



To: Jacob Katz, Litera Group
From: Tony Dang and Monica Ruiz – TYLin
c.c. Dave Ailles, York Developments; Dan Ridgeway, MBTW-WAI
Date: June 12th, 2023
Re: **The Beaverbrook Community, London, Ontario**
323 Oxford Street West, 92 Proudfoot Lane, 825 Proudfoot Lane
Functional Servicing and Stormwater Management Report Addendum

TECHNICAL MEMORANDUM

1 INTRODUCTION

TYLin International Canada Inc. (TYLin), previously The Municipal Infrastructure Group Ltd., prepared a Functional Servicing Report (FSR), dated June 2021, for the proposed Beaverbrook Community residential development located at 323 Oxford Street West, 92 Proudfoot Lane and 825 Proudfoot Lane, in London, Ontario. The three properties are located adjacent to each other and are collectively referred to herein as the 'Beaverbrook Lands' or 'the site'.

The site covers approximately 37 ha and is bounded by Oxford Street West to the south, Canadian Pacific Railway to the north, and commercial / residential development to the west and east (**Figure 1-1**). Mud Creek flows through the centre of the site and receives storm water discharges from the surrounding development.

The June 2021 FSR was submitted to the City of London in support of the Final Proposal Report submission by MBTW-WAI in August 2021. Since then, revisions to the Draft Plan (**Attachment A**) were completed and an addendum to the June 2021 FSR is necessary to address changes that fundamentally impact the grading and servicing plans. The 2023 Beaverbrook Community resubmission comprises a coordinated set of revisions in response to comments received from the City of London and various agencies throughout 2022, as well as multiple working meetings and site walks with City staff and the UTRCA, and some design considerations led by the applicant.

As seen in **Attachment B** (2021 to 2023 Draft Plan Comparison), the major changes to the Draft Plan include the road alignment of Street A and Street B, various road dimensions and geometries, revisions to the size and dimensions of the Neighbourhood Park (Block 10), and the separation of the original Block 8 into a developable and environmental block (Block 7 and Block 8, respectively). Revisions to the Draft Plan were also driven by three design considerations. The first design consideration includes combining original Block 1 and 2 into one rapid transit corridor



development block. The second includes the separation of the multi-use pathway adjacent to the channel into a dedicated Open Space / Trail Block or within the Park Block. The third includes squaring off of the original Block 3 (now Block 2) in order to add a northern portion to Park Block 9. Additionally, Park Block 9 was re-envisioned, with direction from the City, to provide community garden spaces as part of compensation efforts and community benefits. In addition, the revised Draft Plan includes an increase in the unit count to represent higher density targets which are primarily focused on the rapid transit corridor development (Block 1) and blocks covered by the remnant High Density Overlay. This addendum to the 2021 FSR is part of the 2023 Beaverbrook Community resubmission package and discusses changes to the original functional grading and servicing plans to support the application and proposed development.

Many of the June 2021 FSR sections remain valid and previous analyses that were not fundamentally impacted by the 2023 Draft Plan revisions were not changed. This recognizes that the City informed the applicant (through working Draft Plan Conditions – dated October 11, 2022) that detailed plans shall be completed through Focused Design Studies and therefore, analyses or information that shall be covered under the Focus Design Studies were not completed for this addendum. To assist with the review of this addendum, the report section headings from the 2021 FSR were maintained. At the beginning of each section from the 2021 FSR, a brief summary is provided to inform whether the section was updated or revised.

Figure 1-1 Site Location



1.1 Background Information

The following background information was updated since the 2021 FSR submission and was reviewed in preparation for this addendum.

- ▶ Draft Plan and development concept prepared by MBTW-WAI, June 2023 (**Attachment 1**) As the blocks have been renumbered and unit counts have been recalculated, please refer to the enclosed 2021 to 2023 Draft Plan Comparison Figure prepared by MBTW-WAI (**Attachment 2**). For text which remain valid in the June 2021 FSR, references to Block numbers should be compared against this document for a wholesome understanding of the development. Unless otherwise specified, all references in this memorandum are made using the updated Draft Plan Block numbers (**Attachment 1**).

2 EXISTING CONDITIONS

The existing conditions information from the June 2021 FSR remains valid.

3 PROPOSED CONDITIONS

3.1 Mud Creek Realignment

The Mud Creek realignment concept presented in the June 2021 FSR remains valid, recognizing that design revisions for the downstream channel connection to the future Oxford Street crossing are currently underway.

3.2 Development Plan

The updated development plan for the site includes the proposed Mud Creek realignment, seven blocks of medium to high density residential, parkland, and road network (**Attachment 1**). The key roads, Beaverbrook Avenue and Westfield Drive extensions, have maintained the same alignment, but the Westfield Drive extension increased from a 20m right-of-way to a 23m right-of-way. The two neighbourhood streets currently named "Street A" and "Street B" have been slightly realigned and the resulting servicing and grading changes have been accommodated.

The concept plan for parkland in Block 10 has been advanced since the June 2021 FSR. As per discussion with the City for the parkland concept, a preliminary grading plan was developed for the park concept to ensure that the grading is suitable for park amenities (**Section 5.2**).

This FSR addendum addresses the revised subdivision works to support the development blocks, such as sanitary, water and stormwater infrastructure for the site within the right of way. Development within each block will be advanced through site plan applications, thus site-specific (private) grading, servicing and stormwater management is not provided.

4 MUD CREEK REALIGNMENT

The Mud Creek realignment concept presented in the June 2021 FSR remains valid, recognizing that design revisions for the downstream channel connection to the future Oxford Street crossing are currently underway.

5 PRELIMINARY GRADING

The preliminary site grading plan was updated as part of this FSR addendum and is shown on the

enclosed drawings **GR1 to GR4 (Attachment 4)**. In general, the grading plan was updated to confirm functional design of the Block 10 park concept, revised public road network, overland flow from the development blocks, and connections to surrounding lands.

5.1 Proposed Road Grading

Street A and Street B while being regraded to accommodate the realignment, have maintained the same grading strategy implemented in the June 2021 FSR.

5.2 Proposed Site Grading

The Block 10 park grading design was updated based on the conceptual park design within the Block, including matching existing grades at the edge of the woodland identified in the Environmental Impact Study (EIS) (updated in 2023 by MTE). Slopes of 3H:1V are required in some locations surrounding the park to maintain the existing grading in the woodland and to provide drainage to Street B from the programmable parklands. A catchbasin is proposed to convey minor storm flows from a low area remaining from an existing branch of Mud Creek through Block 10. A storm, sanitary and water connection was also added to Block 10 to service the programmable area of the park block.

Block 6 no longer directs the storm and sanitary servicing through the park block to reduce the disturbance through the woodland that will be preserved in Block 10. The Block 6 storm servicing is instead routed north to Beaverbrook Avenue and outlets ultimately into the upstream end of Mud Creek. Block 6 sanitary servicing flows west to the existing Proudfoot Lane sanitary sewer. Block 6 was elevated with 3H:1V slope along the west, south and east property lines to accommodate adequate cover for both sanitary and storm servicing changes.

6 STORMWATER MANAGEMENT AND SERVICING

The stormwater management strategy, criteria and analyses from the 2021 FSR remains valid.

7 SANITARY SERVICING

7.1 Proposed Sanitary Servicing

The proposed servicing plan for the Beaverbrook Lands is found on **Drawings S-1 to S-4 (Attachment 4)**. Road cross sections at select locations are provided in **Drawing TYP-1**. The road cross section for Westfield Drive has been revised to reflect the requested 23.0m right of way. Sanitary alignment within the proposed ROWs were designed using the London Complete

Streets Design Manual (August 2018). Beaverbrook Avenue is designed according to Section 4.6 – Neighbourhood Connector, and Street A and Street B are designed according to Section 4.7 – Neighbourhood Street. Design calculations and other supporting figures are provided in **Attachment 3**.

7.1.1 Sanitary Sewer Realignment

The proposed realignment for the local 300 mm sanitary sewer from the east of the site south of Westfield Drive, has been shifted north to reduce the size of the servicing easement needed for Block 1. The easement and servicing changes have been updated in the drawings in **Attachment 4** for reference.

7.1.2 Proposed Sanitary Flows

The updated Draft Plan included a mix of residential densities with a total of 3,817 residential units in comparison to the 3,462 residential units present in the June 2021 FSR (which included the possibility of 25% bonus density on high density blocks). The updated drainage areas and populations for the proposed sanitary sewers are summarized in **Table 7-1**. Sanitary design sheets and external drainage area plans are enclosed in **Attachment 3**.

As discussed in **Section 5.2**, the Block 6 sanitary servicing is routed west to the existing Proudfoot Lane sanitary sewer. A stub was left at this location during the construction of the sanitary sewer on Proudfoot Lane and per the as-built sanitary drainage plan (Drawing No. 8671 by Proctor & Redfern Ltd., November 1977) allocates flows for a total population of 1776. While the proposed total population for Blocks 6 and 7 is 1837 and exceeds the allocated 1776 population for the existing stub at Block 6, the design flows for the existing stub are higher than the proposed contributing flows. This is due to the reduction in per capita sanitary flow since the original design. In the absence of both the design criteria used in 1977 and the flow from the design sheet, we have compared flows from the as-built sewer design sheet (Drawing No. 8671A) using a separate sewer as a proxy. This proxy has a population of 1869 which generated a flow of 30.3 L/s (1.07 c.f.s.) in the as-built sewer design sheet. This is significantly higher than the 20.9 L/s proposed from Blocks 6 and 7 having a population of 1837 calculated using the City of London criteria dated March 2022. The as-built sanitary drainage plan and sewer design sheet have been enclosed in **Attachment 5**.

This servicing strategy required the regrading of Block 6 to accommodate sufficient cover on the future private sanitary servicing. A sanitary connection was also added to Block 10 from Street B to service the programmable area of the park (Block 10).

Table 7-1 Contributing Sanitary Areas and Population to Existing Sanitary Sewer

| Location | Population | Area (ha) |
|---|------------|-----------|
| Proposed Blocks 1, and 2 to realigned trunk sewer on Beaverbrook Avenue extension | 3469 | 12.32 |
| Proposed Blocks 3, 4, and 5 to existing trunk sewer on Oxford Street West | 1048 | 6.47 |
| Proposed Block 6 and 7 to existing 450 mm sewer on Proudfoot Lane | 1837 | 5.1 |

8 WATER SERVICING

The water servicing strategy from the 2021 FSR remains valid.

9 IMPLEMENTATION STRATEGY

9.1 Phasing

The phasing strategy for the proposed infrastructure from the 2021 FSR remains valid. The phasing plan shall be further reviewed and revised as needed during detailed design.

9.2 Recommended Detailed Design Analysis

The approach and functional design for a realigned Mud Creek Valley, grading plan, stormwater management, and servicing for the site will be refined through the Focused Design Studies as indicated by working Draft Plan Conditions (dated October 11, 2022) provided by the City of London, in addition to the technical assessments and design specifications recommended in the 2021 FSR.

9.3 Development Charge Eligibility

TYLin is in the process of developing a work plan to discuss the Development Charge eligible works and their associated costs with more detail. This will be submitted to the City of London under a separate cover for review and comment.



10 CLOSING

We trust that the analysis and findings summarized herein provide sufficient details necessary to support application for the proposed development. Please contact the undersigned should you have any questions.

Sincerely,

T.Y. LIN INTERNATIONAL CANADA INC.



Tony Dang, P.Eng.
Water Resources Engineer
tony.dang@tylin.com



Monica Ruiz, P.Eng.
Director of Development
monica.ruiz@tylin.com

ATTACHMENTS

Attachment 1 – Draft Plan (MBTW, June 8, 2023)

Attachment 2 – 2021 to 2023 Draft Plan Comparison Figure (MBTW, June 2023)

Attachment 3 – Storm and Sanitary Design Sheets

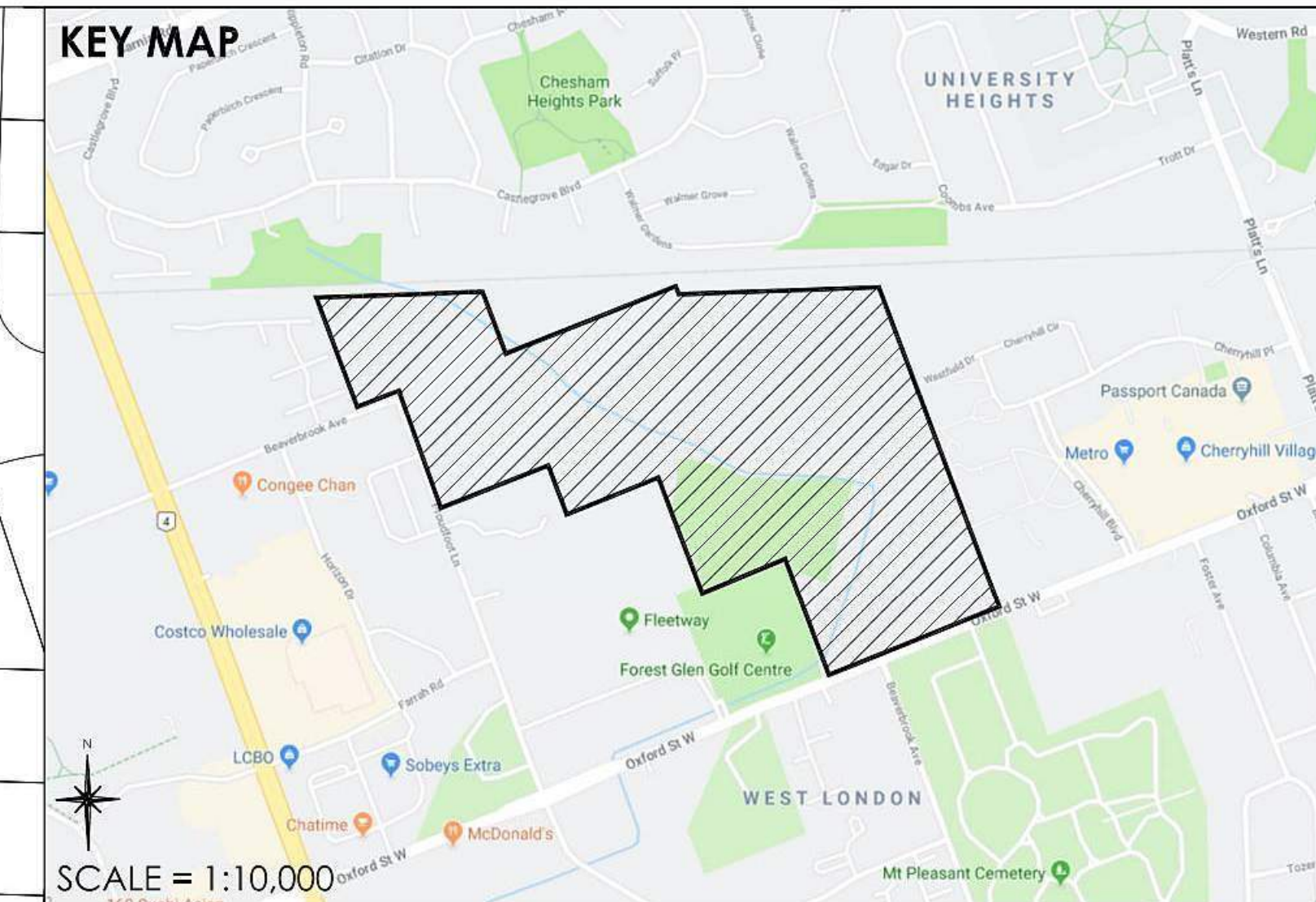
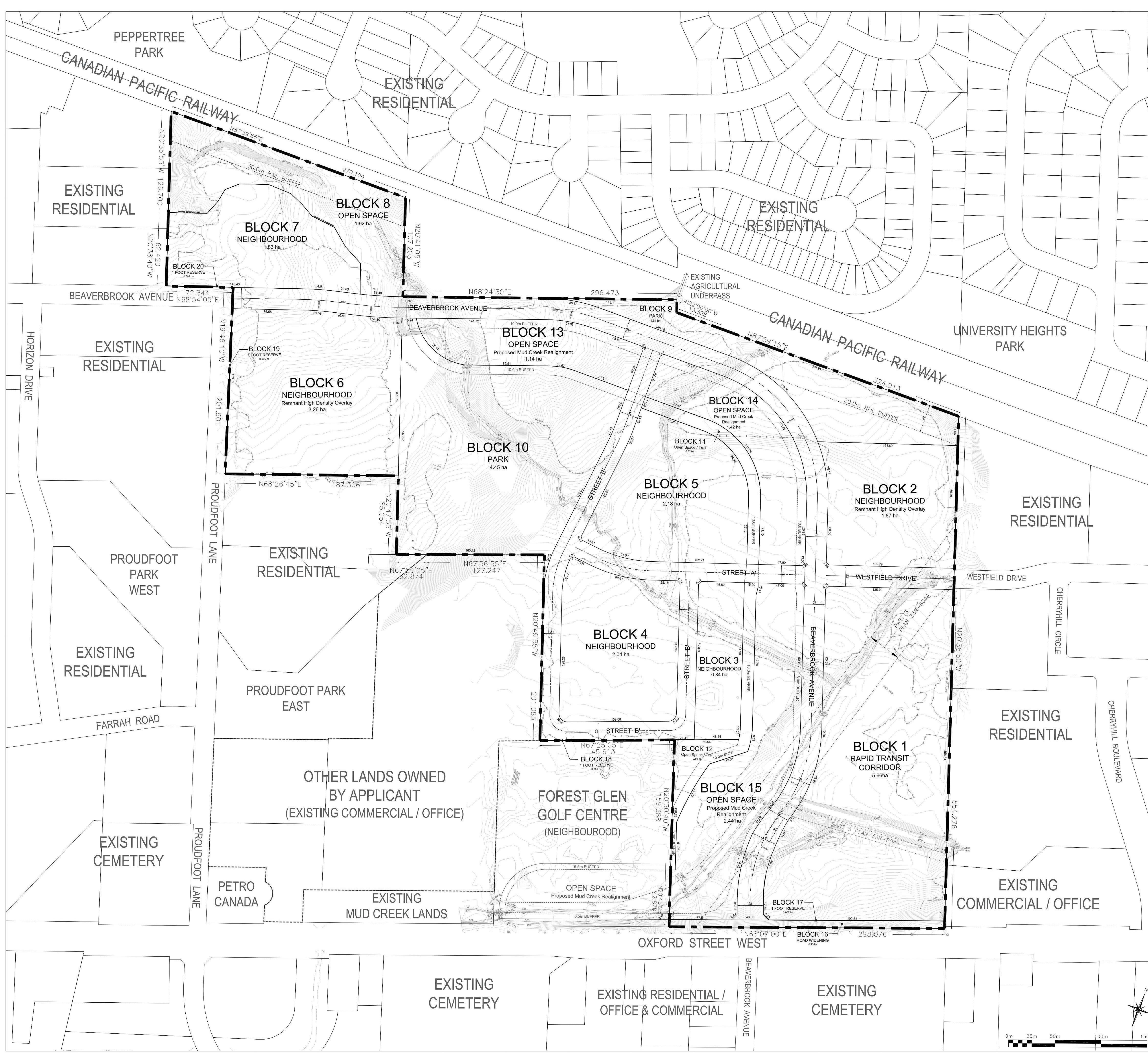
Attachment 4 – FSR Drawings

Attachment 5 – Proudfoot Lane Sanitary As-Built Drawings

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ATTACHMENT 1

Draft Plan (MBTW, June 8, 2023)



DRAFT PLAN OF SUBDIVISION
 File No. 39187009
 PART OF LOT 19, CONCESSION 2
 CITY OF LONDON
 COUNTY OF MIDDLESEX

OWNER'S CERTIFICATE
 I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE MBTW GROUP TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE CITY OF LONDON FOR APPROVAL.

DATE: _____
 Sam Katz Developments Ltd.

SURVEYOR'S CERTIFICATE
 I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____
 MTE Ontario Land Surveyors Ltd.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT

| | |
|----------------------|---------------------------|
| a) AS SHOWN | g) AS SHOWN |
| b) AS SHOWN | h) MUNICIPAL WATER SUPPLY |
| c) REFER TO KEY PLAN | i) CLAY, LOAM SOIL |
| d) AS SHOWN | j) AS SHOWN |
| e) AS SHOWN | k) MUNICIPAL SERVICES |
| f) AS SHOWN | l) AS SHOWN |

METRIC
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED _____ DAY OF _____ 20____ THIS DRAFT PLAN IS APPROVED UNDER SECTION 51 OF THE PLANNING ACT THIS _____ DAY OF _____ 20____.

STATISTICS

| PROPOSED LAND USE | BLOCK | UNITS | AREA (ha) |
|--------------------------------|-----------|--------------|----------------|
| Rapid Transit Corridor | 1 | 1,716 | 5.66ha |
| Neighbourhood (Remnant H.D.O.) | 2 | 452 | 1.87ha |
| Neighbourhood | 3 | 193 | 0.84ha |
| Neighbourhood | 4 | 134 | 2.04ha |
| Neighbourhood | 5 | 174 | 2.18ha |
| Neighbourhood | 6 | 782 | 3.26ha |
| Neighbourhood (Remnant H.D.O.) | 7 | 366 | 1.83ha |
| Park | 9-10 | - | 6.09ha |
| Open Space | 8, 11-15 | - | 7.80ha |
| Road Widening | 16 | - | 0.23ha |
| 1 Foot Reserve | 17-20 | - | 0.02ha |
| TOTAL | 20 | 3,817 | 31.82ha |

| ROADS | STREET | LENGTH | AREA (ha) |
|--------------|-------------------------------------|---------------|---------------|
| 20m ROW | A & B | 980m | 2.00ha |
| 23-24m ROW | Beaverbrook Avenue, Westfield Drive | 1,340m | 3.14ha |
| TOTAL | | 2,320m | 5.14ha |

TOTAL 36.96ha

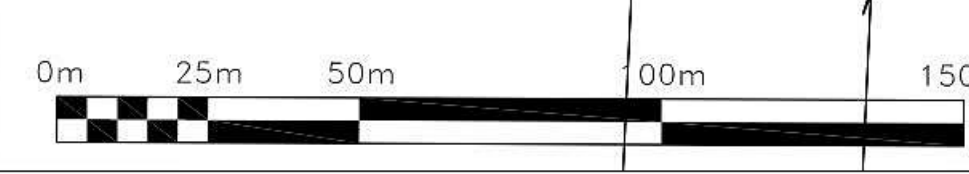
| Revision # | Description | Date |
|------------|---|-------------------|
| 1 | Revised to reflect updated environmental features | March 3, 2020 |
| 2 | Revised to address City comments | July 15, 2021 |
| 3 | Revised to address City comments | February 14, 2023 |
| 4 | Revised Block 1 Unit Count | June 8, 2023 |

Title: **Beaverbrook Draft Plan**

Scale: 1:1250
 Job #: EGP001
 Date: January 1999
 Dwg #: DP3

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 255 Wicksteed Ave., Unit 1A, Toronto Ontario, Canada M4H 1G8
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landscape architecture | urban design | design guidance | architecture | golf design | leisure design

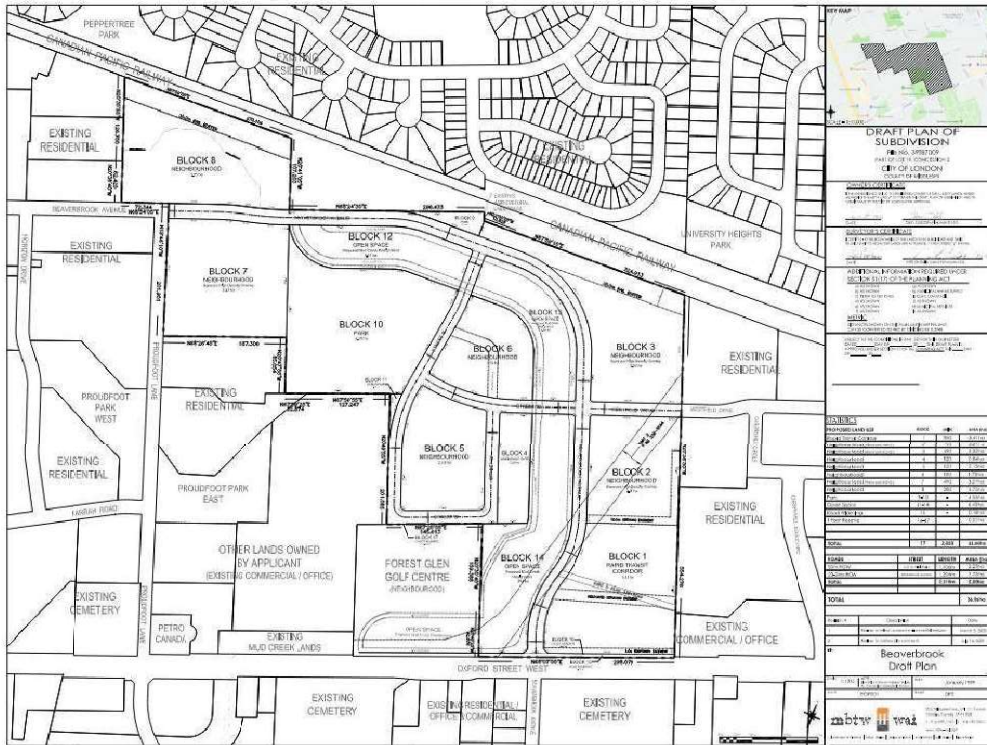




ATTACHMENT 2

2021 to 2023 Draft Plan Comparison Figure (MBTW, June 2023)

2021 Draft Plan Submission



2023 Draft Plan Submission



| 2021 Draft Plan | 2023 Draft Plan | Notes |
|-----------------|-----------------|--|
| Block 1 | Block 1 | Combined into one Rapid Transit Corridor Block |
| Block 2 | Block 1 | Combined into one Rapid Transit Corridor Block |
| Block 3 | Block 2 | Shifted block number & revised block shape |
| Block 4 | Block 3 | Shifted block number |
| Block 5 | Block 4 | Shifted block number |
| Block 6 | Block 5 | Shifted block number |
| Block 7 | Block 6 | Shifted block number |
| Block 8 | Block 7 | Developable area of original block |
| Block 9 | Block 8 | Environmental Area of original block |
| Block 10 | Block 9 | Expanded block area |
| Block 11 | Block 10 | Combined due to revised block and road layout |

| 2021 Draft Plan | 2023 Draft Plan | Notes |
|-----------------|-----------------|---|
| Block 12 | Block 13 | Shifted block number |
| Block 13 | Block 11 | Open Space / Trail removed from channel |
| | Block 14 | Channel only |
| Block 14 | Block 12 | Open Space / Trail removed from channel |
| | Block 15 | Channel only |
| Block 15 | Block 16 | Shifted block number |
| Block 16 | Block 17 | Shifted block number |
| Block 17 | Block 18 | Shifted block number |
| N/A | Block 19 | Added Reserve Block |
| N/A | Block 20 | Added Reserve Block |

2021 to 2023 Draft Plan Comparison

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ATTACHMENT 3

Storm and Sanitary Design Sheets



PROJECT: Beaverbrook
 LOCATION: London
 JOB NO: 16126

STORM SEWER DESIGN SHEET
 (5 Year Storm)

SUBMISSION: FSR Addendum
 DESIGNED BY: JB
 REVIEWED BY: MR

DATE: 06/09/2023 Manning's n= 0.013

| Area No. | STREET/ BLOCK | From MH | To MH | Area (ha) | C | A x C (ha) | Acc. AC (ha) | t (min) | I (5yr) (mm/hr) | Q (5yr) (l/s) | Pipe (mm) | Grade (%) | Capacity (l/s) | Velocity (m/s) | Length (m) | Time (min) | Total Time (min) | % Capacity (5 year) |
|----------|---------------------|----------------------|-------|-----------|------|------------|--------------|---------|-----------------|---------------|-----------|-----------|----------------|----------------|------------|------------|------------------|---------------------|
| 1 | BLOCK 7 | BLOCK 7 | MH36 | 1.83 | 0.70 | 1.28 | 1.28 | 13.5 | 92.0 | 327.02 | 600 | 0.50 | 434.17 | 1.54 | 46.6 | 0.51 | 14.0 | 75% |
| 2 | BEAVERBROOK AVENUE | MH37 | MH36 | 0.42 | 0.90 | 0.38 | 0.38 | 10.4 | 105.0 | 111.36 | 450 | 0.50 | 201.60 | 1.27 | 89.8 | 1.18 | 11.6 | 55% |
| 3 | BLOCK 6 | BLOCK 6 | MH36 | 3.27 | 0.70 | 2.29 | 2.29 | 12.5 | 95.0 | 604.12 | 750 | 0.50 | 787.21 | 1.78 | 166.2 | 1.55 | 14.1 | 77% |
| | BEAVERBROOK AVENUE | MH36 | HW3 | | | | 3.95 | 13.8 | 94.0 | 1031.59 | 900 | 0.50 | 1280.08 | 2.01 | 28.2 | 0.23 | 14.0 | 81% |
| 4 | BEAVERBROOK AVENUE | MH20 | MH18 | 0.65 | 0.90 | 0.58 | 0.58 | 10.4 | 105.0 | 170.17 | 450 | 1.00 | 285.11 | 1.79 | 181.8 | 1.69 | 12.1 | 60% |
| 5 | BLOCK 9 | BLOCK 9 | MH18 | 1.64 | 0.20 | 0.33 | 0.33 | 23.0 | 67.0 | 61.17 | | | | | | | | |
| 6 | BEAVERBROOK AVENUE | MH18 | MH12 | 0.78 | 0.90 | 0.70 | 1.62 | 15.0 | 86.5 | 388.52 | 600 | 1.00 | 614.01 | 2.17 | 340.3 | 2.61 | 17.6 | 63% |
| 7 | BLOCK 2 | BLOCK 2 | MH12 | 1.87 | 0.70 | 1.31 | 1.31 | 12.5 | 95.0 | 346.17 | 750 | 0.50 | 787.21 | 1.78 | 21.1 | 0.20 | 12.7 | 44% |
| 8 | STREET A | CBMH41 | MH12 | 0.31 | 0.90 | 0.28 | 0.28 | 10.4 | 105.0 | 82.48 | 375 | 0.50 | 123.98 | 1.12 | 61.8 | 0.92 | 11.3 | 67% |
| | BEAVERBROOK AVENUE | MH12 | HW2 | | | | 3.21 | 14.9 | 87.0 | 776.12 | 750 | 1.00 | 1113.28 | 2.52 | 36.1 | 0.24 | 15.1 | 70% |
| 9 | BEAVERBROOK AVENUE | CBMH42 | MH5 | 0.53 | 0.90 | 0.48 | 0.48 | 10.4 | 105.0 | 140.51 | 450 | 0.33 | 163.78 | 1.03 | 214.6 | 3.47 | 13.8 | 86% |
| 10 | BEAVERBROOK AVENUE | MH5 | MH3 | 0.57 | 0.90 | 0.51 | 0.99 | 13.8 | 92.0 | 253.43 | 750 | 0.33 | 639.53 | 1.45 | 124.5 | 1.43 | 15.3 | 40% |
| 11 | BLOCK 1 | BLOCK 1B | MH3 | 4.03 | 0.70 | 2.82 | 2.82 | 12.5 | 95.0 | 744.49 | 825 | 0.50 | 1015.01 | 1.90 | 17.9 | 0.16 | 12.7 | 73% |
| | BEAVERBROOK AVENUE | MH3 | HW1 | | | | 3.81 | 13.3 | 92.5 | 979.71 | 1050 | 0.33 | 1568.68 | 1.81 | 27.4 | 0.25 | 13.6 | 62% |
| 12 | BLOCK 1 | BLOCK 1A | HW1 | 1.63 | 0.70 | 1.14 | 1.14 | 12.5 | 95.0 | 301.69 | 600 | 0.50 | 434.17 | 1.54 | 32.2 | 0.35 | 12.8 | 69% |
| 13 | STREET B | MH30 | MH29 | 0.36 | 0.90 | 0.33 | 0.33 | 10.4 | 105.0 | 95.13 | 450 | 1.50 | 349.18 | 2.20 | 118.1 | 0.90 | 11.3 | 27% |
| 14 | BLOCK 10 CATCHBASIN | BLOCK 6/ BLOCK 10 | MH29 | 1.46 | 0.20 | 0.29 | 0.29 | 23.0 | 67.0 | 54.25 | 300 | 0.50 | 68.38 | 0.97 | 54.1 | 0.93 | 23.9 | 79% |
| 15 | BLOCK 10 | BLOCK 10 | MH29 | 1.23 | 0.20 | 0.25 | 0.25 | 23.0 | 67.0 | 45.96 | 300 | 0.50 | 68.38 | 0.97 | 54.1 | 0.93 | 23.9 | 67% |
| 16 | STREET B | MH29 | MH27 | 0.16 | 0.90 | 0.15 | 1.01 | 17.6 | 79.0 | 222.29 | 525 | 0.50 | 304.10 | 1.40 | 81.9 | 0.97 | 18.5 | 73% |
| 17 | BLOCK 4 | BLOCK 4 | MH27 | 0.24 | 0.65 | 0.16 | 0.16 | 13.5 | 92.0 | 39.78 | | | | | | | | |
| 18 | STREET B | MH27 | MH24 | 0.42 | 0.90 | 0.38 | 1.55 | 17.8 | 77.0 | 331.27 | 600 | 0.50 | 434.17 | 1.54 | 198.5 | 2.15 | 19.9 | 76% |
| 19 | BLOCK 4 | BLOCK 4 | MH24 | 0.78 | 0.65 | 0.51 | 0.51 | 13.5 | 92.0 | 130.36 | 450 | 0.50 | 201.60 | 1.27 | 9.6 | 0.13 | 13.6 | 65% |
| 20 | BLOCK 4 | BLOCK 4 | MH24 | 0.24 | 0.65 | 0.16 | 0.16 | 13.5 | 92.0 | 39.67 | 300 | 0.50 | 68.38 | 0.97 | 20.4 | 0.35 | 13.9 | 58% |
| 21 | BLOCK 4 | BLOCK 4 | MH23 | 0.62 | 0.65 | 0.41 | 0.41 | 13.5 | 92.0 | 103.66 | 450 | 0.50 | 201.60 | 1.27 | 9.5 | 0.12 | 13.6 | 51% |
| 22 | STREET B | MH24 | MH22 | 0.22 | 0.90 | 0.20 | 2.82 | 17.1 | 80.0 | 626.57 | 825 | 0.50 | 1015.01 | 1.90 | 74.6 | 0.65 | 17.7 | 62% |
| 23 | BLOCK 4 | BLOCK 4 | MH42 | 0.11 | 0.65 | 0.07 | 0.07 | 13.5 | 92.0 | 18.82 | | | | | | | | |
| 24 | STREET A | MH42 | MH40 | 0.25 | 0.90 | 0.23 | 0.30 | 10.4 | 105.0 | 88.17 | 375 | 0.50 | 123.98 | 1.12 | 74.6 | 1.11 | 11.5 | 71% |
| 25 | BLOCK 5 | BLOCK 5 | MH40 | 2.18 | 0.65 | 1.42 | 1.42 | 13.5 | 92.0 | 362.41 | 675 | 0.50 | 594.39 | 1.66 | 74.6 | 0.75 | 14.2 | 61% |
| 26 | STREET B | BLOCK 4 | MH40 | 0.23 | 0.65 | 0.15 | 0.15 | 13.5 | 92.0 | 38.20 | | | | | | | | |
| 27 | STREET B | MH40 | MH22 | 0.45 | 0.90 | 0.41 | 2.27 | 13.7 | 90.0 | 569.05 | 750 | 0.50 | 787.21 | 1.78 | 154.3 | 1.44 | 15.1 | 72% |
| 28 | STREET B | BLOCK 3 | MH22 | 0.84 | 0.70 | 0.59 | 0.59 | 12.5 | 95.0 | 155.96 | 450 | 0.50 | 201.60 | 1.27 | 17.1 | 0.22 | 12.7 | 77% |
| | STREET B | MH22 | HW4 | | | | 5.68 | 16.1 | 80.0 | 1263.73 | 1050 | 0.50 | 1930.91 | 2.23 | 53.0 | 0.40 | 16.5 | 65% |

Refer to Runoff Coefficients Figure for the Calculations of the runoff coefficients
 Refer to Figure 5.2 in the City of London Design Specifications & Requirements Manual for rainfall intensity
 Refer to Figure 5.3 in the City of London Design Specifications & Requirements Manual for upstream time of concentration

CITY OF LONDON
SANITARY SEWER DESIGN SHEET



THE FOLLOWING POPULATION ALLOWANCES WILL APPLY WHEN DESIGNING SANITARY SEWERS:

- A) HECTARE BASIS
 LOW DENSITY (SINGLE-FAMILY/ SEMI-DETACHED) = 30 UNITS/HECTARE @ 3 PEOPLE/UNIT
 MEDIUM DENSITY (TOWNHOUSE/ ROWHOUSE) = 75 UNITS/HECTARE @ 2.4 PEOPLE/UNIT
 HIGH DENSITY (APARTMENTS) = 150-300 UNITS/HECTARE @ 1.6 PEOPLE/UNIT

DESIGN CRITERIA
 SEWAGE = 230 LITRES/CAPITA/DAY
 INFILTRATION = 8640 LITRES/HECTARE/DAY
 PEAKING FACTOR: $M = 1 + \frac{14}{4 + P^{0.5}}$
 Pipe Capacity (Q) = $(1.0/n)A(A/P)^{(2/3)}S^{(1/2)}$

DESIGNED BY: JB
 CHECKED BY: MR
 DATE: 06/09/2023
 PROJECT: Beaverbrook
 JOB No.: 16126
 Location: London Ontario

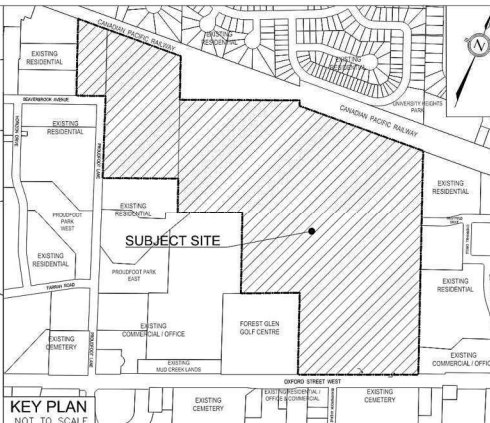
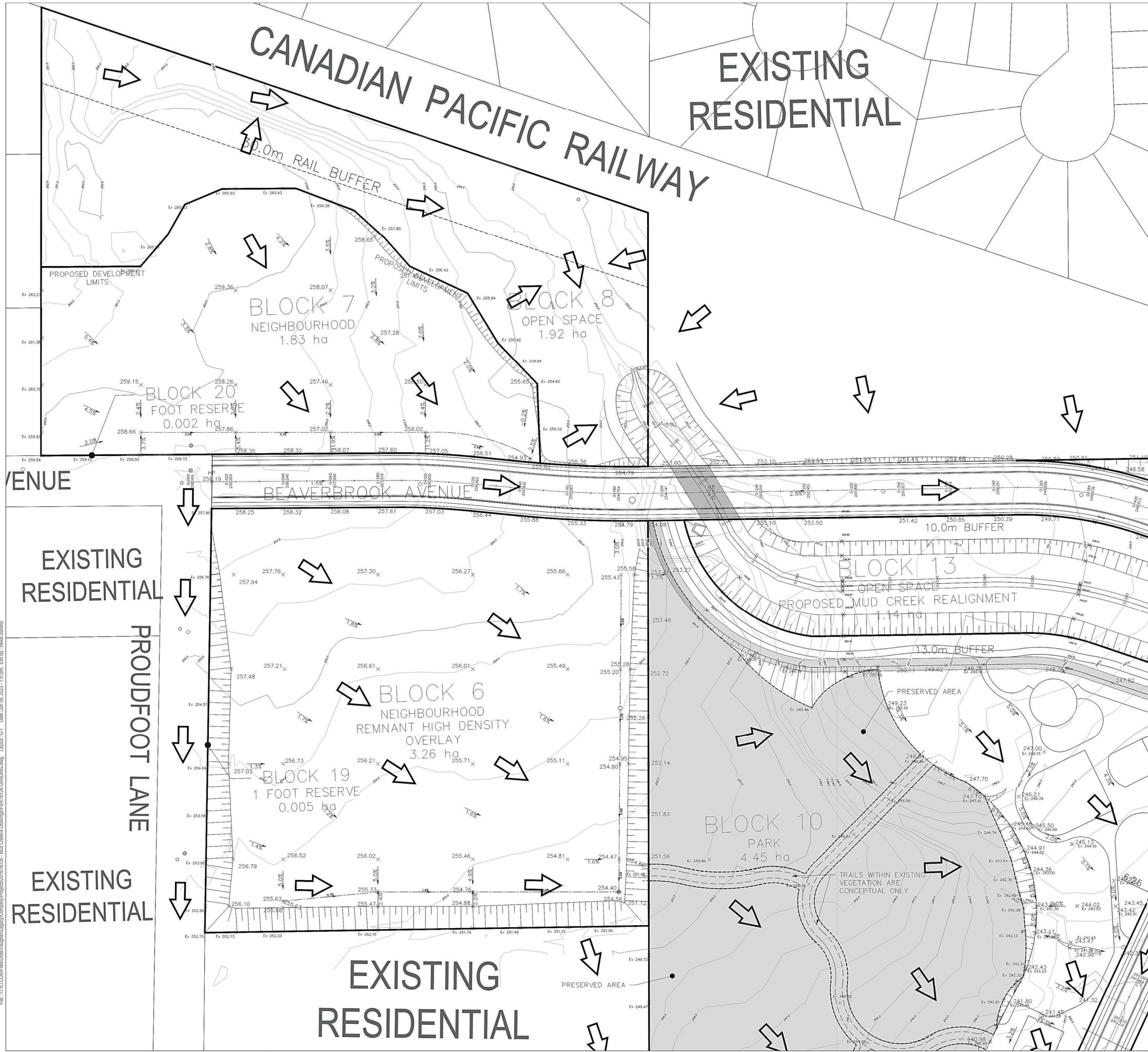
| Area No. | Location | | Area | | Population | | | | Sewage Flows | | | | Sewer Design | | | | | | | |
|------------------|---|------------|----------------|----------------|----------------|----------|-------------|------------|--------------|-----------|------------|----------------|--------------|-----------------------|--------------|---------|--------------|--------------|--------|----------|
| | Street/Block | From MH | To MH | Delta Hectares | Total Hectares | Per Unit | No of Units | Delta Pop. | Total Pop. | Infil L/S | Sewage L/S | Peaking Factor | Total L/S | Manning's Coefficient | Pipe Size mm | Slope % | Capacity L/s | Velocity m/s | % Full | Length m |
| 1 | Beaverbrook Ave/Block 7 | Block 7 | EX SAN MH WEST | 1.83 | 1.83 | 1.6 | 366 | 586 | 586 | 0.18 | 1.56 | 3.94 | 6.94 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 21.1% | 10.4 |
| 2 | Westfield Drive/Beaverbrook Avenue/ Block 2 | Block 2 | MH14A | 5.56 | 5.56 | 1.6 | 452 | 723 | 723 | 0.56 | 1.93 | 3.89 | 8.79 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 26.8% | 14.5 |
| External Flows 1 | Westfield Drive | MH15A | MH14A | 219.66 | 219.66 | | | 17499 | 17499 | 21.97 | 46.58 | 2.71 | 628.87 | 0.013 | 825 | 1.98 | 2019.84 | 3.78 | 31.1% | 69.2 |
| External Flows 2 | Westfield Drive | MH14A | MH11A | | 225.22 | | | | 18222 | 22.52 | 48.51 | 2.69 | 634.22 | 0.013 | 900 | 0.50 | 1280.09 | 2.01 | 49.5% | 129.8 |
| External Flows 2 | Block 1 | MH10A | MH11A | 7.66 | 7.66 | | | 1501 | 1501 | 0.77 | 4.00 | 3.68 | 16.94 | 0.013 | 300 | 0.27 | 50.25 | 0.71 | 33.7% | 149.6 |
| | Beaverbrook Ave | MH11A | MH5A | | 232.88 | | | | 19723 | 23.29 | 52.50 | 2.66 | 644.83 | 0.013 | 900 | 0.27 | 940.67 | 1.48 | 68.6% | 141.7 |
| 3 | Beaverbrook Ave/ Block 1 | Block 1B | MH5A | 4.92 | 4.92 | 1.6 | 1249 | 1998 | 1998 | 0.49 | 5.32 | 3.59 | 21.48 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 65.5% | 14.4 |
| External Flows 3 | Beaverbrook Ave | MH5A | MH2A | | 237.80 | | | | 21722 | 23.78 | 57.82 | 2.62 | 658.21 | 0.013 | 900 | 0.26 | 923.08 | 1.45 | 71.3% | 88.2 |
| External Flows 3 | Block 1 Easement | MH4A | MH2A | 43.92 | 43.92 | | | 4281 | 4281 | 4.39 | 11.40 | 3.31 | 45.85 | 0.013 | 375 | 0.25 | 87.67 | 0.79 | 52.3% | 169.7 |
| | Beaverbrook Ave | MH2A | MH1A | | 281.72 | | | | 26003 | 28.17 | 69.22 | 2.54 | 689.46 | 0.013 | 900 | 0.25 | 905.16 | 1.42 | 76.2% | 82.6 |
| 4 | Beaverbrook Ave/ Block 1 | Block 1A | MH1A | 1.84 | 1.84 | 1.6 | 467 | 747 | 747 | 0.18 | 1.99 | 3.88 | 8.67 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 26.4% | 42.8 |
| External Flows 4 | Oxford Street | MH1A | EX MH25007 | | 283.56 | | | | 26750 | 28.36 | 71.21 | 2.53 | 694.25 | 0.013 | 900 | 0.22 | 849.11 | 1.33 | 81.8% | 39.2 |
| External Flows 4 | Oxford Street | | EX MH25007 | 18.78 | 18.78 | | | 4641 | 4641 | 1.88 | 12.35 | 3.27 | 46.38 | | | | | | | |
| | Oxford Street | EX MH25007 | MH16A | | 302.34 | | | | 31391 | 30.23 | 83.56 | 2.46 | 724.17 | 0.013 | 900 | 0.22 | 849.11 | 1.33 | 85.3% | |
| 5 | Block 6 | Block 6 | EX STUB | 3.27 | 3.27 | 1.6 | 782 | 1251 | 1251 | 0.33 | 3.33 | 3.74 | 14.01 | 0.013 | 250 | 1.00 | 59.47 | 1.21 | 23.6% | 8.9 |
| 6 | Street B/ Block 10 | Block 10 | MH25A | 1.58 | 1.58 | 1.6 | 47 | 76 | 76 | 0.16 | 0.20 | 4.27 | 1.11 | 0.013 | 200 | 1.50 | 40.17 | 1.28 | 2.8% | 150.9 |
| 7 | Block 5 | Block 5 | MH25A | 2.18 | 2.18 | 2.4 | 174 | 418 | 418 | 0.22 | 1.11 | 4.01 | 5.13 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 15.6% | 19.9 |
| 8 | Block 4/ Street B | Block 4 | MH25A | 0.77 | 0.77 | 2.4 | 26 | 62 | 62 | 0.08 | 0.17 | 4.29 | 0.86 | | | | | | | |
| | Street B | MH25A | MH20A | 0.00 | 4.53 | | | | 556 | 0.45 | 1.48 | 3.95 | 6.88 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 29.7% | 210.9 |
| 9 | Street A/ Block 4 | Block 4 | MH30A | 0.57 | 0.57 | 2.4 | 16 | 38 | 38 | 0.06 | 0.10 | 4.34 | 0.54 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 2.3% | 92.1 |
| 10 | Street B/ Block 3 | Block 3 | MH29A | 0.84 | 0.84 | 1.6 | 193 | 309 | 309 | 0.08 | 0.82 | 4.07 | 3.77 | 0.013 | 200 | 1.00 | 32.80 | 1.04 | 11.5% | 14.2 |
| 11 | Street B/ Block 4 | Block 4 | MH30A | 0.72 | 0.72 | 2.4 | 25 | 60 | 60 | 0.07 | 0.16 | 4.30 | 0.83 | | | | | | | |
| | Street B | MH30A | MH27A | 0.00 | 2.13 | | | | 407 | 0.21 | 1.08 | 4.02 | 5.00 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 21.6% | 177.4 |
| 12 | Block 4/ Street B | Block 4 | MH27A | 1.39 | 1.39 | 2.4 | 67 | 161 | 161 | 0.14 | 0.43 | 4.18 | 2.11 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 9.1% | 13.4 |
| | Street B | MH27A | MH20A | 0.00 | 3.52 | | | | 568 | 0.35 | 1.51 | 3.95 | 6.91 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 29.8% | 134.3 |
| | Forest Glen Golf Centre | FGGC | MH20A | 2.56 | 2.56 | 1.6 | 480 | 768 | 768 | 0.26 | 2.04 | 3.87 | 8.96 | 0.013 | 200 | 0.50 | 23.19 | 0.74 | 38.6% | 10 |
| | Other Lands | MH20A | MH16A | | 10.60 | | | | 1892 | 1.06 | 5.04 | 3.60 | 21.03 | 0.013 | 300 | 0.50 | 68.38 | 0.97 | 30.8% | 257.9 |



ATTACHMENT 4

FSR Drawings

File: \\TYL\COM\Final\Vaughan\Legacy\Company\Projects\20161616-08 - Mud Creek4 Drawings\FSR\16.26 GRADING.dwg, Layout: G-1 Date: Jan 08, 2023 - 1:57 pm, Edit By: hskh@tylin.com



KEY PLAN
NOT TO SCALE

LEGEND

| | |
|------------|------------------------------|
| | SITE BOUNDARY |
| 259.58 x | PROPOSED GRADING ELEVATION |
| Ex 251.933 | EXISTING GRADING ELEVATION |
| 5.0% | PROPOSED GRADING SLOPE |
| | OVERLAND FLOW ROUTE |
| | TEMPORARY CUTOFF SWALE |
| 2.3% | TEMPORARY CUTOFF SWALE SLOPE |

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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TYLin
8800 Dufferin Street, Suite 200
Vaughan, ON L4K 0C5

p: 905.738.5700
f: 905.738.0065

FUNCTIONAL GRADING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: G-1 |
| SCALE: 1:500 | | |

File: \\TYL\COM\Final\Vaughan\Legacy\Company\Projects\201616168 - Mud Creek4 Drawings\FSR\16 28 GRADING.dwg, Layout: G-3 Date: Jan 09, 2023 - 1:53pm, Edit By: hskali@tyl.com

PROUDFOOT LANE

PETRO
CANADA

PROUDFOOT PARK
EAST

EXISTING
MUD CREEK LANDS

OTHER LANDS OWNED
BY APPLICANT
(EXISTING COMMERCIAL / OFFICE)

OTHER LANDS OWNED
BY APPLICANT

PROPOSED RETAINING WALL
ALONG MUNICIPAL ROAD

CONCEPTUAL
ENTRANCE FOR 415
OXFORD STREET

FOREST GLEN
GOLF CENTRE
(NEIGHBOURHOOD)

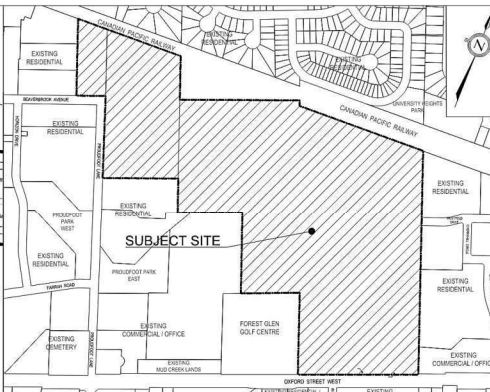
BLOCK 18
1 FOOT-RESERVE
0.005 ha

BLOCK 4
NEIGHBOURHOOD
239.204 ha

6.5m BUFFER

6.5m BUFFER

OPEN SPACE
Proposed Mud Creek Realign



KEY PLAN
NOT TO SCALE

LEGEND

| | |
|--|----------------------------|
| | SITE BOUNDARY |
| | PROPOSED GRADING ELEVATION |
| | EXISTING GRADING ELEVATION |
| | PROPOSED GRADING SLOPE |
| | OVERLAND FLOW ROUTE |
| | PROPOSED SWALE |
| | PROPOSED SWALE SLOPE |

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
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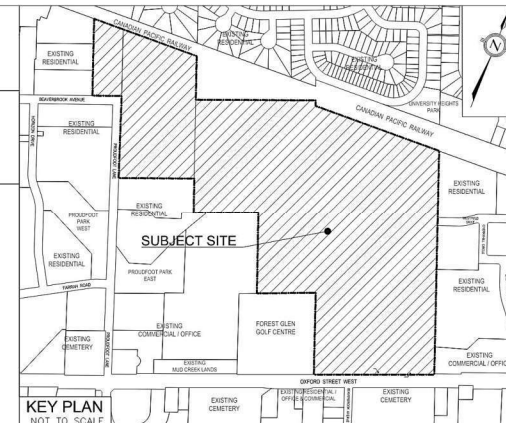
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Vaughan, ON L4K 0C5
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f: 905.738.0065

FUNCTIONAL GRADING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: G-3 |
| SCALE: 1:500 | | |



LEGEND

- SITE BOUNDARY
- PROPOSED GRADING ELEVATION
- EXISTING GRADING ELEVATION
- PROPOSED GRADING SLOPE
- OVERLAND FLOW ROUTE
- PROPOSED SWALE
- PROPOSED SWALE SLOPE

OVERLAND FLOW FOR EXISTING RESIDENTIAL PROPERTY AS PER GIS DATA

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
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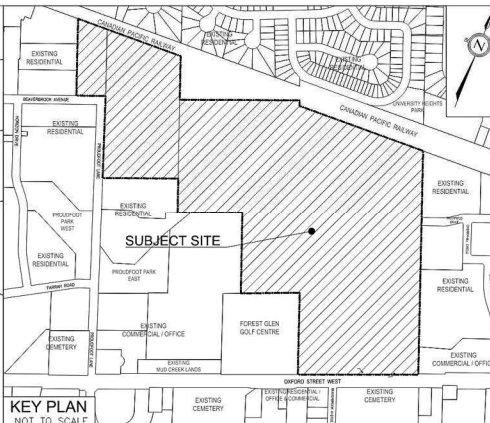
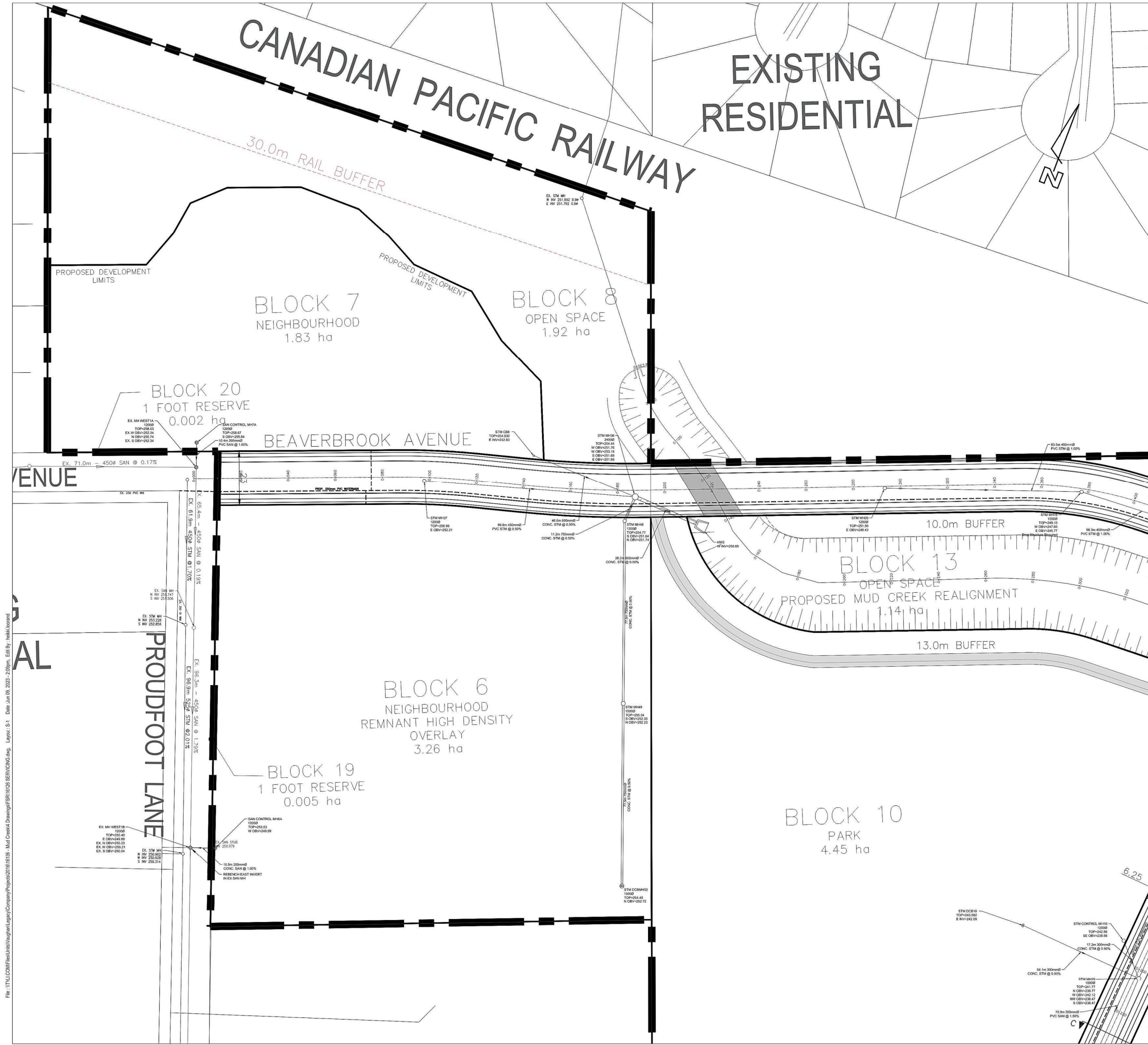
EXISTING COMMERCIAL / OFFICE

FUNCTIONAL GRADING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: G-4 |
| SCALE: 1:500 | | |

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KEY PLAN
NOT TO SCALE

LEGEND

- SITE BOUNDARY
- WATERMAIN
- STORM MH/ CBMH/ CB
- SANITARY MH
- INSULATED SEWER
- HEADWALL
- CROSS SECTION INDICATOR (REFER TO TYP-1 FOR DETAILS)
- Y-SERVICE CONNECTIONS
- SERVICE CONNECTIONS

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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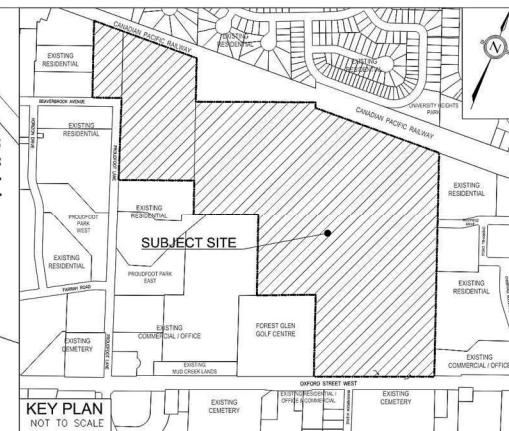
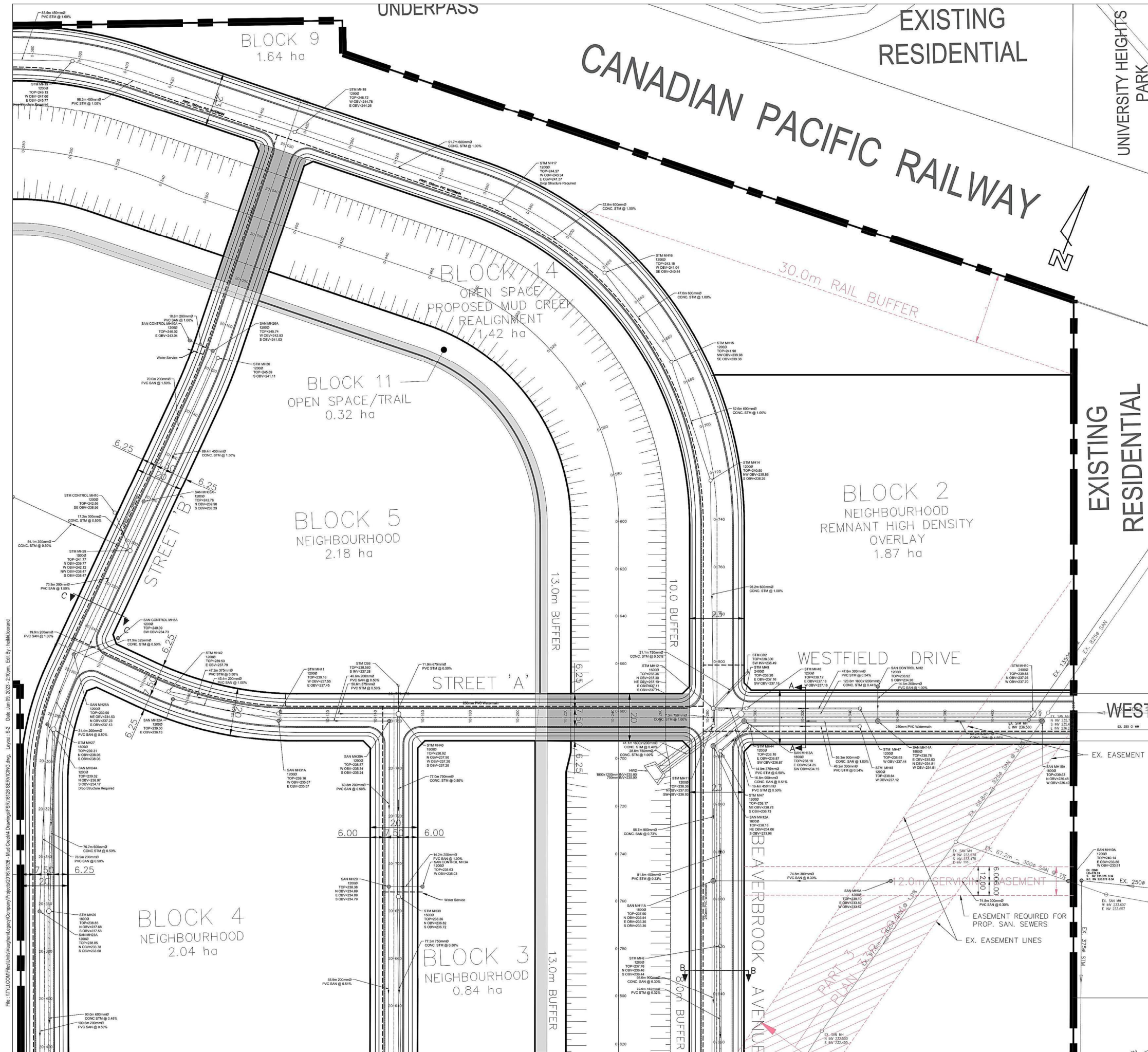
p: 905.738.5700
f: 905.738.0065

SITE SERVICING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: S-1 |
| SCALE: 1:500 | | |

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LEGEND

- SITE BOUNDARY
- WATERMAIN
- STORM MH/ CBMH/ CB
- SANITARY MH
- INSULATED SEWER
- HEADWALL
- CROSS SECTION INDICATOR (REFER TO TYP-1 FOR DETAILS)
- Y-SERVICE CONNECTIONS
- SERVICE CONNECTIONS

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
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| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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SITE SERVICING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: S-2 |
| SCALE: 1:500 | | |

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EXISTING RESIDENTIAL

PROUDFOOT PARK EAST

OTHER LANDS OWNED BY APPLICANT (EXISTING COMMERCIAL / OFFICE)

PETRO CANADA

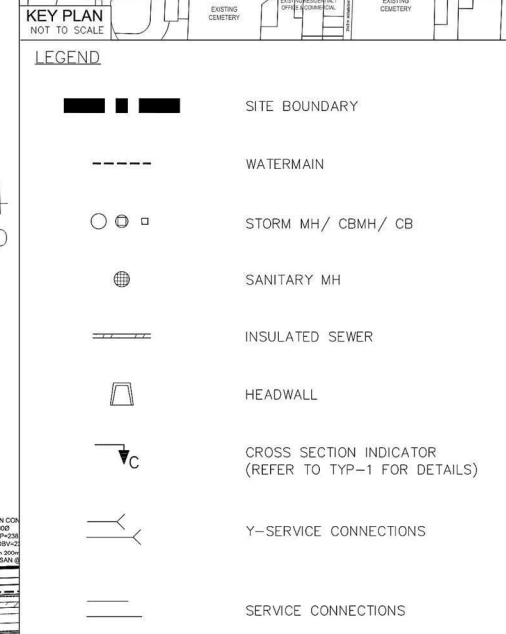
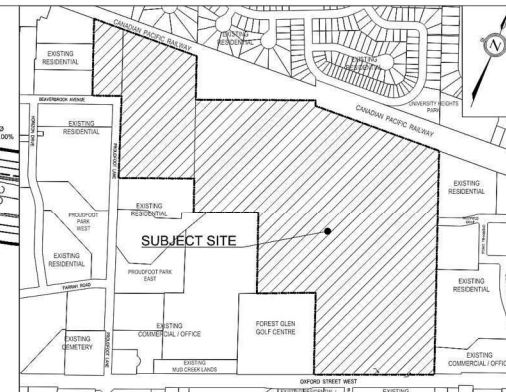
EXISTING MUD CREEK LANDS OXFORD STREET WEST

OTHER LANDS OWNED BY APPLICANT (EXISTING COMMERCIAL / OFFICE)

FOREST GLEN GOLF CENTRE (NEIGHBOURHOOD)

BLOCK 4 NEIGHBOURHOOD 2.04 ha

BLOCK 18 1 FOOT RESERVE 0.005 ha



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
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| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

| REVISIONS | |
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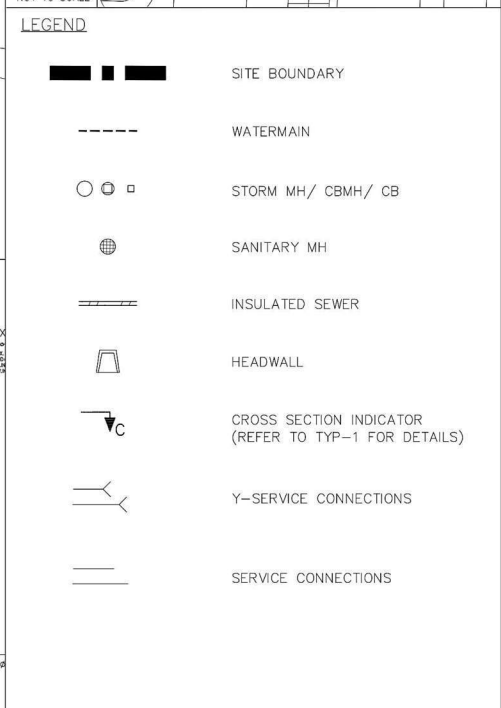
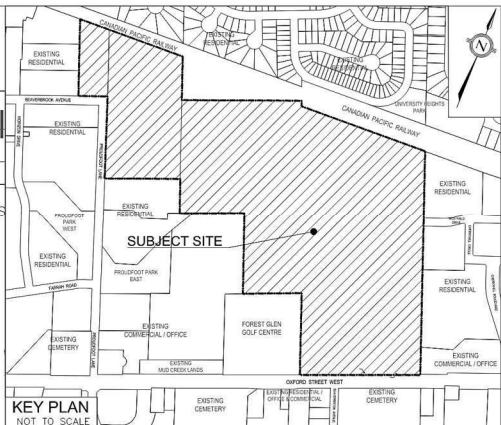
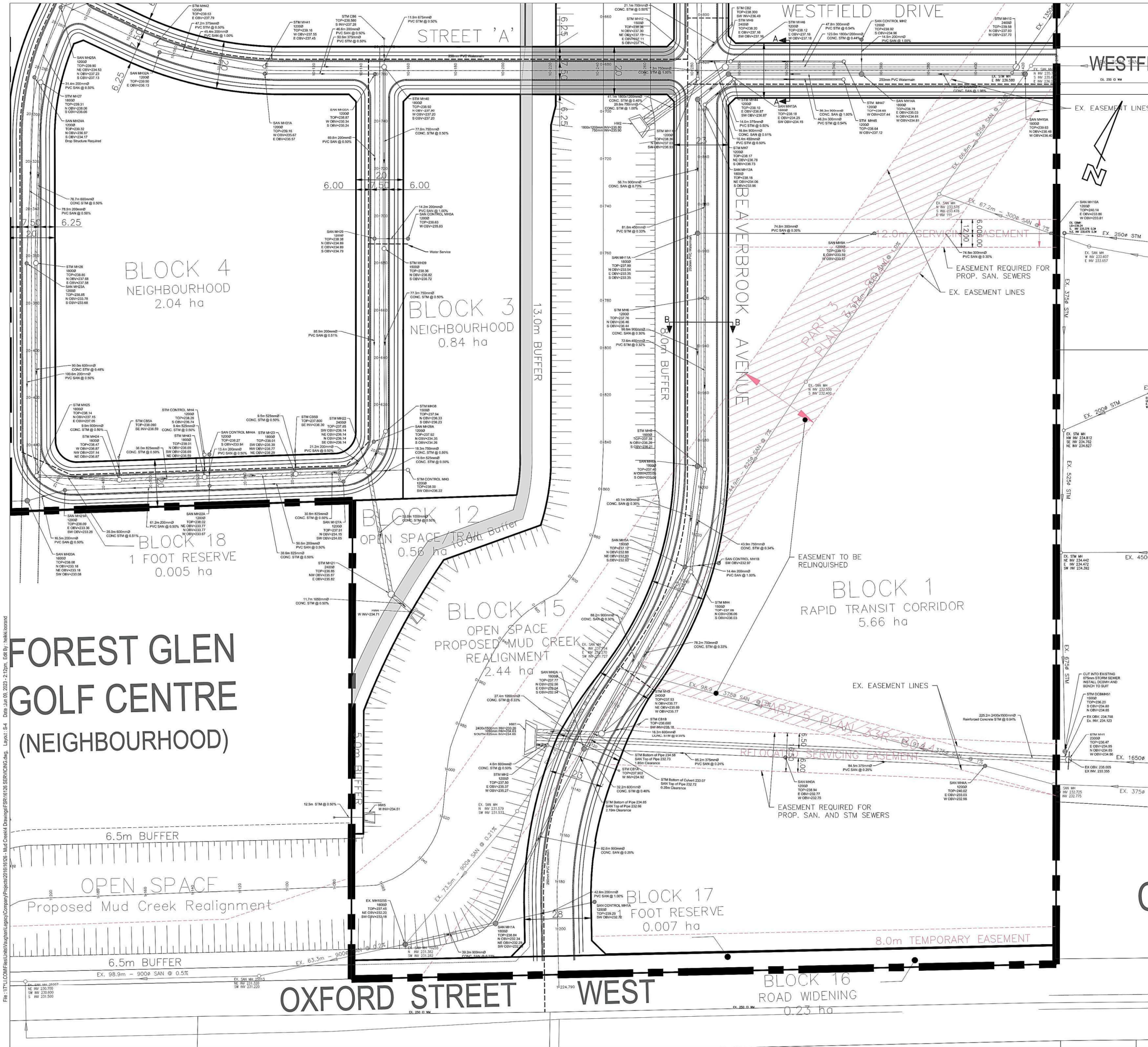
TYLin
 8800 Dufferin Street, Suite 200 Vaughan, ON L4K 0C5
 p: 905.738.5700 f: 905.738.0065

SITE SERVICING PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: S-3 |
| SCALE: 1:500 | | 10m 20m |

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| BENCHMARK | | |
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| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
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| 2. | 06/25/21 | PRELIMINARY ISSUED FOR IPR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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SITE SERVICING PLAN

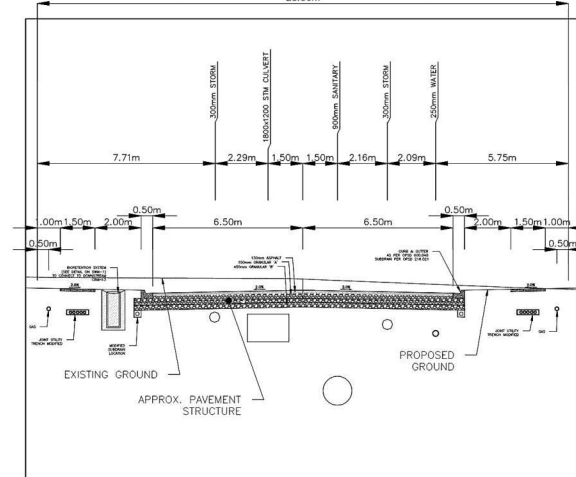
BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
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| SCALE: 1:500 | 10m 20m | S-4 |

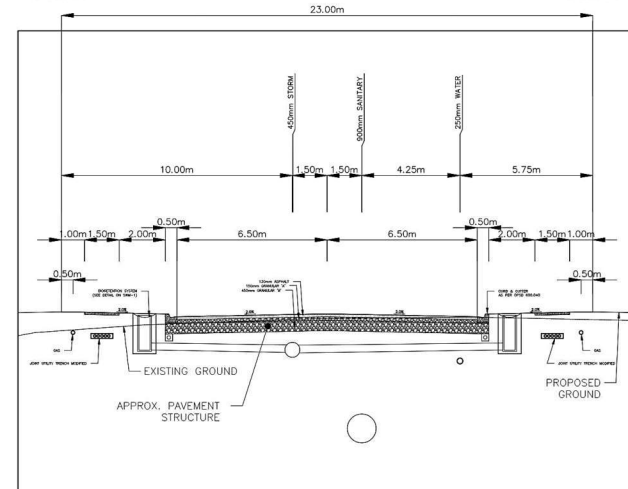
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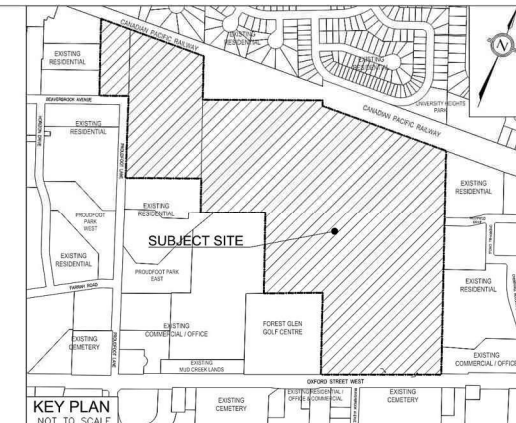
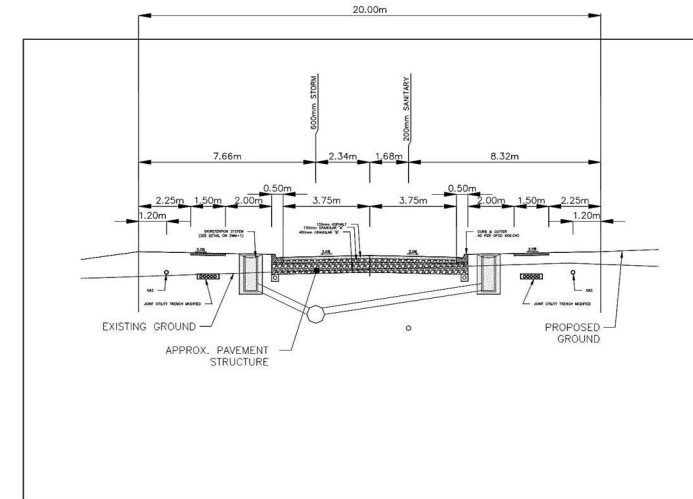
SECTION A-A WESTFIELD DRIVE
ROW 1:100 ROW
23.00m



SECTION B-B BEAVERBROOK AVENUE
ROW 1:100 ROW
23.00m

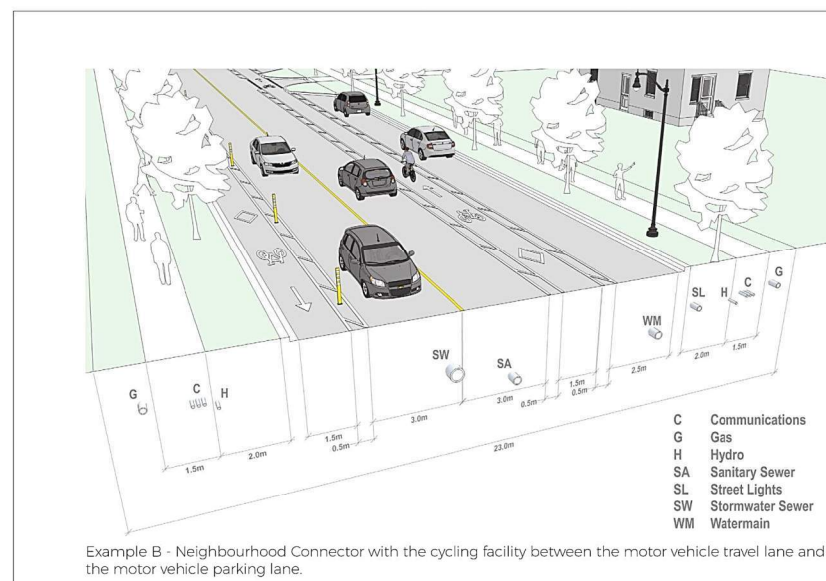


SECTION C-C STREET B
ROW 1:100 ROW
20.00m



LEGEND

TYPICAL CROSS SECTION FOR BEAVERBROOK AVENUE



TYPICAL CROSS SECTION FOR STREET A, STREET B AND WESTFIELD DRIVE



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
|---------------------|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
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| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |
| No. | DATE | REVISIONS |

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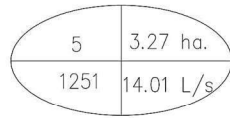
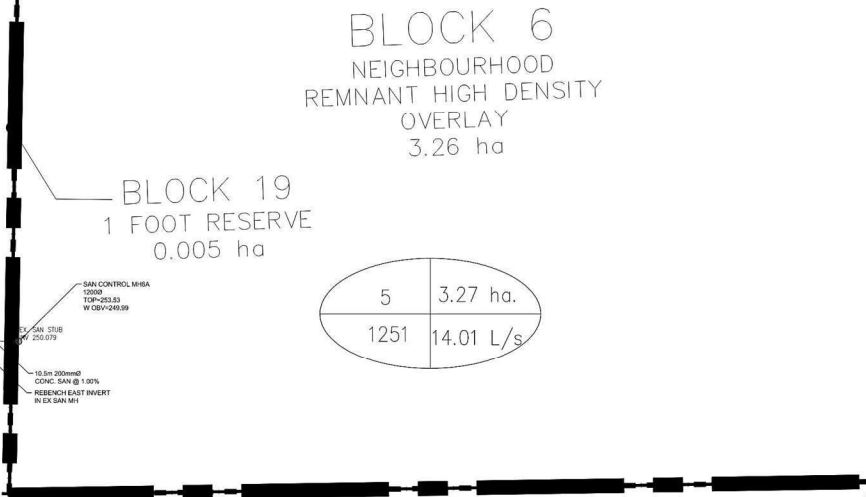
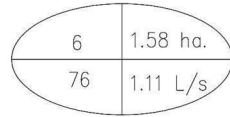
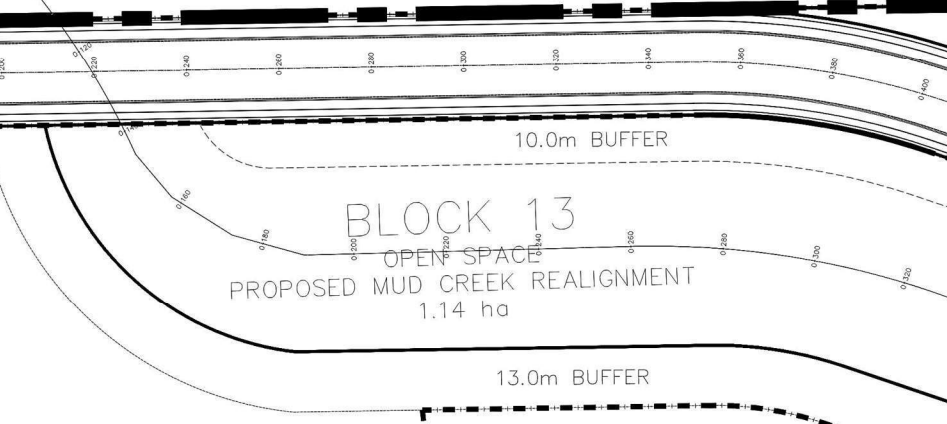
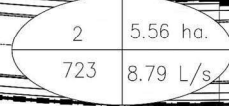
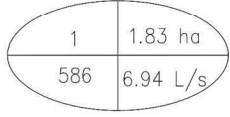
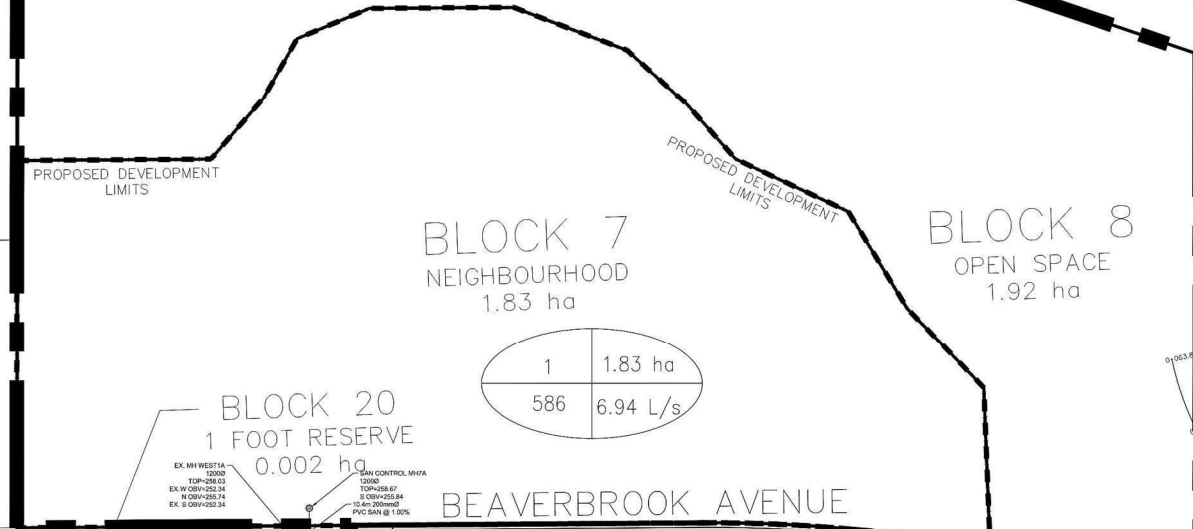
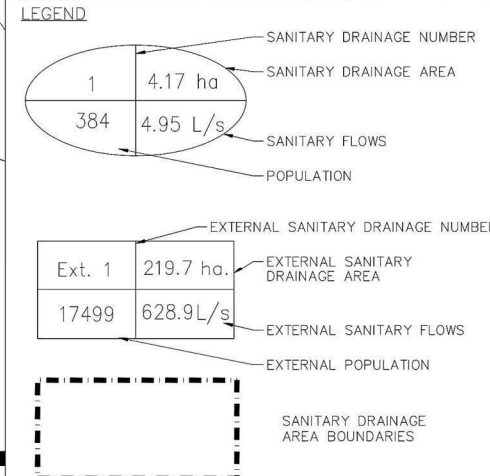
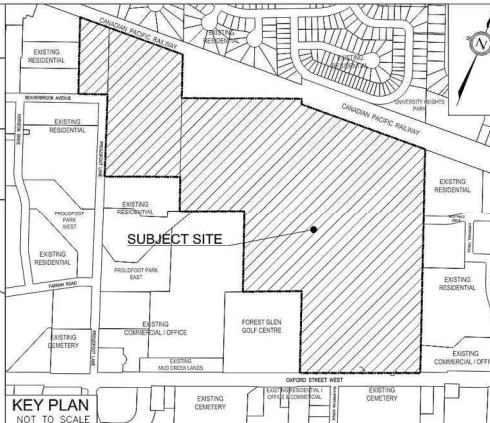
TYPICAL CROSS SECTIONS

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: TYP-1 |
| SCALE: 1:500 | 10m 20m | |

CANADIAN PACIFIC RAILWAY

EXISTING RESIDENTIAL



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
|---------------------|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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TYLin

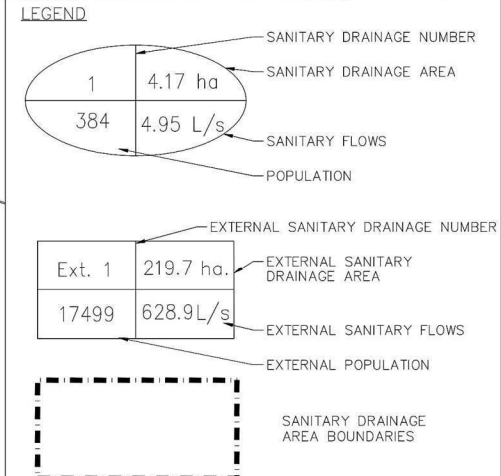
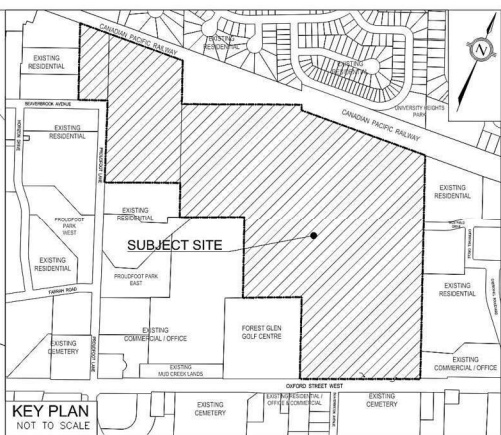
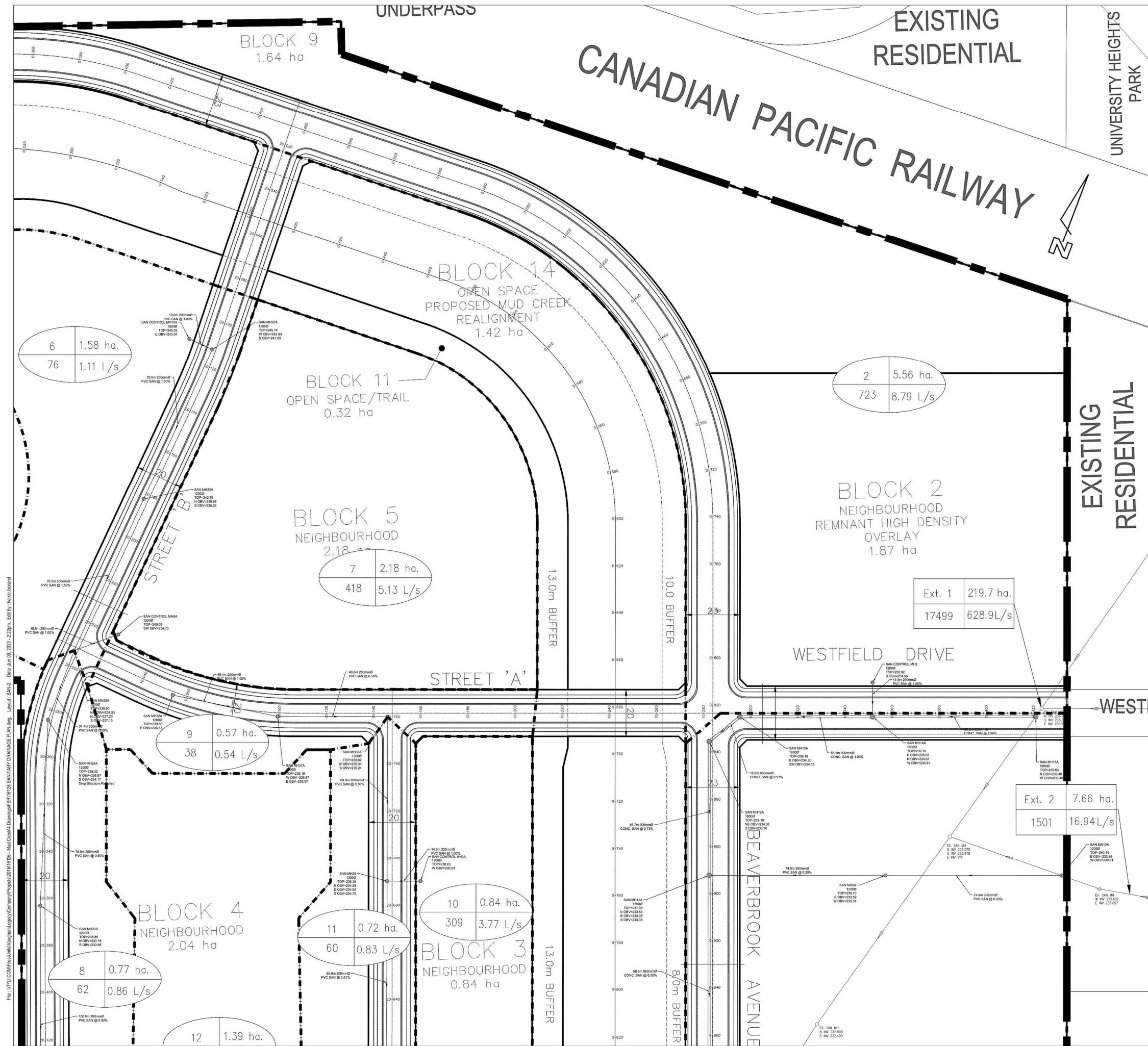
8900 Dufferin Street, Suite 200 p: 905.738.5700
Vaughan, ON L4K 0C5 f: 905.738.0065

SANITARY DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: SAN-1 |
| SCALE: 1:500 | 10m 20m | |

File: \\TYL\COM\Facilities\Vaughan\Legacy\Company\Projects\2016\16126 - Mul Creek4 Drawing\FSR\16126 SANITARY DRAINAGE PLAN.dwg Layout - SAN-1 Date: Jun 19, 2023 - 2:21pm. Edt By: hskulborand



NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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SANITARY DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: SAN-2 |
| SCALE: 1:500 | 10m 20m | |

File: \\TYL\COM\Fuel\vaughan\Legacy\Company\Projects\2016\16126 - Mud Creek\4 - Drainage\FSR\16126_SANITARY_DRAINAGE_PLAN.dwg Layout: SAN2 Date: Jun 19, 2023 - 2:22pm. Edit By: hskulboudand

EXISTING
RESIDENTIAL

PROUDFOOT PARK
EAST

OTHER LANDS OWNED
BY APPLICANT
(EXISTING COMMERCIAL / OFFICE)

OTHER LANDS OWNED
BY APPLICANT
(EXISTING COMMERCIAL / OFFICE)

PETRO
CANADA

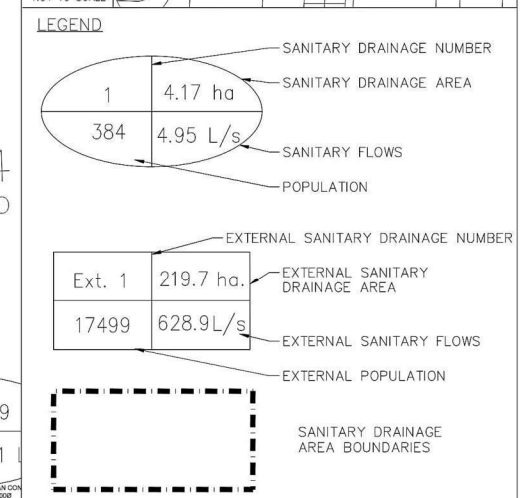
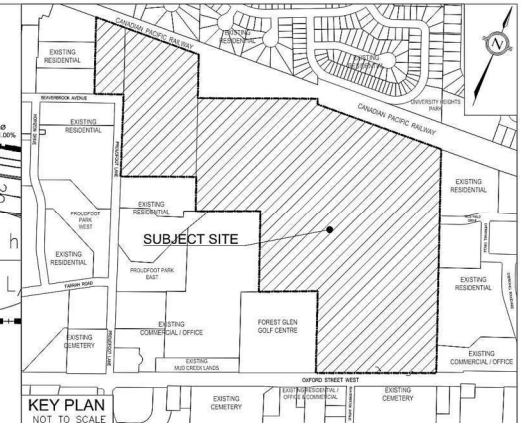
EXISTING
MUD CREEK LANDS

OXFORD STREET WEST

FOREST GLEN
GOLF CENTRE
(NEIGHBOURHOOD)

BLOCK 18
1 FOOT RESERVE
0.005 ha

BLOCK 4
NEIGHBOURHOOD
2.04 ha



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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Vaughan, ON L4K 0C5 f: 905.738.0065

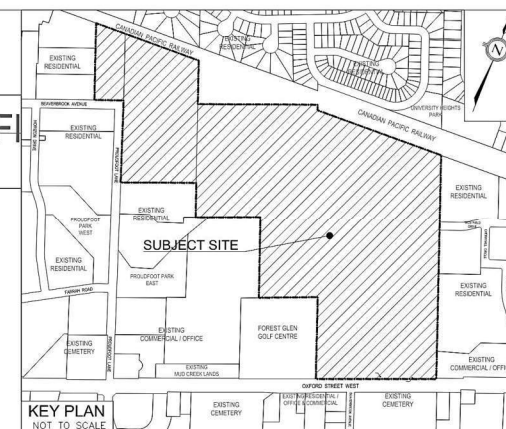
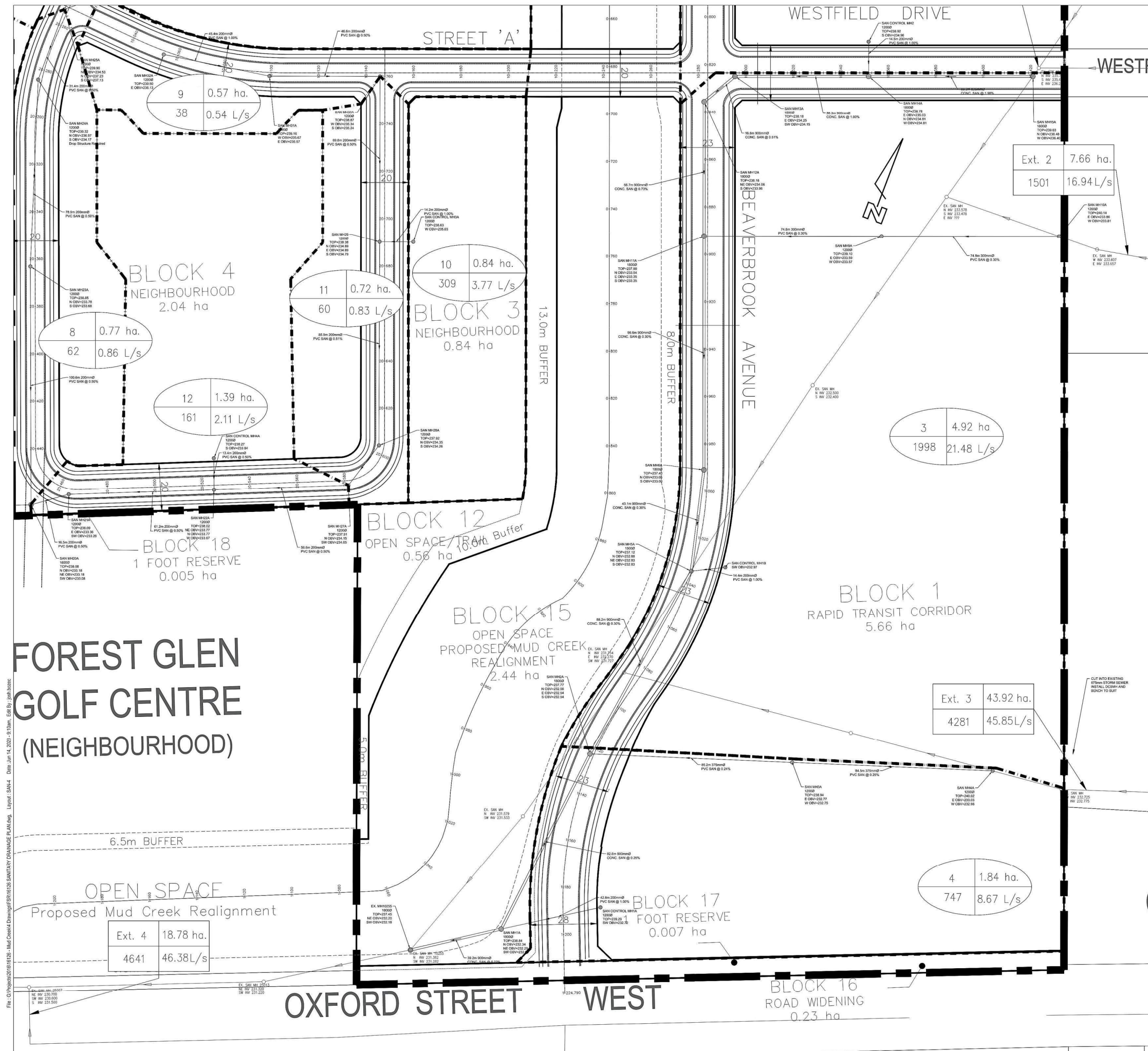
SANITARY DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: SAN-3 |
| SCALE: 1:500 | 10m 20m | |

File: \\TYL\COM\Fuel\unibh\unibh\Legacy\Company\Projects\2016\16126 - Mud Creek\4 Drawings\FSR\16126 SANITARY DRAINAGE PLAN.dwg Layout: SAN-3 Date: Jun 19, 2023 - 2:23pm. Edit By: haekuliborand

PROUDFOOT LANE



LEGEND

- SANITARY DRAINAGE NUMBER
- SANITARY DRAINAGE AREA
- SANITARY FLOWS
- POPULATION
- EXTERNAL SANITARY DRAINAGE NUMBER
- EXTERNAL SANITARY DRAINAGE AREA
- EXTERNAL SANITARY FLOWS
- EXTERNAL POPULATION
- SANITARY DRAINAGE AREA BOUNDARIES

NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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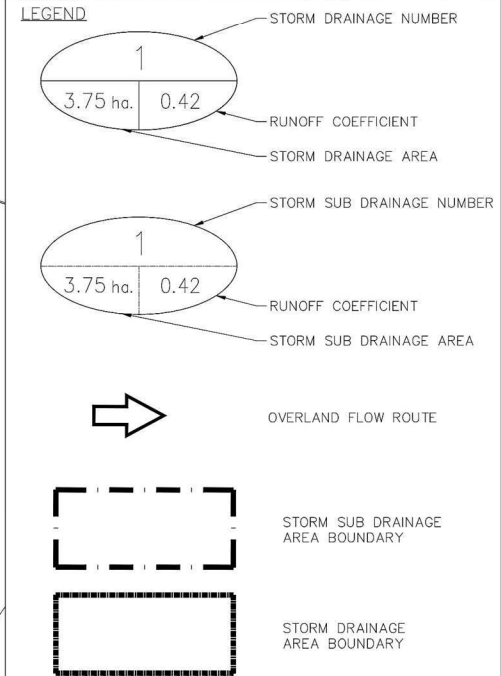
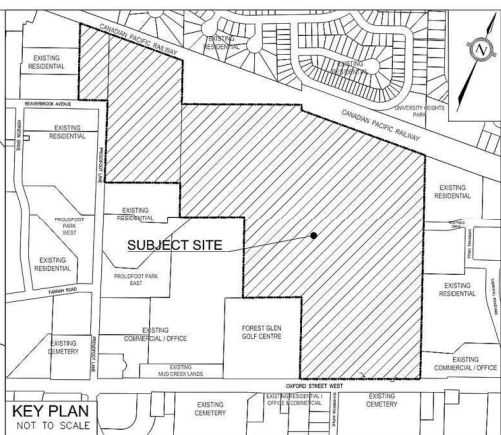
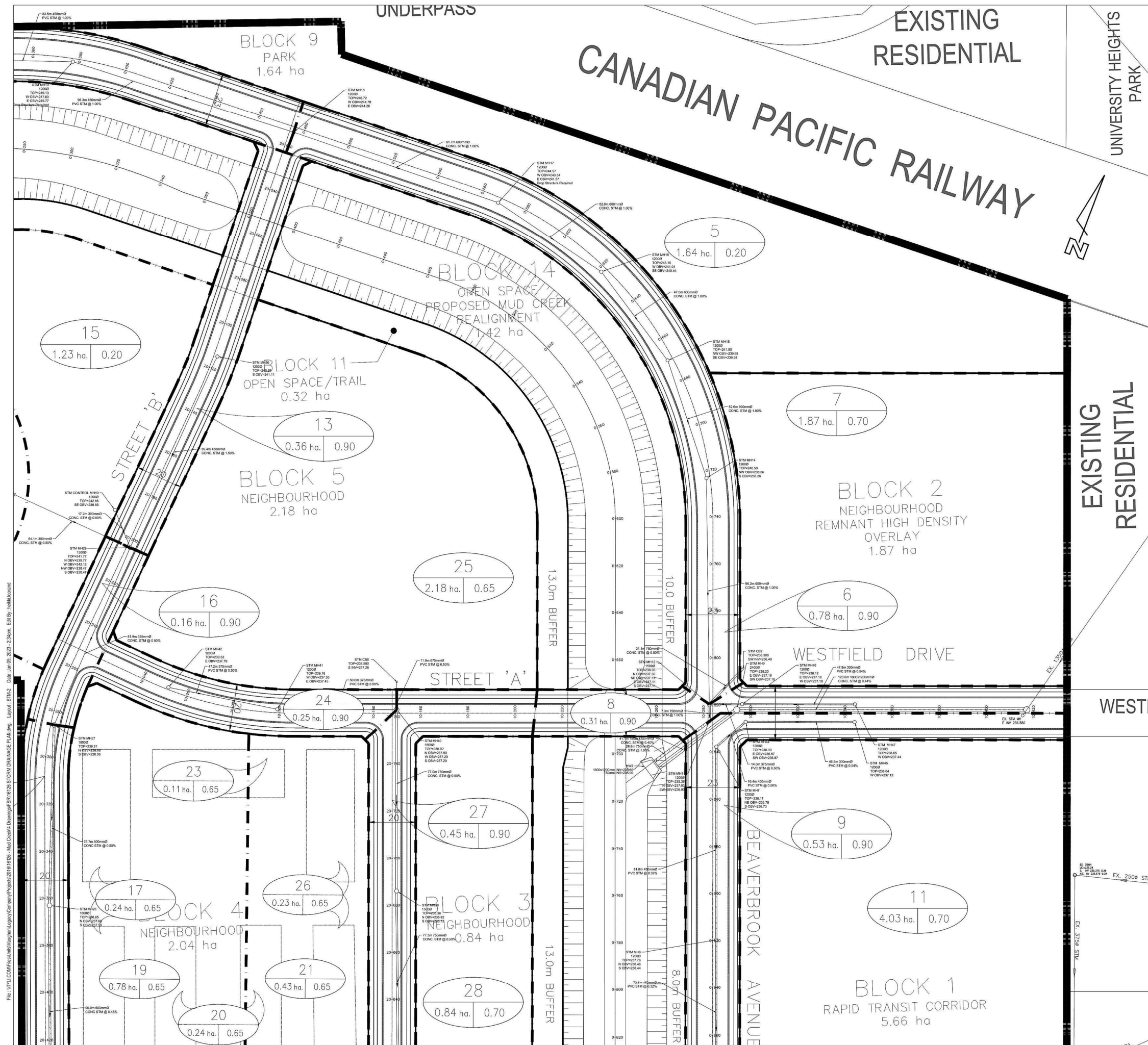
8900 Dufferin Street, Suite 200 p: 905.738.5700
Vaughan, ON L4K 0C5 f: 905.738.0065

SANITARY DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: |
| SCALE: 1:500 | 10m 20m | SAN-4 |

File: C:\projects\201616126 - Mud Creek\Drawings\SRV\126 SANITARY DRAINAGE PLAN.dwg Layout: SAN-4 Date: Jun 14, 2023 - 9:10am; Edit By: jeb.boc



NOT FOR CONSTRUCTION

BENCHMARK

| No. | Elevation | Description |
|-----|-----------|--|
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

DIGITAL INFORMATION

| No. | DATE | REVISIONS |
|-----|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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Vaughan, ON L4K 0C5

p: 905.738.5700
f: 905.738.0065

STORM DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: STM-2 |
| SCALE: 1:500 | 10m 20m | |

File: \\TYL\COM\Fuel\vaughan\Legacy\Company\Projects\2016\16126 - Mud Creek4 Damaged\SR\16126 STORM DRAINAGE PLAN.dwg, Layout: STM-2, Date: Jun 09, 2023, 2:24pm, Edit By: jhnikulacand

EXISTING
RESIDENTIAL

OTHER LANDS OWNED
BY APPLICANT
(EXISTING COMMERCIAL / OFFICE)

PROUDFOOT PARK
EAST

OTHER LANDS OWNED
BY APPLICANT
(EXISTING COMMERCIAL / OFFICE)

FOREST GLEN
GOLF CENTRE
(NEIGHBOUROOD)

PETRO
CANADA

EXISTING
MUD CREEK LANDS
OXFORD STREET WEST

PROUDFOOT LANE

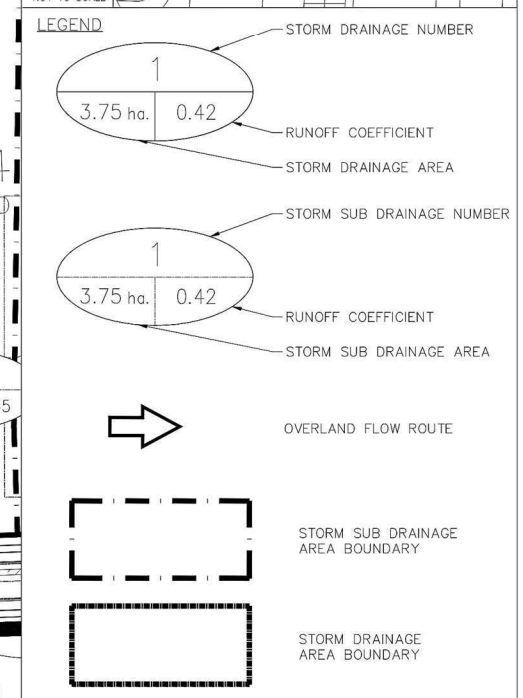
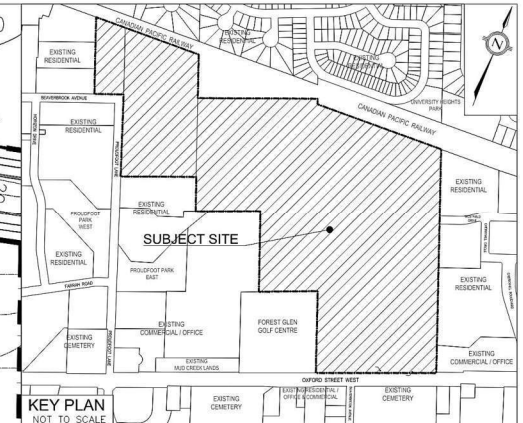
18
0.42 ha. 0.90

23
0.11 ha. 0.65

17
0.24 ha. 0.65

19
0.78 ha. 0.65

20
0.24 ha. 0.65



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
|---------------------|----------|----------------------------|
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

| No. | DATE | REVISIONS |
|--|------|-----------|
| THE LATEST REVISION IS THE MOST RECENT VERSION. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED. | | |

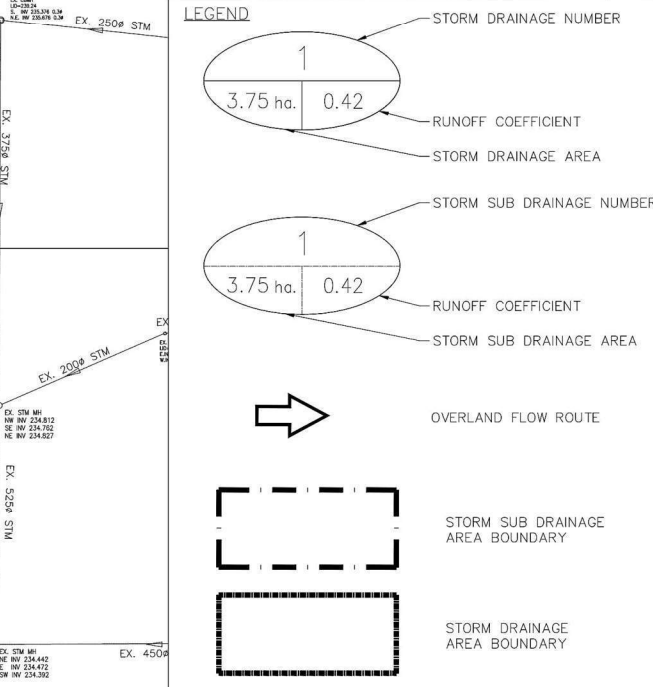
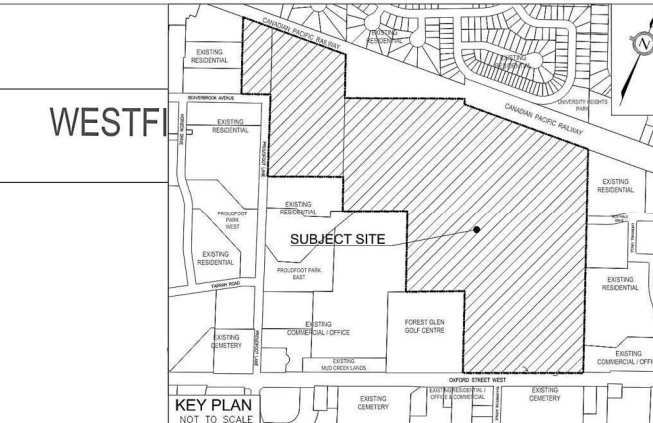
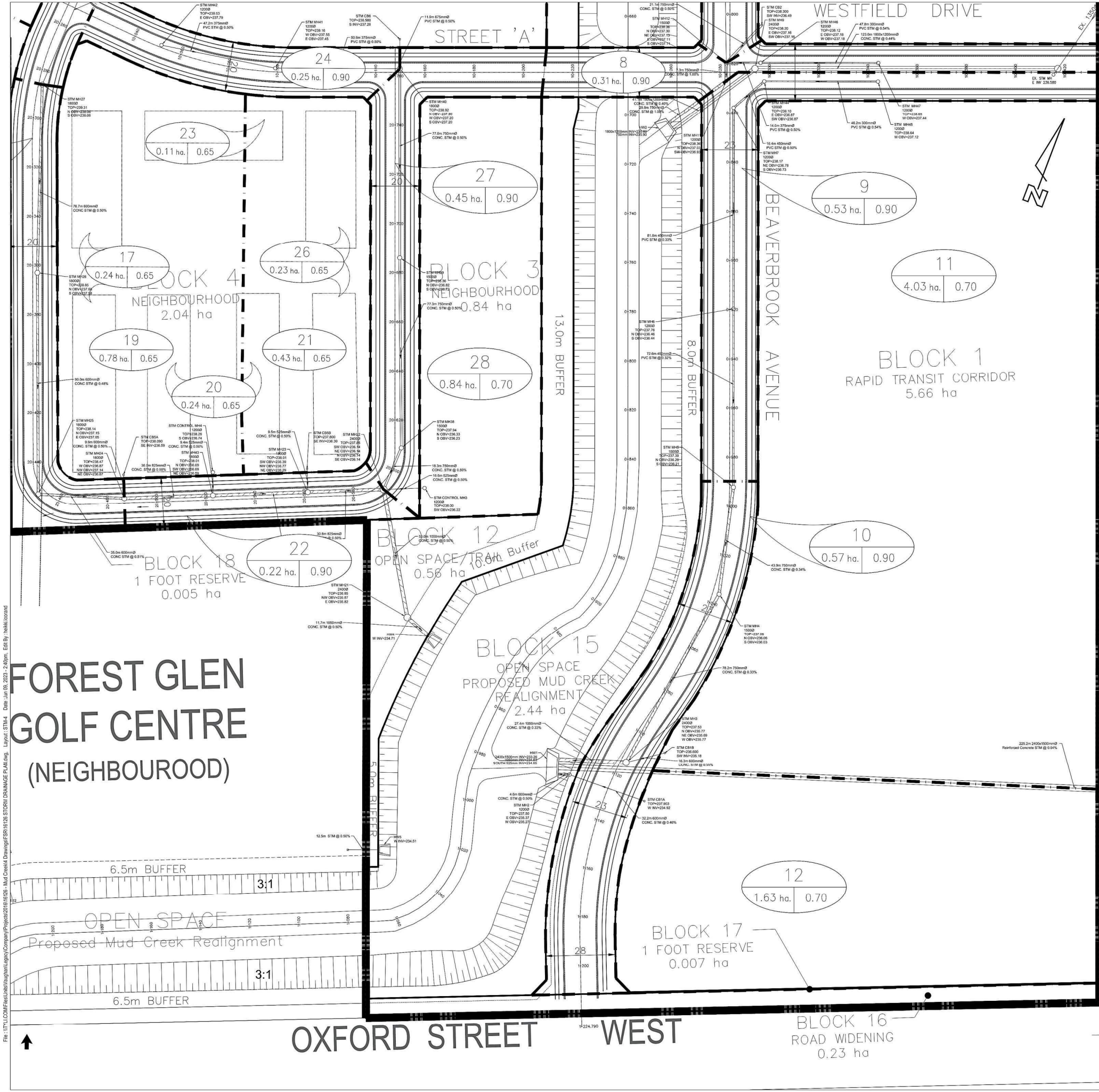
TYLin
8800 Dufferin Street, Suite 200 p: 905.738.5700
Vaughan, ON L4K 0C5 f: 905.738.0065

STORM DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: STM-3 |
| SCALE: 1:500 | 10m 20m | |

File: \\TY\COM\Fuel\vaughan\Legacy\Company\Projects\2016\16126 - Mud Creek\4 Drawings\FSR\16126 STORM DRAINAGE PLAN.dwg Layout: STIM3 Date: Jun 09, 2023 - 2:36pm. Edit By: jhnikulocand



NOT FOR CONSTRUCTION

| BENCHMARK | | |
|-----------|-----------|--|
| No. | Elevation | Description |
| x | m | BRASS CAP IN CONCRETE MONUMENT SET IN GROUND |

| DIGITAL INFORMATION | | |
|---------------------|----------|----------------------------|
| No. | DATE | REVISIONS |
| 3. | 06/09/23 | FSR ADDENDUM |
| 2. | 06/25/21 | ISSUED FOR FSR |
| 1. | 03/06/20 | PRELIMINARY ISSUED FOR IPR |

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Vaughan, ON L4K 0C5
p: 905.738.5700
f: 905.738.0065

STORM DRAINAGE PLAN

BEAVERBROOK

| | | |
|----------------|----------------------|--------------------|
| DESIGNED: J.B. | CHECKED: T.D. | CONTRACT No. 16126 |
| DRAWN: J.B. | DATE: NOVEMBER, 2019 | DRAWING No.: |
| SCALE: 1:500 | 10m 20m | STM-4 |

File: \\TYL\COM\Fees\united\vaughan\Legacy\Company\Projects\2016\16126 - Mud Creek 4 Damaged SR\16126 STORM DRAINAGE PLAN.dwg, Layout: STM14 Date: Jun 09, 2023, 2:40pm, Edit By: jhnikl@tylin.com

FOREST GLEN GOLF CENTRE (NEIGHBOURHOOD)

OXFORD STREET WEST

BLOCK 16 ROAD WIDENING 0.23 ha

BLOCK 17 1 FOOT RESERVE 0.007 ha

BLOCK 15 OPEN SPACE PROPOSED MUD CREEK REALIGNMENT 2.44 ha

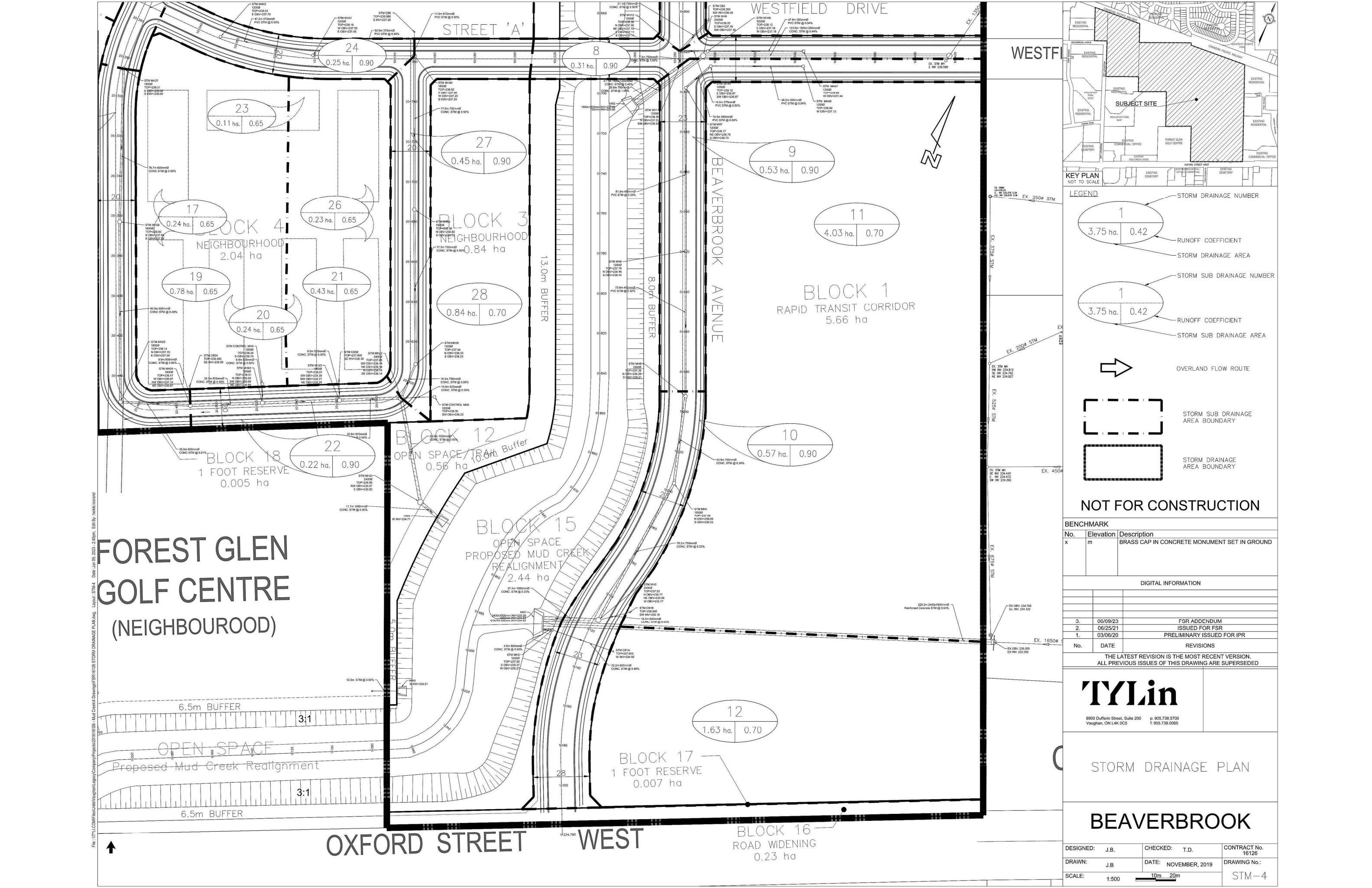
BLOCK 12 OPEN SPACE 1 FOOT Buffer 0.56 ha

BLOCK 18 1 FOOT RESERVE 0.005 ha

BLOCK 1 RAPID TRANSIT CORRIDOR 5.66 ha

BLOCK 3 NEIGHBOURHOOD 0.84 ha

BLOCK 4 NEIGHBOURHOOD 2.04 ha





ATTACHMENT 5

As Built Drawings

8671A

POPULATION DENSITIES:-

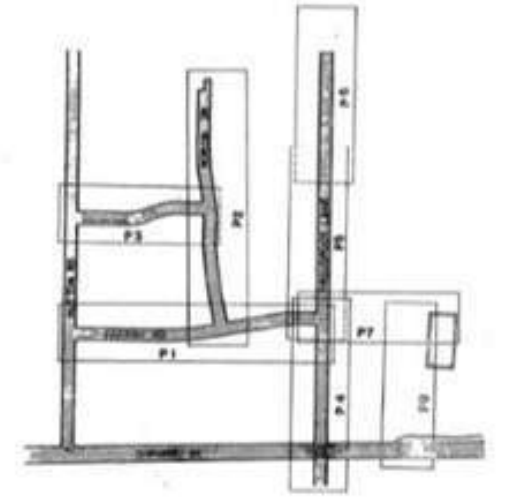
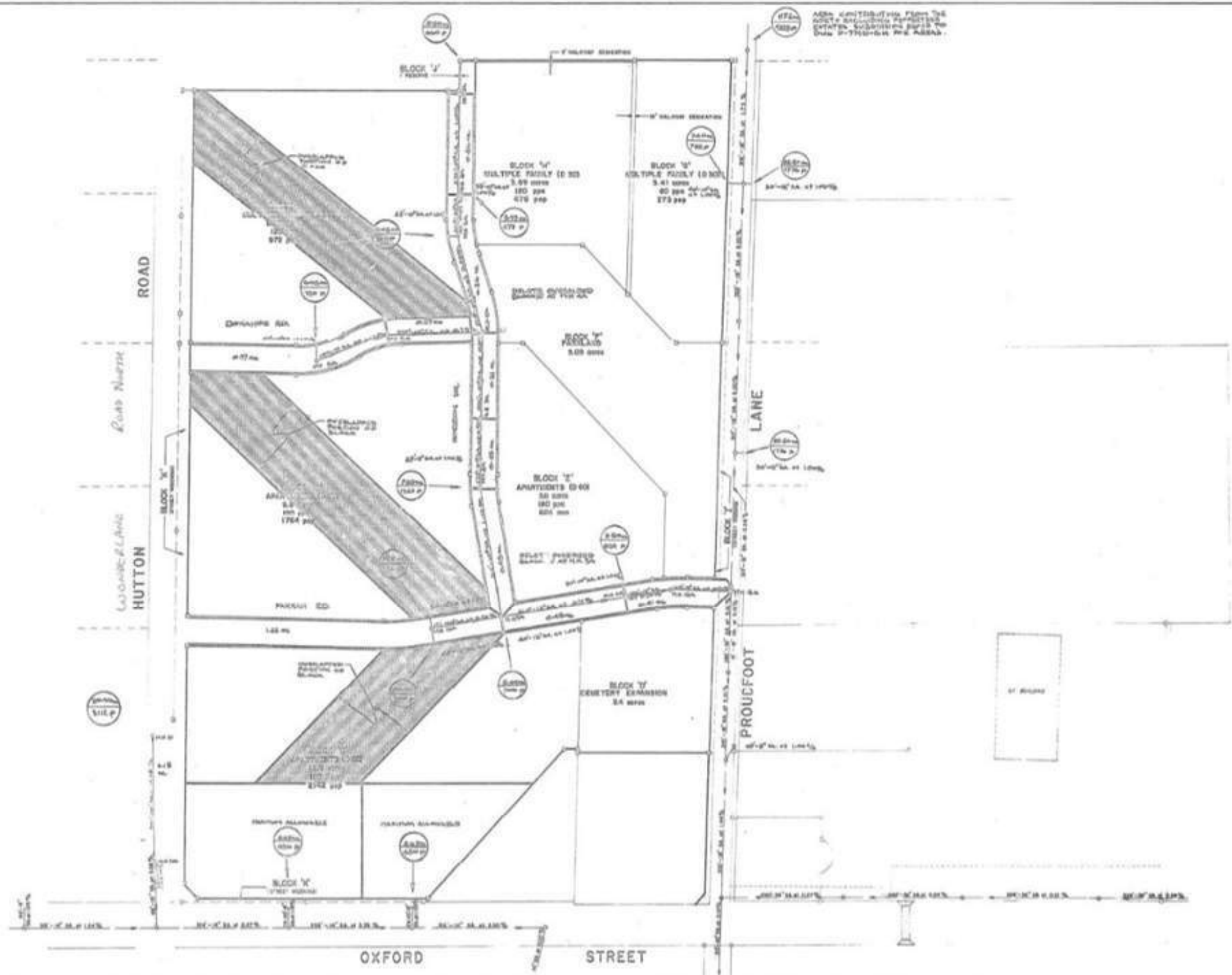
| | |
|--------------------|----------|
| SINGLE FAMILY LOTS | 4 PEOPLE |
| DUPLEX LOT | 8 " |
| APTS: BACH. | 17% " |
| 1 BR. RM. | 27% " |
| 2 BR. RM. | 37% " |

CITY OF LONDON
CITY ENGINEERS DEPARTMENT
SANITARY SEWER DESIGN SHEET

PROJECT PROUDFOOT
FILE NO SHEET 1 OF 1
SANITARY AREA
DESIGNED BY CHECKED BY
DATE

| SEWER LOCATION | | | | AREA | | | | POPULATION | | | | SEWAGE FLOW | | | SEWER DESIGN | | | | | PROFILE | | | | | |
|----------------|---------------------|--------|----------|--------------|---------------------------------|-----------|-----------|------------|------------|---------|--------|-------------|----------------|---------------|--------------|-----------|------|------|---------------|-----------------|---------------|---------------|-------------|------------------------|--------|
| AREA NO | STREET | FROM | TO | NET OR GROSS | DIMENSIONS | Δ A ACRES | Σ A ACRES | PER ACRE | NO OF LOTS | PER LOT | Δ POP. | Σ POP. | INFILT. C.F.S. | SEWAGE C.F.S. | TOTAL C.F.S. | SIZE INS. | S % | n | C.A.P. C.F.S. | VELOCITY F.P.S. | LOTES IN M.H. | FALL IN SEWER | LENGTH feet | INVERT ELEV. U.S. D.S. | |
| | Block N. of | MH 1A | MH 2A | G | 920 x 260 | 5.5 | | 120 | | | 660 | 660 | | 0.40 | | 8 | 1.12 | .013 | 1.25 | 3.67 | - | 2.69 | 240 | 824.49 | 821.80 |
| | Subdivision | | | | 240 x 66 | 0.36 | 5.86 | | | | | | .01 | | 0.41 | | | | | | | | | | |
| | North-South Street | MH 2A | MH 3A | G | Block "H" | 3.99 | | 120 | | | 479 | 1139 | | 0.65 | | 10 | 0.50 | .013 | 1.50 | 2.75 | 0.11 | 0.50 | 100 | 819.80 | 819.30 |
| | | | | | 100 x 66 | 0.15 | 10.00 | | | | | | .02 | | 0.67 | | | | | | | | | | |
| | | MH 3A | MH 4A | G | 3/4 Block 'A' | 6.08 | | 120 | | | 730 | 1869 | | 1.07 | | 10 | 0.50 | .013 | 1.50 | 2.75 | 0.12 | 1.18 | 235 | 819.10 | 817.92 |
| | | | | | 235 x 66 | 0.36 | 16.44 | | | | | | .03 | | 1.10 | | | | | | | | | | |
| | East-West Street #1 | MH 6A | MH 5A | G | 3/4 Block 'A' | 6.08 | | 120 | | | 730 | 730 | | 0.45 | | 8 | 0.70 | .013 | 1.01 | 3.32 | 0.20 | 1.33 | 180 | 824.02 | 822.76 |
| | | | | | 480 x 70 | 0.77 | 6.85 | | | | | | .01 | | 0.46 | | | | | | | | | | |
| | | MH 5A | MH 4A | | Contributing flow ROW only | 0.37 | 7.22 | | | | - | 730 | | 0.45 | | 10 | 0.50 | .013 | 1.50 | 2.75 | 0.11 | 1.15 | 230 | 822.71 | 821.56 |
| | | | | | 230 x 70 | | | | | | | | .02 | | 0.47 | | | | | | | | | | |
| | North-South Street | MH 4A | MH 7A | G | Delete 1/4 Block 'A' | 4.05 | | 120 | | | -486 | 2113 | | 1.15 | | 10 | 0.50 | .013 | 1.50 | 2.75 | 0.18 | 1.03 | 205 | 817.72 | 816.69 |
| | | | | | from total | | | | | | | | | | | | | | | | | | | | |
| | | MH 7A | MH 8A | | 205 x 66 | .31 | 19.92 | | | | | | .03 | | 1.18 | | | | | | | | | | |
| | | | | | Contributing flow ROW only | | | | | | | | | | | 10 | 0.50 | .013 | 1.50 | 2.75 | 0.05 | 0.82 | 165 | 816.49 | 815.66 |
| | | | | | 165 x 66 | 0.25 | 20.17 | | | | | | .03 | | 1.18 | | | | | | | | | | |
| | | MH 8A | MH 9A | G | 3/4 Block 'B' | 7.35 | | 180 | | | 1323 | 3436 | | 1.8 | | 10 | 0.80 | .013 | 1.95 | 4.08 | 0.25 | 2.52 | 315 | 811.60 | 809.08 |
| | | | | | 315 x 66 | 0.48 | 28.00 | | | | | | .05 | | 1.85 | | | | | | | | | | |
| | East-West | MH 10A | MH 9A | G | 3/4 Block 'B' | 7.35 | | 180 | | | 1323 | | | | | | | | | | | | | | |
| | | | | G | 0.42 Block 'C' | 5.00 | | 180 | | | 900 | 2223 | | 1.30 | | 10 | 0.50 | .013 | 1.54 | 3.23 | 0.45 | 0.85 | 170 | 800.95 | 800.10 |
| | | | | | 760 x 70 | 1.22 | 13.57 | | | | | | .02 | | 1.32 | | | | | | | | | | |
| | | MH 9A | MH 11A | G | Delete 1/4 Block 'B' from total | -4.90 | | | | | | | | | | | | | | | | | | | |
| | | | | | 300 x 70 | 0.48 | | 180 | | | -882 | | | | | | | | | | | | | | |
| | | | | G | 0.42 Block 'C' | 5.00 | | 180 | | | 900 | | | | | | | | | | | | | | |
| | | | | G | from 8A | 28.00 | | | | | 3436 | | | | | | | | | | | | | | |
| | | | | G | from 10A | 13.57 | 42.15 | | | | 2223 | 5677 | | 2.80 | 2.87 | 12 | 0.72 | .013 | 3.03 | 4.40 | .37 | 2.16 | 300 | 799.70 | 797.54 |
| | | MH 11A | MH 12A | G | Block 'E' | 3.80 | 45.95 | 180 | | | 684 | 6361 | | 3.10 | 3.17 | 12 | 0.90 | .013 | 3.38 | 4.91 | .19 | 0.95 | 105 | 797.34 | 796.39 |
| | | MH 12A | MH 13A | | 255 x 70 | 0.41 | 46.36 | | | | | | .08 | | 3.18 | 12 | 0.90 | .013 | 3.38 | 4.91 | .11 | 1.34 | 149 | 796.19 | 794.85 |
| | | | ex. san. | | | | | | | | | | | | | | | | | | 1.5 | D/S | ex san | = | 793.40 |

8671A



| | |
|------------------------------------|-----------------|
| AS CONSTRUCTED DRAINING | 1000 000 A.L.C. |
| CITY'S COMMENTS, SECOND SUBMISSION | 200 000 A.L.C. |
| CITY'S COMMENTS, FIRST SUBMISSION | 200 000 A.L.C. |
| GENERAL REVISIONS | 200 000 A.L.C. |

CITY OF LONDON

SANITARY DRAINAGE PLAN
 REGISTERED PLAN N° M78

PROCTOR & REDFERN LIMITED
 CONSULTING ENGINEERS
 LONDON, ENGLAND

CITY ENGINEER'S DEPARTMENT
 8671