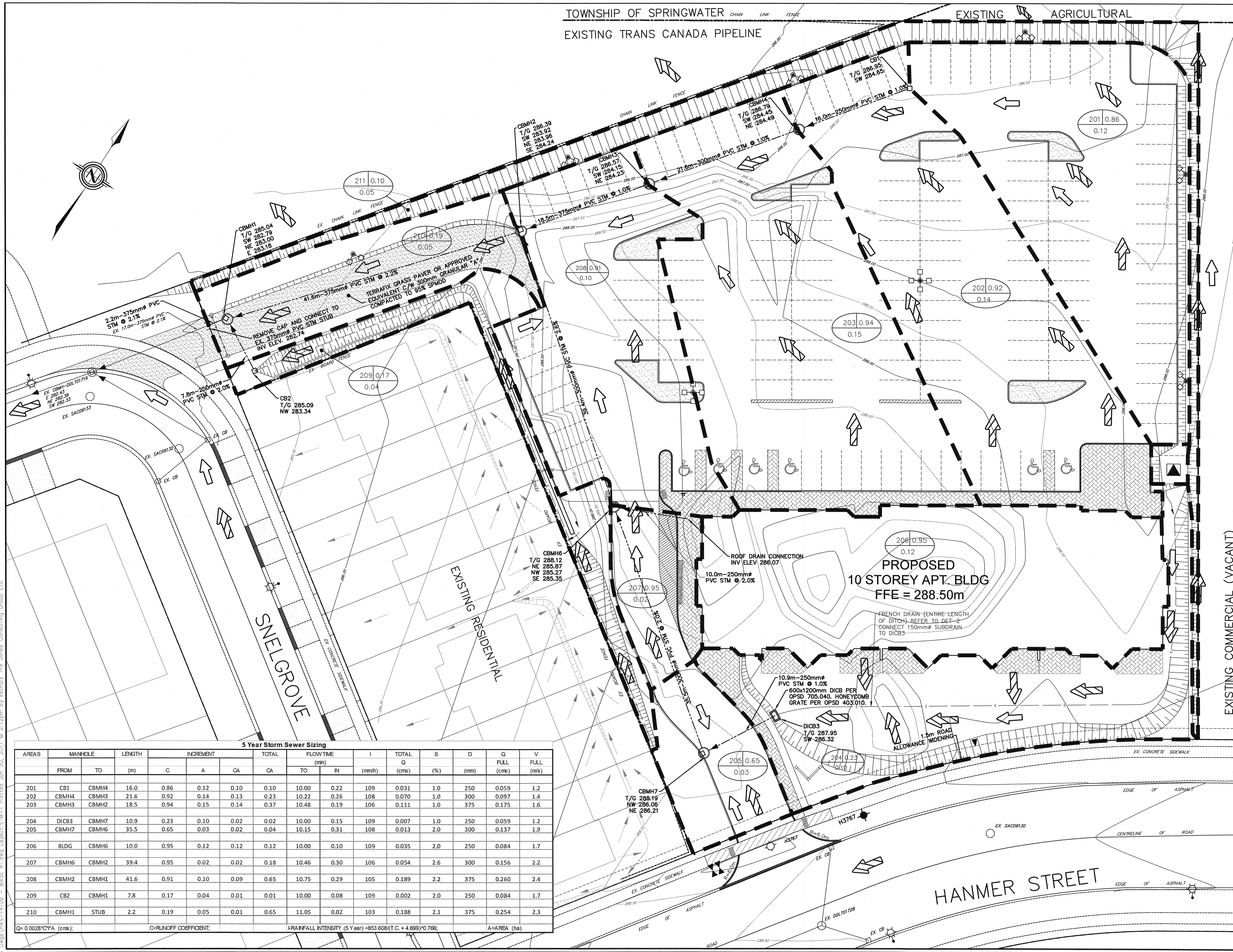
NO.	REVISIONS	DATE	INITIAL
3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI



FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

WATERMAIN SWABBING PLAN

		229 Mapleview Dr. E, Unit 1 Barrie, ON L4N 0W5 P. 705.734.2538 F. 705.734.1066
DESIGN	JT	SCALE: 1:250
DRAWN	JT	PROJECT
CHECKED	JWI	HAS-14190
DATE		SEPTEMBER 2016
DWG. NO		WM-1

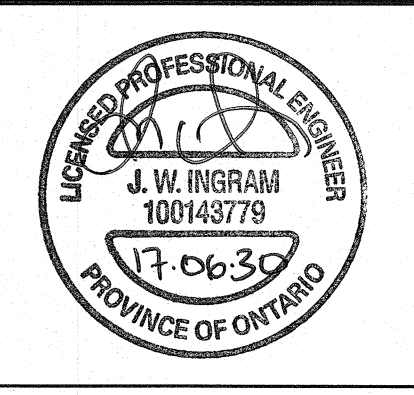


5 Year Storm Sewer Sizing														
AREAS	MANHOLE		LENGTH	INCREMENT		TOTAL	FLOW TIME		I	TOTAL	S	D	Q	V
	FROM	TO		C	A		TO	IN						
			(m)			CA	CA	(min)	(mm/h)	(cms)	(%)	(mm)	FULL (cms)	FULL (m/s)
201	CB1	CBMH4	16.0	0.86	0.12	0.10	10.00	0.22	109	0.031	1.0	250	0.059	1.2
202	CBMH4	CBMH3	21.6	0.92	0.14	0.13	10.22	0.26	108	0.070	1.0	300	0.097	1.4
203	CBMH3	CBMH2	18.5	0.94	0.15	0.14	10.48	0.19	106	0.111	1.0	375	0.175	1.6
204	DICB3	CBMH7	10.9	0.23	0.10	0.02	10.00	0.15	109	0.007	1.0	250	0.059	1.2
205	CBMH7	CBMH6	35.5	0.65	0.03	0.02	10.15	0.31	108	0.013	2.0	300	0.137	1.9
206	BLDG	CBMH6	10.0	0.95	0.12	0.12	10.00	0.10	109	0.035	2.0	250	0.084	1.7
207	CBMH6	CBMH2	39.4	0.95	0.02	0.02	10.46	0.30	106	0.054	2.6	300	0.156	2.2
208	CBMH2	CBMH1	41.6	0.91	0.10	0.09	0.65	10.75	105	0.189	2.2	375	0.260	2.4
209	CB2	CBMH1	7.8	0.17	0.04	0.01	10.00	0.08	109	0.002	2.0	250	0.084	1.7
210	CBMH1	STUB	2.2	0.19	0.05	0.01	0.65	11.05	103	0.188	2.1	375	0.254	2.3
Q= 0.0028°C/A (cms); C=RUNOFF COEFFICIENT; I=RAINFALL INTENSITY (5 Year)=853.608(T.C. + 4.699)/0.766; A=AREA (ha)														

BENCHMARK:
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LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 36m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT.
ELEV 277.888
VERTICAL MONUMENT #03120030005
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N 4917972.231, E 286334.186
HORIZONTAL MONUMENT #0191860480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS.
N 4919812.979, E 287652.204

3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI
NO.	REVISIONS	DATE	INITIAL



FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

STORM DRAINAGE PLAN

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS

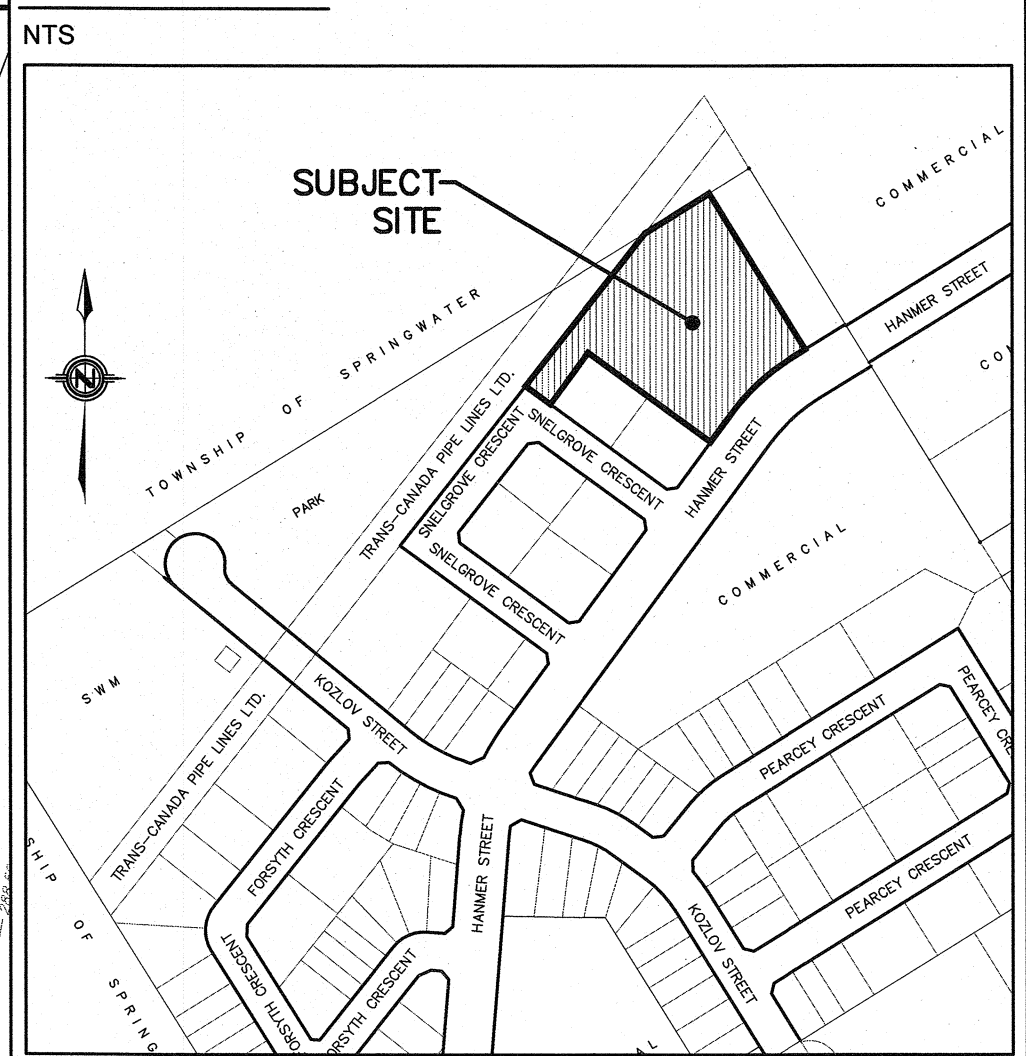
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1058

DESIGN	JT	SCALE: 1:250	DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT	DWG. NO	
CHECKED	JWI	HAS-14190	STM-1	

TOWNSHIP OF SPRINGWATER
EXISTING TRANS CANADA PIPELINE

EXISTING AGRICULTURAL

KEYPLAN:



LEGEND

- EX. LIGHT STANDARD
- EX. HYDRANT AND VALVE
- EX. VALVE
- EX. SANITARY MANHOLE
- EX. STORM MANHOLE
- EX. CATCHBASIN
- PROP. SIGN
- PROP. LIGHT STANDARD
- PROP. HYDRO TRANSFORMER
- PROP. HYDRANT AND VALVE
- PROP. VALVE
- PROP. SANITARY MANHOLE
- PROP. CATCHBASIN MANHOLE
- PROP. CATCHBASIN
- PROP. LIGHT DUTY ASPHALT

SIGNAGE LEGEND

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



STOP SIGN
Rb-1



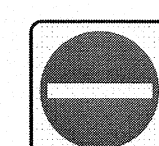
NO PARKING
Rb-51



DISABLED PARKING
BY PERMIT ONLY
Rb-93

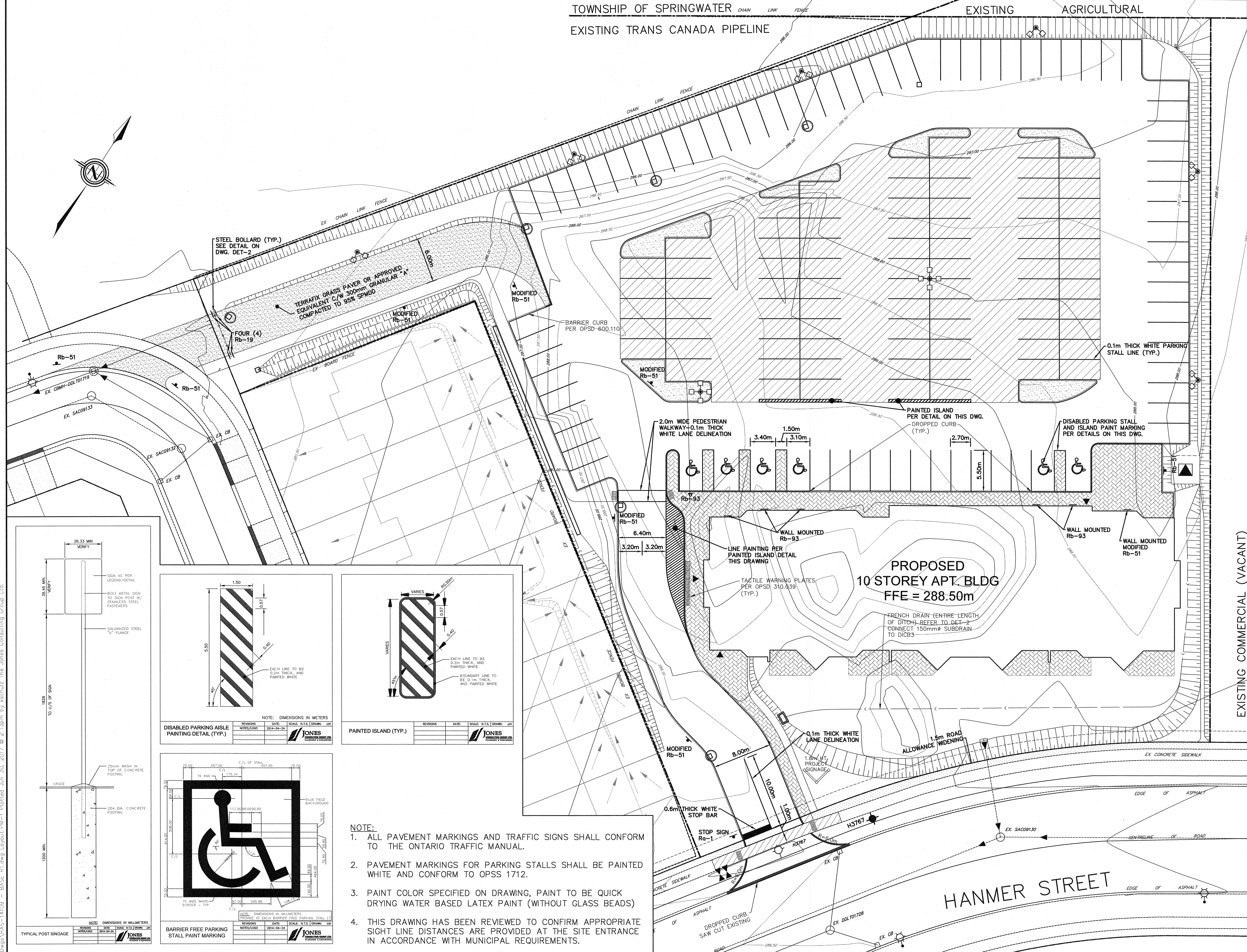


NO PARKING - FIRE ROUTE
MODIFIED Rb-51



DO NOT ENTER
Rb-19

EXISTING COMMERCIAL (VACANT)



- NOTE:
- ALL PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL CONFORM TO THE ONTARIO TRAFFIC MANUAL.
 - PAVEMENT MARKINGS FOR PARKING STALLS SHALL BE PAINTED WHITE AND CONFORM TO OPSS 1712.
 - PAINT COLOR SPECIFIED ON DRAWING, PAINT TO BE QUICK DRYING WATER BASED LATEX PAINT (WITHOUT GLASS BEADS)
 - THIS DRAWING HAS BEEN REVIEWED TO CONFIRM APPROPRIATE SIGHT LINE DISTANCES ARE PROVIDED AT THE SITE ENTRANCE IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

BENCHMARK:
VERTICAL MONUMENT #03120080033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 36m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT.
ELEV 277.888
VERTICAL MONUMENT #03120030005
BARRIER SPORTS DOME - 89 HANMER STREET, EAST THE VERTICAL CONTROL MONUMENT IS SET FLUSH IN THE EAST FACE OF THE CULVERT HEADWALL. THE CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN A DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE WEST SIDE OF THE BARRIER SPORTS DOME. NOTE: TABLET IS SET 11CM BELOW TOP OF HEADWALL AND 26CM SOUTH OF THE NORTH-EAST CORNER OF HEADWALL.
ELEV 269.220

BENCHMARK:
HORIZONTAL MONUMENT #03120040002
THE HORIZONTAL MONUMENT IS LOCATED AT THE END OF THE NORTH CURB LINE OF SUNNIDALE ROAD AT THE CITY LIMITS AND IS APPROXIMATELY 200m WEST OF THE INTERSECTION OF SUNNIDALE ROAD AND LIVINGSTONE STREET.
WEST. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP
N 4917972.231, E 286334.186
HORIZONTAL MONUMENT #0109860480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS
N 4919812.979, E 287652.204

NO.	REVISIONS	DATE	INITIAL
3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI



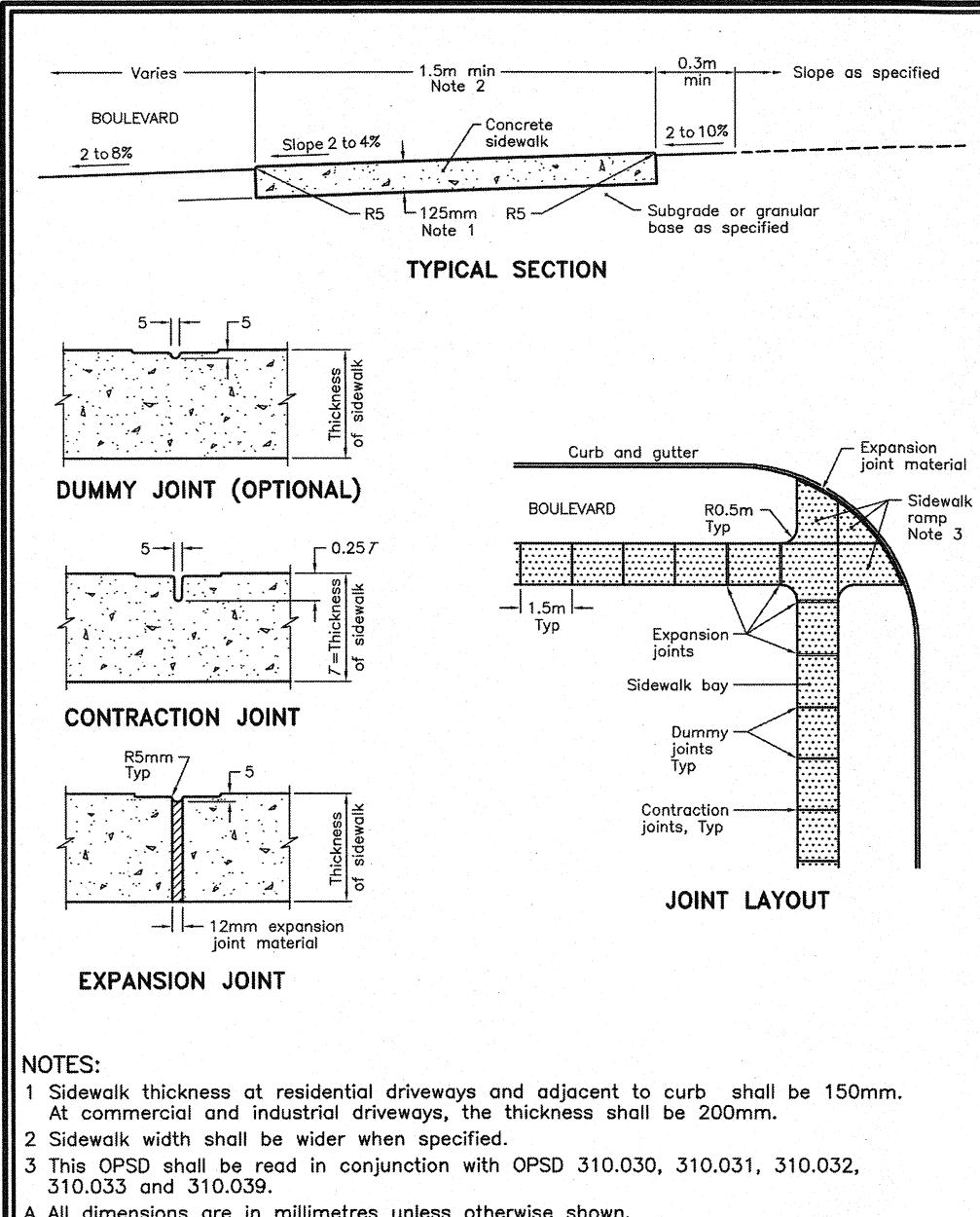
FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

PAVEMENT MARKING
PLAN

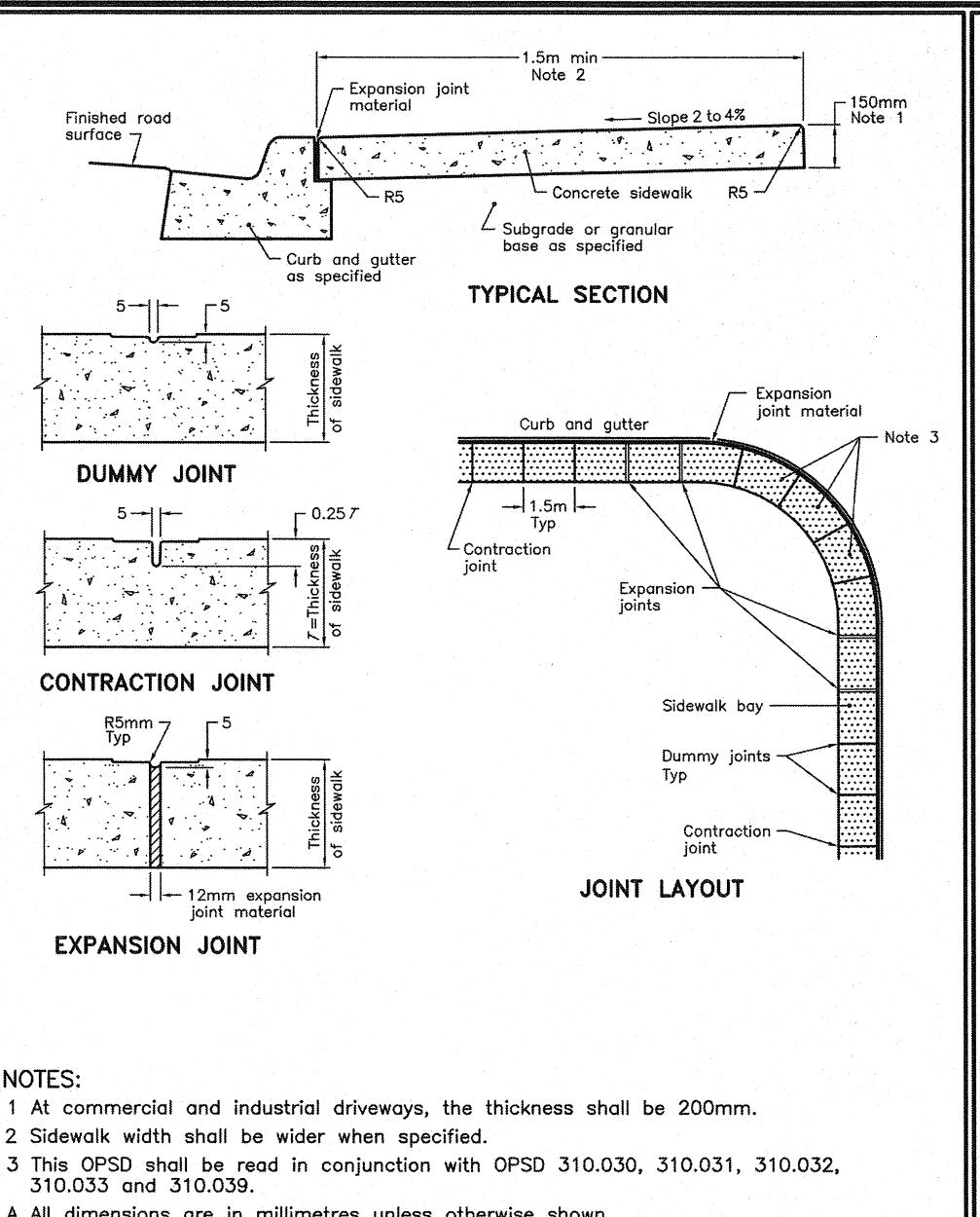


229 Mapleview Dr. E, Unit 1
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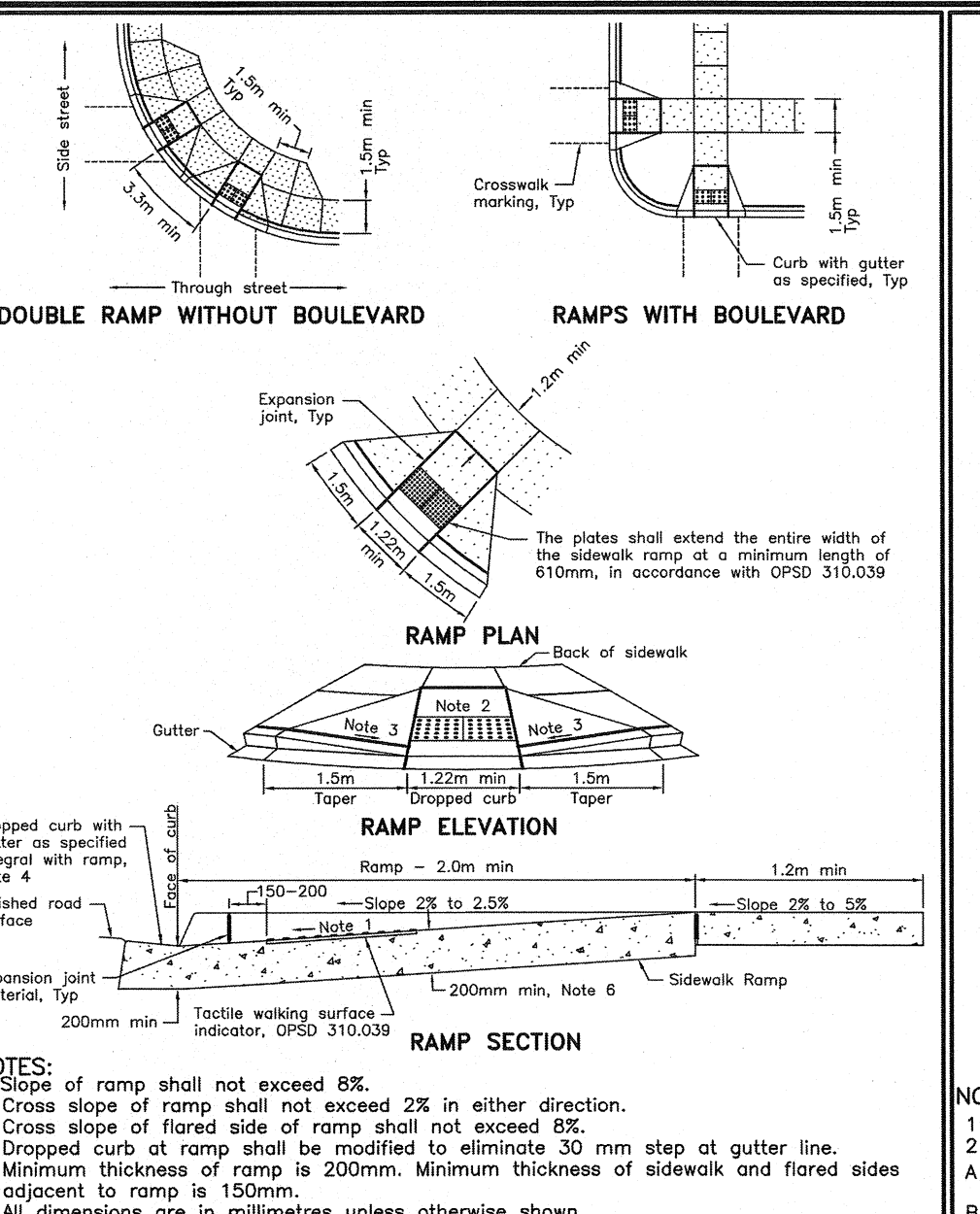
DESIGN	JT	SCALE: 1:250	DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT	DWG. NO	
CHECKED	JWI	HAS-14190	PM-1	



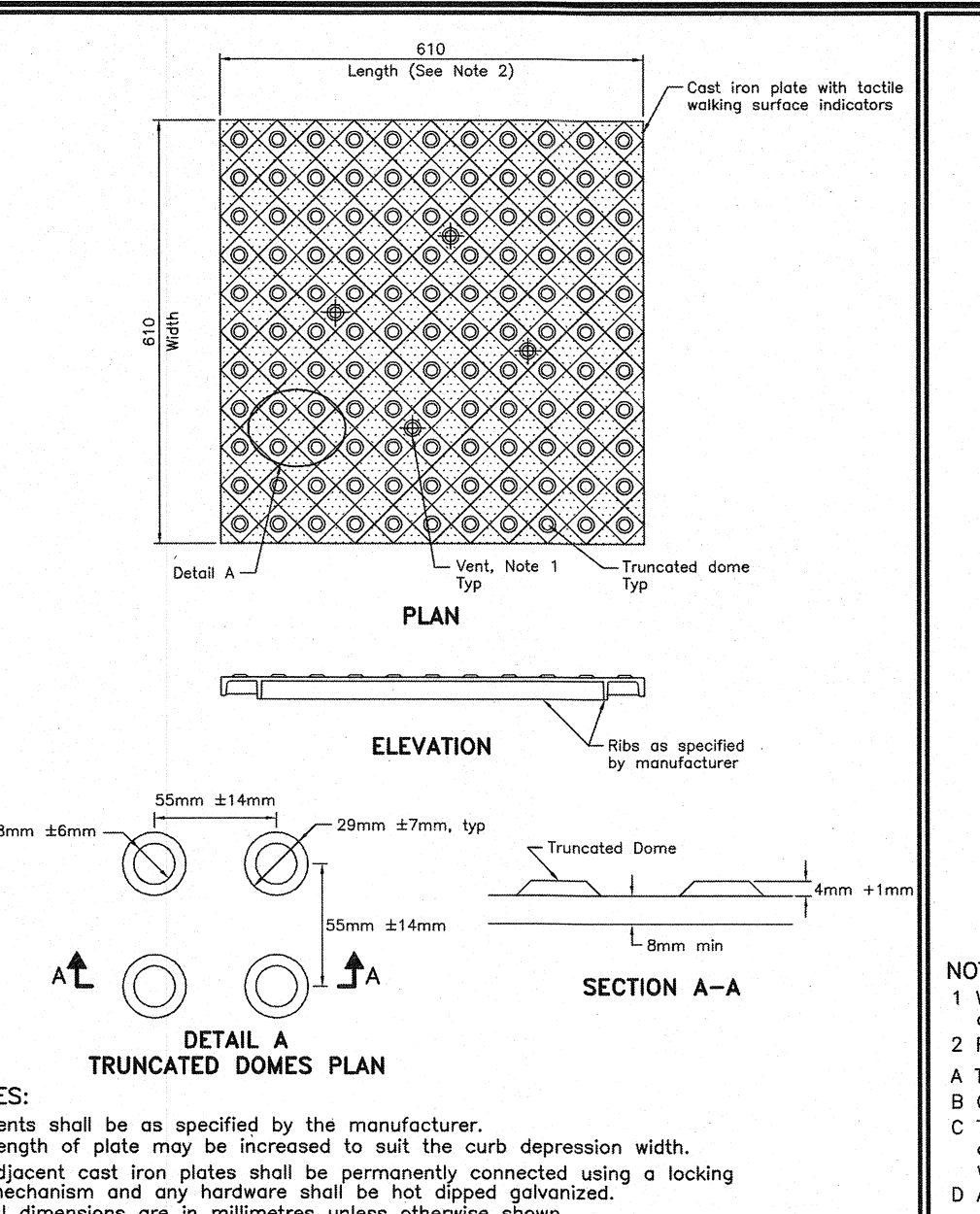
ONTARIO PROVINCIAL STANDARD DRAWING
CONCRETE SIDEWALK
OPSD 310.010



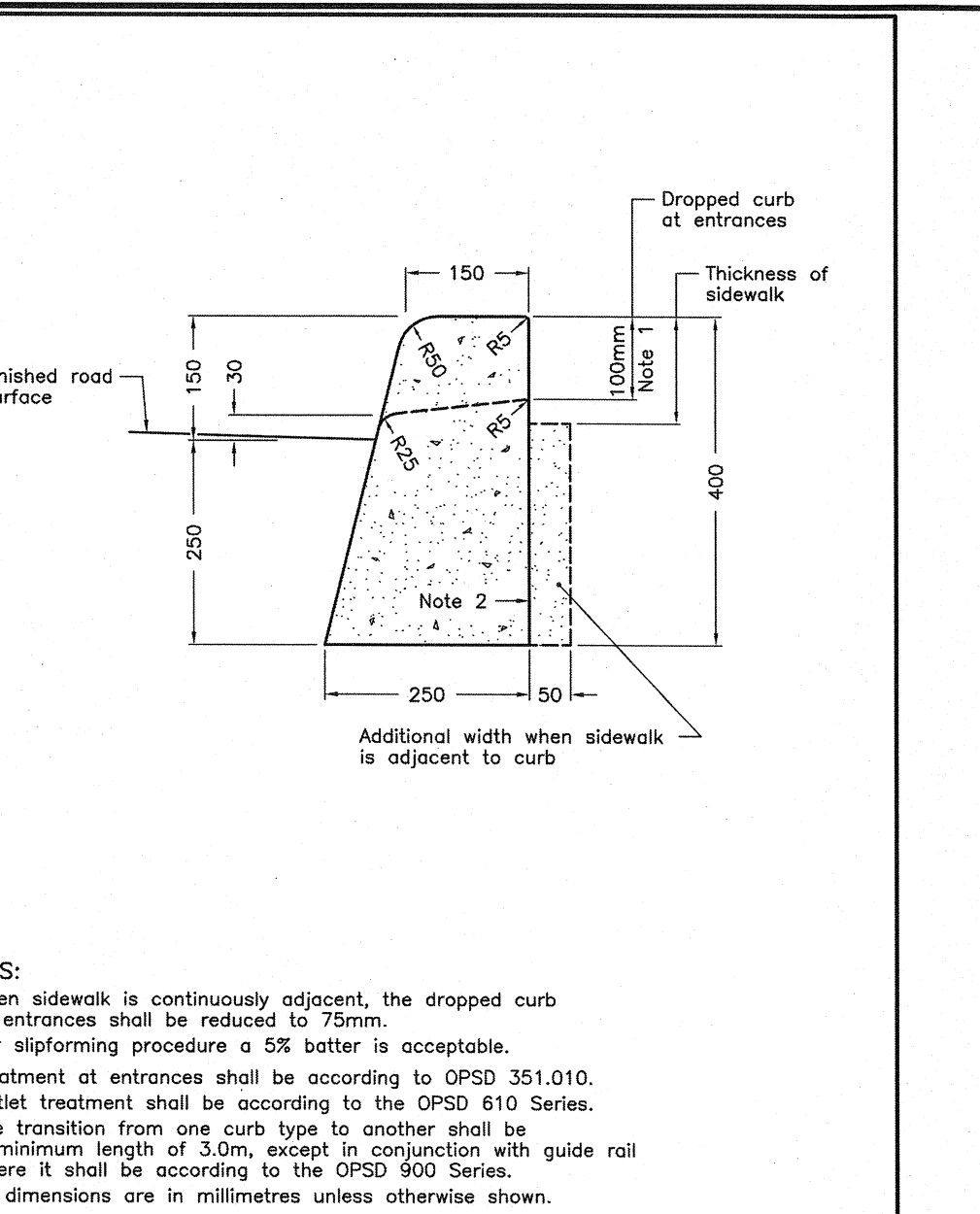
ONTARIO PROVINCIAL STANDARD DRAWING
CONCRETE SIDEWALK
ADJACENT TO CURB AND GUTTER
OPSD 310.020



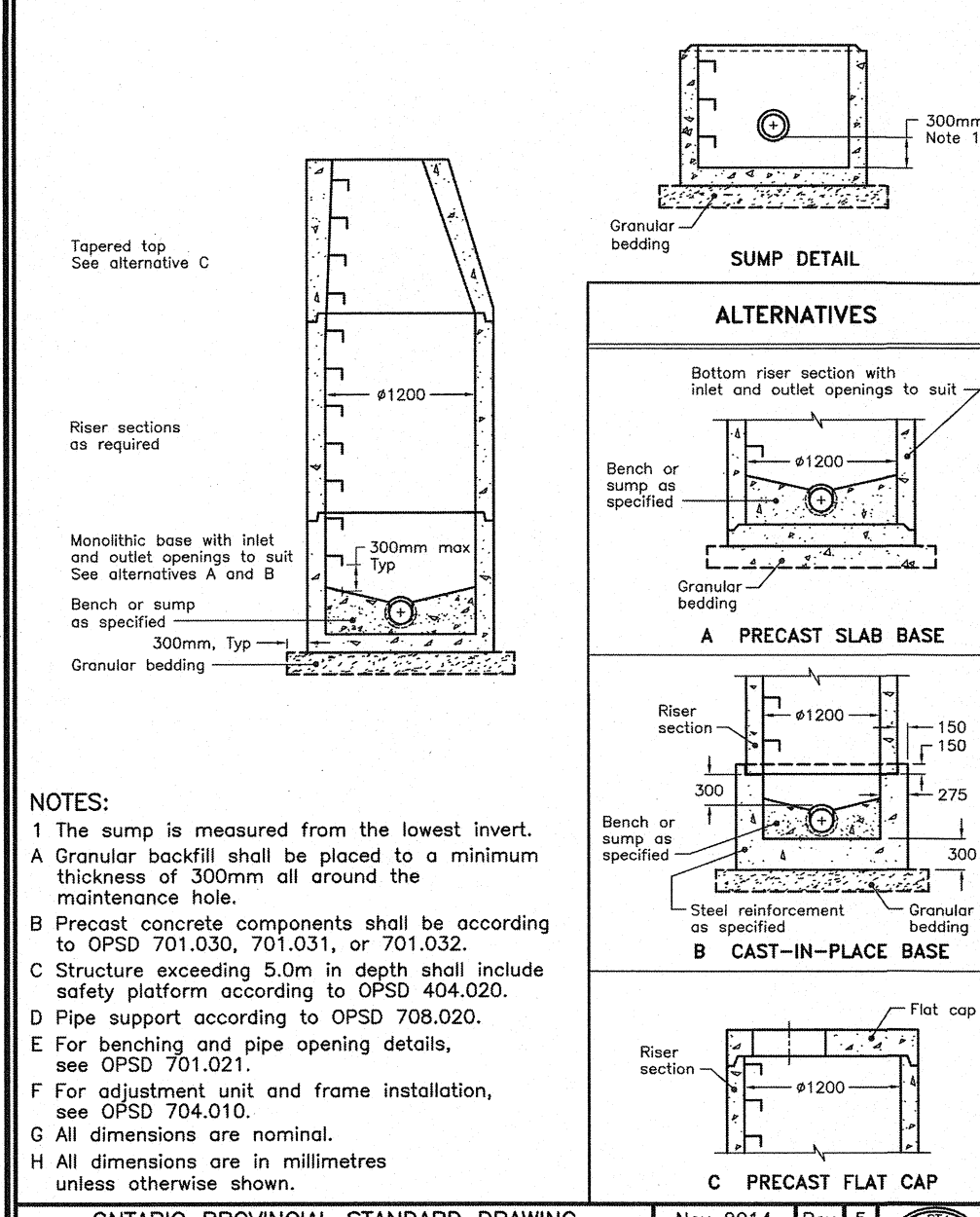
ONTARIO PROVINCIAL STANDARD DRAWING
CONCRETE SIDEWALK RAMP
AT SIGNALIZED INTERSECTIONS
OPSD 310.033



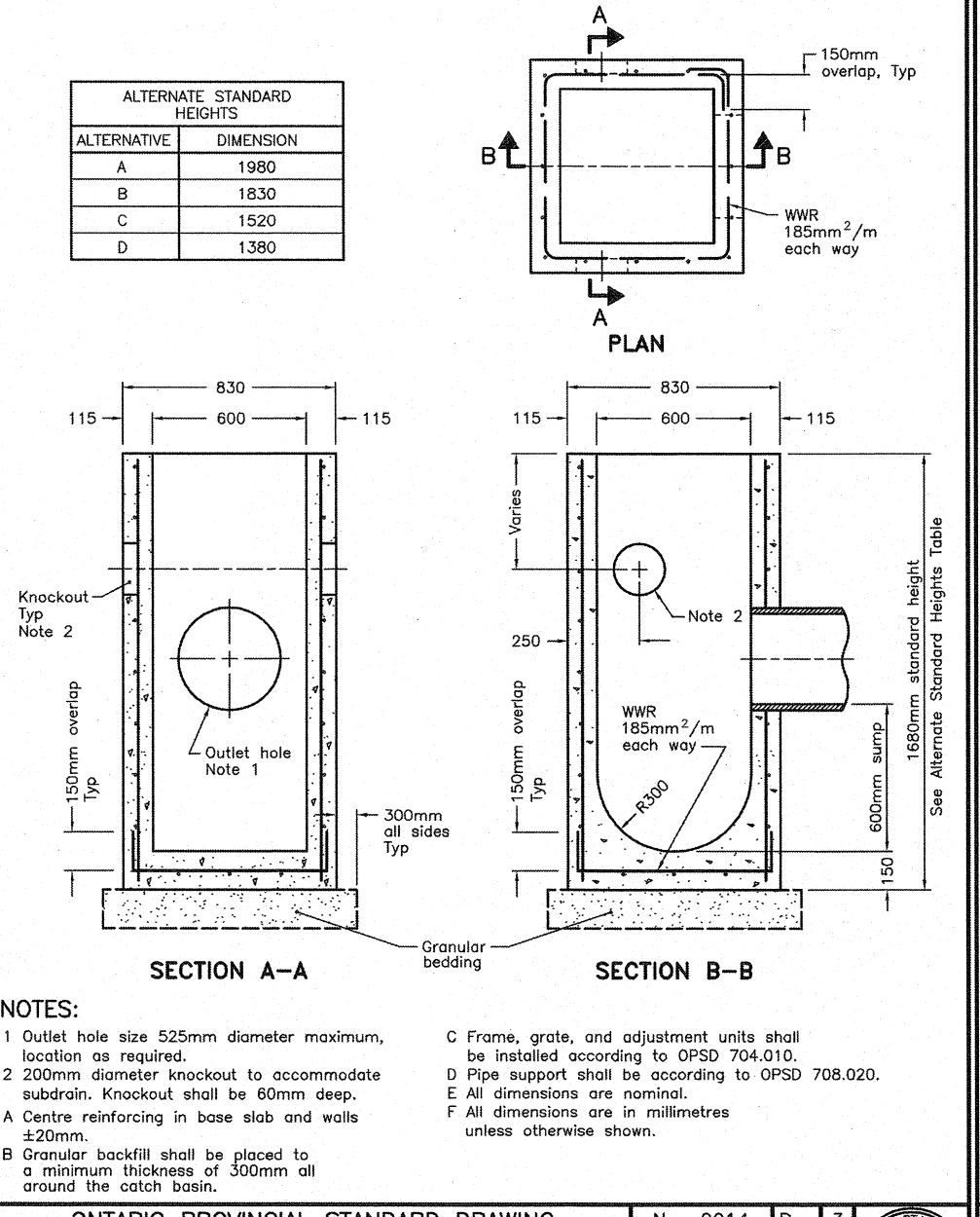
ONTARIO PROVINCIAL STANDARD DRAWING
CONCRETE SIDEWALK RAMP
AT SIGNALIZED INTERSECTIONS
OPSD 310.033



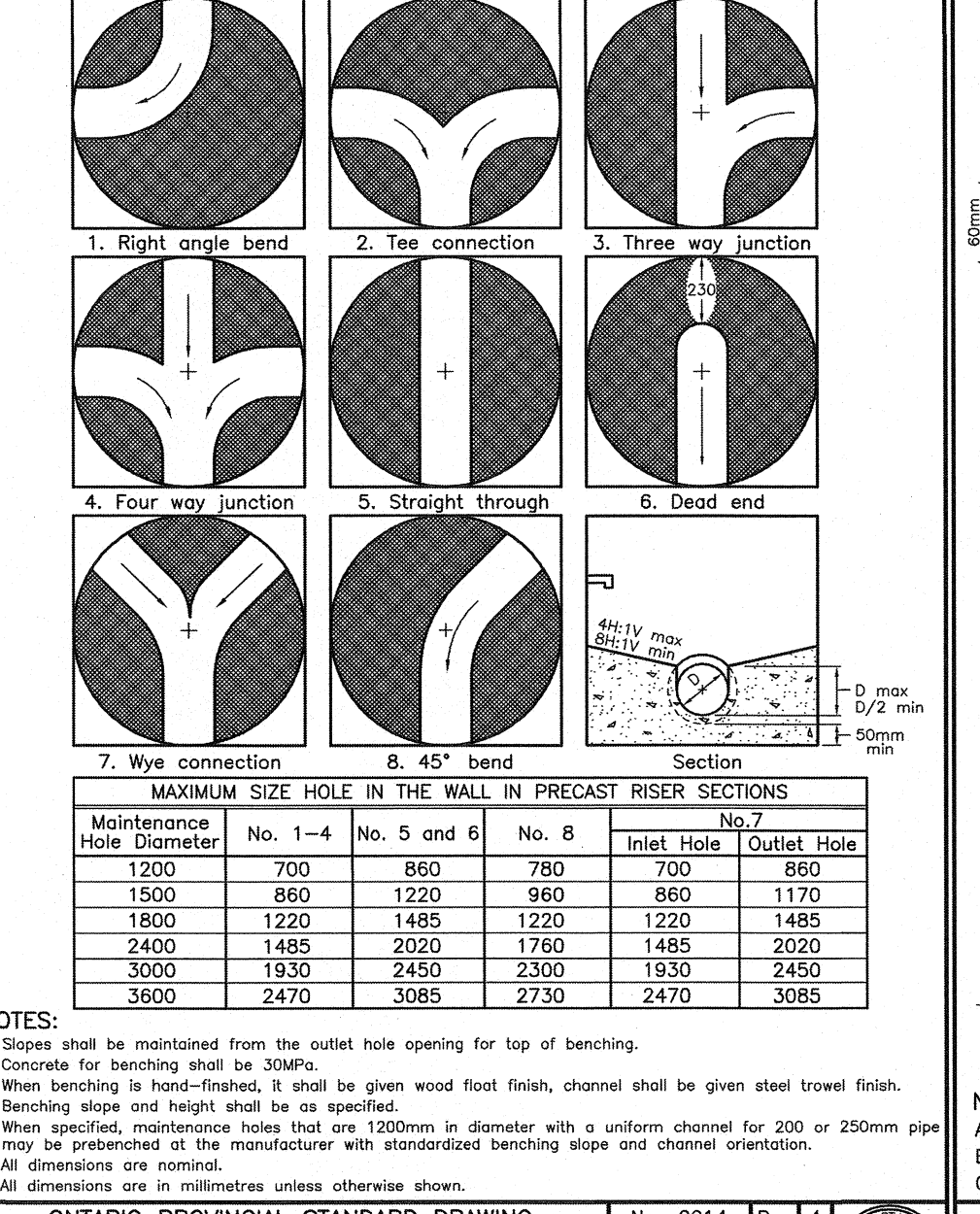
ONTARIO PROVINCIAL STANDARD DRAWING
CONCRETE BARRIER CURB
OPSD 600.110



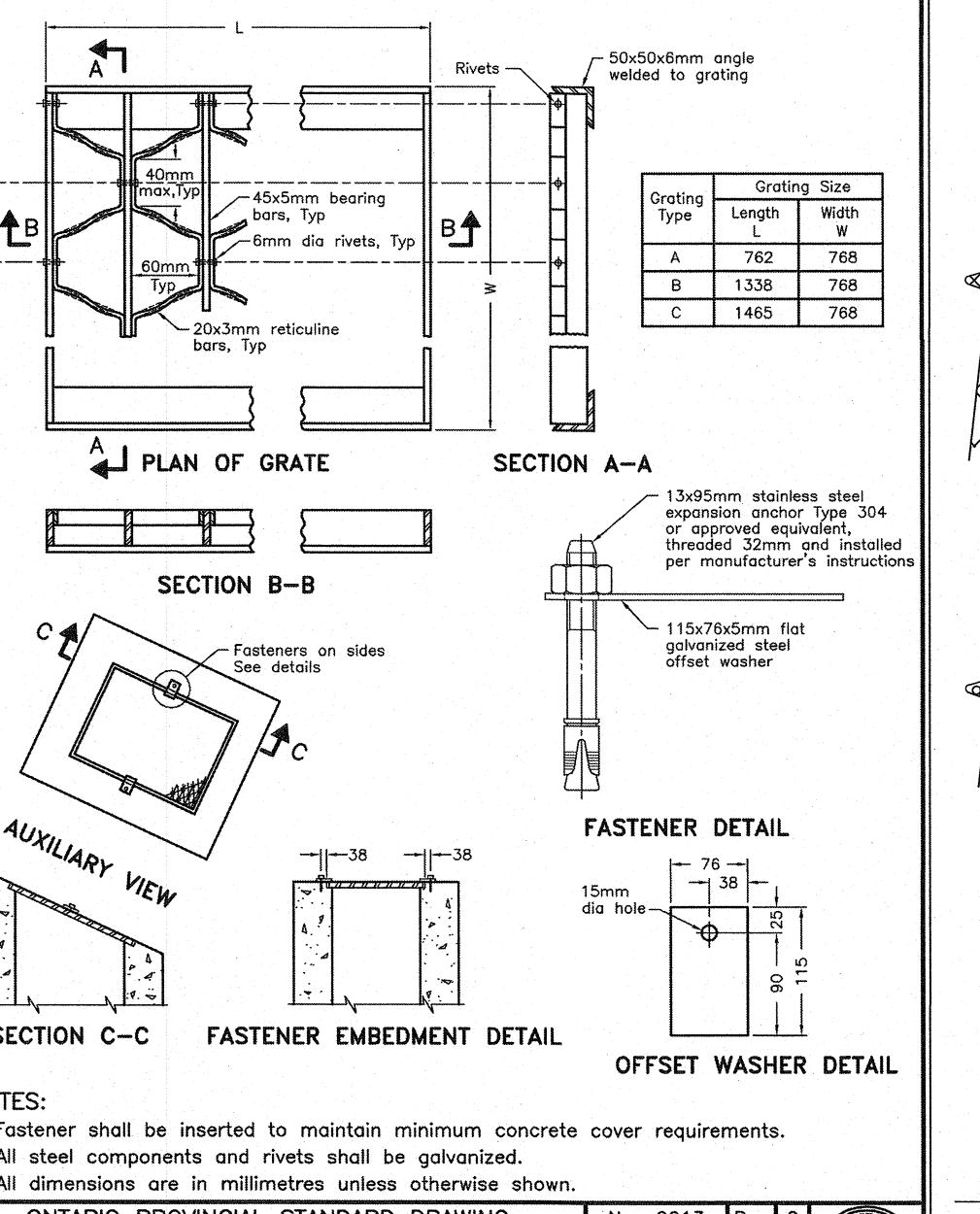
ONTARIO PROVINCIAL STANDARD DRAWING
PRECAST CONCRETE
MAINTENANCE HOLE
1200mm DIAMETER
OPSD 701.010



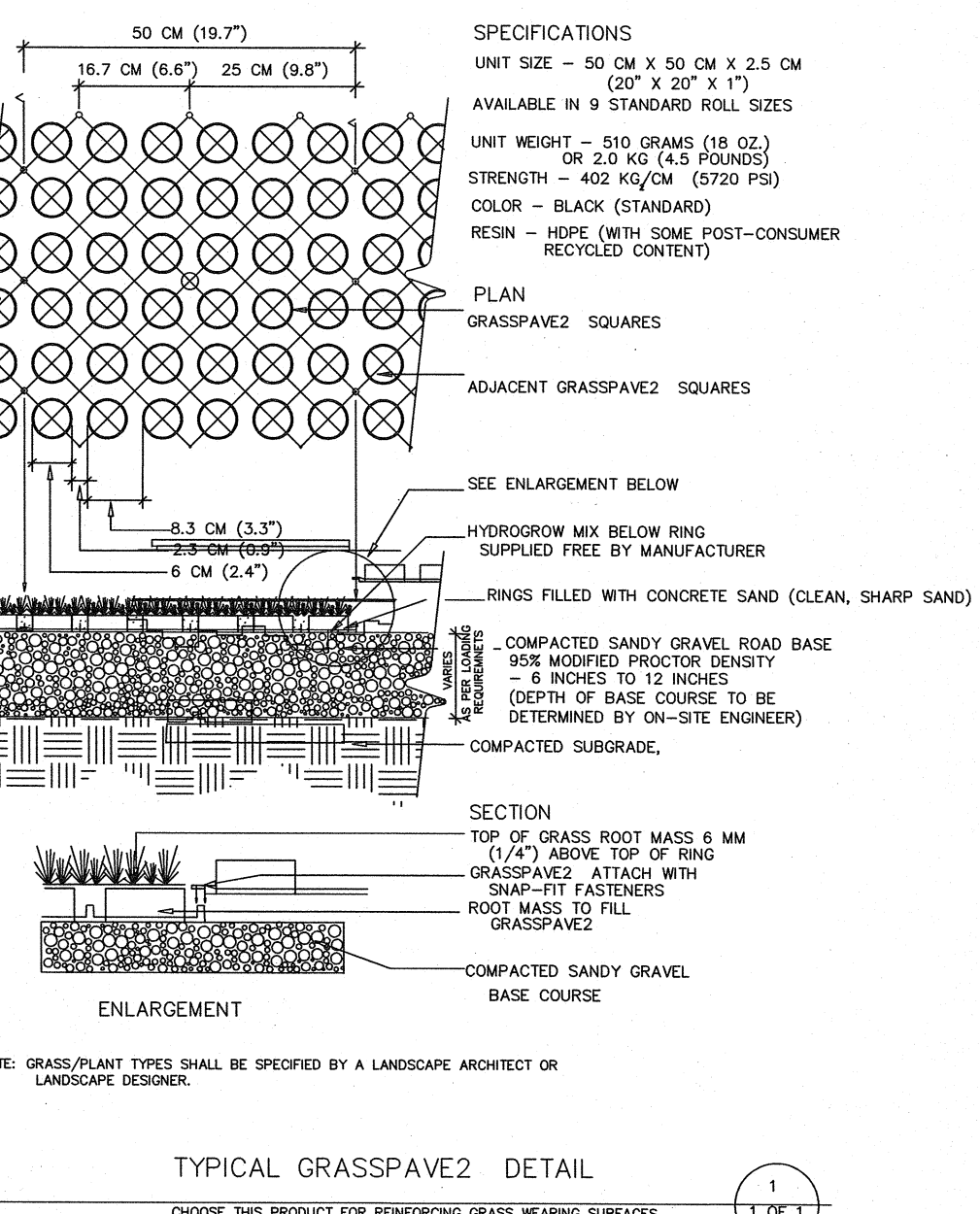
ONTARIO PROVINCIAL STANDARD DRAWING
PRECAST CONCRETE CATCH BASIN
600x600mm
OPSD 705.010



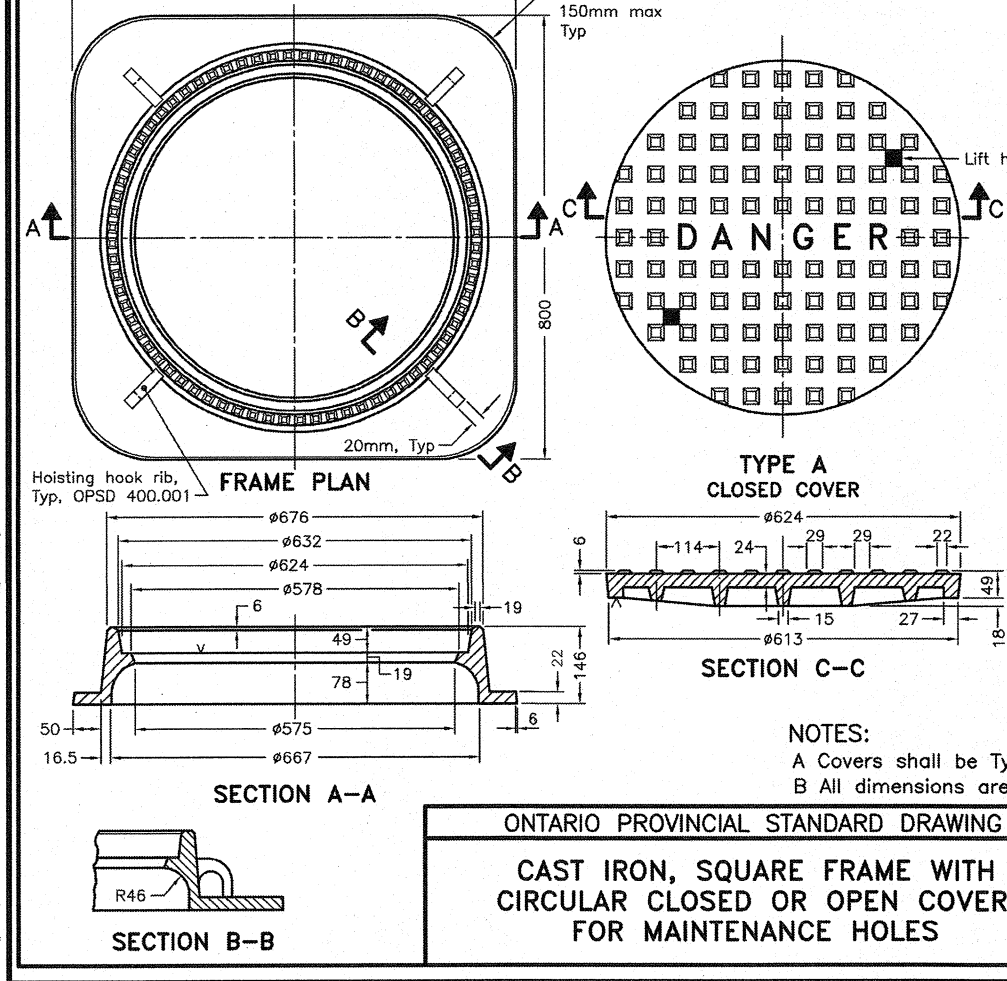
ONTARIO PROVINCIAL STANDARD DRAWING
MAINTENANCE HOLE BENCHING
AND PIPE OPENING ALTERNATIVES
OPSD 701.021



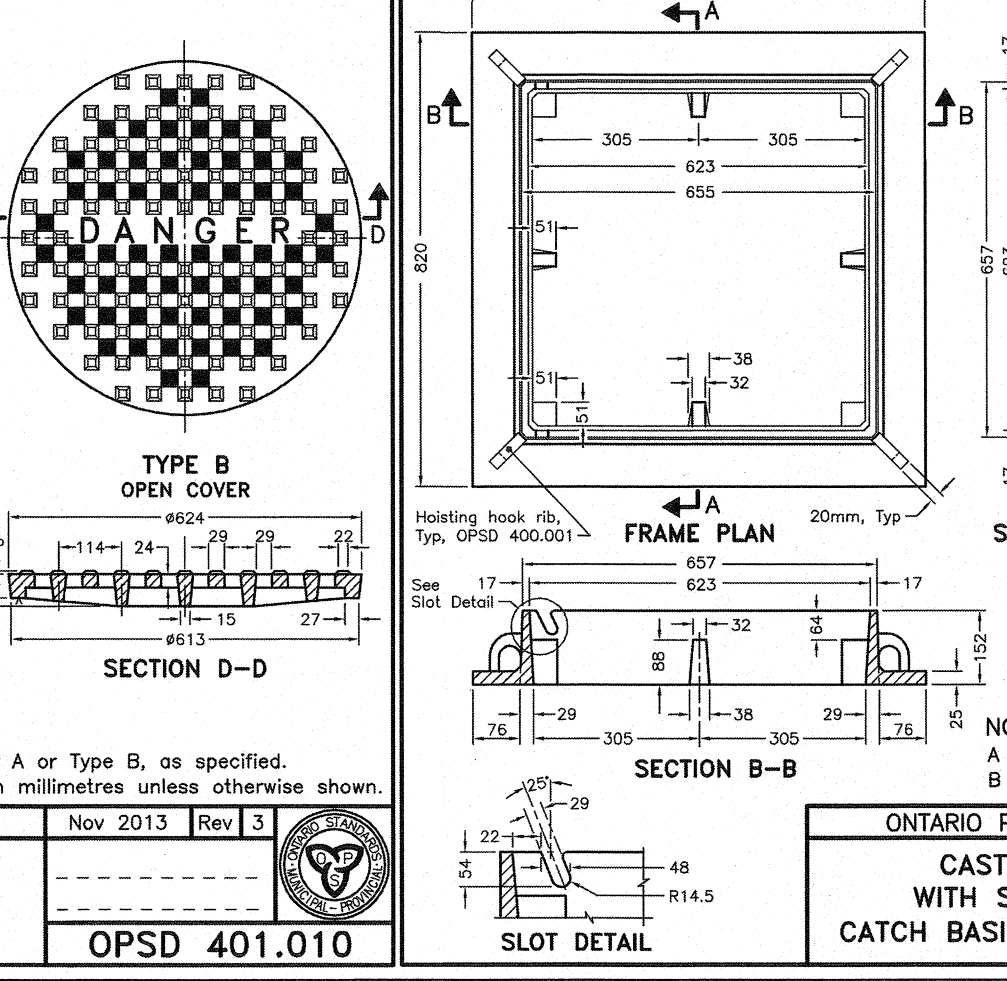
ONTARIO PROVINCIAL STANDARD DRAWING
GALVANIZED STEEL
HONEYCOMB GRATING
FOR DITCH INLETS
OPSD 403.010



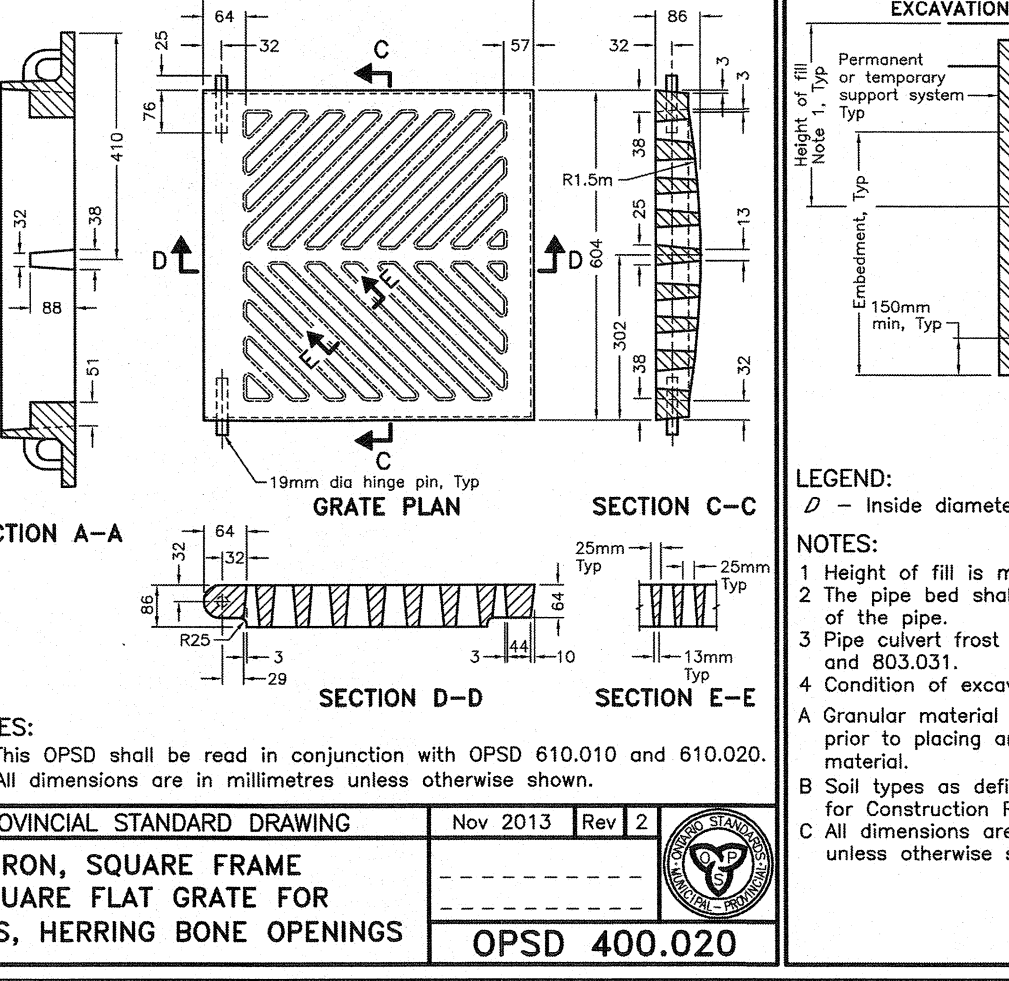
ONTARIO PROVINCIAL STANDARD DRAWING
TYPICAL GRASSPAVE2 DETAIL
OPSD 403.010



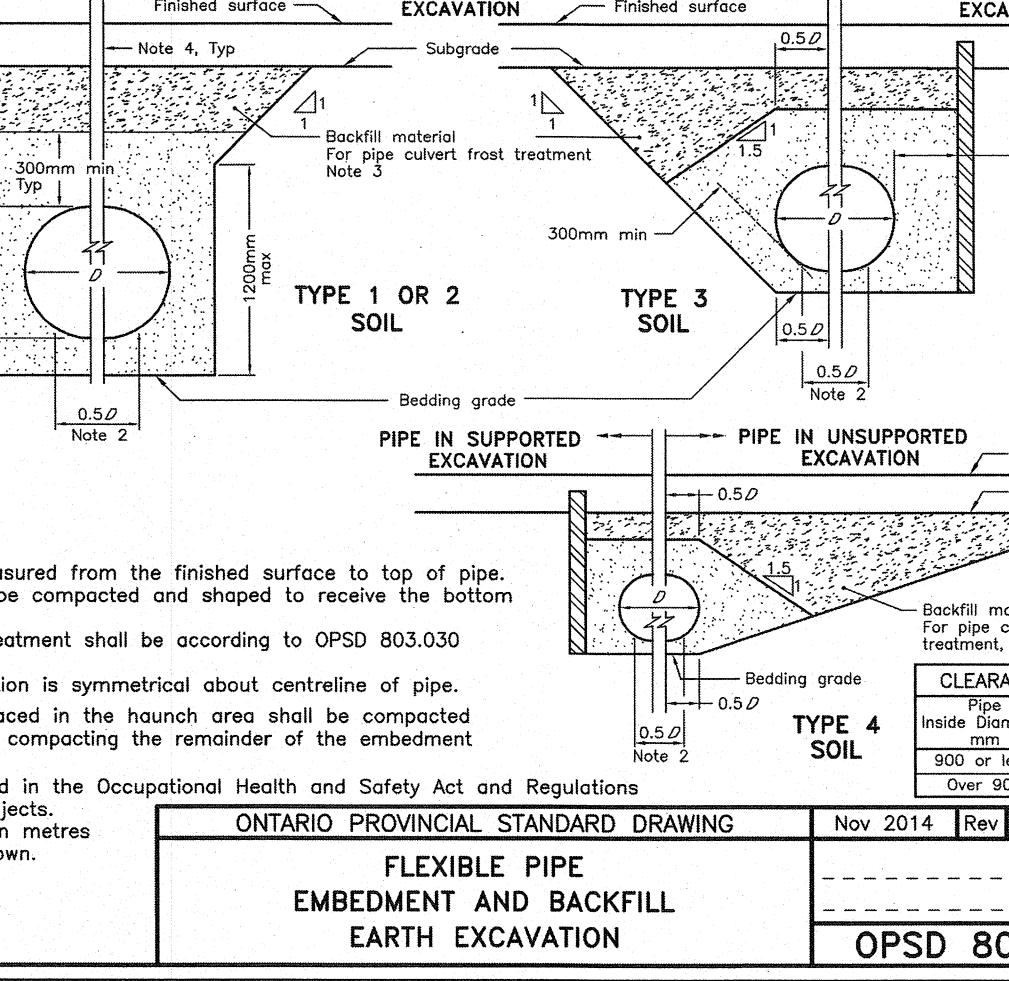
ONTARIO PROVINCIAL STANDARD DRAWING
CAST IRON, SQUARE FRAME
WITH CIRCULAR CLOSED OR OPEN COVER
FOR MAINTENANCE HOLES
OPSD 401.010



ONTARIO PROVINCIAL STANDARD DRAWING
CAST IRON, SQUARE FRAME
WITH SQUARE FLAT COVER FOR
CATCH BASINS, HERRING BONE OPENINGS
OPSD 400.020



ONTARIO PROVINCIAL STANDARD DRAWING
FLEXIBLE PIPE
EMBEDMENT AND BACKFILL
EARTH EXCAVATION
OPSD 802.010

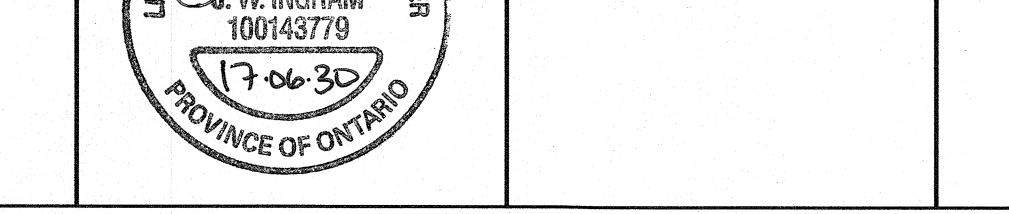


ONTARIO PROVINCIAL STANDARD DRAWING
PRECAST CONCRETE DITCH INLETS
600 x 1200mm
OPSD 705.040

BENCHMARK:
VERTICAL MONUMENT #03120080033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF
LIVINGSTONE STREET EAST AND APPROXIMATELY 26m NORTH OF STANLEY
STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE
MONUMENT
ELEV 277.688
VERTICAL MONUMENT #03120030005
BARRIE SPORTS DOME - 99 HANMER STREET, EAST THE VERTICAL CONTROL
MONUMENT IS SET IN THE EAST FACE OF THE CURVED HEADWALL, THE
CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN A
DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE
WEST SIDE OF THE BARRIE SPORTS DOME. NOTE: TABLE IS SET 11cm BELOW
TOP OF HEADWALL AND 26cm SOUTH OF THE NORTH-EAST CORNER OF
HEADWALL
ELEV 269.220

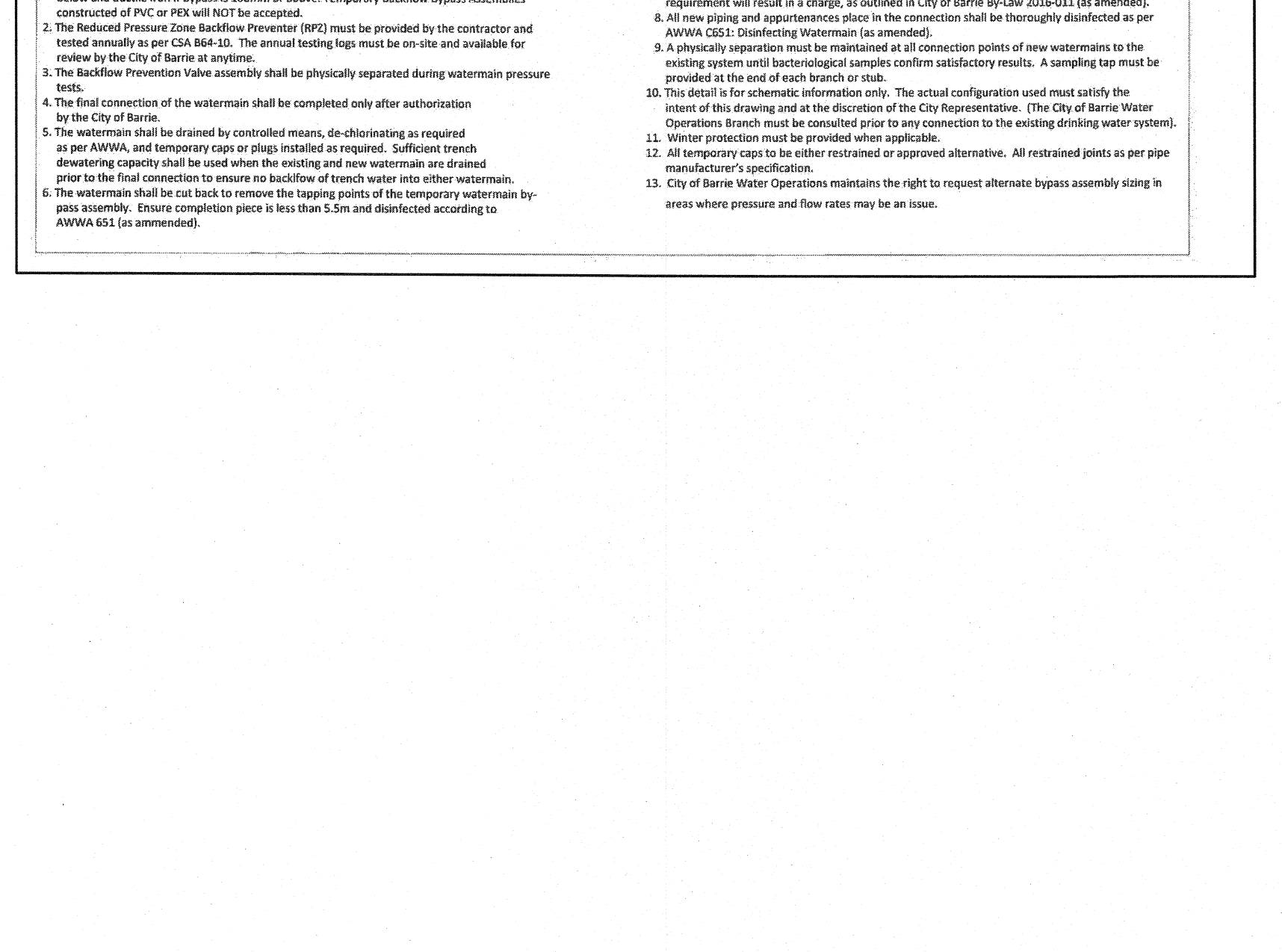
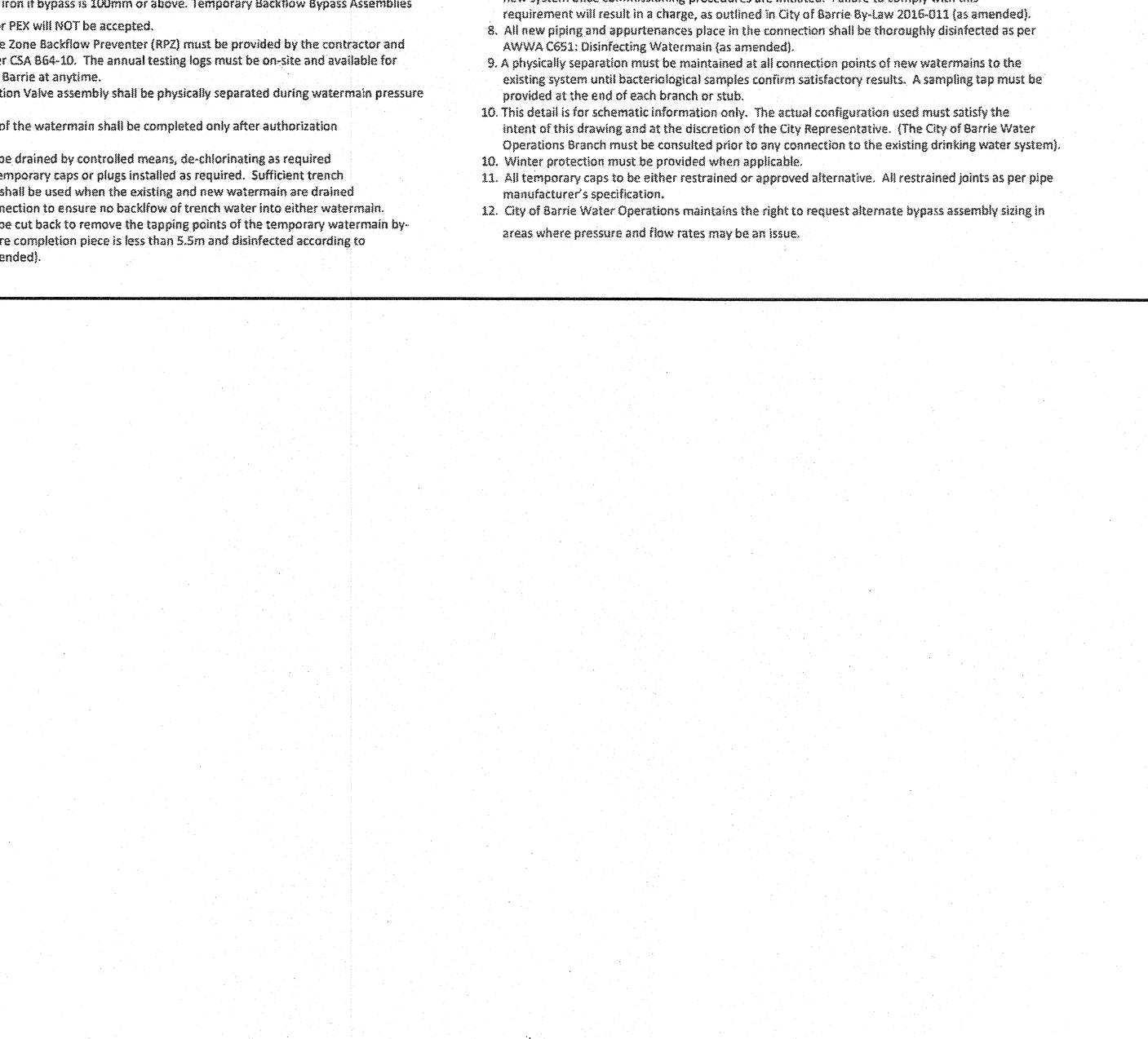
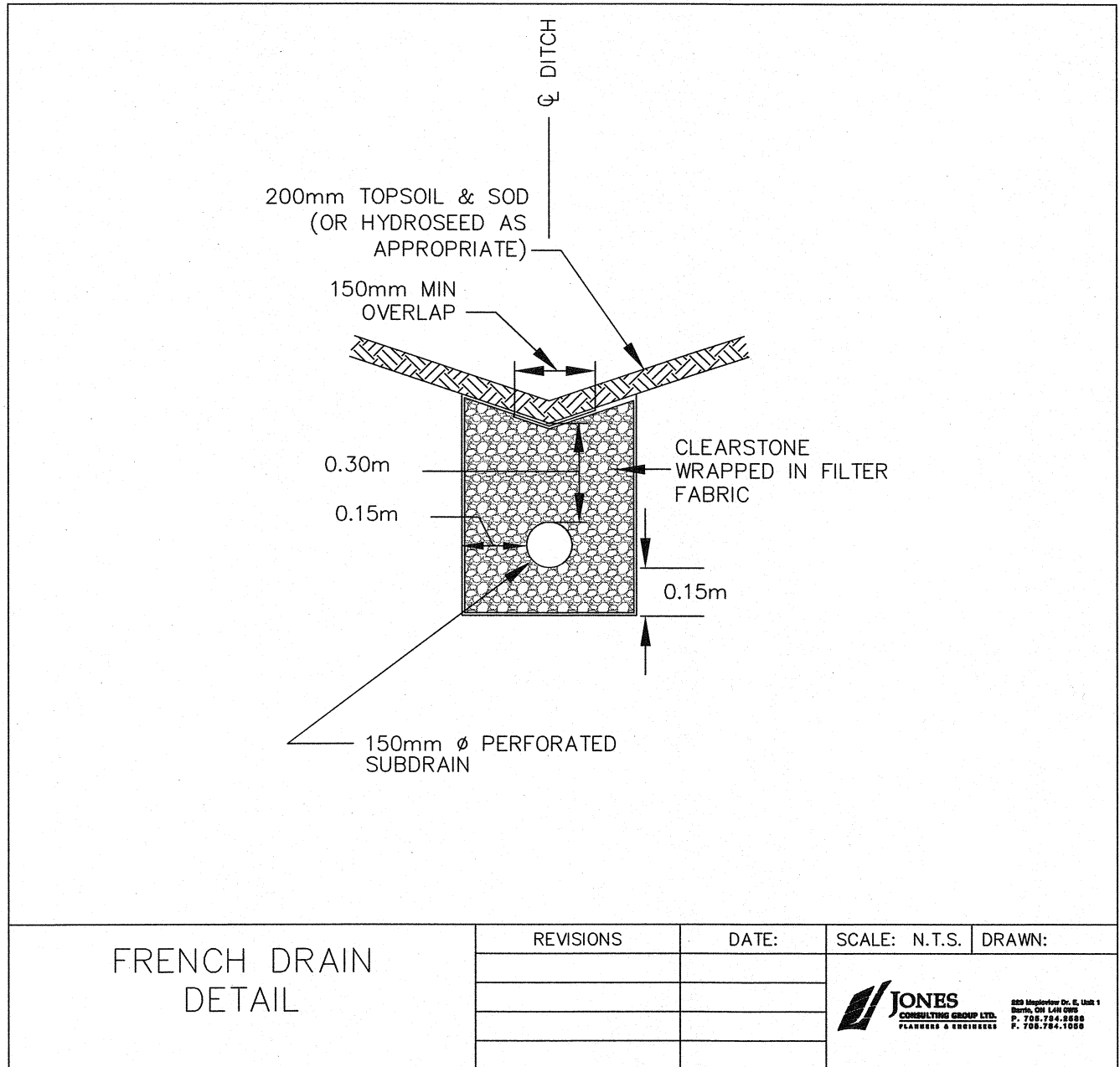
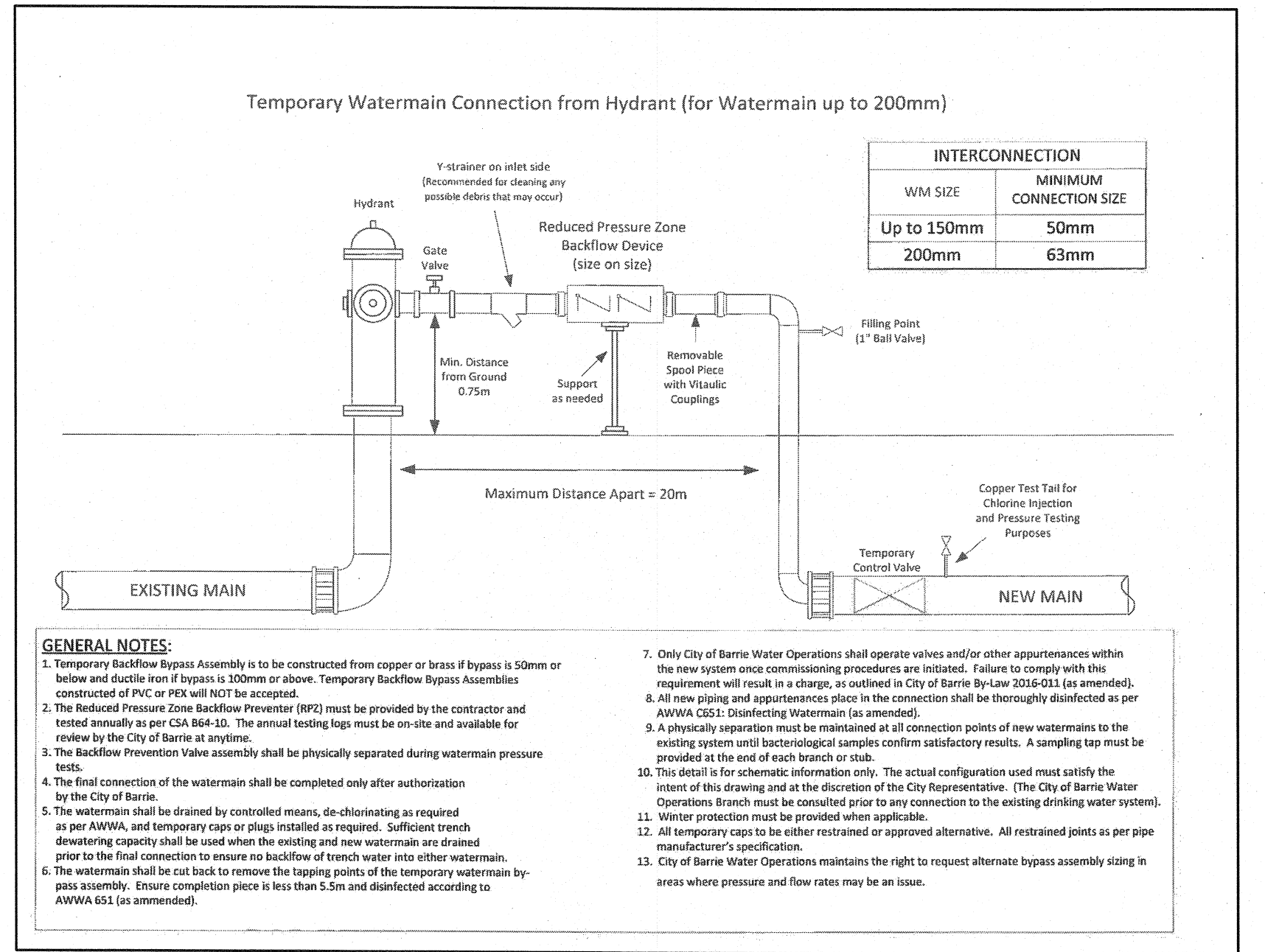
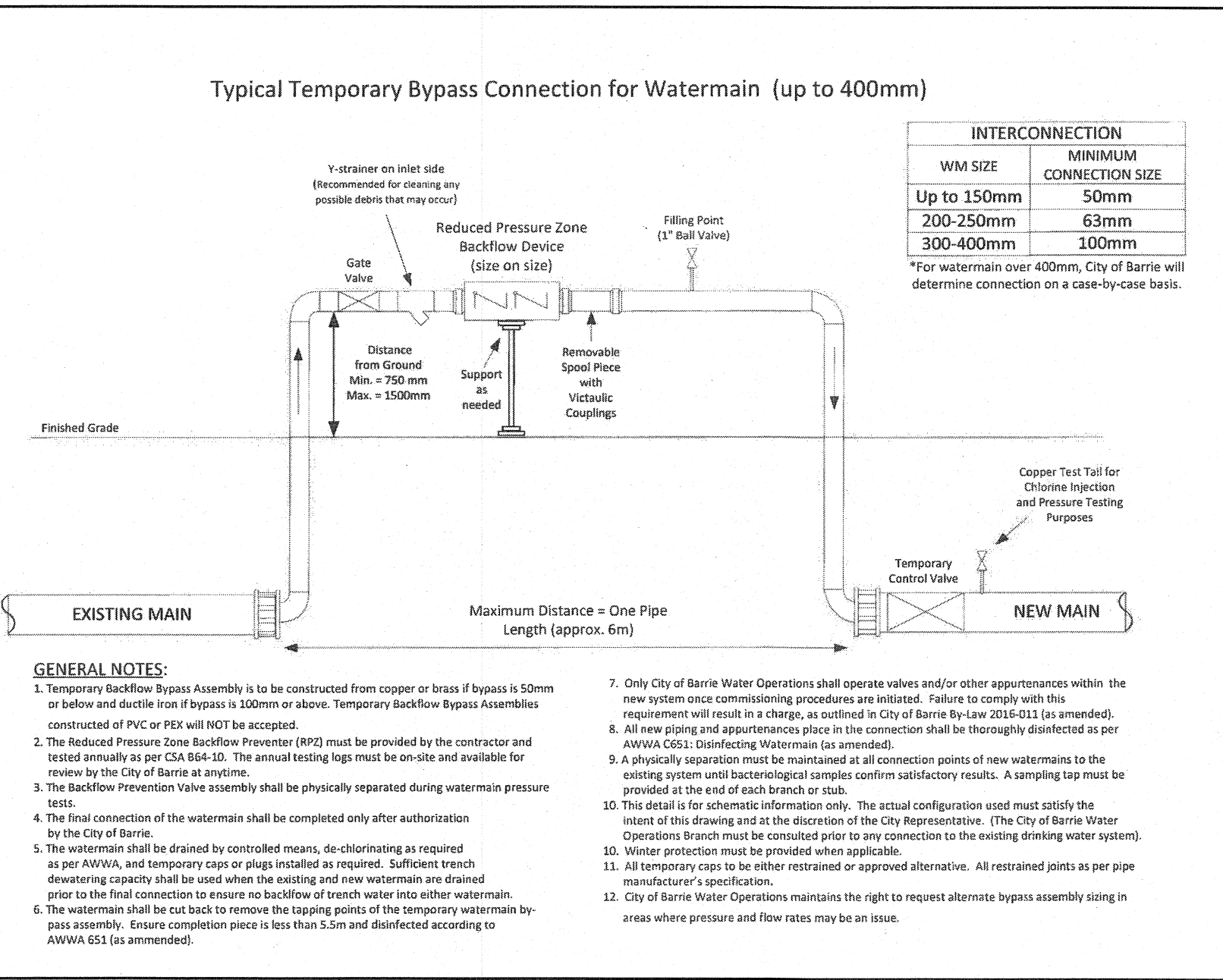
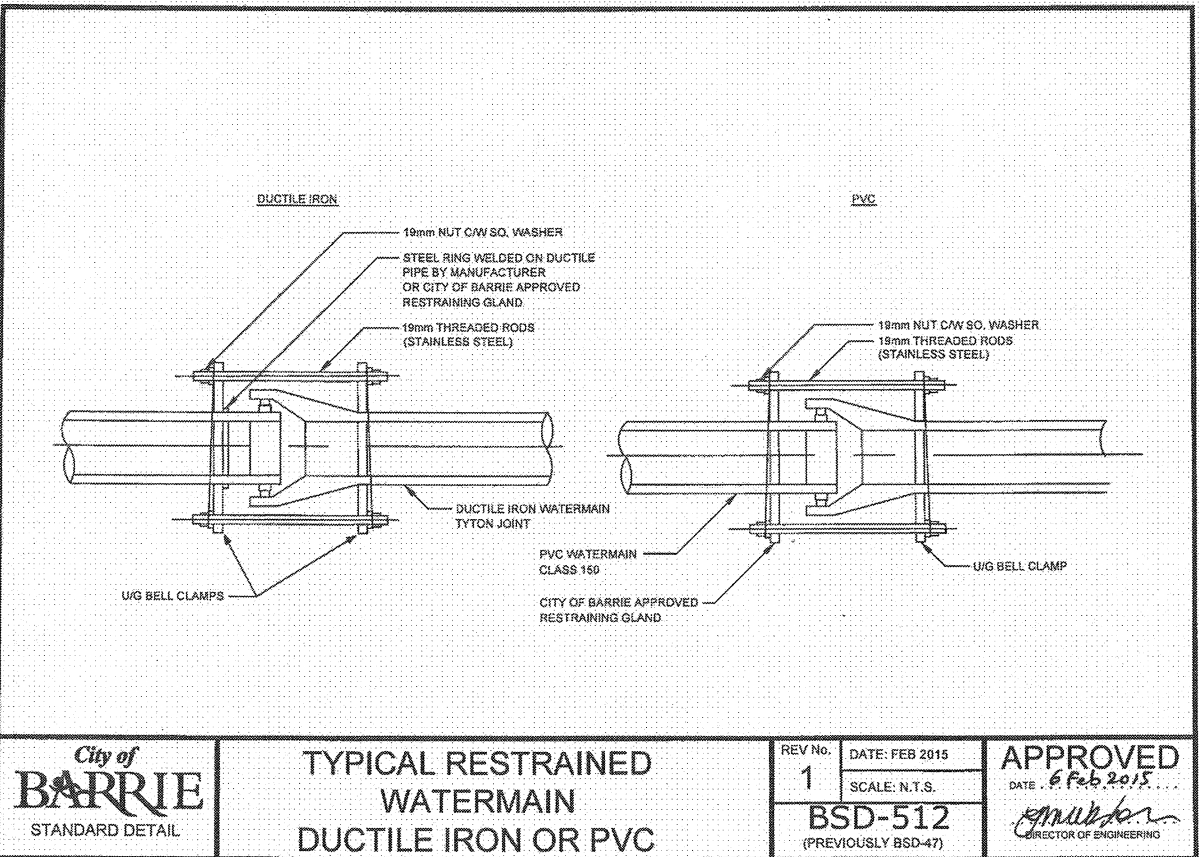
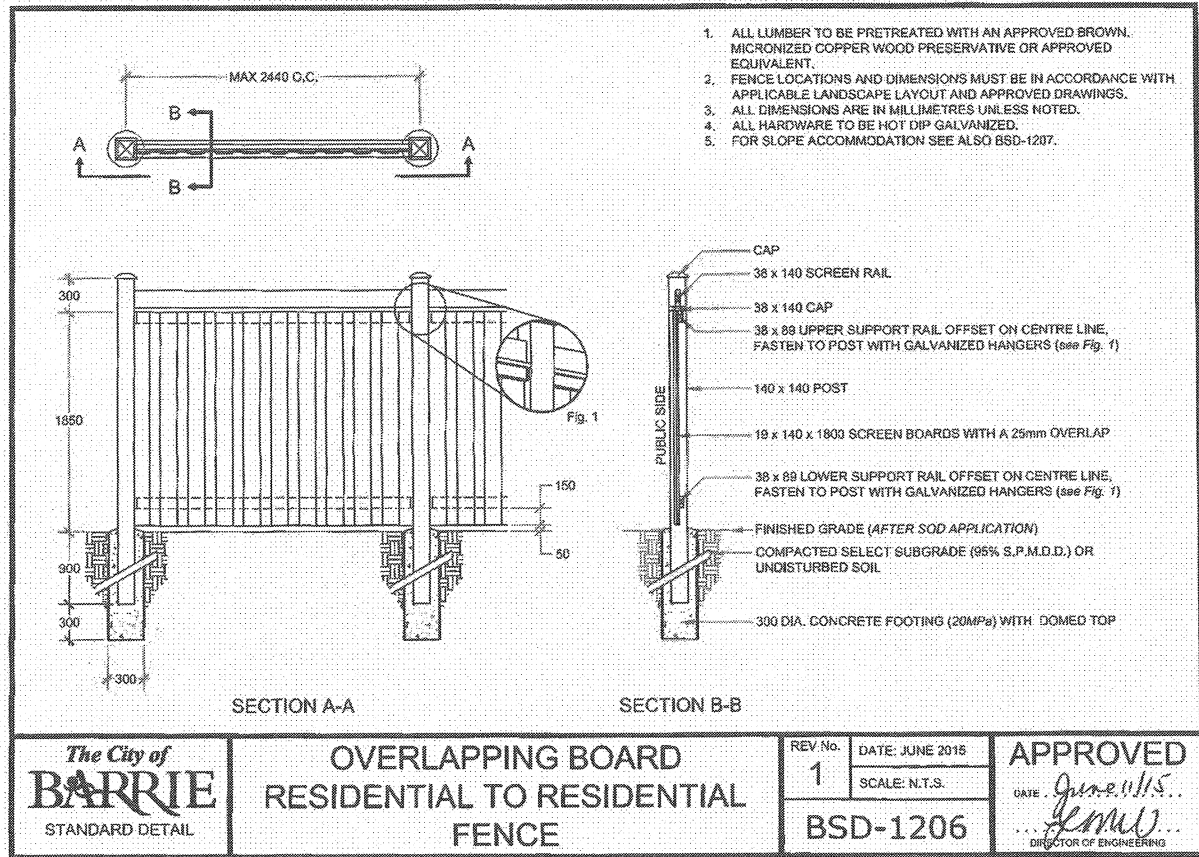
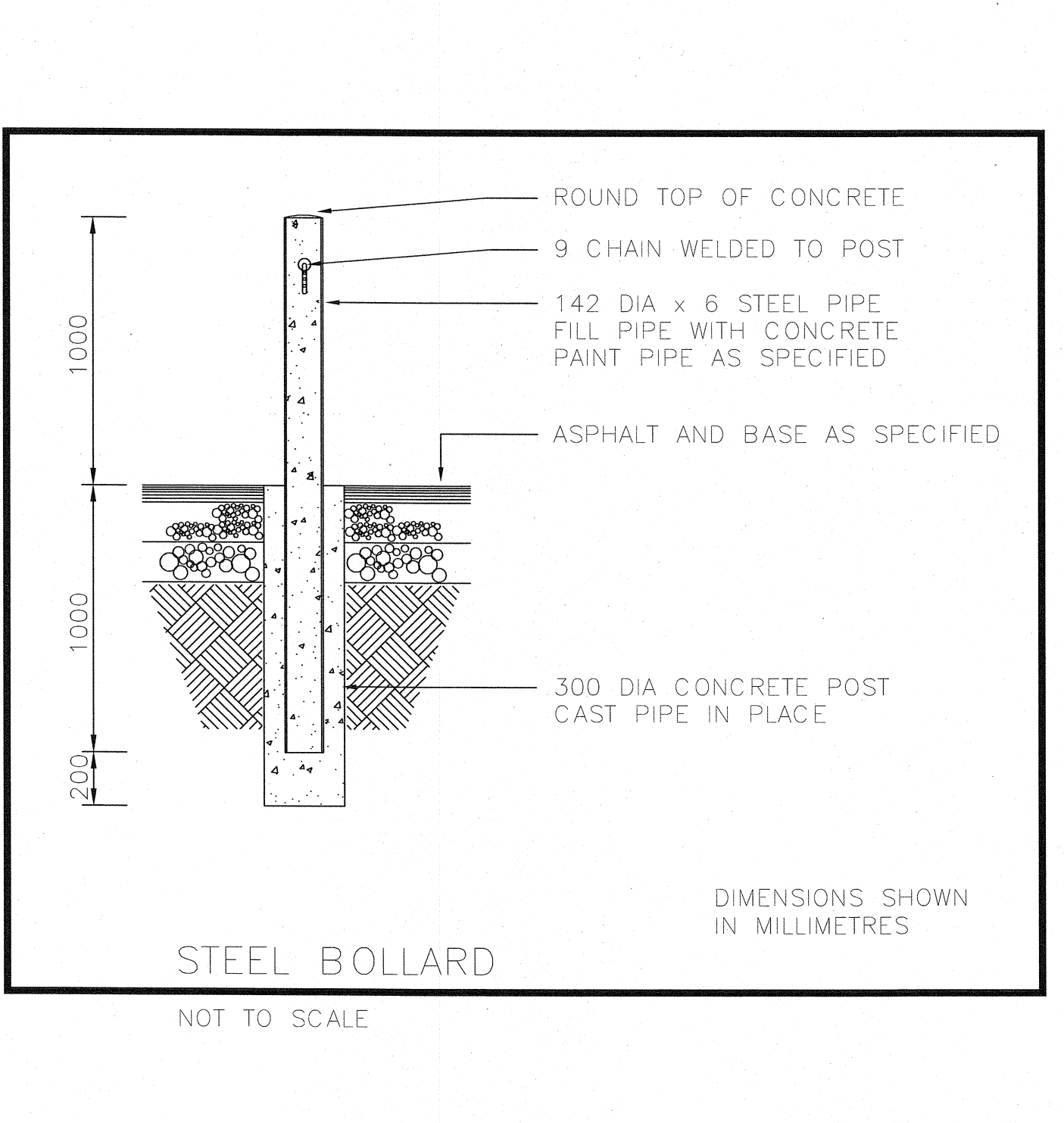
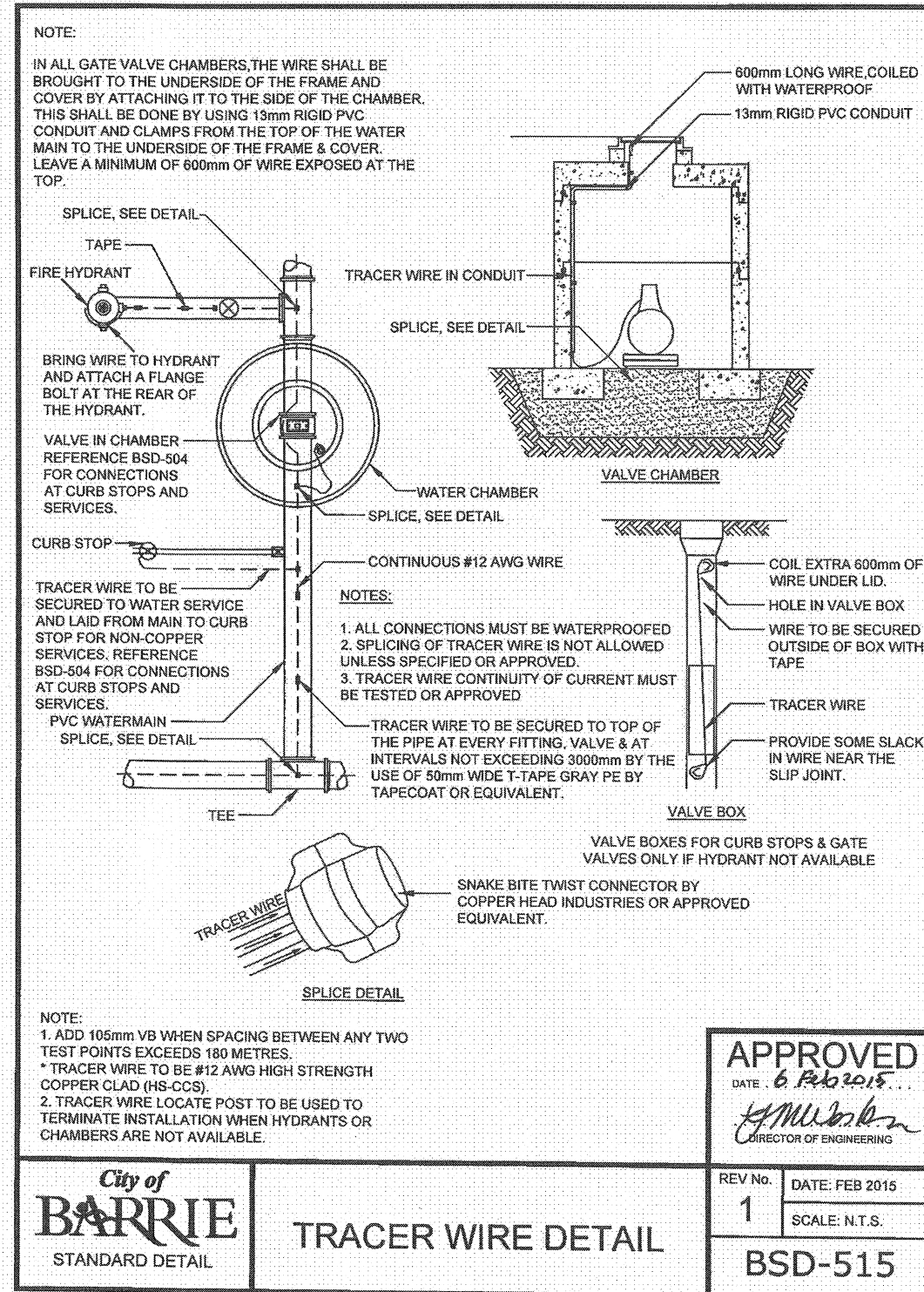
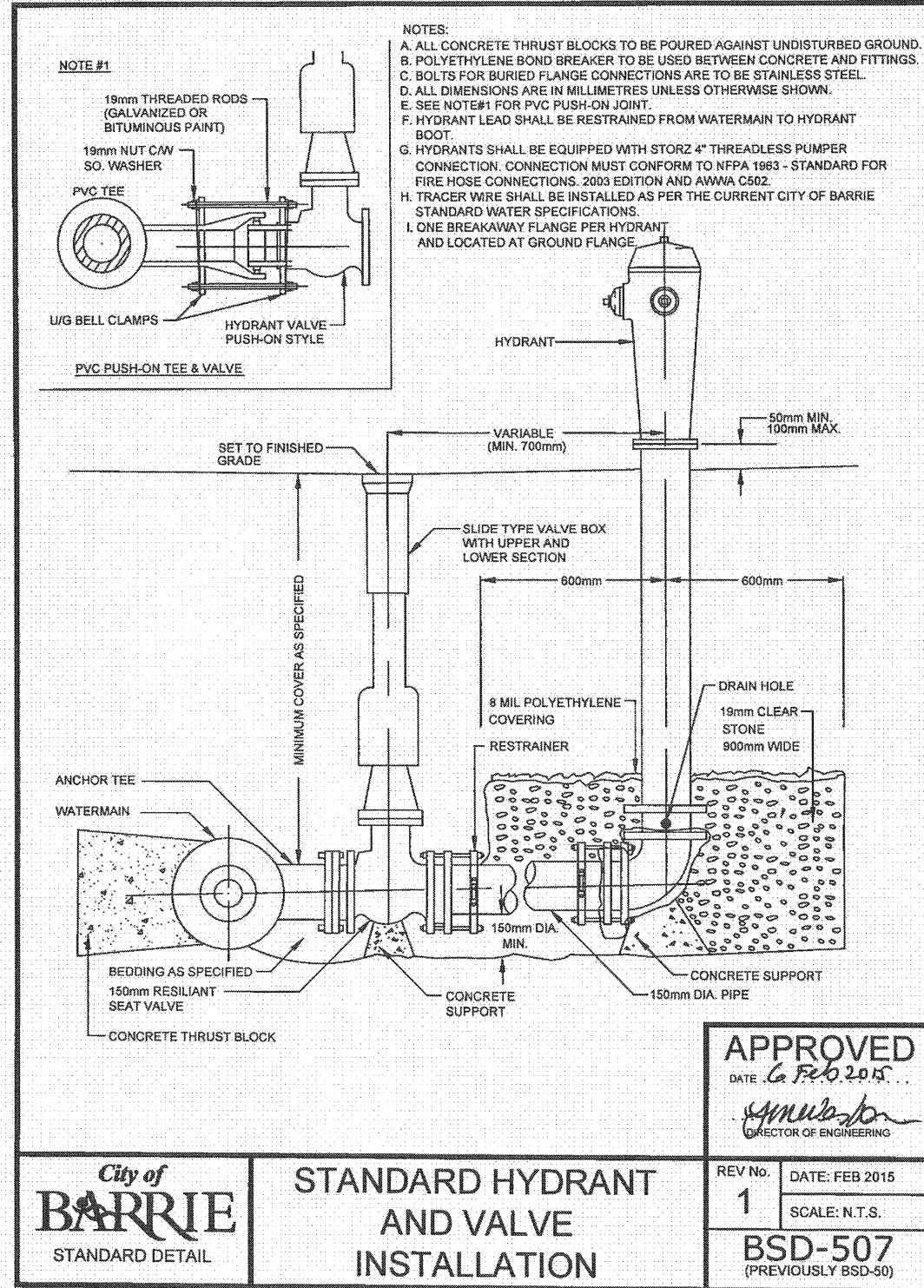
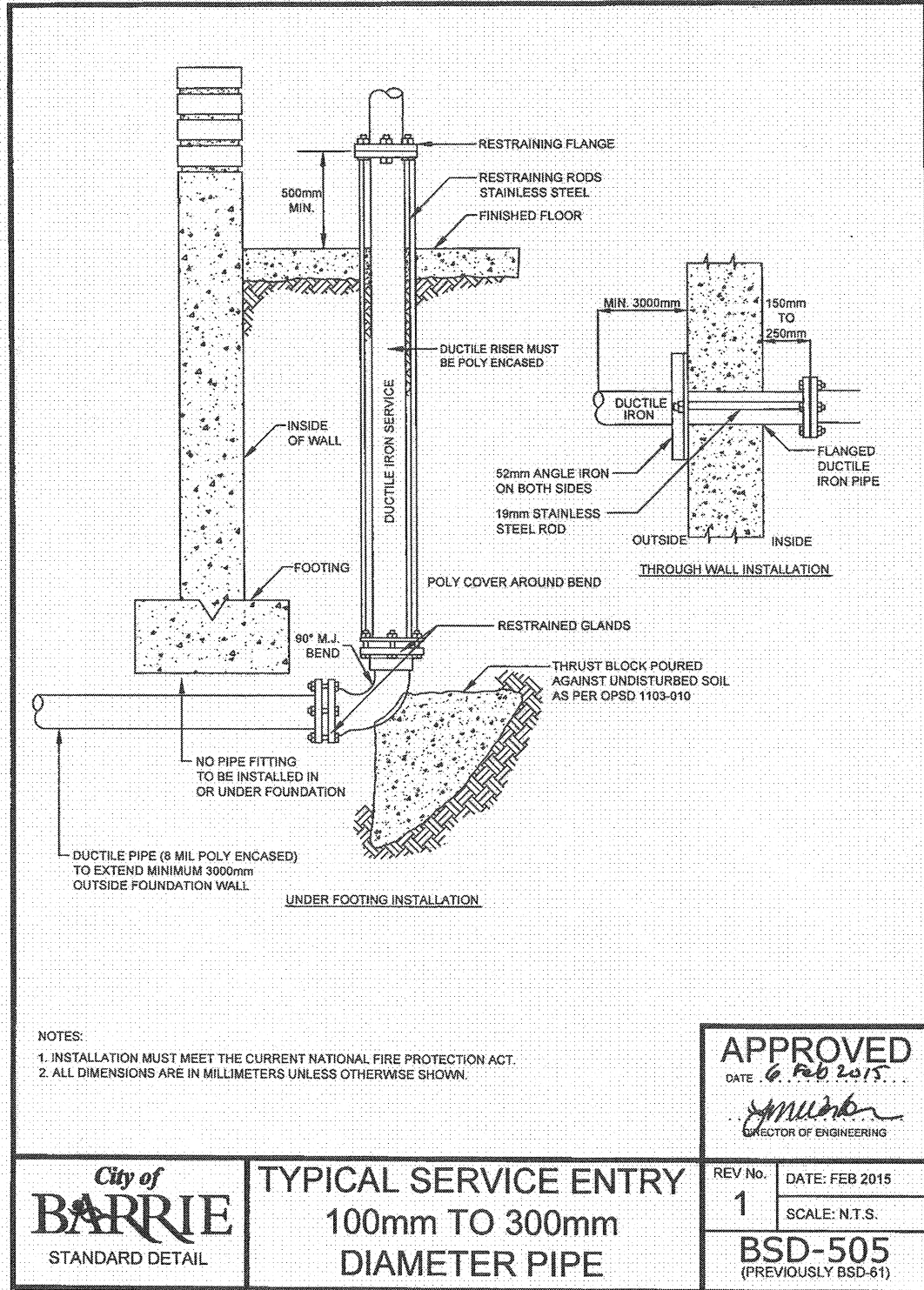
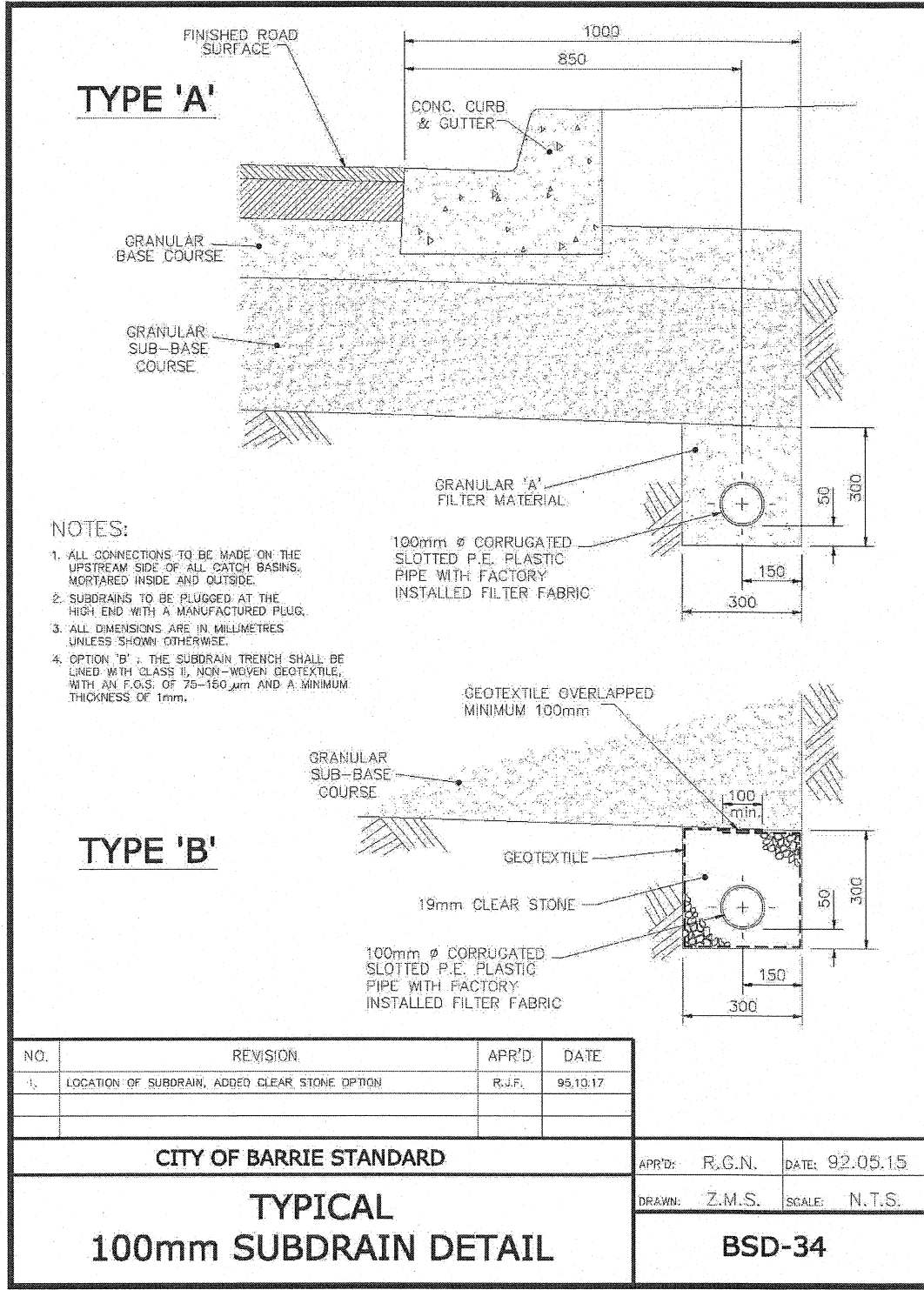
BENCHMARK:
HORIZONTAL MONUMENT #03120040002
THE HORIZONTAL MONUMENT IS LOCATED AT THE END OF THE NORTH CURB
LINE OF SUNNDALE ROAD AT THE CITY LIMITS AND IS APPROXIMATELY 200m
WEST OF THE INTERSECTION OF SUNNDALE ROAD AND LIVINGSTONE STREET
WEST. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER
MONUMENT CAP
N 4917972.231, E 286334.186
HORIZONTAL MONUMENT #0101980480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF
BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL
OF SPEEDY AUTO GLASS
N 4919812.979, E 287652.204

NO.	REVISIONS	DATE	INITIAL
3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI



FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

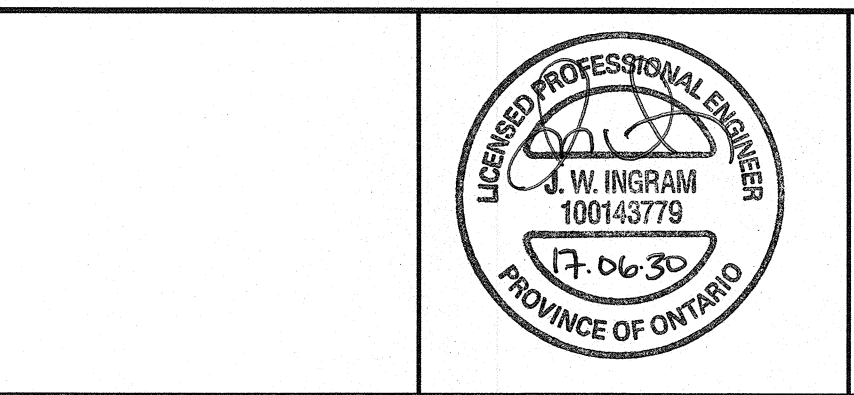
DESIGN	JT	SCALE	N.T.S.	DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT	HAS-14190	DWG. NO.	DWG. NO.
CHECKED	JWI	HAS-14190		DET-1	DET-1



BENCHMARK:
VERTICAL MONUMENT #03120080033
LOCATED AT EAST BAYFIELD COMMUNITY CENTRE APPROXIMATELY 31m WEST OF LIVINGSTONE STREET EAST AND APPROXIMATELY 36m NORTH OF STANLEY STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER THE MONUMENT.
ELEV 277.888
VERTICAL MONUMENT #03120030005
BARRIE SPORTS DOME - 99 HANMER STREET, EAST THE VERTICAL CONTROL MONUMENT IS SET FLUSH IN THE EAST FACE OF THE CULVERT HEADWALL. THE CULVERT HEADWALL IS LOCATED ON THE SOUTH SIDE OF HANMER ST. EAST IN DRAINAGE CHANNEL MIDWAY BETWEEN STANLEY ST. AND PALMER DR. ON THE WEST SIDE OF THE BARRIE SPORTS DOME. NOTE: TABLET IS SET 11cm BELOW TOP OF HEADWALL AND 28cm SOUTH OF THE NORTH-EAST CORNER OF HEADWALL.
ELEV 269.220

BENCHMARK:
HORIZONTAL MONUMENT #03120040002
LOCATED AT THE END OF THE NORTH CURB LINE OF SUNNIDALE ROAD AT THE CITY LIMITS AND IS APPROXIMATELY 20m WEST OF THE INTERSECTION OF SUNNIDALE ROAD AND LIVINGSTONE STREET. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP.
N 4917972.231, E 286334.186
HORIZONTAL MONUMENT #01019860480
THE HORIZONTAL MONUMENT IS LOCATED ON THE WESTERLY SIDE OF BAYFIELD STREET ON A LINE PRODUCED WESTERLY FROM THE NORTH WALL OF SPEEDY AUTO GLASS.
N 4919812.979, E 287652.204

NO.	REVISIONS	DATE	INITIAL
3.	THIRD SUBMISSION	JUNE 2017	JWI
2.	SECOND SUBMISSION	MARCH 2017	JWI
1.	FIRST SUBMISSION	OCT 2016	JWI



FERNBROOK DEVELOPMENT INC.
30 HANMER STREET WEST

STANDARD DETAILS

		JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS		229 Mapleview Dr. E. Unit 1 Barrie, ON L4N 0W5 P. 705.734.2538 F. 705.734.1058	
DESIGN	JT	SCALE: N.T.S.		DATE	SEPTEMBER 2016
DRAWN	JT	PROJECT		DWG. NO	
CHECKED	JWI	HAS-14190		DET-2	