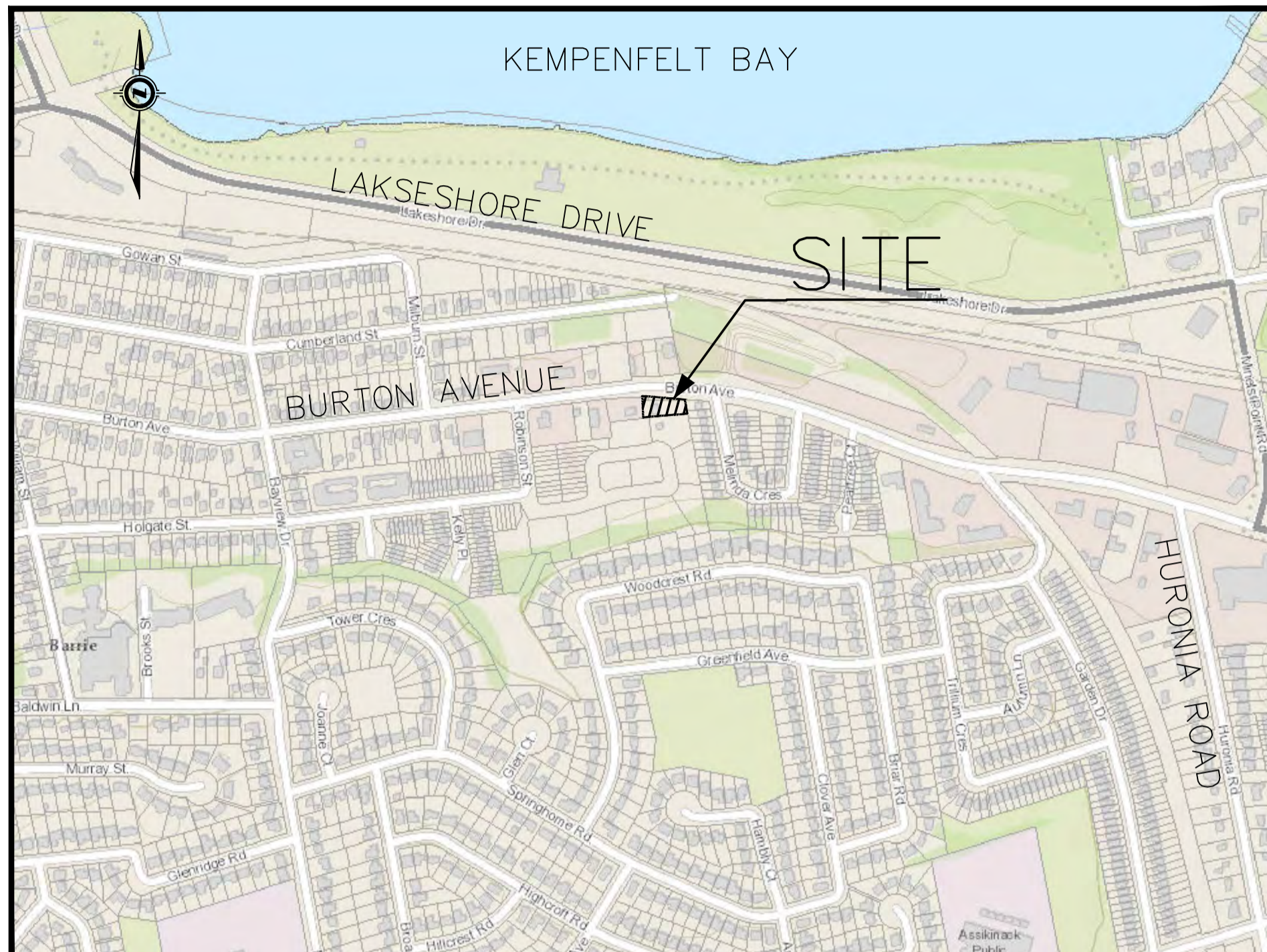


# 196 BURTON AVENUE COMMERCIAL/RESIDENTIAL DEVELOPMENT



KEYMAP

## 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.18-11403B

2nd SUBMISSION  
JUNE 2019

NOTE: EXISTING WATER AND SERVICES NOT UTILIZED BY THE PROPOSED DEVELOPMENT SHALL BE REMOVED PER CITY OF BARRIE REQUIREMENTS

**LEGEND**

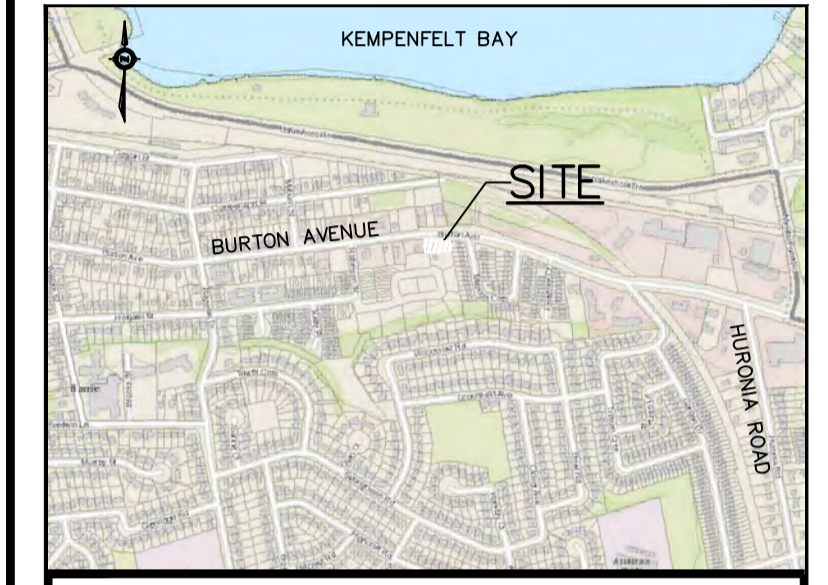
- EX. FENCE LINE
- EX. SANITARY LINE
- EX. STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- EX. WATER VALVE
- EX. HYDRO POLE
- DIRECTION OF OVERLAND FLOW
- PROPOSED REMOVAL



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**KEY MAP**

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



EXISTING RESIDENTIAL DEVELOPMENT UNDER CONSTRUCTION

**BENCHMARK**  
 TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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

SEAL

NORTH ARROW

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

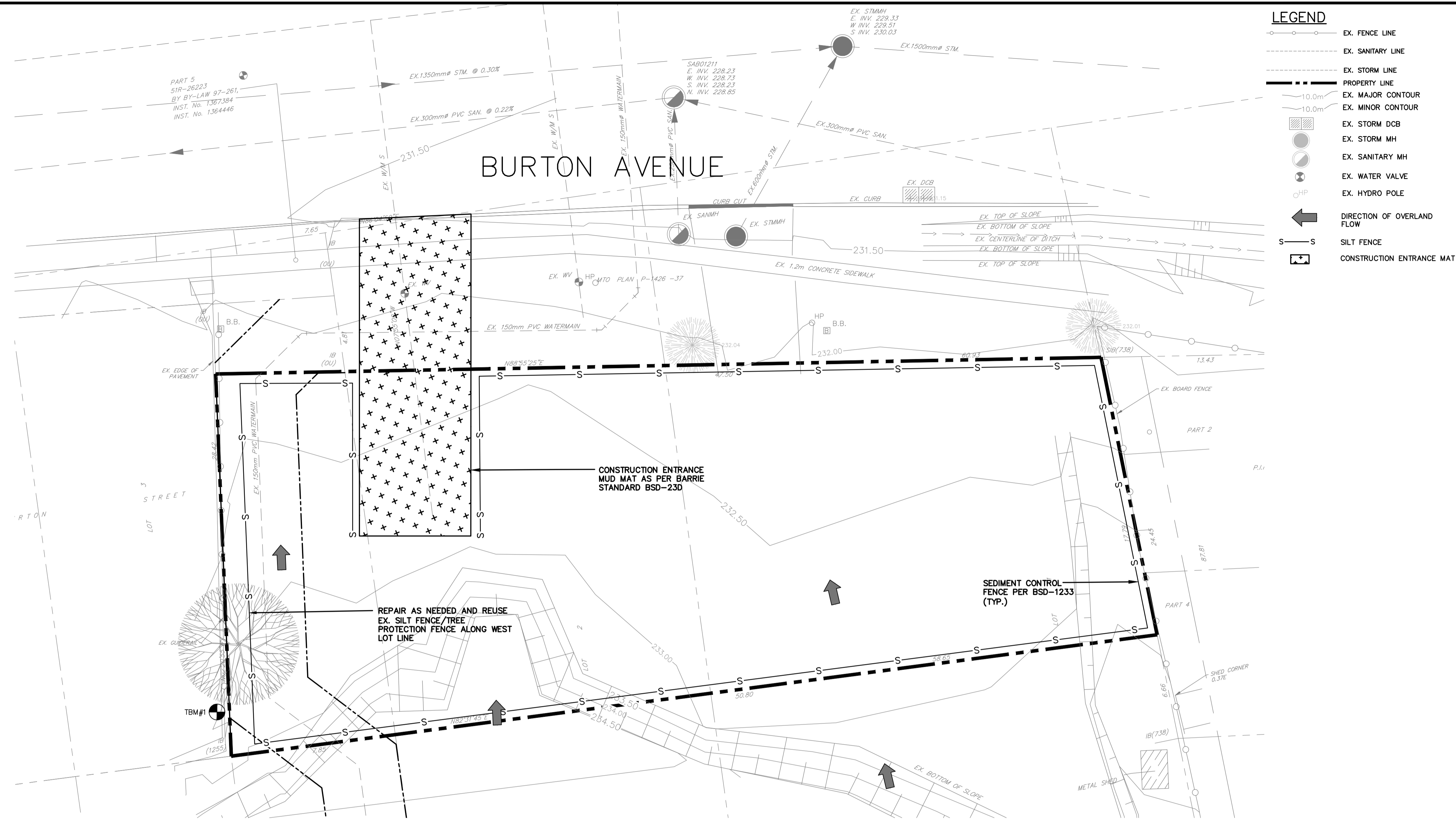
CLIENT/PROJECT

**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

**EXISTING CONDITIONS AND  
REMOVAL PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	RM-1	1



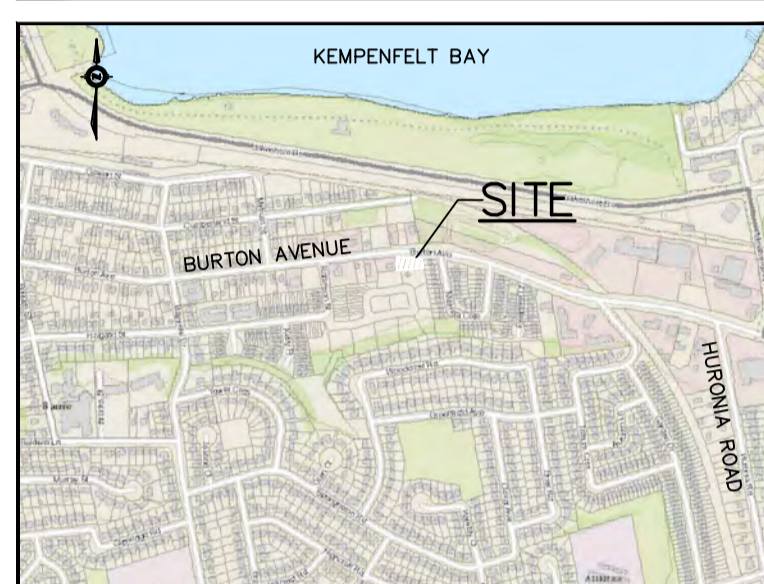
**LEGEND**

- 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
- SILT FENCE
- CONSTRUCTION ENTRANCE MAT

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- KEY MAP**
1. TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018.
  2. LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.
  3. EXACT LOCATION OF THE MUD MAT TO BE DETERMINED IN THE FIELD BY THE SITE SERVING CONTRACTOR.

**BENCHMARK**  
 TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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:	FEBRUARY 2019
SCALE:	1:150

CLIENT/PROJECT: **196 BURTON AVENUE COMMERCIAL/RESIDENTIAL DEVELOPMENT**

DRAWING TITLE: **EROSION AND SEDIMENT CONTROL PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	ESC-1	1

**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 have 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.

**CITY OF BARRIE STANDARD**

1.	Standardized Dimension Text	J.S.	05.10.28	APPR'D: R.G.N.	DATE: 04.03.16
				DRAWN: A.S.C	SCALE: N.T.S

**CONSTRUCTION ENTRANCE MAT**

NO.	REVISION	APR'D	DATE	BSD-23D
-----	----------	-------	------	---------


**Barrie STANDARD DETAIL**

**SILTATION CONTROL FENCING**

REV NO.	DATE: OCT 2017	APPROVED
2	SCALE: N.T.S	Oct 10/17
BSD-1233		Original Signed By
FORMERLY BSD-23A		DIRECTOR OF ENGINEERING

NOTE: EXISTING WATER AND SERVICES NOT UTILIZED BY THE PROPOSED DEVELOPMENT SHALL BE REMOVED PER CITY OF BARRIE REQUIREMENTS

- 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
- EX. HYDRO POLE

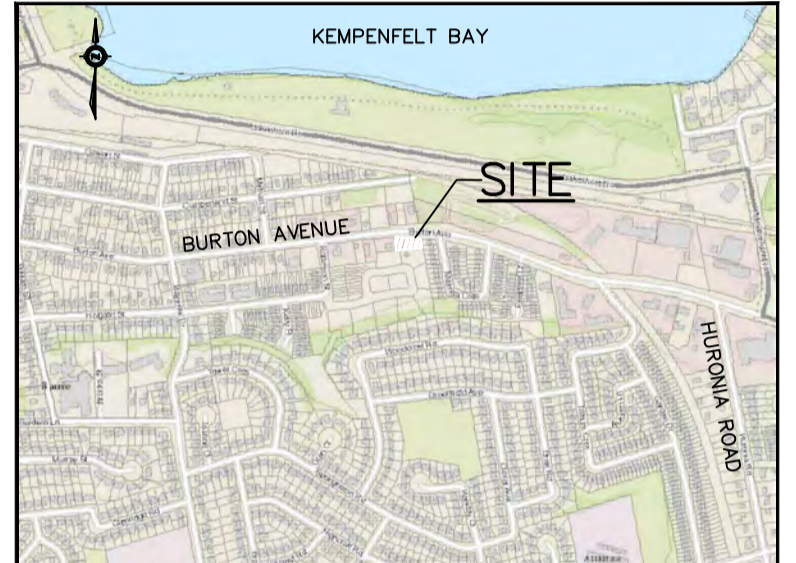


**PEL**  
PINESTONE ENGINEERING LIMITED | www.pel.ca

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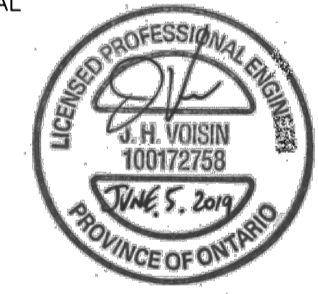
- KEY MAP**
1. TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018.
  2. LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.
  3. SERVICING TO PROPOSED BUILDING TO BE INSTALLED IN COORDINATION WITH FOUNDATION CONSTRUCTION. CONTRACTOR TO COORDINATE.
  4. 50mm $\phi$  DOMESTIC WATER SERVICE ENTERING MECHANICAL ROOM C/W BY PASS ASSEMBLY PER BSD-533.

**BENCHMARK**


TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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

SEAL



NORTH ARROW



DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

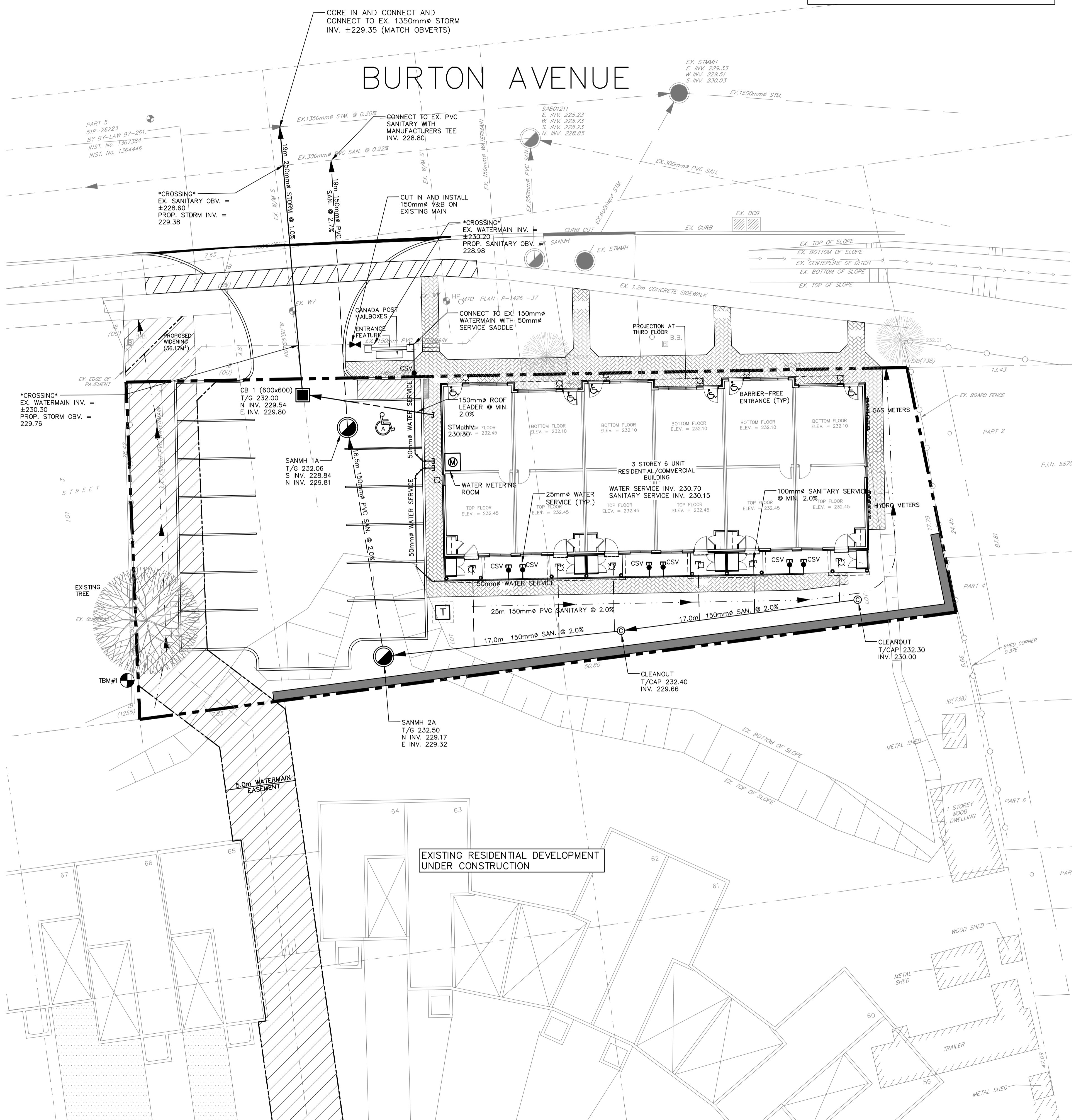
CLIENT/PROJECT

**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

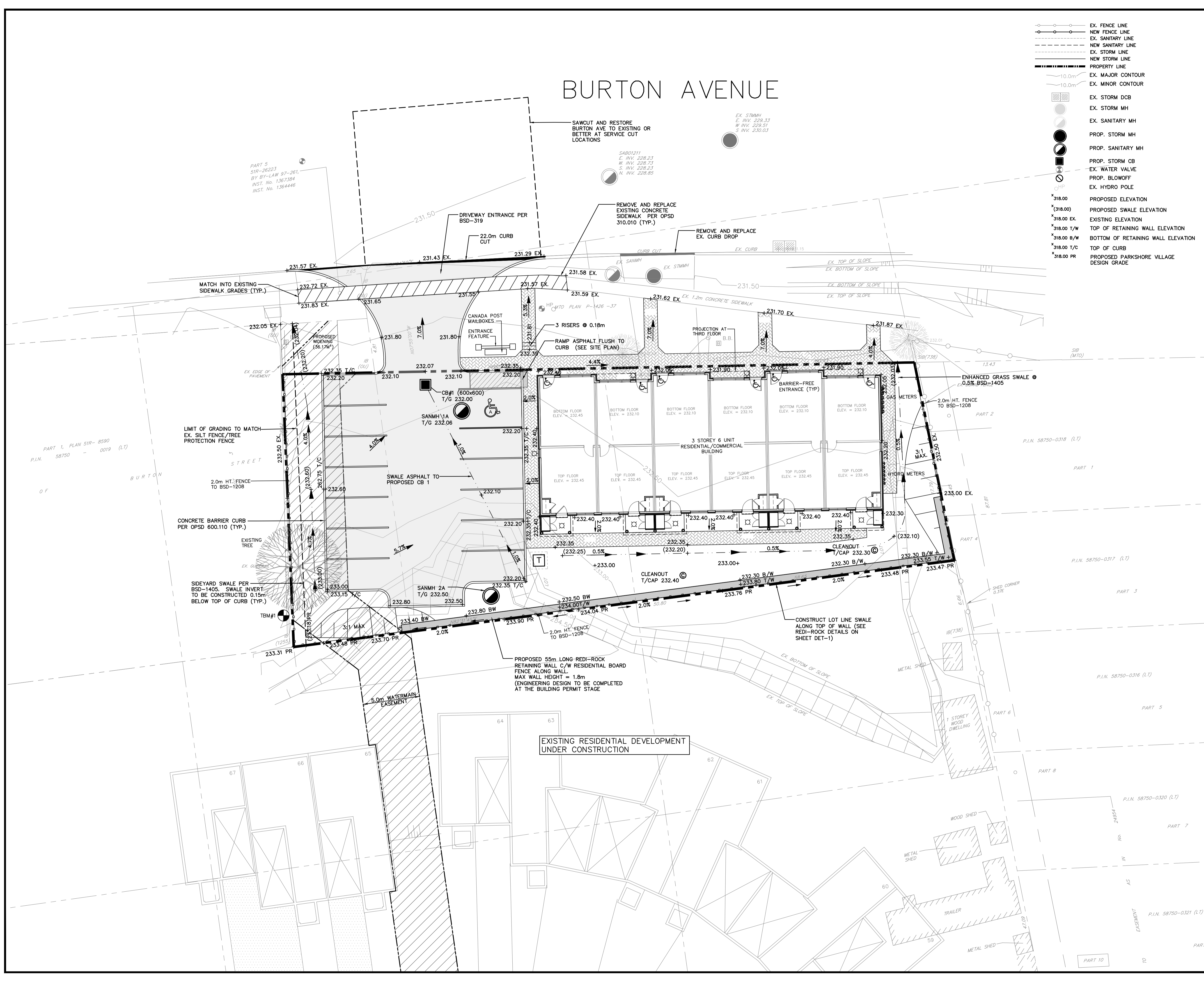
**SITE SERVICING PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	SERV-1	1



EXISTING RESIDENTIAL DEVELOPMENT UNDER CONSTRUCTION

# BURTON AVENUE



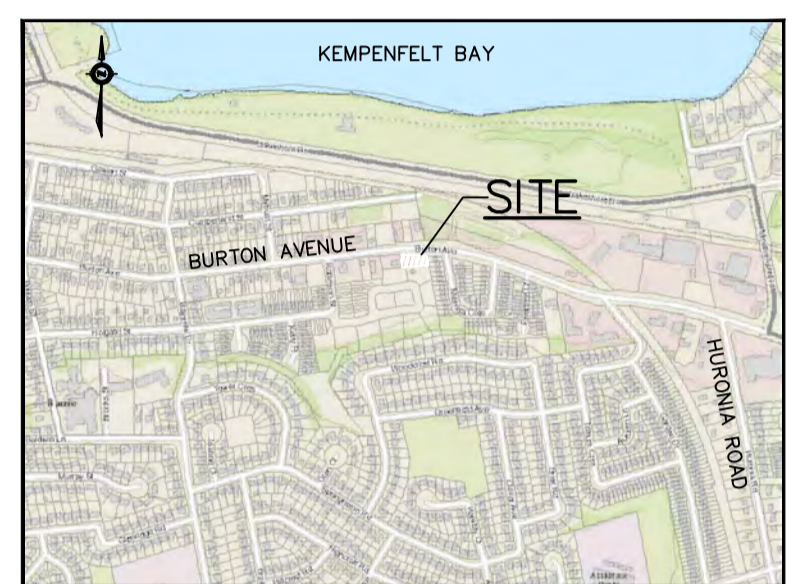
- EX. FENCE LINE
- NEW FENCE LINE
- EX. SANITARY LINE
- NEW SANITARY LINE
- EX. STORM LINE
- NEW STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- PROP. STORM MH
- PROP. SANITARY MH
- PROP. STORM CB
- EX. WATER VALVE
- PROP. BLOWOFF
- EX. HYDRO POLE
- PROPOSED ELEVATION
- PROPOSED SWALE ELEVATION
- EXISTING RETAINING WALL ELEVATION
- TOP OF RETAINING WALL ELEVATION
- BOTTOM OF RETAINING WALL ELEVATION
- TOP OF CURB
- PROPOSED PARKSHORE VILLAGE DESIGN GRADE



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  - LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.

**BENCHMARK**

TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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

SEAL

NORTH ARROW

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

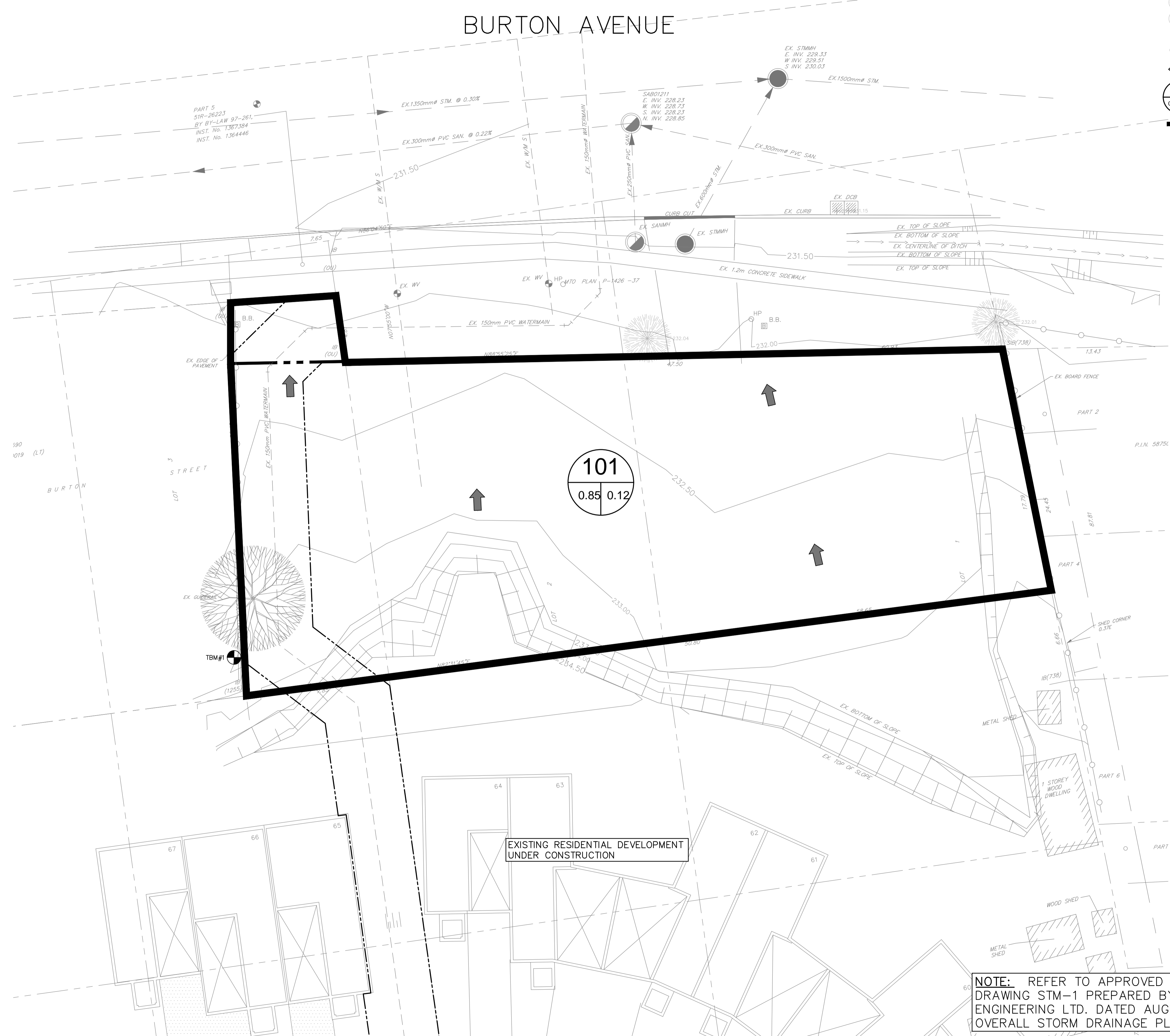
CLIENT/PROJECT		
<b>196 BURTON AVENUE COMMERCIAL/RESIDENTIAL DEVELOPMENT</b>		
DRAWING TITLE		
<b>SITE GRADING PLAN</b>		
PROJECT NO.	DRAWING NO.	REVISION
18-11403B	GP-1	1

RATIONAL METHOD ALLOWABLE RATES (TO BURTON AVE.)

CATCHMENT	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
101	0.024	0.031	0.036	0.046	0.050	0.060

LEGEND

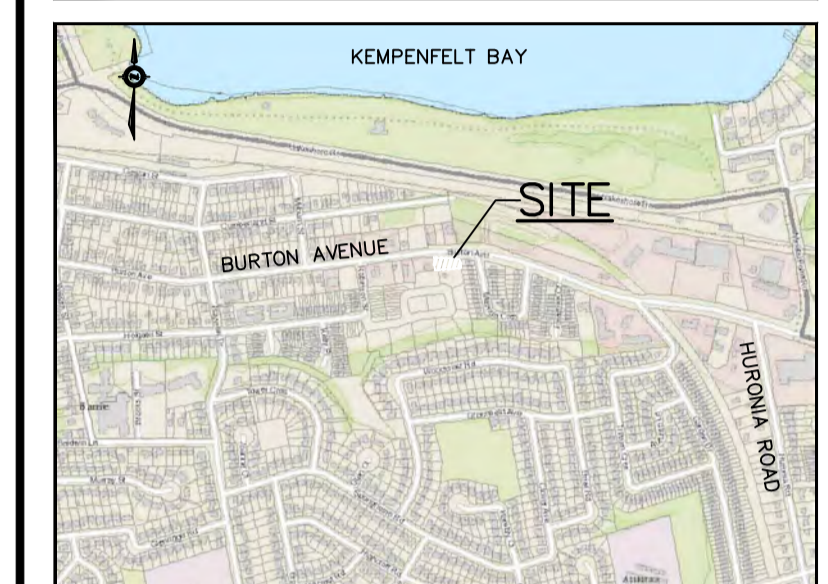
- EX. FENCE LINE
- EX. SANITARY LINE
- EX. STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- EX. WATER VALVE
- EX. HYDRO POLE
- DIRECTION OF OVERLAND FLOW
- 101  
0.85 0.12  
SUB-CATCHMENT NUMBER  
AREA (ha)  
COEFFICIENT
- PRE-DEVELOPMENT CATCHMENT BOUNDARY



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

SEAL

NORTH ARROW

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

CLIENT/PROJECT

**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

**PRE-DEVELOPMENT CATCHMENT  
PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	PRE-1	1

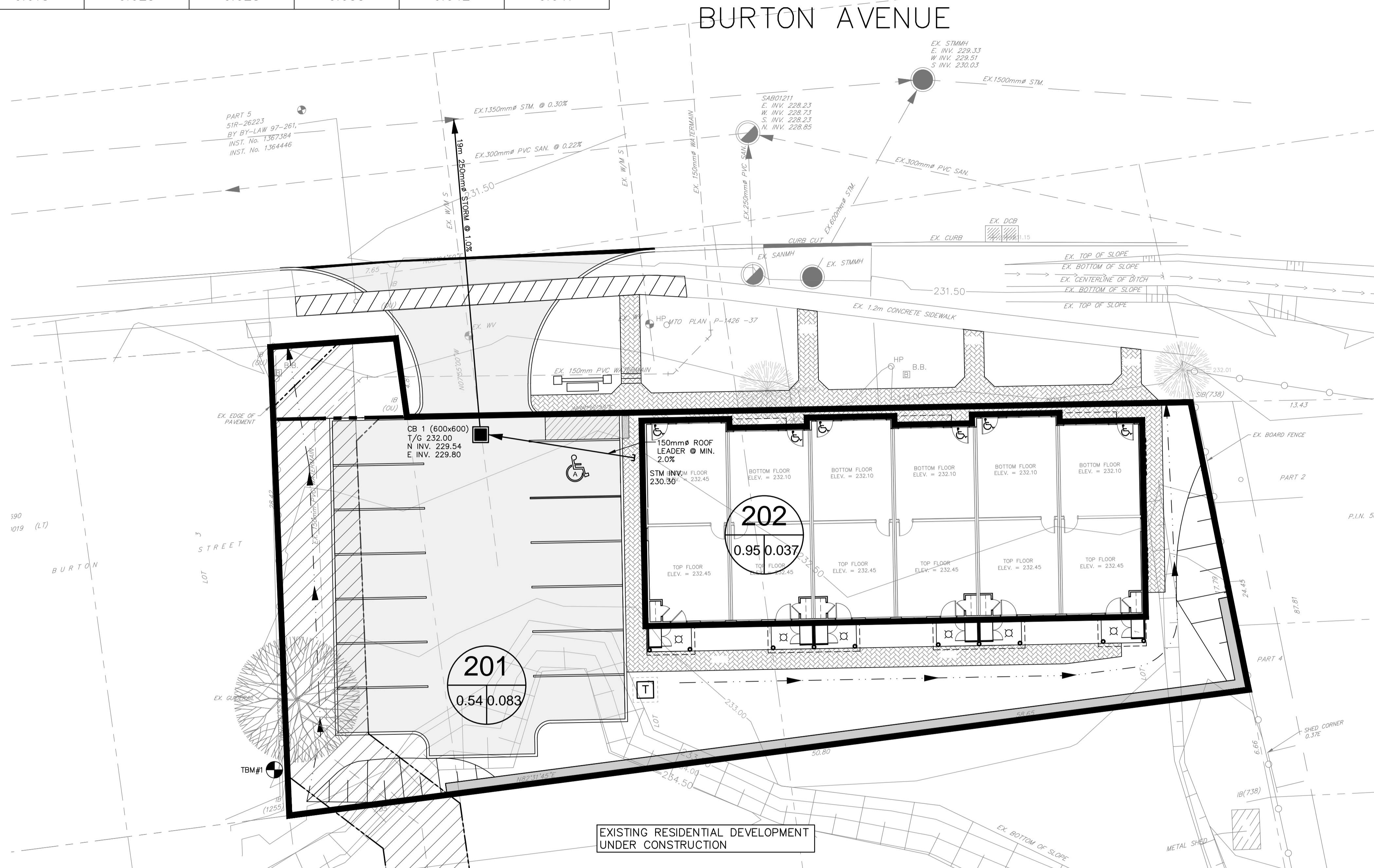
EXISTING RESIDENTIAL DEVELOPMENT UNDER CONSTRUCTION

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

RATIONAL METHOD POST DEVELOPMENT RUNOFF RATES (TO BURTON AVE)						
CATCHMENT	2 YEAR	5 YEAR	10 YEAR	25 YEAR	50 YEAR	100 YEAR
201	0.010	0.014	0.016	0.020	0.025	0.028
202	0.008	0.011	0.012	0.015	0.017	0.019
TOTAL	0.018	0.025	0.028	0.035	0.042	0.047

**LEGEND**

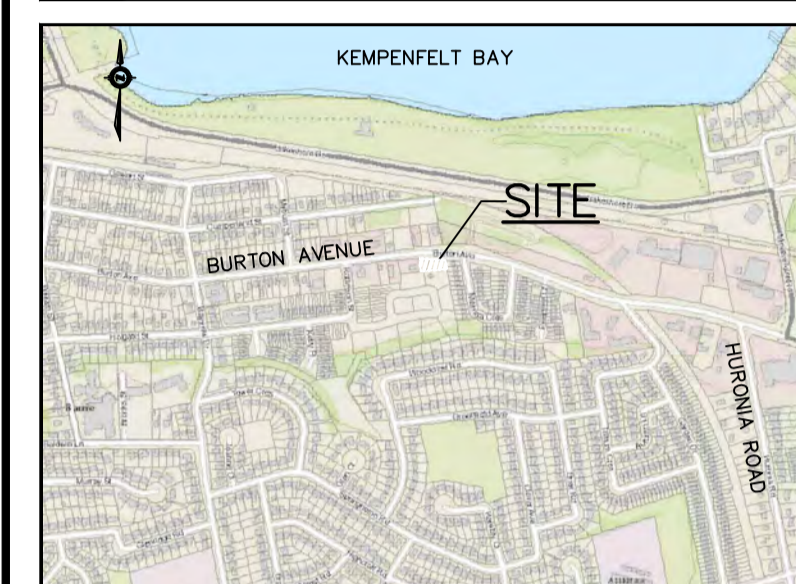
- EX. FENCE LINE
- EX. SANITARY LINE
- EX. STORM LINE
- PROPERTY LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. STORM DCB
- EX. STORM MH
- EX. SANITARY MH
- EX. WATER VALVE
- EX. HYDRO POLE
- DIRECTION OF OVERLAND FLOW
- 202 POST CATCHMENT NUMBER
- 0.95 0.037 AREA (ha)
- COEFFICIENT
- POST DEVELOPMENT CATCHMENT BOUNDARY



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**BENCHMARK**

TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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

SEAL

NORTH ARROW

196 Burton Ave. City of Barrie		STORM SEWER DESIGN SHEET ENGINEERING AND PUBLIC WORKS		Design Parameters											
Project Number: 18-11403B Date: June 1, 2019 Design By: JHV Checked By: JHV File: Z:\Project Documents\11403B Burton Ave Townhomes Barrie\00-00000 Storm Sewer Design Sheet (Barrie IOP).xls		5 YEAR STORM		Q=kAIR, k=0.00278 Manning's "n" 0.013 Intensity (I) = a/(c+b) <sup>2</sup> Min. Velocity 0.800 m/s a = 853.608 Max. Velocity 6.000 m/s b = 4.699 c = 0.766											
LOCATION		STORMWATER FLOW 5 YEAR STORM				DESIGN									
STREET	AREA NUMBER	MANHOLE LOCATION		RUNOFF COEFF. (C)	A x C	CUMUL. A x C	CONCENTRATION TOTAL	RAIN INTENSITY (I)	FLOW (Q)	PIPE SIZE	LENGTH	SLOPE	CAPACITY	FULL FLOW VELOCITY	ACTUAL VELOCITY
		FROM MH	TO MH												
Catchment 202	202	Roof	CB1	0.037	0.95	0.0352	10.0000	108.92211	10.60526	150	8.0	2.00	21.53765	1.2188	1.2139
Catchment 201	201	Street	CB1	0.083	0.54	0.0448	10.1098	108.30275	23.99089	250	19.0	1.00	59.46753	1.2115	1.1462

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

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

CLIENT/PROJECT

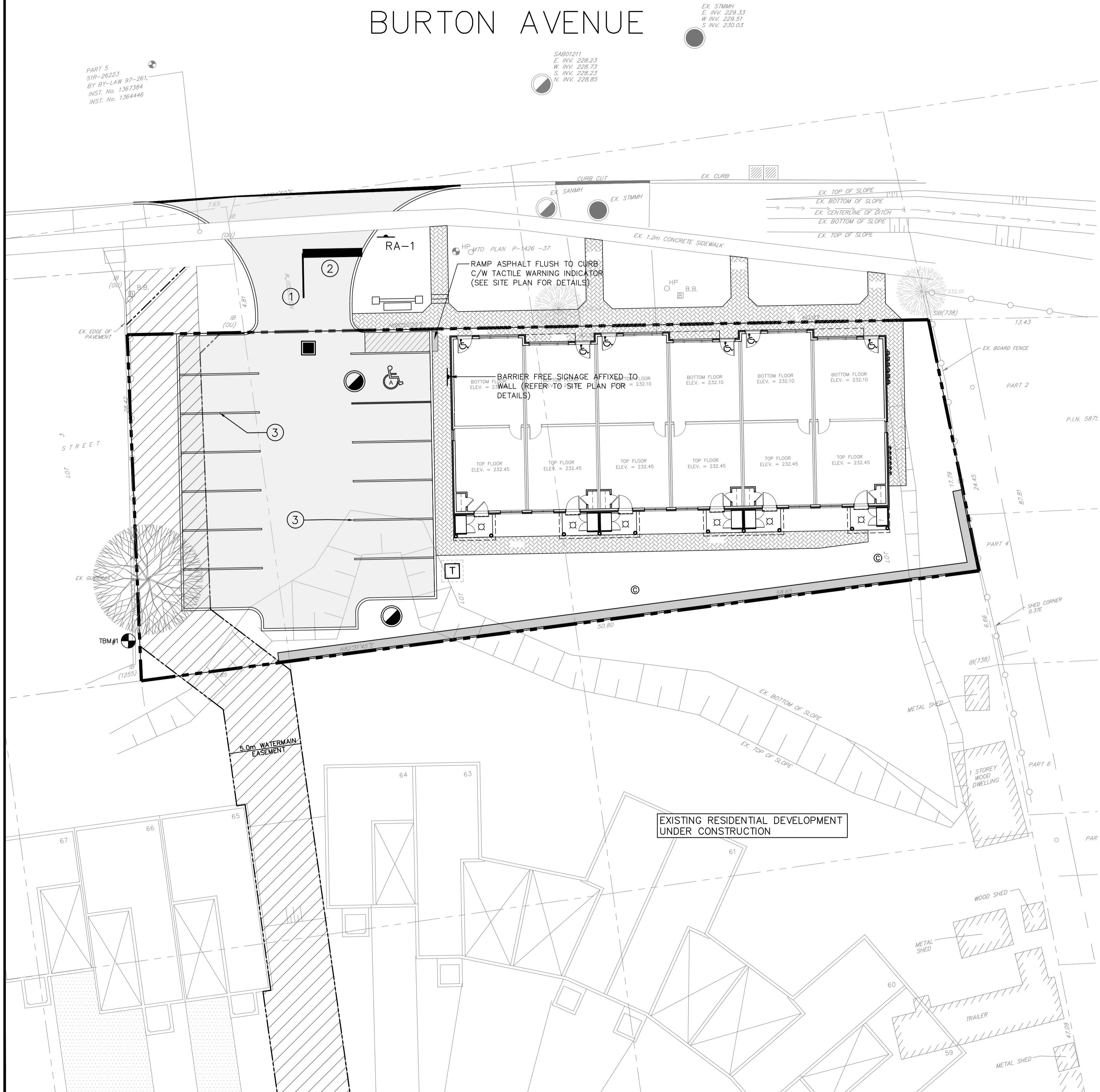
**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

**POST-DEVELOPMENT CATCHMENT  
PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	POST-1	1

# BURTON AVENUE

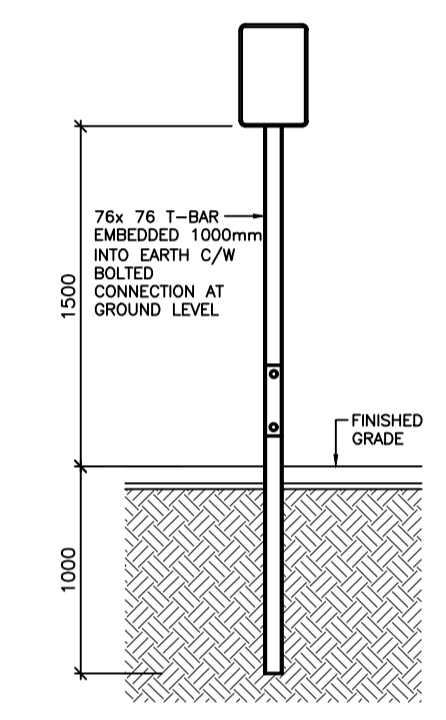


### PAVEMENT MARKING AND SIGNAGE NOTES:

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. SAIGNAGE AND LINE PAINTING TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. REFER TO SITE PLAN FOR BARRIER FREE PARKING 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

- RA-1
- ① SOLID YELLOW 10cm WIDTH
- ② SOLID WHITE 60cm WIDTH
- 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	50
	HL8 BINDER	60
GRANULAR BASE (OPSS 1010)	GRANULAR 'A'	150
	GRANULAR 'B'	450

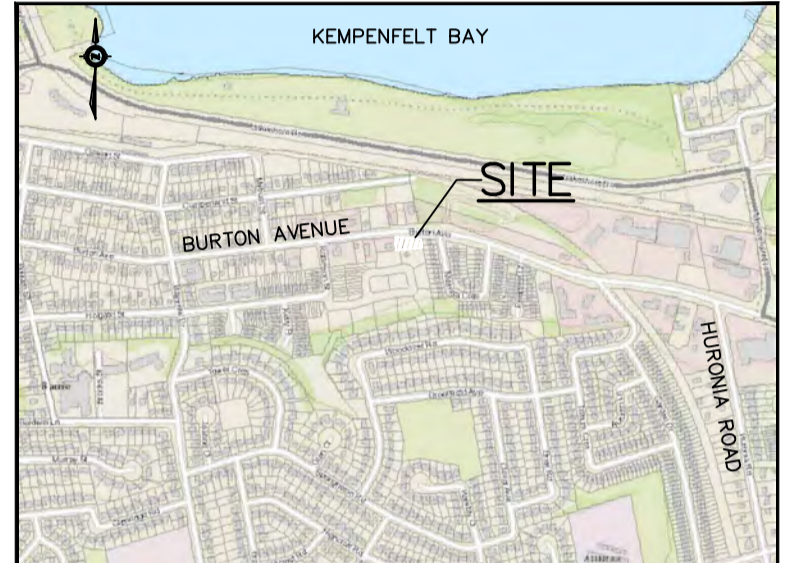
\* TO BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION



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2. LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.

**BENCHMARK**

TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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

NORTH ARROW

DESIGN BY:	J.V.
DRAWN BY:	M.B.
CHECKED:	J.V.
DATE:	FEBRUARY 2019
SCALE:	1:150

CLIENT/PROJECT

**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

**PAVEMENT MARKING AND SIGNAGE  
PLAN**

PROJECT NO.	DRAWING NO.	REVISION
18-11403B	PM-1	1

## GENERAL NOTES

- 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 WORK.
- 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.

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

### GENERAL NOTES - SANITARY SEWER

#### SANITARY SEWERS

- SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.
- 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.
- MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
- 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.
- 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).
- 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.
- 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
		3. NOTE 'B' OPSD NUMBER REVISION	K.C.	2000.03.16				
		2. NOTE 'F' CHANGED	K.C.	98.03.30	DRAWN:	L.A.J.	SCALE:	N.T.S.
		1. CHANGES TO B. TO G.	K.C.	95.04.24				
		NO.	REVISION	APPR'D	DATE	BSD-N3		

### GENERAL NOTES - WATERMAIN

- 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.
- 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.
- 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.
- WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT MATRICE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSD MIN 100 65.27 COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (PAUNCHES, BEDDING, TOP OF PIPE AND COVER).
- COPPER WATER MAINS AND SERVICES 25mm TO 90mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD MUNI 1004.06.07.
- 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.
- NEW WATERMANS TO BE PVC DR18 CL150 MINIMUM, DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- 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.
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- SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)
- 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.
- ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

	GENERAL NOTES - WATERMAIN		REV No. <b>2</b>	DATE: MAY 2015	APPROVED DATE: <i>May 29/15</i> DIRECTOR OF ENGINEERING
			SCALE: N.T.S.		
			BSD-500		

### GENERAL NOTES - SANITARY SEWER

#### SANITARY SEWERS

- SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.
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CITY OF BARRIE STANDARD		4. NOTE 'B' - "ENGINEERING"	B.R.	2002.10.28	APPR'D:	R.G.N.	DATE:	92.05.15
		3. NOTE 'B' OPSD NUMBER REVISION	K.C.	2000.03.16				
		2. NOTE 'F' CHANGED	K.C.	98.03.30	DRAWN:	L.A.J.	SCALE:	N.T.S.
		1. CHANGES TO B. TO G.	K.C.	95.04.24				
		NO.	REVISION	APPR'D	DATE	BSD-N3		

### GENERAL NOTES - STORM SEWER

#### STORM SEWER

- STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
- PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE.
- 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.
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- STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.
- 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.
- PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m<sup>2</sup>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.
- STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.
- 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.
- ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.
- SUMP PUMP DISCHARGE PIPING IN BOULEVARD:  
IN THE EVENT OF OVERACTIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF SEWER IS TO BE EQUAL TO SUBRAIN DEPTH. NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

CITY OF BARRIE STANDARD		4. NOTE 'C' - SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07	APPR'D:	R.G.N.	DATE:	92.05.15
		3. NOTE 'Y' & 'C' - "DIRECTOR OF ENGINEERING"	B.R.	2002.10.28				
		2. NOTE 'C' OPSD NUMBER REVISION	K.C.	2000.03.16	DRAWN:	L.A.J.	SCALE:	N.T.S.
		1. NOTE 'D' CHANGED	K.C.	98.03.30				
		NO.	REVISION	APPR'D	DATE	BSD-N5		

### GENERAL NOTES - STORM SEWER

#### STORM SEWER

- STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
- PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE.
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- 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.
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CITY OF BARRIE STANDARD		4. NOTE 'C' - SUMP PUMP DISCHARGE PIPING	B.R.	2003.01.07	APPR'D:	R.G.N.	DATE:	92.05.15
		3. NOTE 'Y' & 'C' - "DIRECTOR OF ENGINEERING"	B.R.	2002.10.28				
		2. NOTE 'C' OPSD NUMBER REVISION	K.C.	2000.03.16	DRAWN:	L.A.J.	SCALE:	N.T.S.
		1. NOTE 'D' CHANGED	K.C.	98.03.30				
		NO.	REVISION	APPR'D	DATE	BSD-N5		

### GENERAL NOTES - SANITARY SEWER

#### SANITARY SERVICE LATERALS

- SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CAPPED.
- 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.
- 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.
- MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4m MEASURED FROM THE SEWER OVERTO TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.
- 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.
- 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
		1. CHANGES TO B. TO G.	K.C.	95.04.24				
		NO.	REVISION	APPR'D	DATE	BSD-N4		

### GENERAL NOTES - WATERMAIN

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

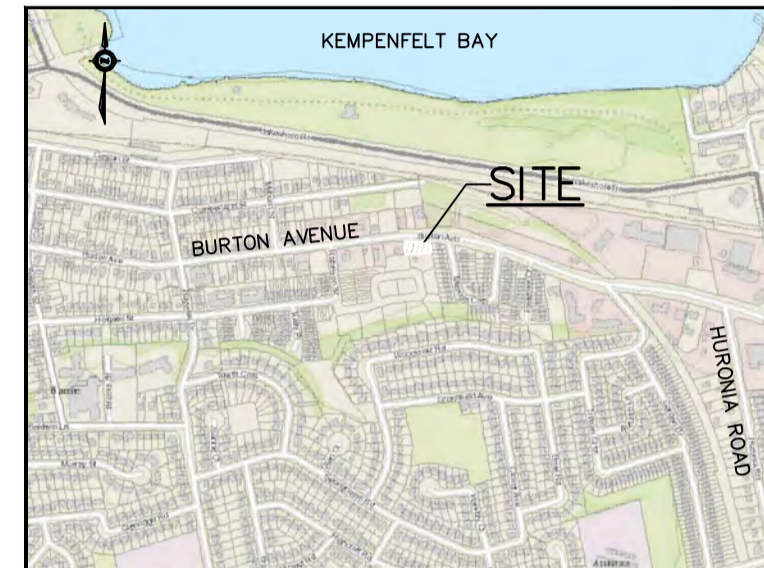
	GENERAL NOTES - WATERMAIN		REV No. <b>2</b>	DATE: MAY 2015	APPROVED DATE: <i>May 29/15</i> DIRECTOR OF ENGINEERING
			SCALE: N.T.S.		
			BSD-500		



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.

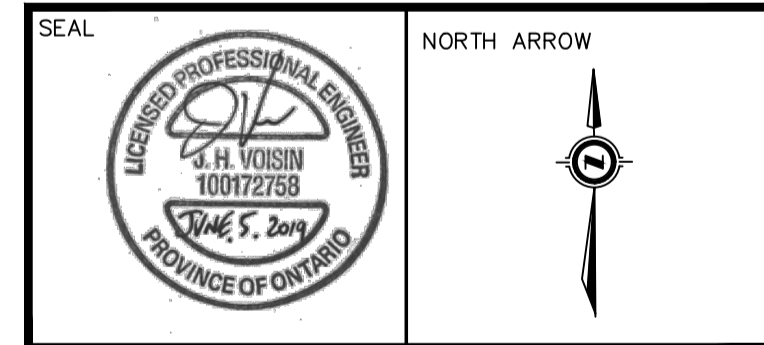


- ### KEY MAP
- TOPOGRAPHIC INFORMATION COMPLETED BY JOE TOPO, 2018.
  - LEGAL AND SITE PLAN PROVIDED BY IAN MALCOLM ARCHITECTS.

### BENCHMARK

BM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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: FEBRUARY 2019  
SCALE: 1:150

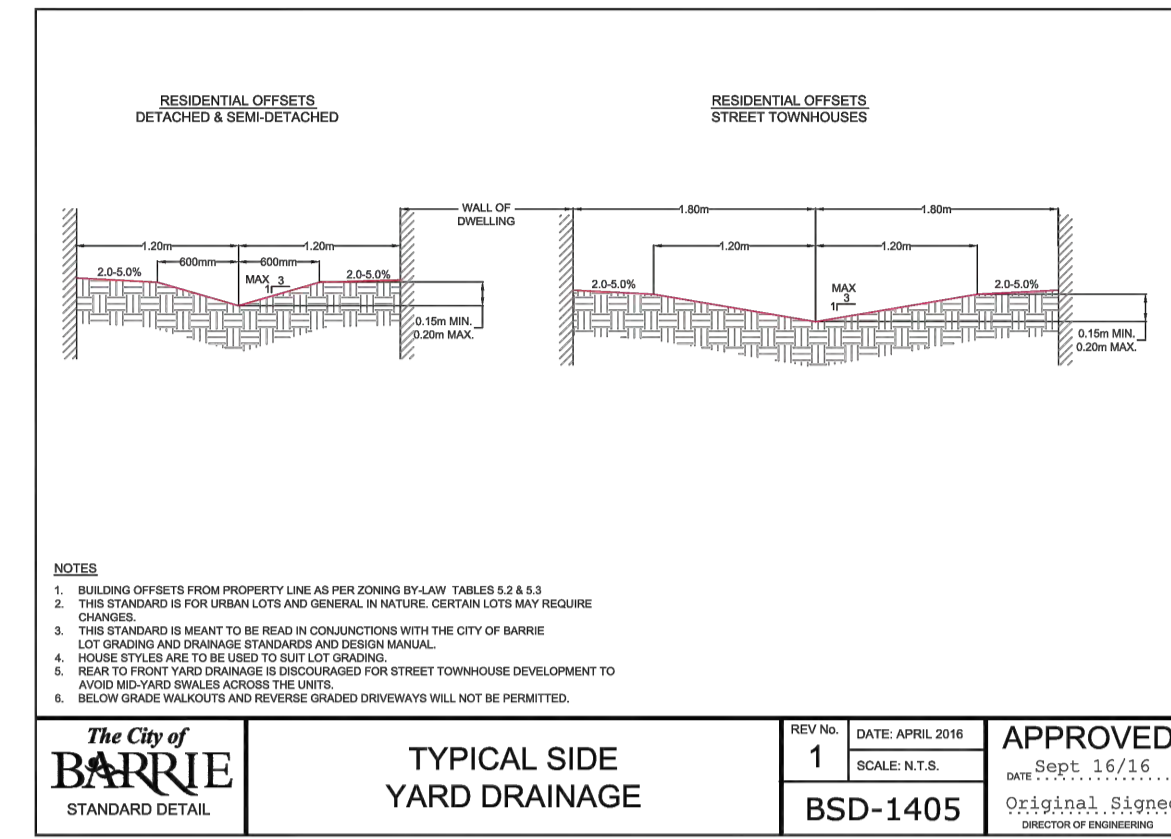
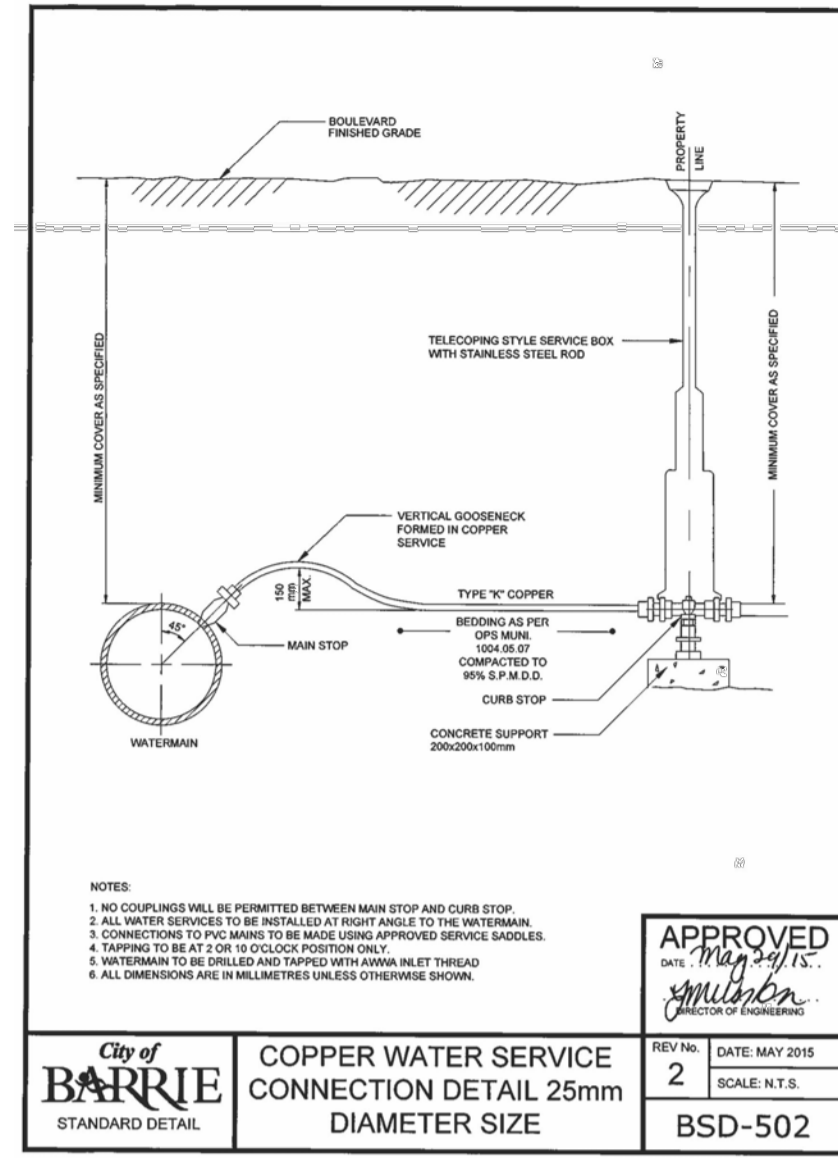
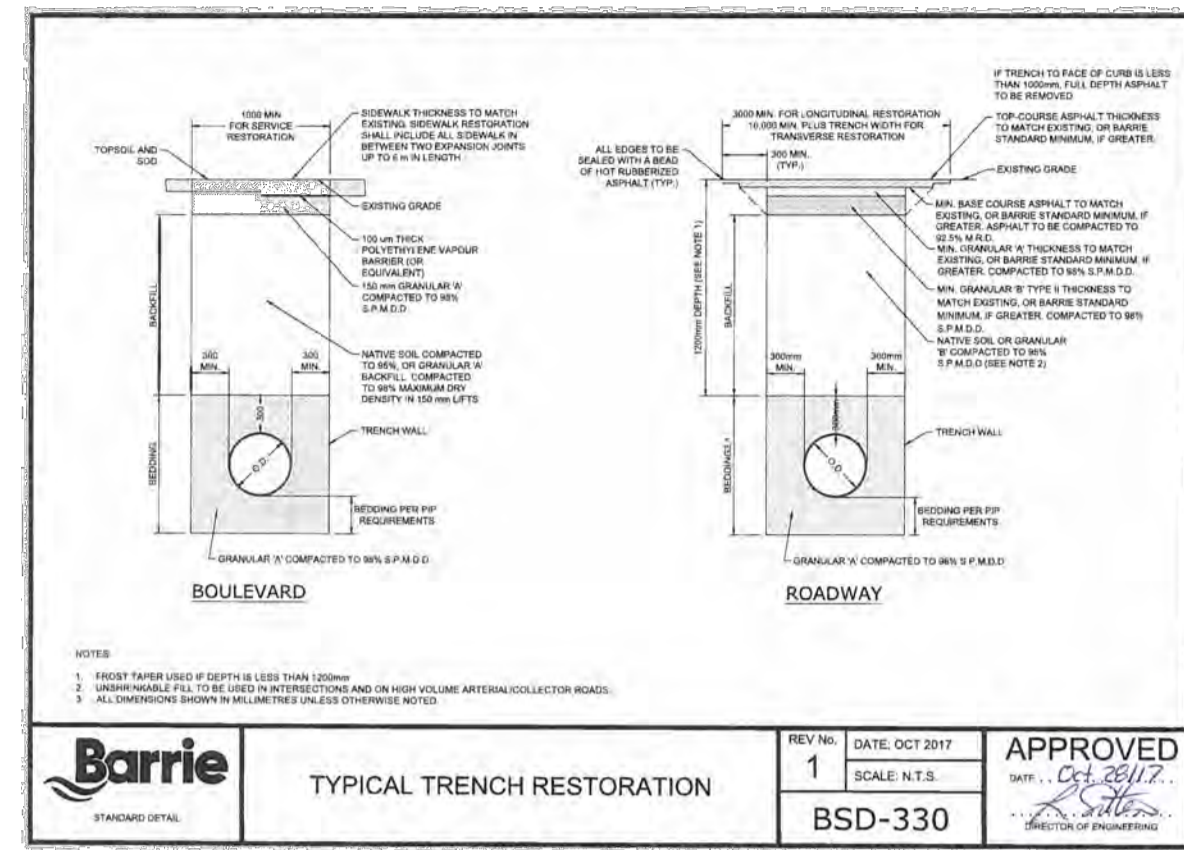
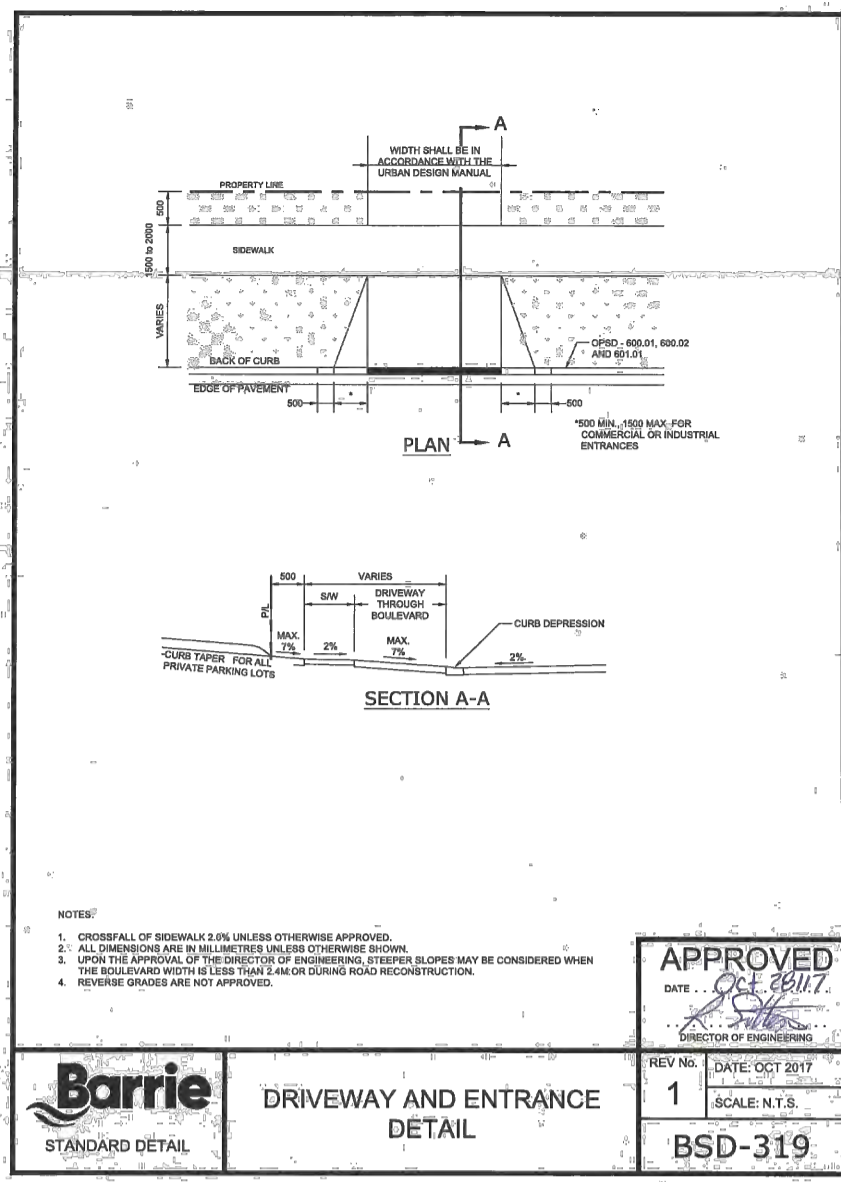
CLIENT/PROJECT

**196 BURTON AVENUE  
COMMERCIAL/RESIDENTIAL  
DEVELOPMENT**

DRAWING TITLE

**STANDARD CONSTRUCTION NOTES**

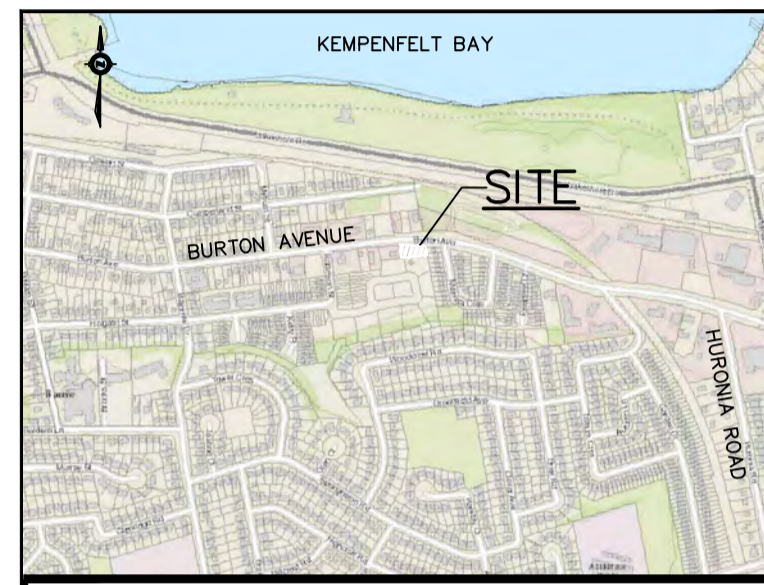
PROJECT NO. <b>18-11403B</b>	DRAWING NO. <b>SD-1</b>	REVISION <b>1</b>
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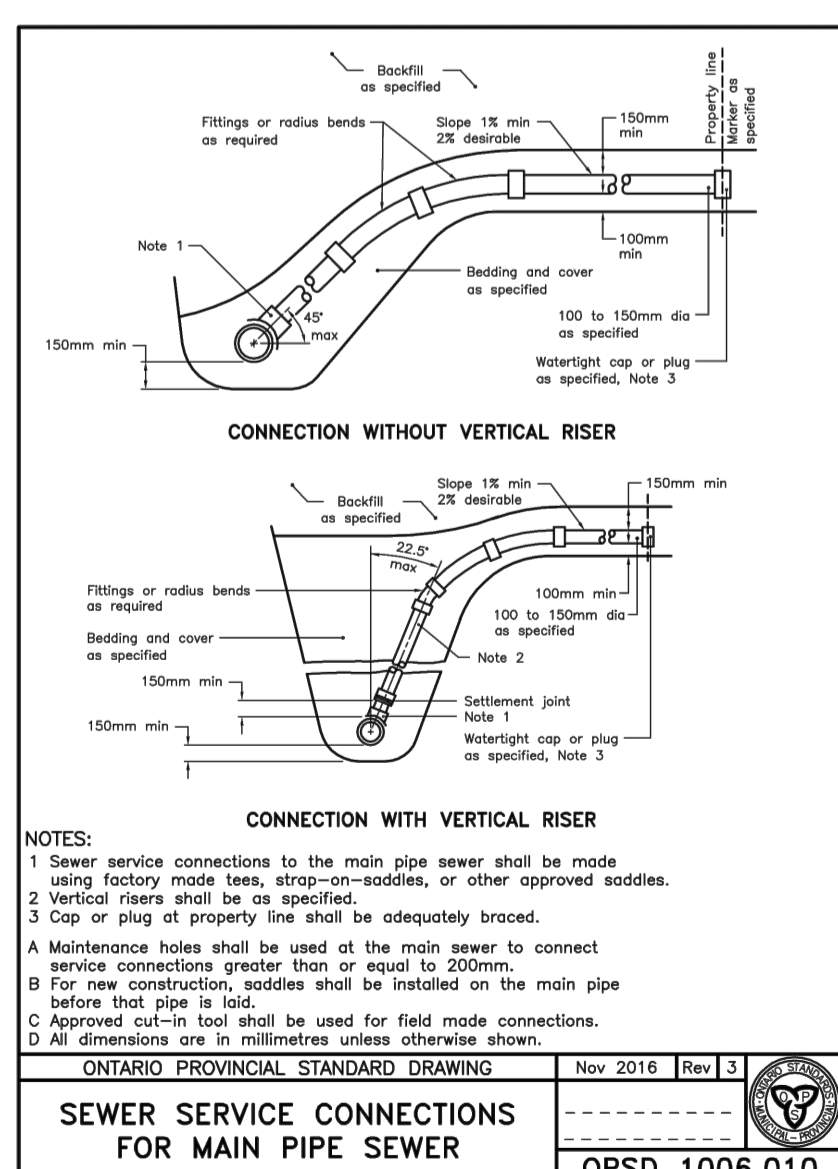
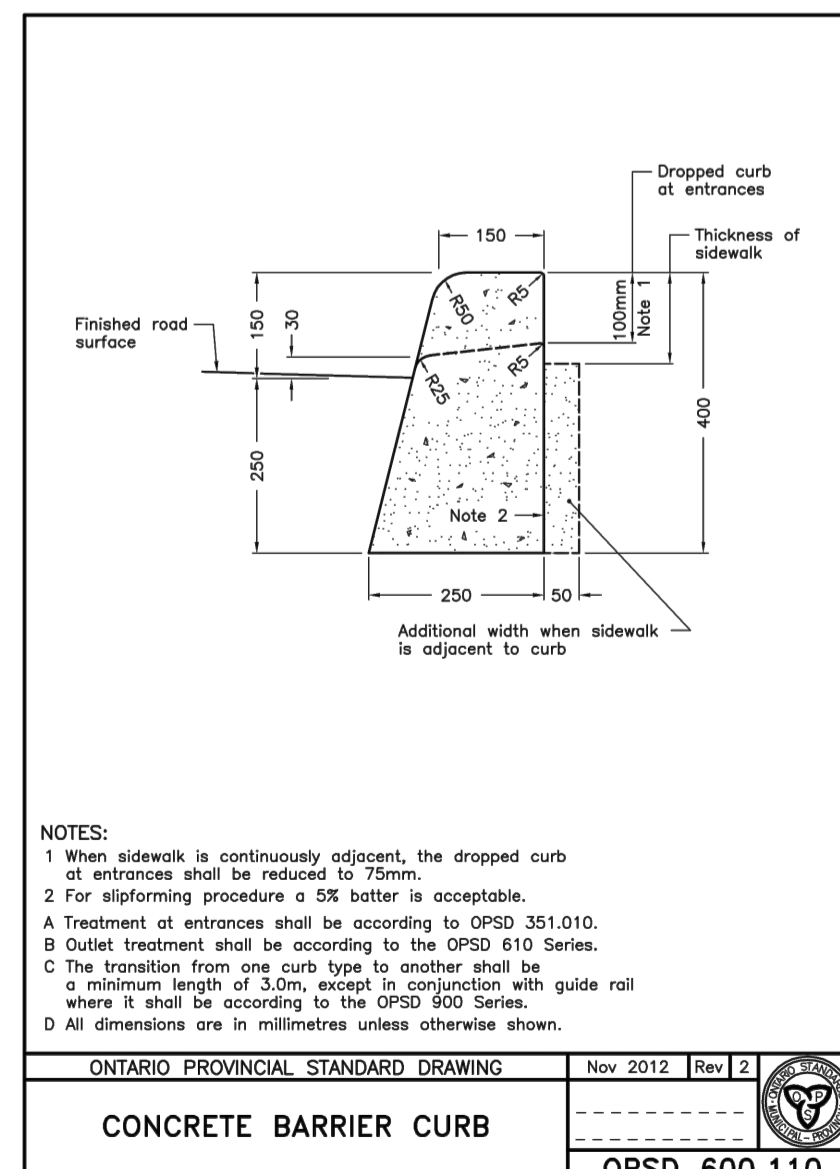
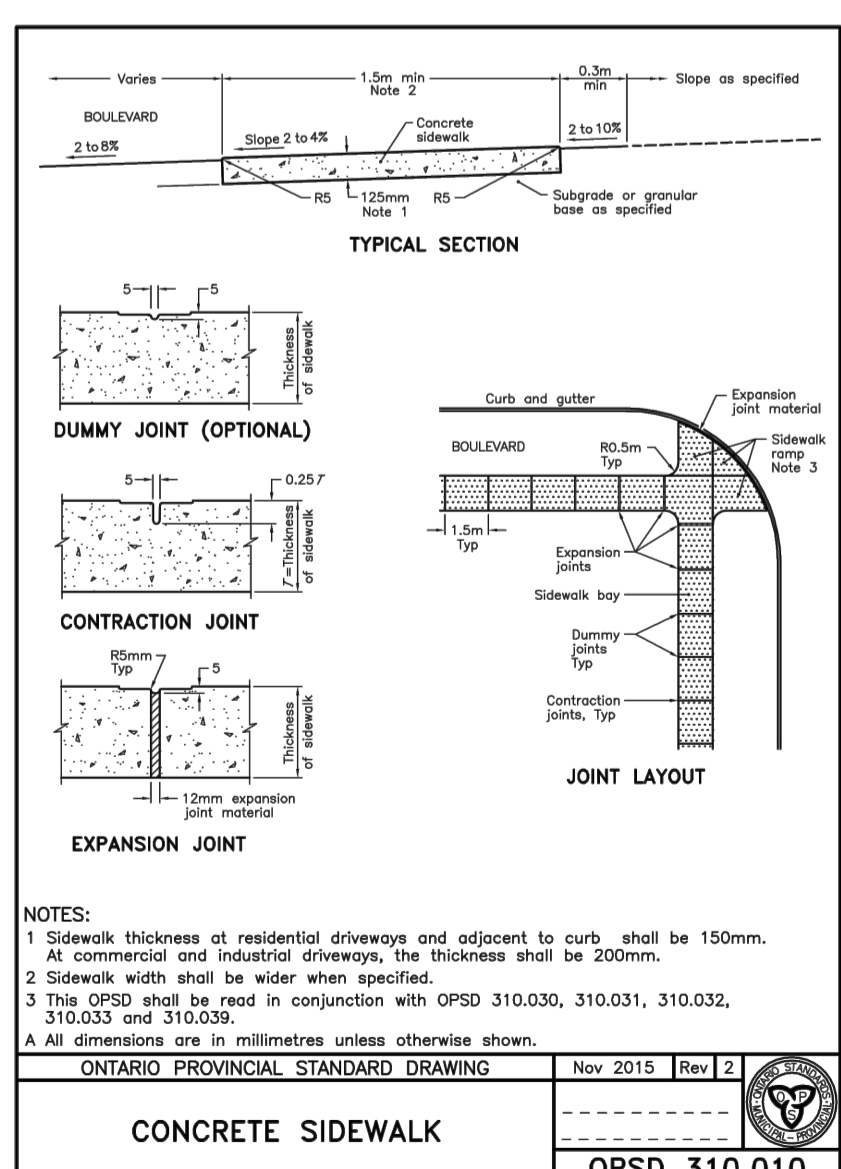
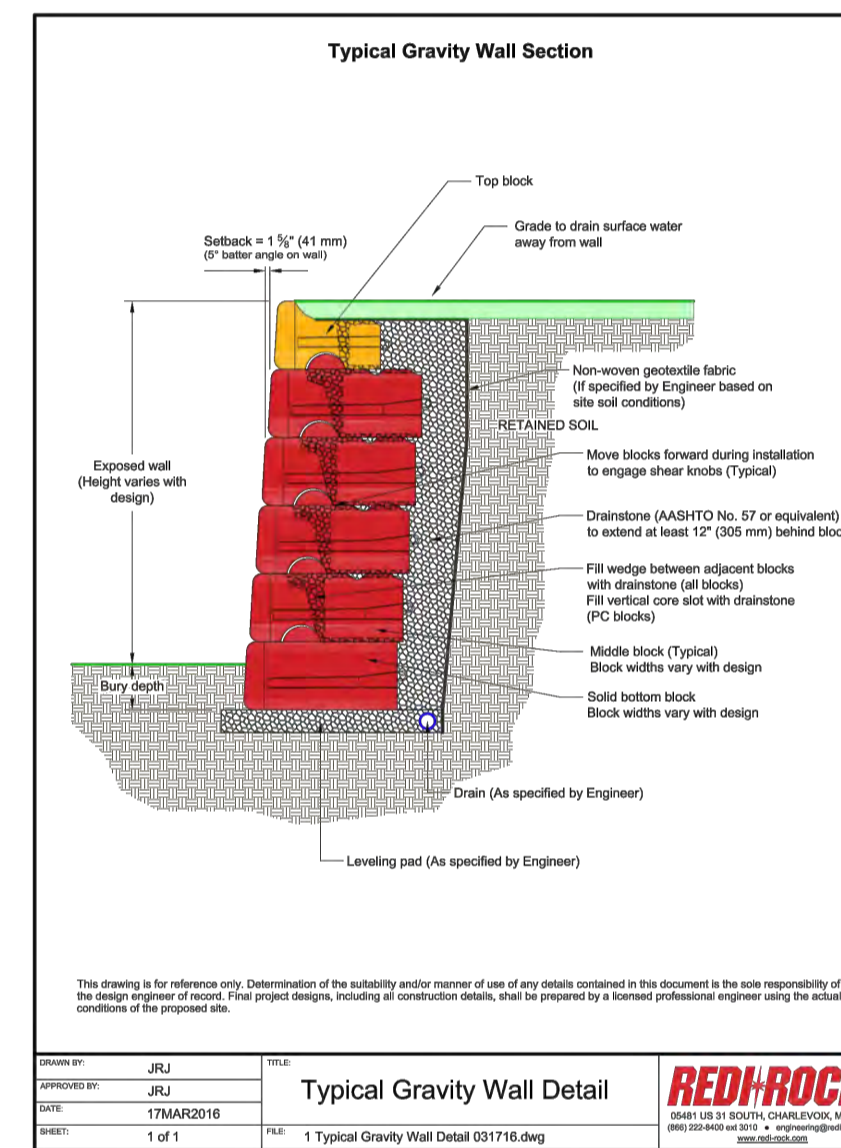
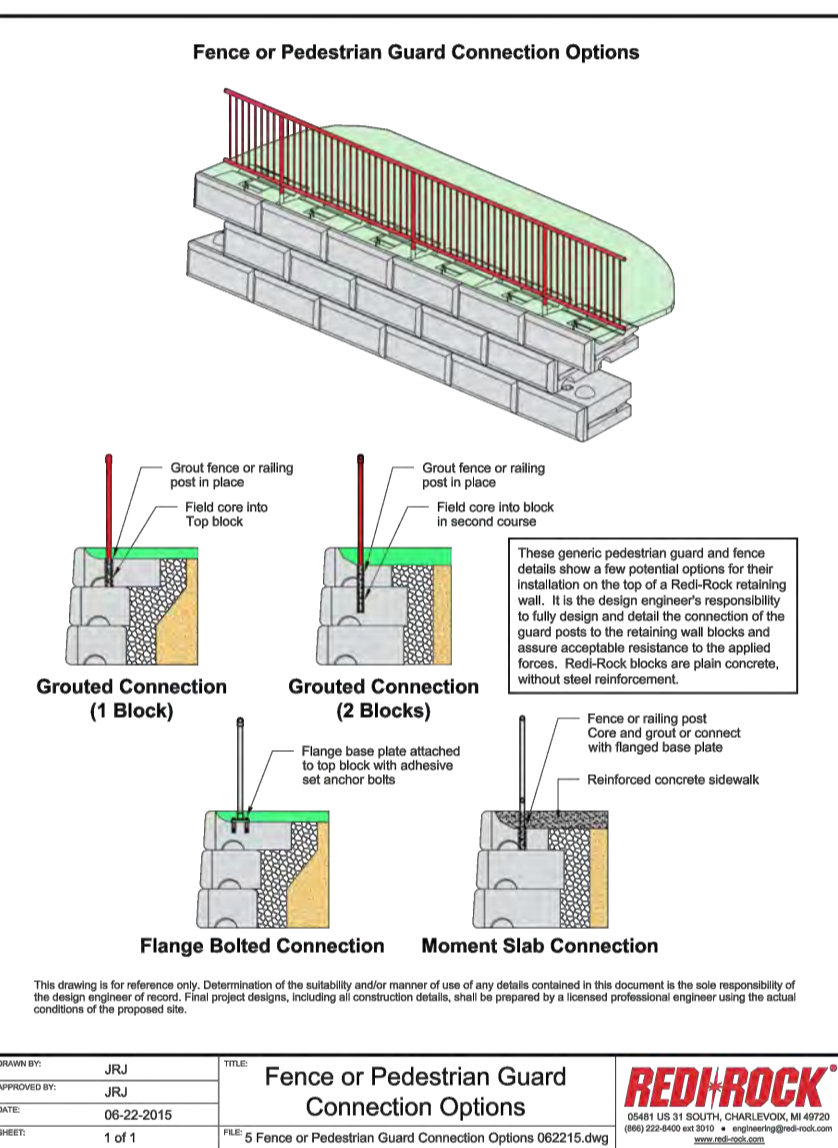
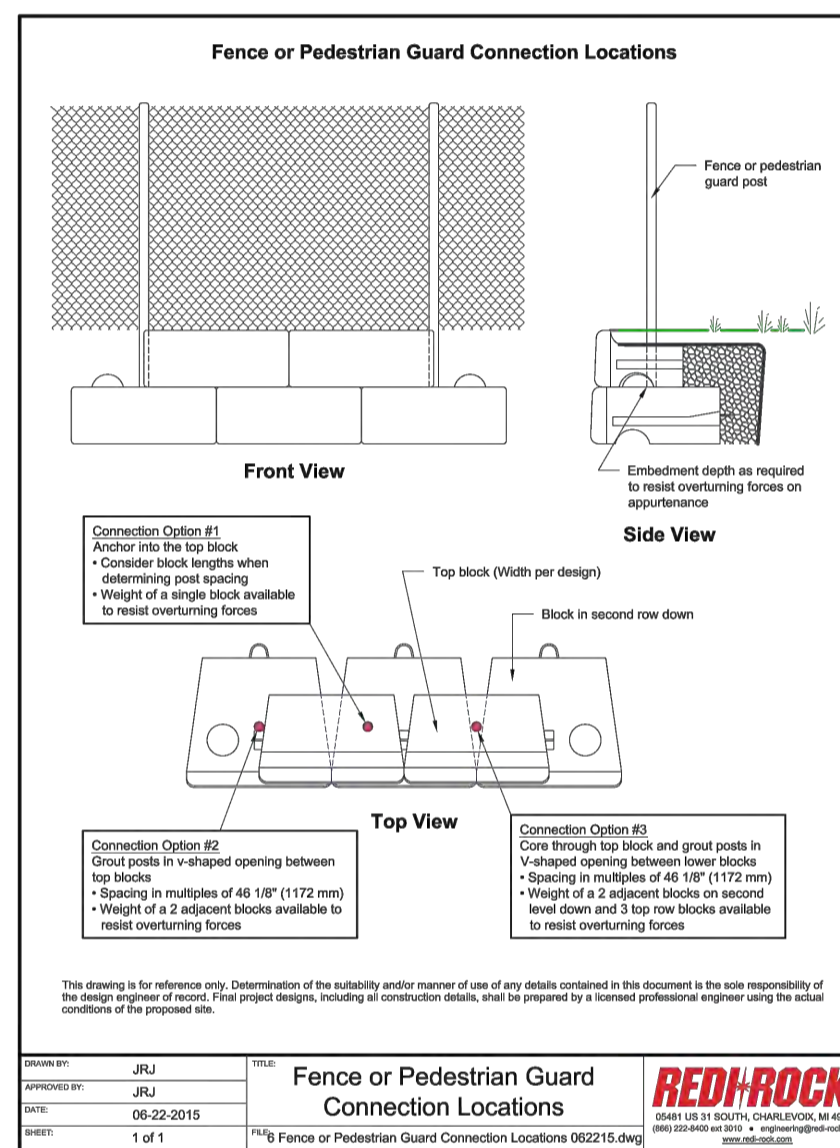
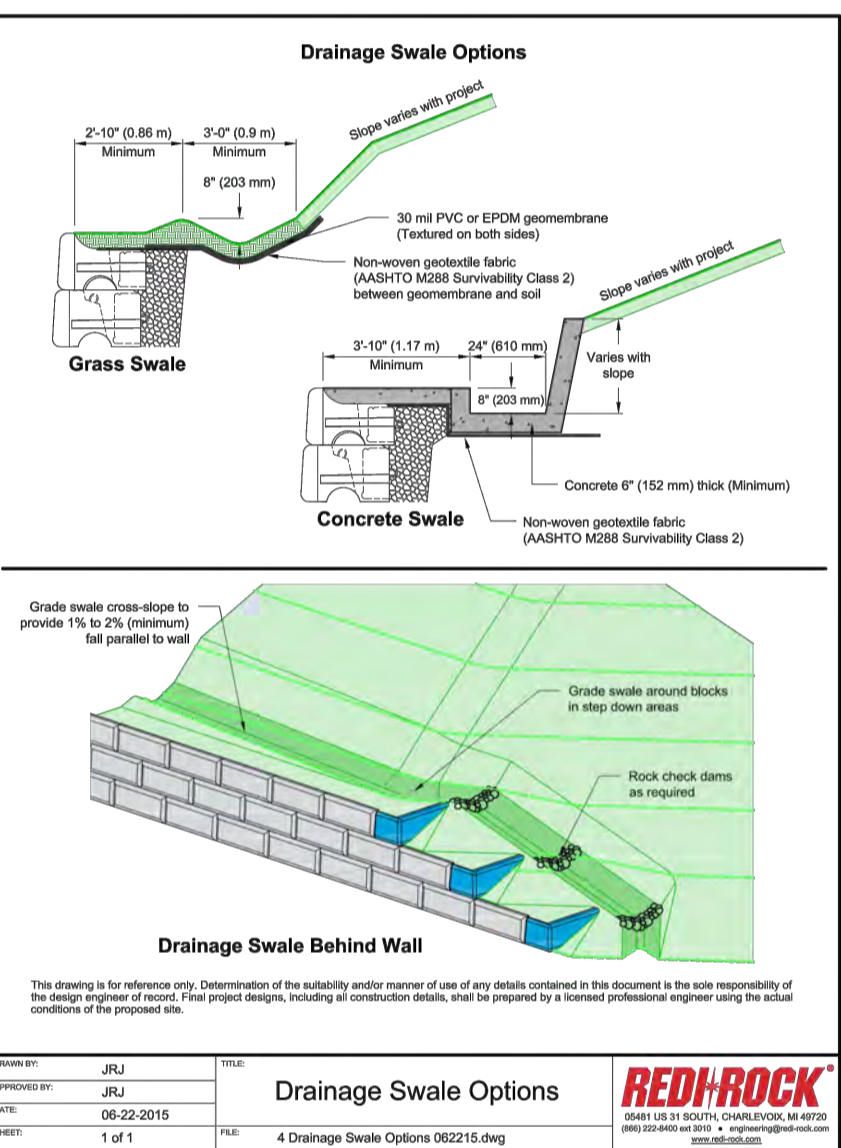
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Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.



**KEY MAP**

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



**BENCHMARK**

TBM#1: TOP OF IB IN SOUTHWEST CORNER OF PROPERTY AT EXISTING WATERMAIN EASEMENT. ELEVATION: 233.089

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: FEBRUARY 2019  
 SCALE: 1:150

CLIENT/PROJECT

**196 BURTON AVENUE  
 COMMERCIAL/RESIDENTIAL  
 DEVELOPMENT**

DRAWING TITLE

**DETAILS PLAN**

PROJECT NO. <b>18-11403B</b>	DRAWING NO. <b>DET-1</b>	REVISION <b>1</b>
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