

FUNCTIONAL SERVICING REPORT

Water, Wastewater, and Stormwater Management

PROPOSED STACKED TOWNHOUSES

15 LOYALIST TRAIL
TOWN OF OAKVILLE

OUR FILE: 1859

PREPARED FOR ROSEVILLE PROPERTIES INC.

SEPTEMBER 24, 2024

REVISION HISTORY

DATE	REVISION	SUBMISSION
September 24, 2024	1	Issued for Zoning By-law Amendment and Official Plan Amendment Application

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1.0 INTRODUCTION

1.1 Scope of Functional Servicing Report

This report has been prepared in support of an Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBA) for stacked townhouse condominium development located at 15 Loyalist Trail in the Town of Oakville. This report discusses how the site can be serviced by the existing infrastructure for water, wastewater, and stormwater, all in keeping with the typical design criteria of the Town of Oakville and Region of Halton and in keeping with the design intent of the underlying subdivision known as Plan 20M-1221. This report may be updated and refined as the project moves through the planning process to support the Site Plan Application and Building Permit stages. A copy of the preliminary site plan is included in Appendix 'A' for reference.

This report should be read in conjunction with architectural plans prepared for the project found in Appendix 'A'. For the purposes of this report, north is defined as running parallel to Sixth Line.

1.2 Site Location and Description

The subject lands are comprised of Parts 2, 3, and 6 of Block 154 on Plan 20M-1221. The subject lands have a total area of 0.65 ha abutting Loyalist trail to the south, Town of Oakville (NHS) lands to the east, and a Region of Halton Reservoir to the north. The subject lands are currently vacant and have been zoned for Service Area Employment use. The western lands (Parts 1,4 and 5) of Block 154 on Plan 20M-1221 have been designated as a municipal fire hall.

There is external drainage from the Region of Halton Reservoir lands that flows towards an existing ditch inlet catchbasin in the northwest corner of the subject lands within Part 6. An Oakville Hydro switchgear is located within Part 2. As mentioned above, the subject lands are within the underlying subdivision and have been incorporated in the subdivision design drawings. Based on the subdivision drawings storm, sanitary and water connections have been provided to the property line from the municipal services on Loyalist Trail. See subdivision drawings in Appendix 'E'.

A copy of Plan 20M-1221 can be found in Appendix 'A' for reference purposes. The engineering drawings for the subdivision can be found in Appendix 'B' for reference purposes.

1.3 Proposed Development

The development of the subject lands includes five blocks of stacked townhouses consisting of eight units each, for a total of 40 units. Each unit will have driveway access and a garage at the rear. The blocks about a condominium road providing access from Loyalist Trail to the garages of each unit at ground level. The front of each block will have a covered porch with a various number of risers to the porch to match into grade. The stacked townhouses will be slab on-grade (ie. no

basements). The development proposes an open space at the north end of the condominium road as well as an enclosed space for garbage collection.

2.0 MUNICIPAL WATER AND WASTEWATER

The location of the existing services was determined through the review of record drawings obtained from the Region of Halton and Town of Oakville, topographic survey completed by R-PE Surveying Ltd. and the subdivision drawings prepared by RAND Engineering. Design of the existing underlying subdivision includes water and wastewater mains on Loyalist Trail including service laterals terminating at the street line for the subject property.

All proposed services must be in accordance with the Ontario Building Code, Town of Oakville, and Region of Halton standards and requirements. A copy of the Grading and Servicing Plan (G1 and S1) is included in Appendix 'F' and should be read in conjunction with this report. Existing and proposed servicing is discussed in further detail in the following sections.

2.1 Water

The subdivision drawings indicate that there is an existing 300 mm diameter PVC watermain on Loyalist Trail. A 200 mm diameter PVC watermain connection has been provided up to the southern property line, from the 300 mm watermain, and has been plugged with a 200 mm plug. Appendix 'B' contains the municipal drawings records for the underlying subdivision for reference purposes. The service laterals were approved and constructed as part of the underlying subdivision, however, the location of the water service lateral is not suitable for the proposed development. Instead, it is proposed that a new 200 mm diameter service lateral is provided to the east adjacent the proposed driveway entrance. The existing water service is to be abandoned in accordance with Halton requirements.

It is proposed that each townhouse unit will be serviced individually using 25 mm diameter soft copper water services from the new 200 mm diameter PVC watermain within the Condo Road. Appendix 'F' contains the Site Servicing Plan showing how the site will be serviced internally.

Adequately spaced municipal fire hydrants exist on the south side of Loyalist Trail, however, private on-site hydrants are required to meet OBC requirements. A private hydrant, from the proposed watermain in the Condo Road, is proposed adjacent to Block 5. No fire flow test has been undertaken on the existing 300 mm diameter watermain. We do suggest that a fire flow test be carried out at the Site Plan Application stage to confirm adequate capacity for fire demand.

Using the development area and Region of Halton design criteria for a development consisting of townhouses (135 persons per hectare), the estimated water demand is determined with approximately 88 persons and 275 L/cap. day (see Appendix 'C' for supporting calculations).

The fire flow demand was estimated for demand purposes using the Fire Underwriter's Survey methodology. Fire flow demand should be confirmed at the building permit stage by the sprinkler consultant. The estimated flows are summarized below, with detailed calculations shown in Appendix 'C'.

Table 1: Estimated Water Demands (L/min)

Average Daily Demand	17
Minimum Hourly Demand	17
Maximum Hourly Demand	67
Maximum Daily Demand	38
Estimated Fire Demand (FUS 1999)	9000
Maximum Daily Plus Fire Demand	9038

2.2 Wastewater

The subdivision drawings indicate that there is an existing 300 mm diameter PVC wastewater main on Loyalist Trail that drains in an easterly direction to manhole 29A, and then drains south down Hillsborough Crescent towards Burnhamthorpe Road and eventually outlets to the trunk wastewater main on Sixth Line. There is an existing 300 mm diameter wastewater service lateral to the site complete with a property line manhole (SAN MH40A). The service laterals were approved and constructed as part of the underlying subdivision. It is proposed that the existing service lateral will be used to discharge the subject lands wastewater flows.

It is proposed that each townhouse unit will have its own 125 mm diameter PVC sanitary lateral that will connect to the 200 mm diameter sanitary sewer within the Condo Road. Appendix 'C' contains the Site Servicing Plan showing how the site will be serviced internally by utilizing the existing service lateral.

The existing sanitary flows were determined using the development area and Region of Halton design criteria for townhouses (135 persons per hectare). The existing sanitary flows are determined with 88 persons and 275 L/cap. day (see Appendix 'C' for supporting calculations).

Table 2: Estimated Wastewater Flow (L/s)

Average Daily Dry Weather Flow	0.3
Modified Harmon Peaking Factor	4.26
Infiltration Allowance (0.26 L/s-ha)	0.29
Peak Daily Flow	1.4

The wastewater main and lateral on Loyalist Trail has been designed for the subject lands to have a population of 90 persons (see the subdivision sanitary drainage plan and sanitary design sheet for reference in Appendix 'B'). The proposed development has a resulting population of 88

persons, keeping in line with the subdivision design. Therefore, the wastewater mains and laterals will have adequate capacity.

3.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

3.1 Existing Drainage

The topographic survey shows that the existing drainage pattern is generally from north to south on the property. There is an existing ditch along the north property line that intercepts the external drainage from the neighbouring site to the north (Region of Halton Reservoir). A total of 0.78 ha of completely pervious area ($C=0.25$) drains towards Block 154. The ditch conveys flows to a ditch inlet catchbasin within the north-west corner of the subject lands within Part 6 of Block 154. The ditch inlet outlets to a 450 mm diameter storm sewer that outlets to a 900 mm diameter overflow/drain on Sixth Line conveying flows south.

The underlying subdivision design has also provided a temporary cut-off swale that conveys flows from the subject lands to a temporary ditch inlet catchbasin in the south-east corner of the subject lands that will be removed.

A substantial portion of the neighbouring NHS lands also appear to drain toward the site and will be cut off. There is an existing swale just east of the property boundary that will convey the drainage south to an existing culvert.

3.2 Minor System

There is an existing 600 mm diameter storm sewer on Loyalist Trail. The design of the underlying subdivision provided a 525 mm diameter storm service lateral for the site (from STM MH35) to connect into the municipal storm sewer. The storm service lateral has been sized to convey the 100-year storm with a runoff coefficient of $C = 0.9$ from the site. The intent of the underlying subdivision design is that the site's minor system be designed to capture the 100-year storm and hence the site's overland flow is for emergency purposes only. The storm sewer system within the underlying subdivision outlets at the existing SWM Pond 27 (as per the RAND Engineering SWM Report), also known as SWM Pond 58 on the Town of Oakville's website.

The proposed site servicing design utilizes the existing storm connection. The proposed storm sewer on site is designed to capture and convey the 100-year storm. The Storm Drainage Plan is included in Appendix 'E'.

Appendix 'F' contains the Site Servicing Plan showing how the site will be serviced internally for storm drainage.

3.3 Major System

The design of the underlying subdivision has a well-defined emergency overland flow route along the municipal roads. See drainage plans for the subdivision in Appendix 'B'.

3.4 Stormwater Management

The existing stormwater management facility, SWM Pond 27, has not yet been assumed by the Town. The SWM pond has been designed to provide stormwater quality, erosion and quantity control for the underlying subdivision, hence no on-site stormwater measures are required within the subject lands.

4.0 SITE GRADING

The development of the property must take into account the boundary conditions that exist on all sides of the property such that existing drainage patterns are maintained, and drainage is not impeded. In addition to the above, the underlying subdivision set out the perimeter design elevations for the block. The design information together with the topographic information have been used to design the site grading. The Site Grading Plan (G1) is provided in Appendix 'F' and should be read in conjunction with this report.

The cut-off swale along the north property will remain and it is proposed that it will now be a flat-bottom swale that matches the subdivision design grades along the northern property. The southern bank of the swale will be defined with 3 to 1 sloping and the use of a concrete toe wall (OPSD 3120.100) that will maintain a height of 0.5 m above the bottom of the swale. In the case of the ditch inlet becoming blocked, an emergency overland flow route has been provided through the internal condo road and spills onto Loyalist Trail.

The site has been graded such that the surface and roof runoff is contained within the site and captured by the catchbasins within the road and softscape areas.

5.0 CONCLUSION

The information presented in this Functional Servicing Report demonstrates that the proposed development can be serviced by the existing infrastructure for water, wastewater, and stormwater and can meet municipal design criteria for a residential development within the underlying subdivision.

This report and the drawings included in the report provide a framework from which more detailed designs can evolve as the project makes its way through the planning approval process.

Based on the above, we support the proposed development from a civil engineering perspective for Official Plan Amendment Application and Zoning By-law Amendment.

PREPARED BY TRAFALGAR ENGINEERING LTD.

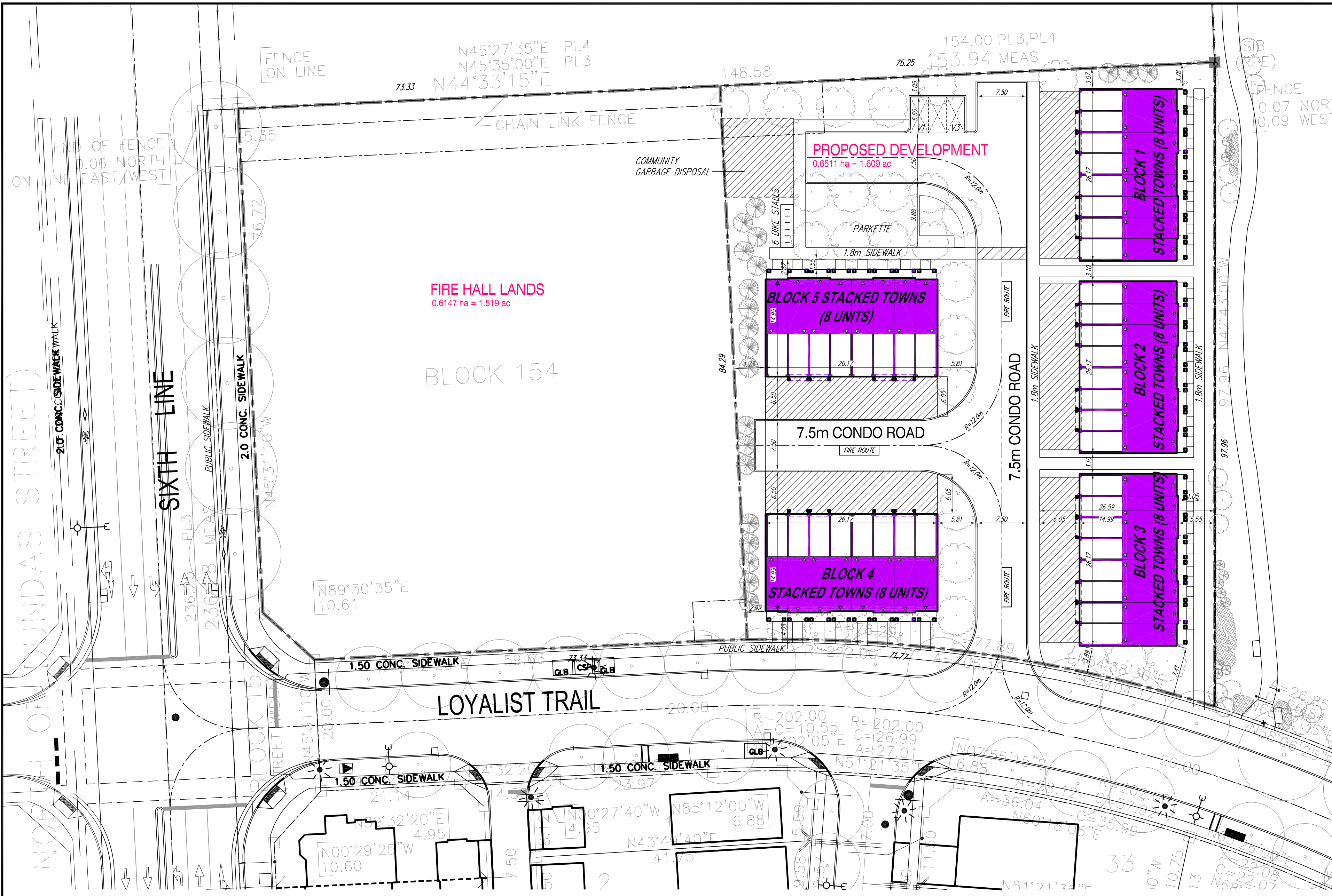
Andy Prejs

Andy Prejs, EIT, MASc
Intermediate Designer



Paul Cifoni, P.Eng.
Principal

APPENDIX 'A'



FIRE HALL LANDS
0.6147 ha = 1.519 ac

PROPOSED DEVELOPMENT
0.6511 ha = 1.609 ac

BLOCK 154

BLOCK 5 STACKED TOWNS
(8 UNITS)

BLOCK 4 STACKED TOWNS
(8 UNITS)

BLOCK 3 STACKED TOWNS
(8 UNITS)

BLOCK 2 STACKED TOWNS
(8 UNITS)

BLOCK 1 STACKED TOWNS
(8 UNITS)

LOYALIST TRAIL

SIXTH LINE

NORTH OF FOUNDAS STREET

2. UNIT COUNT	
6.48m STACKED TOWNHOUSES (2 UNITS PER MODULE)	40

3. PARKING
PROPOSED UNIT PARKING: 2 SPACES / UNIT
40 UNITS x 2 = 80 SPACES PROVIDED
ADDITIONAL SURFACE PARKING = 3 SPACES

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE ONTARIO BUILDING CODE TO BE A DESIGNER.
QUALIFICATION INFORMATION

NAME: _____ SIGNATURE: _____ BCIN: _____
REGISTRATION INFORMATION
HUNT DESIGN ASSOCIATES INC. 19695

HUNT
DESIGN ASSOCIATES INC.
www.huntdesign.ca
8966 Woodbine Ave, Markham, ON L3R 0J7
T 905.737.5133 email: hda@huntdesign.ca

SITE PLAN
Street Name: _____ Plan No.: _____
LOYALIST TRAIL, OAKVILLE, ON.

ROSEHAVEN HOMES - 219014
BLOCK 154

Drawn By: DC Checked By: _____ Scale: 1:400 Lot / Page Number: _____
File Number: 219014DSP-01

A1

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SKETCH SHOWING ELEVATIONS FOR ENGINEER'S USE

SCALE 1:2000

R-PE SURVEYING LTD., O.L.S.

METRIC

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT TO BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

THIS SKETCH IS PROTECTED BY COPYRIGHT © R-PE SURVEYING LTD., O.L.S. 2024.

NOTES

BOUNDARY LINE—WORK TAKEN FROM R-PE CAD FILE NO. 16044R05c.

THE FIELD OBSERVATIONS REPRESENTED ON THIS PLAN WERE COMPLETED ON

THE 13th DAY OF APRIL, 2023

ADDITIONAL FIELD OBSERVATIONS WERE COMPLETED ON

THE 26th DAY OF AUGUST, 2024

SKETCH IS AN ORIGINAL IF EMBOSSED BY THE SURVEYOR'S SEAL.

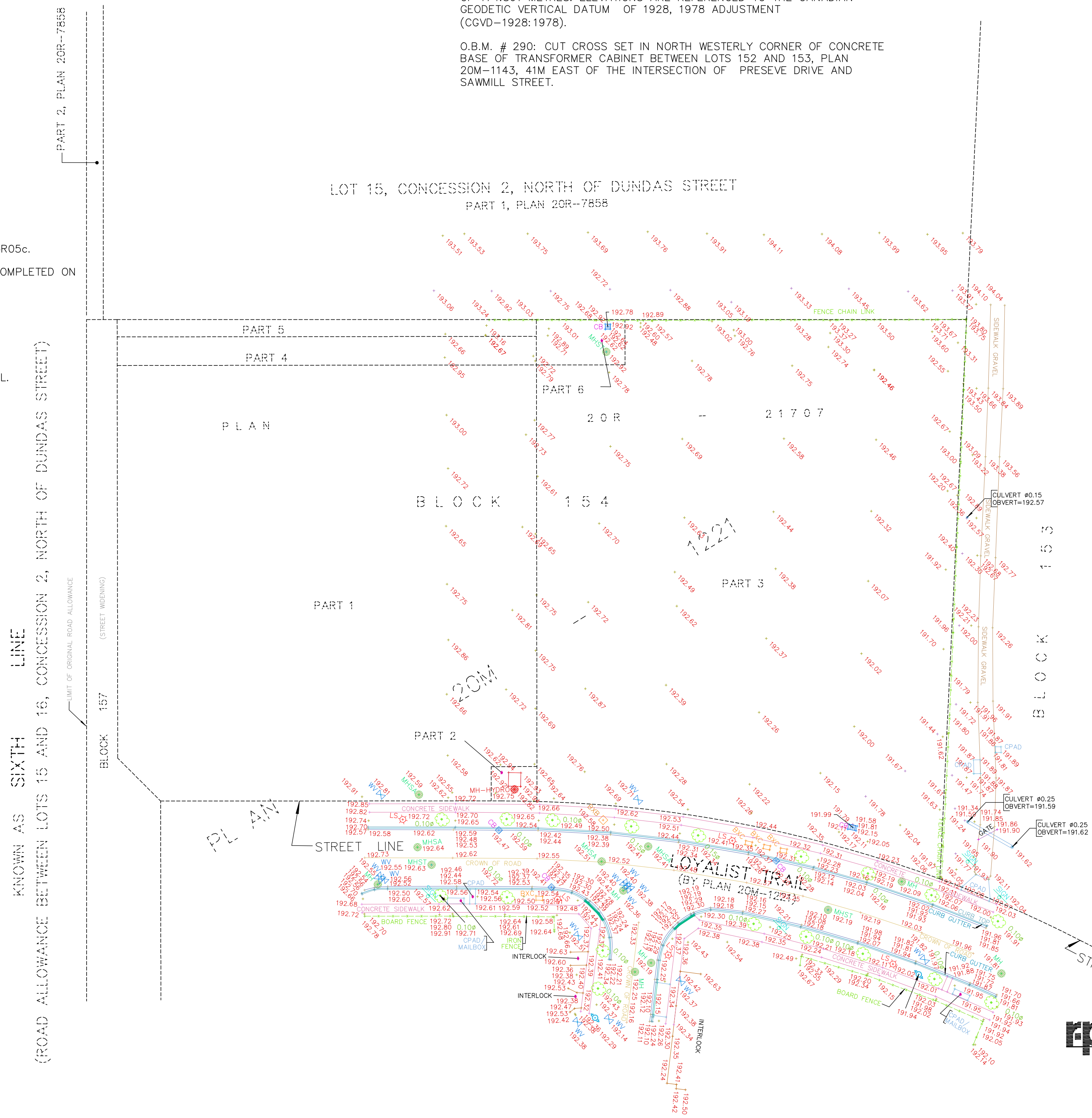
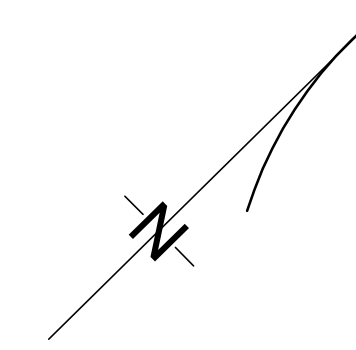
LEGEND

- DENOTES BELL BOX
- DENOTES CATCH BASIN
- DENOTES LAMP STANDARD
- DENOTES MANHOLE—HYDRO
- DENOTES SANITARY MANHOLE
- DENOTES STORM MANHOLE
- DENOTES SIGN
- DENOTES UTILITY POLE
- DENOTES WATERMAIN
- DENOTES DECIDUOUS TREE
- DENOTES FENCE
- DENOTES CURBCUT
- DENOTES CONCRETE PAD
- DENOTES DIAMETER

BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE TOWN OF OAKVILLE VERTICAL BENCH MARK NUMBER 290 HAVING AN ORTHOMETRIC ELEVATION OF 174.861 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD—1928:1978).

O.B.M. # 290: CUT CROSS SET IN NORTH WESTERLY CORNER OF CONCRETE BASE OF TRANSFORMER CABINET BETWEEN LOTS 152 AND 153, PLAN 20M—1143, 41M EAST OF THE INTERSECTION OF PRESEVE DRIVE AND SAWMILL STREET.

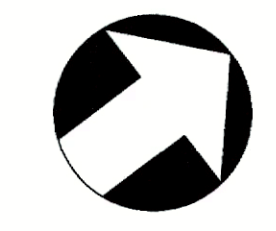


KNOWN AS SIXTH LINE
 (ROAD ALLOWANCE BETWEEN LOTS 15 AND 16, CONCESSION 2, NORTH OF DUNDAS STREET)

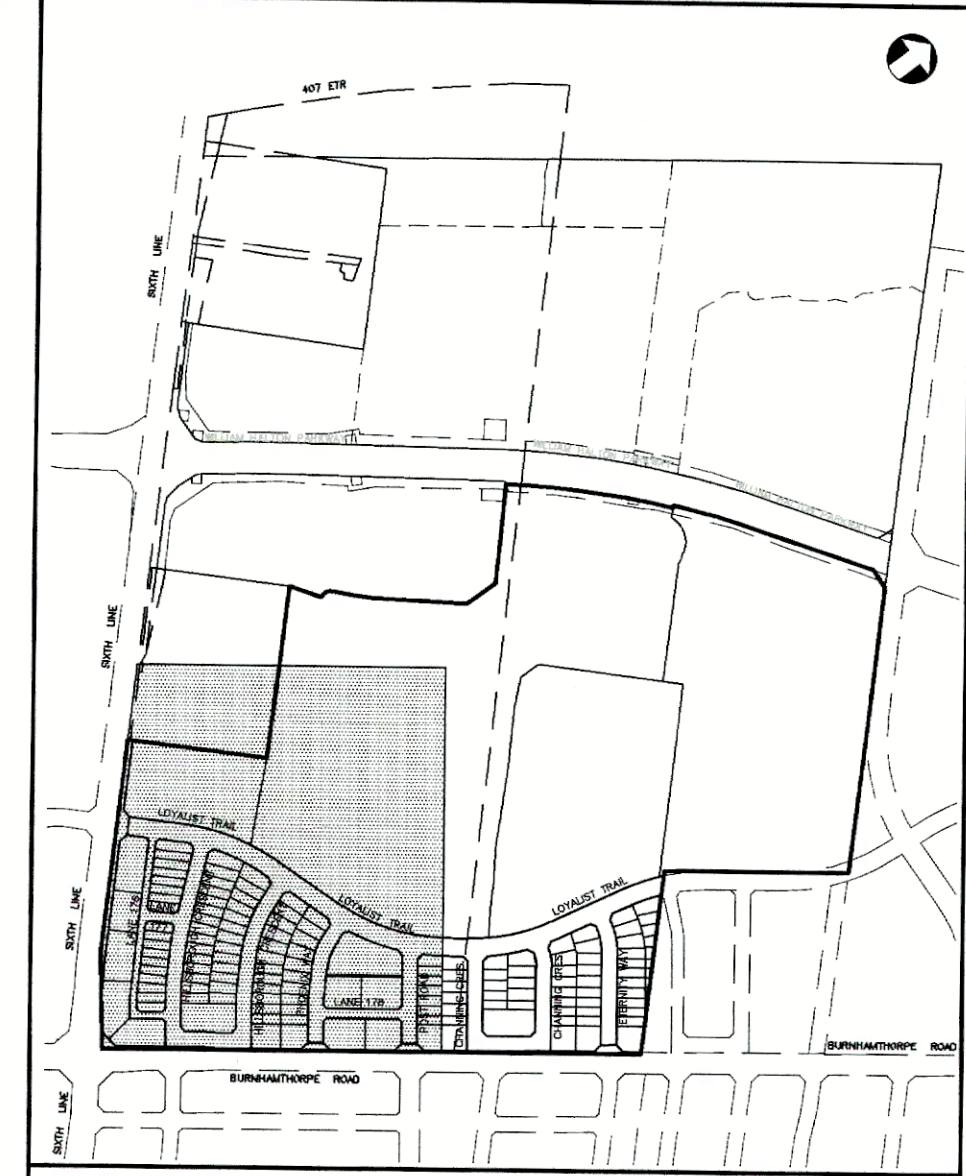
rpe R-PE SURVEYING LTD.
 ONTARIO LAND SURVEYORS
 643 Chrislea Road, Suite 7
 Woodbridge, Ontario L4L 8A3
 Tel.(416)635-5000 Fax (416)635-5001
 Tel.(905)264-0881 Fax (905)264-2099
 Website: www.r-pe.ca
 DRAWN: K.M./T.C.
 JOB No.23-102 CAD FILE No.23102tp01a

APPENDIX 'B'

R:\16\16987\987 AS CONSTRUCTED LATEST (April 2024)\987-ST-01(STM).dwg | May 09, 2024 - 3:29pm



- LEGEND**
- ➔ MAJOR OVERLAND FLOW DIRECTION
 - ➔ EXISTING MAJOR OVERLAND FLOW DIRECTION
 - ➔ FUTURE MAJOR OVERLAND FLOW DIRECTION
 - MAJOR STORM DRAINAGE AREA
 - - - MINOR STORM DRAINAGE AREA
 - 0.40 DRAINAGE AREA IN HECTARES (Ha.)
 - 0.65 DESIGN RUN-OFF COEFFICIENT
 - ① DENOTES NODE LOCATION (REFER TO OVERLAND FLOW CALCULATIONS)
 - 0.77 100 YR. OVERLAND FLOW DRAINAGE AREA IN HECTARES
 - 0.50 COMPOSITE RUN-OFF COEFFICIENT



KEY PLAN SCALE N.T.S.

FOR GENERAL NOTES REFER TO DWG. No. GN-1

AS CONSTRUCTED
APRIL 2024

NO.	DATE	BY	REVISION
10	APR 05, 2024	P.B.	AS CONSTRUCTED
9	DEC 12, 2019	R.H.	AS CONSTRUCTED
8	MAY 6, 2019	M.M.	FINAL SUBMISSION
7	APR 2, 2019	M.M.	SIXTH SUBMISSION
6	FEB 7, 2019	M.M.	FIFTH SUBMISSION
5	NOV 9, 2018	M.M.	ISSUED FOR CONSTRUCTION
4	OCT 15, 2018	M.M.	FOURTH SUBMISSION
3	JUL 17, 2018	M.M.	THIRD SUBMISSION
2	FEB 9, 2018	M.M.	SECOND SUBMISSION
1	MAR 13, 2017	M.M.	FIRST SUBMISSION

DESIGN	M.M.	CHECKED	V.C.	DATE
DRAWN	ACAD	CHECKED	M.M.	

SCALE 1:1000

APPROVALS

MUNICIPAL
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.
SIGNED: ORIGINAL SIGNED BY P. KELLY DATE: NOV. 8, 2018
Manager of Development Engineering, Town of Oakville

REGIONAL
DESIGN OF SANITARY AND WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS AND SPECIFICATIONS AND LOCATION APPROVAL FROM AREA MUNICIPALITY.
SIGNED: DATE:
Legislative & Planning Services Department, Halton Region

CONSULTANT
RAND ENGINEERING CORPORATION
5285 Solar Drive, Mississauga, ON Canada, L4W 5B8, Tel: 905.625.9500

MUNICIPALITY
THE REGIONAL MUNICIPALITY OF HALTON
TOWN OF OAKVILLE
DEVELOPMENT ENGINEERING

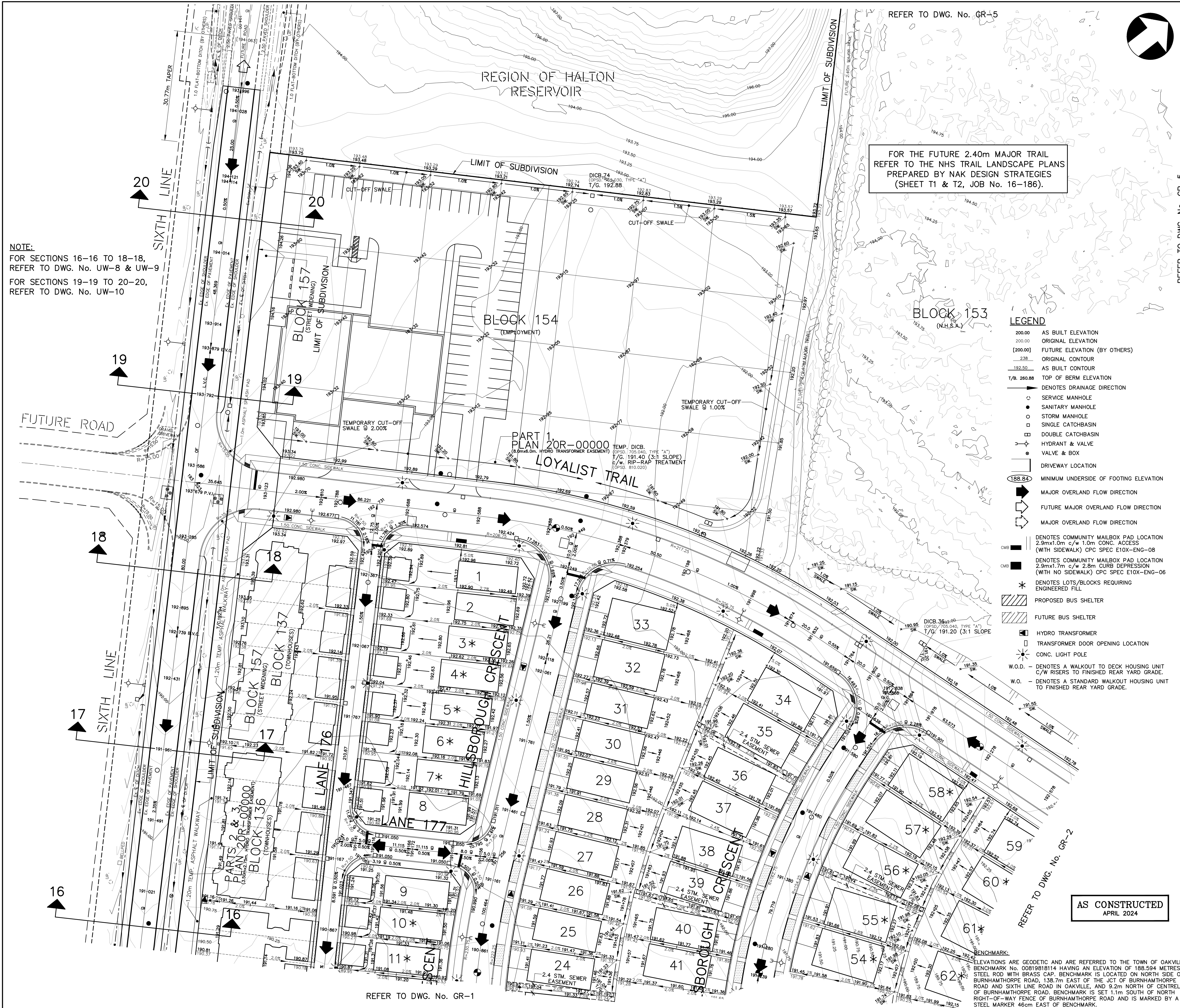
STAR OAK DEVELOPMENTS LIMITED
STORM DRAINAGE PLAN

MUNICIPAL FILE NO.	REGIONAL FILE NO.
SD-605	DO-1036
CONTRACT NO.	SHEET
16987	ST-1

THE ULTIMATE OWNERSHIP OF THE PROPOSED STORM TRUNK SEWER ON BURNHAMTHORPE ROAD WILL BE THE

BENCHMARK:
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE TOWN OF OAKVILLE BENCHMARK No. 096989146 HAVING AN ELEVATION OF 188.594 METRES. STEEL ROD WITH BRASS CAP. BENCHMARK IS LOCATED ON NORTH SIDE OF BURNHAMTHORPE ROAD, 138.7m EAST OF THE JCT OF BURNHAMTHORPE ROAD AND SIXTH LINE ROAD IN OAKVILLE, AND 9.2m NORTH OF CENTRELINE OF BURNHAMTHORPE ROAD. BENCHMARK IS SET 1.1m SOUTH OF NORTH RIGHT-OF-WAY FENCE OF BURNHAMTHORPE ROAD AND IS MARKED BY A STEEL MARKER 46cm EAST OF BENCHMARK.

R:\16\16987\987 AS CONSTRUCTED LATEST (April 2024)\987-GR-04(Grading).dwg | May 09, 2024 - 3:18pm



NOTE:
 FOR SECTIONS 16-16 TO 18-18,
 REFER TO DWG. No. UW-8 & UW-9
 FOR SECTIONS 19-19 TO 20-20,
 REFER TO DWG. No. UW-10

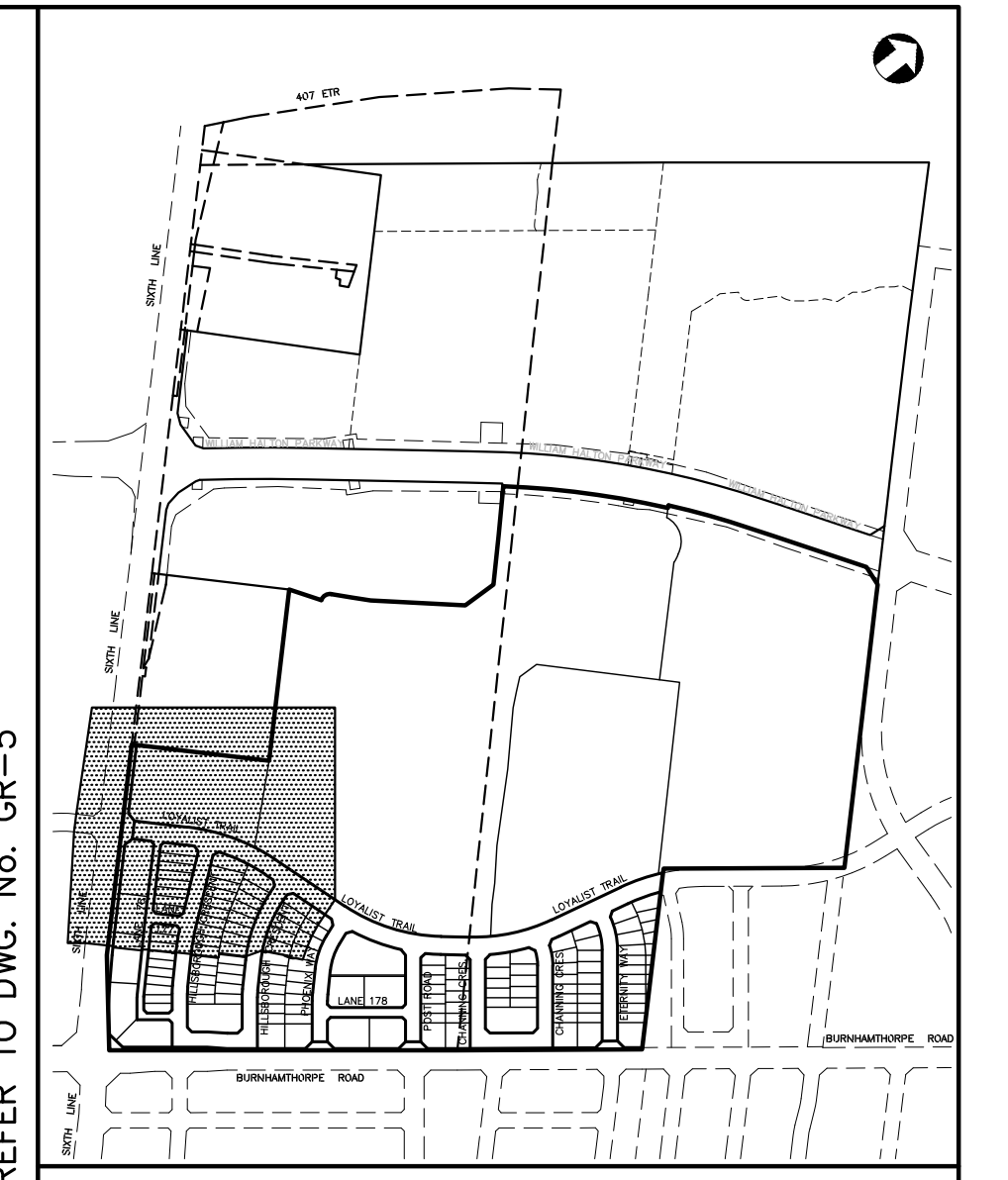
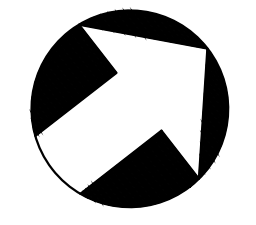
FOR THE FUTURE 2.40m MAJOR TRAIL
 REFER TO THE NHS TRAIL LANDSCAPE PLANS
 PREPARED BY NAK DESIGN STRATEGIES
 (SHEET T1 & T2, JOB No. 16-186).

AS CONSTRUCTED
 APRIL 2024

REFER TO DWG. No. GR-1

REFER TO DWG. No. GR-5

REFER TO DWG. No. GR-2



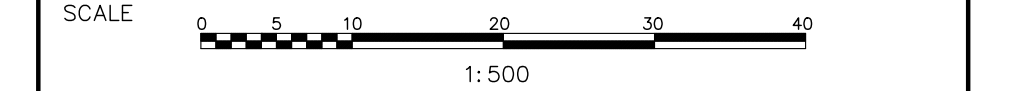
KEY PLAN SCALE N.T.S.

LEGEND

- 200.00 AS BUILT ELEVATION
- 200.00 ORIGINAL ELEVATION
- [200.00] FUTURE ELEVATION (BY OTHERS)
- 238 ORIGINAL CONTOUR
- 192.50 AS BUILT CONTOUR
- 1/8" @ 260.88 DENOTES DRAINAGE DIRECTION
- SERVICE MANHOLE
- SANITARY MANHOLE
- STORM MANHOLE
- SINGLE CATCHBASIN
- DOUBLE CATCHBASIN
- HYDRANT & VALVE
- VALVE & BOX
- DRIVEWAY LOCATION
- 188.84 MINIMUM UNDERSIDE OF FOOTING ELEVATION
- ➔ MAJOR OVERLAND FLOW DIRECTION
- ➔ FUTURE MAJOR OVERLAND FLOW DIRECTION
- ➔ MAJOR OVERLAND FLOW DIRECTION
- CMR DENOTES COMMUNITY MAILBOX PAD LOCATION 2.9m x 1.0m c/w 1.0m CONC. ACCESS (WITH SIDEWALK) CPC SPEC E10X-ENG-08
- CMR DENOTES COMMUNITY MAILBOX PAD LOCATION 2.9m x 1.7m c/w 2.8m CURB DEPRESSION (WITH NO SIDEWALK) CPC SPEC E10X-ENG-06
- * DENOTES LOTS/BLOCKS REQUIRING ENGINEERED FILL
- ▨ PROPOSED BUS SHELTER
- ▨ FUTURE BUS SHELTER
- HYDRO TRANSFORMER
- TRANSFORMER DOOR OPENING LOCATION
- CONC. LIGHT POLE
- W.O.D. DENOTES A WALKOUT TO DECK HOUSING UNIT C/W RISERS TO FINISHED REAR YARD GRADE.
- W.O. DENOTES A STANDARD WALKOUT HOUSING UNIT TO FINISHED REAR YARD GRADE.

NO.	DATE	BY	REVISION
11	APR 05, 2024	P.B.	AS CONSTRUCTED
10	JAN 9, 2023	P.B.	TEMP. 1.2m ASPHALT WALKWAY ADDED
9	DEC 12, 2019	R.H.	AS CONSTRUCTED
8	MAY 6, 2019	M.M.	FINAL SUBMISSION
7	APR. 2, 2019	M.M.	SIXTH SUBMISSION
6	FEB. 7, 2019	M.M.	FIFTH SUBMISSION
5	NOV. 9, 2018	M.M.	ISSUED FOR CONSTRUCTION
4	OCT. 15, 2018	M.M.	FOURTH SUBMISSION
3	JUL. 17, 2018	M.M.	THIRD SUBMISSION
2	FEB. 9, 2018	M.M.	SECOND SUBMISSION
1	MAR. 13, 2017	M.M.	FIRST SUBMISSION

DESIGN	M.M.	CHECKED	V.C.	DATE
DRAWN	ACAD	CHECKED	M.M.	



STAMP

APPROVALS

MUNICIPAL APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

SIGNED: ORIGINAL SIGNED BY P. KELLY DATE: NOV. 8, 2018
 Manager of Development Engineering, Town of Oakville

REGIONAL DESIGN OF SANITARY AND WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS AND SPECIFICATIONS AND LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: _____ DATE: _____
 Legislative & Planning Services Department, Halton Region

CONSULTANT

5285 Solar Drive
 Mississauga, ON
 Canada, L4W 5B8
 Tel: 905.625.9500

MUNICIPALITY

THE REGIONAL MUNICIPALITY OF HALTON

TOWN OF OAKVILLE
 DEVELOPMENT ENGINEERING

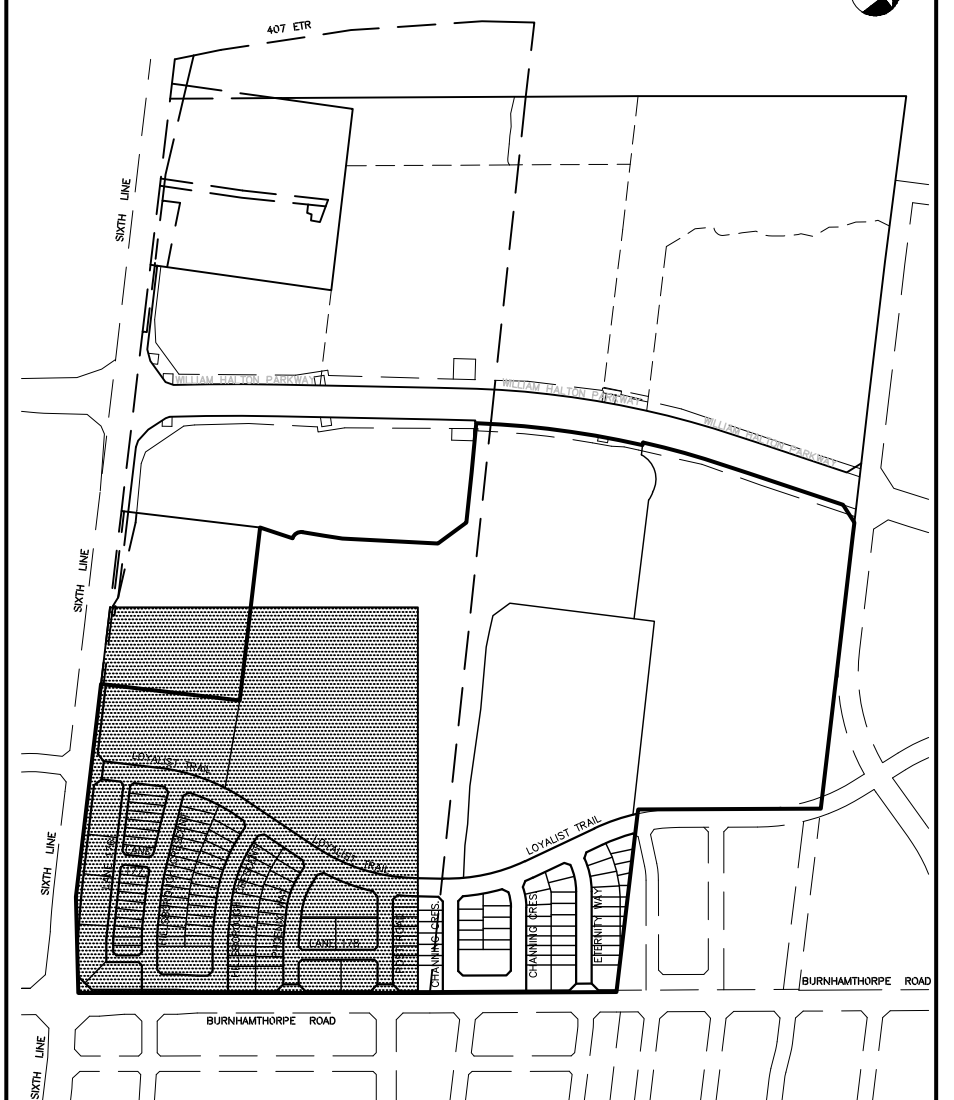
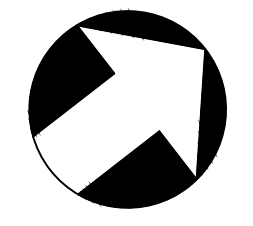
STAR OAK DEVELOPMENTS LIMITED

GRADING PLAN

24T-13002

MUNICIPAL FILE NO.	SD-605	REGIONAL FILE NO.	DO-1036
CONTRACT NO.	16987	SHEET	GR-4

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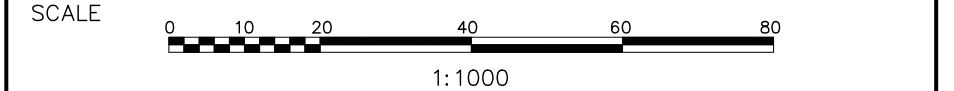


KEY PLAN SCALE N.T.S.

FOR GENERAL NOTES REFER TO DWG. No. GN-1

NO.	DATE	BY	REVISION
10	APR 05, 2024	P.B.	AS CONSTRUCTED
9	DEC 12, 2019	R.H.	AS CONSTRUCTED
8	MAY 6, 2019	M.M.	FINAL SUBMISSION
7	APR. 2, 2019	M.M.	SIXTH SUBMISSION
6	FEB. 7, 2019	M.M.	FIFTH SUBMISSION
5	NOV. 9, 2018	M.M.	ISSUED FOR CONSTRUCTION
4	OCT. 15, 2018	M.M.	FOURTH SUBMISSION
3	JUL. 17, 2018	M.M.	THIRD SUBMISSION
2	FEB. 9, 2018	M.M.	SECOND SUBMISSION
1	MAR. 13, 2017	M.M.	FIRST SUBMISSION

DESIGN	M.M.	CHECKED	V.C.	DATE
DRAWN	ACAD	CHECKED	M.M.	



STAMP

APPROVALS

MUNICIPAL
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

SIGNED: _____ DATE: _____
Manager of Development Engineering, Town of Oakville

REGIONAL
DESIGN OF SANITARY AND WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS AND SPECIFICATIONS AND LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: ORIGINAL SIGNED BY RONALD MACKENZIE DATE: NOV. 9, 2018
Legislative & Planning Services Department, Halton Region

CONSULTANT

5285 Solar Drive
Mississauga, ON
Canada, L4W 5B8
Tel: 905.625.9500

MUNICIPALITY

THE REGIONAL MUNICIPALITY OF HALTON

TOWN OF OAKVILLE
DEVELOPMENT ENGINEERING

STAR OAK DEVELOPMENTS LIMITED

SANITARY DRAINAGE PLAN

24T-13002

MUNICIPAL FILE NO.	SD-605	REGIONAL FILE NO.	DO-1036
CONTRACT NO.	16987	SHEET	SA-1

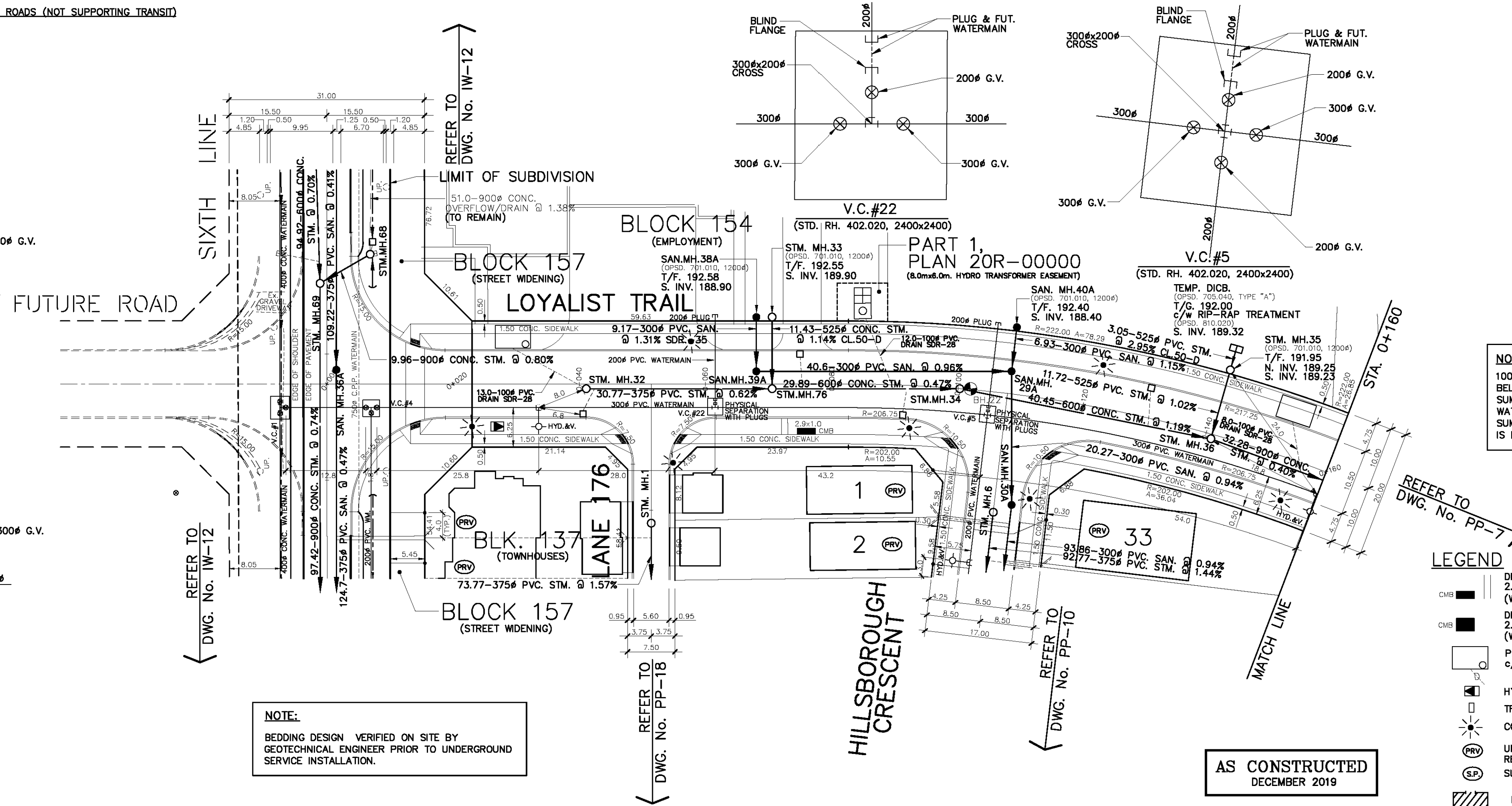
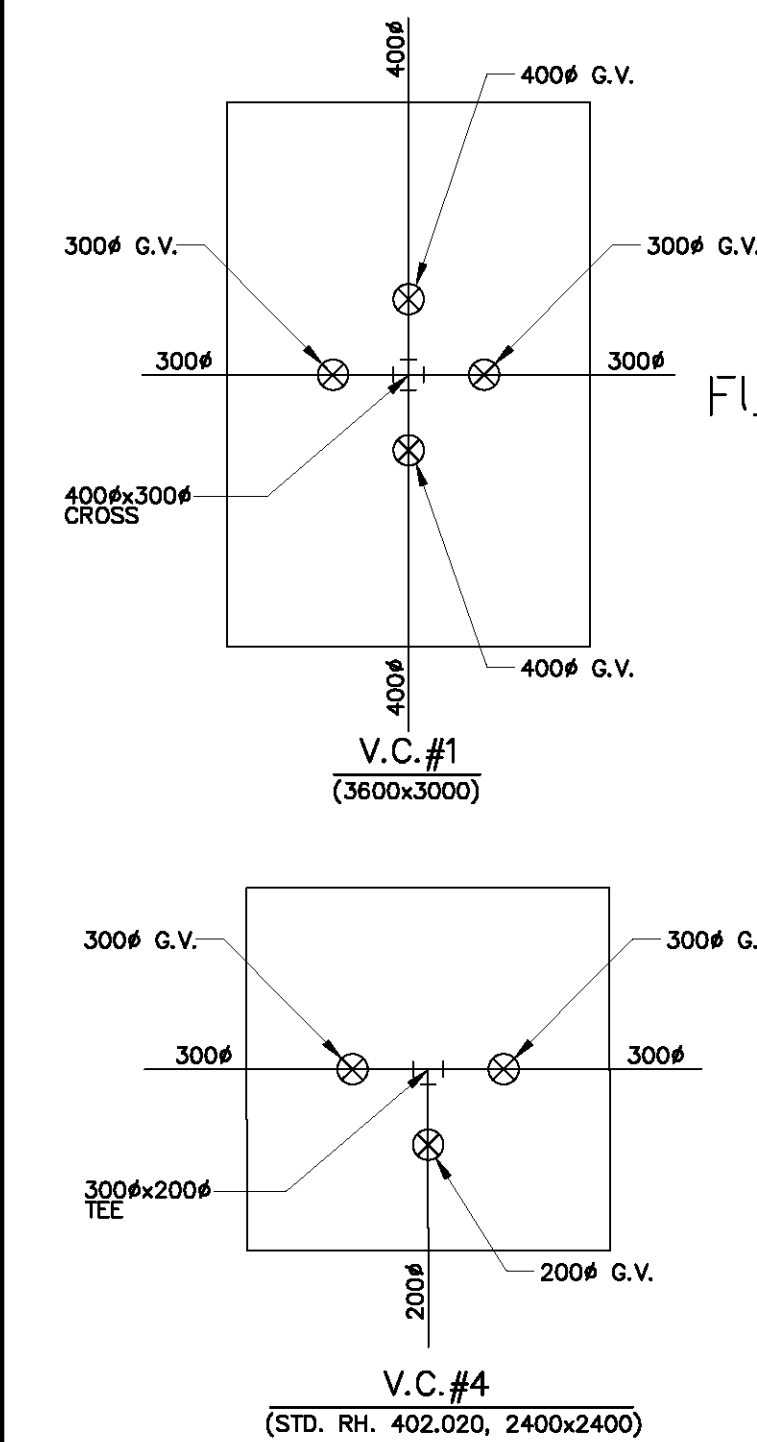
ROAD BASE THICKNESS - (20.0m LOCAL EMPLOYMENT ROADS (NOT SUPPORTING TRANSIT))

- 40mm - HL-3 ASPHALT SURFACE COURSE
- 80mm - HDBC HL-5 ASPHALT BINDER COURSE
- 150mm - Granular "A" BASE
- 350mm - Granular "B" TYPE 1 - SUB-BASE

CURBS - Town of Oakville STD. 6-1

* NOTE: ALL R.O.W. CROSS DIMENSIONS ARE TO FACE OF CURB, UNLESS OTHERWISE NOTED.

REGIONAL MUNICIPALITY OF HALTON
ITS EMPLOYEES, OFFICERS AND AGENTS
ARE NOT RESPONSIBLE FOR ANY ERRORS,
OMISSIONS OR INACCURACIES, WHETHER
DUE TO THEIR NEGLIGENCE OR OTHERWISE.
ALL INFORMATION SHOULD BE VERIFIED.



NOTE:
BEDDING DESIGN VERIFIED ON SITE BY
GEOTECHNICAL ENGINEER PRIOR TO UNDERGROUND
SERVICE INSTALLATION.

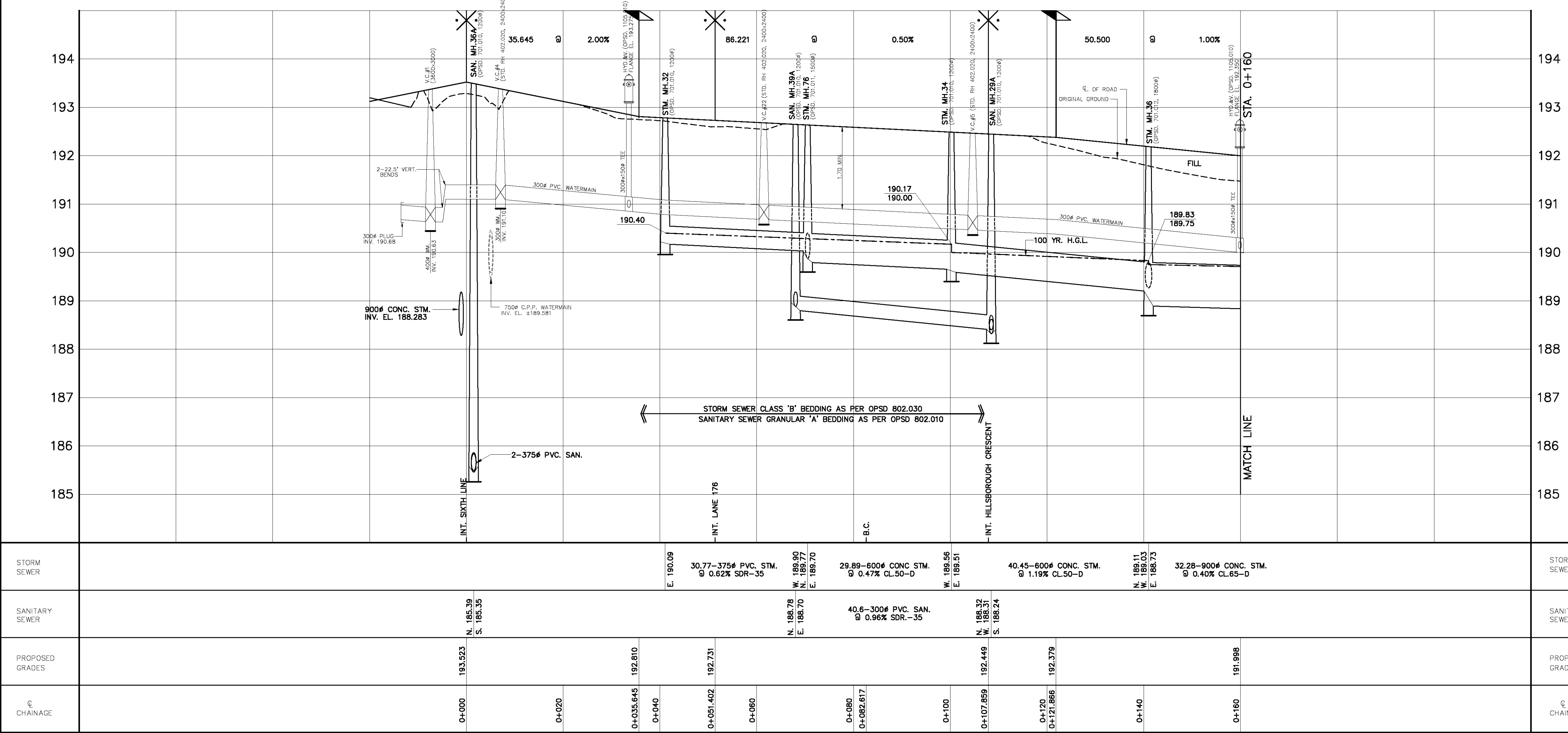
NOTE:
100 YEAR HYDRAULIC GRADE LINE IS MIN. 0.50m.
BELOW UNDERSIDE OF FOOTING ELEVATIONS OR
SUMP PUMP REQUIRED TO PUMP FOUNDATION DRAIN
WATER TO STORM SEWERS OR MUNICIPAL DITCH.
SUMP PUMP DISCHARGE TO SIDE YARD SWALES
IS NOT PERMITTED.

- LEGEND**
- DENOTES COMMUNITY MAILBOX PAD LOCATION
2.9m x 1.0m c/w 1.0m CONC. ACCESS
(WITH SIDEWALK) CPC SPEC E10X-ENG-08
 - DENOTES COMMUNITY MAILBOX PAD LOCATION
2.9m x 1.7m c/w 2.8m CURB DEPRESSION
(WITH NO SIDEWALK) CPC SPEC E10X-ENG-06
 - PRECAST CONCRETE TRANSFORMER VAULT
c/w MANHOLE FRAME, COVER SUMP PUMP & DRAIN
 - ⊙ HYDRO TRANSFORMER
 - ⊙ TRANSFORMER DOOR OPENING LOCATION
 - ⊙ CONC. LIGHT POLE
 - ⊙ UNITS EQUIPPED WITH PRESSURE
REDUCING VALVE
 - ⊙ SUMP PUMP REQUIRED
 - ▨ BUS SHELTER
 - ▨ FUTURE BUS SHELTER

AS CONSTRUCTED
DECEMBER 2019



FOR GENERAL NOTES REFER TO DWG. No. GN-1



BENCHMARK:
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE TOWN OF OAKVILLE
BENCHMARK No. 00819818114 HAVING AN ELEVATION OF 188.594 METRES.
STEEL ROD WITH BRASS CAP. BENCHMARK IS LOCATED ON NORTH SIDE OF
BURNHAMTHORPE ROAD, 136.7m EAST OF THE JCT OF BURNHAMTHORPE
ROAD AND SIXTH LINE ROAD IN OAKVILLE, AND 9.2m NORTH OF CENTRELINE
OF BURNHAMTHORPE ROAD. BENCHMARK IS SET 1.1m SOUTH OF NORTH
RIGHT-OF-WAY FENCE OF BURNHAMTHORPE ROAD AND IS MARKED BY A
STEEL MARKER 46cm EAST OF BENCHMARK.

Date	By	Revisions
10 DEC 12/19	R.H.	AS CONSTRUCTED
9 MAY 6/19	M.M.	FINAL SUBMISSION
8 APR 2/19	M.M.	SIXTH SUBMISSION
7 FEB 7/19	M.M.	FIFTH SUBMISSION
6 NOV 23/18	V.C.	REVISED SIZE OF VALVE CHAMBER #1
5 NOV 8/18	M.M.	ISSUED FOR CONSTRUCTION
4 OCT 15/18	M.M.	FOURTH SUBMISSION
3 JUL 17/18	M.M.	THIRD SUBMISSION
2 FEB 9/18	M.M.	SECOND SUBMISSION
1 MAR 13/17	M.M.	FIRST SUBMISSION

Design: M.M. Checked: V.C. Date: MAY 2019
 Drawn: ACAD Checked: M.M.
 Scale: 1:500 (Horizontal), 1:50 (Vertical)
 Approvals: [Signatures]
 Municipal: APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.
 Regional: ORIGINAL SIGNED BY: V. CAVALLLO, REGISTERED PROFESSIONAL ENGINEER, PROVINCE OF ONTARIO, DEC 12/19.
 Consultant: ORIGINAL SIGNED BY: RAND ENGINEERING CORPORATION, 5285 Solar Drive, Mississauga, ON, Canada, L4W 5B8, Tel: 905.625.9500.

RAND ENGINEERING CORPORATION
 5285 Solar Drive, Mississauga, ON, Canada, L4W 5B8, Tel: 905.625.9500

Municipality: THE REGIONAL MUNICIPALITY OF HALTON
 TOWN OF OAKVILLE
 DEVELOPMENT ENGINEERING

STAR OAK DEVELOPMENTS LIMITED
 PLAN & PROFILE
 LOYALIST TRAIL

STA.0+000 TO STA.0+160 24T-13002
 Municipal File No. SD-605 Regional File No. DO-1036
 Contract No. 16987 Drawing No. PP-6

R:\16\16987\987 As Constructed (Dec. 2019)\987-PP-06(Loyalist Trail-1).dwg Jan 24, 2020 - 3:46pm

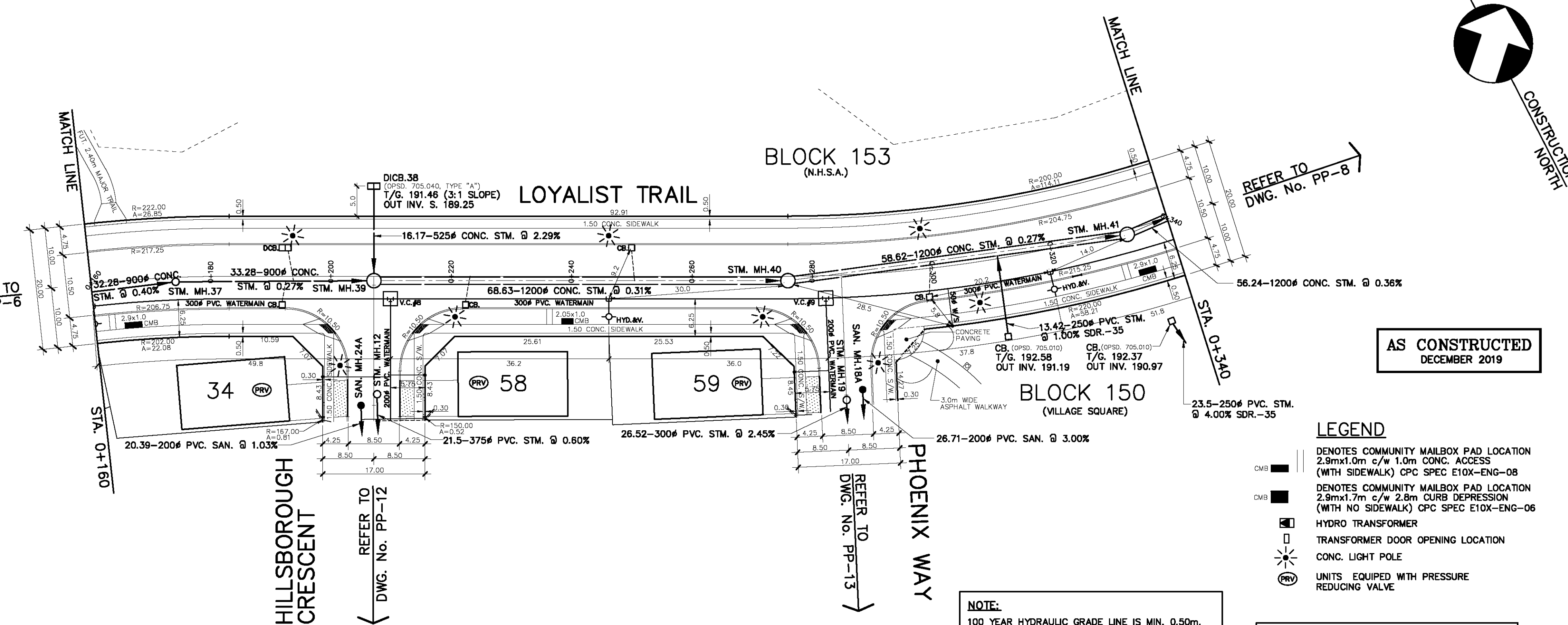
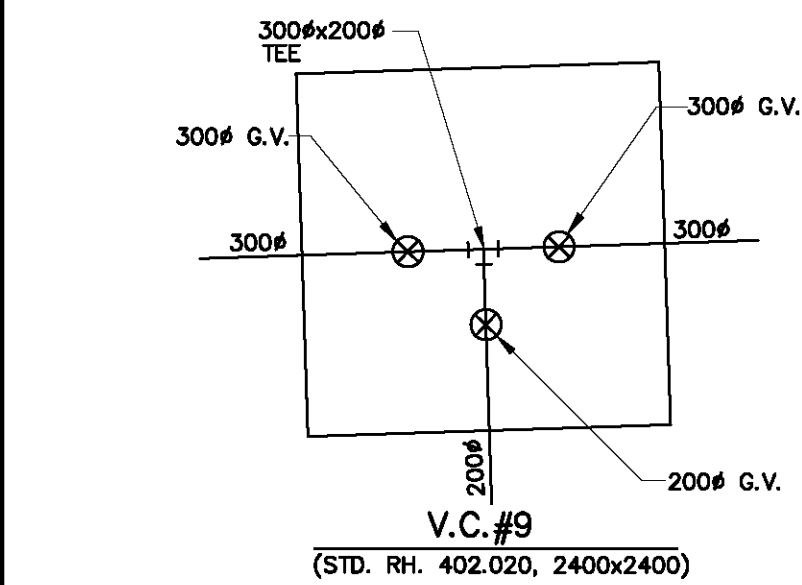
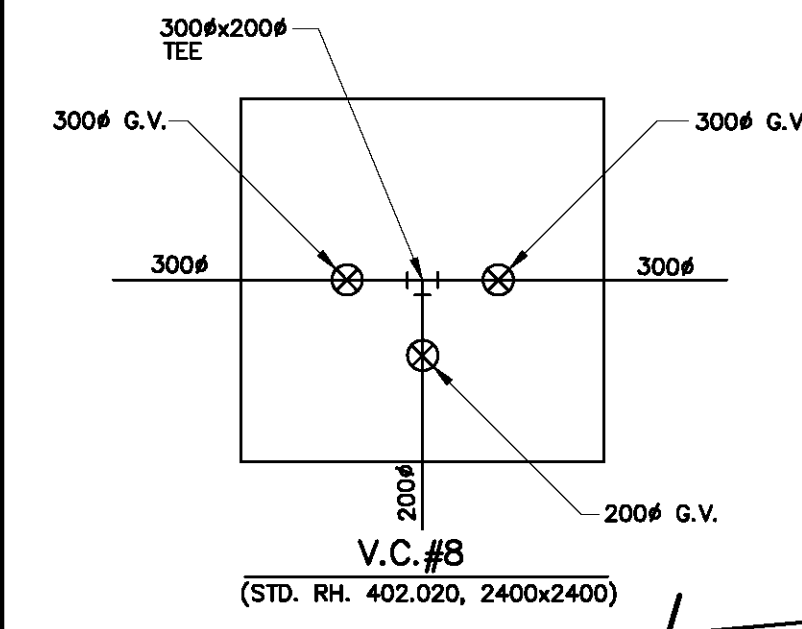
ROAD BASE THICKNESS - (20.0m LOCAL EMPLOYMENT ROADS (NOT SUPPORTING TRANSIT))

- 40mm - HL-3 ASPHALT SURFACE COURSE
- 80mm - HDBC HL-B ASPHALT BINDER COURSE
- 150mm - Granular "A" BASE
- 350mm - Granular "B" TYPE 1 - SUB-BASE

CURBS - Town of Oakville STD. 6-1

* NOTE: ALL R.O.W. CROSS DIMENSIONS ARE TO FACE OF CURB, UNLESS OTHERWISE NOTED.

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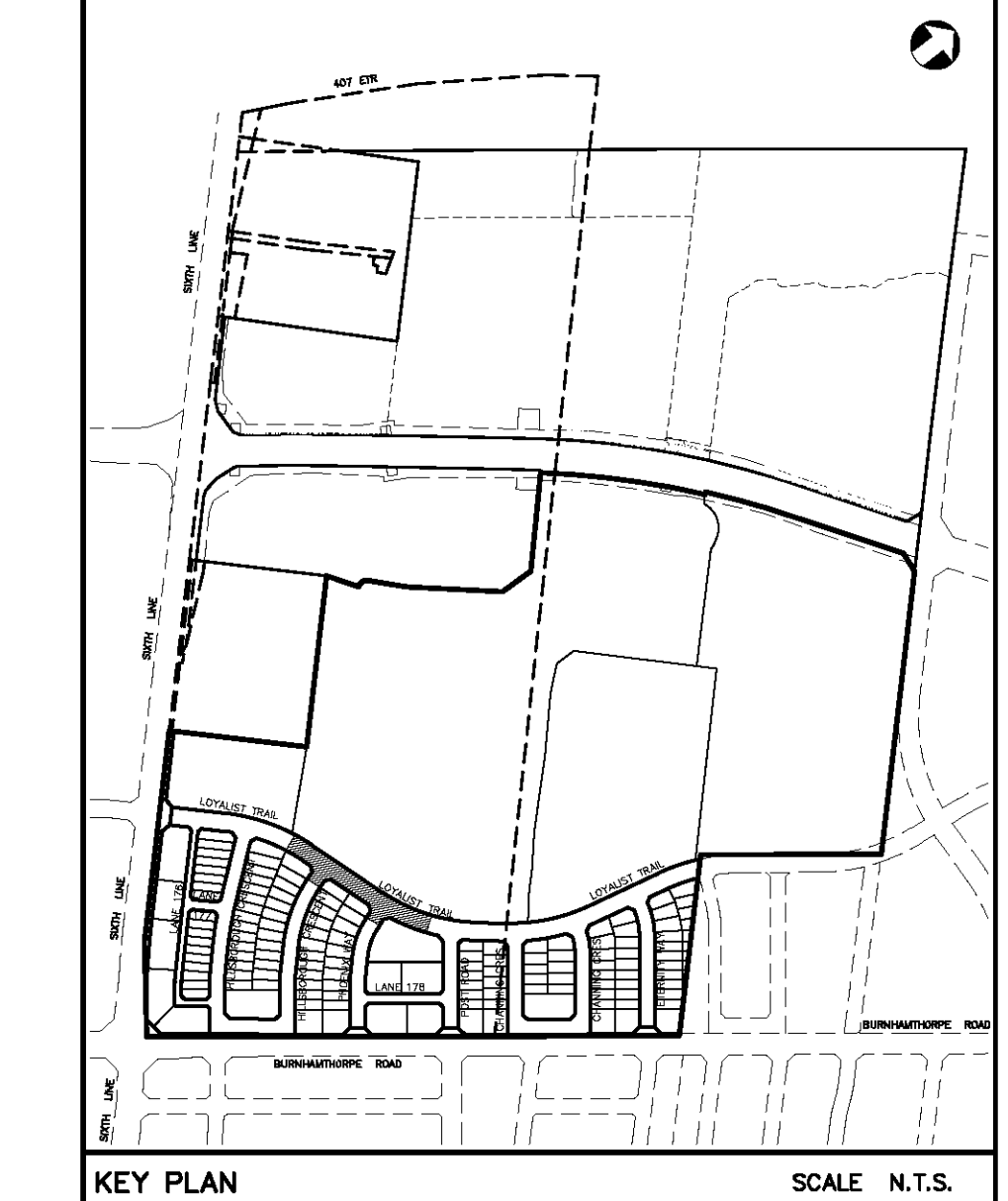


AS CONSTRUCTED
DECEMBER 2019

- LEGEND**
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 - DENOTES COMMUNITY MAILBOX PAD LOCATION 2.9m x 1.7m c/w 2.8m CURB DEPRESSION (WITH NO SIDEWALK) CPC SPEC E10X-ENG-06
 - HYDRO TRANSFORMER
 - TRANSFORMER DOOR OPENING LOCATION
 - CONC. LIGHT POLE
 - UNITS EQUIPPED WITH PRESSURE REDUCING VALVE

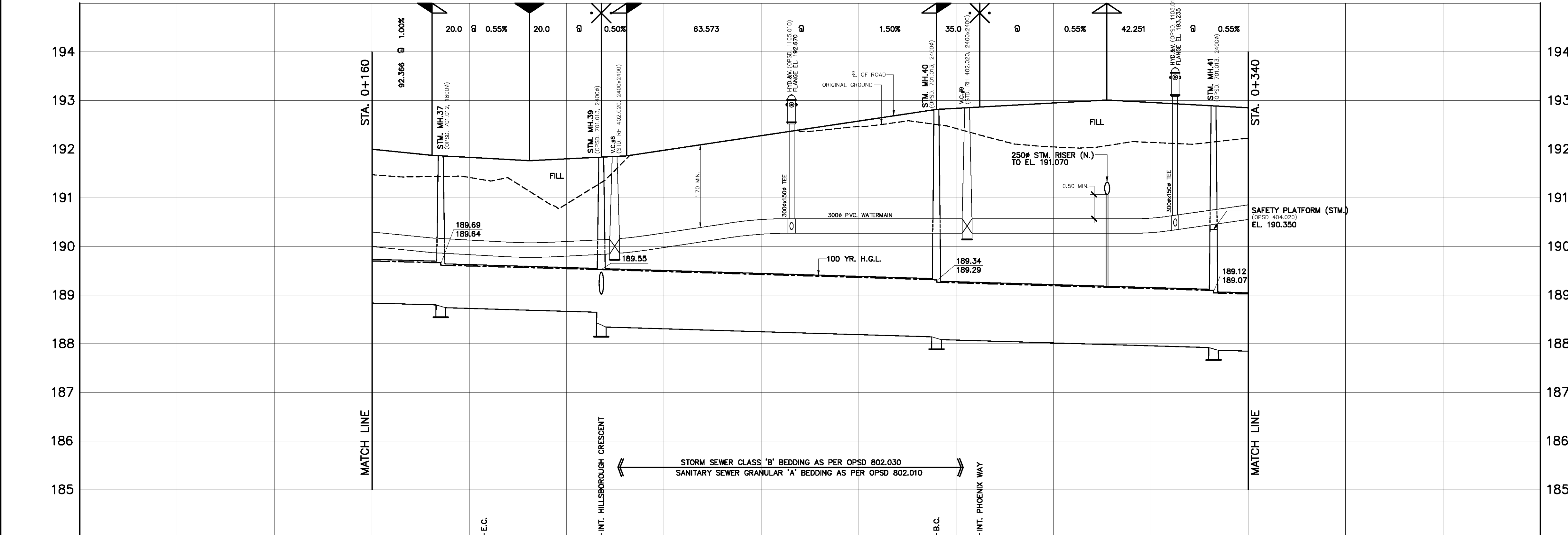
NOTE:
100 YEAR HYDRAULIC GRADE LINE IS MIN. 0.50m. BELOW UNDERSIDE OF FOOTING ELEVATIONS OR SLUMP PUMP REQUIRED TO PUMP FOUNDATION DRAIN WATER TO STORM SEWERS OR MUNICIPAL DITCH. SLUMP PUMP DISCHARGE TO SIDE YARD SWALES IS NOT PERMITTED.

NOTE:
BEDDING DESIGN VERIFIED ON SITE BY GEOTECHNICAL ENGINEER PRIOR TO UNDERGROUND SERVICE INSTALLATION.



BENCHMARK:
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE TOWN OF OAKVILLE BENCHMARK No. 00819818114 HAVING AN ELEVATION OF 188.594 METRES. STEEL ROD WITH BRASS CAP. BENCHMARK IS LOCATED ON NORTH SIDE OF BURNHAMTHORPE ROAD, 138.7m EAST OF THE JCT. OF BURNHAMTHORPE ROAD AND SIXTH LINE ROAD IN OAKVILLE, AND 9.2m NORTH OF CENTRELINE OF BURNHAMTHORPE ROAD. BENCHMARK IS SET 1.1m SOUTH OF NORTH RIGHT-OF-WAY FENCE OF BURNHAMTHORPE ROAD AND IS MARKED BY A STEEL MARKER 46cm EAST OF BENCHMARK.

Date	By	Revisions
9 DEC 12/19	R.H.	AS CONSTRUCTED
8 MAY 6/19	M.M.	FINAL SUBMISSION
7 APR. 2/19	M.M.	SIXTH SUBMISSION
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5 NOV. 6/18	M.M.	ISSUED FOR CONSTRUCTION
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3 JUL. 17/18	M.M.	THIRD SUBMISSION
2 FEB. 9/18	M.M.	SECOND SUBMISSION
1 MAR. 13/17	M.M.	FIRST SUBMISSION



STORM SEWER	SANITARY SEWER	PROPOSED GRADES	CHAINAGE
32.28-900# CONC. STM. @ 0.40% CL.65-D W. 188.60 N. 188.85 E. 188.57		191.988	0+160
33.28-900# CONC. STM. @ 0.27% CL.65-D W. 188.60 N. 188.85 E. 188.57		191.874	0+172.366
			0+180
			0+183.027
			0+192.366
			0+200
			0+207.116
			0+212.366
			0+220
			0+240
			0+260
			0+275.939
			0+280
			0+284.827
			0+300
			0+310.939
			0+320
			0+340
58.62-1200# CONC. STM. @ 0.27% CL.100-D W. 187.77 N. 187.93 E. 187.73		192.818	0+275.939
			0+280
			0+284.827
			0+300
			0+310.939
			0+320
			0+340
56.24-1200# CONC. STM. @ 0.36% CL.100-D W. 187.77 N. 187.93 E. 187.73		193.011	0+310.939
			0+320
			0+340

Approvals

Municipal
APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.

Regional
DESIGN OF SANITARY AND WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS AND SPECIFICATIONS AND LOCATION APPROVAL FROM AREA MUNICIPALITY.

Original Signed By: P. KELLY
Manager of Development Engineering - TOWN OF OAKVILLE

Original Signed By: RONALD MACKENZIE
Legislative & Planning Services Dept. - REGION OF HALTON

Approved By: V. CAVALLO
REGISTERED PROFESSIONAL ENGINEER
DEC 12/19
PROVINCE OF ONTARIO

RAND
ENGINEERING CORPORATION

5285 Solar Drive
Mississauga, ON
Canada, L4W 5B8
Tel: 905.625.9500

Municipality
THE REGIONAL MUNICIPALITY OF HALTON
TOWN OF OAKVILLE
DEVELOPMENT ENGINEERING

STAR OAK DEVELOPMENTS LIMITED
PLAN & PROFILE
LOYALIST TRAIL

STA.0+160 TO STA.0+340
Municipal File No. SD-605
Regional File No. DO-1036
24T-13002

Contract No. 16987
Drawing No. PP-7

R:\16987\987 As Constructed (Dec. 2019)\987-PP-07(Loyalist Trail-2).dwg Jan 24, 2020 - 3:46pm

APPENDIX 'C'

TRAFALGAR ENGINEERING LTD.

ESTIMATED WATER DEMAND

Project: 15 Loyalist Trail
Desc: 1st Submission for OPA/ZBA

Project No.: 1859
Prepared By: AD
Checked By: PC

Land Use / Occupancy Type	Occupancy Data					Peaking Factors			Demand Flow		
	Unit Count / GFA	Population Density (pers/unit)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Townhouse	0.65	135.0	88	275	17	1.00	4.00	2.25	17	67	38
TOTAL	1		88		17				17	67	38

Fire Flow

Using Fire Underwriters Survey Methodology:

Average Daily Demand: 17 (L/min)
Minimum Hourly Demand: 17 (L/min)
Maximum Hourly Demand: 67 (L/min)
Maximum Daily Demand: 38 (L/min)
Max. Daily Plus Fire: 9038 (L/min)

1. **An estimate of the fire flow is given by the formula** $F = 220C\sqrt{A}$
 Where:
 F = The required fire flow in litres per minute
 C = Coefficient related to the type of construction
 A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: **Ordinary** Coefficient: 1.00 Total Floor Area: **600** (m²)
 F = **5000** (L/min) Adequately Protected Vertical Openings: **No**

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

2. **Adjust the value in No. 1 for occupancy surcharge/reduction**
 Occupancy Contents: **Free Burning** Factor: 15%
 F = **5750** (L/min)

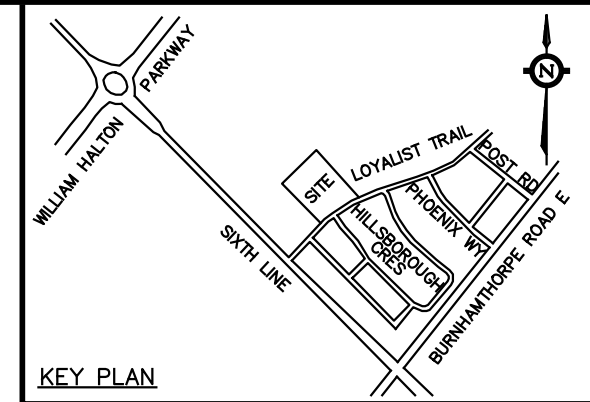
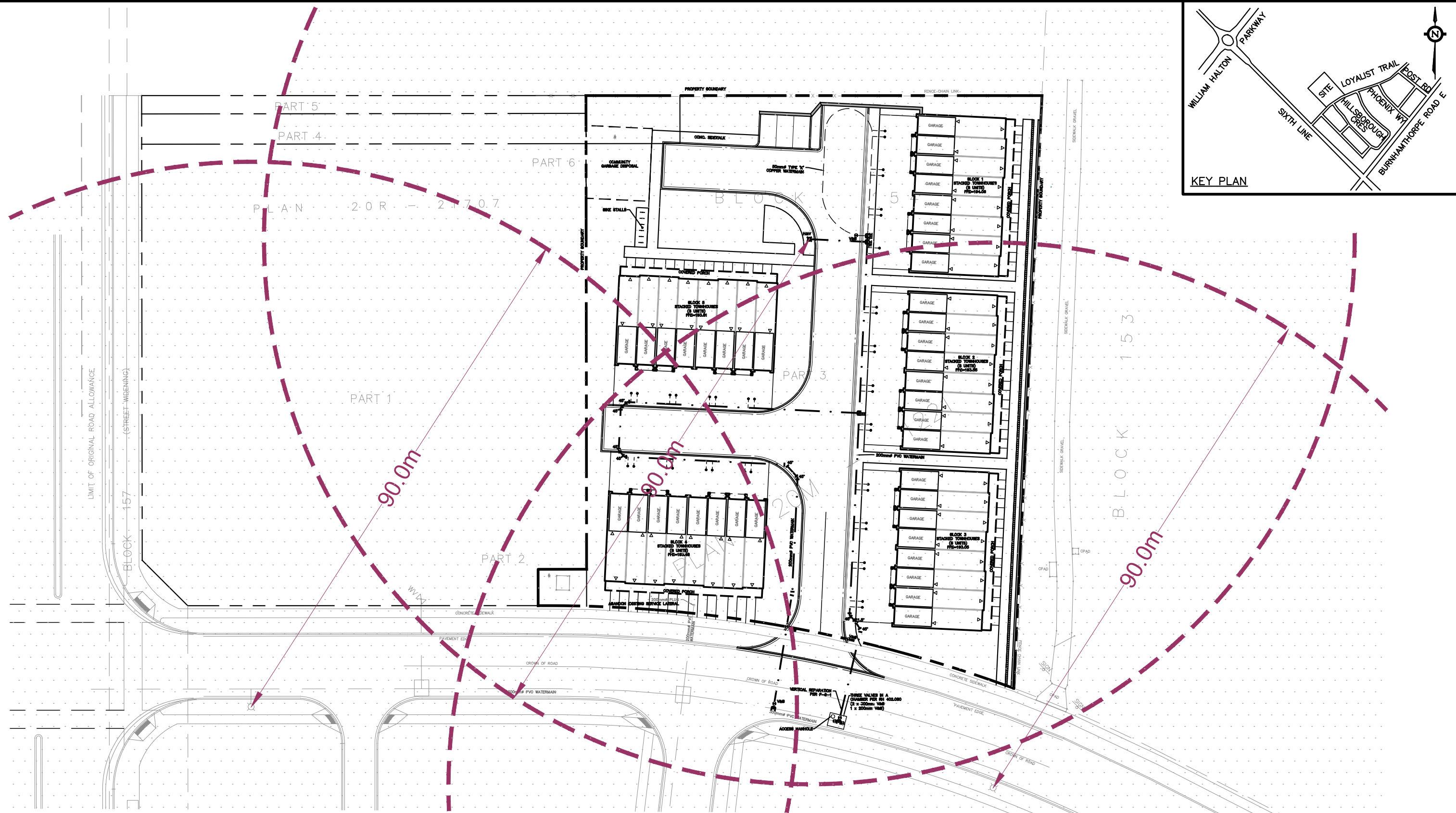
3. **Adjust the value in No. 2 for sprinkler** 4. **Adjust the value in No. 2 for exposure**

NFPA 13 Sprinkler: **No** Reduction: **0%**
 Standard Water Supply: **No** Reduction: **0%**
 Fully Supervised: **No** Reduction: **0%**


	Separation (m)	Charge
North	1.8	25%
East	45	0%
South	0	25%
West	21.1	10%
Total Reduction:	0%	Total Charge: 60%
Sprinkler Reduction:	0 (L/min)	Exposure Charge: 3450 (L/min)

5. **Estimated Fire Flow is value in No. 2 less Sprinkler Reduction plus Exposure Charge, rounded to the nearest 1000**
 F = **9000** (L/min)

FILENAME: P:\1859_3 Loyalist Trail\04-CAD\03-Site Plan\185903.dwg
 PLOTDATE: Sep 13, 2024 - 6:20pm



PROJECT TITLE	BLOCK 154 (EAST SIDE) 15 LOYALIST TRAIL		
DRAWING TITLE	FIRE HYDRANT PLAN		

 #1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com		DESIGN BY	AJP	SCALE	NTS	DRAWING No.	FIG. 1
		DRAWN BY	AJP	DATE	2024/09/09		

APPENDIX 'D'

TRAFALGAR ENGINEERING LTD.

ESTIMATED SANITARY FLOW

Project: 15 Loyalist Trail
Desc: 1st Submission for OPA/ZBA

Project No.: 1859
Prepared By: AD
Checked By: PC

Residential

Land Use / Occupancy Type	GFA	Population Density (pers/unit)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
Townhouses	0.65	135.0	88	275	0.3
TOTAL	1		88		0.3

Industrial / Commercial / Institutional

Land Use / Occupancy Type	GFA	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/Ha. Day)	Average Daily Dry Weather Flow (L/s)
TOTAL	0		0		0.0

Residential Peaking Factor: 4.26
 ICI Peaking Factor: 4.50
 Include ICI Peaking? **No**
 Tributary Area: **0.65** (ha)
 Infiltration Allowance: **0.29** (L/s ha)
 Foundation Drain Allowance: **0.00** (L/s ha)

Residential Average Flow: 0.5 (L/s)
 ICI Average Flow: 0.0 (L/s)
 Groundwater Discharge: 0.0 (L/s)
Total Average Flow: 0.5 (L/s)

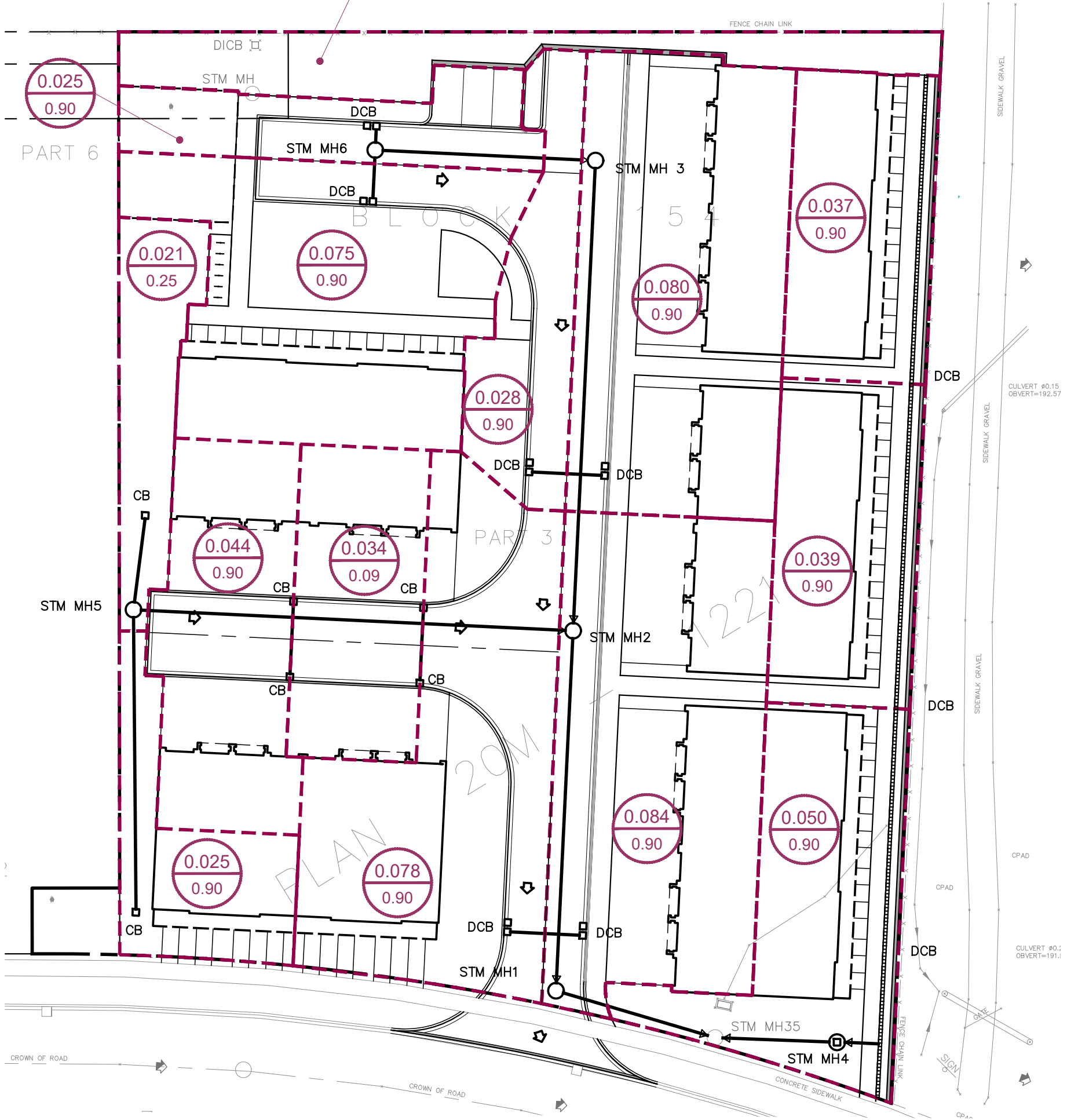
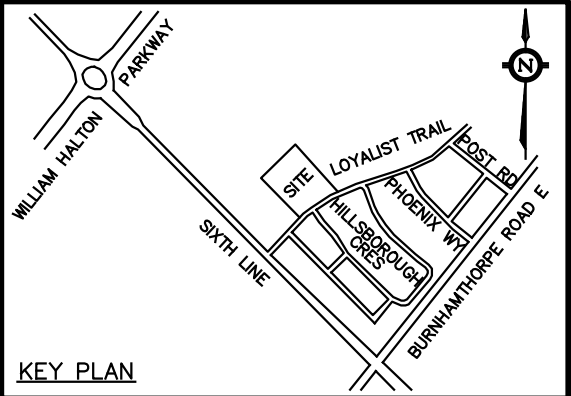
Residential Peak Flow: 1.4 (L/s)
 ICI Peak Flow: 0.0 (L/s)
 Groundwater Discharge: 0.0 (L/s)
Total Peak Flow: 1.4 (L/s)

APPENDIX 'E'

EXTERNAL DRAINAGE AREA

0.064*
0.25

0.030*
0.25



LEGEND



AREA IN HECTARES
RUN-OFF AREA COEFFICIENT



STORM DRAINAGE AREA BOUNDARY



EXISTING OVERLAND FLOW DIRECTION



POST-DEVELOPMENT OVERLAND FLOW DIRECTION



PROPERTY LINE

PROJECT TITLE

BLOCK 154 (EAST SIDE)
15 LOYALIST TRAIL

TRAFALGAR ENGINEERING
#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

DRAWING TITLE

STORM DRAINAGE AREA PLAN

DESIGN BY AJP

SCALE 1:400

DRAWING No.

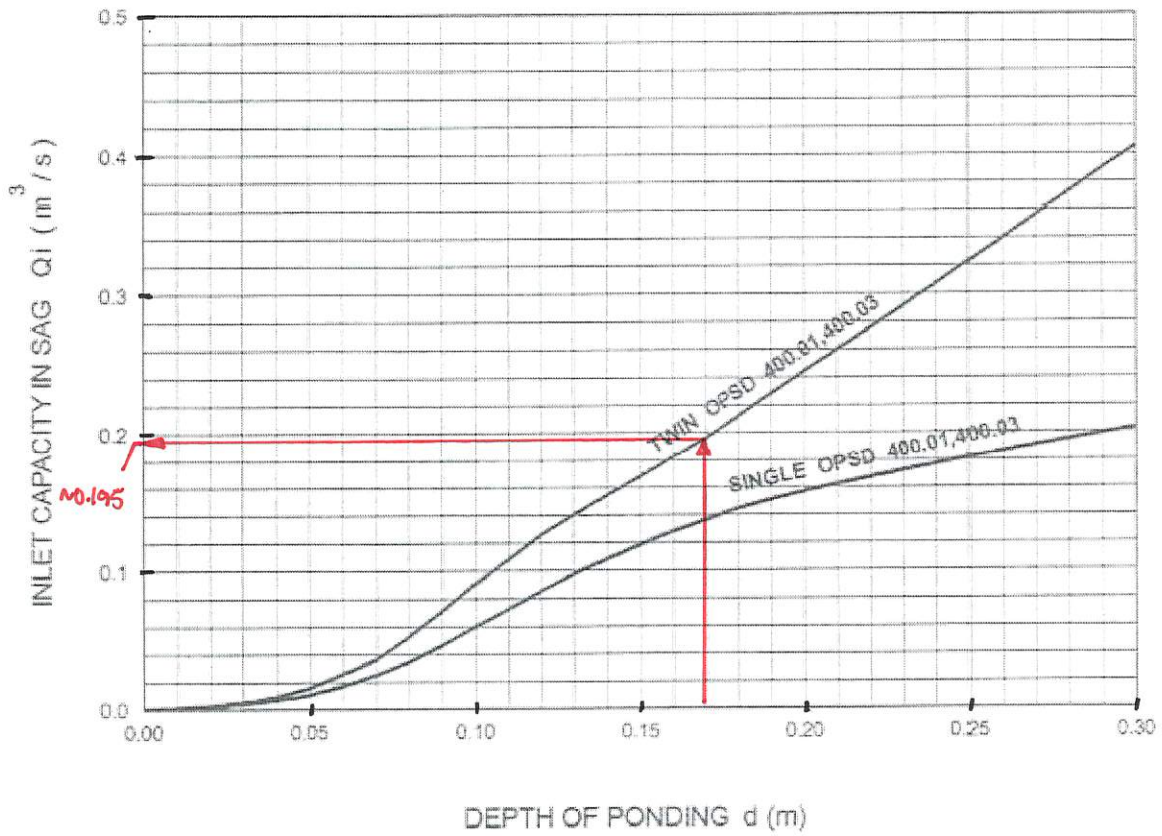
DRAWN BY AJP

DATE 2024/09/09

FIG.2

FILENAME: P:\1859_3 Loyalist Trail\04-CAD\03-Site Plan\1859GS.dwg
PLOTDATE: Sep 13, 2024 - 6:21pm

Design Chart 4.19: Inlet Capacity at Road Sag



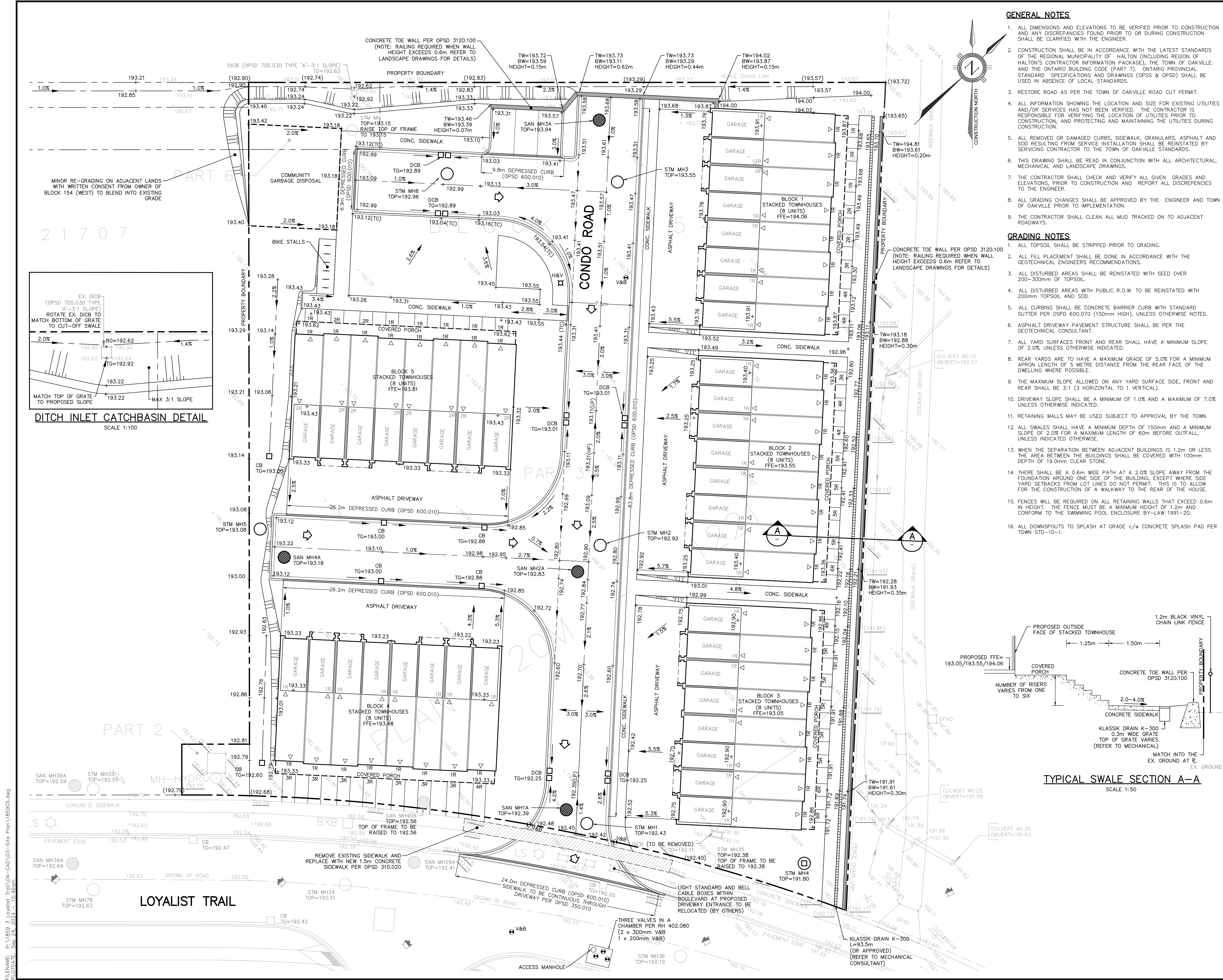
$$0.195 \text{ m}^3/\text{s} = 195 \text{ L/s}$$

*ASSUME 50% BLOCKED

$$\frac{195 \text{ L/s}}{2} = 97.5 \text{ L/s}$$

$$100\% \text{ FLOW} = 42 \text{ L/s}$$

APPENDIX 'F'

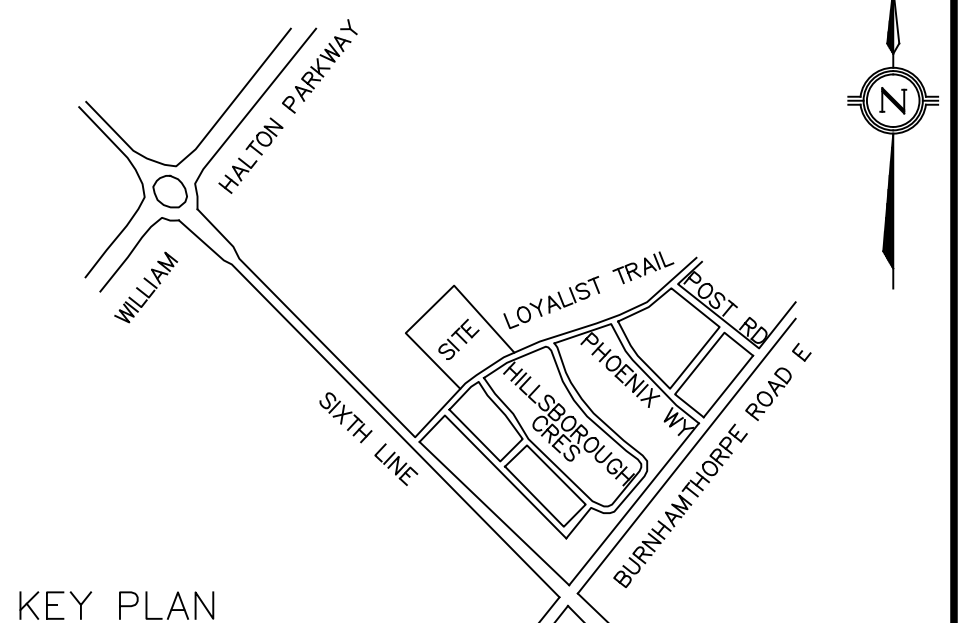
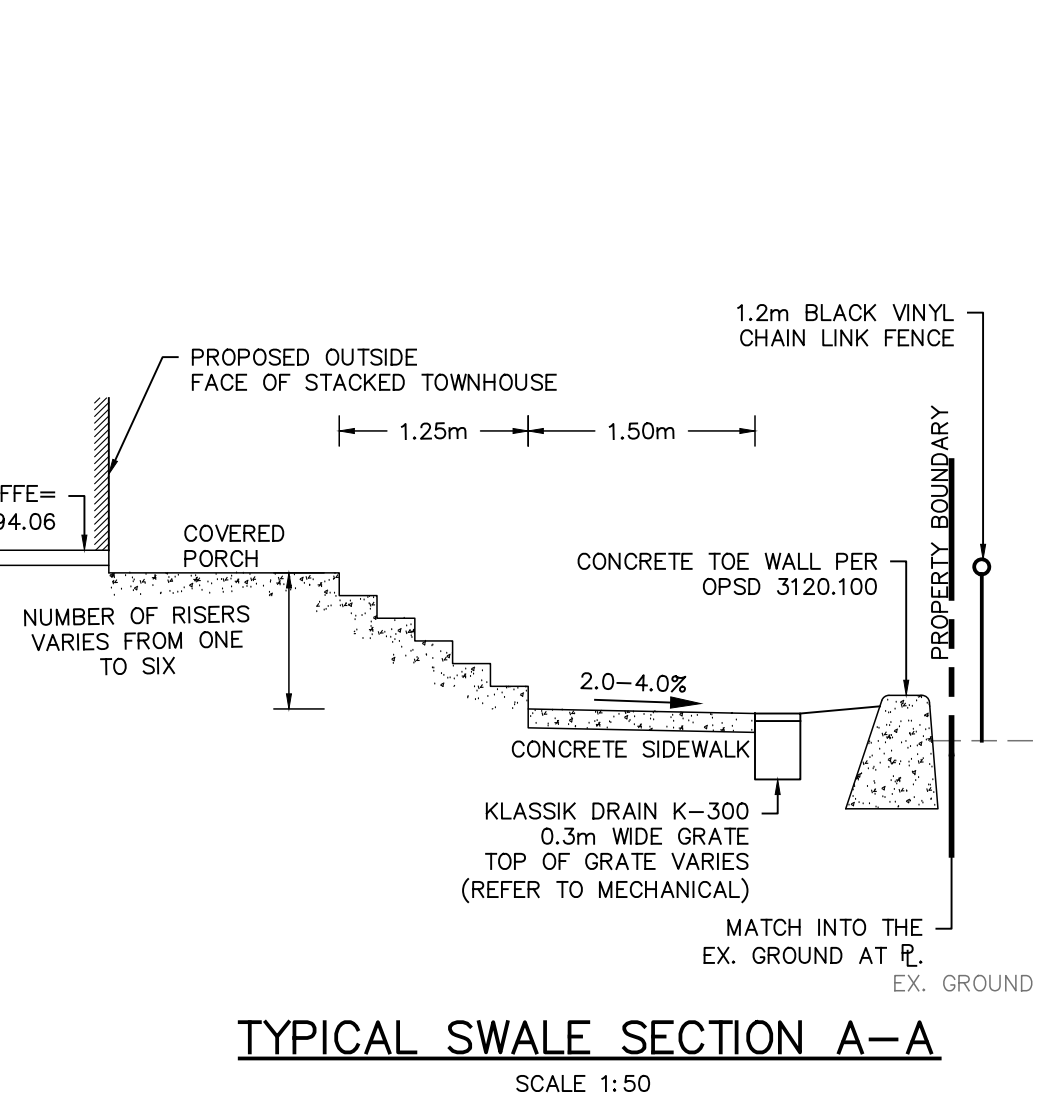
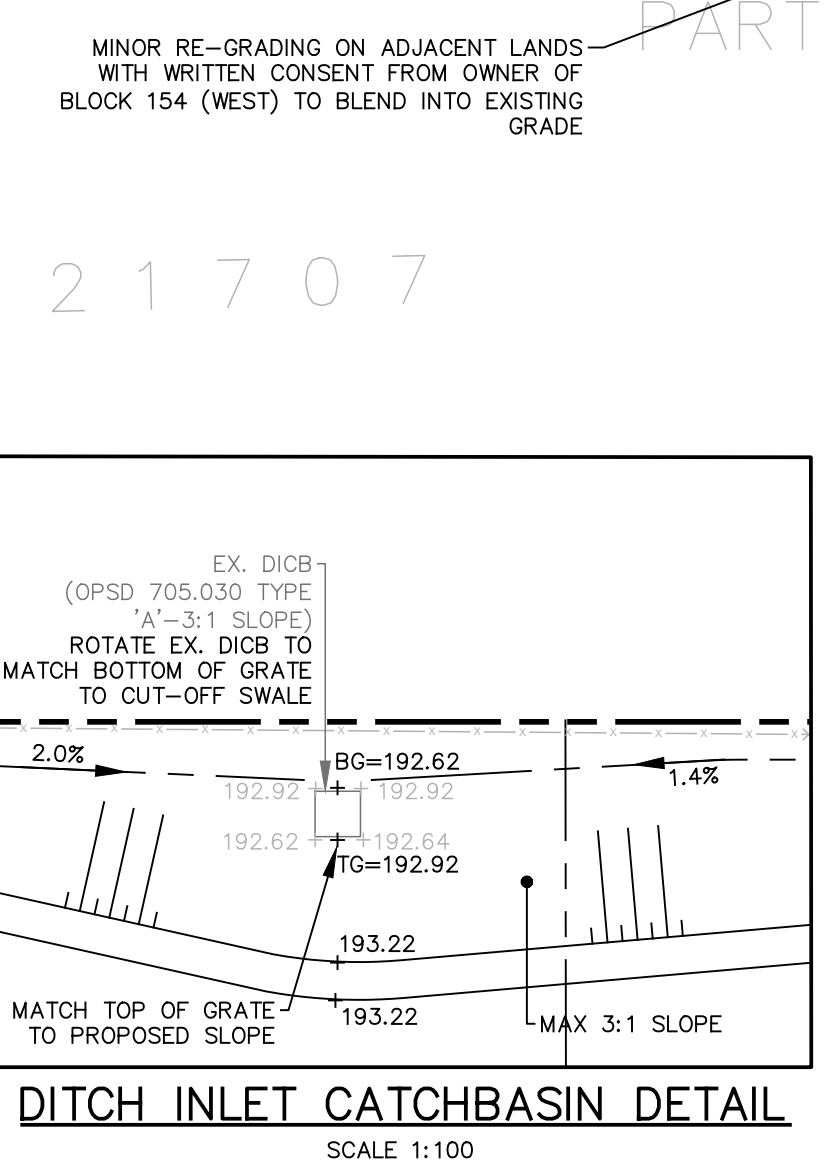


GENERAL NOTES

1. ALL DIMENSIONS AND ELEVATIONS TO BE VERIFIED PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES FOUND PRIOR TO OR DURING CONSTRUCTION SHALL BE CLARIFIED WITH THE ENGINEER.
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS OF THE REGIONAL MUNICIPALITY OF HALTON (INCLUDING REGION OF HALTON'S CONTRACTOR INFORMATION PACKAGE), THE TOWN OF OAKVILLE, AND THE ONTARIO BUILDING CODE (PART 7). ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS & OPSD) SHALL BE USED IN ABSENCE OF LOCAL STANDARDS.
3. RESTORE ROAD AS PER THE TOWN OF OAKVILLE ROAD CUT PERMIT.
4. ALL INFORMATION SHOWING THE LOCATION AND SIZE FOR EXISTING UTILITIES AND/OR SERVICES HAS NOT BEEN VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF UTILITIES PRIOR TO CONSTRUCTION, AND PROTECTING AND MAINTAINING THE UTILITIES DURING CONSTRUCTION.
5. ALL REMOVED OR DAMAGED CURBS, SIDEWALKS, GRANULARS, ASPHALT AND SOIL RESULTING FROM SERVICE INSTALLATION SHALL BE REINSTATED BY SERVICING CONTRACTOR TO THE TOWN OF OAKVILLE STANDARDS.
6. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND LANDSCAPE DRAWINGS.
7. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADES AND ELEVATIONS, PRIOR TO CONSTRUCTION AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
8. ALL GRADING CHANGES SHALL BE APPROVED BY THE ENGINEER AND TOWN OF OAKVILLE PRIOR TO IMPLEMENTATION.
9. THE CONTRACTOR SHALL CLEAN ALL MUD TRACKED ON TO ADJACENT ROADWAYS.

GRADING NOTES

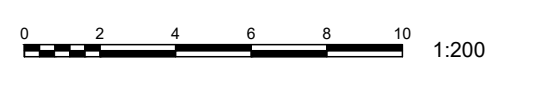
1. ALL TOPSOIL SHALL BE STRIPPED PRIOR TO GRADING.
2. ALL FILL PLACEMENT SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL DISTURBED AREAS SHALL BE REINSTATED WITH SEED OVER 200-300mm OF TOPSOIL.
4. ALL DISTURBED AREAS WITH PUBLIC R.O.W. TO BE REINSTATED WITH 200mm TOPSOIL AND SOD.
5. ALL CURBING SHALL BE CONCRETE BARRIER CURB WITH STANDARD GUTTER PER OPSD 600.070 (150mm HIGH), UNLESS OTHERWISE NOTED.
6. ASPHALT DRIVEWAY PAVEMENT STRUCTURE SHALL BE PER THE GEOTECHNICAL CONSULTANT.
7. ALL YARD SURFACES FRONT AND REAR SHALL HAVE A MINIMUM SLOPE OF 2.0% UNLESS OTHERWISE INDICATED.
8. REAR YARDS ARE TO HAVE A MAXIMUM GRADE OF 5.0% FOR A MINIMUM APRON LENGTH OF 5 METRE DISTANCE FROM THE REAR FACE OF THE DWELLING WHERE POSSIBLE.
9. THE MAXIMUM SLOPE ALLOWED ON ANY YARD SURFACE SIDE, FRONT AND REAR SHALL BE 3:1 (3 HORIZONTAL TO 1 VERTICAL).
10. DRIVEWAY SLOPE SHALL BE A MINIMUM OF 1.0% AND A MAXIMUM OF 7.0% UNLESS OTHERWISE INDICATED.
11. RETAINING WALLS MAY BE USED SUBJECT TO APPROVAL BY THE TOWN.
12. ALL SWALES SHALL HAVE A MINIMUM DEPTH OF 150mm AND A MINIMUM SLOPE OF 2.0% FOR A MAXIMUM LENGTH OF 60m BEFORE OUTFALL, UNLESS INDICATED OTHERWISE.
13. WHEN THE SEPARATION BETWEEN ADJACENT BUILDINGS IS 1.2m OR LESS THE AREA BETWEEN THE BUILDINGS SHALL BE COVERED WITH 100mm DEPTH OF 19.0mm CLEAR STONE.
14. THERE SHALL BE A 0.6m WIDE PATH AT A 2.0% SLOPE AWAY FROM THE FOUNDATION AROUND ONE SIDE OF THE BUILDING, EXCEPT WHERE SIDE YARD SEBACKS FROM LOT LINES DO NOT PERMIT. THIS IS TO ALLOW FOR THE CONSTRUCTION OF A WALKWAY TO THE REAR OF THE HOUSE.
15. FENCES WILL BE REQUIRED ON ALL RETAINING WALLS THAT EXCEED 0.6m IN HEIGHT. THE FENCE MUST BE A MINIMUM HEIGHT OF 1.2m AND CONFORM TO THE SWIMMING POOL ENCLOSURE BY-LAW 1991-23.
16. ALL DOWNSPOUTS TO SPLASH AT GRADE c/w CONCRETE SPLASH PAD PER TOWN STD-10-1.



LEGEND

- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- PROPOSED CURB STOP
- PROPERTY BOUNDARY
- +94.55 EXISTING ELEVATION
- +94.55 EXISTING ELEVATION TO REMAIN
- +94.55 EXISTING INTERPOLATED ELEVATION TO REMAIN
- +94.55 PROPOSED FINISHED ELEVATION
- +94.55 PROPOSED FINISHED ELEVATION
- 2% PROPOSED DRAINAGE DIRECTION
- PROPOSED SWALE DRAINAGE DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED SLOPE

NOT FOR CONSTRUCTION



NO.	DATE	BY/DRAWN	ISSUED FOR
1	24/09/24	AJP	ISSUED FOR ZBA/OPA

BENCHMARK
 ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE TOWN OF OAKVILLE VERTICAL BENCH MARK NUMBER 290 HAVING AN ORTHOMETRIC ELEVATION OF 174.661 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928/1978).
 SURVEY COMPLETED BY R-PE SURVEYING LTD. DATED APRIL 13TH, 2023.

NOTE
 SITE PLAN PREPARED BY HUNT DESIGN ASSOCIATES INC.

DESIGNED BY

APPROVED BY

TRAFALGAR ENGINEERING
 81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
 www.trafalgareng.com

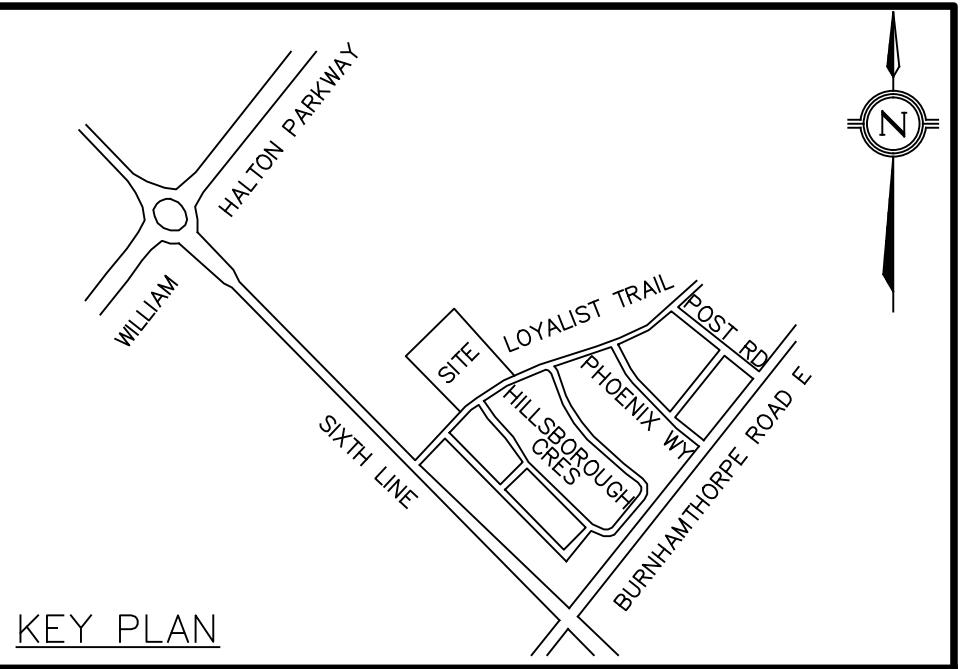
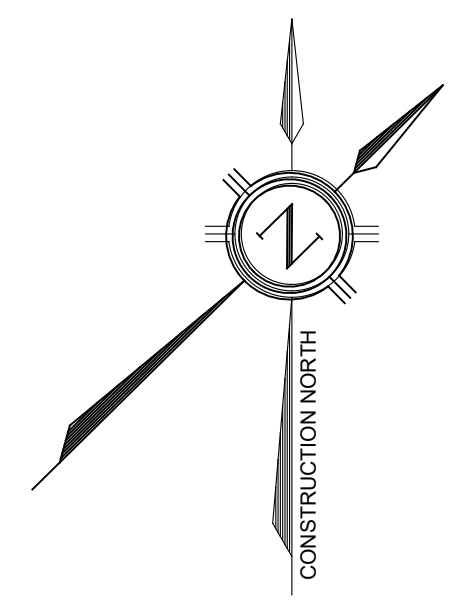
PROJECT TITLE
 BLOCK 154 (EAST SIDE) STACKED TOWNHOUSE BLOCKS

LOCATION
 15 LOYALIST TRAIL OAKVILLE, ONTARIO

DRAWING TITLE
 GRADING PLAN

SCALE	1:200	DESIGN BY	AJP	PROJECT No.	1859
DRAWN BY	AJP	CHECKED BY	PC/JN	PLAN No.	G1
DATE	24/08/24	SHEET	1 OF 3		

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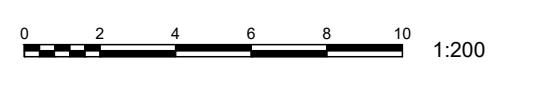
LEGEND

- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- PROPOSED PLUG
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE WITH CURB STOP
- PROPERTY BOUNDARY

SERVICING NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS OF THE REGIONAL MUNICIPALITY OF HALTON INCLUDING REGION OF HALTON CONTRACTOR INFORMATION PACKAGE, TOWN OF OAKVILLE AND THE ONTARIO BUILDING CODE (PART 7). ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS & OPSD) SHALL BE USED IN ABSENCE OF LOCAL STANDARDS.
2. ALL SERVICES SHALL BE BACKFILLED WITH APPROVED NATIVE BACKFILL COMPACTED TO 98% S.P.M.D. BEDDING AND COVER MATERIAL SHALL BE PER THE APPLICABLE OPSD.
3. SERVICE TRENCH RESTORATION WITHIN MUNICIPAL ROAD ALLOWANCE SHALL BE PER TOWN STD.
4. WATER SERVICE TO BE COPPER 25mm DIAMETER TYPE 'K' SOFT COPPER TUBING.
5. SANITARY CONNECTION TO BE PVC SDR 28 125mm DIAMETER @ 2% OR AS NOTED.
6. STORM DRAINAGE PIPE TO BE PVC SDR 35, SIZE AND SLOPE AS SHOWN.
7. SANITARY LATERAL INVERT TO BE CONFIRMED PRIOR TO FOUNDATION CONSTRUCTION.

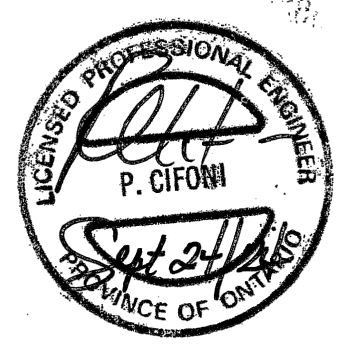
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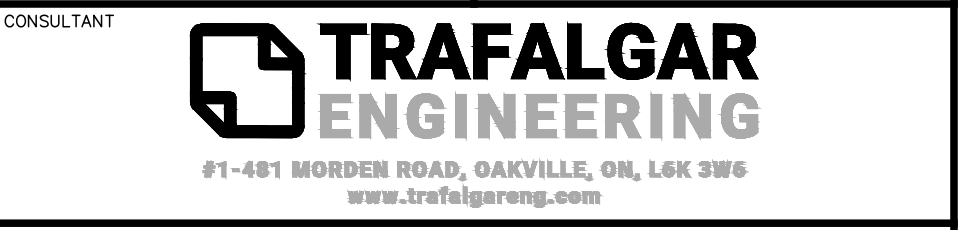
NO.	DATE	BY/DRAWN	REVISIONS
1	24/09/24	AJP	ISSUED FOR ZBA/OPA

BENCHMARK
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SURVEY COMPLETED BY R-PE SURVEYING LTD. DATED APRIL 13th, 2023.

NOTE
SITE PLAN PREPARED BY HUNT DESIGN ASSOCIATES INC.



DESIGNED BY: [Signature] APPROVED BY: [Signature]

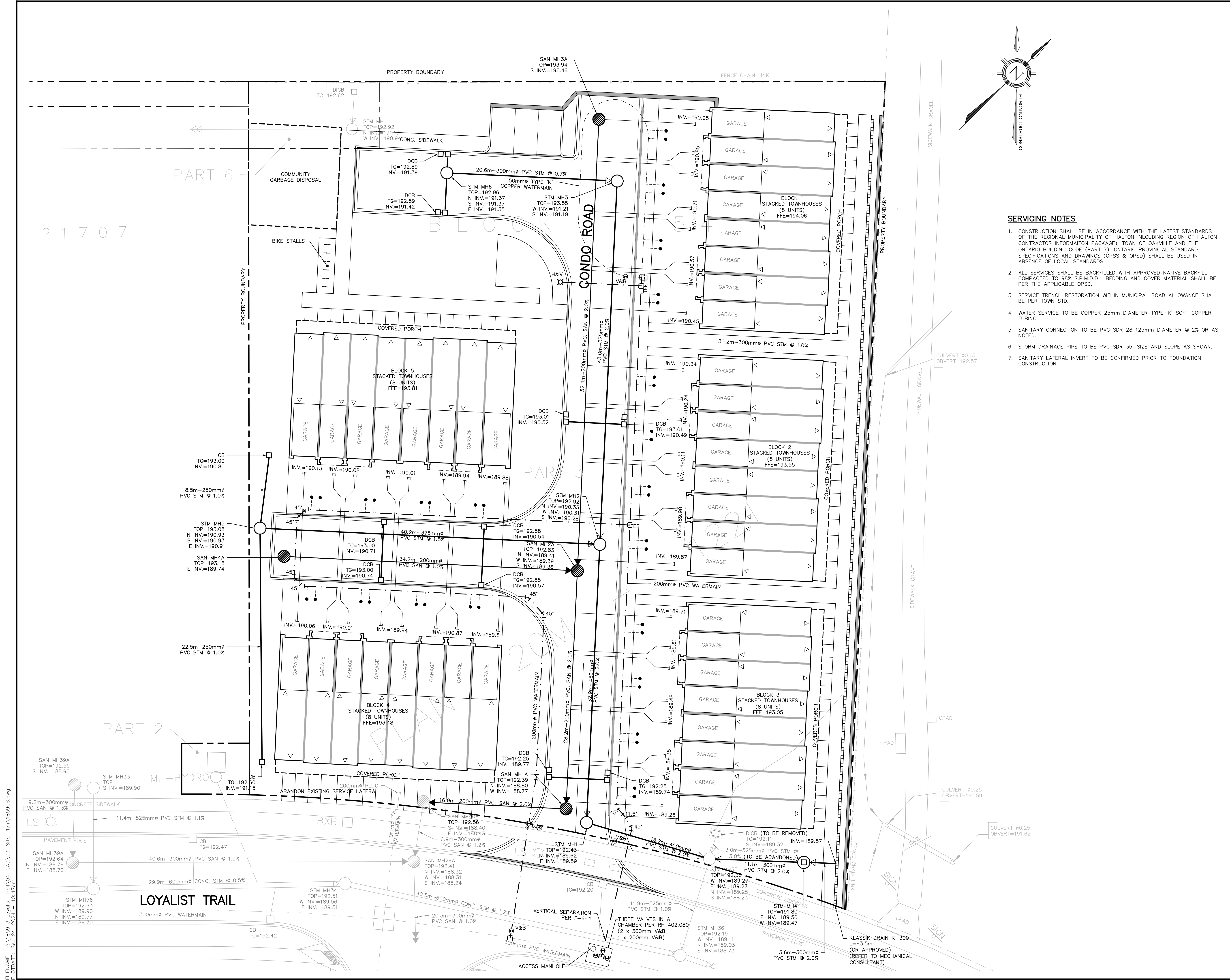


PROJECT TITLE
BLOCK 154 (EAST SIDE) STACKED TOWNHOUSE BLOCKS

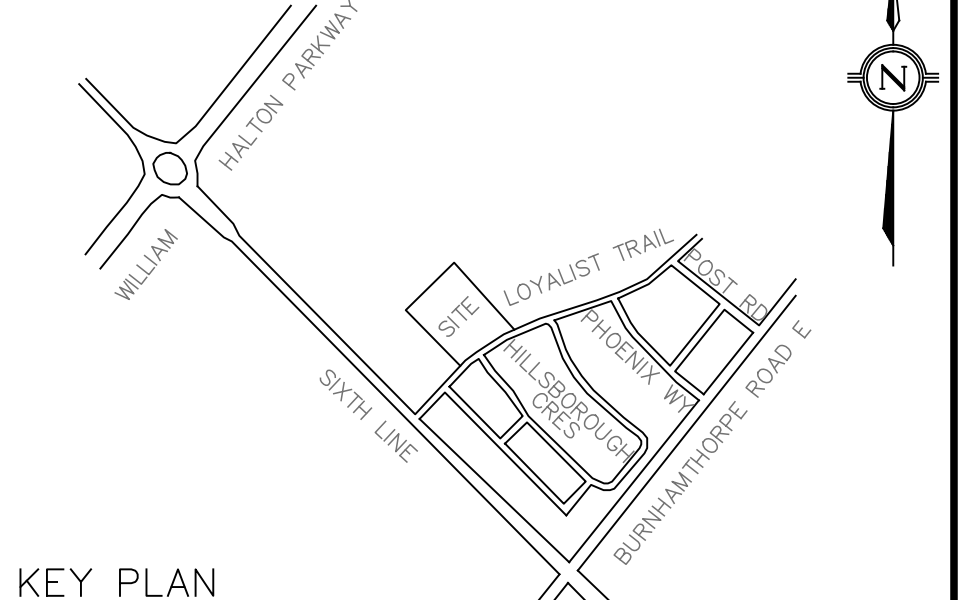
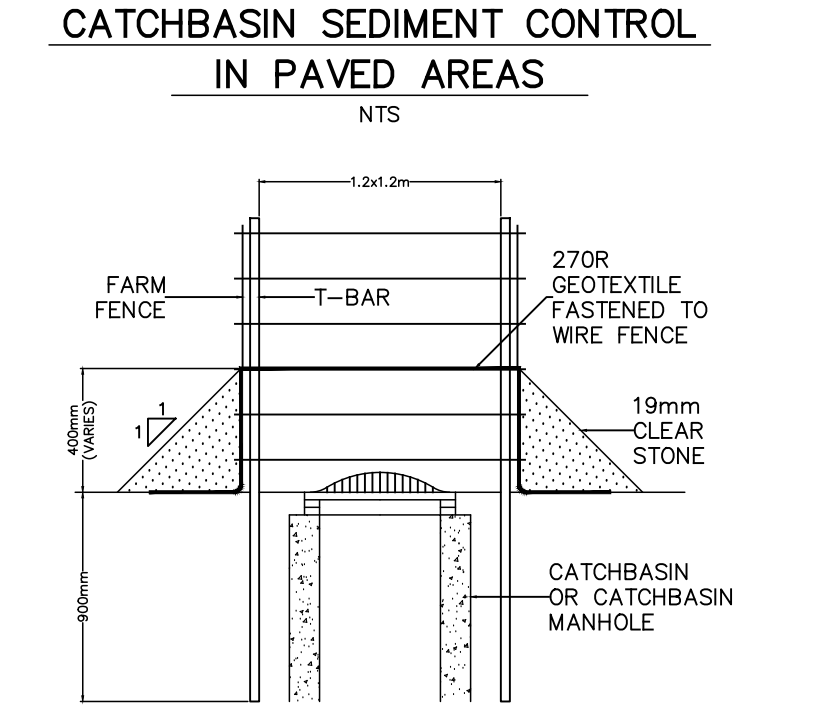
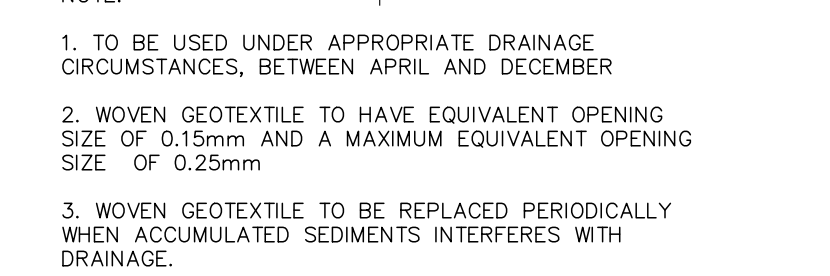
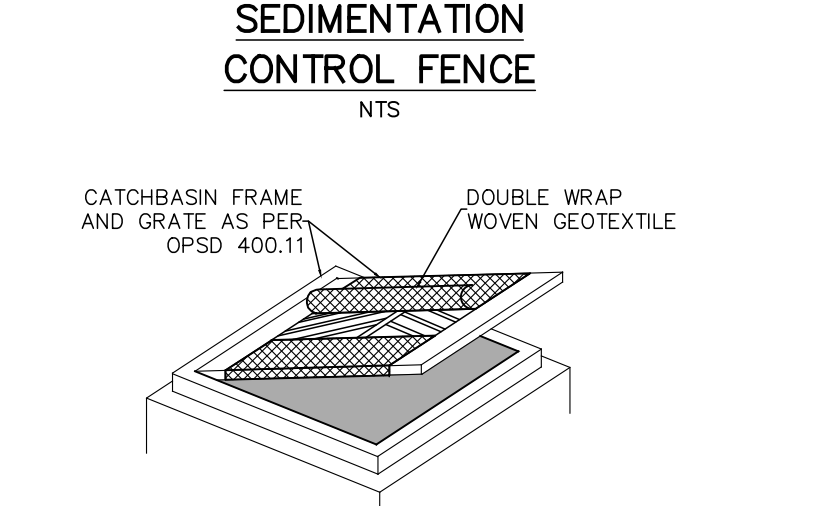
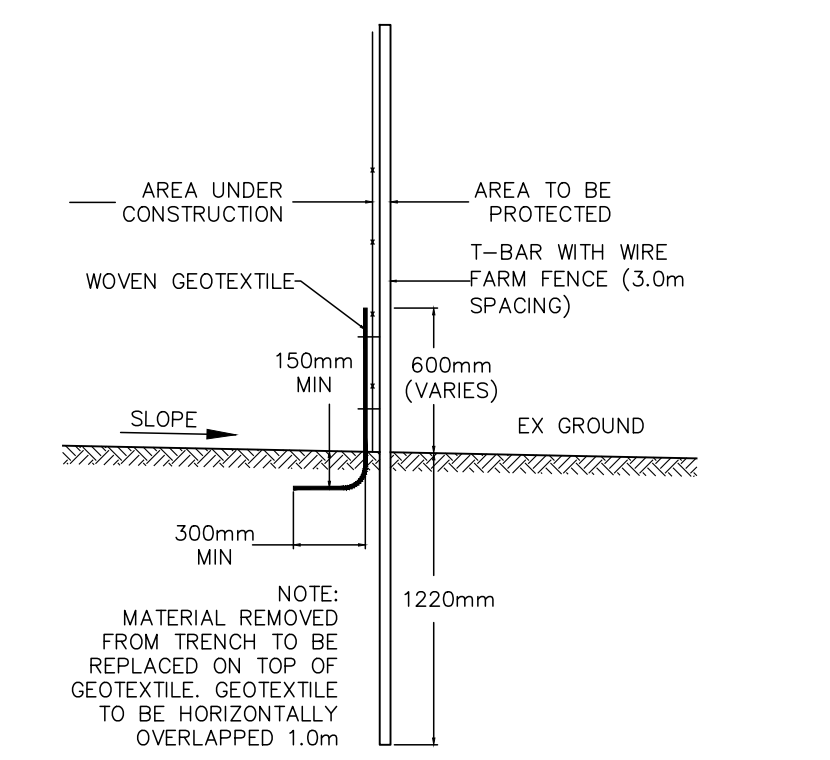
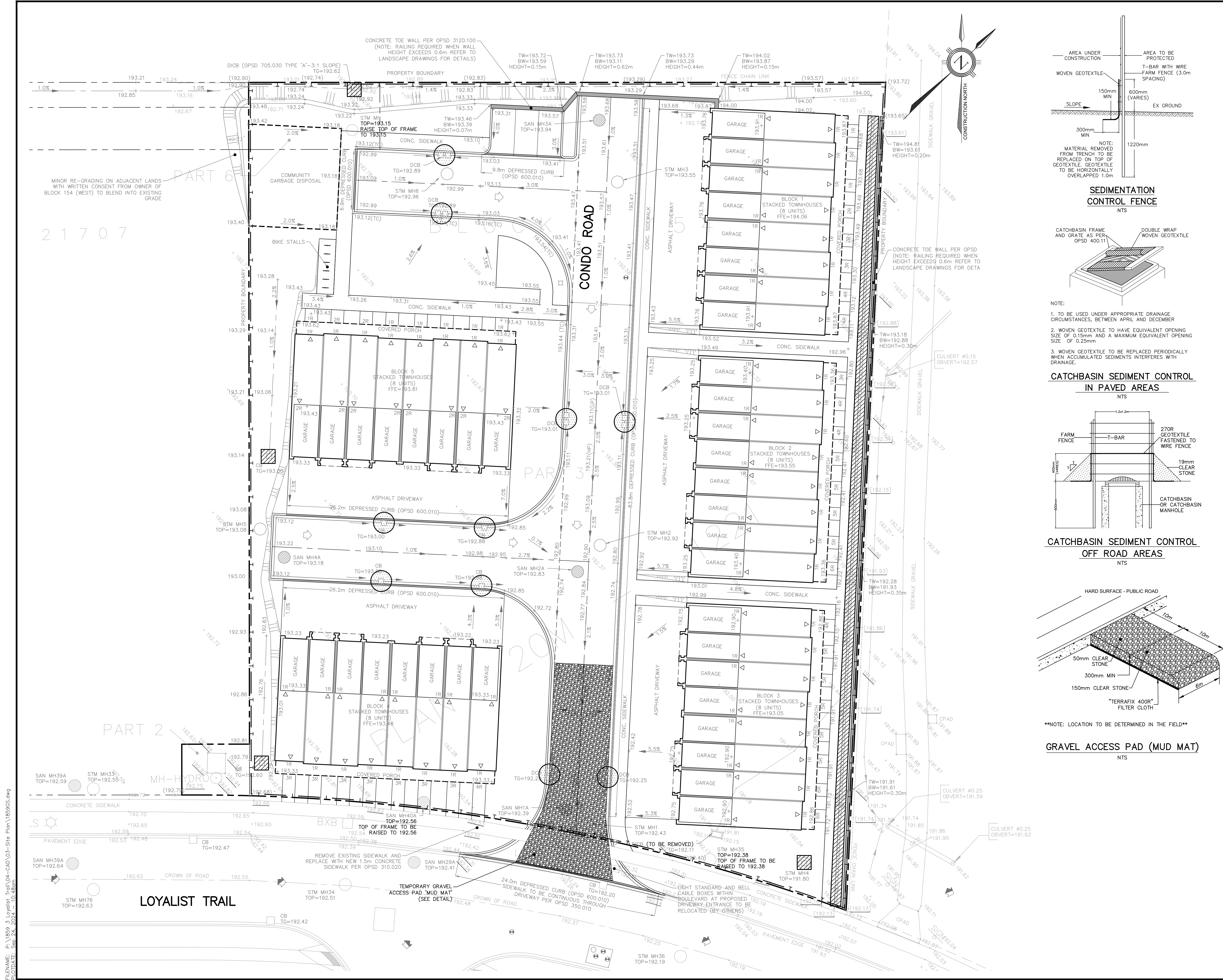
LOCATION
15 LOYALIST TRAIL
OAKVILLE, ONTARIO

DRAWING TITLE
SERVICING PLAN

SCALE	1:200	DESIGN BY	AJP	PROJECT No.	1859
DRAWN BY	AJP	CHECKED BY	PC/JN	PLAN No.	S1
DATE	24/08/12	SHEET	2 OF 3		

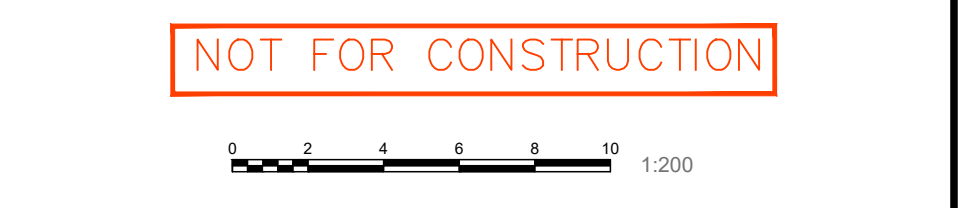


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- LEGEND**
- PROPOSED CATCHBASIN
 - PROPOSED DOUBLE CATCHBASIN
 - PROPOSED STORM MANHOLE
 - PROPOSED SANITARY MANHOLE
 - PROPOSED FIRE HYDRANT
 - PROPOSED VALVE & BOX
 - PROPOSED CURB STOP
 - PROPERTY BOUNDARY
 - + 94.55 EXISTING ELEVATION
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 - 2% PROPOSED DRAINAGE DIRECTION
 - PROPOSED SWALE DRAINAGE DIRECTION
 - ⇨ PROPOSED OVERLAND FLOW DIRECTION
 - ⇨ EXISTING OVERLAND FLOW DIRECTION
 - PROPOSED SLOPE

- EROSION AND SEDIMENT CONTROL LEGEND**
- SEDIMENT CONTROL CB IN PAVED AREAS
 - ▨ SEDIMENT CONTROL CB IN LANDSCAPED AREA
 - T — SEDIMENT CONTROL FENCE
 - ▨ MUD MAT



1	24/09/24	AJP	ISSUED FOR ZBA/OPA
NO.	DATE	BY/DRAWN	REVISIONS
CAD FILE: 1859GS.dwg PLOT SCALE: 1:1 PLOT DATE: Sep 24, 2024			

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DESIGNED BY

APPROVED BY

CONSULTANT

81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
 www.trafalgareng.com

PROJECT TITLE
 BLOCK 154 (EAST SIDE)
 STACKED TOWNHOUSE BLOCKS

LOCATION
 15 LOYALIST TRAIL
 OAKVILLE, ONTARIO

DRAWING TITLE
 EROSION AND SEDIMENT
 CONTROL PLAN

SCALE	1:200	DESIGN BY	AJP	PROJECT No.	1859
DRAWN BY	AJP	CHECKED BY	PC/JN	PLAN No.	E1
DATE	24/08/24	SHEET	3 OF 3		

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