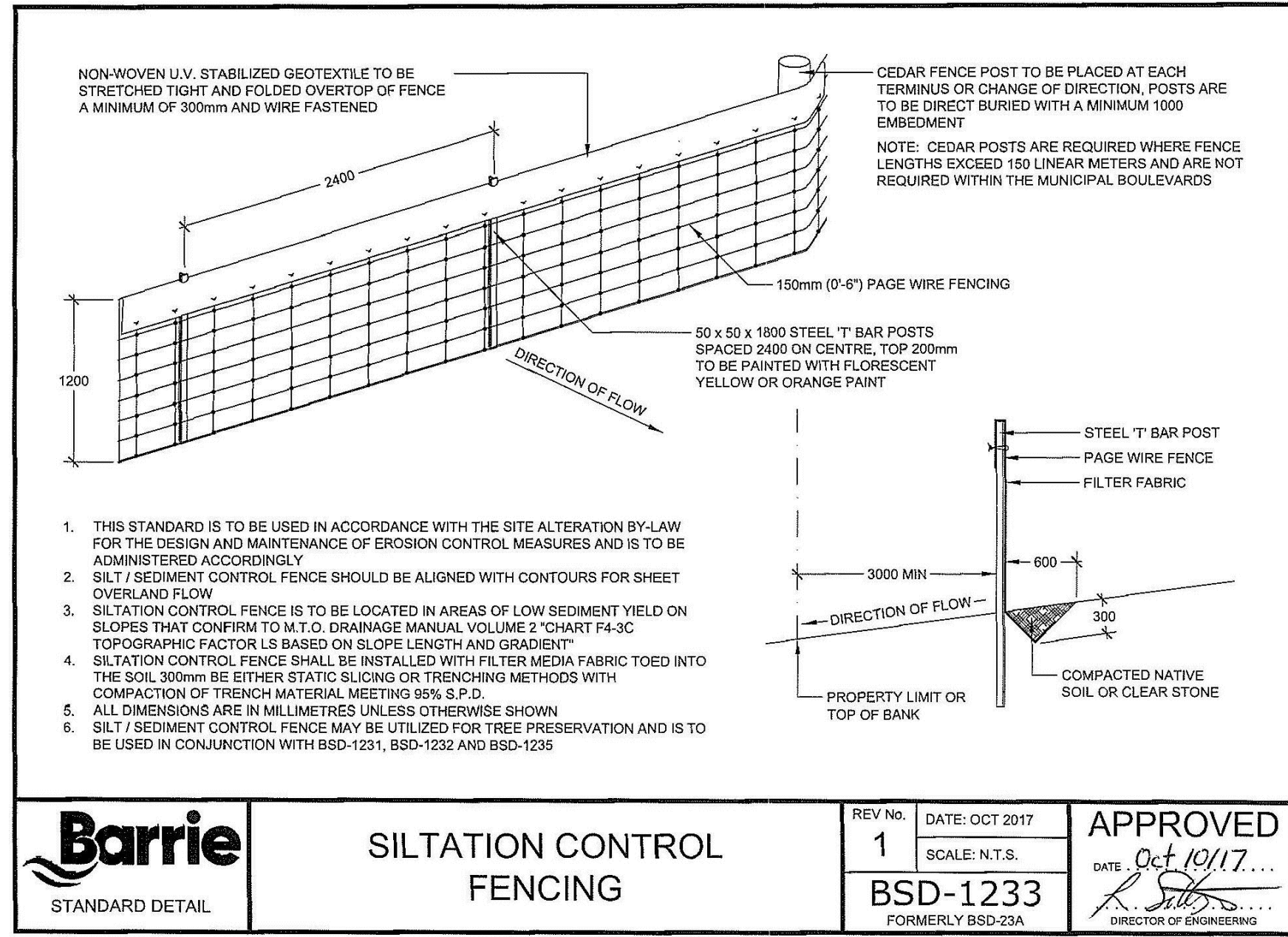
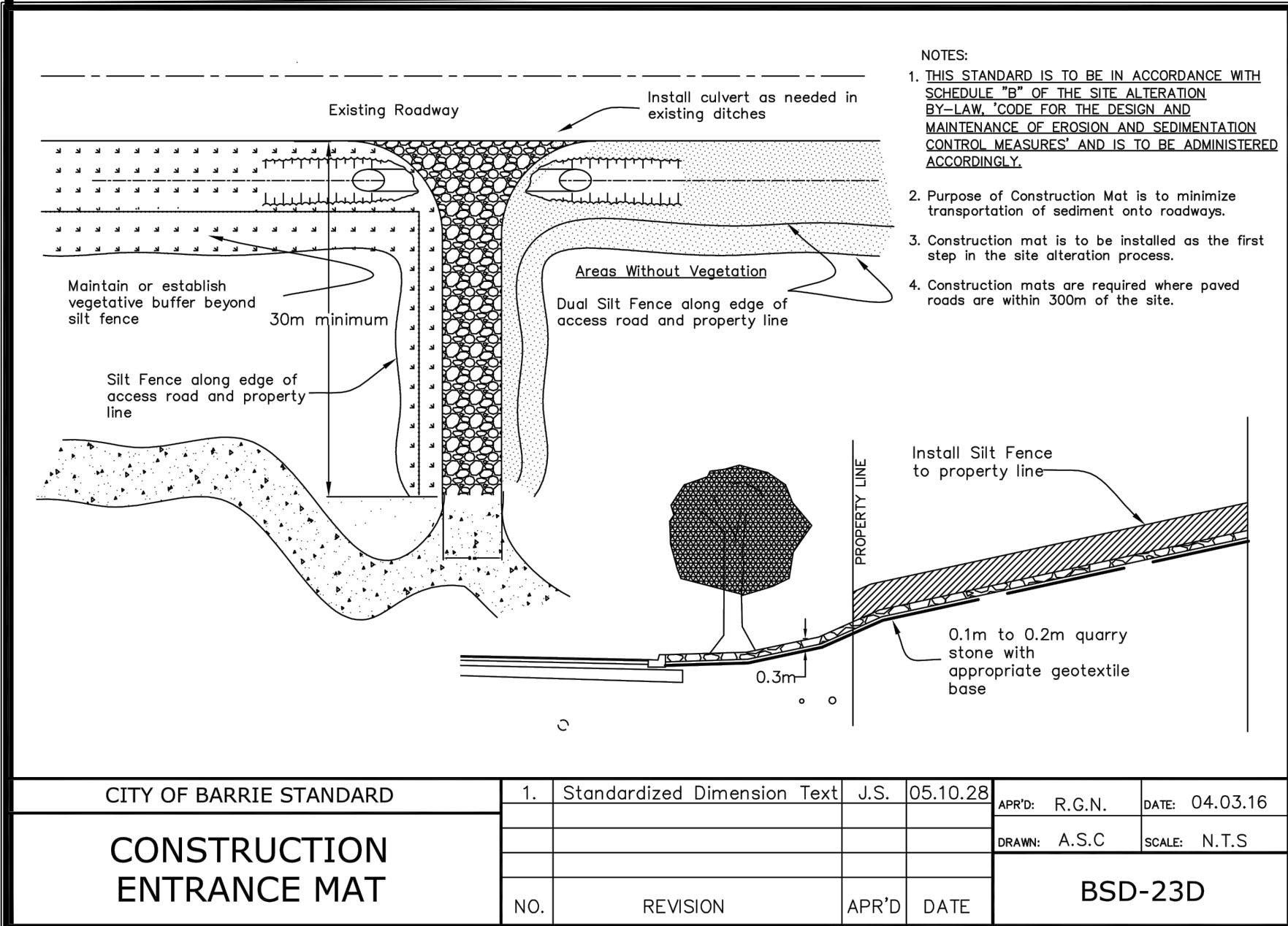
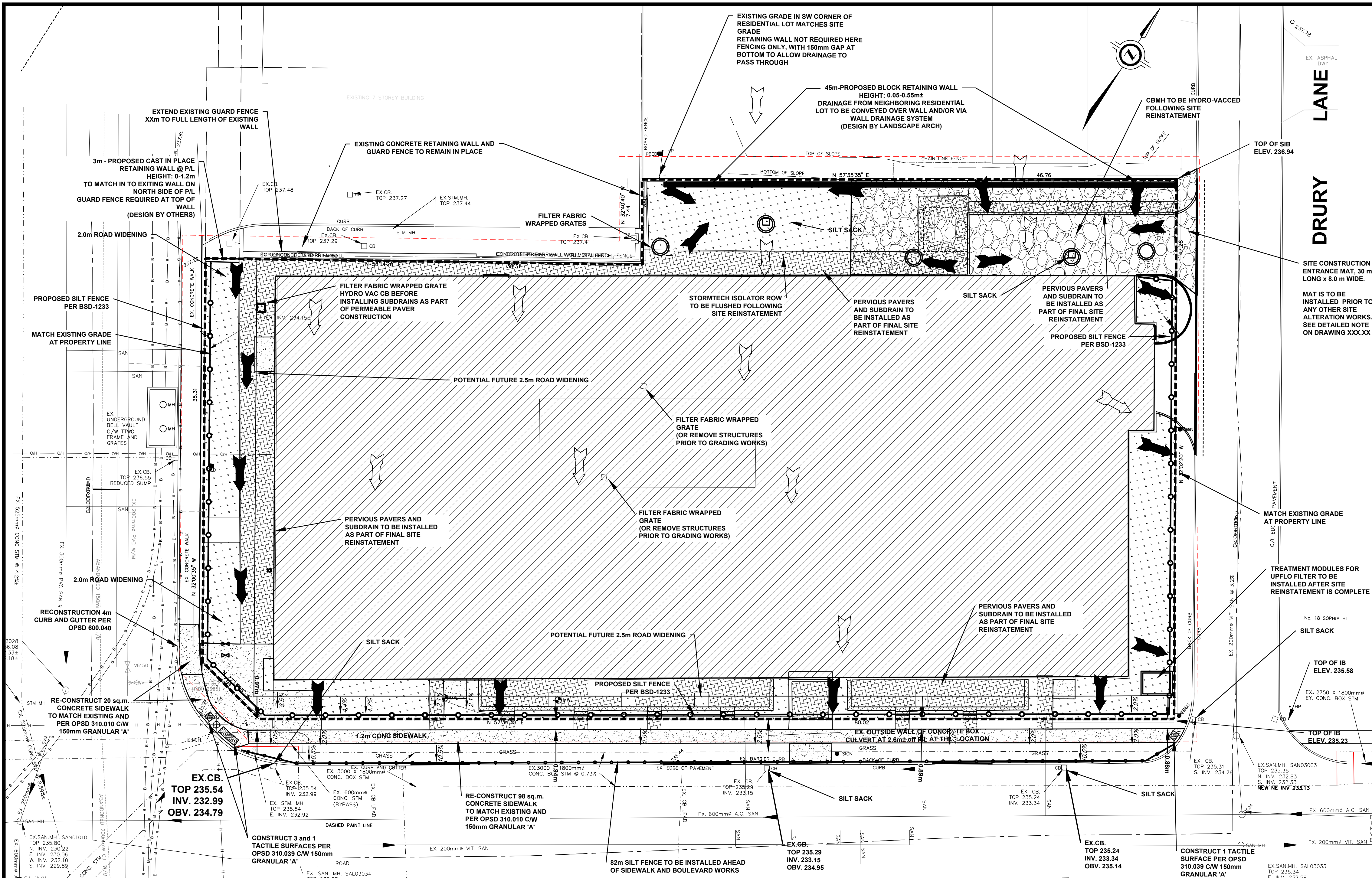
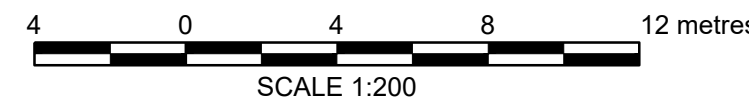




PART OF LOTS 9, 10 AND 11 REGISTERED PLAN 31 CITY OF BARRIE COUNTY OF SIMCOE



EROSION AND SILTATION CONTROLS

THE CONTRACTOR SHALL:

1. BE RESPONSIBLE FOR ALL SILT CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
2. BE RESPONSIBLE FOR THE CONTROL OF ON-SITE SURFACE AND GROUNDWATER AT ALL TIMES.
3. PROMPTLY MAINTAIN, REPAIR, AND/OR REPLACE ALL EROSION AND SILTATION CONTROLS, AS WELL AS REMOVE AND DISPOSE OF ALL ACCUMULATED SEDIMENTS AS NECESSARY.
4. PROMPTLY REMOVE ALL MUD AND DEBRIS FROM THE CONSTRUCTION ACCESS MAT AND ALL ROADS, AS NECESSARY. REMOVAL METHOD SHALL INCLUDE FLUSHING AND SWEEPING.
5. CONSTRUCTION AREAS THAT EXCEED 30 DAYS OF INACTIVITY SHALL BE STABILIZED BY SEEDING. THIS SHALL INCLUDE STOCKPILES OF FILL AND TOPSOIL.
6. BE RESPONSIBLE FOR IMPLEMENTATION AND ADHERENCE TO THE STAGING PLAN, AS SHOWN ON THIS DRAWING.
7. NOT ALLOW EFFLUENT FROM SITE DEWATERING OPERATIONS TO DISCHARGE DIRECTLY INTO RECEIVING BODIES OF WATER OR STREAMS.
8. MAINTAIN ALL ROADS AFFECTED BY CONSTRUCTION FREE OF SEDIMENT BY SWEEPING AS NECESSARY OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR TOWNSHIP.
9. IMPLEMENT APPROPRIATE DUST CONTROL MEASURES TO PREVENT EXCESSIVE DUST ON SITE OR MIGRATION OF DUST TO ADJACENT PROPERTIES.
10. MAINTAIN ON-SITE AT ALL TIMES AT LEAST 50m OF ADDITIONAL FENCING AND SUPPORTS TO BE ABLE TO CONDUCT EMERGENCY REPAIRS OF PERIMETER SILTATION FENCE.

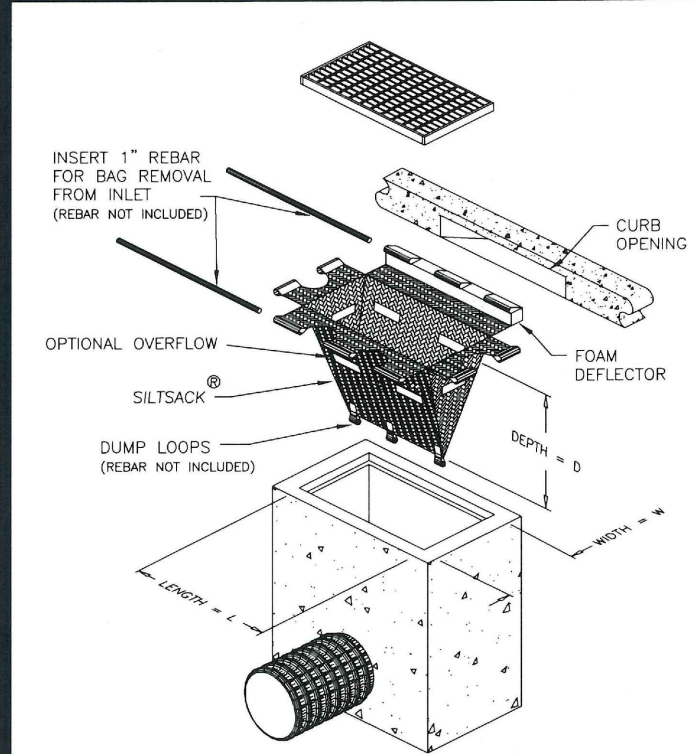
THE ENGINEER MAY, AT HIS DISCRETION, DIRECT THE CONTRACTOR TO MAINTAIN, REPAIR, REPLACE, AND/OR UPGRADE ANY AND ALL EROSION AND SILTATION CONTROL MEASURES.

THE ENGINEER MAY, AT HIS DISCRETION DIRECT THE CONTRACTOR TO SWEEP ADJACENT ROADS THAT ARE ADVERSELY IMPACTED BY CONSTRUCTION TRAFFIC.

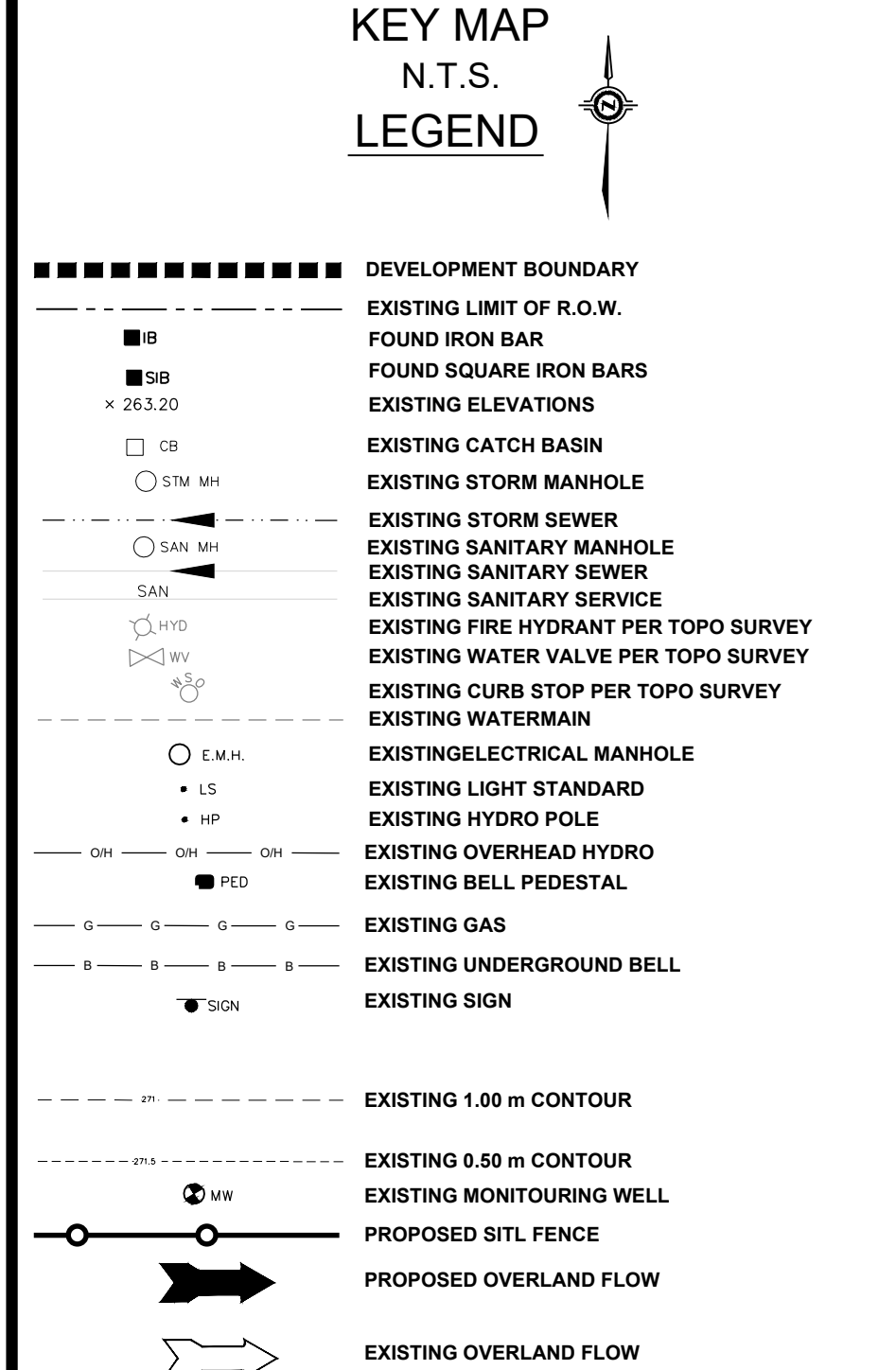
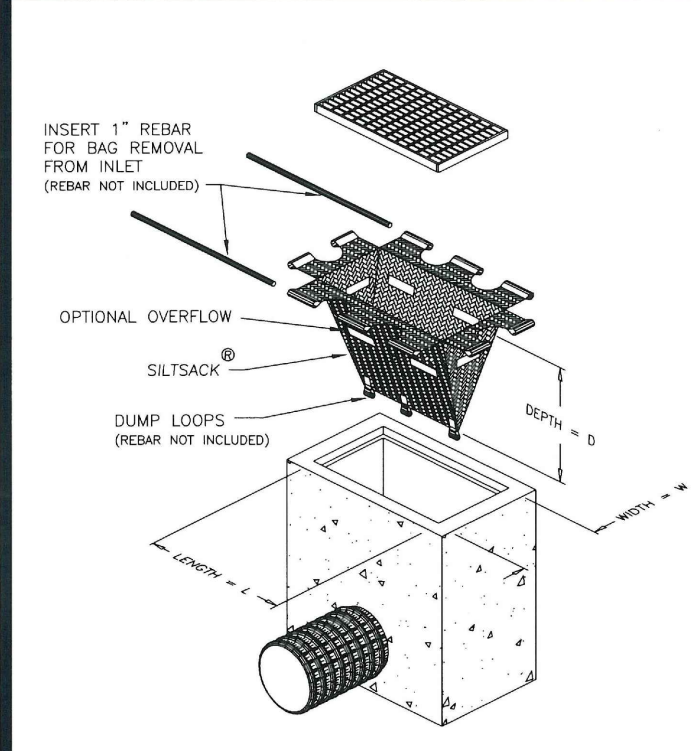
THE ENGINEER SHALL DETERMINE WHEN THE SITE IS SUFFICIENTLY STABLE AND EROSION AND SILTATION CONTROLS ARE NO LONGER REQUIRED.

ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER.

Typical Siltsack® Construction - Type A

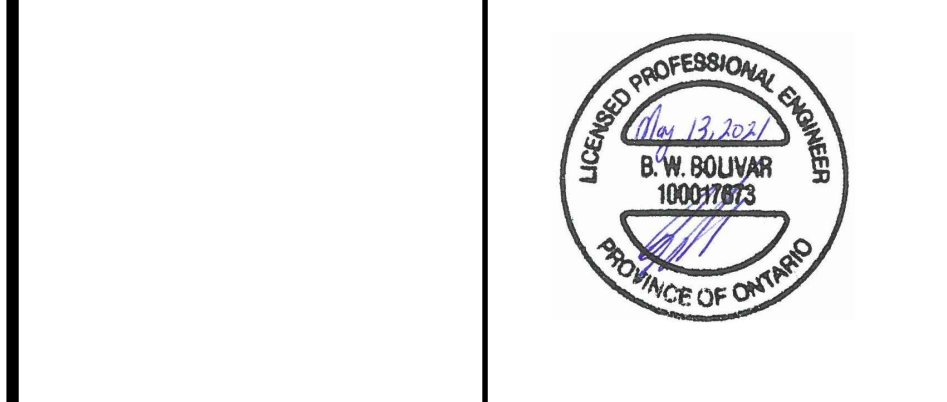


Typical Siltsack® Construction - Type B



SCHEDULE OF REVISIONS

NO.	DATE	DESCRIPTION	CHECKED
1.	2020 11 16	ISSUED FOR SITE PLAN APPROVAL	BWB
2.	2021 02 25	RE-ISSUED FOR SITE PLAN APPROVAL	BWB
3.	2021 05 13	SWM REVISIONS	BWB



CORAL SOPHIA HOUSING 115 BAYFIELD ST. BARRIE, ONTARIO COUNTY OF SIMCOE

SEDIMENT AND EROSION CONTROL PLAN

PROJECT NO. 17-3103	DRWG NO. 3103-SCP
DATE APRIL 2020	SCALE: 1:200 HOR.
DRAWN: BDD/BWB	CHECKED: APPROVED:

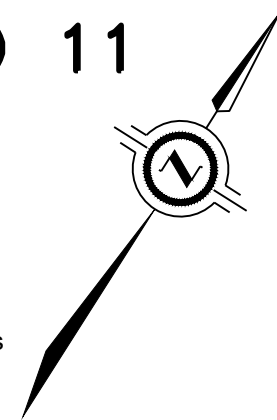


93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca

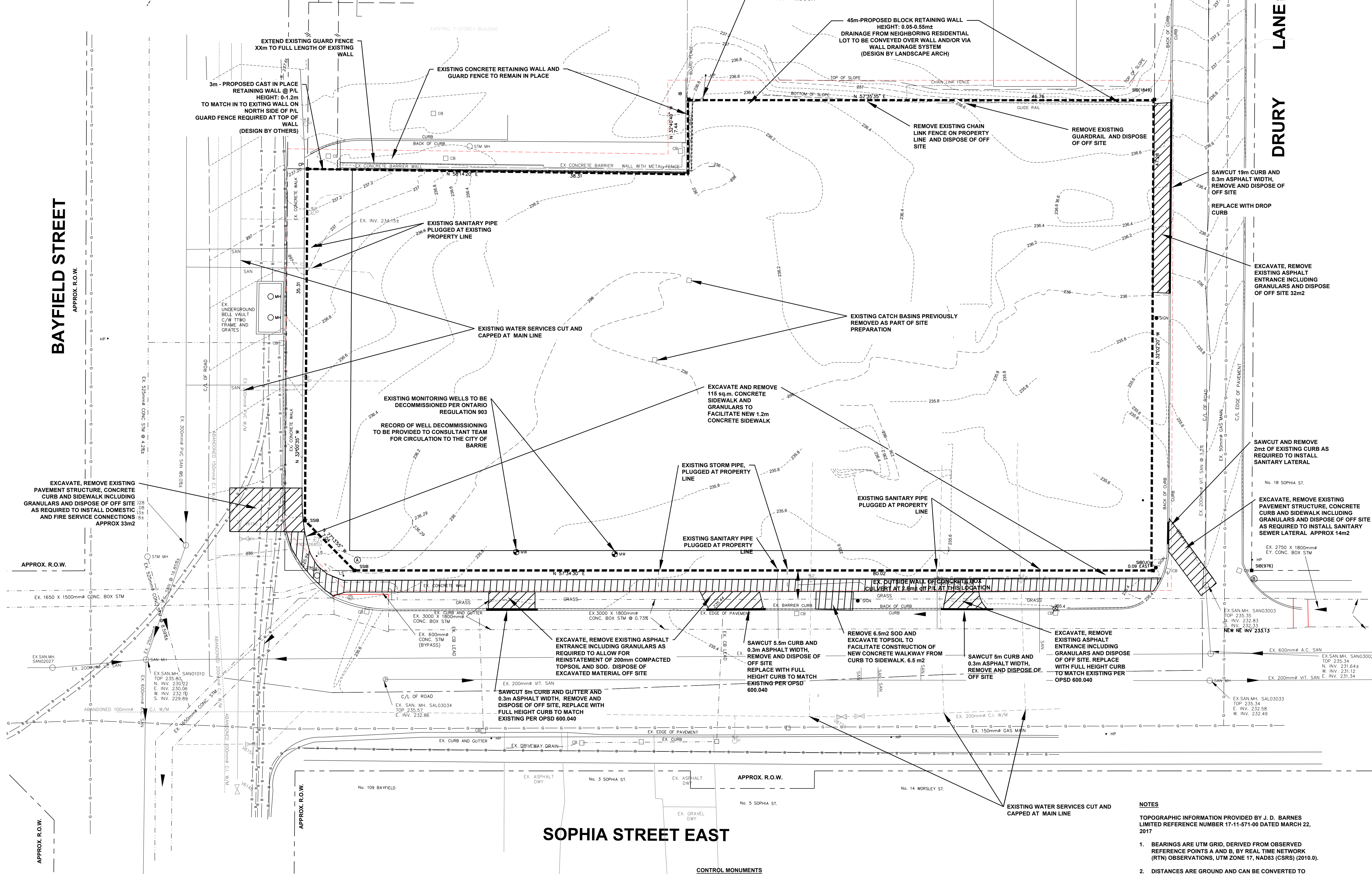
TELEPHONE (705) 726-1141
FAX (705) 726-0331
TOLL FREE (877) 726-1141

PART OF LOTS 9, 10 AND 11
REGISTERED PLAN 31
CITY OF BARRIE
COUNTY OF SIMCOE

4 0 4 8 12 metres
SCALE 1:200



3103 - REM



KEY MAP
N.T.S.
LEGEND

SYMBOL	DESCRIPTION
-----	DEVELOPMENT BOUNDARY
■	EXISTING LIMIT OF R.O.W.
■	FOUND IRON BAR
■	FOUND SQUARE IRON BARS
○	EXISTING CATCH BASIN
○	EXISTING STORM MANHOLE
○	EXISTING STORM SEWER
○	EXISTING SANITARY MANHOLE
○	EXISTING SANITARY SEWER
○	EXISTING SANITARY SERVICE
○	EXISTING FIRE HYDRANT PER TOPO SURVEY
○	EXISTING WATER VALVE PER TOPO SURVEY
○	EXISTING CURB STOP PER TOPO SURVEY
○	EXISTING WATERMAIN
○	EXISTING ELECTRICAL MANHOLE
○	EXISTING LIGHT STANDARD
○	EXISTING HYDRO POLE
○	EXISTING OVERHEAD HYDRO
○	EXISTING BELL PEDESTAL
○	EXISTING GAS
○	EXISTING UNDERGROUND BELL
○	EXISTING SIGN
○	PROP. SANITARY MANHOLE
○	PROP. SANITARY SEWER
○	PROP. STORM SEWER
○	PROP. STORM MANHOLE
○	PROP. CATCH BASIN MANHOLE
○	PROP. SUBDRAIN
○	PROPOSED PERMEABLE PAVING WITH UNDERDRAIN

SCHEDULE OF REVISIONS

NO.	DATE	DESCRIPTION	CHECKED
1	2020 11 16	ISSUED FOR SITE PLAN APPROVAL	BWB
2	2021 02 25	RE-ISSUED FOR SITE PLAN APPROVAL	BWB
3	2021 05 13	SWM REVISIONS	BWB



CORAL SOPHIA HOUSING
115 BAYFIELD ST.
BARRIE, ONTARIO
COUNTY OF SIMCOE

REMOVALS PLAN

PROJECT NO. 17-3103	DRWG NO. 3103-REM
DATE: APRIL 2020	SCALE: 1:200 HOR.
DRAWN: BDD/BWB	CHECKED: APPROVED:



93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca
TELEPHONE (705) 726-1141
FAX (705) 726-0331
TOLL FREE (877) 726-1141

NOTES

- TOPOGRAPHIC INFORMATION PROVIDED BY J. D. BARNES LIMITED REFERENCE NUMBER 17-11-571-00 DATED MARCH 22, 2017
- BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).
- DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999702.
- ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK NO. 03120080022 HAVING A PUBLISHED ELEVATION OF 222.437 METRES.

UNDERGROUND SERVICES AND UTILITIES LOCATION AND ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND COMPILED FROM COUNTY OF SIMCOE DRAWING NUMBER 2002-02 SHEET PP7, SHEET PP2 AND CONTRACT NUMBER 71-31 DRAWING NO. 71-41.

TOPOGRAPHIC CONTOURS BY SKELTON BRUMWELL UTILIZING TOPOGRAPHIC INFORMATION BY J. D. BARNES LIMITED AS NOTED ABOVE.

CONTROL MONUMENTS

HORIZONTAL CONTROL MONUMENT

THE HORIZONTAL MONUMENT 01019860463

THE HORIZONTAL MONUMENT IS LOCATED IN PAVED DRIVEWAY UNDER WATER VALVE COVER ON THE WEST SIDE OF MULCASTER STREET IMMEDIATELY NORTH OF #108 MULCASTER STREET.

NORTHING (SECOND ORDER): 4916487.811
EASTING (SECOND ORDER): 604671.996

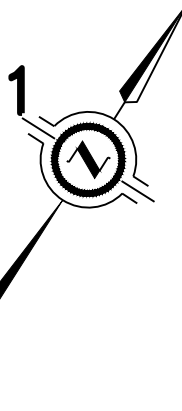
COMBINED CONTROL MONUMENTS

THE HORIZONTAL MONUMENT 03120080022

LOCATED ON THE SE CORNER OF INNISFIL STREET AND VESPERA STREET APPROXIMATELY 18.5M FROM CENTERLINE OF INNISFIL STREET AND APPROXIMATELY 13M FROM CENTERLINE OF VESPERA STREET.

NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP.

NORTHING (SECOND ORDER): 4915161.491
EASTING (SECOND ORDER): 603225.428
VERTICAL (SECOND ORDER): 222.437

PART OF LOTS 9, 10 AND 11
REGISTERED PLAN 31
CITY OF BARRIE
COUNTY OF SIMCOE4 0 4 8 12 metres
SCALE 1:200BAYFIELD STREET
APPROX. R.O.W.

DRURY LANE

SOPHIA STREET EAST

SITE

KEY MAP
N.T.S.
LEGEND

DEVELOPMENT BOUNDARY	EXISTING LIMIT OF R.O.W.
■ SB	FOUND SQUARE IRON BARS
□ SB	FOUND SQUARE IRON BARS
○ CB	EXISTING ELEVATIONS
○ STM MH	EXISTING CATCH BASIN
○ SAN MH	EXISTING STORM MANHOLE
○ SAN SAN	EXISTING STORM SEWER
○ HYD	EXISTING SANITARY MANHOLE
○ VV	EXISTING SANITARY SEWER
○ E.M.H.	EXISTING FIRE HYDRANT PER TOPO SURVEY
○ LS	EXISTING WATER VALVE PER TOPO SURVEY
○ HP	EXISTING CURB STOP PER TOPO SURVEY
○ PED	EXISTING WATERMAIN
○ SIGN	EXISTING ELECTRICAL MANHOLE
○ M.W.	EXISTING LIGHT STANDARD
○ OH	EXISTING HYDRO POLE
○ OH	EXISTING OVERHEAD HYDRO
○ OH	EXISTING BELL PEDESTAL
○ OH	EXISTING SIGN
○ OH	EXISTING 1.00 m CONTOUR
○ OH	EXISTING 0.50 m CONTOUR
○ OH	EXISTING MONITORING WELL
○ OH	PROP. SPOT ELEVATION
○ OH	PROP. TOP OF CURB SPOT ELEVATION
○ OH	PROP. TOP OF WALL SPOT ELEVATION
○ OH	PROP. BOTTOM OF WALL SPOT ELEVATION
○ OH	PROPOSED GRADE
○ OH	PROPOSED TREES AND/OR SHRUBS
○ OH	PROPOSED VEGETATED SURFACE
○ OH	PROPOSED PERMEABLE PAVING WITH UNDERDRAIN

SCHEDULE OF REVISIONS

NO.	DATE	DESCRIPTION	CHECKED
1.	MARCH 20, 2020	ISSUED FOR PRE-CONSULTATION	BWB
2.	APRIL 2020	SUBMISSION FOR REZONING	BWB
3.	2020 11 16	ISSUED FOR SITE PLAN APPROVAL	BWB
4.	2021 02 25	RE-ISSUED FOR SITE PLAN APPROVAL	BWB
5.	2021 05 13	SWM REVISIONS	BWB

CORAL SOPHIA HOUSING
115 BAYFIELD ST.
BARRIE, ONTARIO
COUNTY OF SIMCOE

SITE GRADING PLAN

PROJECT NO. 17-3103	DRWG NO. 3103-GP1
DATE: APRIL 2020	SCALE: 1:200 HOR.
DRAWN: BDD/BWB	CHECKED: APPROVED:

SBA Skelton Brumwell & Associates Inc.
ENGINEERING PLANNING ENVIRONMENTAL CONSULTANTS93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca
TELEPHONE (705) 726-1141
FAX (705) 726-0311
TOLL FREE (877) 726-1141

NOTES

TOPOGRAPHIC INFORMATION PROVIDED BY J. D. BARNES
LIMITED REFERENCE NUMBER 17-11-571-00 DATED MARCH 22, 2017

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NORTHING (SECOND ORDER): 4916487.811
EASTING (SECOND ORDER): 604671.596

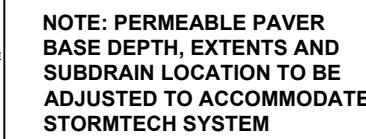
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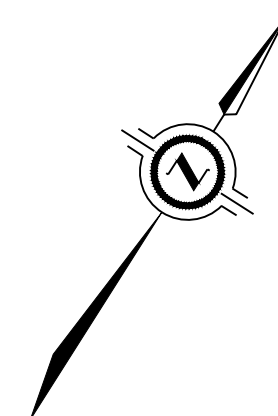
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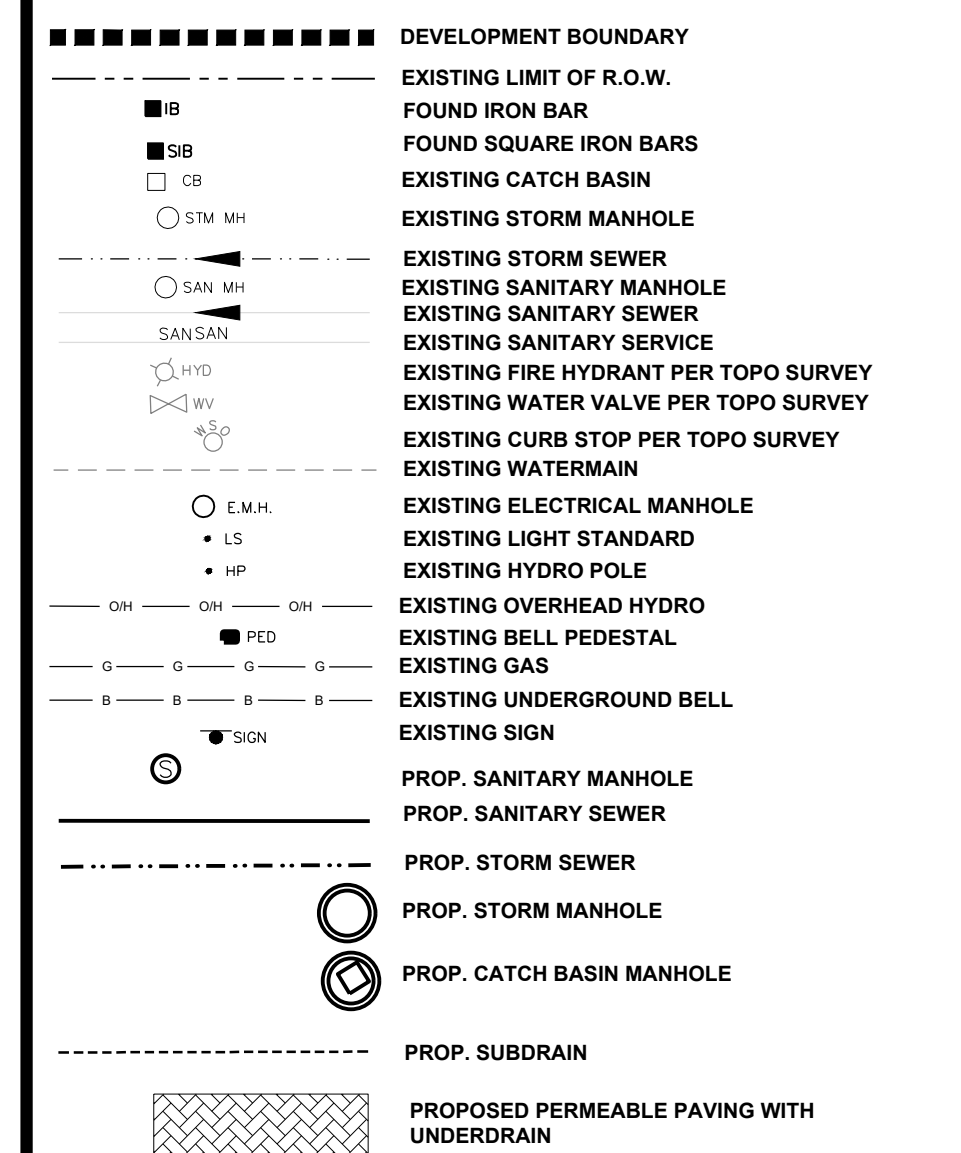
BAYFIELD STREET

4 0 4 8 12 metres

SCALE 1:200



LEGEND



SCHEDULE OF REVISIONS			
NO.	DATE	DESCRIPTION	CHECKED
1.	MARCH 20, 2020	ISSUED FOR PRE-CONSULTATION	BWB
2.	APRIL 2020	PRE-DEVELOPMENT SUBMISSION	BWB
3.	2020 11 16	ISSUED FOR SITE PLAN APPROVAL	BWB
4.	2021 02 25	RE-ISSUED FOR SITE PLAN APPROVAL	BWB
5.	2021 05 13	SWM REVISIONS	BWB



SITE SERVICING PLAN ABOVE GROUND

PROJECT NO. 17-3103		DRWG NO. 3103-SS1	
DATE APRIL 2020		SCALE: 1:200 HOR.	
DRAWN: BDD/BWB		CHECKED:	APPROVED:

SBA Skelton Brumwell
& Associates Inc.
 ENGINEERING PLANNING ENVIRONMENTAL CONSULTANTS

93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca

TELEPHONE (705) 726-1141
FAX (705) 726-0331
TOLL FREE (877) 726-1141

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 MAINS SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERT-A-TEES IN STRICT ACCORDANCE TO MANUFACTURERS GUIDELINES.

F. MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 6.0% (SEE OPSR-1006.010, 1006.020).

CITY OF BARRIE STANDARD

2. OPSD NUMBERS REVISED

1. CHANGES TO B. TO G.

NO. REVISION

K.C.

K.C.

APRD

2008.08.17

95.04.24

DATE

APPRO

DRAWN

R.G.N.

L.A.J.

DATE: 02.05.15

SCALE: N.T.S.

GENERAL NOTES

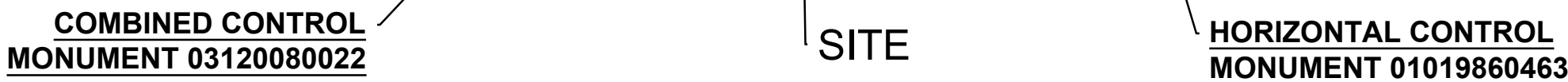
SANITARY SEWERS

BSD-N4

GENERAL NOTES - WATERMAIN

1. CONTRACTORS SHALL INFORM THE CITY OF BARRE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.
2. OPERATION OF HYDRAULIC VALVES ON THE POTABLE WATER SYSTEM (IF OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROVIDED) SHALL BE SUPervised BY CITY WATER OPERATIONS STAFF. THE CURRENT FEE IS \$4.00. THE CITY WATER OPERATIONS STAFF WILL SLOW, PRESSURE TEST, CHLORINATE AND FLUSH THE MAINS AFTER THE WORK.
3. MINOR COVER OVER WATERMAIN SHALL BE 12" IN THE WATERMAIN. THE ELEVATION BETWEEN WATERMAIN AND SLOPE SHALL BE 2.56'. WATERMAIN WATERMAIN CORRECTIONS SHALL BE COVERED BY THE CITY. THE CITY SHALL BE RESPONSIBLE FOR PROVIDING A MINIMUM OF 24" CHLORINATE AND FLUSHING THE MAINS AFTER THE WORK.
4. WATERMAIN SHALL BE INSTALLED IN BEDROCK AS PER SPECIFICATIONS. THE CITY SHALL BE RESPONSIBLE FOR PROVIDING A MINIMUM OF 24" CHLORINATE AND FLUSHING THE MAINS AFTER THE WORK.
5. WATERMAIN SHALL BE INSTALLED IN BEDROCK AS PER SPECIFICATIONS. THE CITY SHALL BE RESPONSIBLE FOR PROVIDING A MINIMUM OF 24" CHLORINATE AND FLUSHING THE MAINS AFTER THE WORK.
6. COVER WATER MAINS AND SLOPES TO 20" IN DIAMETER SHALL BE EMBEDDED IN SLAB 10"THICK ABOVE AND BELOW TO CONFORM TO SPEC 804.01 AND 804.02.
7. REPAIRING SHALL BE REQUIRED ON ALL HYDRAULIC VALVES. AS PER SPEC 104.03.01 AND 104.02. REPAIRING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONNECTIONS. REPAIRING SHALL BE REQUIRED ON ALL HYDRAULIC VALVES. AS PER SPEC 104.03.01 AND 104.02. REPAIRING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONNECTIONS.
8. NEW WATERMAIN TO BE PVC D108 20' MINIMUM. DUCTILE IRON C100 CLAS 50 PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEM USE.
9. TRACING WATER SHALL BE #12 AND HIGH STRENGTH C100 CLAS 50 PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATERMAIN AND BROUGHT UP AT EACH HYDRAULIC CONNECTION TO FLANGE BOLT. 3" OR 4" OR 5" OR 6" OR 8" OR 10" OR 12" OR 14" OR 16" OR 18" OR 20" OR 22" OR 24" OR 26" OR 28" OR 30" OR 32" OR 34" OR 36" OR 38" OR 40" OR 42" OR 44" OR 46" OR 48" OR 50" OR 52" OR 54" OR 56" OR 58" OR 60" OR 62" OR 64" OR 66" OR 68" OR 70" OR 72" OR 74" OR 76" OR 78" OR 80" OR 82" OR 84" OR 86" OR 88" OR 90" OR 92" OR 94" OR 96" OR 98" OR 100" OR 102" OR 104" OR 106" OR 108" OR 110" OR 112" OR 114" OR 116" OR 118" OR 120" OR 122" OR 124" OR 126" OR 128" OR 130" OR 132" OR 134" OR 136" OR 138" OR 140" OR 142" OR 144" OR 146" OR 148" OR 150" OR 152" OR 154" OR 156" OR 158" OR 160" OR 162" OR 164" OR 166" OR 168" OR 170" OR 172" OR 174" OR 176" OR 178" OR 180" OR 182" OR 184" OR 186" OR 188" OR 190" OR 192" OR 194" OR 196" OR 198" OR 200" OR 202" OR 204" OR 206" OR 208" OR 210" OR 212" OR 214" OR 216" OR 218" OR 220" OR 222" OR 224" OR 226" OR 228" OR 230" OR 232" OR 234" OR 236" OR 238" OR 240" OR 242" OR 244" OR 246" OR 248" OR 250" OR 252" OR 254" OR 256" OR 258" OR 260" OR 262" OR 264" OR 266" OR 268" OR 270" OR 272" OR 274" OR 276" OR 278" OR 280" OR 282" OR 284" OR 286" OR 288" OR 290" OR 292" OR 294" OR 296" OR 298" OR 300" OR 302" OR 304" OR 306" OR 308" OR 310" OR 312" OR 314" OR 316" OR 318" OR 320" OR 322" OR 324" OR 326" OR 328" OR 330" OR 332" OR 334" OR 336" OR 338" OR 340" OR 342" OR 344" OR 346" OR 348" OR 350" OR 352" OR 354" OR 356" OR 358" OR 360" OR 362" OR 364" OR 366" OR 368" OR 370" OR 372" OR 374" OR 376" OR 378" OR 380" OR 382" OR 384" OR 386" OR 388" OR 390" OR 392" OR 394" OR 396" OR 398" OR 400" OR 402" OR 404" OR 406" OR 408" OR 410" OR 412" OR 414" OR 416" OR 418" OR 420" OR 422" OR 424" OR 426" OR 428" OR 430" OR 432" OR 434" OR 436" OR 438" OR 440" OR 442" OR 444" OR 446" OR 448" OR 450" OR 452" OR 454" OR 456" OR 458" OR 460" OR 462" OR 464" OR 466" OR 468" OR 470" OR 472" OR 474" OR 476" OR 478" OR 480" OR 482" OR 484" OR 486" OR 488" OR 490" OR 492" OR 494" OR 496" OR 498" OR 500" OR 502" OR 504" OR 506" OR 508" OR 510" OR 512" OR 514" OR 516" OR 518" OR 520" OR 522" OR 524" OR 526" OR 528" OR 530" OR 532" OR 534" OR 536" OR 538" OR 540" OR 542" OR 544" OR 546" OR 548" OR 550" OR 552" OR 554" OR 556" OR 558" OR 560" OR 562" OR 564" OR 566" OR 568" OR 570" OR 572" OR 574" OR 576" OR 578" OR 580" OR 582" OR 584" OR 586" OR 588" OR 590" OR 592" OR 594" OR 596" OR 598" OR 600" OR 602" OR 604" OR 606" OR 608" OR 610" OR 612" OR 614" OR 616" OR 618" OR 620" OR 622" OR 624" OR 626" OR 628" OR 630" OR 632" OR 634" OR 636" OR 638" OR 640" OR 642" OR 644" OR 646" OR 648" OR 650" OR 652" OR 654" OR 656" OR 658" OR 660" OR 662" OR 664" OR 666" OR 668" OR 670" OR 672" OR 674" OR 676" OR 678" OR 680" OR 682" OR 684" OR 686" OR 688" OR 690" OR 692" OR 694" OR 696" OR 698" OR 700" OR 702" OR 704" OR 706" OR 708" OR 710" OR 712" OR 714" OR 716" OR 718" OR 720" OR 722" OR 724" OR 726" OR 728" OR 730" OR 732" OR 734" OR 736" OR 738" OR 740" OR 742" OR 744" OR 746" OR 748" OR 750" OR 752" OR 754" OR 756" OR 758" OR 760" OR 762" OR 764" OR 766" OR 768" OR 770" OR 772" OR 774" OR 776" OR 778" OR 780" OR 782" OR 784" OR 786" OR 788" OR 790" OR 792" OR 794" OR 796" OR 798" OR 800" OR 802" OR 804" OR 806" OR 808" OR 810" OR 812" OR 814" OR 816" OR 818" OR 820" OR 822" OR 824" OR 826" OR 828" OR 830" OR 832" OR 834" OR 836" OR 838" OR 840" OR 842" OR 844" OR 846" OR 848" OR 850" OR 852" OR 854" OR 856" OR 858" OR 860" OR 862" OR 864" OR 866" OR 868" OR 870" OR 872" OR 874" OR 876" OR 878" OR 880" OR 882" OR 884" OR 886" OR 888" OR 890" OR 892" OR 894" OR 896" OR 898" OR 900" OR 902" OR 904" OR 906" OR 908" OR 910" OR 912" OR 914" OR 916" OR 918" OR 920" OR 922" OR 924" OR 926" OR 928" OR 930" OR 932" OR 934" OR 936" OR 938" OR 940" OR 942" OR 944" OR 946" OR 948" OR 950" OR 952" OR 954" OR 956" OR 958" OR 960" OR 962" OR 964" OR 966" OR 968" OR 970" OR 972" OR 974" OR 976" OR 978" OR 980" OR 982" OR 984" OR 986" OR 988" OR 990" OR 992" OR 994" OR 996" OR 998" OR 1000" OR 1002" OR 1004" OR 1006" OR 1008" OR 1010" OR 1012" OR 1014" OR 1016" OR 1018" OR 1020" OR 1022" OR 1024" OR 1026" OR 1028" OR 1030" OR 1032" OR 1034" OR 1036" OR 1038" OR 1040" OR 1042" OR 1044" OR 1046" OR 1048" OR 1050" OR 1052" OR 1054" OR 1056" OR 1058" OR 1060" OR 1062" OR 1064" OR 1066" OR 1068" OR 1070" OR 1072" OR 1074" OR 1076" OR 1078" OR 1080" OR 1082" OR 1084" OR 1086" OR 1088" OR 1090" OR 1092" OR 1094" OR 1096" OR 1098" OR 1100" OR 1102" OR 1104" OR 1106" OR 1108" OR 1110" OR 1112" OR 1114" OR 1116" OR 1118" OR 1120" OR 1122" OR 1124" OR 11

CONTROL MONUMENTS	<u>COMBINED CONTROL MONUMENTS</u>	
<u>HORIZONTAL CONTROL MONUMENT</u>	<u>THE HORIZONTAL MONUMENT 03120808022</u>	
<u>THE HORIZONTAL MONUMENT 01019886045</u>	LOCATED ON THE SE CORNER OF INNISFIL STREET AND CENTRAL STREET APPROXIMATELY 19.5M FROM CENTERLINE OF INNISFIL STREET APPROXIMATELY 13M FROM VESPERSIA STREET.	
THE HORIZONTAL MONUMENT IS LOCATED IN PAVED DRIVEWAY UNDER WATER VALVE COVER ON THE WEST SIDE OF MULCASTER STREET IMMEDIATELY NORTH OF #108 MULCASTER STREET.	NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP.	
NORTHING (SECOND ORDER): 4916487.811	NORTHING (SECOND ORDER):	4915161.491
EASTING (SECOND ORDER): 604671.596	EASTING (SECOND ORDER):	603925.428
	VERTICAL (SECOND ORDER):	222.437



CORAL SOPHIA HOUSING
115 BAYFIELD ST.
BARRIE, ONTARIO
COUNTY OF SIMCOE

CITY OF BARRIE NOTES

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 & Associates Inc.
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BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca

TELEPHONE (705) 726-1141
FAX (705) 726-0331
TOLL FREE (877) 726-1141

NOTES:

EXISTING SERVICES & UTILITIES

THE LOCATION OF EXISTING SERVICES & UTILITIES, AS SHOWN, IS APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF SAME, AND REPAIR OF ANY DAMAGES AS A RESULT OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY SAFETY MEASURES REQUIRED FOR WORK IN CLOSE PROXIMITY TO EXISTING STORM SEWERS AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY SAFETY MEASURES REQUIRED FOR WORK IN CLOSE PROXIMITY AND PARALLEL TO THE EXISTING GAS MAINS AND ELECTRICAL LINES.

EXCAVATION FOR UNDERGROUND SERVICES

THE CONTRACTORS ATTENTION IS DRAWN TO THE CONFINED NATURE OF THE WORK AREAS. TRENCH BOXES AND SHORING SHALL BE EMPLOYED WHERE POSSIBLE IN ORDER TO LIMIT THE WIDTH OF EXCAVATED TRENCHES.

EXCAVATION AND GRADING

- ALL WORK SHALL CONFORM TO OPSS PROV. 206 NOV 2014, AND THE REQUIREMENTS OF THE GEOTECHNICAL INVESTIGATION BY WSP (191-04954-00) MARCH 4, 2021
- EXCAVATION SHALL BE COMPLETED TO SUBGRADE LEVEL AND ALL AREAS PROOF ROLLED, AS DIRECTED. NO GRANULAR BASE OR SUBBASE MATERIALS WILL BE PLACED UNTIL APPROVAL IS GRANTED FROM THE ENGINEER
- SUBEXCAVATION AND BACKFILLING SHALL BE COMPLETED AS DIRECTED

REMOVALS

- SEE DRAWING 3103-REM

SILT FENCE

- INSTALL AND MAINTAIN PER BSD -1233

ASPHALT

- PAVEMENT STRUCTURE FOR ROADWAY REINSTATEMENT
40mm HL3 ASPHALT COMPACTED TO 92.0-96.5% MRD
70mm HL3 ASPHALT COMPACTED TO 92.0-96.5% MRD
150mm GRANULAR A COMPACTED TO 100% SPMD
450mm GRANULAR B COMPACTED TO 100% SPMD
- PAVEMENT STRUCTURE FOR PROPOSED LOADING SPACE:
40mm HL3 ASPHALT COMPACTED TO 92.0-96.5% MRD
70mm HL3 ASPHALT COMPACTED TO 92.0-96.5% MRD
150mm GRANULAR A COMPACTED TO 100% SPMD
450mm GRANULAR B COMPACTED TO 100% SPMD
- ALL ASPHALT SHALL COMPLY WITH OPSS 310 NOV 2017 AND THE SOILS REPORT. ASPHALT SHALL BE COMPACTED FROM 92% TO 96.5% OF MAXIMUM RELATIVE DENSITY.

GRANULAR MATERIALS

- COMPACTION REQUIREMENTS SHALL CONFORM TO THE SOILS REPORT AND THE REQUIREMENTS OF OPSS MUNI 501 NOV 2017.
- WATER FOR COMPACTION SHALL BE OBTAINED FROM A SOURCE APPROVED BY THE ENGINEER. WATER OBTAINED FROM THE CITY OF BARRIE SHALL BE UNDER AGREEMENT AND METHODS CONTROLLED BY THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ARRANGEMENTS WITH THE CITY REGARDING WATER USE.

STORM SEWERS

- MANHOLES / CATCH BASIN MANHOLES

- OPSD 701.010 (1200mm)
- OPSD 701.030 MANHOLE COMPONENTS
- BSD-41 MANHOLE ADJUSTMENT UNITS
- OPSD 401.010 TYPE A FRAME AND GRATE FOR MANHOLES
- OPSD 400.020 FRAME AND GRATE FOR CATCH BASIN MANHOLES
- OPSD 701.021 CONCRETE BENCHING
- OPSS 407 NOV 2015

- CATCH BASINS (OUTSIDE OF PARKING STRUCTURE)

- OPSD 705.010
- OPSD 400.020 FRAME AND GRATE FOR CATCH BASIN
- BSD-41 CATCH BASIN ADJUSTMENT UNITS
- OPSS 407 NOV 2015
- SUMP TO BE 900mm AS PER MODIFIED DETAIL DRAWING 3103-DET3

- CATCH BASINS (WITHIN PARKING STRUCTURE)

- SEE MECHANICAL DRAWINGS

- PIPE

- OPSS MUNI 410 NOV 2018 AND AS FOLLOWS:
- SIZES AS SHOWN
- STORM SEWER SHALL BE PVC RIBBED OR PVC DR 35.
- EMBEDMENT & BACKFILL FOR ALL FLEXIBLE PIPE SHALL CONFORM TO OPSD 802.010, TYPE 3 SOIL, AND THE SOILS REPORT
- BEDDING AND COVER SHALL BE GRANULAR "A" COMPACTED TO 95% SPMD, EXCEPT IN ADVERSE CONDITIONS WHERE 15mm CLEAR STONE, FILTER WRAPPED, MAY BE USED AS DIRECTED BY THE ENGINEER. FILTER FABRIC TO COMPLETELY SURROUND CLEAR STONE WITH 1m OVERLAP.
- BACKFILL: SHALL BE ACCEPTABLE NATIVE MATERIAL OR IMPORTED GRANULAR B COMPACTED TO 95% SPMD.

- CLEANING AND FLUSHING OF PIPE SEWERS AND APPURTENANCES

- ALL PIPE SEWERS AND APPURTENANCES SHALL BE CLEANED AND FLUSHED JUST PRIOR TO INSPECTION AND ACCEPTANCE

- ALIGNMENT AND GRADE TOLERANCES

- PIPE SEWERS SHALL BE INSTALLED TRUE TO ALIGNMENT, ELEVATIONS AND GRADES SPECIFIED ON THE CONTRACT DRAWINGS.
- WATERMAIN CROSSINGS SHALL BE 500mm CLEAR VERTICAL TO OUTSIDE OF PIPES.
- WATERMAINS SHALL BE 2500mm CLEAR HORIZONTAL TO OUTSIDE OF PIPES AND STRUCTURES.

- TESTING

- INITIAL TESTING SHALL COMPRISE CCTV INSPECTION PER OPSS MUNI. 409 NOV 2017. THE RESULTS FROM THE CCTV INSPECTION, AND VISUAL INSPECTION ON SITE BY THE ENGINEER, MAY WARRANT FURTHER TESTING AS SPECIFIED IN OPSS MUNI 410 NOV 2018. THE CONTRACTOR SHALL PROVIDE ALL TESTING REQUIRED TO PROVE THE SYSTEM AT NO ADDITIONAL COST TO THE CONTRACT.

SANITARY SEWERS

- MANHOLES
 - OPSD 701.010 (1200mm)
 - OPSD 701.030 MANHOLE COMPONENTS
 - OPSD 401.010 FRAME AND COVER TYPE A
 - OPSD 701.021 CONCRETE BENCHING
 - OPSS 407 NOV 2015

- PIPE

- SIZES AS SHOWN
- ALL PVC PIPE SHALL BE DR-28

- CLEANING AND FLUSHING OF PIPE SEWERS AND APPURTENANCES

- ALL PIPE SEWERS AND APPURTENANCES SHALL BE CLEANED AND FLUSHED JUST PRIOR TO INSPECTION AND ACCEPTANCE

- ALIGNMENT AND GRADE TOLERANCES

- PIPE SEWERS SHALL BE INSTALLED TRUE TO ALIGNMENT, ELEVATIONS AND GRADES SPECIFIED ON THE CONTRACT DRAWINGS.
- WATERMAIN CROSSINGS SHALL BE 500mm CLEAR VERTICAL TO OUTSIDE OF PIPES.
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WATERMAIN/WATER SERVICE

- GENERAL

- ALL WATER DISTRIBUTION PER OPSS 441 MUNI NOV 2016 AND THE CITY OF BARRIE WATER DISTRIBUTION SPECIFICATIONS AND BSD-501
- ALL SERVICE CONNECTIONS PER THE CITY OF BARRIE WATER DISTRIBUTION SPECIFICATIONS FOR PIPES

- PIPES
 - BACKFILL: SHALL BE SUITABLE NATIVE MATERIAL OR IMPORTED GRANULAR COMPACTED TO 95% SPD, 98% IN UPPER 1 METRE
 - MINIMUM COVER AT 1.8 metres, INSULATION PER MOEE FIG. 3.2, WHERE COVER LESS THAN 1.7M.

- VALVES, BENDS AND TEES
 - VALVE BOXES AND VALVES, BENDS AND TEES SHALL CONFORM TO CITY OF BARRIE STANDARDS C/W THRUST BLOCKS PER OPSD 1103.010.

- FIRE HYDRANT SETS
 - FIRE HYDRANT SETS SHALL INCLUDE HYDRANTS, HYDRANT ISOLATING VALVE, HYDRANT LEADS, RESTRAINING DEVICES AND SUPPORT DEVICES. ALL SHALL CONFORM TO CITY OF BARRIE STANDARDS.

TESTING AND DISINFECTION

DOMESTIC AND FIRE SERVICE TO BE TESTED AND DISINFECTED PER CITY OF BARRIE STANDARDS WITH COORDINATION OF SAME THROUGH THE CITY WATER DEPARTMENT.

WHEN DISINFECTION NEW WATER LINES, THE DISCHARGE OF SUPER CHLORINATED WATER MUST BE TREATED TO ELIMINATE ANY SOURCES OF CHLORINE PRIOR TO DISCHARGING TO THE NATURAL ENVIRONMENT. SAMPLING VERIFICATION MUST BE COMPLETED AND RECORDED TO ENSURE NO RESIDUAL CHLORINE IS DETECTED. RECORDS MUST BE RETAINED FOR ONE YEAR AND PROVIDED TO THE CITY UPON REQUEST.

INTERNAL CURBS AND SIDEWALKS

- SEE ARCHITECTS DRAWINGS FOR DETAIL

ENTRANCE AND EXISTING CURB REPLACEMENT

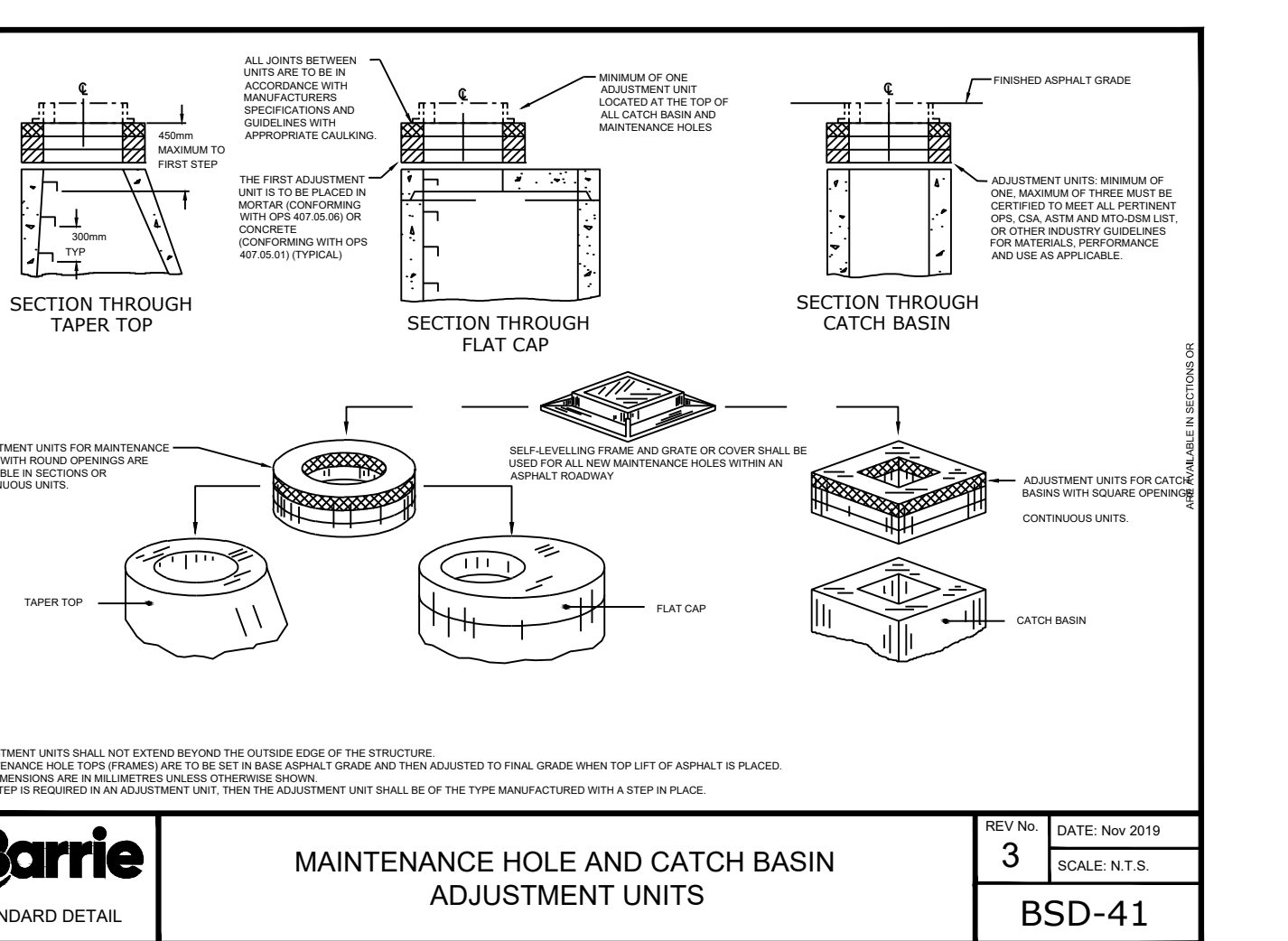
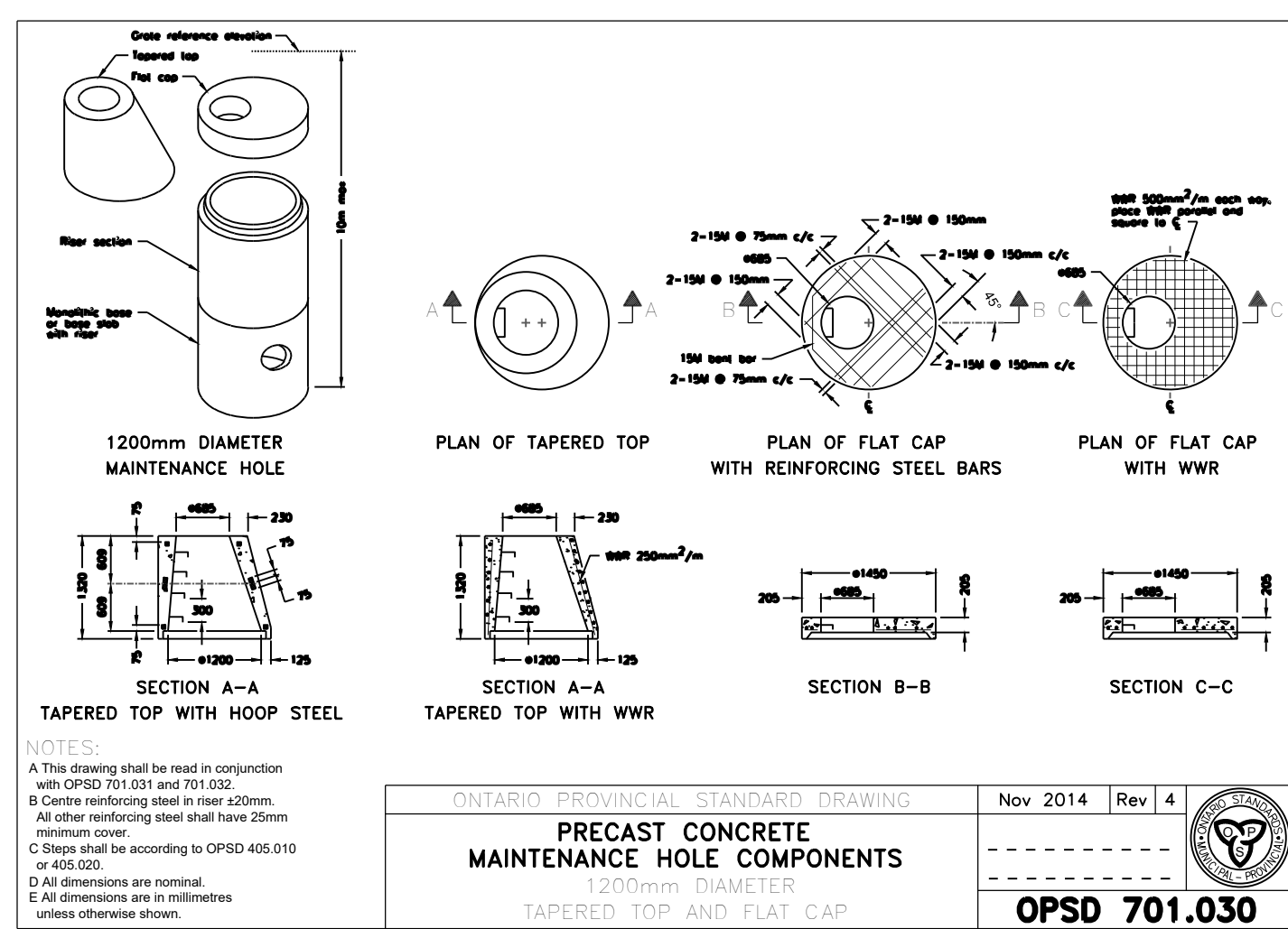
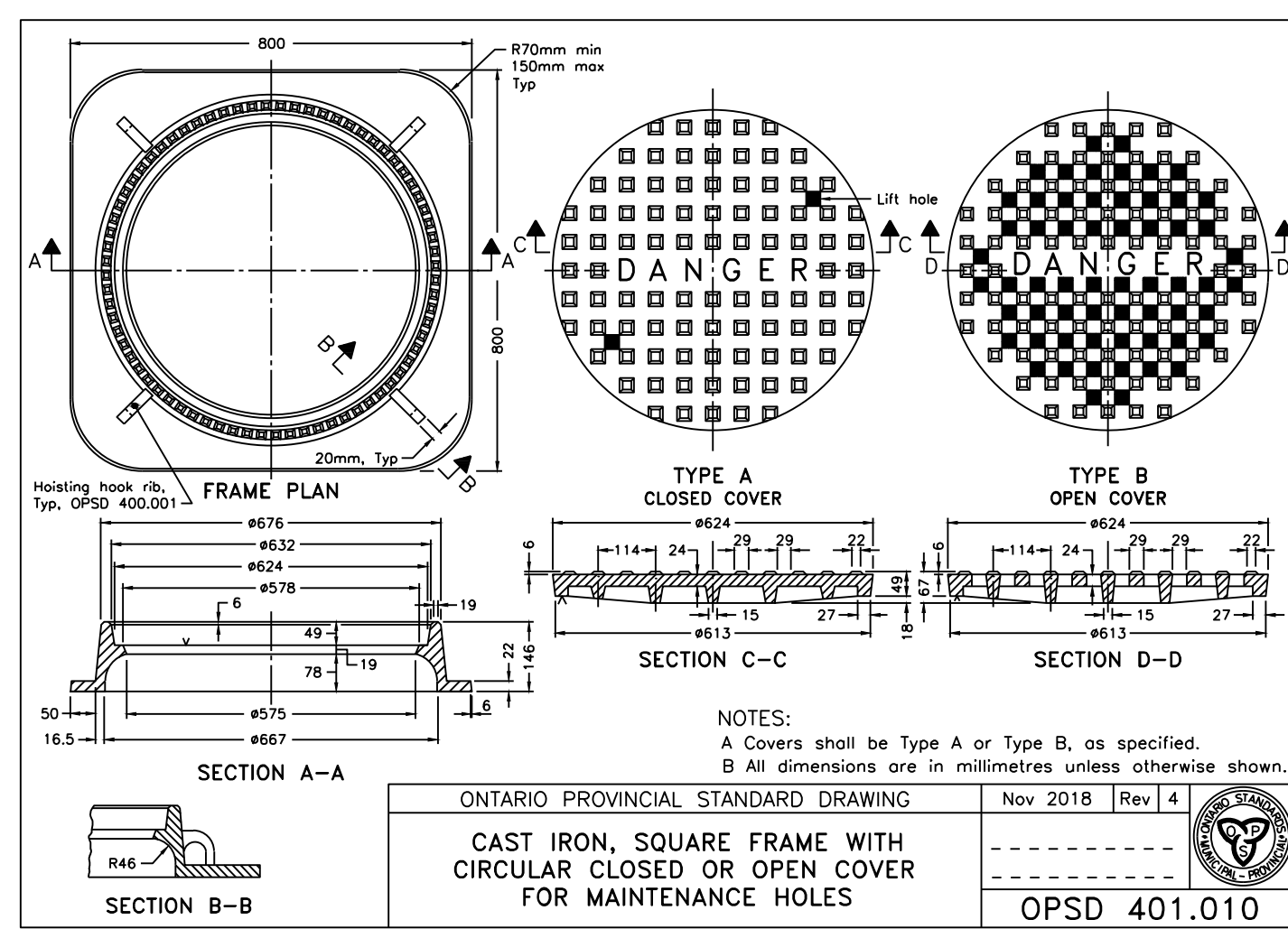
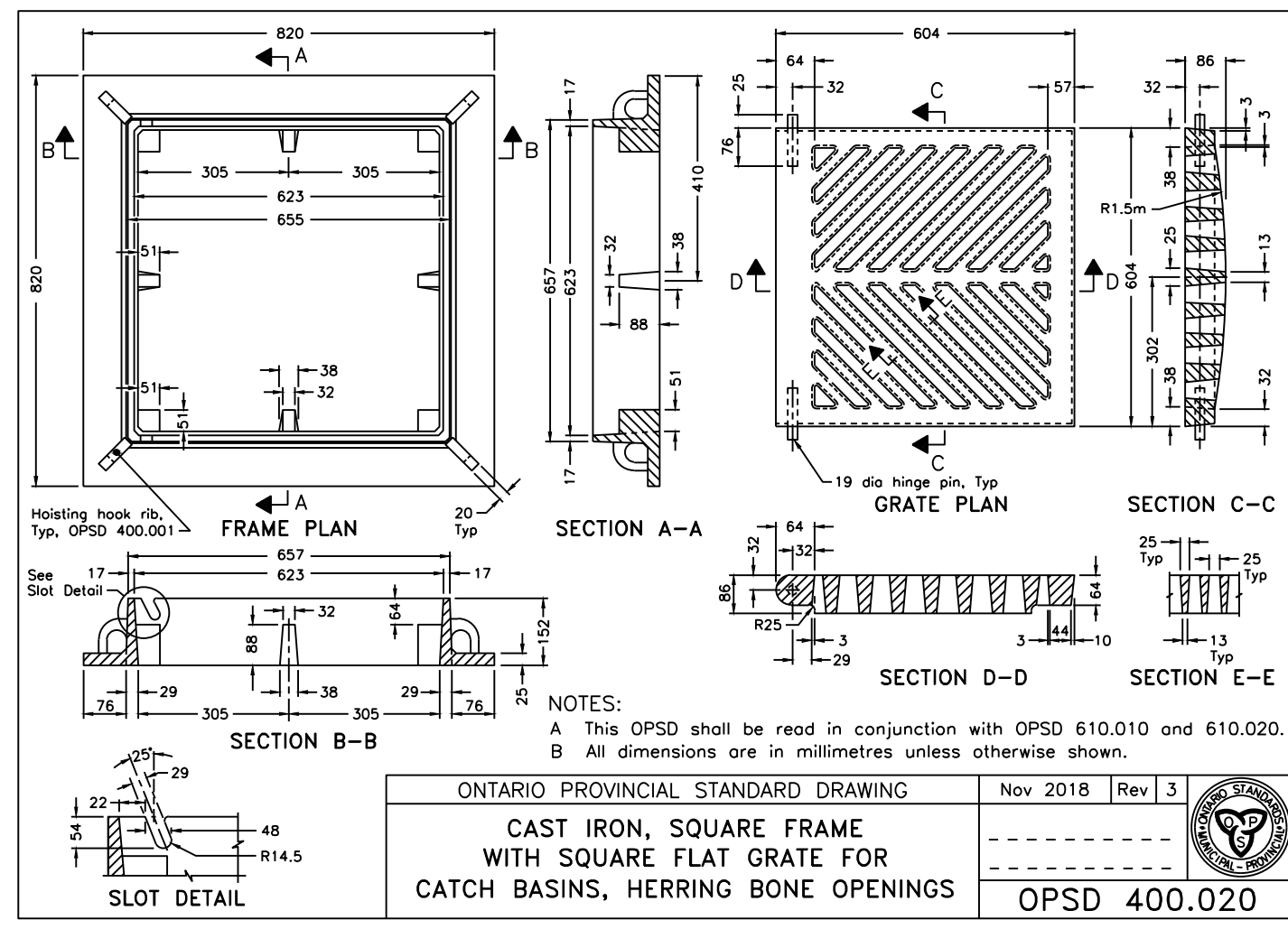
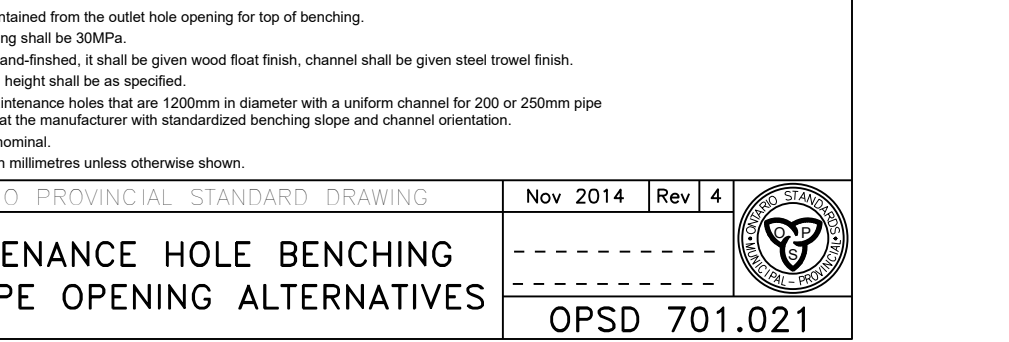
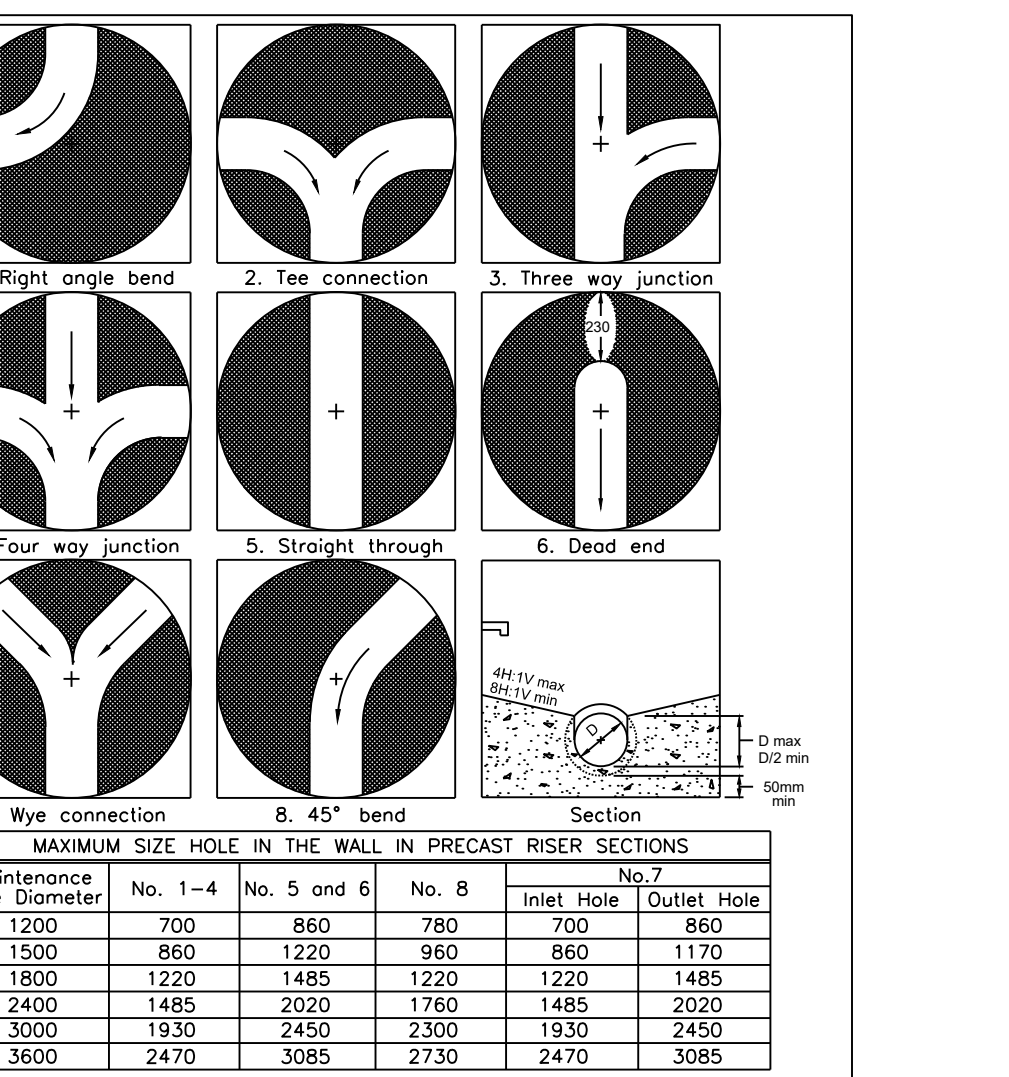
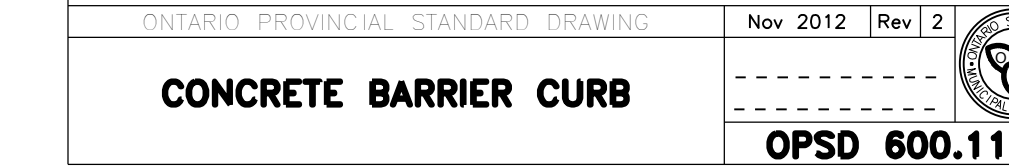
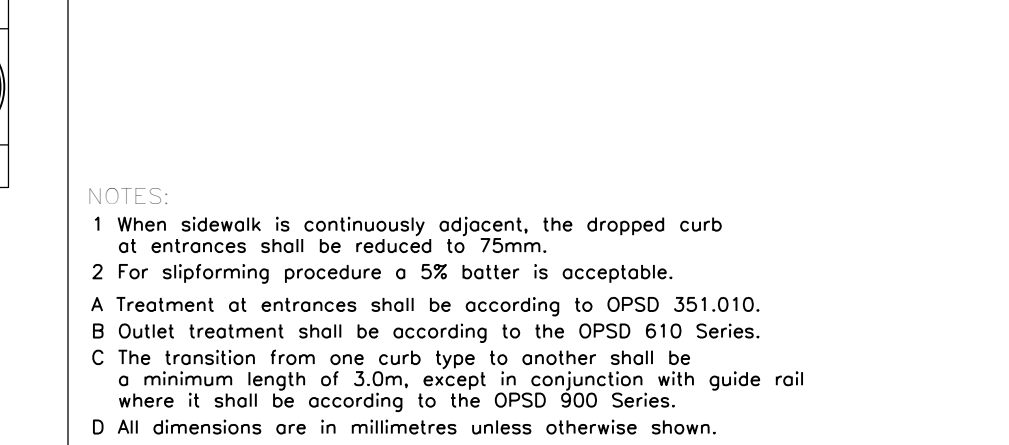
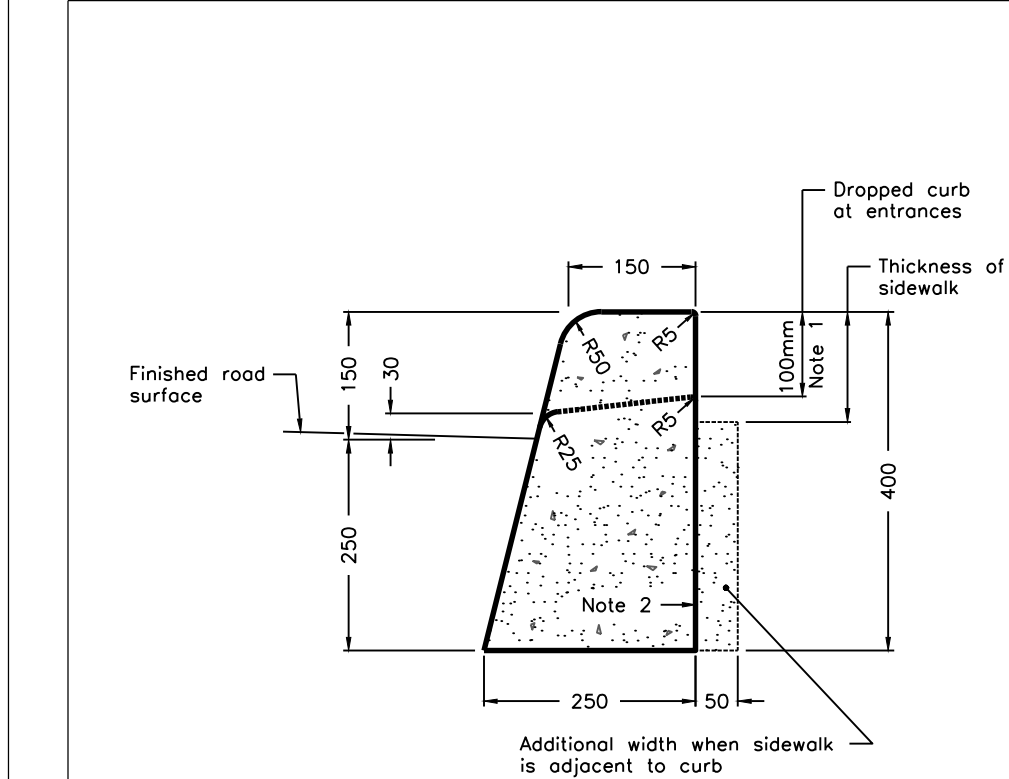
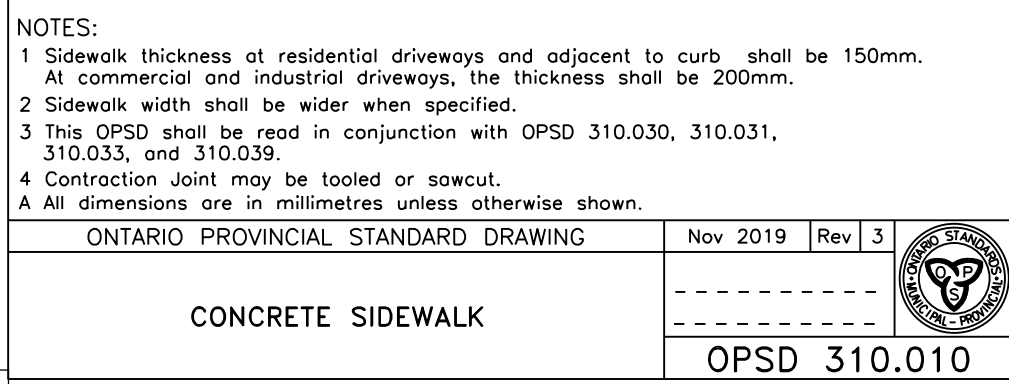
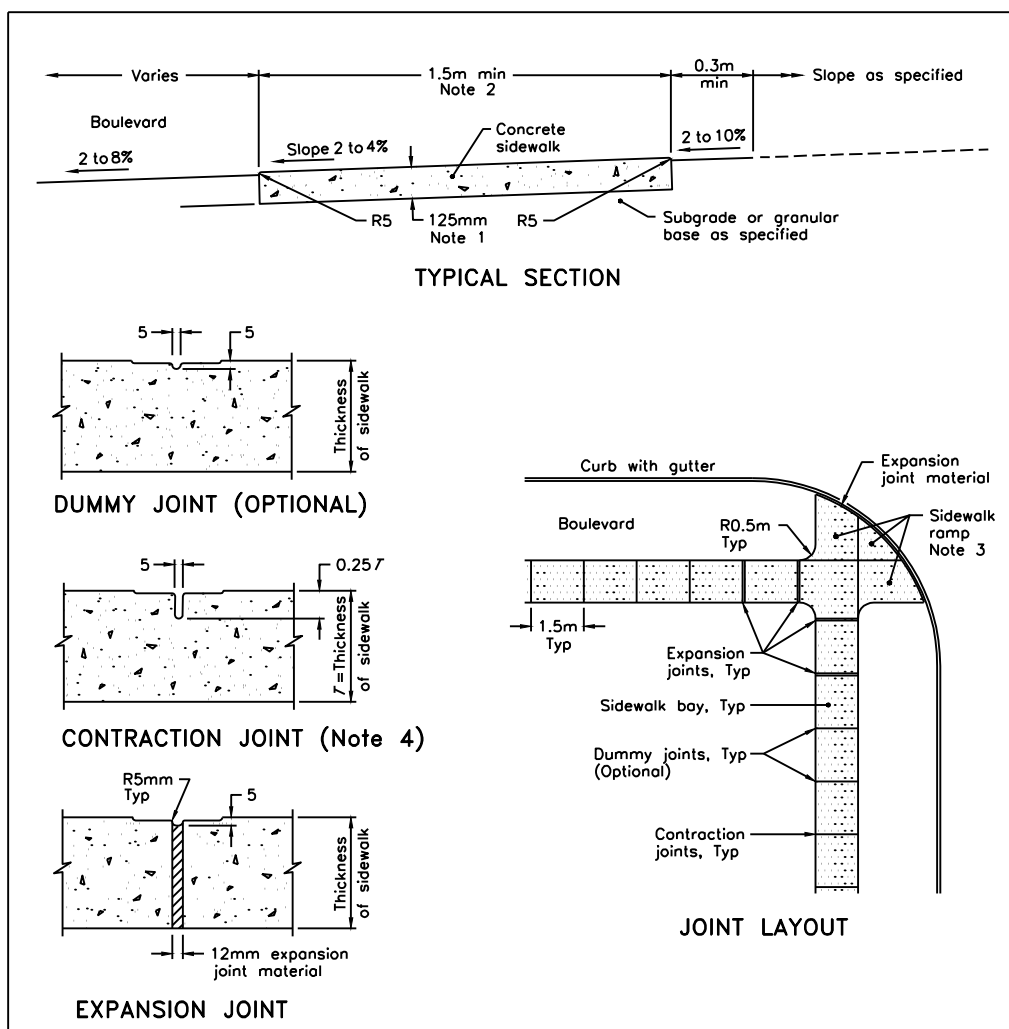
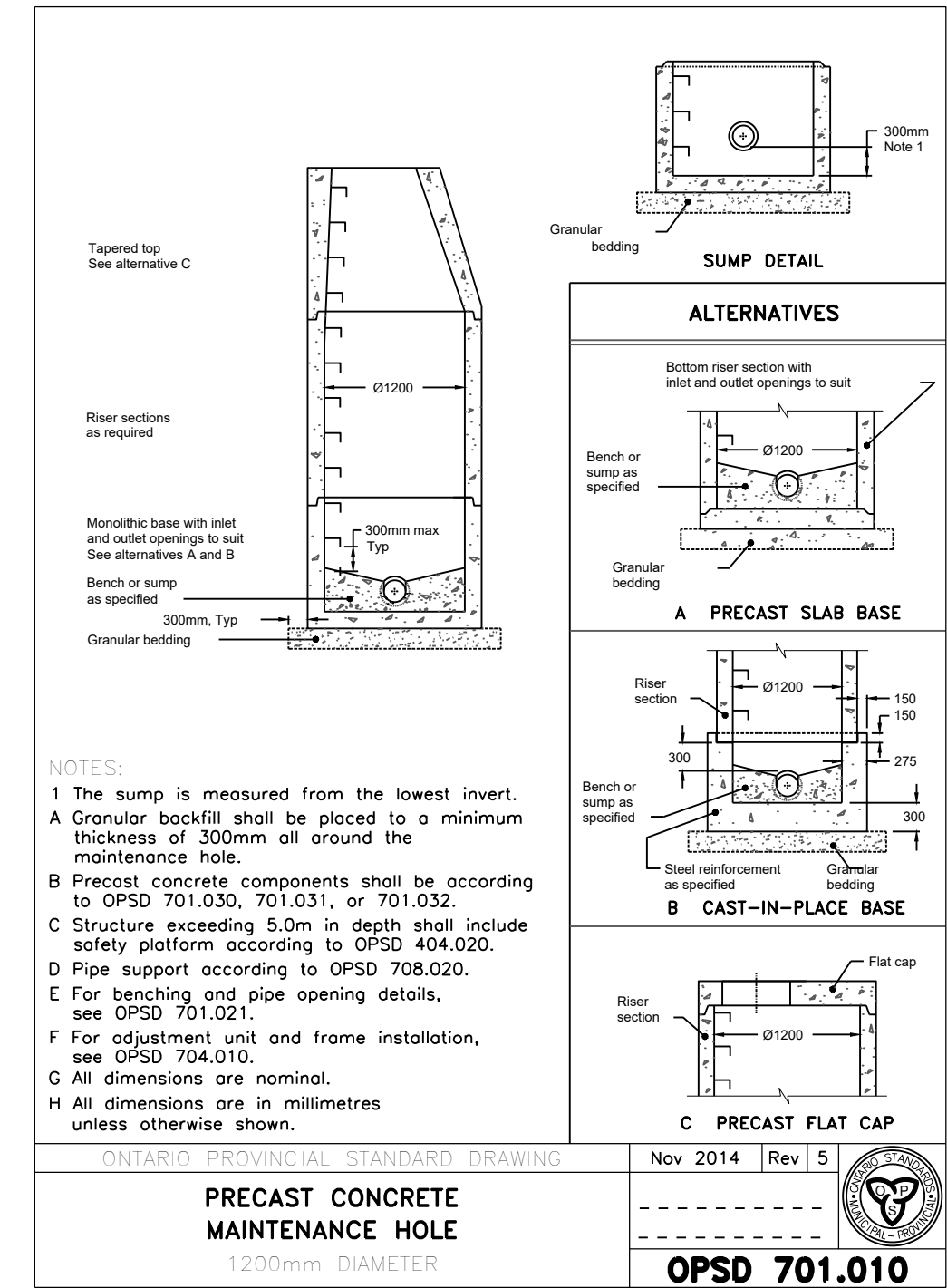
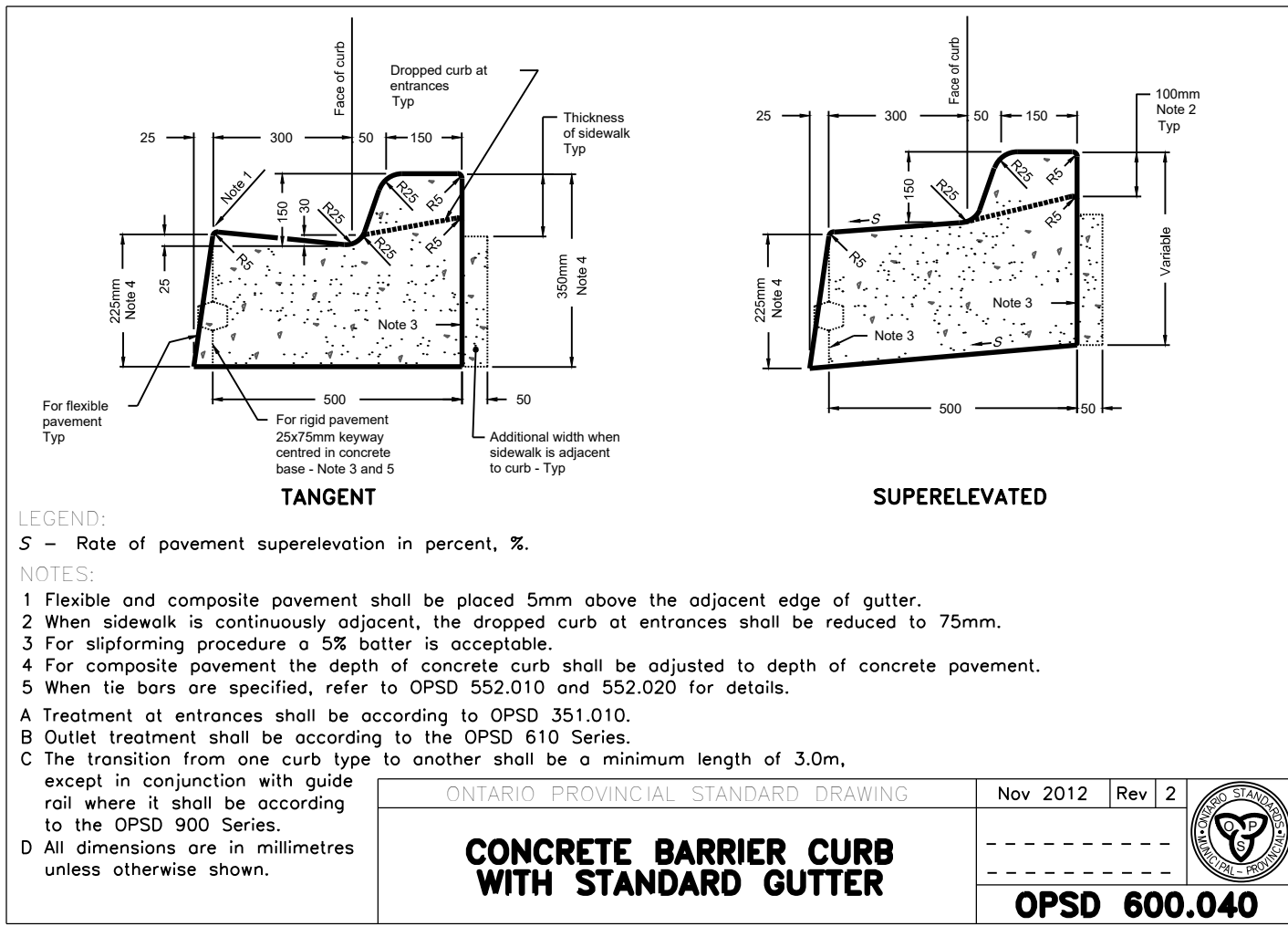
- PER OPSD 600.110 AND 600.040 AS NOTED ON DRAWING 3103-SS1

PARKING LOT PAVEMENT MARKINGS AND SYMBOLS

- SEE ARCHITECT DRAWINGS.

REINSTATEMENT

TOPSOIL SHALL CONFORM TO OPSS MUNI. 802 NOV 2019
SODDING SHALL CONFORM TO OPSS MUNI. 803 APRIL 2018
SEED AND MULCH SHALL CONFORM TO OPSS MUNI. 804 NOV 2014 - STANDARD ROADSIDE MIX



KEY MAP

N.T.S.

LEGEND

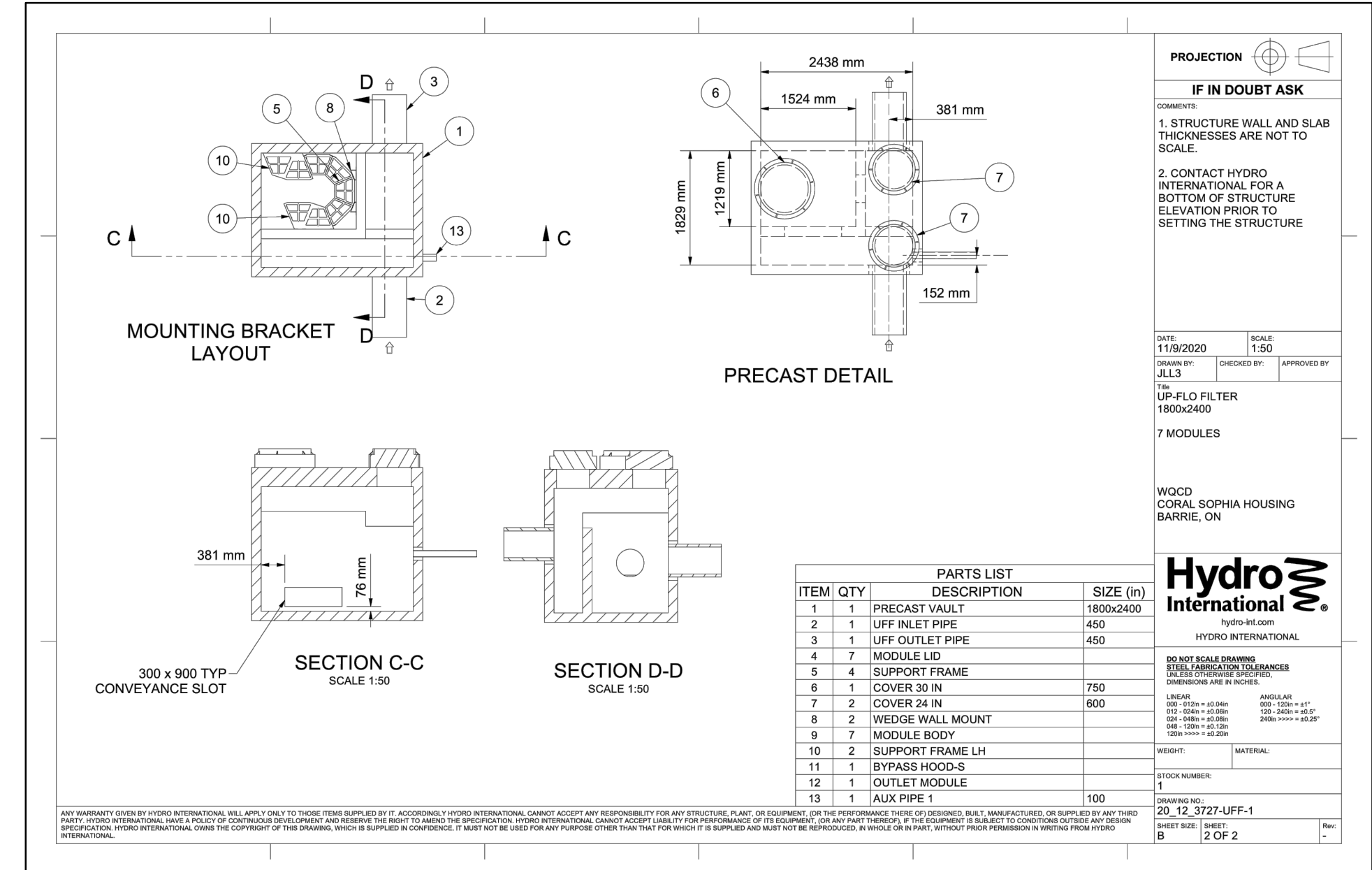
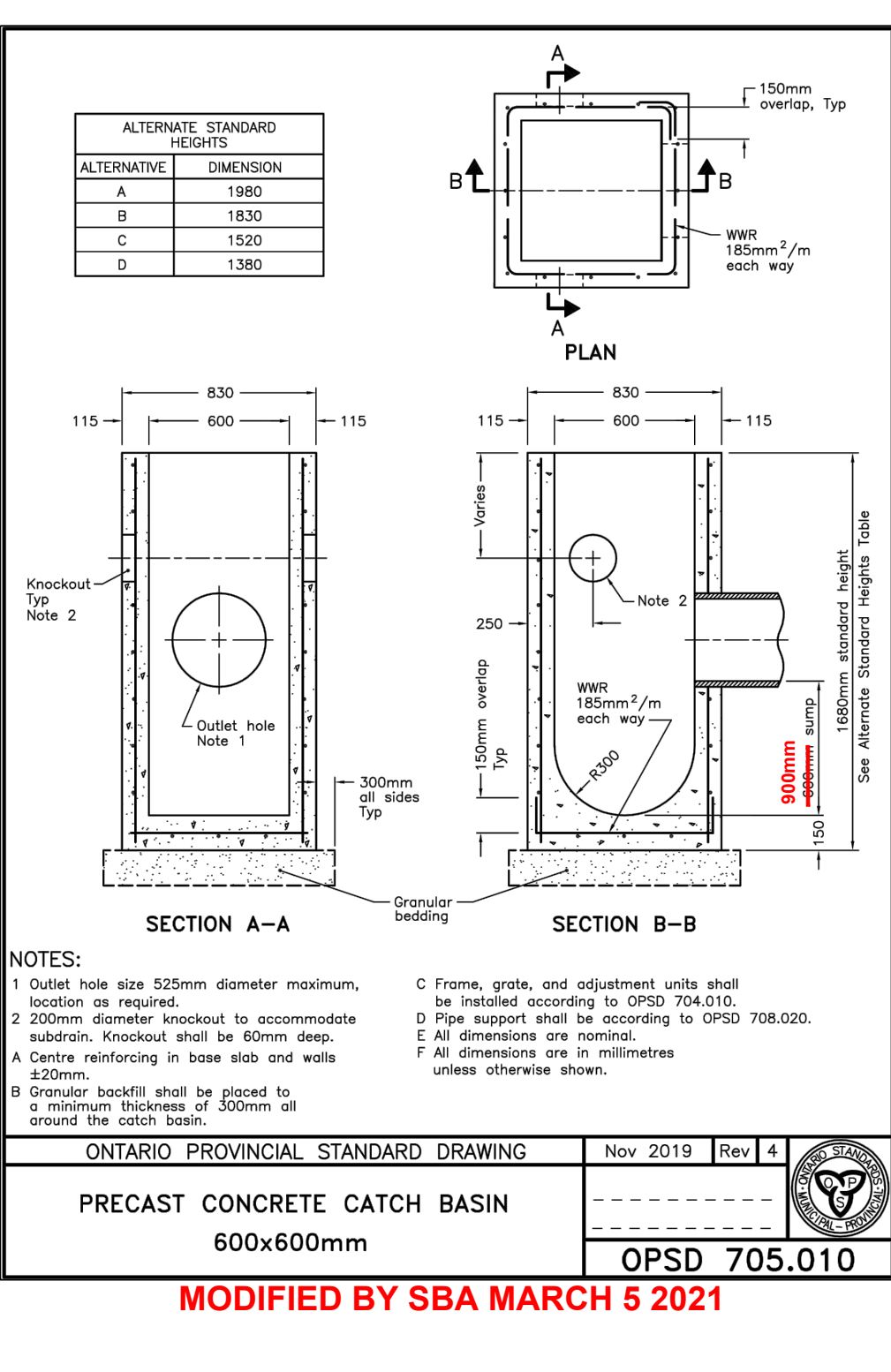
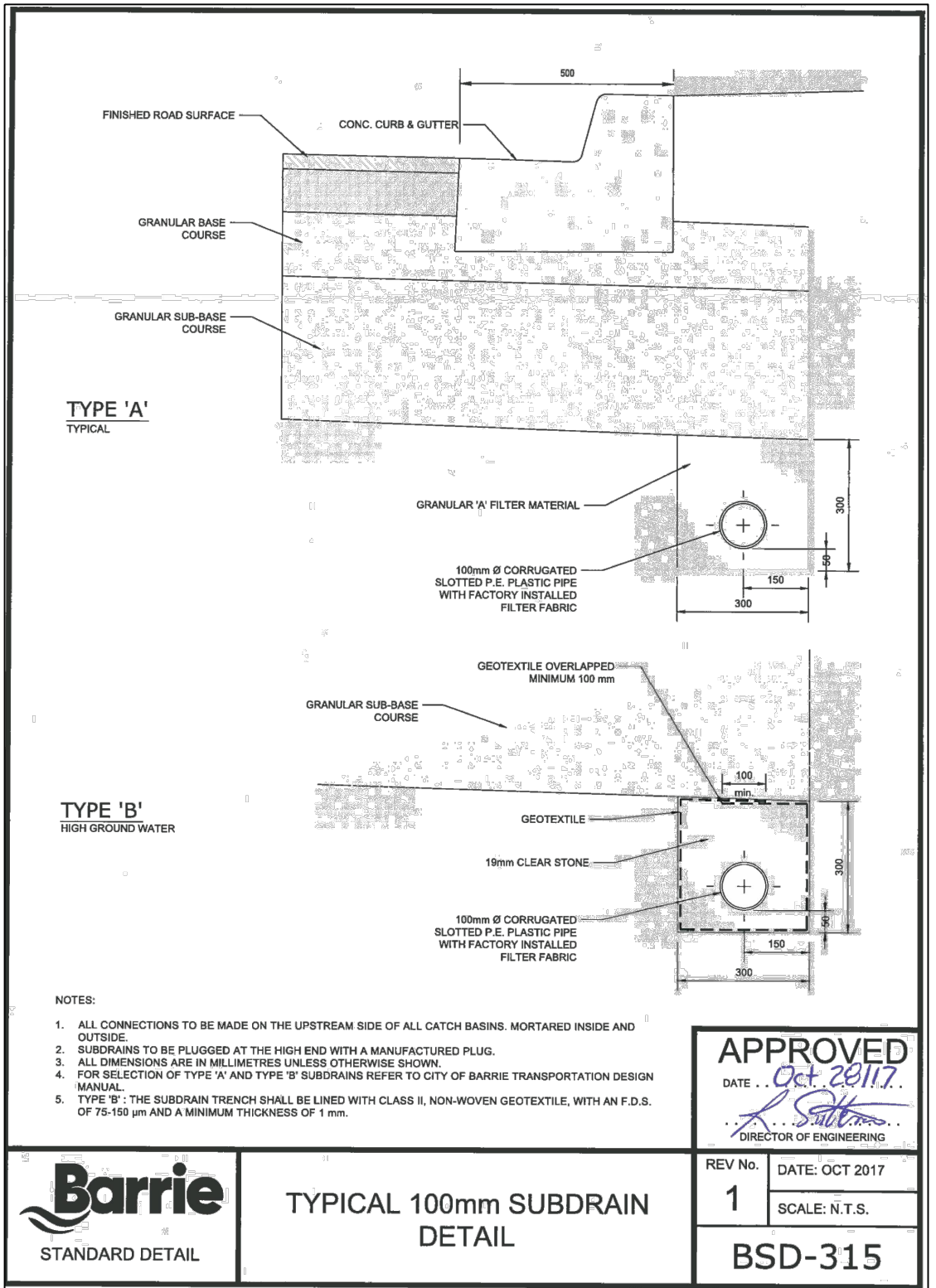
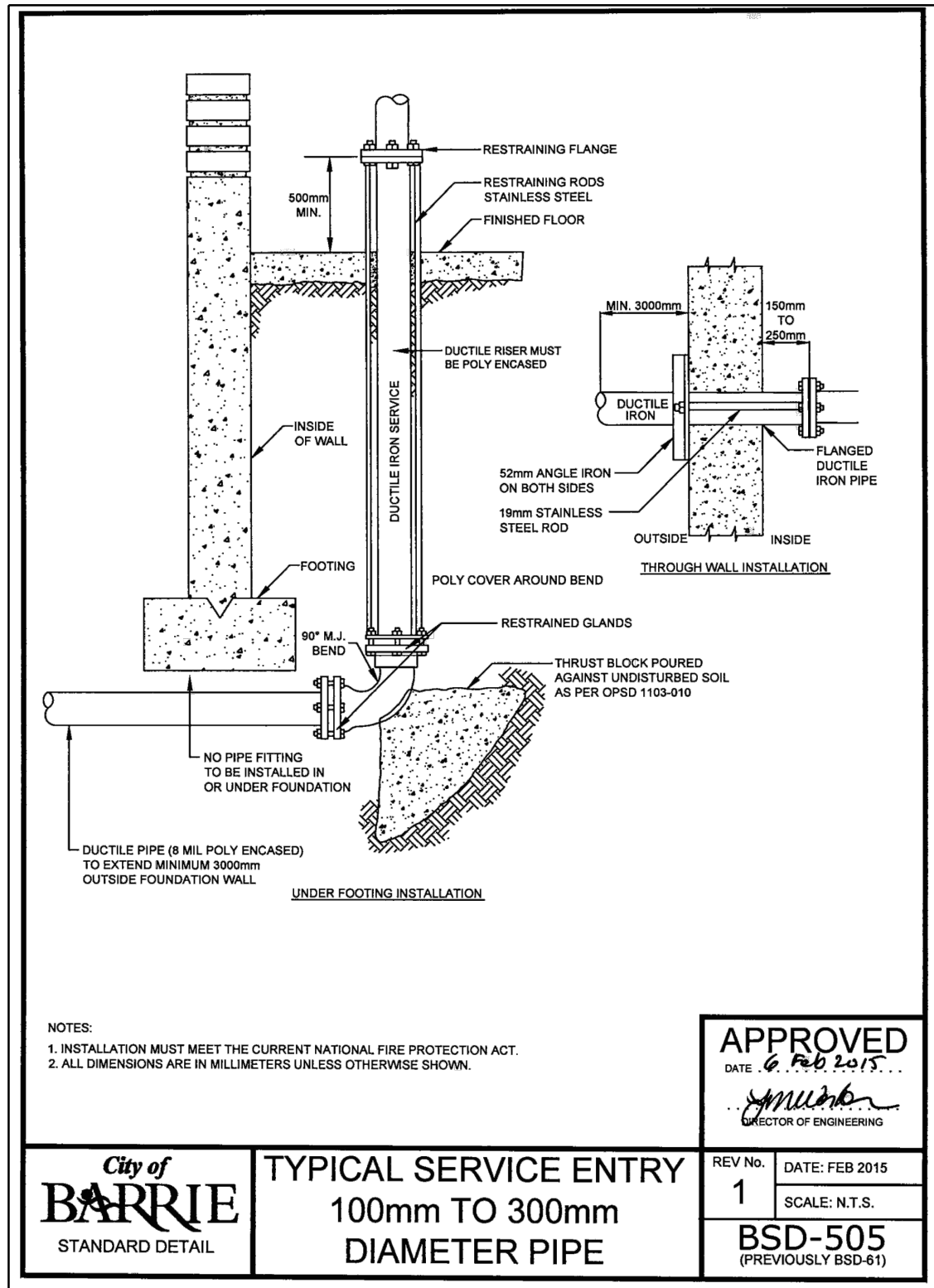
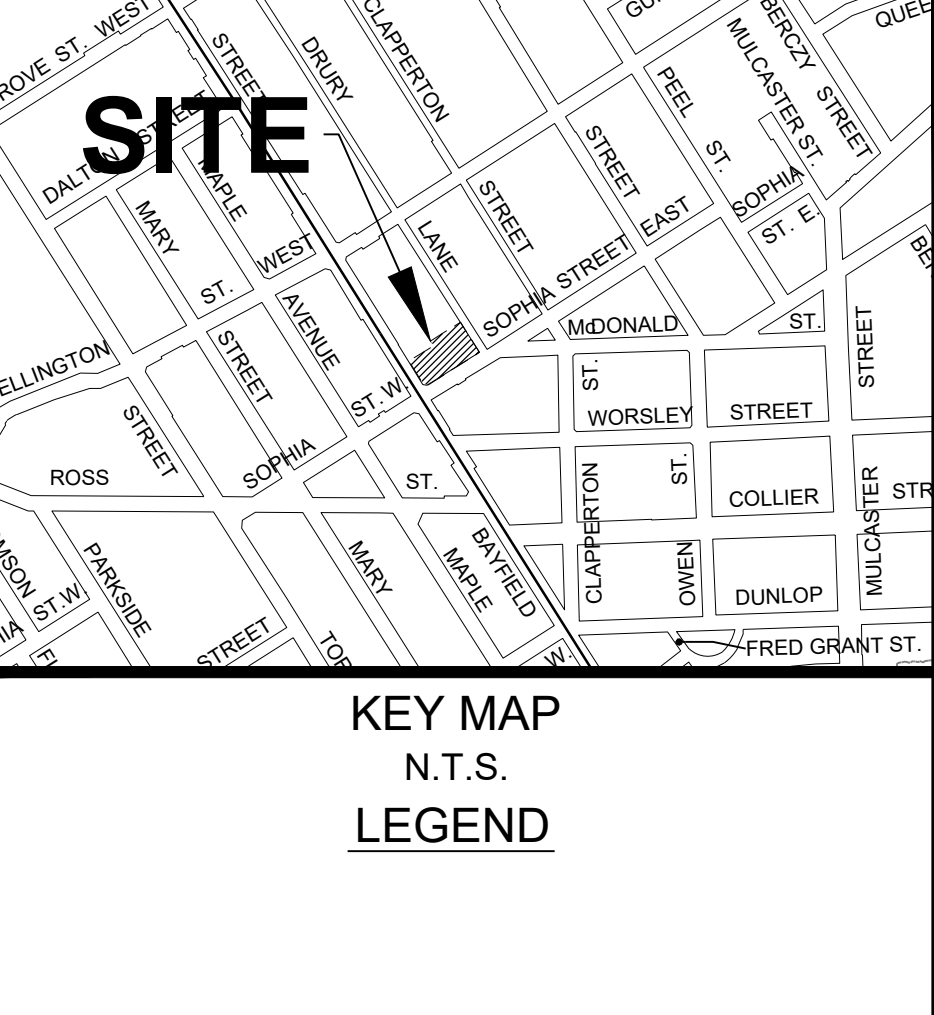
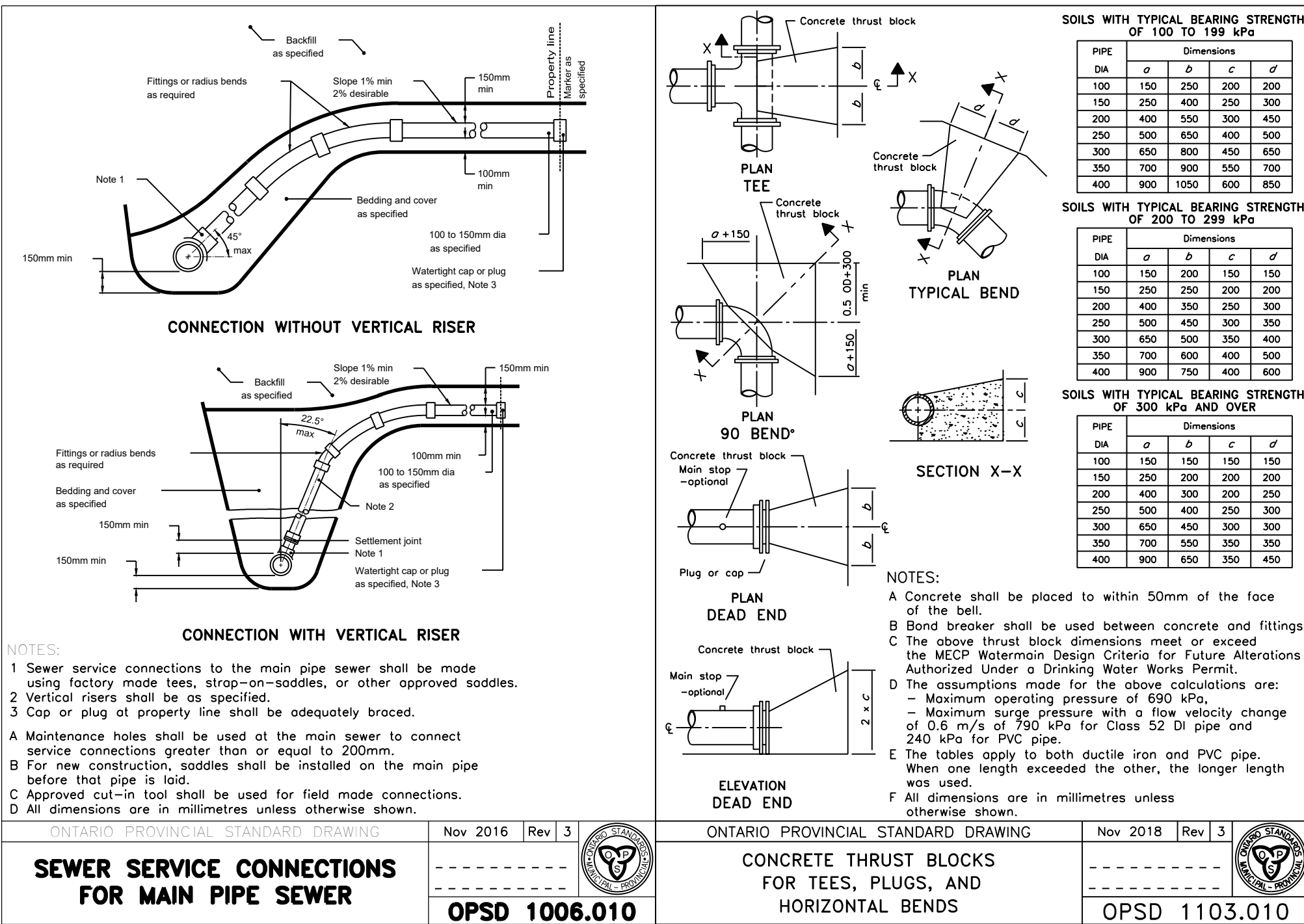
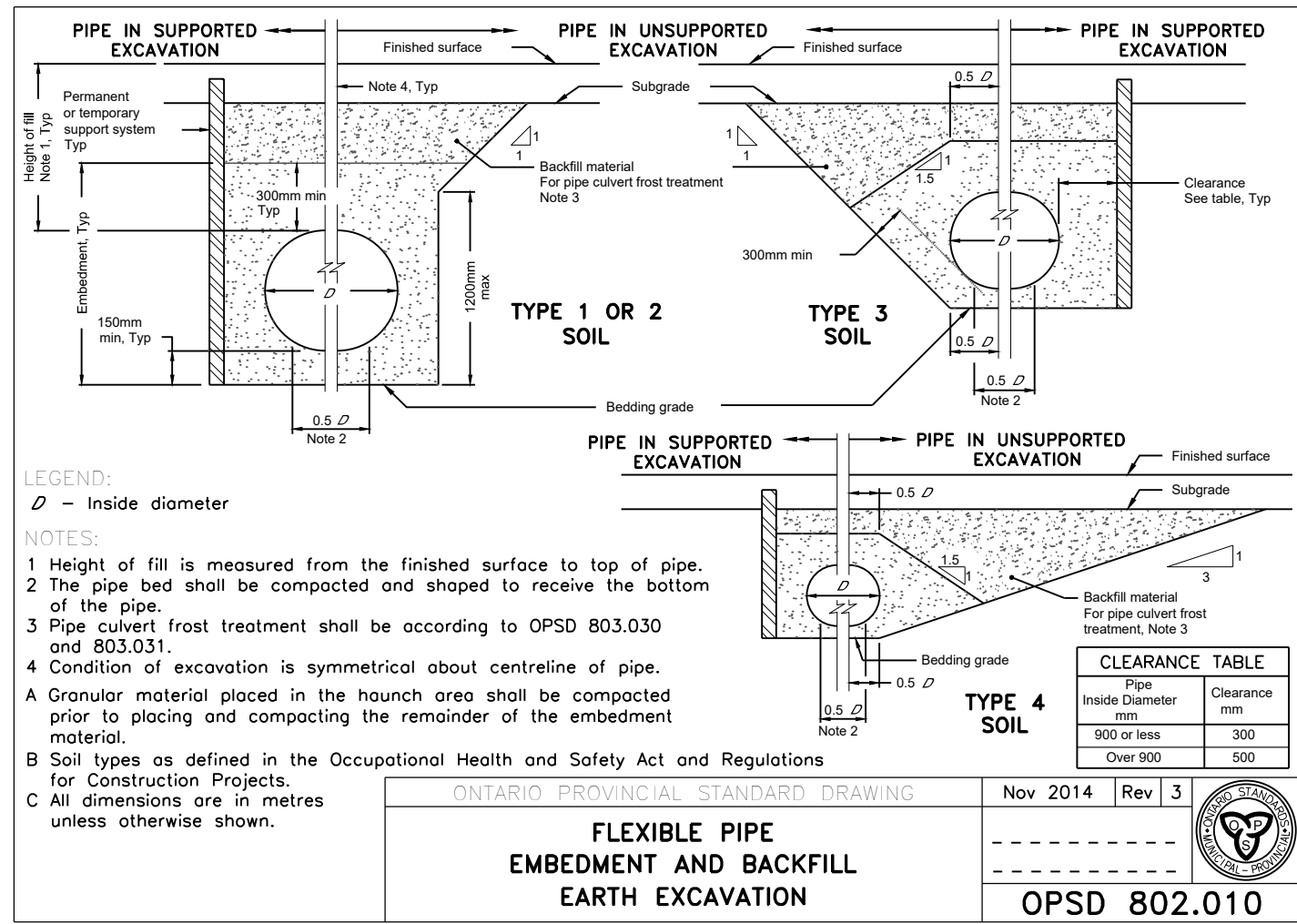
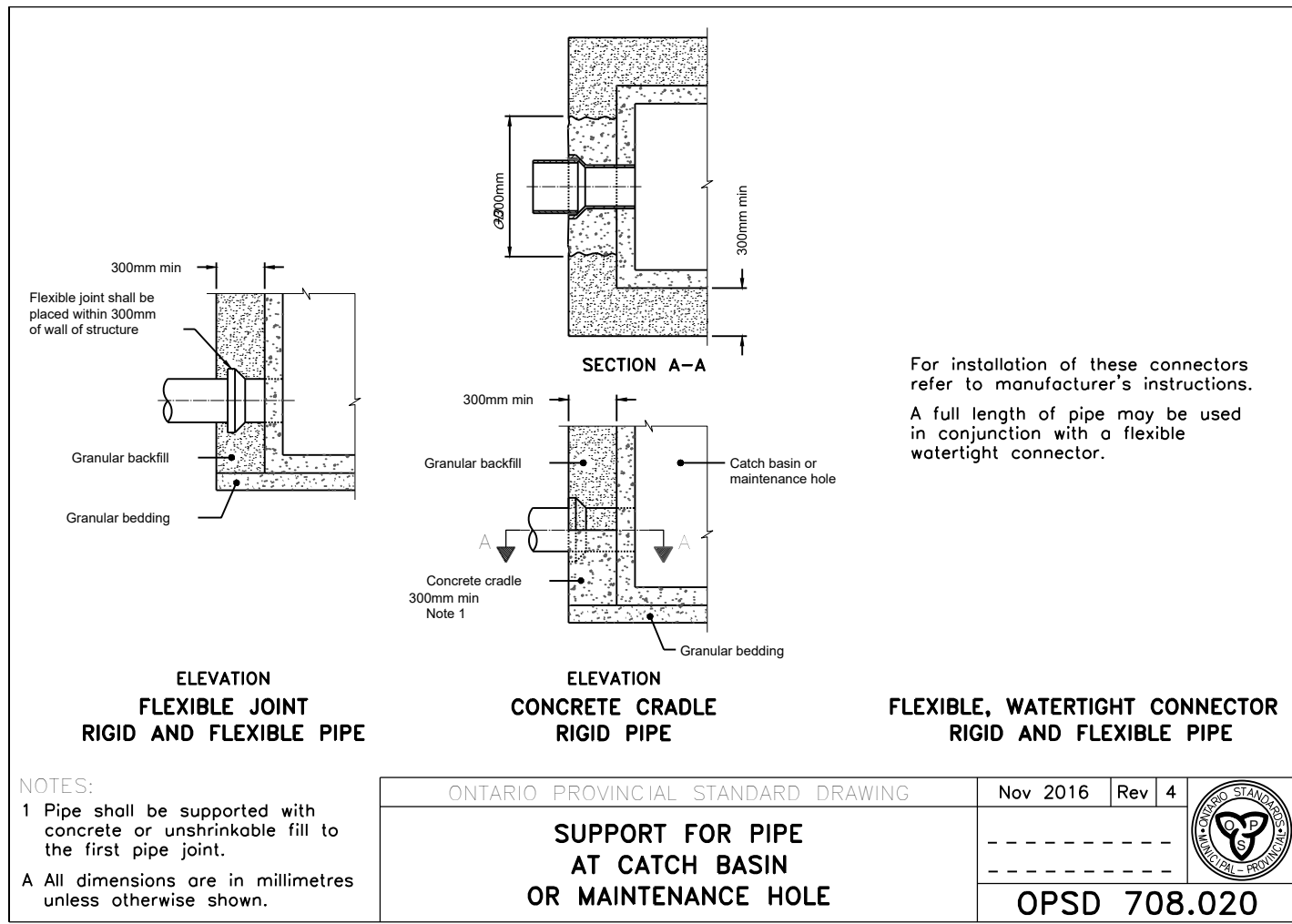
SCHEDULE OF REVISIONS			
NO.	DATE	DESCRIPTION	CHECKED
1	2020 11 16	ISSUED FOR SITE PLAN APPROVAL	BWB
2	2021 03 05	RE-ISSUED FOR SITE PLAN APPROVAL	BWB
3	2021 05 13	SWM REVISIONS	BWB



CORAL SOPHIA HOUSING
115 BAYFIELD ST.
BARRIE, ONTARIO
COUNTY OF SIMCOE

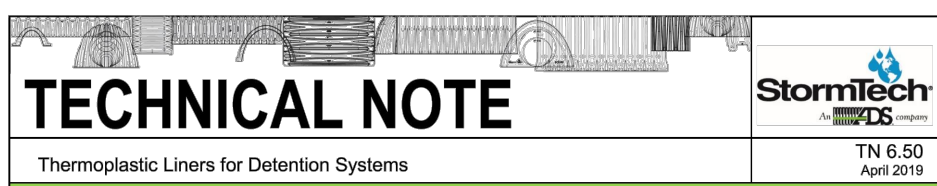
NOTES AND DETAILS

PROJECT NO. 17-3103	DRWG NO. 3103-DET2
DATE APRIL 2020	SCALE: N.T.S.
DRAWN: BDD/BWB	CHECKED: APPROVED:
SBA Skelton Brumwell & Associates Inc.	
ENGINEERING PLANNING ENVIRONMENTAL CONSULTANTS	
93 BELL FARM ROAD, SUITE 107 BARRIE, ONTARIO L4M 5G1 www.skeltonbrumwell.ca	
TELEPHONE (705) 728-1141 FAX (705) 728-0311 TOLL FREE (877) 728-1141	



SCHEDULE OF REVISIONS			
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3	2021 05 13	SWM REVISIONS	BWB

Specifications				
BENTOFIX® SRNWL				
Thermal Lock® Geosynthetic Clay Liners				
Bentofix Thermal Lock® SRNWL Series Geosynthetic Clay Liner (GCL) is a nonpermeable, thermally reinforced composite comprised of a core of natural Wyoming sodium bentonite clay between two durable geotextile layers to form a low permeability hydraulic barrier. The top layer is a staple fiber nonwoven (NW) geotextile while the bottom layer is a scrim (woven) reinforced nonwoven (SRNW) geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required. Product intended where subgrade conditions are rough in nature, prevent drainage below geomembranes, and/or where hydraulic head conditions may apply.				
Property	ASTM Test Method	Frequency	Value Imperial Units	Value Metric Units
Typical Geotextile Properties				
• Top / Cap Nonwoven (NW)	D 5261	200,000 sq ft	6.0 oz/yd ² MARV	200 g/m ² MARV ¹
• Scrim Reinforced Nonwoven Bottom Fabric (SRNW)	D 5261	(20,000 sq ft)	6.0 oz/yd ² MARV	200 g/m ² MARV
Bentofix Properties (as tested only)				
• Swell Index	D 5890	100,000 lbs.	24 ml/2 g min	24 ml/2 g min
• Moisture Content	D 4643	(50,000 kg)	12 % max	12 % max
• Fluid Loss	D 5891	100,000 lbs.	16 ml max	16 ml max
Finished GCL Properties				
• Bentofix Mass/Unit Area ²	D 5893	40,000 ft ² (4,000 m ²)	0.75 lbs/sq ² MARV	3.66 kg/m ² MARV
• Tensile Strength	D 6788	40,000 ft ² (4,000 m ²)	50 kN/m MARV	8.8 kN/m MARV
• Peel Strength	D 6496	40,000 ft ² (4,000 m ²)	3.5 lbs/in min	610 N/m min
• Permeability ³	D 5887	Weekly	5 x 10 ⁻¹⁰ cm/s max	5 x 10 ⁻¹⁰ cm/s max
• Index Flux ⁴	D 5887	Weekly	1 x 10 ⁻¹⁴ ml/min/s max	1 x 10 ⁻¹⁴ ml/min/s max
• Internal Shear Strength ⁵	D 6243	Periodic	500 psf Typical	24 kPa Typical



General

StormTech liners offer the distinct advantage and versatility that allow them to be designed as an open bottom detention or retention system. In fact the vast majority of StormTech installations and designs are open bottom detention systems. Using an open bottom system enables treatment of the storm water through the underlying soils and provides a volume safety factor based on the infiltrative capacity of the underlying soils.

In some applications, however, open bottom detention systems may not be allowed. This memo provides guidance for the design and installation of thermoplastic liners for detention systems using StormTech chambers. The major points of the memo are:

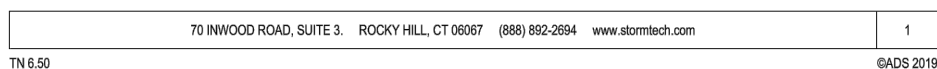
- Installation of stormwater is generally a desirable stormwater management practice, often required by regulations. Lined systems should only be specified where unique site conditions preclude significant infiltration.
- Thermoplastic liners provide cost effective and visible means to contain stormwater in StormTech subsurface systems where infiltration is undesirable.
- PVC and LDPE are the most cost effective, installed membrane materials.
- Enhanced puncture resistance from angular aggregate on the water side and from protrusions on the soil side can be achieved by placing a non-woven geotextile on each side of the geomembrane. A sand underlayment in lieu of the geotextile on the soil side may be considered when cost effective.
- StormTech does not design, fabricate, sell or install thermoplastic liners. StormTech recommends consulting with liner professionals for final design and installation advice.

Membrane Materials

Polyvinyl chloride (PVC) is an effective liner material for StormTech systems. PVC offers good chemical resistance to contaminant concentrations typical of highway runoff and to chlorides from road salting applications. Non-reinforced 30 mil PVC liners are recommended for StormTech systems. PVC is flexible. It can be folded without damage and is typically prefabricated and shipped to the jobsite. Panels as large as 20,000 sq. ft. can be prefabricated into a 4000 ft panel (30 mil is 0.165 inches, ft. 30" x 120" PVC has the versatility to be field solvent welded, taped or field heat welded. A very significant advantage of PVC is that an excavation contractor can install a PVC liner without specialty crews. Solvent welding of seams, patches and pipe boots can all be done by the excavation contractor making PVC the lowest cost liner alternative.

The PVC compound includes fillers and plasticizers to reduce cost and UV inhibitors to extend the service life under exposure to sunlight. Under prolonged sunlight exposure such as in a permanent surface pool, these additives can leach into the pool and reach concentrations harmful to aquatic life. PVC compounds referred to as "fish safe" are sometimes used for surface pond liners and may be considered for StormTech liners. However, since StormTech systems are subsurface, there is no opportunity for UV attack by sunlight. Also, since stormwater is detained for short durations, typically 48 hours or less, there is little opportunity for accumulation of leachates. Therefore, PVC is an excellent membrane material for thermoplastic liner detention systems.

Recommended Configuration: 30 mil PVC with 8-ounce non-woven geotextile underlayment and overlayment, open top with high flow bypass.



Recommended Restrictions: Do not use for fuel spill containment.

Linear low density polyethylene (LLDPE) is a very inert material that offers excellent chemical resistance and is "fish safe". LLDPE is an effective liner system for StormTech systems, particularly for small projects where the entire liner can be prefabricated in one piece or when using taped seams. LLDPE is flexible up to 30 mil but thicknesses greater than 30 mil should not be folded without potential damage. 30 mil LLDPE is recommended. Extra care should be taken to protect against puncture. A minimum 8-ounce non-woven fabric underlayment and 12-ounce overlayment should be specified. The underlayment should be increased to 12-ounce where water tightness is essential and increased puncture risk exists. Panels as large as 20,000 sq. ft. can be prefabricated into a 4000 ft panel (30 mil is 0.165 inches, ft. 30" x 120" LLDPE has a specific gravity less than 1.0. LLDPE seams can be taped or field heat welded. Installation costs may increase if field seaming by a specialty contractor is required.

Recommended Configuration: 30 mil LLDPE with 8-ounce non-woven geotextile underlayment and 12-ounce overlayment, open top with high flow bypass.

Recommended Restriction: Do not use for fuel spill containment.

Reinforced Polypropylene (RPP), EPDM and XR-8 are excellent materials for lining systems due to their flexibility, durability and excellent chemical and UV resistance. Although excellent lining materials, they generally exceed the engineering requirements for typical applications and are higher in cost than PVC or LLDPE. For fuel and oil concentrations normally found in storm water from parking and roadways, RPP, LLDPE and PP are suitable. However, if containment of aggressive contaminants, fuels or fuel spills are anticipated, a liner professional should be consulted. XR-8 in thicknesses of 30 mil or more, with welded seams may be suitable.

Polyethylene (PE) materials are generally inert, offer excellent chemical resistance and are "fish safe". Although medium density polyethylene (MDPE) liners are widely used for sanitary landfills and fish ponds, they are generally much higher in total cost and are not likely to be cost effective lining materials. High density polyethylene (HDPE) is not flexible enough to resist puncture and conform to the excavation. Cost aside, MDPE is an acceptable liner material for StormTech systems but should be limited to subgrades that are well prepared, without protrusions and must be field seamed.

Geotextile Materials

6-ounce AASHTO M288 Class 2 non-woven separation geotextile over the top of stone (ADS 801 or equal)

8-ounce AASHTO M288 Class 2 non-woven geotextile for use as protection layer for PVC, RPP and LLDPE (ADS 801 or equal)

12-ounce AREMA Chapter 1 Part 10 Category "Regular" non-woven geotextile for use as protection layer for LLDPE and other PE membranes (ADS 1201 or equal)

Seaming Options

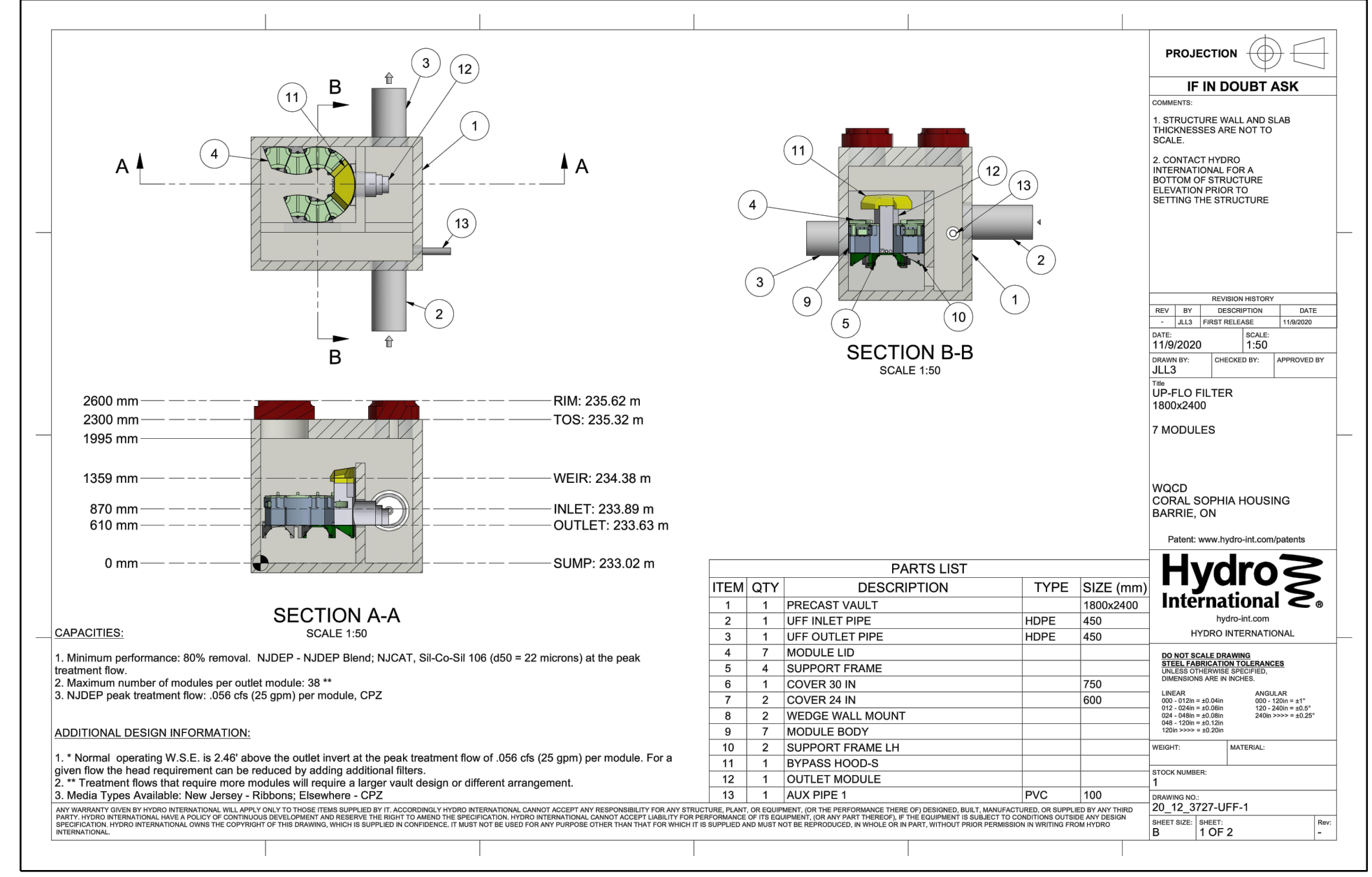
1. **Prefabricated or Field:** Prefabricated seams are preferable to field seams for all liner materials whenever possible.
2. **Solvent Welded:** PVC only, low cost.
3. **Heat Welded:** Costly, require trained seamer, for all liner materials.
4. **Taped:** Cost effective, MDO-RC Gray distributed by Tiltus Industrial Group recommended, single sided, 4" width, for all liner materials. No water tightness data is available.

2

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TN 6.50

APR 2018



CORAL SOPHIA HOUSING

115 BAYFIELD ST.

BARRIE, ONTARIO

COUNTY OF SIMCOE

DETAILS

PROJECT NO. 17-3103	DRWG NO. 3103-DET3
DATE APRIL 2020	SCALE: N.T.S.
DRAWN: BDD/BWB	CHECKED: APPROVED:

SBA Skelton Brumwell & Associates Inc.

ENGINEERING PLANNING ENVIRONMENTAL CONSULTANTS

93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G1
www.skeltonbrumwell.ca

TELEPHONE: (705) 728-1141
FAX: (705) 728-0331
TOLL FREE: (877) 728-1141

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM D4434-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2397 "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 STAGGLED JOINTS.
 - TO AVOID A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE ATTENTION OF THE BACK FILLING CONTRACTOR, THE THERMOPLASTIC CORRELATION AS DEFINED IN SECTION 3.2.4 OF ASTM D4434 SHALL BE GREATER THAN OR EQUAL TO 95% (LUBING) AND 1) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 71° F / 22° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

	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 PAYMENT SUBBASE MAY BE A PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS OR PER ENGINEERS PLANS. CHECK PLANS FOR PAYMENT SUBGRADE REQUIREMENTS.	NA	PREPARE PER SITE DESIGN ENGINEERS PLANS. MIXED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDED STONE (B) LAYER TO 10' (4800 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAYMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <50% FINES OR COMBINED 40-60% AND COMPACTED IN PLACE TO THE AASHTO M30.	AASHTO M30 ¹ A-1, A-2, A-3 OR AASHTO M62 ²	BELOW COMPACTION AFTER 10' (3000 mm) OF MATERIAL OVER THE CHAMBERS IS REQUIRED. COMPACT ADDITIONAL LAYERS IN 10' (3000 mm) LIFT TO 10' (4800 mm) ABOVE THE TOP OF THE WELL-GRADED MATERIAL AND 85% RELATIVE DENSITY FOR PREPARED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 (54,000 LBS) DYNAMIC FORCE NOT TO EXCEED 26,000 (58,000 LBS).
B	EMBEDED STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A) LAYER TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M30 ¹ 3, 357, 4, 487, 5, 56, 57, 6, 8, 78, 8, 89, 10, 9	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 M30 ¹ 3, 357, 4, 487, 5, 56, 57	PLATE CORROSION OR ROLL TO ACHIEVE A FLAT SURFACE. ^{1,3}

PLEASE NOTE:

1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR R#8 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 8 (AASHTO M30) STONE".
2. STORMWATER COMPACTION REQUIREMENTS ARE SET FOR 4' (1200 mm) VERTICAL LAYERS WHEN PLACING TWO FULL COVERAGES WITH VIBRATORY COMPACTOR.
3. WHEN INFILTRATION SYSTEMS MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'D' IS PLACED, ANY SUBGRADE/CANAL CAN BE PLACED IN LAYER 'D' TO THE FINISHED GRADE. MOST PAYMENT SUBBASE SOILS CAN BE USED BY THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEERS DISCRETION.

DETAIL: CROSS SECTION OF CHAMBER

THIS CROSS SECTION DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR INSTALLATION. PLEASE SEE THE LAYOUT SHEETS FOR PROJECT SPECIFIC REQUIREMENTS.

DEPTH OF STONE 'B' TO BE DETERMINED BY SITE DESIGN ENGINEER (1500 mm MIN)

NON-WOVEN GEOTEXTILE

EARTH

THERMOPLASTIC LINER

OVERLAP ON TOP SEVERAL INCHES TO ANCHOR

THERMOPLASTIC LINER DETAIL

117 BAYFIELD STREET
BAYVIEW, ONTARIO
M2H 3A5
CANADA

TEL: 416-291-2222
FAX: 416-291-2223
WWW.STORMTECH.COM

SC-740 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

SC-740 6\"/>

NOTES

- 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.
- CONDUCT JETTING AND VACUUMING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

* THE PART# 2712AGP/PKT CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION.

SC-740 6\"/>

4 SHEET OF 5

- StormTech does not design, fabricate, seal or install thermoplastic liners. StormTech recommends consulting with liner professionals for final design and installation advice.

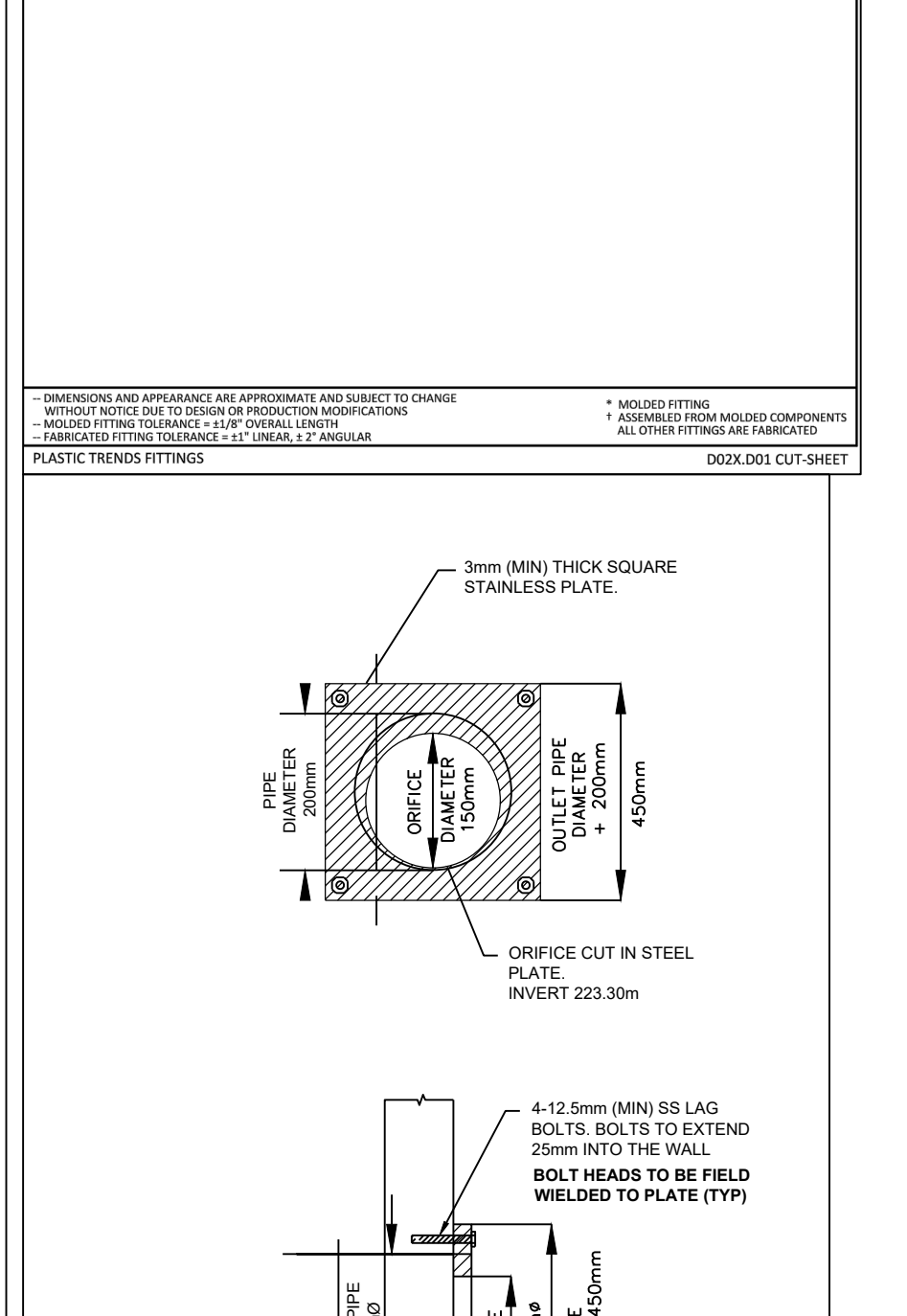
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The PVC compound includes fillers and plasticizers to reduce cost and UV inhibitors to extend the service life under exposure to sunlight. Under prolonged sunlight occurrence such as in a permanent surface pond, these additives can leach into the pool and reach concentrations harmful to aquatic life. As "compounds referred to as leachates" are not allowed in stormwater runoff, PVC is not to be considered for StormTech liners. However, since StormTech systems are subsurface, there is no opportunity for UV surface aging by sunlight. The leachate is believed to be short duration. In typical 48 hours or less, there is little opportunity for accumulation of leachates. Therefore, PVC is an excellent membrane material for thermoplastic liner detention systems.

Recommended Configuration: 30 mil PVC with 8-ounce non-woven geotextile underlayment and overlamination, open top with high flow baffle.

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