

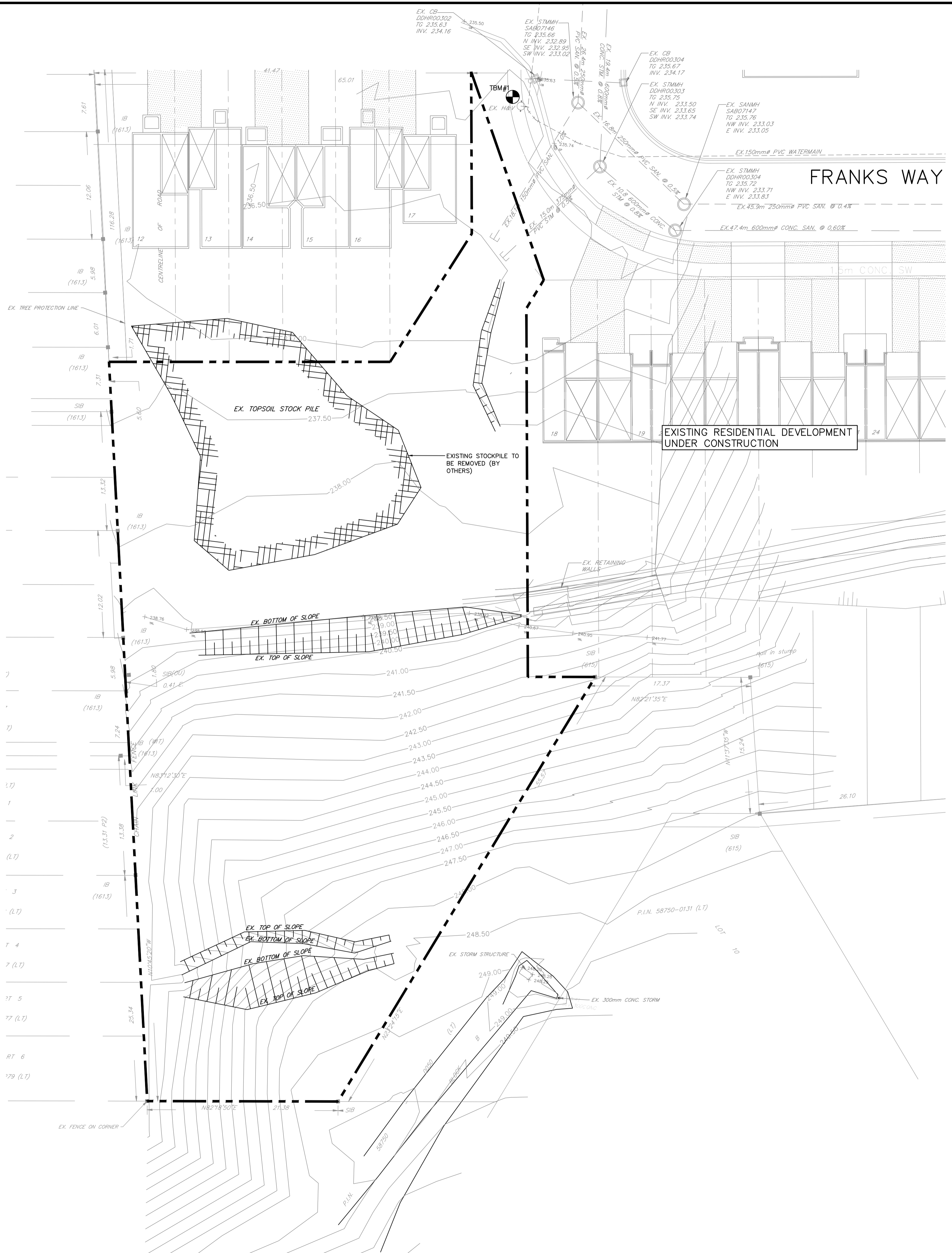
# 133 FRANKS WAY 15 UNIT RESIDENTIAL DEVELOPMENT CITY OF BARRIE



LIST OF DRAWINGS	
RM-1	EXISTING CONDITIONS REMOVALS PLAN
ESC-1	EROSION AND SEDIMENT CONTROL PLAN
SERV-1	SITE SERVICING PLAN
GP-1	SITE GRADING PLAN
PRE-1	PRE-DEVELOPMENT CONDITIONS CATCHMENT PLAN
POST-1	POST-DEVELOPMENT CONDITIONS CATCHMENT PLAN
PM-1	PAVEMENT MARKINGS AND SIGNAGE PLAN
SD-1	STANDARD CONSTRUCTION NOTES
DET-1	DETAILS PLAN

PROJECT NO.18-11404B

2ND SUBMISSION  
JUNE 2019



**LEGEND**

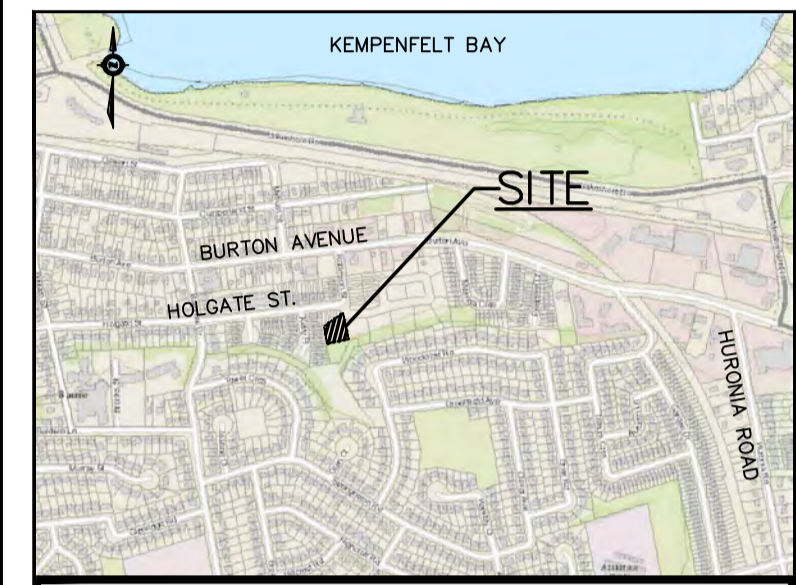
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	EX. SANITARY LINE
	EX. STORM LINE
	PROPERTY LINE
	EX. MAJOR CONTOUR
	EX. MINOR CONTOUR
	EX. STORM DCB
	EX. STORM MH
	EX. SANITARY MH
	EX. WATER VALVE
	EX. HYDRO POLE



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- KEY MAP**
- TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018.
  - LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.

**BENCHMARK**

TBM#1: TOP NUT OF HYDRANT LOCATED NORTH OF PROPERTY ON FRANK'S WAY.  
ELEVATION: 236.416

1	19.06.05	SITE PLAN REVISION	G.N.
NO.	YY.MM.DD	REVISION	BY

	NORTH ARROW

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	JANUARY 2019
SCALE:	1:250

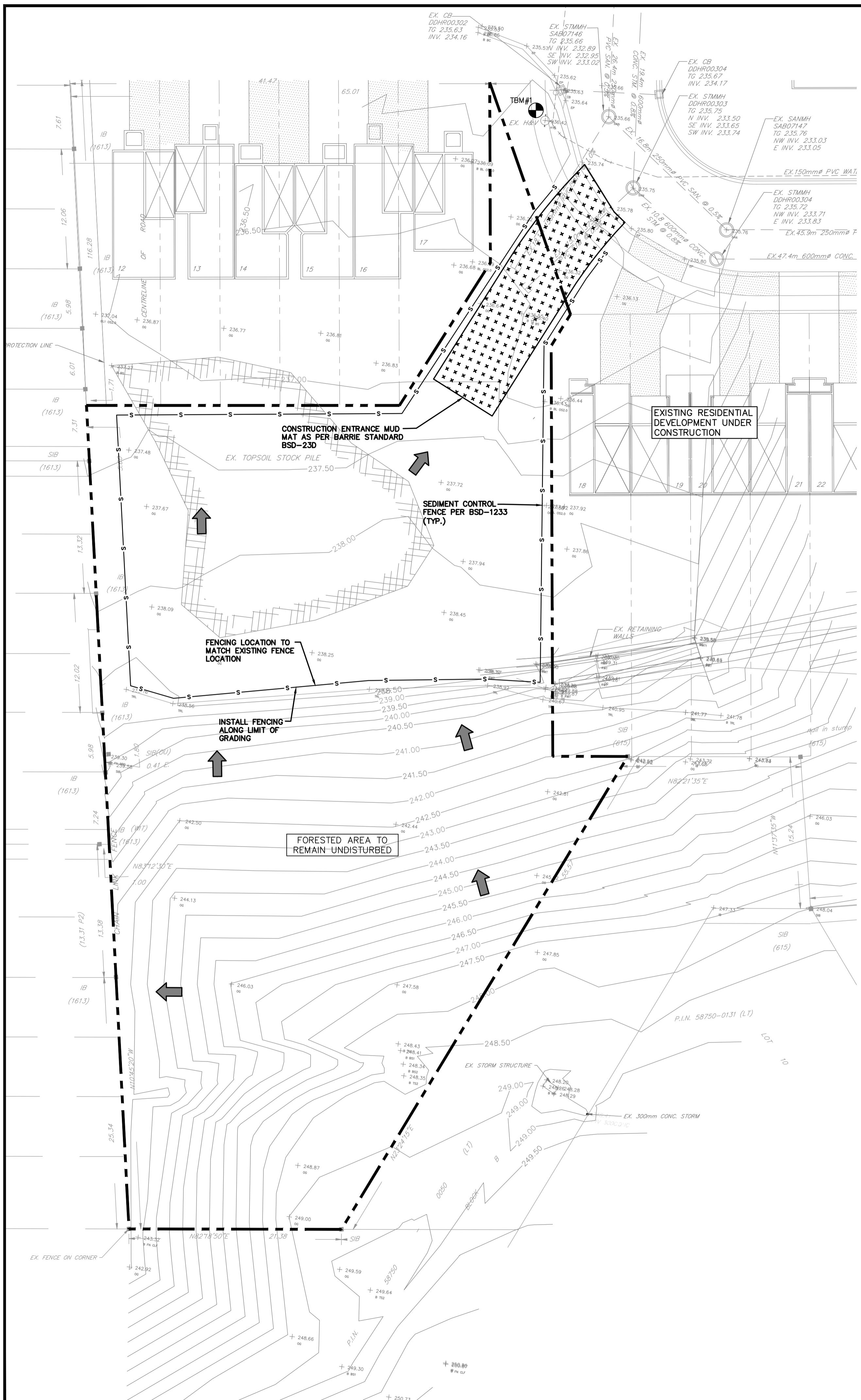
CLIENT/PROJECT

**17 FRANKS WAY  
RESIDENTIAL DEVELOPMENT**

DRAWING TITLE

**EXISTING CONDITIONS AND  
REMOVALS PLAN**

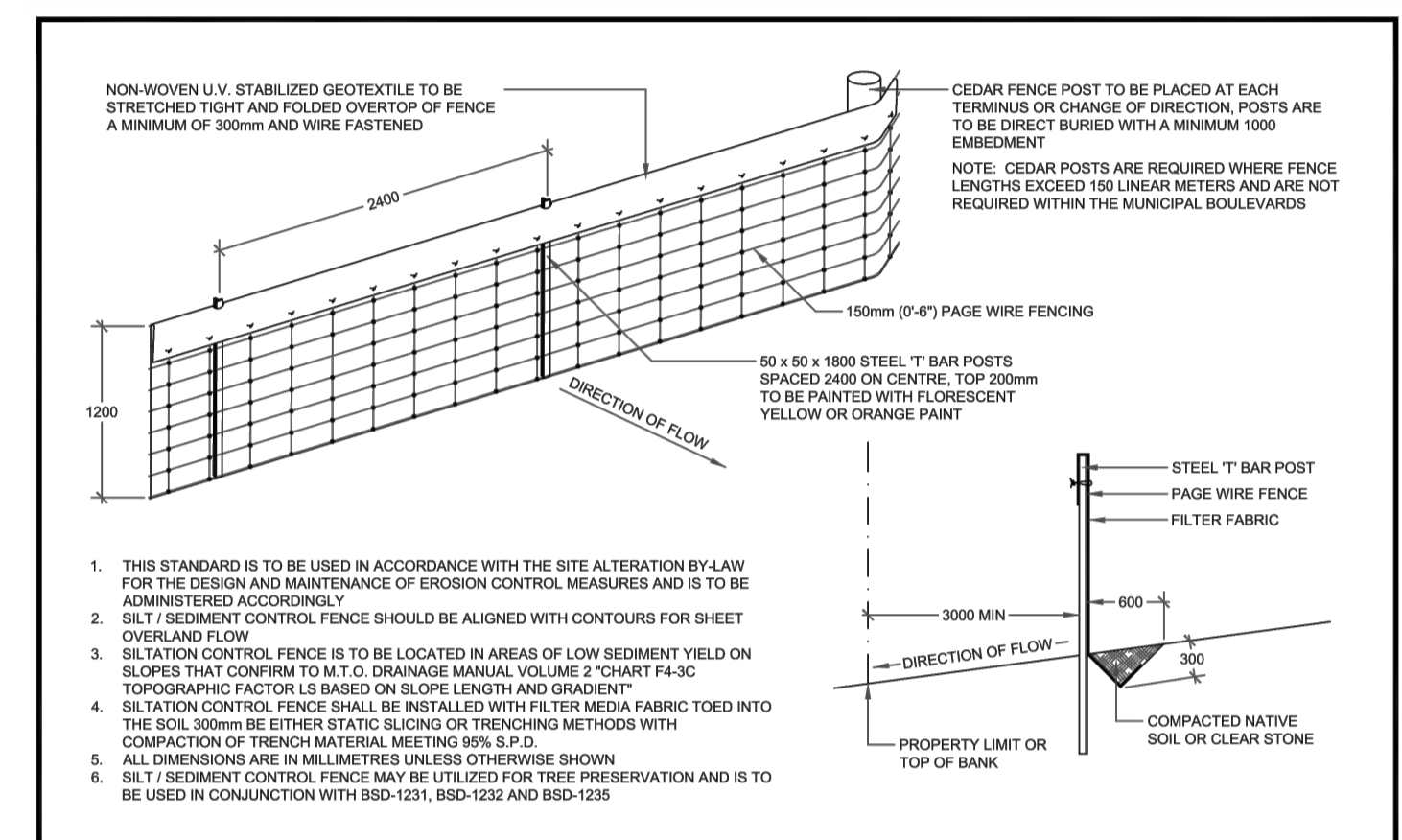
PROJECT NO. <b>18-11404-B</b>	DRAWING NO. <b>RM-1</b>	REVISION <b>1</b>
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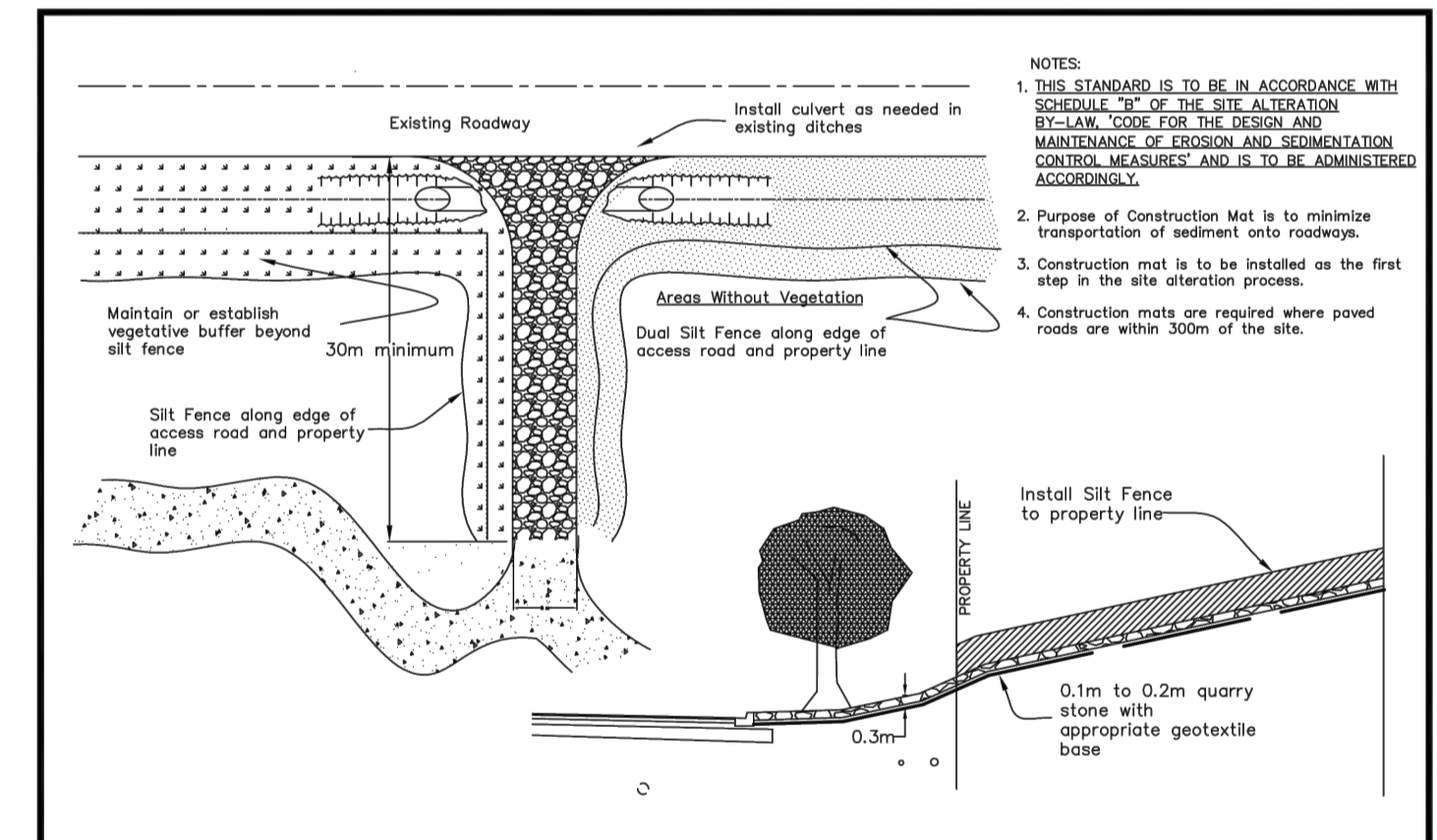
- LEGEND**
- EX. FENCE LINE
  - EX. SANITARY LINE
  - EX. STORM LINE
  - PROPERTY LINE
  - EX. MAJOR CONTOUR
  - EX. MINOR CONTOUR
  - EX. STORM DCB
  - EX. STORM MH
  - EX. SANITARY MH
  - EX. WATER VALVE
  - EX. HYDRO POLE
  - DIRECTION OF OVERLAND FLOW
  - SILTS FENCE
  - CONSTRUCTION ENTRANCE MAT

**EROSION CONTROL NOTES:**

1. All silt fencing to be installed prior to any grading or excavation.
2. Erosion control fencing to be installed around the base of all stockpiles.
3. Additional erosion control measures may be required as site development progresses. Contractor to provide all additional erosion control structures as directed by the engineer.
4. Pinestone Engineering Ltd. to monitor erosion control structures to ensure fencing is installed and maintenance is performed to municipal requirements.
5. Erosion control structures to be monitored regularly and after every rainfall. Any damage repaired immediately. Sediments to be removed when accumulations reach a maximum of 1/2 the height of the fence.
6. All erosion control structures to remain in place until all disturbed ground has been re-stabilized either by paving or restoration of vegetative ground cover.
7. No alternate methods of erosion protection shall be permitted unless approved Pinestone Engineering Ltd. and the City of Barrie.
8. Install mud mat prior to any grading works onsite.
9. Contractor is responsible for municipal roadway to be cleared of all sediments from vehicular tracking etc. at the end of each day.



<b>Barrie</b> STANDARD DETAIL	SILTATION CONTROL FENCING	REV No. 2	DATE: OCT 2017	APPROVED
		BSD-1233 FORMERLY BSD-23A	DATE: Oct 10/17	Original Signed By



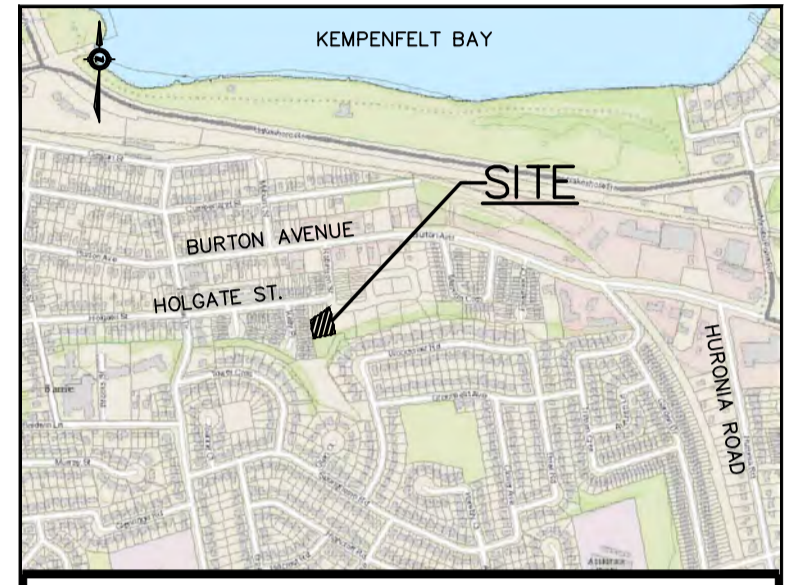
CITY OF BARRIE STANDARD	1. Standardized Dimension Text	J.S. 05.10.28	APPR'D: R.G.N.	DATE: 04.03.16
CONSTRUCTION ENTRANCE MAT			DRAWN: A.S.C.	SCALE: N.T.S.

PEL  
PINESTONE ENGINEERING LIMITED | www.pel.ca

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NO.	YY.MM.DD	REVISION	BY

SEAL

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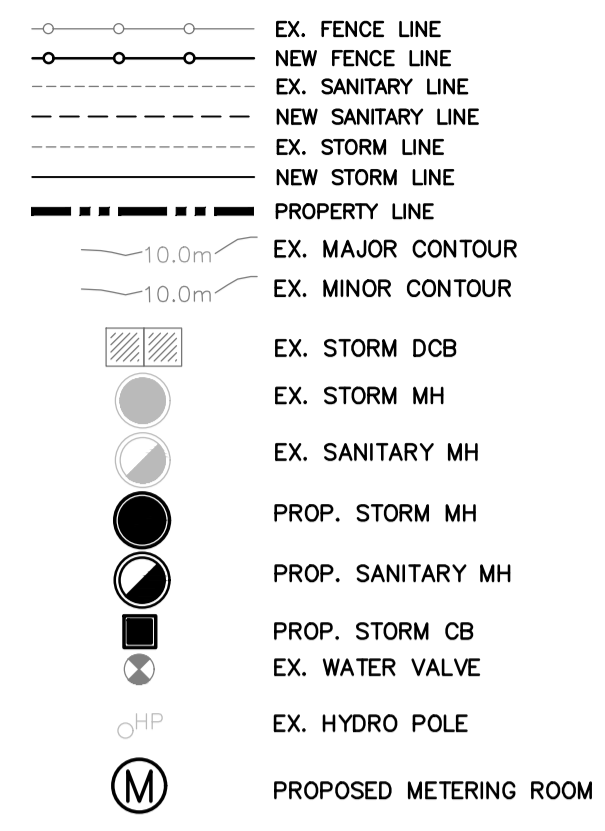
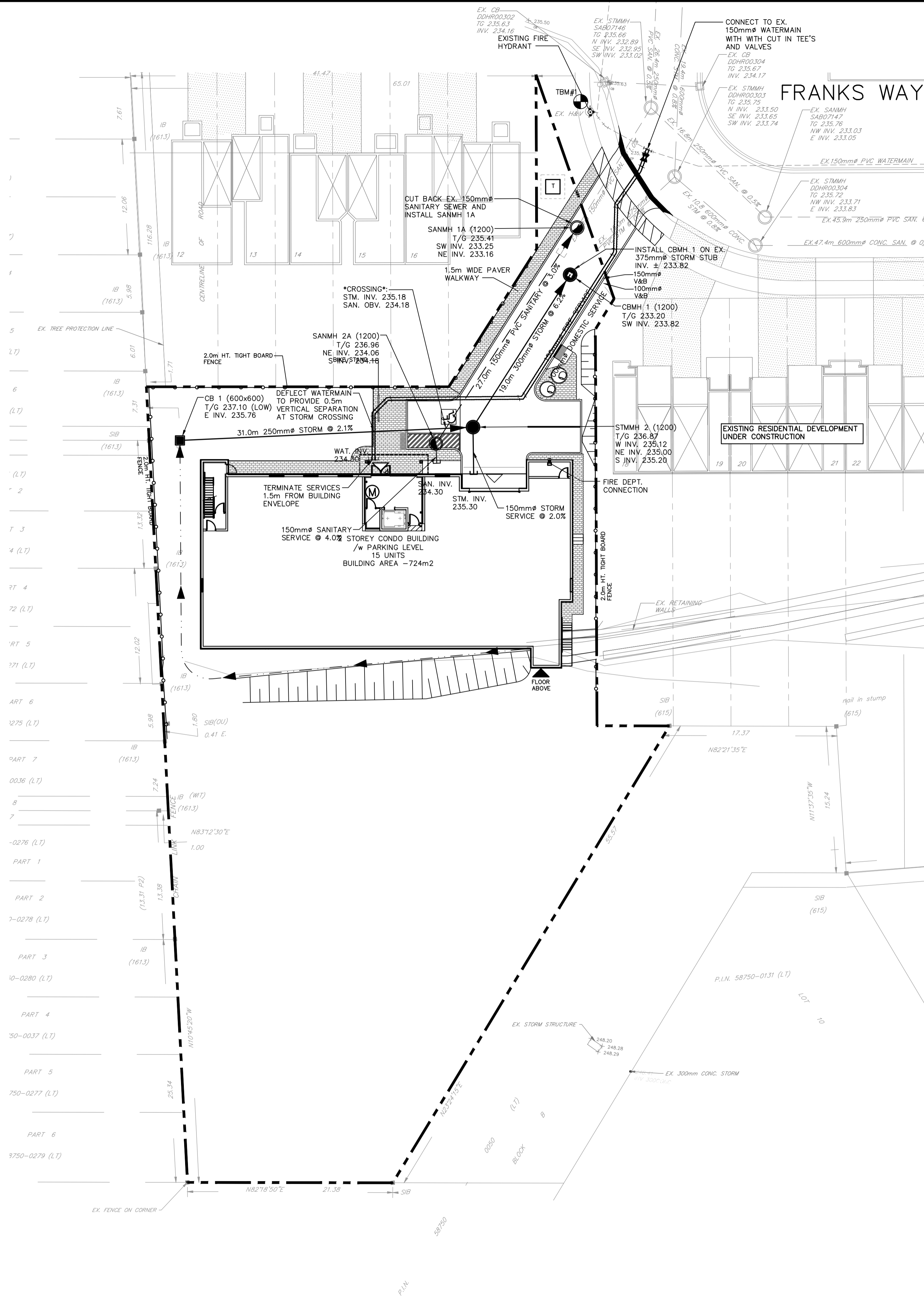
CLIENT/PROJECT

**17 FRANKS WAY  
RESIDENTIAL DEVELOPMENT**

DRAWING TITLE

**EROSION AND SEDIMENT  
CONTROL PLAN**

PROJECT NO. <b>18-11404-B</b>	DRAWING NO. <b>ESC-1</b>	REVISION <b>1</b>
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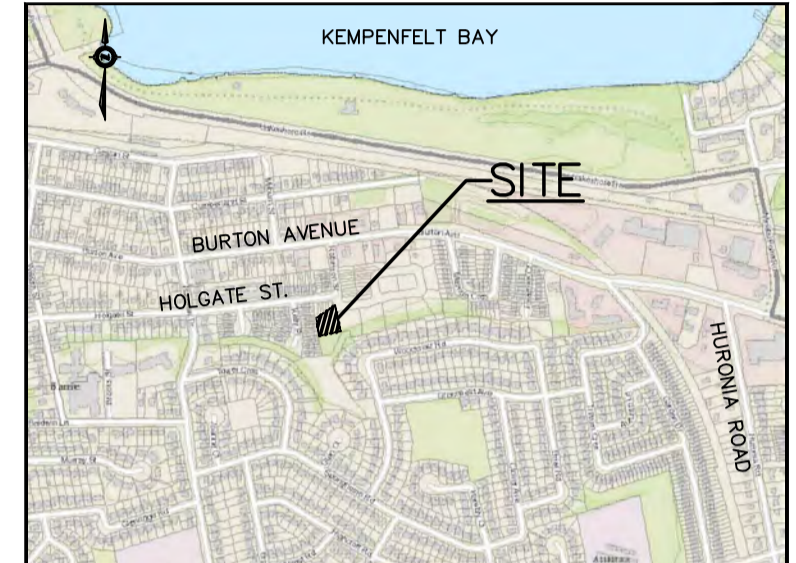
NOTE: EXISTING WATER SERVICE TO PROPERTY SHALL BE DECOMMISSIONED AS PER CITY OF BARRIE ENGINEERING STANDARDS.



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  2. LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.
  3. METER INSTALLATION PER CITY STANDARD BSD-533. BACKFLOW DEVICE MUST BE INSTALLED A MAXIMUM OF 3m DOWNSTREAM OF THE WATER METER.
  4. BACKFLOW DEVICE TO COMPLY WITH CITY OF BARRIE BY-LAW 2017-121 AS AMENDED.
  5. DOMESTIC AND FIRE SERVICES ENTERING THE BUILDING SHALL HAVE RISERS CONSTRUCTED PER CITY STANDARD BSD-505.

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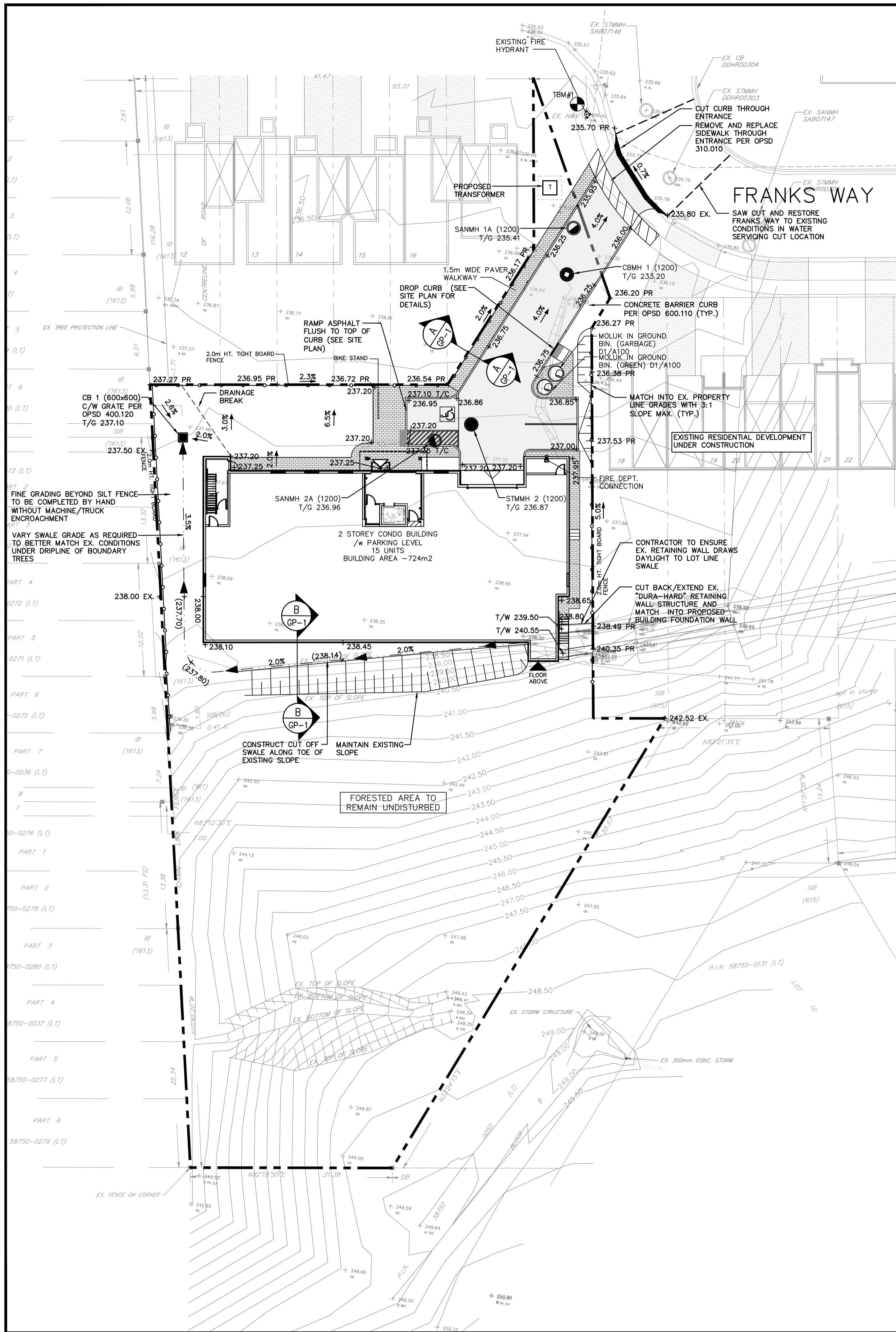
CLIENT/PROJECT

**17 FRANKS WAY  
RESIDENTIAL DEVELOPMENT**

DRAWING TITLE

**SITE SERVICING PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	SERV-1	1



**LEGEND**

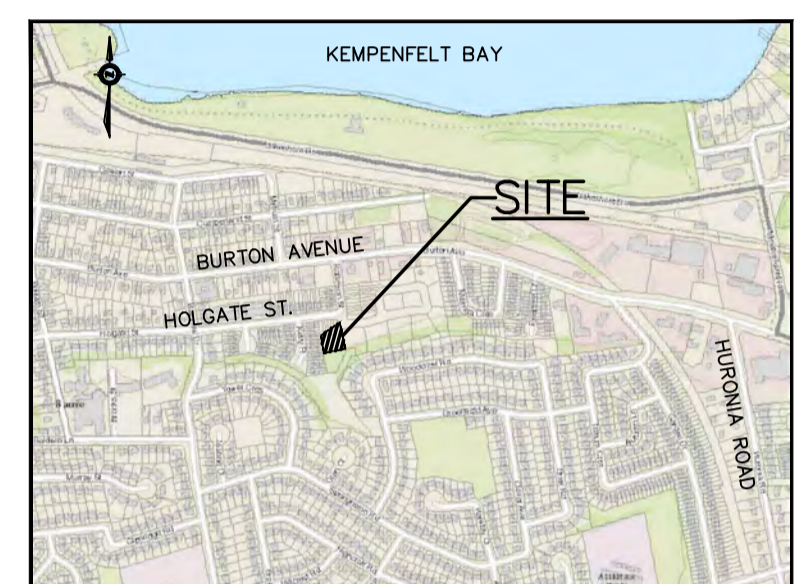
- EX. FENCE LINE
- NEW FENCE LINE
- EX. SANITARY LINE
- NEW SANITARY LINE
- EX. STORM LINE
- NEW STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- PROP. STORM MH
- PROP. SANITARY MH
- PROP. STORM CB
- EX. WATER VALVE
- PROP. BLOWOFF
- EX. HYDRO POLE
- x 318.00 PROPOSED ELEVATION
- x (318.00) PROPOSED SWALE ELEVATION
- x 318.00 EX. EXISTING ELEVATION
- x 318.00 T/W TOP OF RETAINING WALL ELEVATION
- x 318.00 B/W BOTTOM OF RETAINING WALL ELEVATION
- x 318.00 T/C TOP OF CURB
- x 318.00 PR PROPOSED DESIGN GRADE FROM APPROVED PARKSHORE GRADING PLAN



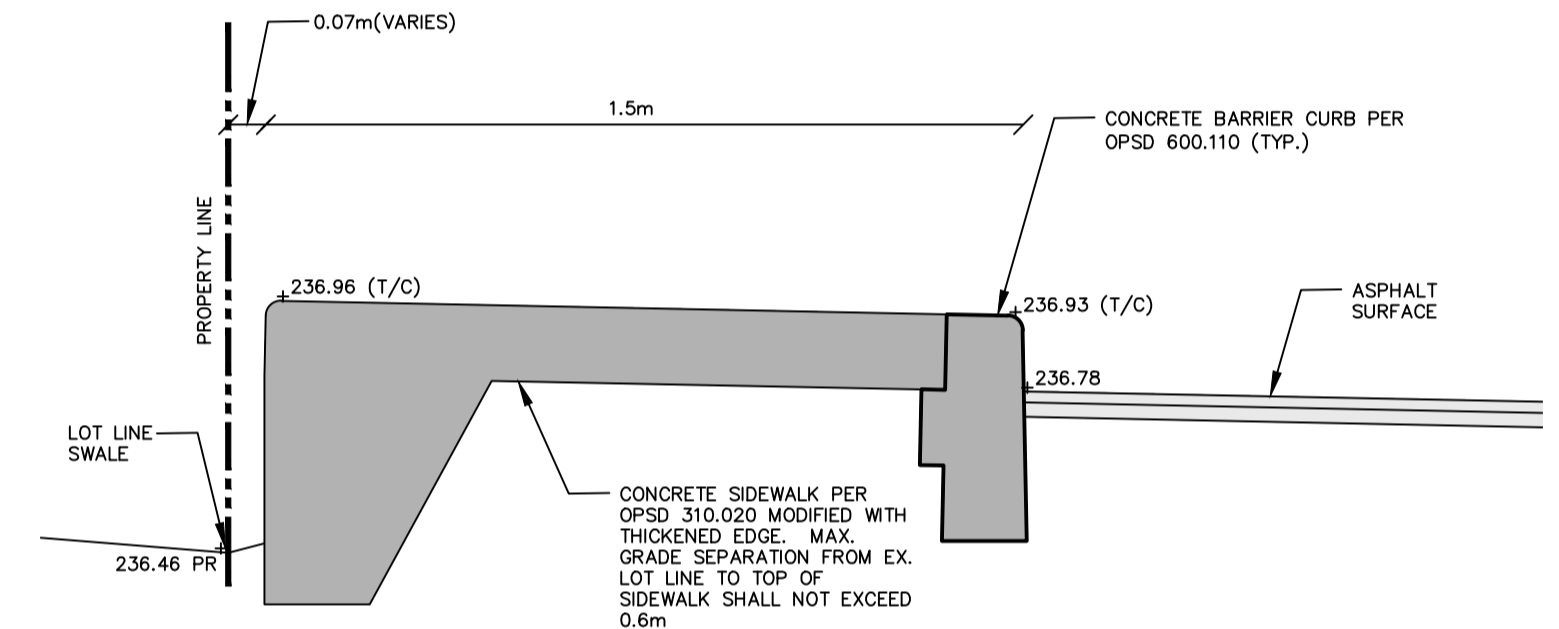
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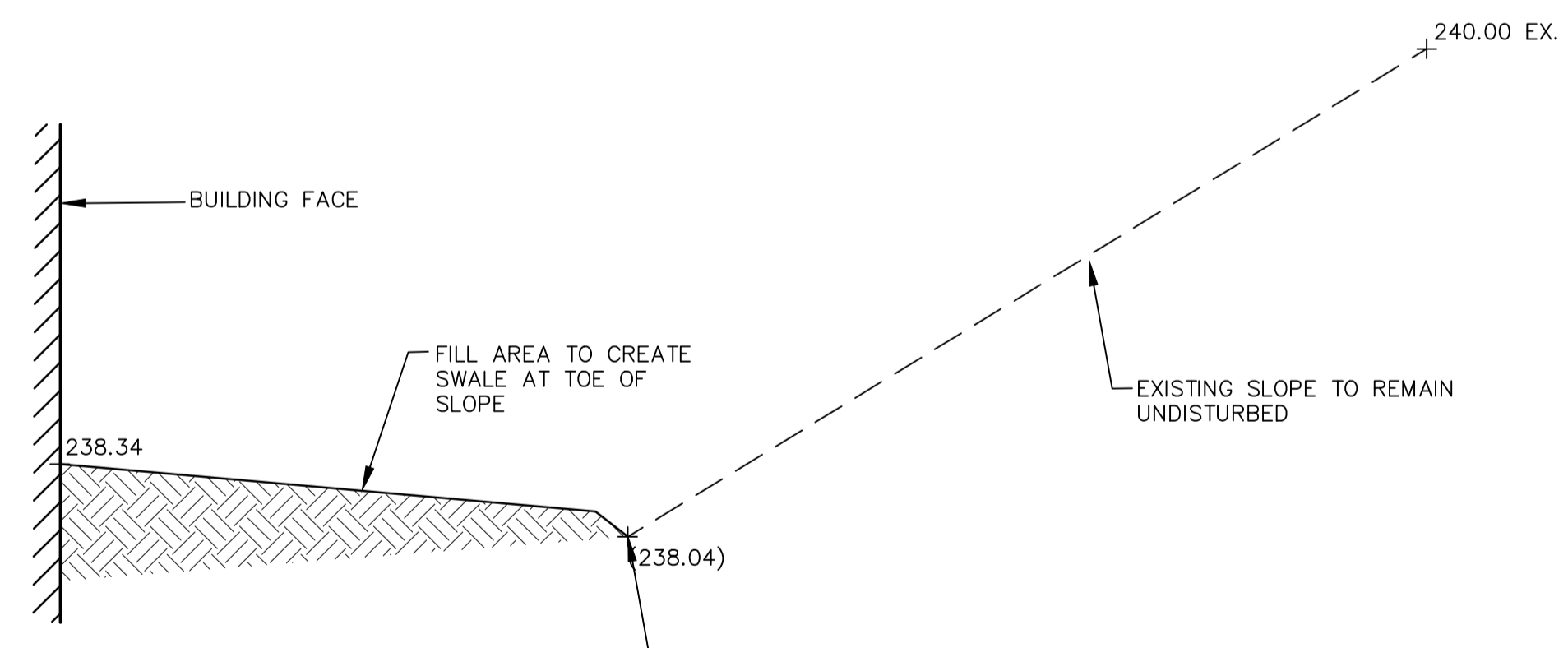
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**SECTION A-A**  
1:15



**SECTION B-B**  
1:25

**BENCHMARK**

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1	19.06.05	SITE PLAN REVISION	G.N.

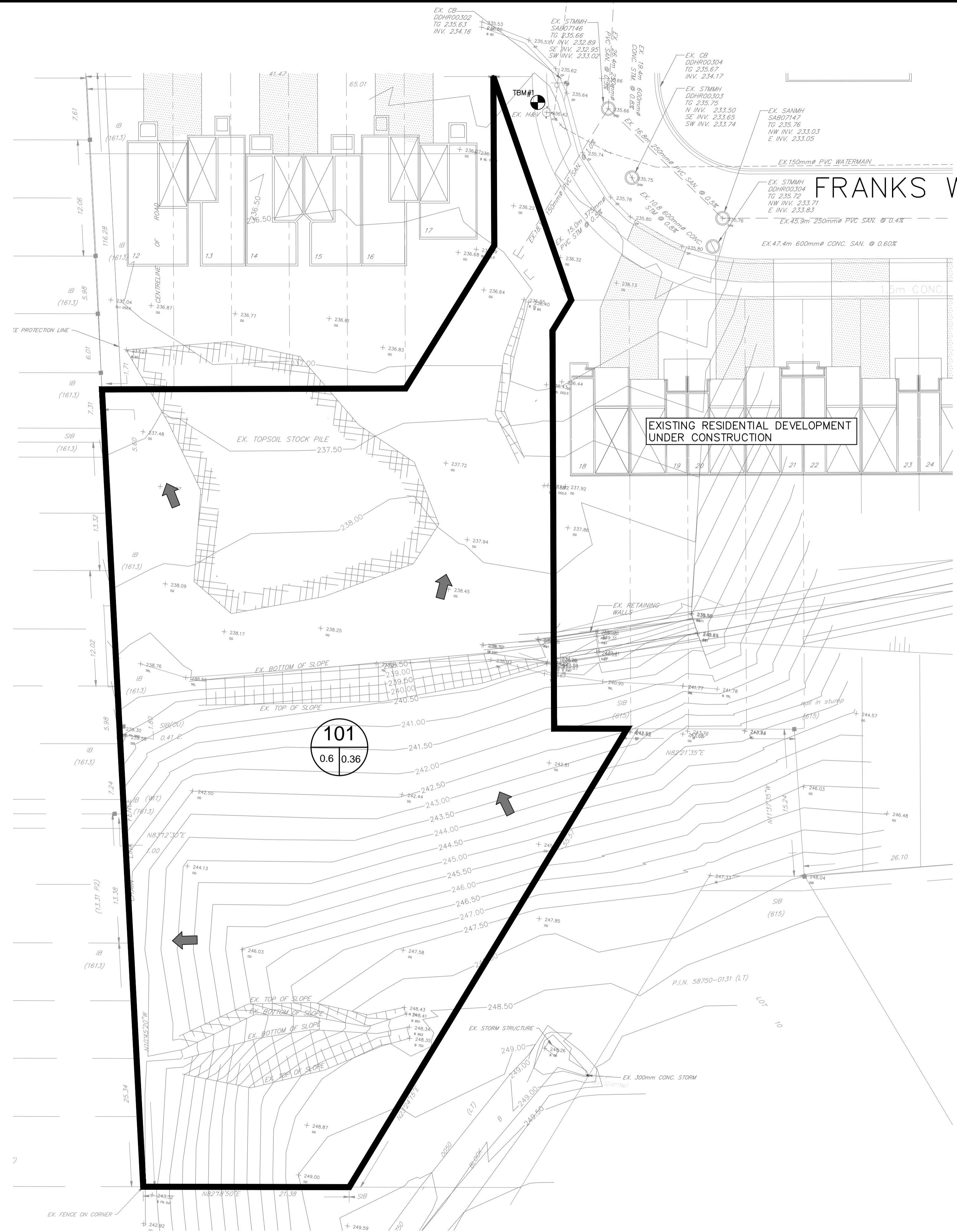
SEAL: NORTH ARROW:

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	JANUARY 2019
SCALE:	1:250

CLIENT/PROJECT: **17 FRANKS WAY RESIDENTIAL DEVELOPMENT**

DRAWING TITLE: **SITE GRADING PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	GP-1	1



**LEGEND**

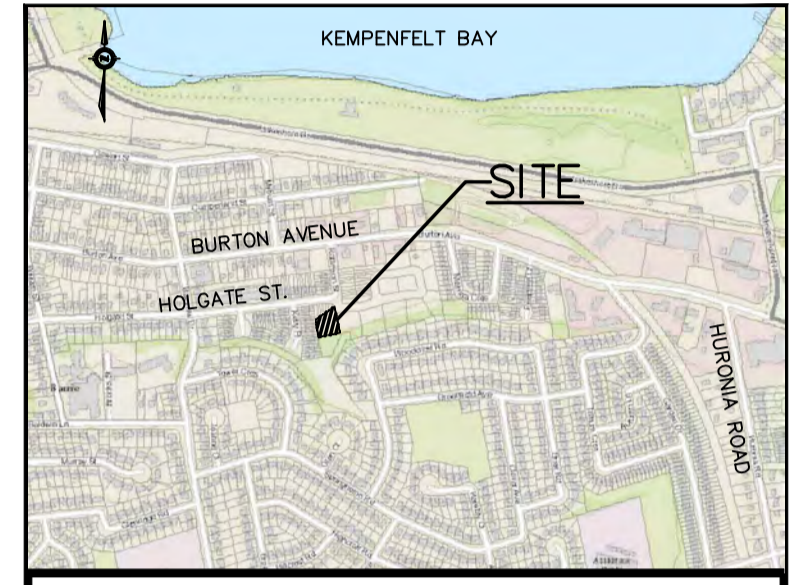
- EX. FENCE LINE
- EX. SANITARY LINE
- EX. STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- EX. WATER VALVE
- EX. HYDRO POLE
- DIRECTION OF OVERLAND FLOW
- 101 SUB-CATCHMENT NUMBER
- 0.6 AREA (ha)
- 0.36 COEFFICIENT
- PRE-DEVELOPMENT CATCHMENT BOUNDARY



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CLIENT/PROJECT

**17 FRANKS WAY  
RESIDENTIAL DEVELOPMENT**

DRAWING TITLE

**PRE-DEVELOPMENT CONDITIONS  
CATCHMENT PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	PRE-1	1

CATCHMENT	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
101	0.050	0.065	0.076	0.098	0.118	0.135

**NOTE:** REFER TO APPROVED CONSTRUCTION DRAWING STM-1 PREPARED BY GERRITS ENGINEERING LTD. DATED AUGUST 23, 2016 FOR OVERALL STORM DRAINAGE PLAN

<b>133 Franks Way</b> City of Barrie		<b>STORM SEWER DESIGN SHEET</b> ENGINEERING AND PUBLIC WORKS		<b>Design Parameters</b>										
Project Number: 18-11404-B Date: June 1, 2019 Design By: JHV Checked By: JHV File: Z:\Project Documents\11404-B Franks Way Apartments Barrie\LINE REVISED\franks way storm sheet.dwg		Drainage Area Plan No: N/A		<b>1 YEAR STORM</b> Intensity (i) = 87.0-107 Min. Velocity: 0.800 m/s Max. Velocity: 6.000 m/s Manning's n: 0.013 s = 0.00025 b = 4.699 c = 0.785										
<b>LOCATION</b>		<b>STORMWATER FLOW</b>		<b>DESIGN</b>										
STREET	AREA NUMBER	MANHOLE LOCATION FROM MH TO MH	AREA (A)	RUNOFF COEFF. (C)	A x C	CONCENTRATION TIME (min)	RAIN INTENSITY (mm/hr)	FLOW (Q) (L/s)	PIPE SIZE (mm)	LENGTH (m)	SLOPE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)
Catchment 201 Catchment 202 Outlet to Street	201 202	CB1 CBM1 CBM1	0.290 0.070 0.000	0.31 0.95 0.95	0.0899 0.0665 0.0000	10.0000 10.3324 10.4528	0.3324 108.9211 107.57021	27.12411 46.36662 46.10409	250 300 375	31.0 16.0 16.0	2.10 0.20 0.50	86.17664 240.79395 123.97713	1.7656 3.4994 1.1225	1.8542 2.8308 1.0396



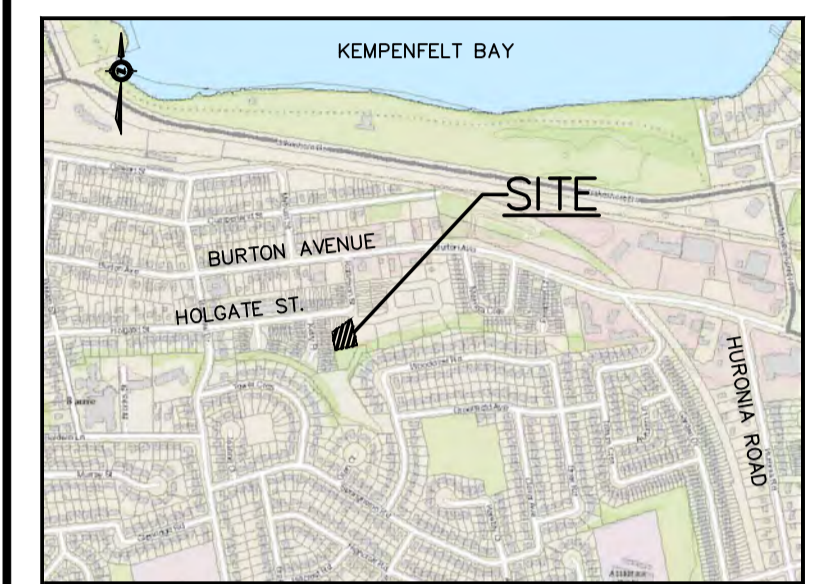
	EX. FENCE LINE
	EX. SANITARY LINE
	EX. STORM LINE
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	EX. MAJOR CONTOUR
	EX. MINOR CONTOUR
	EX. STORM DCB
	EX. STORM MH
	EX. SANITARY MH
	EX. WATER VALVE
	EX. HYDRO POLE
	DIRECTION OF OVERLAND FLOW
	POST CATCHMENT NUMBER
	AREA (ha)
	COEFFICIENT
	POST DEVELOPMENT CATCHMENT BOUNDARY



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SCALE:	1:250

CLIENT/PROJECT		
<b>17 FRANKS WAY RESIDENTIAL DEVELOPMENT</b>		
DRAWING TITLE		
<b>POST-DEVELOPMENT CONDITIONS CATCHMENT PLAN</b>		
PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	POST-1	1

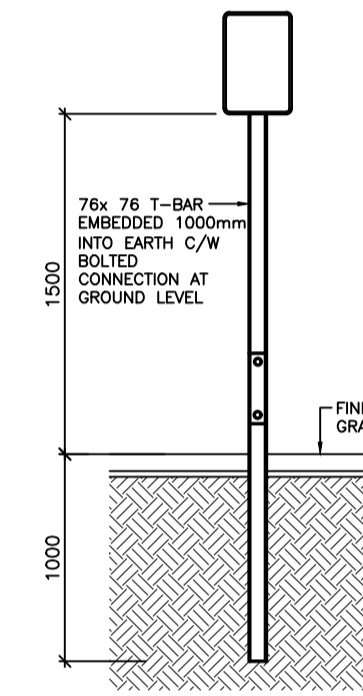
RATIONAL METHOD POST DEVELOPMENT RUN-OFF RATES (TO FRANK'S WAY)						
CATCHMENT	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
201	0.020	0.027	0.031	0.040	0.048	0.055
202	0.015	0.020	0.023	0.029	0.032	0.035
TOTAL	0.035	0.047	0.054	0.069	0.080	0.090

**PAVEMENT MARKING AND SIGNAGE NOTES:**

1. PROVIDE ALL SITE SIGNAGE AND PAVEMENT MARKINGS AS SHOWN ON SITE PLAN AND PAVEMENT MARKING AND SIGNAGE PLAN.
2. FINAL LOCATION OF FIRE ROUTE SIGNAGE TO BE DETERMINED IN FIELD BY LOCAL FIRE DEPARTMENT.
3. SIGNAGE AND LINE PAINTING TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. REFER TO SITE PLAN FOR BARRIER FREE SIGNAGE DETAILS.
5. PAVEMENT MARKING TO CONFORM WITH OPSS.710 AND 1712.
6. W1 SIGN TO BE APPROVED BY CITY OF BARRIE PRIOR TO CONSTRUCTION. SIGN TO MATCH EXISTING SIGNS USED AT RIGHT IN RIGHT OUT ENTRANCE LOCATED BETWEEN MAPLETON AVE. AND COUGHLIN ROAD, ON THE WEST SIDE OF ESSA ROAD.
7. ALL STRIPPING TO BE 100mm WIDE AND WHITE.

**LEGEND**

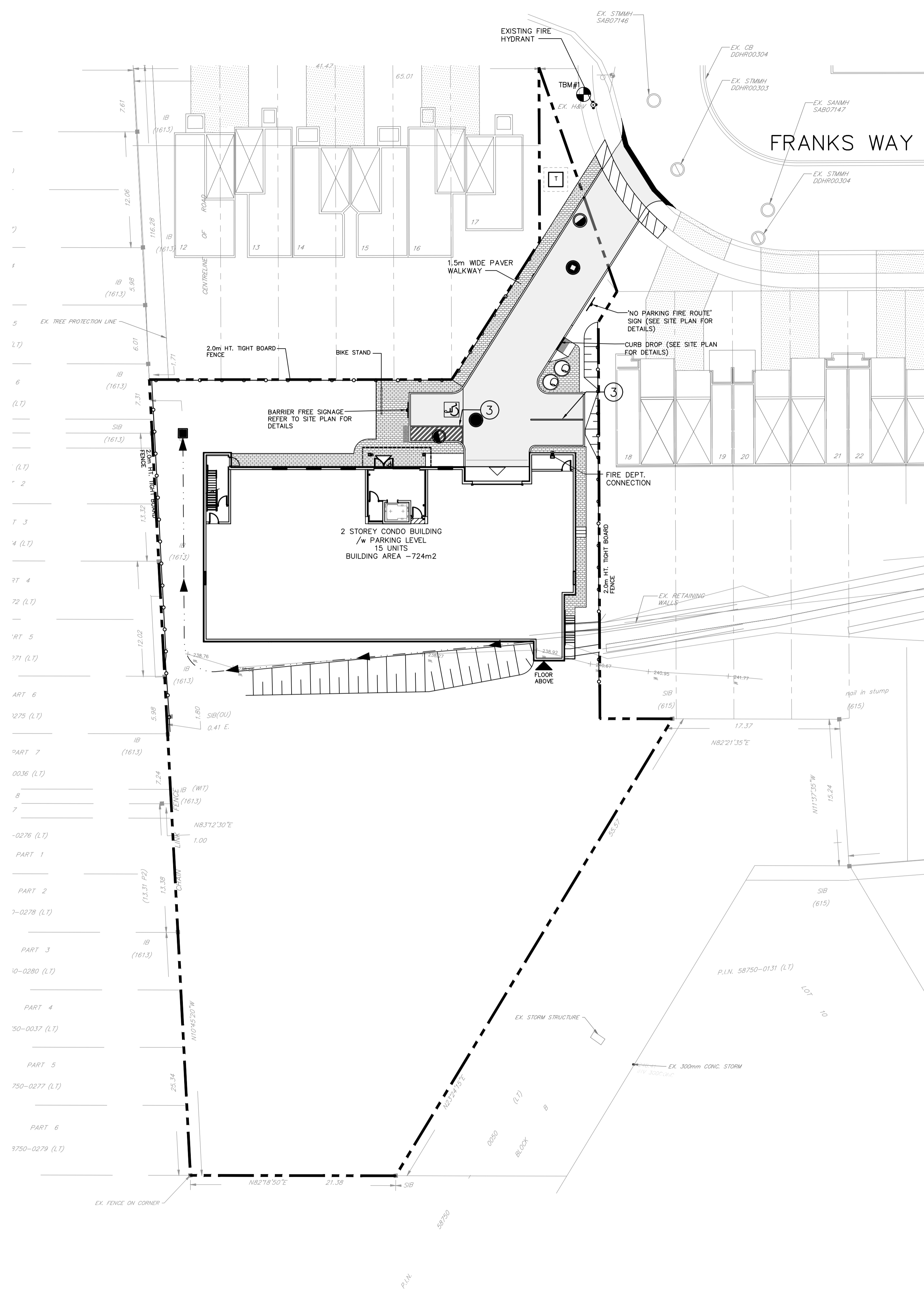
- ① SOLID YELLOW 10cm WIDTH
- ② SOLID WHITE 60cm WIDTH (CROSS WALK)
- ③ SOLID WHITE 10cm WIDTH
- PROPOSED ASPHALT AREA
- ▲ PROPOSED SIGN



**TYPICAL SIGN MOUNTING DETAIL**  
N.T.S.

PAVEMENT STRUCTURE		
MATERIAL		THICKNESS (mm)
ASPHALT	HL3 SURFACE HL8 BINDER	50 60
GRANULAR BASE (OPSS 1010)	GRANULAR 'A' GRANULAR 'B'	150 450

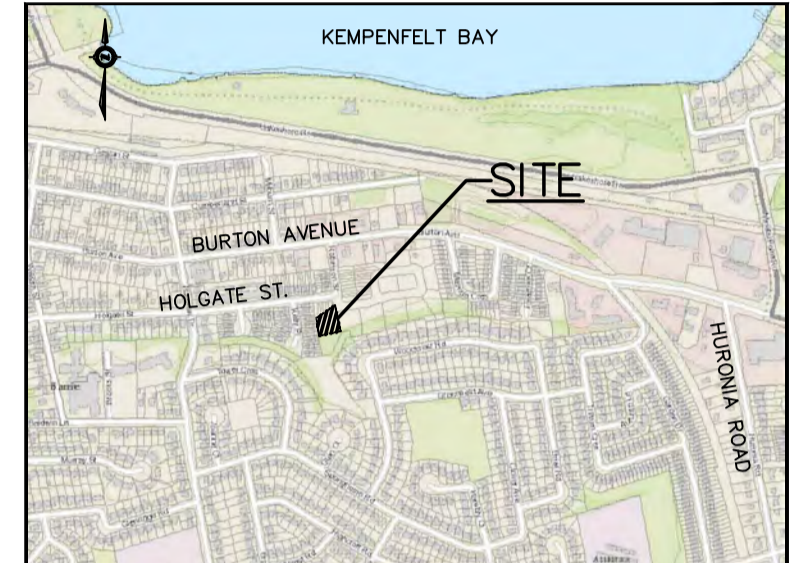
\* TO BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION



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SCALE:	1:250

CLIENT/PROJECT		
<b>17 FRANKS WAY RESIDENTIAL DEVELOPMENT</b>		
DRAWING TITLE		
<b>PAVEMENT MARKINGS AND SIGNAGE PLAN</b>		
PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	PM-1	1

- ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS.
- ORDER OF PRECEDENCE OF STANDARD DRAWINGS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD)
- LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORKS.
- A RIGHT OF WAY ACTIVITY PERMIT IS REQUIRED FROM THE CITY OF BARRIE OPERATIONS DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY WORKS ON THE SITE.
- A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS ON THE SITE. (IF ALTERATION IS GREATER THEN 0.5ha)
- NATIVE MATERIAL SUITABLE FOR BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DENSITY.
- GRANULAR MATERIAL USED FOR BACKFILL, SHALL E PLACED IN LAYERS 150MM IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.
- ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.

## RESTORATION NOTES

- REINSTATE ROADS TO PREVIOUS CONDITION OR BETTER. MINIMUM 40mm HL3, 100mm HL4, 150mm GRANULAR 'A' AND 500mm GRANULAR 'B'
- CONTRACTOR TO RESTORE DRIVEWAYS AND BOULEVARD IN AREAS DISTURBED BY CONSTRUCTION TO EQUAL OR BETTER CONDITIONS.
- MINIMUM GRAVEL DRIVEWAY RESTORATION TO BE 150mm, GRANULAR 'A'. ASPHALT DRIVEWAY RESTORATION TO BE 50mm OF HL3. AND 200mm GRANULAR 'A'
- ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED WITH 200mm DEPTH TOPSOIL AND SOD. MAINTAIN UNTIL ESTABLISHED.
- ALL RESTORATION WORK TO BE COMPLETED TO THE SATISFACTION OF THE ENGINEER.

- GRADE AND CROSSFALL ADJUSTMENT OF MAINTENANCE HOLE AND CATCHBASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
- ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND MTO-DSM LISTS, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
- ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES
- MORTAR IS USED FOR LEVELING OF PRECAST UNITS ONLY. THE THICKNESS OF MORTAR WILL BE 10mm TO FILL ALL VOIDS CREATED BY IRREGULARITIES IN THE PRECAST UNITS TO ENSURE AN EVEN SURFACE ONLY.

	<b>GENERAL NOTES ROADWORKS</b>		REV No. <b>1</b> DATE: OCT 2017 SCALE: N.T.S.	APPROVED DATE: Oct 28/17 
	<b>BSD-N2</b>			

GENERAL NOTES - SANITARY SEWER				
SANITARY SEWERS A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD. B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS. D. PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS. E. CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m <sup>2</sup> 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 MANUFACTURERS GUIDELINES.				
CITY OF BARRIE STANDARD	4. NOTE 'B' - "ENGINEERING" 3. NOTE 'B' OPSD NUMBER REVISION 2. NOTE 'F' CHANGED 1. CHANGES TO B. TO G.	B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30 K.C. 95.04.24	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES SANITARY SEWERS</b>	NO. REVISION APR'D DATE	<b>BSD-N3</b>		

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 WATERMANS. 3. MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m WHERE WATERMAIN CONFLICTS WITH SEWER PIPES. DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES. 4. WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSD MIN 1004.05.07 COMPACTED TO 80% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER). 5. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD MIN 1004.05.07. 6. RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS, THRUST BLOCKS. AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION. 7. NEW WATERMANS TO BE PVC DR18 CL150 MINIMUM, DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST. 8. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST. 9. ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN. 10. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 6.0m FROM JOINTS, ENDS OF PIPES 11. RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED. 12. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.				
City of BARRIE STANDARD DETAIL	<b>GENERAL NOTES - WATERMAIN</b>	REV No. <b>2</b> DATE: MAY 2015 SCALE: N.T.S.	APPROVED DATE: May 29/15 	<b>BSD-500</b>
CITY OF BARRIE STANDARD	4. NOTE 'X' - SUMP PUMP DISCHARGE PIPING 3. NOTE 'Y & Z' - "DIRECTOR OF ENGINEERING" 2. NOTE 'C' OPSD NUMBER REVISION 1. NOTE 'D' CHANGED	B.R. 2003.01.07 B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES - WATERMAIN</b>	NO. REVISION APR'D DATE	<b>BSD-500</b>		

GENERAL NOTES - SANITARY SEWER				
SANITARY SEWERS A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD. B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS. D. PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS. E. CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m <sup>2</sup> 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 MANUFACTURERS GUIDELINES.				
CITY OF BARRIE STANDARD	4. NOTE 'B' - "ENGINEERING" 3. NOTE 'B' OPSD NUMBER REVISION 2. NOTE 'F' CHANGED 1. CHANGES TO B. TO G.	B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30 K.C. 95.04.24	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES SANITARY SEWERS</b>	NO. REVISION APR'D DATE	<b>BSD-N3</b>		

GENERAL NOTES - STORM SEWER				
STORM SEWER A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER. B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE. C. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD-802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. D. MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2. E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED. F. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03. G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m <sup>2</sup> CONFORMING 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 MANUFACTURERS INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES. K. SUMP PUMP DISCHARGE PIPING IN BOULEVARD: IN THE EVENT OF OPERATIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST 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 DETAIL	<b>GENERAL NOTES - STORM SEWERS</b>	REV No. <b>2</b> DATE: MAY 2015 SCALE: N.T.S.	APPROVED DATE: May 29/15 	<b>BSD-N5</b>
CITY OF BARRIE STANDARD	4. NOTE 'X' - SUMP PUMP DISCHARGE PIPING 3. NOTE 'Y & Z' - "DIRECTOR OF ENGINEERING" 2. NOTE 'C' OPSD NUMBER REVISION 1. NOTE 'D' CHANGED	B.R. 2003.01.07 B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES - STORM SEWERS</b>	NO. REVISION APR'D DATE	<b>BSD-N5</b>		

GENERAL NOTES - STORM SEWER				
STORM SEWER A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER. B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE. C. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD-802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. D. MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2. E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED. F. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03. G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m <sup>2</sup> CONFORMING 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 MANUFACTURERS INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES. K. SUMP PUMP DISCHARGE PIPING IN BOULEVARD: IN THE EVENT OF OPERATIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST 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	<b>GENERAL NOTES - STORM SEWERS</b>	REV No. <b>2</b> DATE: MAY 2015 SCALE: N.T.S.	APPROVED DATE: May 29/15 	<b>BSD-N5</b>
CITY OF BARRIE STANDARD	4. NOTE 'X' - SUMP PUMP DISCHARGE PIPING 3. NOTE 'Y & Z' - "DIRECTOR OF ENGINEERING" 2. NOTE 'C' OPSD NUMBER REVISION 1. NOTE 'D' CHANGED	B.R. 2003.01.07 B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES - STORM SEWERS</b>	NO. REVISION APR'D DATE	<b>BSD-N5</b>		

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 OVERTOP TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE. E. ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES, CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURERS GUIDELINES. F. MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD-1006.010, 1006.020).				
CITY OF BARRIE STANDARD	<b>GENERAL NOTES - SANITARY SEWERS</b>	REV No. <b>2</b> DATE: MAY 2015 SCALE: N.T.S.	APPROVED DATE: May 29/15 	<b>BSD-N4</b>
CITY OF BARRIE STANDARD	2. OPSD NUMBERS REVISED 1. CHANGES TO B. TO G.	K.C. 2000.08.17 K.C. 95.04.24	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES - SANITARY SEWERS</b>	NO. REVISION APR'D DATE	<b>BSD-N4</b>		

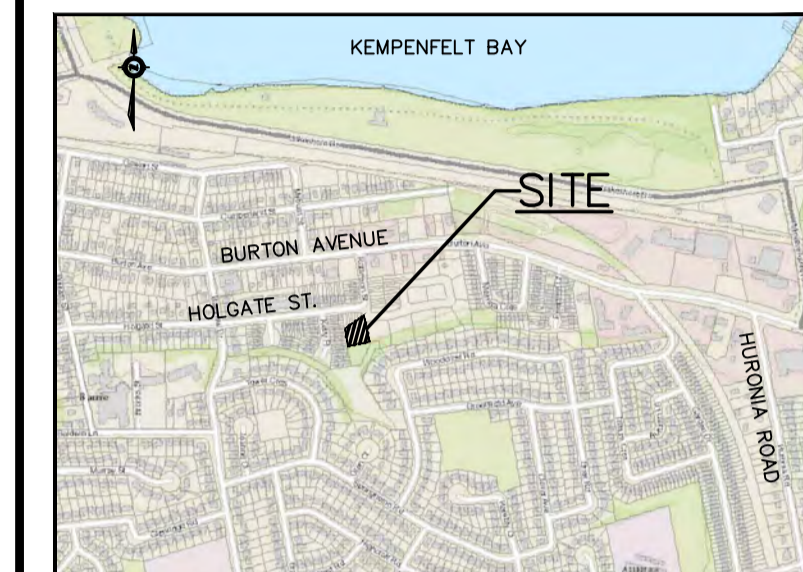
GENERAL NOTES - WATERMAIN				
1. CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE. 2. OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS 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 WATERMANS. 3. MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m WHERE WATERMAIN CONFLICTS WITH SEWER PIPES. DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES. 4. WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSD MIN 1004.05.07 COMPACTED TO 80% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER). 5. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD MIN 1004.05.07. 6. RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS, THRUST BLOCKS. AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION. 7. NEW WATERMANS TO BE PVC DR18 CL150 MINIMUM, DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST. 8. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST. 9. ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN. 10. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 6.0m FROM JOINTS, ENDS OF PIPES 11. RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED. 12. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.				
City of BARRIE STANDARD DETAIL	<b>GENERAL NOTES - WATERMAIN</b>	REV No. <b>2</b> DATE: MAY 2015 SCALE: N.T.S.	APPROVED DATE: May 29/15 	<b>BSD-500</b>
CITY OF BARRIE STANDARD	4. NOTE 'X' - SUMP PUMP DISCHARGE PIPING 3. NOTE 'Y & Z' - "DIRECTOR OF ENGINEERING" 2. NOTE 'C' OPSD NUMBER REVISION 1. NOTE 'D' CHANGED	B.R. 2003.01.07 B.R. 2002.10.28 K.C. 2000.03.16 K.C. 98.03.30	APP'D: R.G.N. DRAWN: L.A.J.	DATE: 92.05.15 SCALE: N.T.S.
<b>GENERAL NOTES - WATERMAIN</b>	NO. REVISION APR'D DATE	<b>BSD-500</b>		

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The position of existing above ground and underground utilities and facilities are not necessarily shown on the drawings, and where shown, the accuracy of the position of such utilities and facilities is not guaranteed. Before starting work, the contractor shall confirm the exact location of all existing utilities and facilities, and shall assume all liability for damage to them

Drawings shall not be used for construction unless sealed and signed. All work to be performed in accordance with the Occupational Health & Safety Act 1990.

Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.



- ### KEY MAP
- TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018
  - LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.

**BENCHMARK**  
 BM#1: TOP NUT OF HYDRANT LOCATED NORTH OF PROPERTY ON FRANK'S WAY.  
 ELEVATION: 236.416

1	19.06.05	SITE PLAN REVISION	G.N.
NO.	YY.MM.DD	REVISION	BY

SEAL 	NORTH ARROW 
----------	-----------------

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	JANUARY 2019
SCALE:	1:250

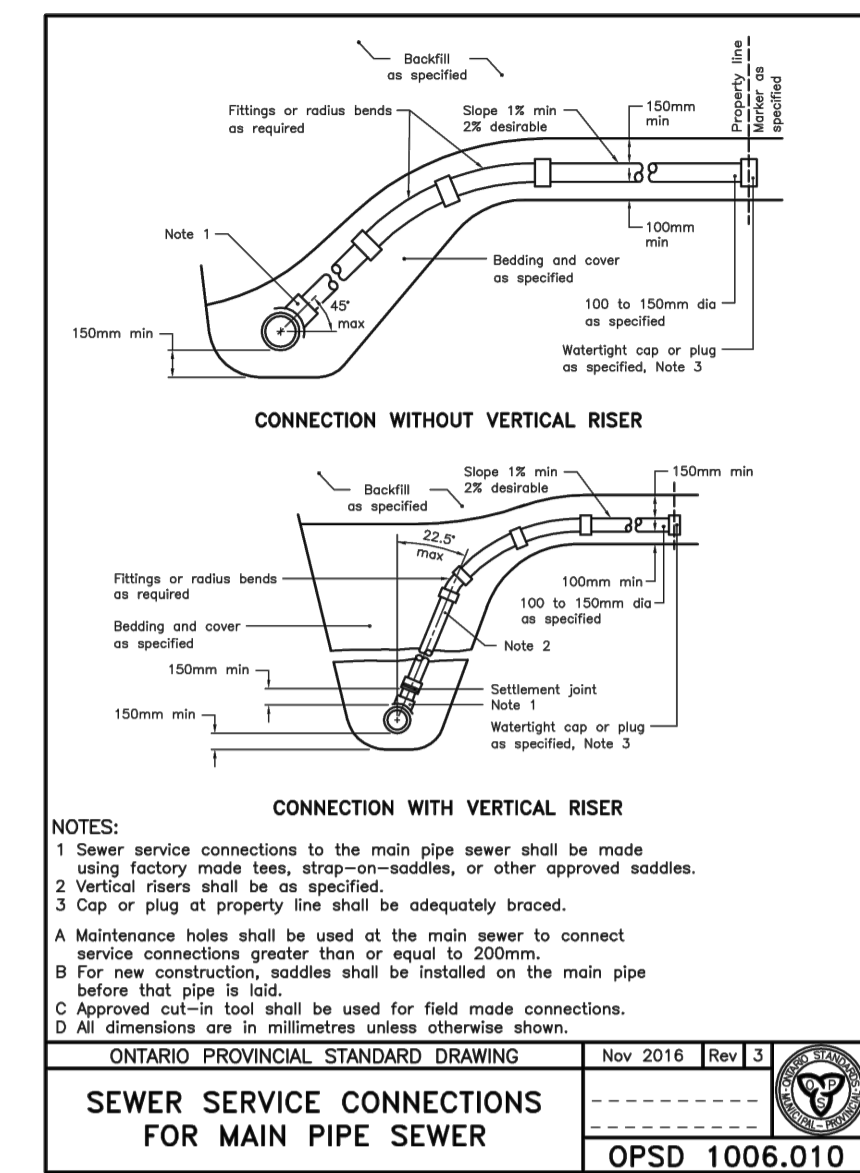
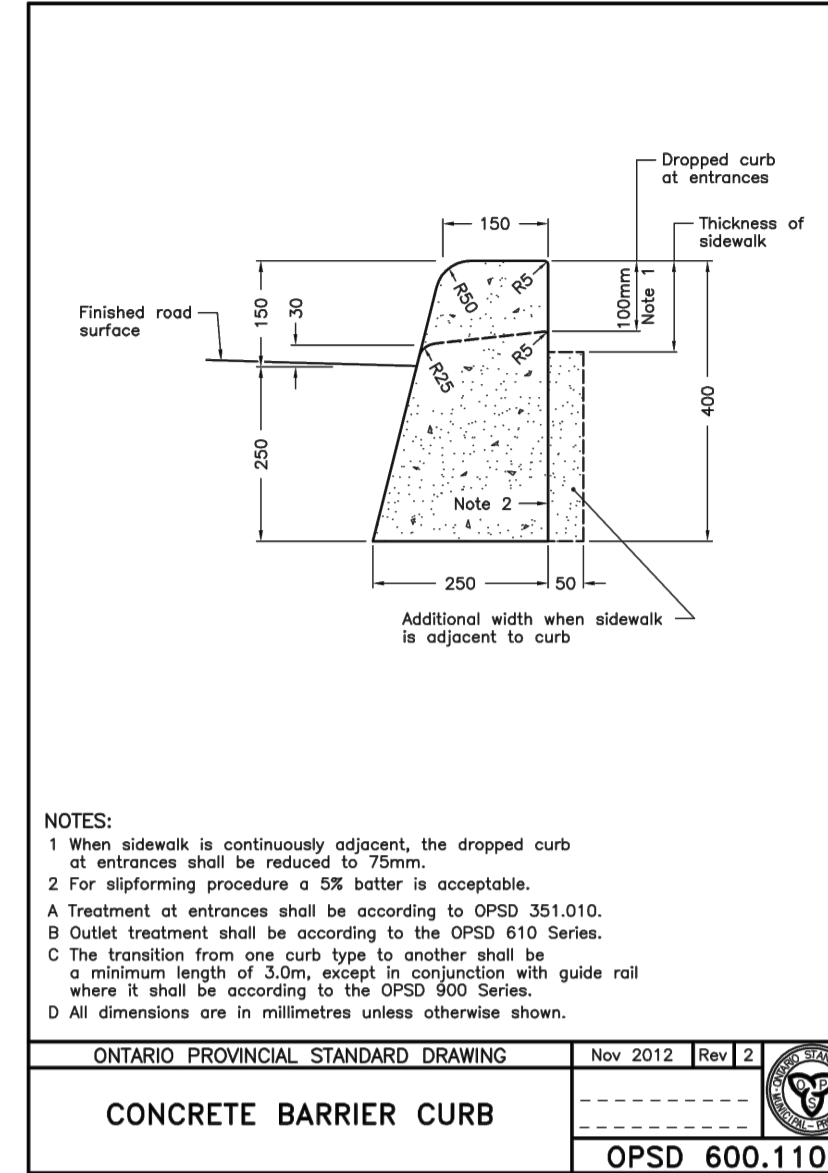
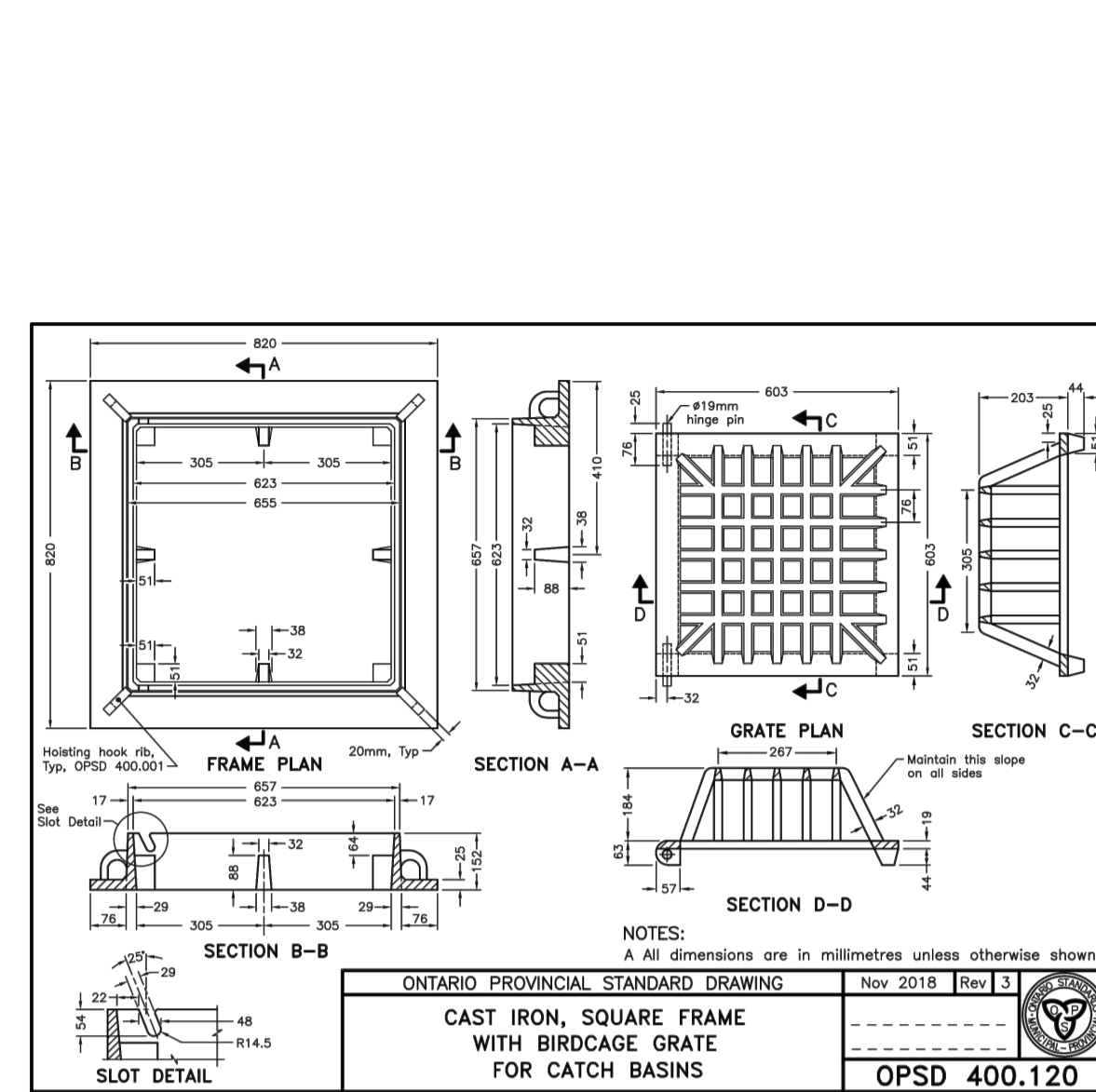
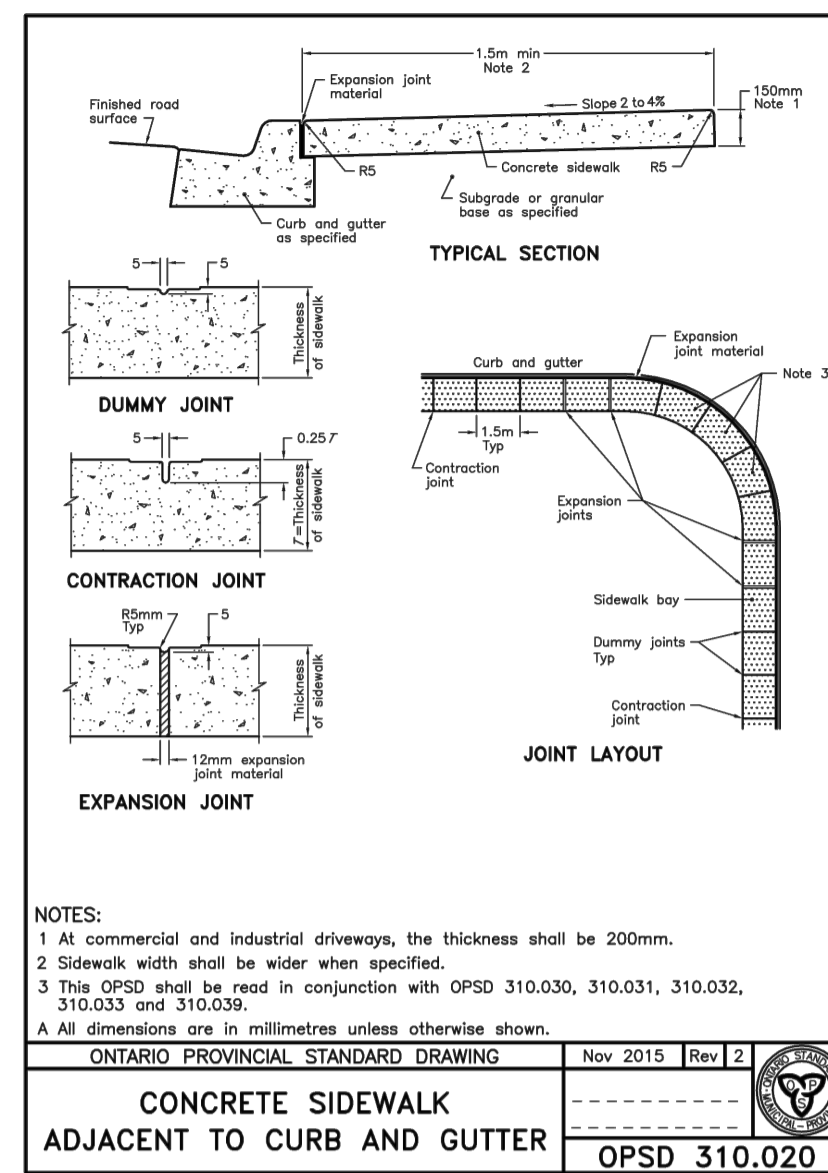
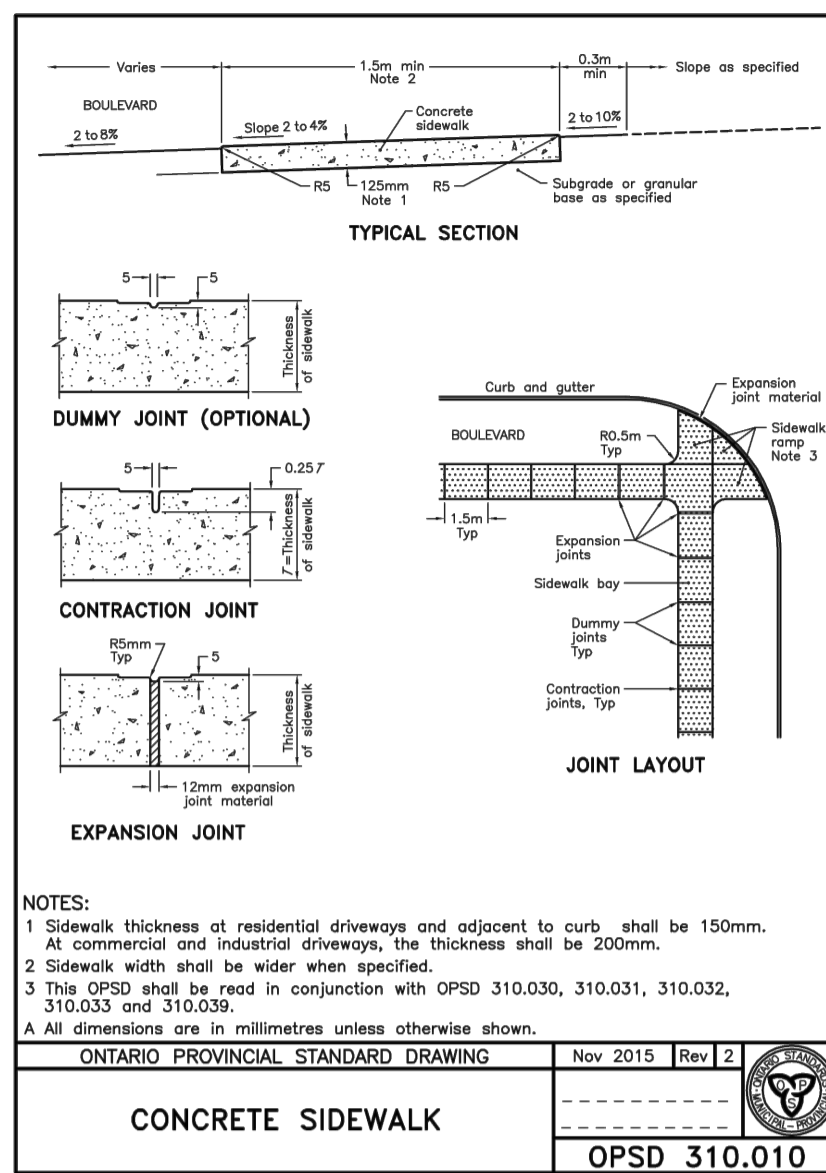
CLIENT/PROJECT

**17 FRANKS WAY  
RESIDENTIAL DEVELOPMENT**

DRAWING TITLE

**STANDARD CONSTRUCTION NOTES**

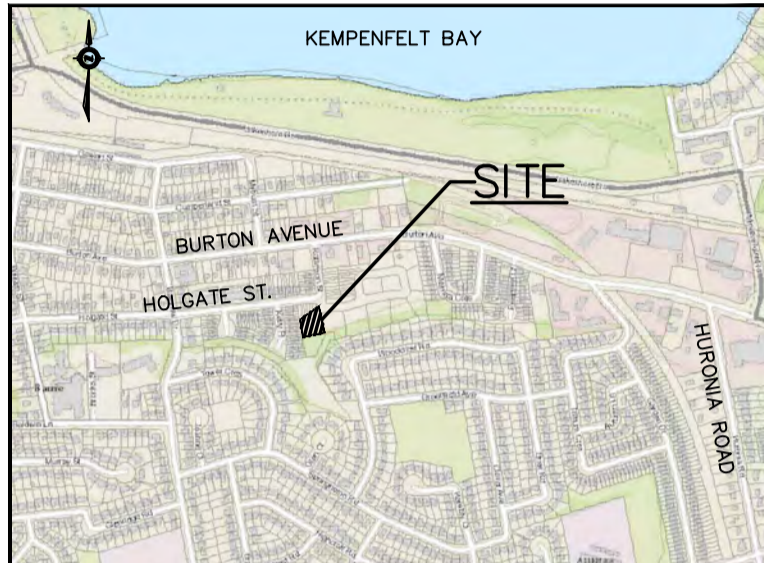
PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	SD-1	1



Position of existing above ground and underground utilities and facilities are not necessarily shown on the drawings, and where shown, the accuracy of the position of such utilities and facilities is not guaranteed. Before starting work, the contractor shall confirm the exact location of all existing utilities and facilities, and shall assume all liability for damage to them.

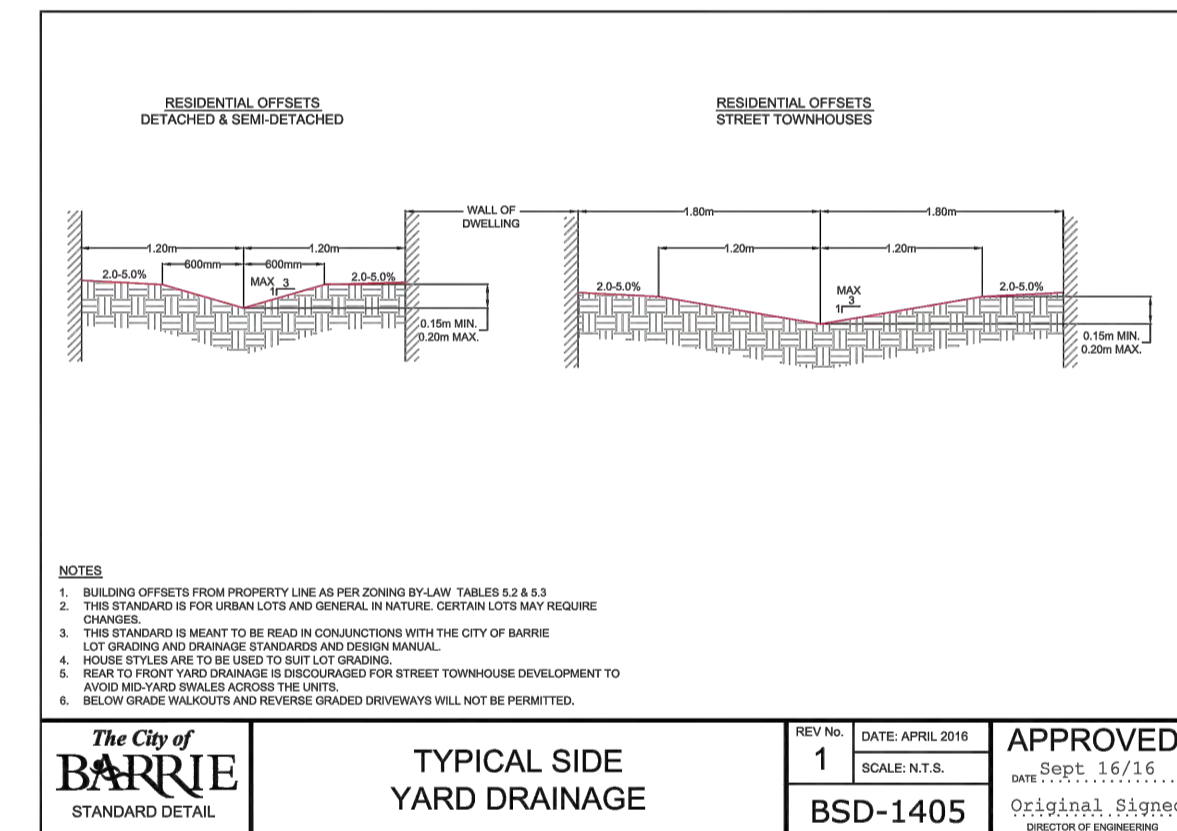
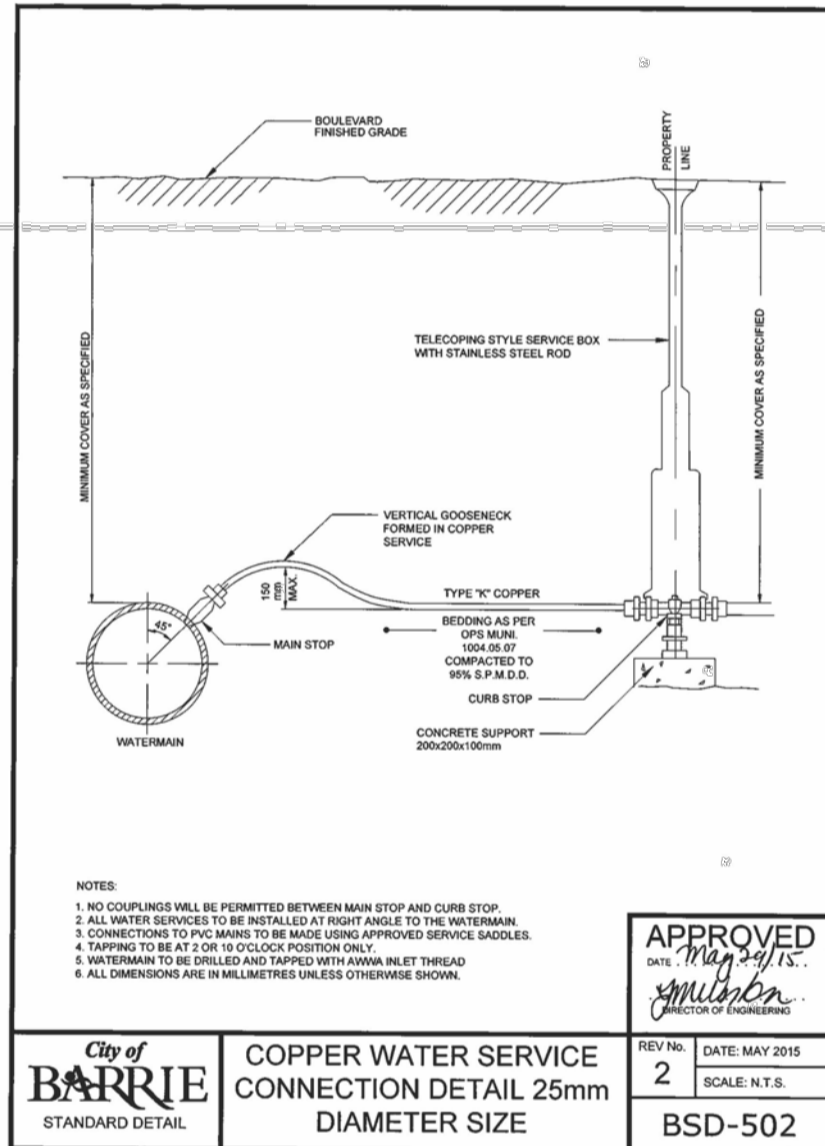
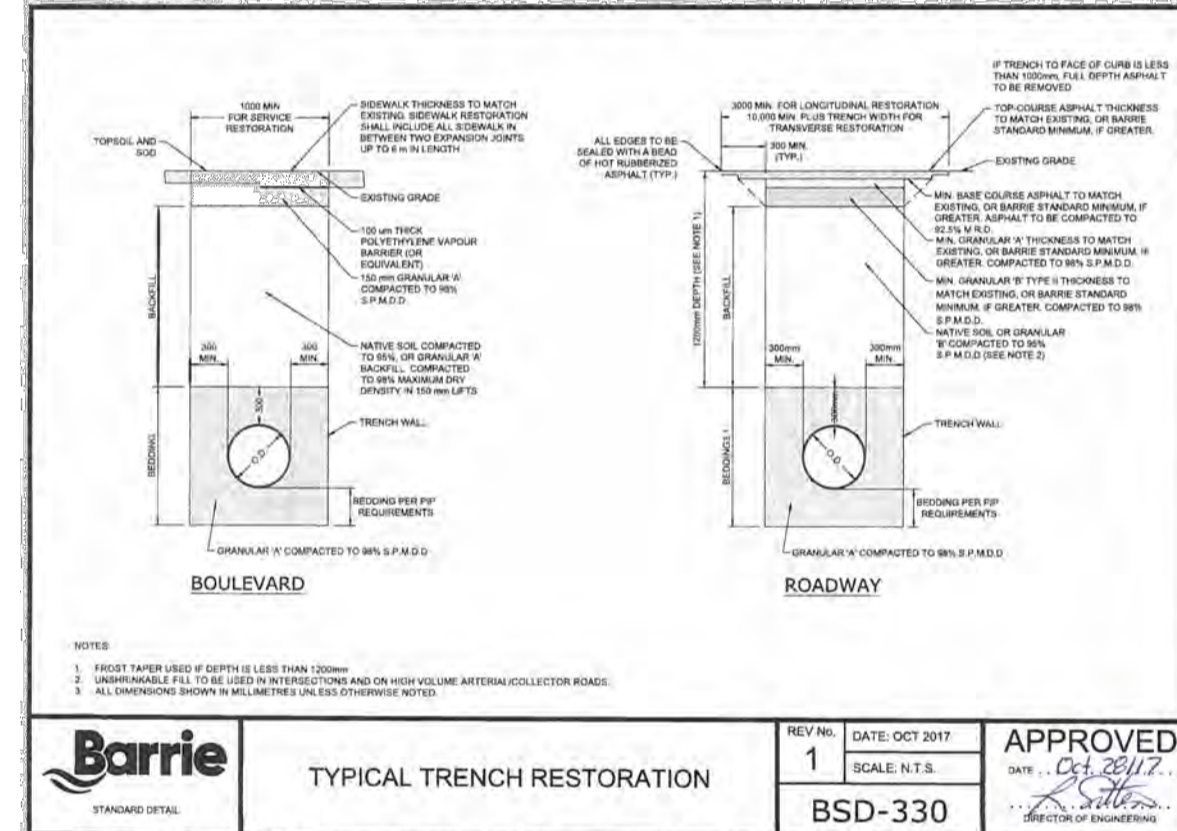
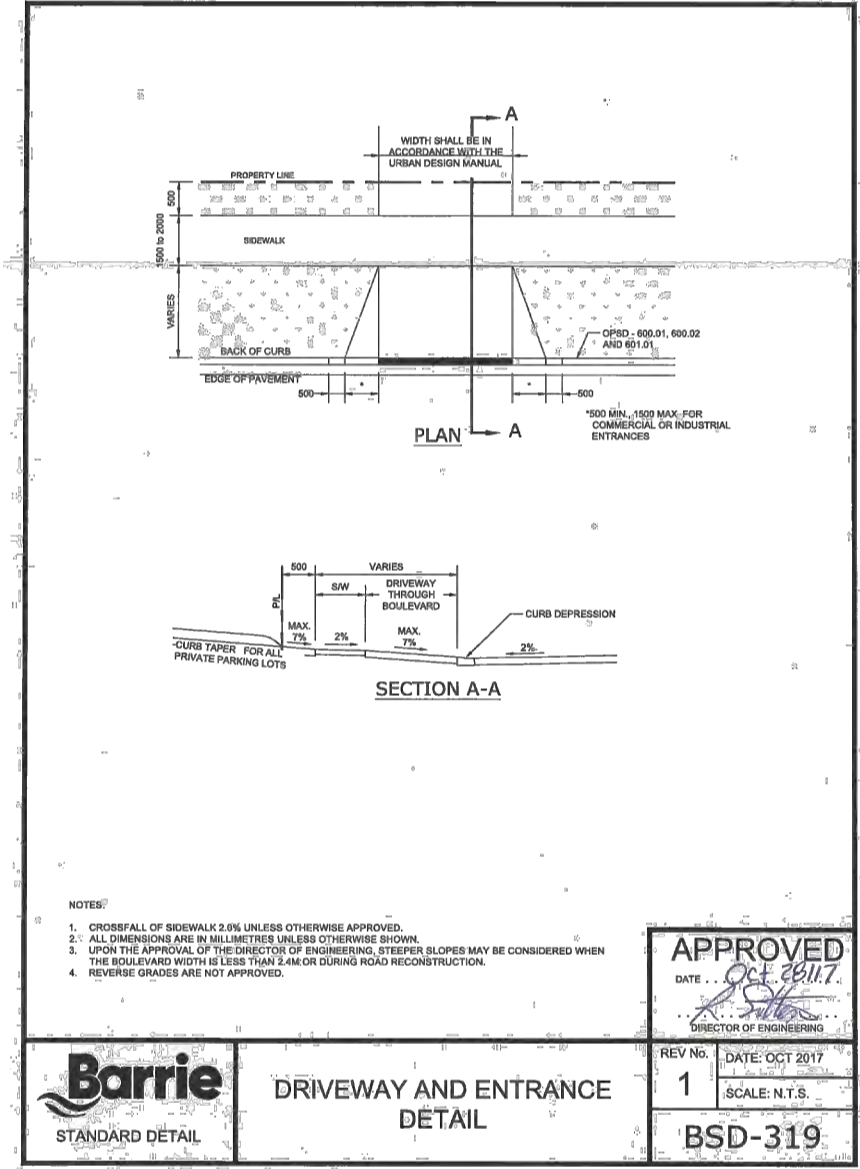
Drawings shall not be used for construction unless sealed and signed. All work to be performed in accordance with the Occupational Health & Safety Act 1990.

Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.



**KEY MAP**

- TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018.
- LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.



**BENCHMARK**  
BM#1: TOP NUT OF HYDRANT LOCATED NORTH OF PROPERTY ON FRANK'S WAY. ELEVATION: 236.416

1	19.06.05	SITE PLAN REVISION	G.N.
NO.	YY.MM.DD	REVISION	BY

DESIGN BY: J.V.  
DRAWN BY: M.B.  
CHECKED: J.V.  
DATE: JANUARY 2019  
SCALE: 1:250

CLIENT/PROJECT  
**17 FRANKS WAY RESIDENTIAL DEVELOPMENT**

DRAWING TITLE  
**CONSTRUCTION DETAILS**

PROJECT NO.	DRAWING NO.	REVISION
18-11404-B	DET-1	1

