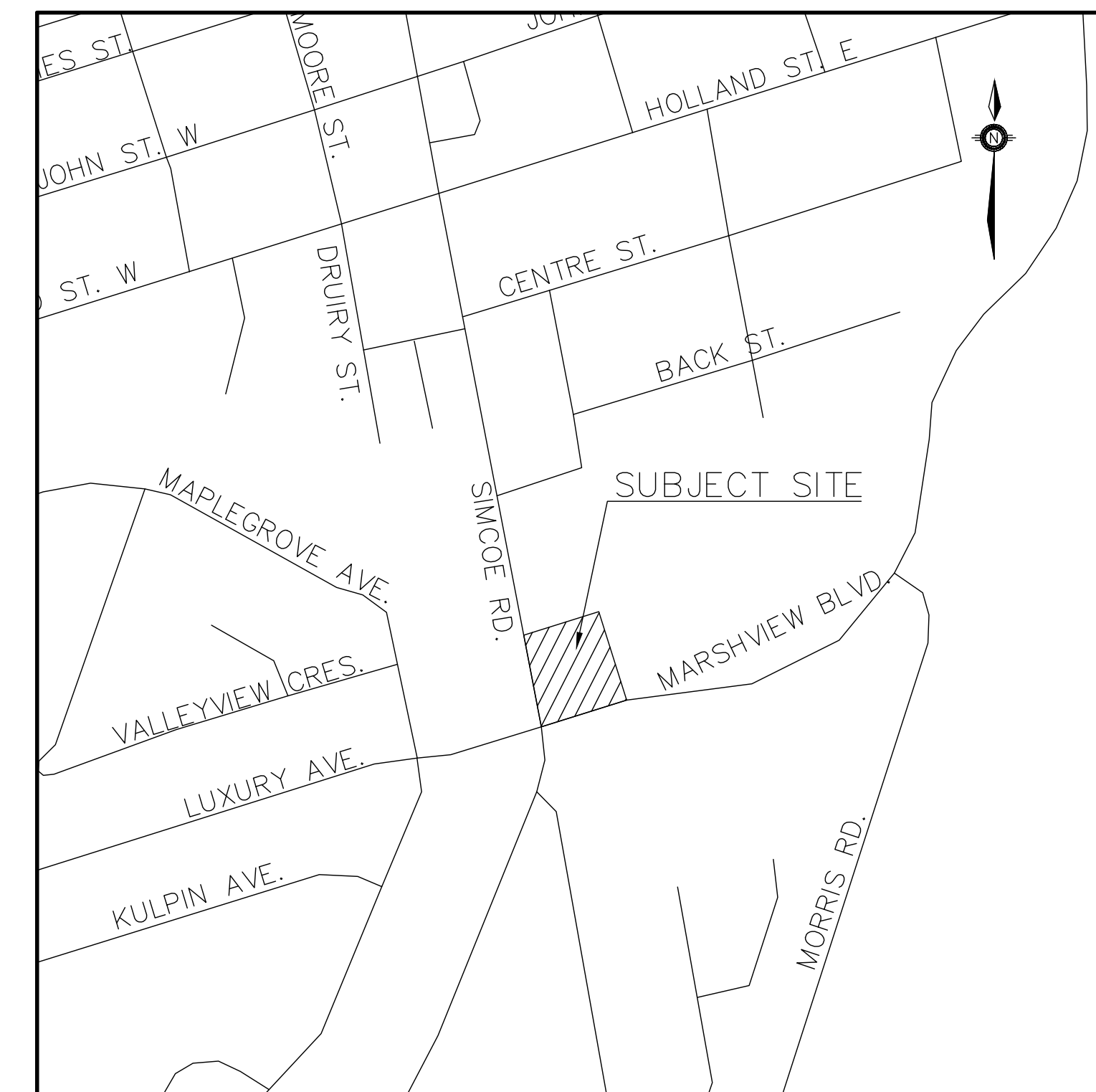


**COUNTY OF SIMCOE
BRADFORD AFFORDABLE HOUSING
125 SIMCOE ROAD**

DRAWING LIST

- ND-1 NOTES AND DETAILS 1 OF 2
- ND-2 NOTES AND DETAILS 2 OF 2
- SG-1 SITE GRADING PLAN
- SS-1 SITE SERVICING PLAN
- STM-1 PRE-DEVELOPMENT STORM CATCHMENT PLAN
- STM-2 POST DEVELOPMENT STORM CATCHMENT PLAN
- EP-1 ENVIRONMENTAL PROTECTION PLAN



TOWN OF BRADFORD WEST GWILLIMBURY
125 SIMCOE ROAD
BRADFORD WEST GWILLIMBURY, ON, L3Z 1Y3

COUNTY OF SIMCOE
1110 HIGHWAY 26
MIDHURST, ON, L0L 1X0



**PEARSON
ENGINEERING**
PEARSONENG.COM PH. 705.719.4785

GENERAL NOTES – GENERAL

- THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNLESS OTHERWISE NOTED ON THE PLAN AND PROFILE DRAWINGS AND SPECIFIC DETAIL DRAWINGS.
- PIPE SHALL BE CONCRETE WITH A MINIMUM DIAMETER OF 300mm AND SHALL CONFORM TO THE REQUIREMENTS OF C.S.A. SPECIFICATION A275-M 1982 FOR THE CLASSES SHOWN BELOW:
 - a) NON-REINFORCED CONCRETE PIPE, C.S.A. STANDARD A275.1 CLASS 1,2,3
 - b) REINFORCED CONCRETE PIPE, C.S.A. STANDARD A275.2 STRENGTH CLASS 50-D, 65-D, 100-D AND 140-D.
- ALL STORM SEWERS OVER 450mm DIAMETER SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE PIPE.
- SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010, AND 802.030, UNLESS OTHERWISE SPECIFIED BY A GEOTECHNICAL CONSULTANT AND APPROVED BY THE TOWN.
- TRENCH BACKFILL SHOULD BE PLACED IN 200mm LIFTS AND COMPACTED TO 95% SPMOD.
- ALL STORM SEWER MANHOLES TO BE BRENCHED IN ACCORDANCE WITH OPSD 701.021.
- DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.
- MANHOLE TOPS ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE. FRAME AND COVER TO BE PER OPSD 401.010, TYPE B. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. CONCRETE MODULAR ADJUSTMENT BRGS ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
- CATCHBASINS MUST BE OF THE PRECAST TYPE AS SHOWN ON THE OPSD DRAWINGS 705.01 OR 705.02.
- SINGLE CATCHBASIN LEADS SHALL BE HIGH DENSITY POLYETHYLENE PIPE OR PVC PIPE WITH MINIMUM SIZES AS FOLLOWS:
 - SMALL CATCHBASIN 250mm DIAMETER
 - DOUBLE CATCHBASIN 300mm DIAMETER
 - REAR LOT CATCHBASIN 250mm DIAMETER
- THE FRAME AND GRATE FOR CATCHBASINS SHALL BE OPSD 400.100, CATCHBASIN GRATES ARE TO BE DAMPED USING HOT-WAX ASPHALT. CATCHBASINS AT LOW POINTS SHALL BE SET TO BE ABOVE ASPHALT AND ADJUSTED TO SURFACE GRADE.
- REAR LOT CATCHBASIN LEADS TO BE CONCRETE ENCASED FROM THE PROPERTY LINE TO THE CATCHBASIN, FRAME AND GRATE TO BE "BRICKAGE" STYLE AS PER OPSD 400.120.
- WHERE CATCHBASINS ARE CONNECTED DIRECTLY TO SEWERS, PRE-MANUFACTURED TEES SHALL BE USED.
- STORM SEWERS SHALL BE 150mm DIAMETER PVC OR 28" WHITE IN COLOR. ALL OTHER DETAILS ARE SAME AS THOSE FOR SANITARY SERVICE EXCEPT, WOOD MARKERS TO BE PAINTED BLACK.
- NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6m UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
- TRENCH BACKFILL SHOULD BE PLACED IN 200mm LIFTS AND COMPACTED TO 95% SPMOD.
- "CLAY FLUSH" SHALL BE USED IN THE TRENCH AND BE PLACED 2 TO 3 METERS UPSTREAM FROM ANY MANHOLE WHICH IS SUSPECTED OF BEING SUSCEPTIBLE TO HIGH WATER LEVELS OF INFLUENCE/INFILTRATION.
- MANHOLE MANHOLES SHALL BE IN ACCORDANCE WITH OPSD MANHOLE DETAILS. PRECAST MANHOLES SHALL CONFORM TO ASTM SPECIFICATION C78 LATEST REVISION. PRECAST MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.020 (200mm DIAMETER). PRECAST MANHOLES GREATER THAN 5m DEEP SHALL BE CONSTRUCTED WITH A SAFETY PLATFORM IN ACCORDANCE WITH OPSD 404.020. FRAME AND COVER SHALL BE IN ACCORDANCE WITH OPSD 401.010, TYPE "A".
- MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. CONCRETE MODULAR ADJUSTMENT BRGS ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
- ALL PIPE CONNECTIONS AT MANHOLES SHALL BE COMPLETED USING KORE-IN-SEAL RUBBER GASKET ASSEMBLIES OR APPROVED EQUAL. ALL CONNECTIONS TO THE SANITARY MAIN SHALL BE MADE WITH PRE-MANUFACTURED APPROVED TEES.
- MANHOLE BEDDING SHALL CONFORM WITH OPSD 701.021 WITH BEDDING TO THE OVERTOP.
- DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.

GENERAL NOTES – STORM SEWERS

- STORM SEWER TO BE LOCATED TYPICALLY 1.5m TO THE WEST OR SOUTH OF CENTRELINE OF THE ROAD AS INDICATED ON THE PLAN.
- PIPE SHALL BE CONCRETE WITH A MINIMUM DIAMETER OF 300mm AND SHALL CONFORM TO THE REQUIREMENTS OF C.S.A. SPECIFICATION A275-M 1982 FOR THE CLASSES SHOWN BELOW:
 - a) NON-REINFORCED CONCRETE PIPE, C.S.A. STANDARD A275.1 CLASS 1,2,3
 - b) REINFORCED CONCRETE PIPE, C.S.A. STANDARD A275.2 STRENGTH CLASS 50-D, 65-D, 100-D AND 140-D.
- ALL STORM SEWERS OVER 450mm DIAMETER SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE PIPE.
- SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010, AND 802.030, UNLESS OTHERWISE SPECIFIED BY A GEOTECHNICAL CONSULTANT AND APPROVED BY THE TOWN.
- TRENCH BACKFILL SHOULD BE PLACED IN 200mm LIFTS AND COMPACTED TO 95% SPMOD.
- ALL STORM SEWER MANHOLES TO BE BRENCHED IN ACCORDANCE WITH OPSD 701.021.
- DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.
- MANHOLE TOPS ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE. FRAME AND COVER TO BE PER OPSD 401.010, TYPE B. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. CONCRETE MODULAR ADJUSTMENT BRGS ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
- CATCHBASINS MUST BE OF THE PRECAST TYPE AS SHOWN ON THE OPSD DRAWINGS 705.01 OR 705.02.
- SINGLE CATCHBASIN LEADS SHALL BE HIGH DENSITY POLYETHYLENE PIPE OR PVC PIPE WITH MINIMUM SIZES AS FOLLOWS:
 - SMALL CATCHBASIN 250mm DIAMETER
 - DOUBLE CATCHBASIN 300mm DIAMETER
 - REAR LOT CATCHBASIN 250mm DIAMETER
- THE FRAME AND GRATE FOR CATCHBASINS SHALL BE OPSD 400.100, CATCHBASIN GRATES ARE TO BE DAMPED USING HOT-WAX ASPHALT. CATCHBASINS AT LOW POINTS SHALL BE SET TO BE ABOVE ASPHALT AND ADJUSTED TO SURFACE GRADE.
- REAR LOT CATCHBASIN LEADS TO BE CONCRETE ENCASED FROM THE PROPERTY LINE TO THE CATCHBASIN, FRAME AND GRATE TO BE "BRICKAGE" STYLE AS PER OPSD 400.120.
- WHERE CATCHBASINS ARE CONNECTED DIRECTLY TO SEWERS, PRE-MANUFACTURED TEES SHALL BE USED.
- STORM SEWERS SHALL BE 150mm DIAMETER PVC OR 28" WHITE IN COLOR. ALL OTHER DETAILS ARE SAME AS THOSE FOR SANITARY SERVICE EXCEPT, WOOD MARKERS TO BE PAINTED BLACK.
- NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6m UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
- TRENCH BACKFILL SHOULD BE PLACED IN 200mm LIFTS AND COMPACTED TO 95% SPMOD.
- "CLAY FLUSH" SHALL BE USED IN THE TRENCH AND BE PLACED 2 TO 3 METERS UPSTREAM FROM ANY MANHOLE WHICH IS SUSPECTED OF BEING SUSCEPTIBLE TO HIGH WATER LEVELS OF INFLUENCE/INFILTRATION.
- MANHOLE MANHOLES SHALL BE IN ACCORDANCE WITH OPSD MANHOLE DETAILS. PRECAST MANHOLES SHALL CONFORM TO ASTM SPECIFICATION C78 LATEST REVISION. PRECAST MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.020 (200mm DIAMETER). PRECAST MANHOLES GREATER THAN 5m DEEP SHALL BE CONSTRUCTED WITH A SAFETY PLATFORM IN ACCORDANCE WITH OPSD 404.020. FRAME AND COVER SHALL BE IN ACCORDANCE WITH OPSD 401.010, TYPE "A".
- MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. CONCRETE MODULAR ADJUSTMENT BRGS ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
- ALL PIPE CONNECTIONS AT MANHOLES SHALL BE COMPLETED USING KORE-IN-SEAL RUBBER GASKET ASSEMBLIES OR APPROVED EQUAL. ALL CONNECTIONS TO THE SANITARY MAIN SHALL BE MADE WITH PRE-MANUFACTURED APPROVED TEES.
- MANHOLE BEDDING SHALL CONFORM WITH OPSD 701.021 WITH BEDDING TO THE OVERTOP.
- DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.

GENERAL NOTES – SANITARY SEWERS

- SANITARY SEWER TO BE GENERALLY LOCATED 1.5m NORTH OR EAST OF THE CENTRELINE OF THE ROAD UNLESS NOTED OTHERWISE.
- PVC PIPE MAY ONLY BE USED ON SANITARY SEWERS UP TO AND INCLUDING 375mm IN DIAMETER. REINFORCED CONCRETE SHALL BE USED FOR SEWERS 450mm DIAMETER AND LARGER.
- NON-FLEXIBLE CONCRETE SHALL BE STEEL REINFORCED AND CONFORM TO C.S.A. SPECIFICATION A275.2, CLASS 50-D, 65-D, 100-D AND 140-D AS REQUIRED. PVC SHALL CONFORM TO C.S.A. SPECIFICATION B182.1 OR B182.2 OR LATEST REVISIONS THEREOF, DIMENSION RATIO (R) OF PVC SEWER PIPE SHALL NOT EXCEED 35.
- ALL SANITARY SERVICE CONNECTIONS FOR RESIDENTIAL USES SHALL BE CONSTRUCTED OF THE FOLLOWING PIPE MATERIALS AND SPEC:
 - PVC CLASS B182.1 100mm MINIMUM
 - CLASS: A, A.A, A.K, A.L, A.M, A.N, A.O, A.P, A.Q, A.R, A.S, A.T, A.U, A.V, A.W, A.X, A.Y, A.Z, A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.8, A.9, A.10, A.11, A.12, A.13, A.14, A.15, A.16, A.17, A.18, A.19, A.20, A.21, A.22, A.23, A.24, A.25, A.26, A.27, A.28, A.29, A.30, A.31, A.32, A.33, A.34, A.35, A.36, A.37, A.38, A.39, A.40, A.41, A.42, A.43, A.44, A.45, A.46, A.47, A.48, A.49, A.50, A.51, A.52, A.53, A.54, A.55, A.56, A.57, A.58, A.59, A.60, A.61, A.62, A.63, A.64, A.65, A.66, A.67, A.68, A.69, A.70, A.71, A.72, A.73, A.74, A.75, A.76, A.77, A.78, A.79, A.80, A.81, A.82, A.83, A.84, A.85, A.86, A.87, A.88, A.89, A.90, A.91, A.92, A.93, A.94, A.95, A.96, A.97, A.98, A.99, A.100, A.101, A.102, A.103, A.104, A.105, A.106, A.107, A.108, A.109, A.110, A.111, A.112, A.113, A.114, A.115, A.116, A.117, A.118, A.119, A.120, A.121, A.122, A.123, A.124, A.125, A.126, A.127, A.128, A.129, A.130, A.131, A.132, A.133, A.134, A.135, A.136, A.137, A.138, A.139, A.140, A.141, A.142, A.143, A.144, 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SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 kPa

PIPE	Dimensions	DA	D	C	W
100	150	250	200	200	
150	250	400	250	300	
200	400	550	300	400	
250	500	650	400	500	
300	600	800	450	600	
350	700	900	500	700	
400	800	1050	600	850	

SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 kPa

PIPE	Dimensions	DA	D	C	W
100	150	200	150	150	
150	200	250	200	200	
200	250	300	250	250	
250	300	350	300	300	
300	350	400	350	400	
350	400	450	400	450	
400	450	500	450	500	

SOILS WITH TYPICAL BEARING STRENGTH OF 300 kPa AND OVER

PIPE	Dimensions	DA	D	C	W
100	150	150	150	150	
150	200	200	200	200	
200	250	250	250	250	
250	300	300	300	300	
300	350	350	350	350	
350	400	400	400	400	
400	450	450	450	450	

NOTES:
 A Concrete shall be placed to within 50mm of the face of the ball.
 B Bond breaker shall be used between concrete and fittings.
 C The above thrust block dimensions meet or exceed the MCEP Watermain Design Criteria for Future Alterations Authorized Under a Drinking Water Works Permit.
 D The assumptions made for the above calculations are:
 - Maximum operating pressure of 690 kPa,
 - Maximum surge pressure with a flow velocity change of 0.6 m/s of 750 kPa for Class 52 DI pipe and 240 kPa for PVC pipe.
 E The tables apply to both ductile iron and PVC pipe. When one length exceeded the other, the longer length was used.
 F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2018 Rev 3
CONCRETE THRUST BLOCKS FOR TEES, PLUGS, AND HORIZONTAL BENDS
 OPSD 1103.010

SECTION A-A
 SECTION B-B

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

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2015 Rev 2
TEMPORARY ROCK FLOW CHECK DAM V-DITCH
 OPSD 219.210

1. Right angle bend
2. Tee connection
3. Three way junction
4. Four way junction
5. Straight through
6. Dead end
7. Wye connection
8. 45° bend

MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1-4	No. 5 and 6	No. 8	No. 7
1200	700	860	780	860
1500	860	1220	960	1170
1800	1220	1485	1220	1485
2400	1485	2000	1760	1485
3000	1930	2450	2300	2450
3600	2470	3085	2730	3085

NOTES:
 1 Slopes shall be maintained from the outlet hole opening for top of benching.
 A Concrete for benching shall be 20MPa.
 B When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
 C Benchings slope and height shall be as specified.
 D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be precast at the manufacturer with standardized benching slope and channel orientation.
 E All dimensions are nominal.
 F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 2
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES
 OPSD 701.021

StormTech **ADS**

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources, the StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private commercial and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

STORMTECH SC-740 CHAMBER (into wall)

Nominal Chamber Specifications
 Size (L x W x H)
 88.1 x 82.1 x 30"
 2,237 mm x 2,095 mm x 762 mm

Chamber Storage
 45.9 m³ (1.38 m³)

Weight
 74.8 lbs (33.8 kg)

Shipping
 20 chambers/pallet
 12 pallets/truck

Notes:
 1. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.
 2. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.
 3. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 2
STORMTECH SC-740 CHAMBER
 OPSD 701.021

StormTech **ADS**

SC-740 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon an 8" (203 mm) Stone Below Under Chambers.

Depth of Stone (mm)	Chamber Storage (m³)	Total Chamber Storage (m³)
100	45.9	45.9
200	91.8	91.8
300	137.7	137.7
400	183.6	183.6
500	229.5	229.5
600	275.4	275.4
700	321.3	321.3
800	367.2	367.2
900	413.1	413.1
1000	459.0	459.0
1100	504.9	504.9
1200	550.8	550.8
1300	596.7	596.7
1400	642.6	642.6
1500	688.5	688.5
1600	734.4	734.4
1700	780.3	780.3
1800	826.2	826.2
1900	872.1	872.1
2000	918.0	918.0
2100	963.9	963.9
2200	1009.8	1009.8
2300	1055.7	1055.7
2400	1101.6	1101.6
2500	1147.5	1147.5
2600	1193.4	1193.4
2700	1239.3	1239.3
2800	1285.2	1285.2
2900	1331.1	1331.1
3000	1377.0	1377.0
3100	1422.9	1422.9
3200	1468.8	1468.8
3300	1514.7	1514.7
3400	1560.6	1560.6
3500	1606.5	1606.5
3600	1652.4	1652.4
3700	1698.3	1698.3
3800	1744.2	1744.2
3900	1790.1	1790.1
4000	1836.0	1836.0
4100	1881.9	1881.9
4200	1927.8	1927.8
4300	1973.7	1973.7
4400	2019.6	2019.6
4500	2065.5	2065.5
4600	2111.4	2111.4
4700	2157.3	2157.3
4800	2203.2	2203.2
4900	2249.1	2249.1
5000	2295.0	2295.0
5100	2340.9	2340.9
5200	2386.8	2386.8
5300	2432.7	2432.7
5400	2478.6	2478.6
5500	2524.5	2524.5
5600	2570.4	2570.4
5700	2616.3	2616.3
5800	2662.2	2662.2
5900	2708.1	2708.1
6000	2754.0	2754.0
6100	2800.0	2800.0
6200	2845.9	2845.9
6300	2891.8	2891.8
6400	2937.7	2937.7
6500	2983.6	2983.6
6600	3029.5	3029.5
6700	3075.4	3075.4
6800	3121.3	3121.3
6900	3167.2	3167.2
7000	3213.1	3213.1
7100	3259.0	3259.0
7200	3304.9	3304.9
7300	3350.8	3350.8
7400	3396.7	3396.7
7500	3442.6	3442.6
7600	3488.5	3488.5
7700	3534.4	3534.4
7800	3580.3	3580.3
7900	3626.2	3626.2
8000	3672.1	3672.1
8100	3718.0	3718.0
8200	3763.9	3763.9
8300	3809.8	3809.8
8400	3855.7	3855.7
8500	3901.6	3901.6
8600	3947.5	3947.5
8700	3993.4	3993.4
8800	4039.3	4039.3
8900	4085.2	4085.2
9000	4131.1	4131.1
9100	4177.0	4177.0
9200	4222.9	4222.9
9300	4268.8	4268.8
9400	4314.7	4314.7
9500	4360.6	4360.6
9600	4406.5	4406.5
9700	4452.4	4452.4
9800	4498.3	4498.3
9900	4544.2	4544.2
10000	4590.1	4590.1

VOLUME EXCAVATION PER CHAMBER (m³)

Stone Depth (mm)	Volume (m³)
100	1.38
200	2.76
300	4.14
400	5.52
500	6.90
600	8.28
700	9.66
800	11.04
900	12.42
1000	13.80
1100	15.18
1200	16.56
1300	17.94
1400	19.32
1500	20.70
1600	22.08
1700	23.46
1800	24.84
1900	26.22
2000	27.60
2100	28.98
2200	30.36
2300	31.74
2400	33.12
2500	34.50
2600	35.88
2700	37.26
2800	38.64
2900	40.02
3000	41.40
3100	42.78
3200	44.16
3300	45.54
3400	46.92
3500	48.30
3600	49.68
3700	51.06
3800	52.44
3900	53.82
4000	55.20
4100	56.58
4200	57.96
4300	59.34
4400	60.72
4500	62.10
4600	63.48
4700	64.86
4800	66.24
4900	67.62
5000	69.00
5100	70.38
5200	71.76
5300	73.14
5400	74.52
5500	75.90
5600	77.28
5700	78.66
5800	80.04
5900	81.42
6000	82.80
6100	84.18
6200	85.56
6300	86.94
6400	88.32
6500	89.70
6600	91.08
6700	92.46
6800	93.84
6900	95.22
7000	96.60
7100	97.98
7200	99.36
7300	100.74
7400	102.12
7500	103.50
7600	104.88
7700	106.26
7800	107.64
7900	109.02
8000	110.40
8100	111.78
8200	113.16
8300	114.54
8400	115.92
8500	117.30
8600	118.68
8700	120.06
8800	121.44
8900	122.82
9000	124.20
9100	125.58
9200	126.96
9300	128.34
9400	129.72
9500	131.10
9600	132.48
9700	133.86
9800	135.24
9900	136.62
10000	138.00

Notes:
 1. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.
 2. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.
 3. Chamber is designed for use in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 2
STORMTECH SC-740 CHAMBER
 OPSD 701.021

ELEVATION FLEXIBLE JOINT RIGID AND FLEXIBLE PIPE
ELEVATION CONCRETE CRADLE RIGID PIPE
ELEVATION SUPPORT PIPE AT CATCH BASIN OR MAINTENANCE HOLE

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

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2016 Rev 4
FLEXIBLE, WATERTIGHT CONNECTOR RIGID AND FLEXIBLE PIPE
 OPSD 708.020

CIRCULAR ALUMINUM
CIRCULAR ALUMINUM WITH POLYETHYLENE ENCASEMENT
RECTANGULAR STAINLESS STEEL

NOTES:
 1 The company undertaking welded fabrication shall be certified according to CSA W47.1. All welding shall be according to CSA W59.
 A All aluminum components shall be 6000 series structural aluminum.
 B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2018 Rev 4
MAINTENANCE HOLE STEPS
 HOLLOW
 OPSD 405.010

FULLY DEPRESSED
PARTIALLY DEPRESSED

SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D

NOTES:
 1 At commercial and industrial driveways, the thickness shall be 200mm.
 A For contraction joint detail, see OPSD 310.010.
 B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2019 Rev 3
CONCRETE SIDEWALK DRIVEWAY ENTRANCE DETAILS
 OPSD 310.050

TYPICAL SILTATION CONTROL FENCE

NOTES:
 1. SILT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
 2. SILT/SEDIMENT CONTROL FENCE TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL, VOLUME 2 CHART F4-3 FOR TOPOGRAPHIC FACTOR L_S BASED ON SLOPE LENGTH AND GRADIENT.
 3. SILT/SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH THE FILTER MEDIA FABRIC TOED INTO THE SOIL A MINIMUM OF 300mm BY STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF THE TRENCH MATERIAL MEETING 95% STANDARD PROCTOR DENSITY.
 4. STEEL "T" BAR POSTS ARE TO BE SPACED AT A MAXIMUM 2500mm ON CENTRE.
 5. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
 6. GEOTEXTILE FABRIC TO BE COMPRISED OF WOVEN OR NON-WOVEN U.V. STABILIZED MATERIAL.
 7. FABRIC IS TO BE FOLDED OVER THE TOP OF FENCE A MINIMUM OF 300mm AND WIRE FASTENED.

ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED.

TOWN OF BRADFORD WEST GWILLIMBURY
 N.T.S.
 DATE: MAY 2014
 DRAWN BY: [Signature]
 F109

SECTION THROUGH TAPER TOP
SECTION THROUGH FLAT CAP
SECTION THROUGH CATCH BASIN

NOTES:
 1 If first step is in an adjustment unit, the adjustment unit shall be of the type manufactured with a step in place.
 2 Centre reinforcing in adjustment unit ±10mm.
 3 Round and square adjustment units are available in sizes of 50, 75, 100, 150, and 300mm.
 A Adjustment units shall not extend beyond the outside edge of the structure.
 B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 3
PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS
 OPSD 704.010

PIPE IN SUPPORTED EXCAVATION
PIPE IN UNSUPPORTED EXCAVATION
PIPE IN SUPPORTED EXCAVATION

LEGEND:
 D = Inside diameter

NOTES:
 1 Height of fill is measured from the finished surface to top of pipe.
 2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
 3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
 4 Condition of excavation is symmetrical about centreline of pipe.
 A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
 B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
 C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE

Soil Type	Clearance (mm)
TYPE 1 OR 2 SOIL	300
TYPE 3 SOIL	300
TYPE 4 SOIL	500

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION
 OPSD 802.010

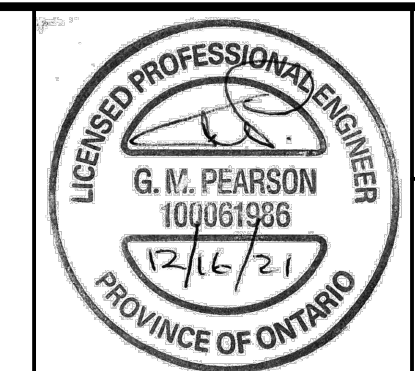
FRAME PLAN
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E

NOTES:
 A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
 B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2018 Rev 3
CAST IRON SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS
 OPSD 400.020

BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.

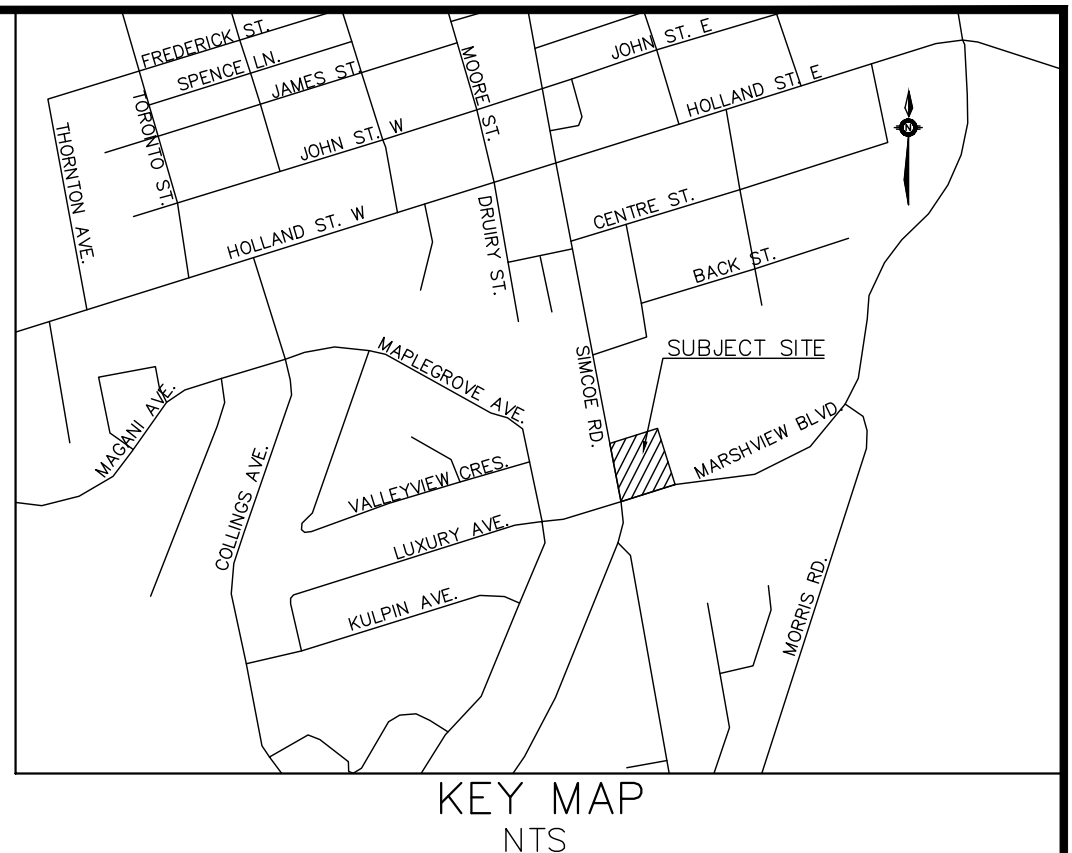
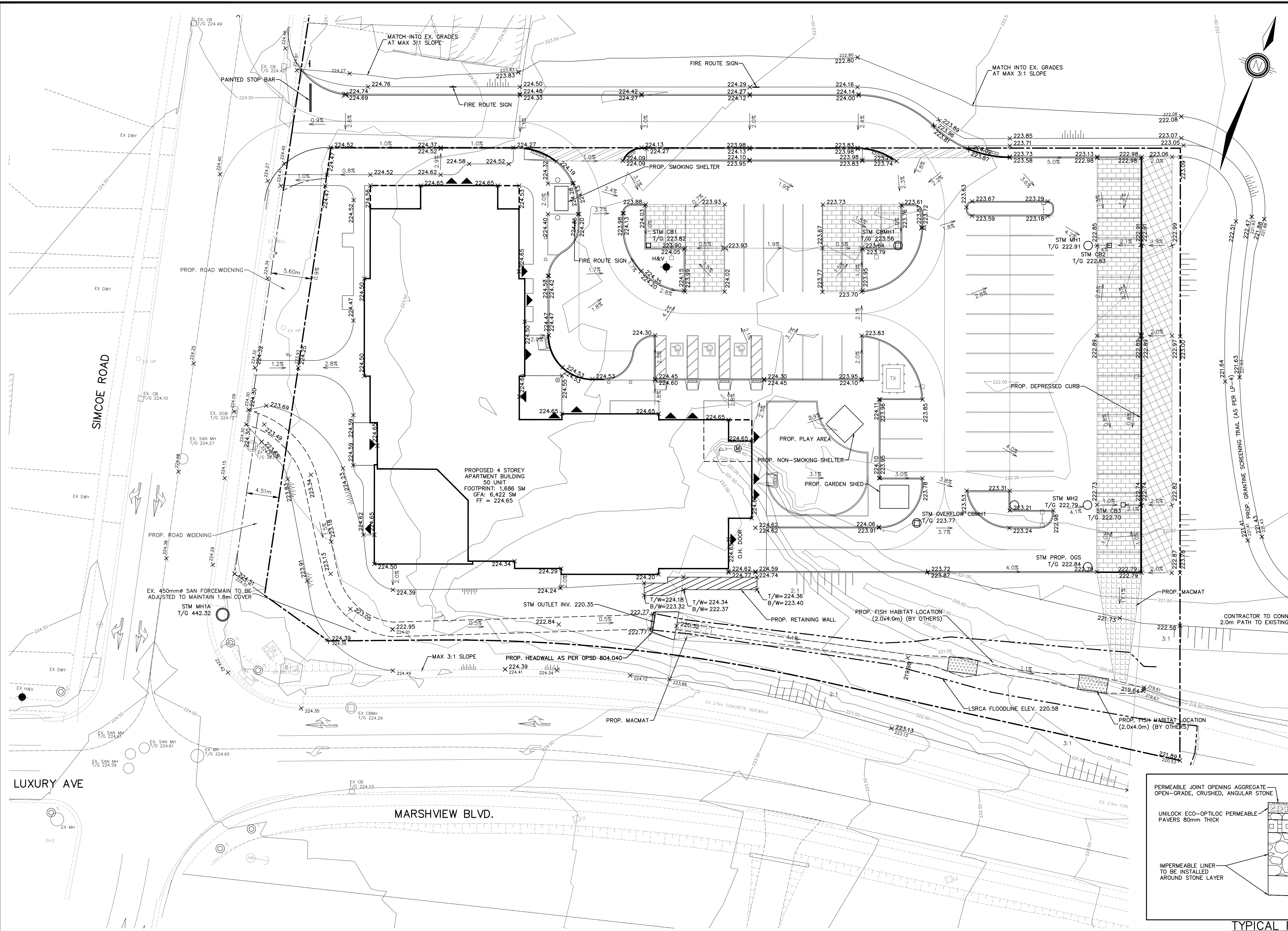
NO.	REVISION NOTE	DATE	BY
2.	1ST SUBMISSION	12/15/21	AA
1.	REVISED FOR COUNCIL REPORT	04/30/21	AA



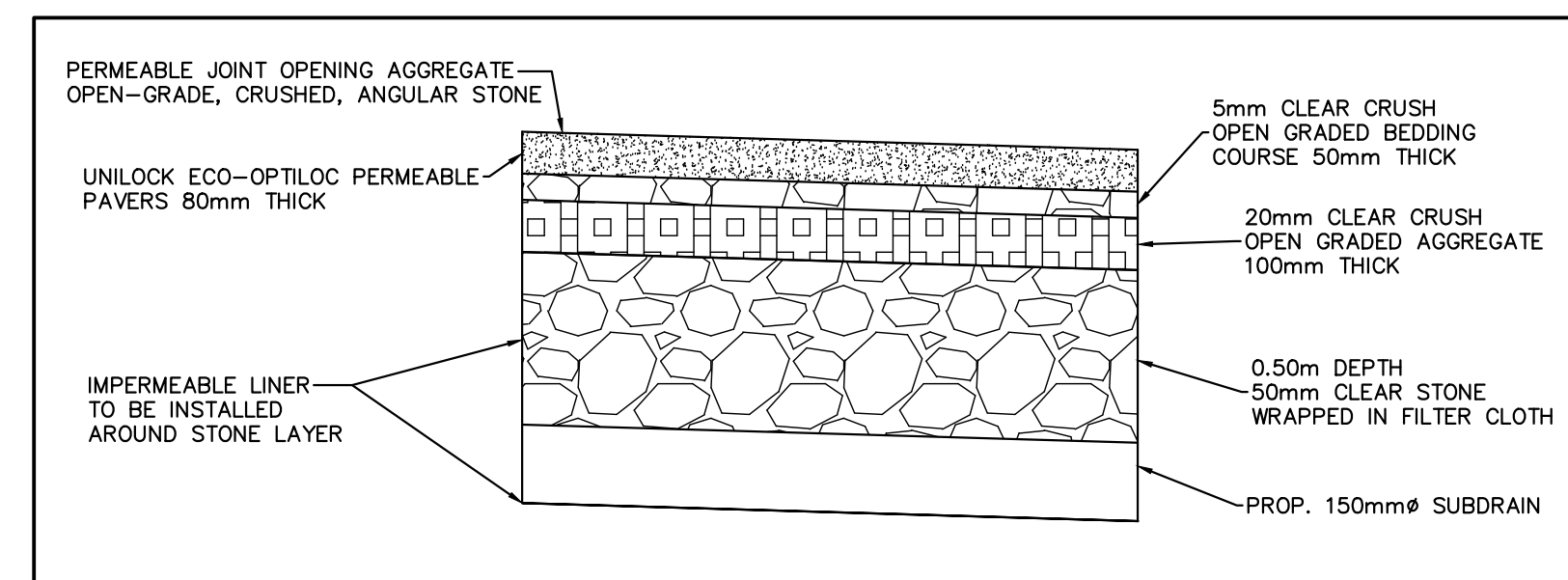
COUNTY OF SIMCOE
 AFFORDABLE HOUSING - BRADFORD
 WEST GWILLIMBURY, 125 SIMCOE ROAD



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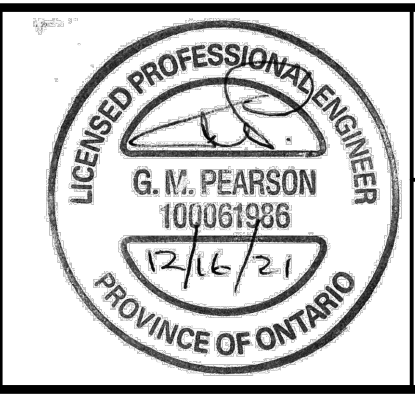
- LEGEND**
- CB CATCH BASIN
 - DCB DOUBLE CATCH BASIN
 - CBMH CATCH BASIN
 - MH STORM MANHOLE
 - MH SANITARY MANHOLE
 - SERVICE CAP
 - ◆ HYD. FIRE HYDRANT
 - ⊕ VB WATER VALVE
 - CS CURB STOP W/ SERVICE
 - × 254.63 PROPOSED ELEVATION
 - 254.09 EXISTING ELEVATION
 - 1.5% PROPOSED DIRECTION AND GRADE
 - BACK OF CURB
 - EDGE OF PAVEMENT
 - CURB CUT LOCATION
 -) (HIGH POINT
 - ▨ PERMEABLE PAVERS
 - ▨ SNOW STORAGE
 - ▨ 3:1 MAX SLOPE
 - ▨ PROP. RETAINING WALL
 - ▨ PROP. FISH HABITAT LOCATION
 - LSRCA FLOODLINE ELEVATION



TYPICAL PERMEABLE PAVER DETAIL
N.T.S

BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.

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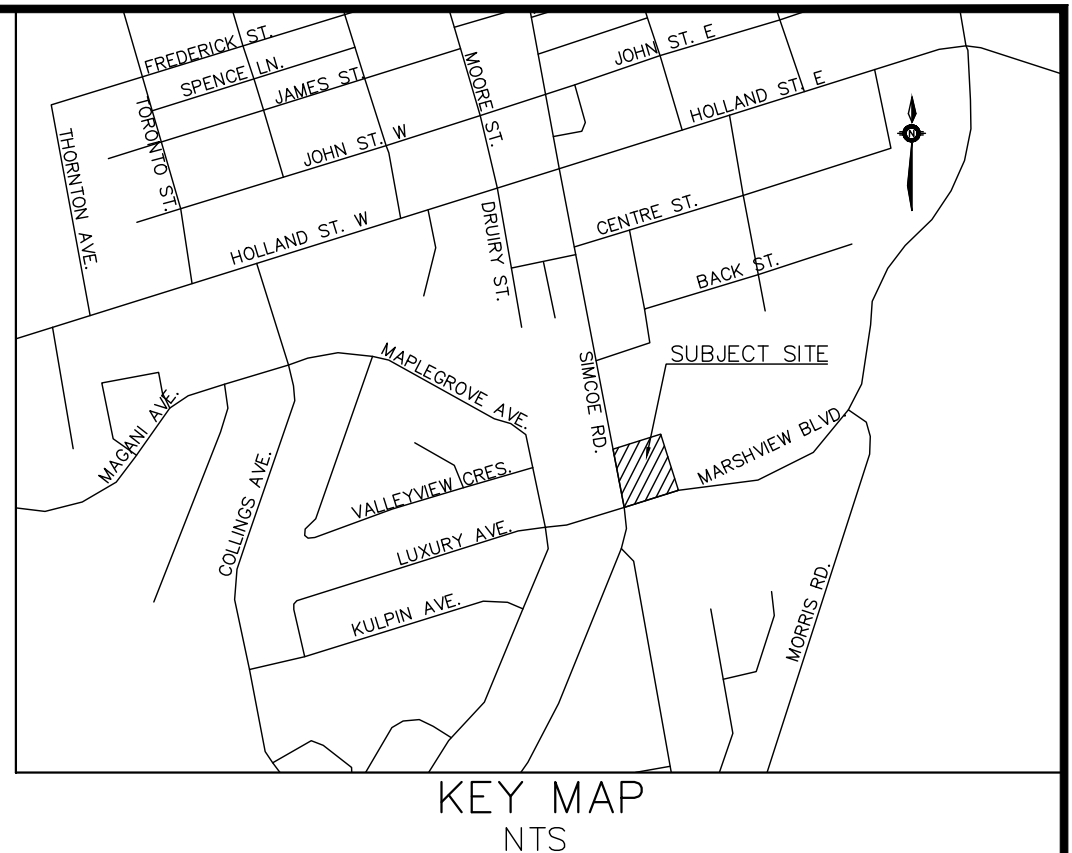
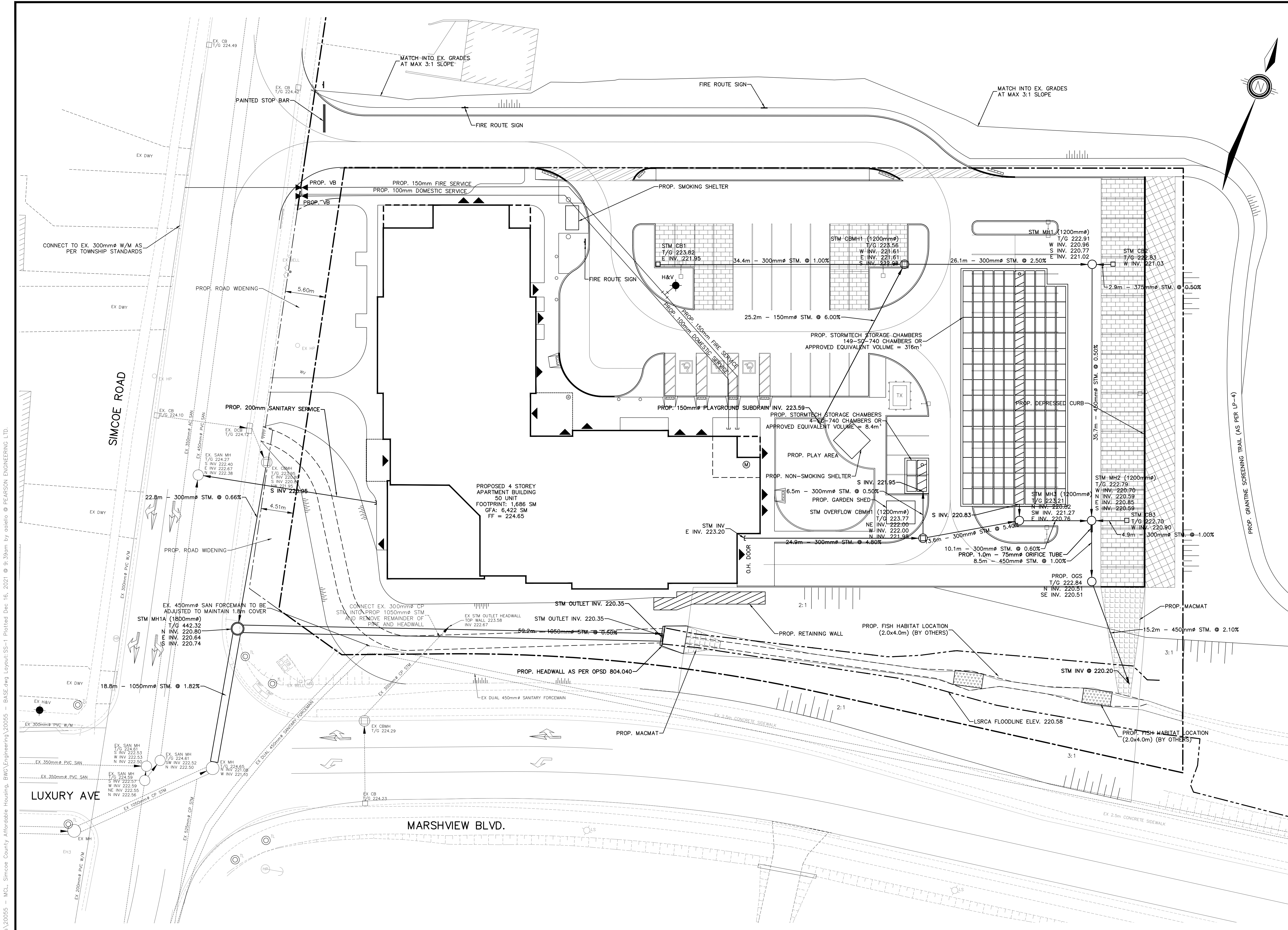


COUNTY OF SIMCOE
AFFORDABLE HOUSING - BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

SITE GRADING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	1:250	PROJECT #	20055
DRAWN BY	AA	VERT SCALE		DRAWING #	SG-1
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	2



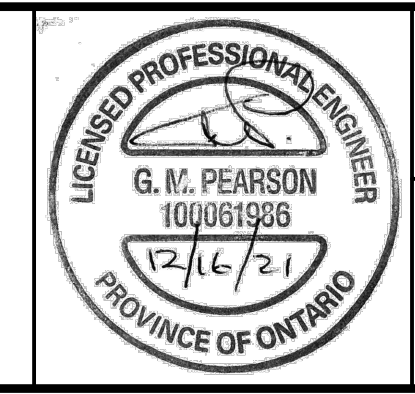
- LEGEND**
- CB CATCH BASIN
 - DCB DOUBLE CATCH BASIN
 - CBMH CATCH BASIN
 - MH STORM MANHOLE
 - SMH SANITARY MANHOLE
 - SC SERVICE CAP
 - ◆ HYD. FIRE HYDRANT
 - ◆ VB WATER VALVE
 - ◆ CS CURB STOP W/ SERVICE
 - ▨ PERMEABLE PAVERS
 - ▨ SNOW STORAGE
 - ▨ PROP. RETAINING WALL
 - - - LSRCA FLOODLINE ELEVATION

SANITARY FORCEMAIN DEPTH OF COVER ASSUMED TO BE 1.8m. CONTRACTOR TO VERIFY PRIOR TO ORDERING PARTS

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BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.



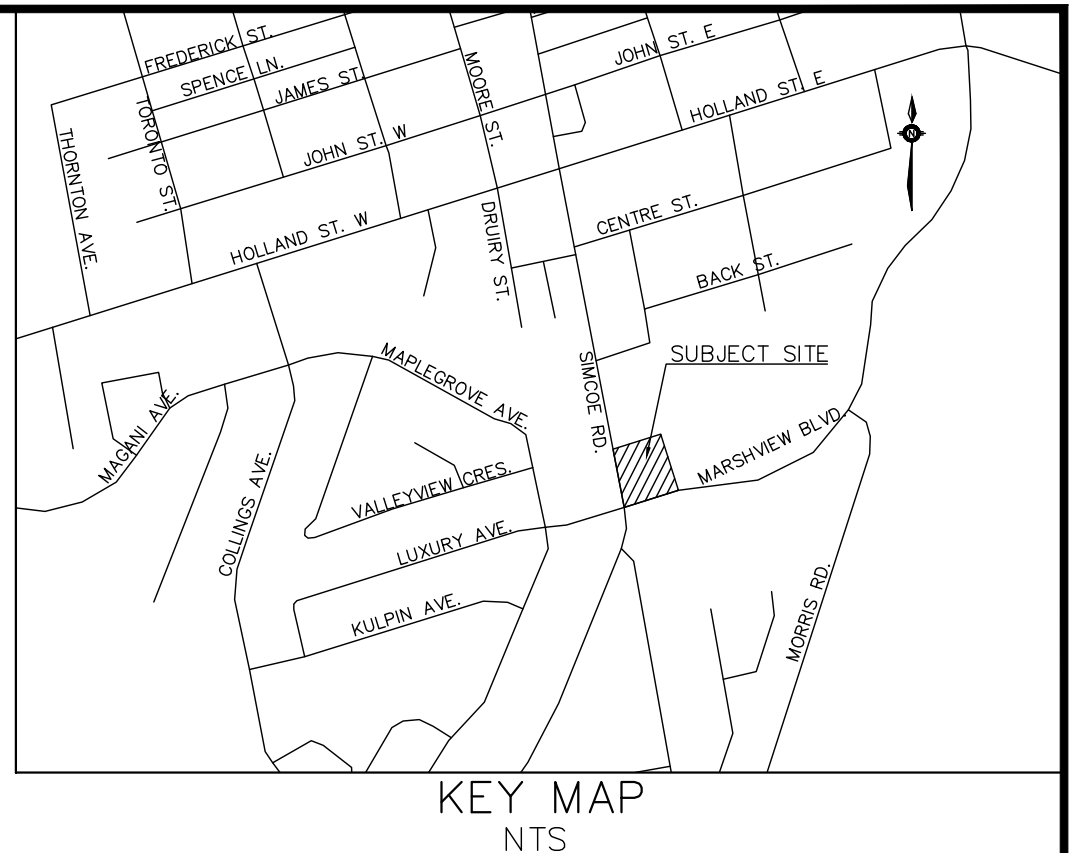
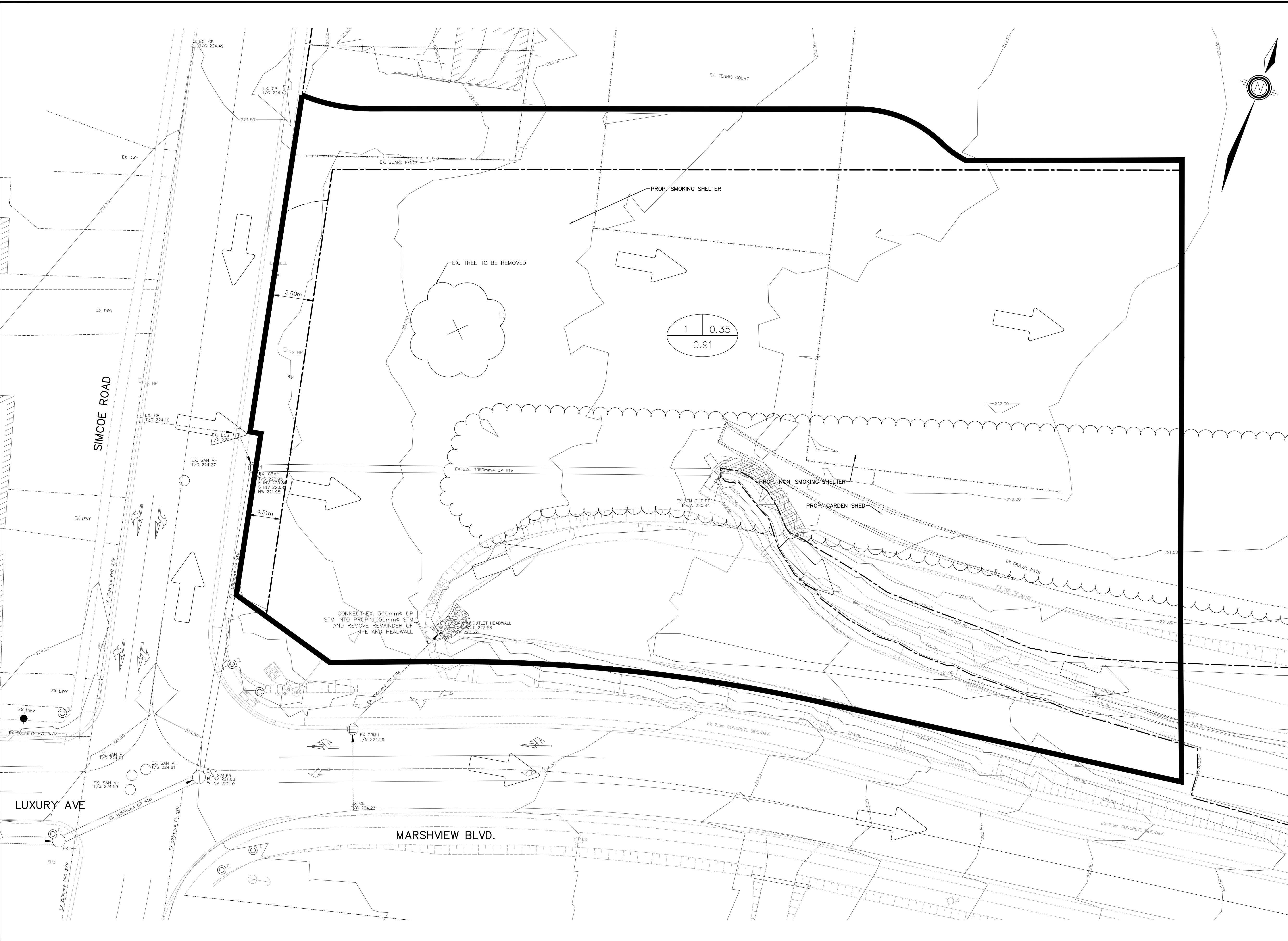
COUNTY OF SIMCOE
AFFORDABLE HOUSING - BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

SITE SERVICING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	1:250	PROJECT #	20055
DRAWN BY	AA	VERT SCALE		DRAWING #	SS-1
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	2

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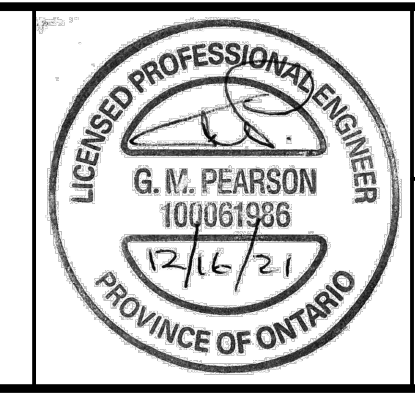


LEGEND

- CB CATCH BASIN
- DCB DOUBLE CATCH BASIN
- CBMH CATCH BASIN
- MH STORM MANHOLE
- ➔ OVERLAND FLOW DIRECTION
- CATCHMENT AREA $\frac{1}{1.00 \text{ ha}}$ RUNOFF COEFFICIENT $\frac{0.75}{0.91}$
- AREA IN HECTARES
- CATCHMENT BOUNDARY
- - - EX. LSRCA FLOODLINE ELEVATION = 220.58

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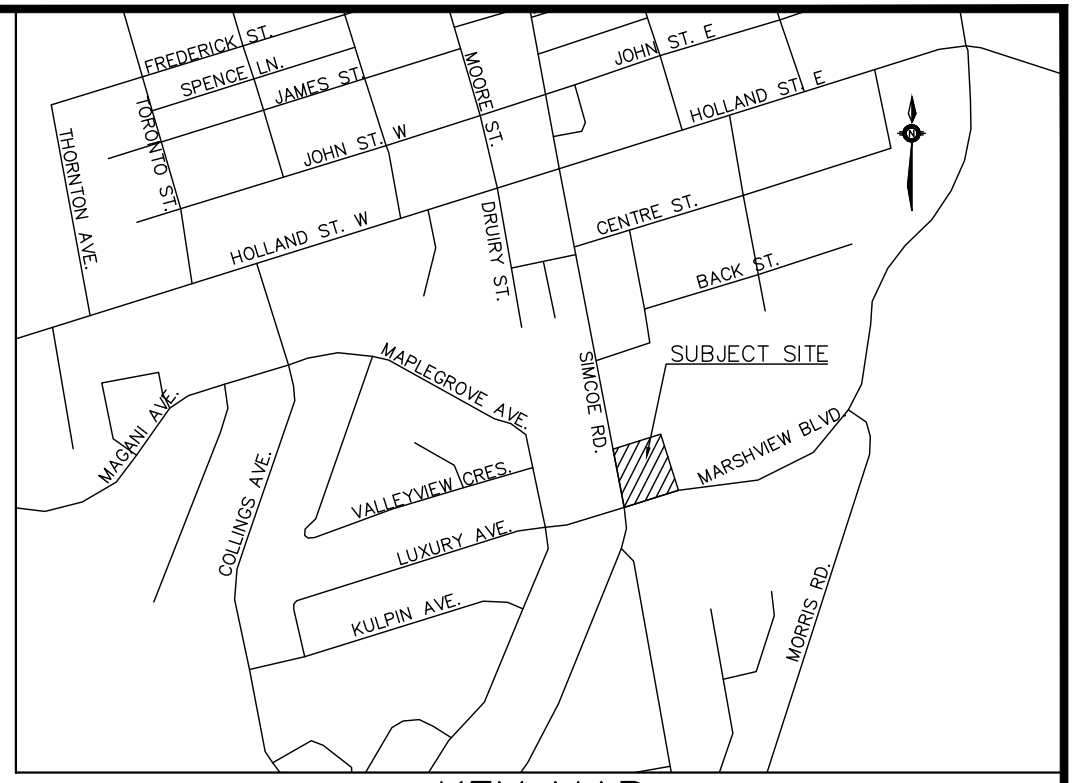
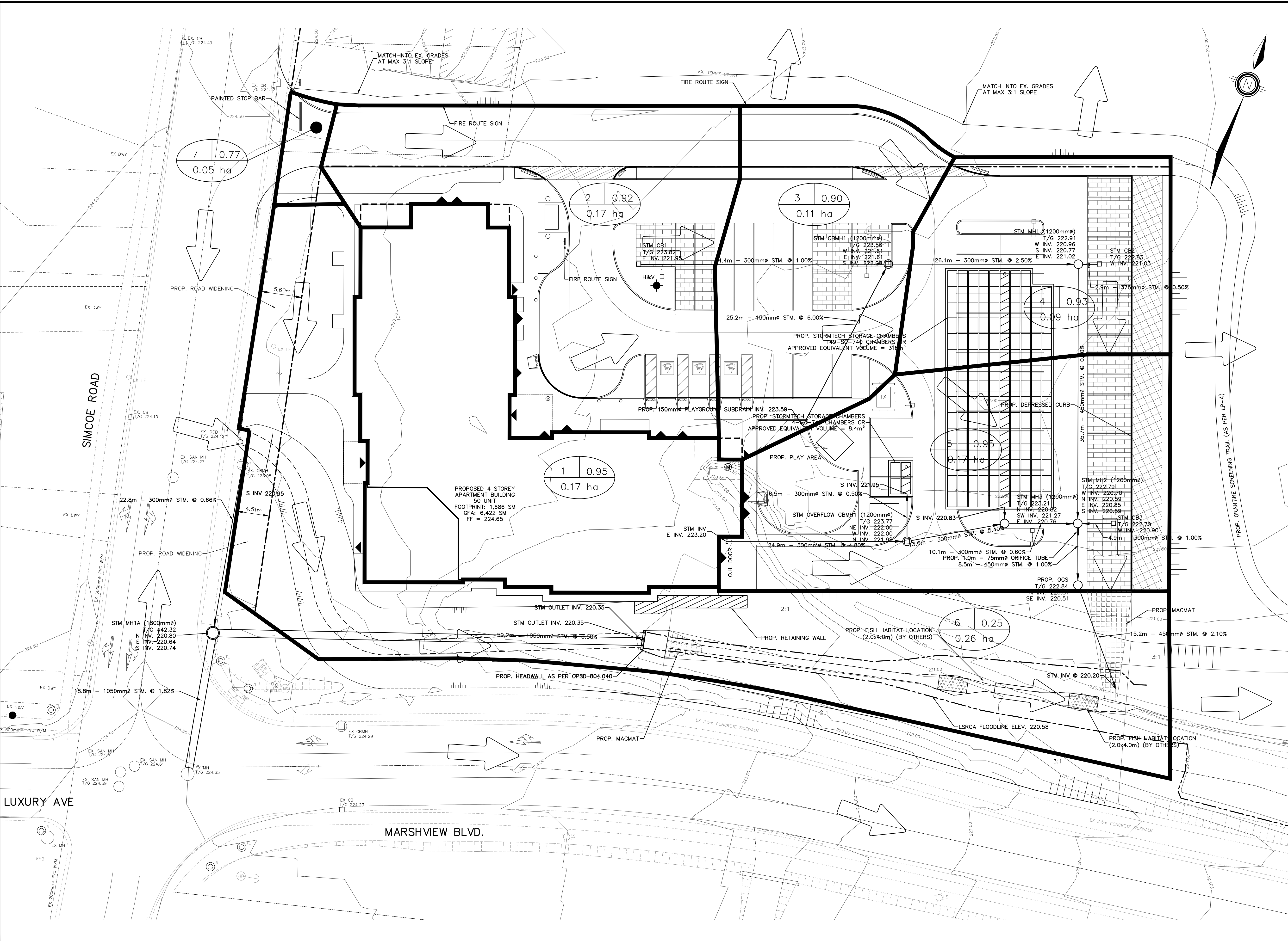
COUNTY OF SIMCOE
AFFORDABLE HOUSING - BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

PRE DEVELOPMENT STORM
CATCHMENT PLAN

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DESIGNED BY	AA	HORIZ SCALE	1:250	PROJECT #	20055
DRAWN BY	AA	VERT SCALE		DRAWING #	STM-1
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	2

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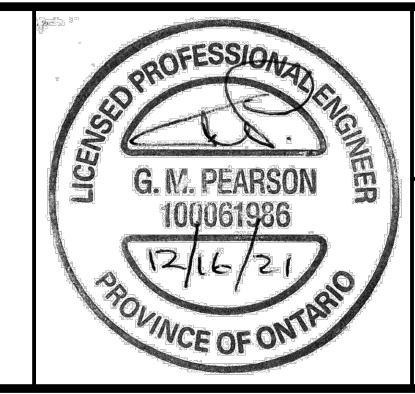


LEGEND

- CB CATCH BASIN
- DCB DOUBLE CATCH BASIN
- CBMH CATCH BASIN
- MH STORM MANHOLE
- ➔ OVERLAND FLOW DIRECTION
- CATCHMENT AREA (1 | 0.75) RUNOFF COEFFICIENT
- (1.00 ha) AREA IN HECTARES
- CATCHMENT BOUNDARY
- ▨ PERMEABLE PAVERS
- ▨ SNOW STORAGE
- - - LSRCA FLOODLINE ELEVATION

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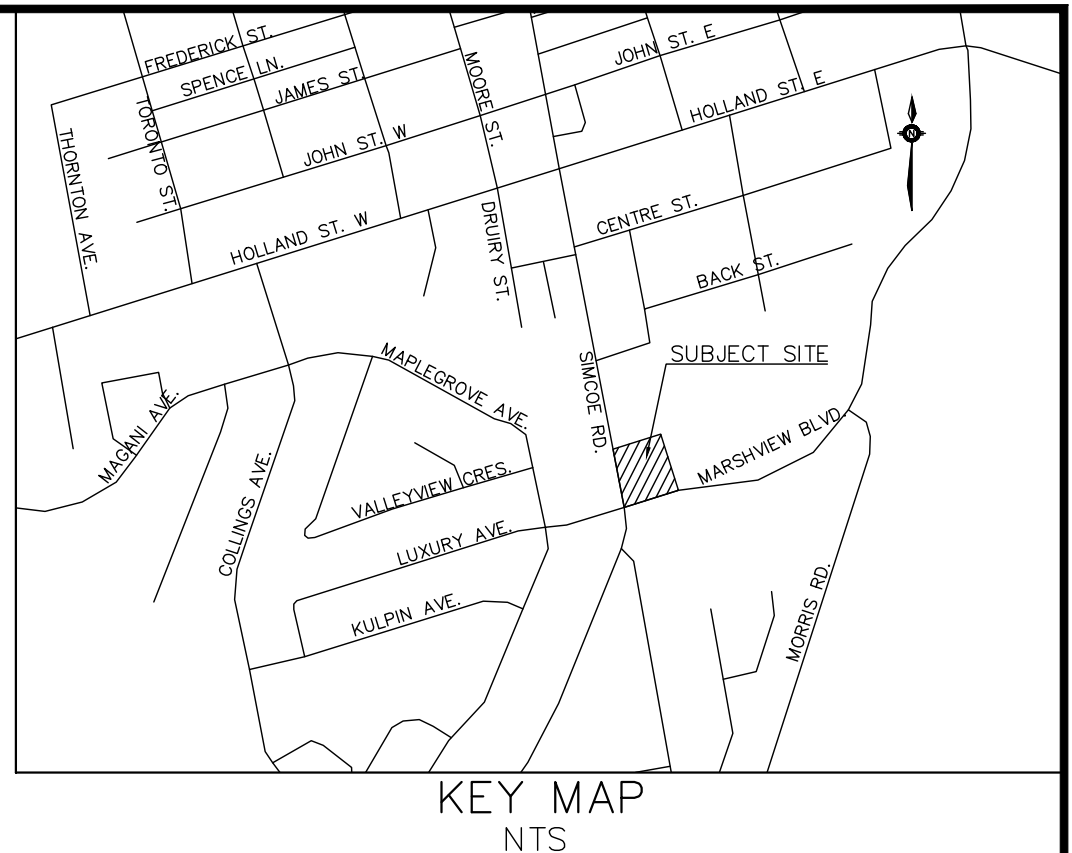
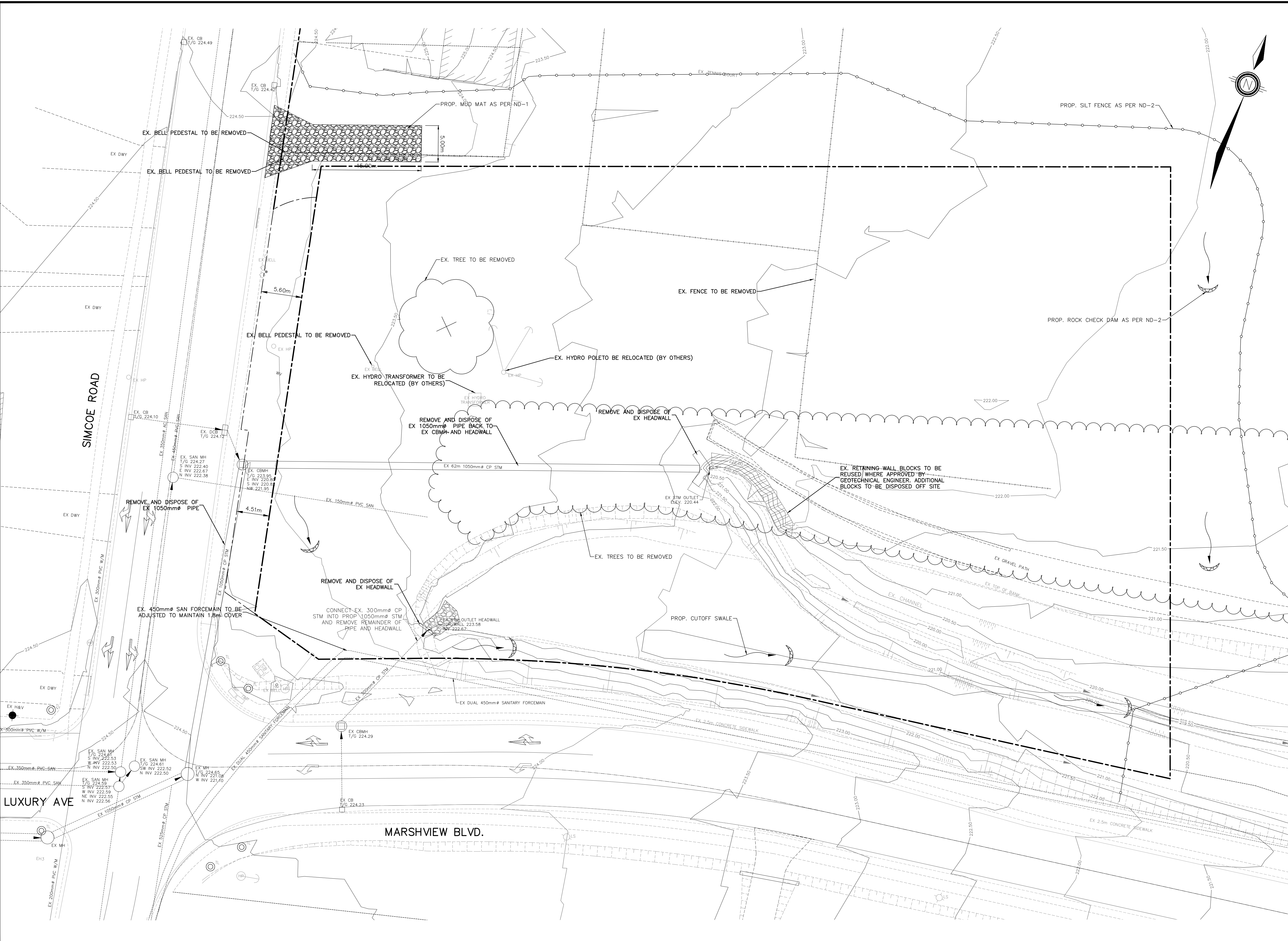
COUNTY OF SIMCOE
AFFORDABLE HOUSING - BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

POST DEVELOPMENT STORM
CATCHMENT PLAN

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DRAWN BY	AA	VERT SCALE		DRAWING #	STM-2
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	2

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LEGEND

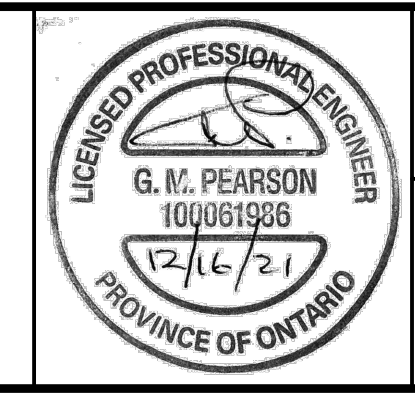
- SILT FENCE
- TEMPORARY SWALE
- TEMPORARY ROCK CHECK DAM
- EX. CHAINLINK FENCE
- EX. BELL BOX
- EX. TREE

SEQUENCE OF CONSTRUCTION

1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ON SITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. COMMENCE WITH EARTH EXCAVATION AND SITE SERVICING (TO BE REMOVED FROM SITE - NO STOCKPILE).
5. EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
6. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.

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COUNTY OF SIMCOE
AFFORDABLE HOUSING - BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

ENVIRONMENTAL PROTECTION
AND REMOVALS PLAN

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DESIGNED BY	AA	HORIZ SCALE	1:250	PROJECT #	20055
DRAWN BY	AA	VERT SCALE		DRAWING #	EPR-1
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	2