



URBANTECH®

INFRASTRUCTURE SERVICING STUDY

HERITAGE HEIGHTS SECONDARY PLAN

CITY OF BRAMPTON
REGION OF PEEL

PREPARED FOR
CITY OF BRAMPTON
on behalf of the Heritage Heights Landowner Group

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TABLE OF CONTENTS

1	INTRODUCTION	6
1.1.	STUDY PURPOSE	6
1.2.	STUDY AREA	7
1.3.	PLANNING CONTEXT	7
1.4.	BACKGROUND STUDIES.....	8
2	POPULATION AND EMPLOYMENT TARGETS	9
2.1.	SECONDARY PLAN LAND USE.....	9
2.2.	POPULATION AND EMPLOYMENT PROJECTIONS FOR ISS.....	9
2.2.1.	Population Distribution Assumptions.....	10
2.2.2.	HHSP Population Projections – Total and By Precinct	12
3	SANITARY SERVICING.....	14
3.1.	EXISTING SANITARY SERVICES.....	14
3.2.	SANITARY DESIGN CRITERIA.....	14
3.3.	PROPOSED HHSP SANITARY SERVICING STRATEGY	15
3.3.1.	Sub-Trunk 1 – West of Highway 413, Heritage Road and Wanless Drive	17
3.3.2.	Sub-Trunk 2 – East of Highway 413, Sandalwood Parkway	17
3.3.3.	Sub-Trunk 3 – West of Highway 413, to Bovaird Drive	18
3.3.4.	Sub-Trunk 4 – East of Highway 413, Williams Parkway	18
3.4.	PEEL REGION DOWNSTREAM SYSTEM CAPACITY	19
4	WATER SERVICING.....	20
4.1.	EXISTING WATER SERVICES	20
4.1.1.	Pressure Zone 4 Existing Infrastructure.....	20
4.1.2.	Pressure Zone 5 Existing Infrastructure.....	20
4.1.3.	Pressure Zone 6 Existing Infrastructure.....	20
4.1.4.	Pressure Zone 7 Existing Infrastructure.....	21
4.2.	WATER DESIGN CRITERIA AND SYSTEM DEMAND	21
4.3.	PROPOSED HHSP WATER SERVICING STRATEGY.....	22
4.4.	WATER SUPPLY ANALYSIS	23
5	GRADING AND SERVICING CONSTRAINTS	25
5.1.	HHSP PROPOSED GRADING	25
5.2.	NATURAL HERITAGE SYSTEM CONSTRAINTS.....	26

6	STORMWATER MANAGEMENT	27
6.1.	EXISTING CONDITIONS.....	27
6.1.1.	Topography and Soils	27
6.2.	STORMWATER MANAGEMENT SYSTEM DESIGN	28
6.2.1.	Post Development Drainage.....	28
6.2.2.	SWM Pond Block Locations	28
6.2.3.	Imperviousness	29
6.2.4.	SWM Pond Sizing	30
6.2.5.	Stormwater System Design	35
6.3.	LOW IMPACT DEVELOPMENT	35
6.3.1.	Thermal Mitigation	37
7	IMPLEMENTATION AND TIMING	38
8	CONCLUSION	40

TABLES

Table 2.1: Comparison of Population Density Criteria (Peel Region ¹ versus HHSP).....	11
Table 2.2: Proposed Density Assumptions for HHSP Land Use	12
Table 2.3: Population and Employment Totals for the HHSP	13
Table 3.1: Peel Region Wastewater Generation Design Criteria.....	15
Table 3.2: HHSP Wastewater Generation Total (Cumulative)	15
Table 4.1: Peel Region Water Demand Design Criteria	21
Table 4.2: HHSP Water Demand (Domestic)	22
Table 6.1: Overall Drainage Areas Within the HHSP	27
Table 6.2: Percent Imperviousness by Land Use.....	29
Table 6.3: Updated SWM Pond Design Criteria	30
Table 6.4: HHSP Preliminary Stormwater Management Facility Sizing.....	33

APPENDICES

Appendix A – Design Sheets

Sanitary Sewer Design

Appendix B – City of Brampton Heritage Heights Precinct Application Tracker

Heritage Heights Precinct Application Tracker – GANTT Chart
Composite Map

Appendix C – SWM Pond Block Calculations and Alternative SWM Practices

SWM Pond Sizing Calculations
Urbantech Presentation: LID/SWM BMP Land Use Applications

Appendix D – Drawing Package

Drawing 1	Heritage Heights Secondary Plan Area Preliminary Land Use Plan
Drawing 2	Preliminary Grading Plan
Drawing 3	Preliminary Stormwater Management & Natural Heritage System Design
Drawing 4	Preliminary Internal Wastewater Servicing
Drawing 4A	External Sanitary Drainage Areas
Drawing 4B	Preliminary Sub-Trunk 1 Plan & Profile (Part 1)
Drawing 4C	Preliminary Sub-Trunk 1 Plan & Profile (Part 2)
Drawing 4D	Preliminary Sub-Trunk 1 Plan & Profile (Part 3)
Drawing 4E	Preliminary Sub-Trunk 1 Plan & Profile (Part 4)
Drawing 4F	Preliminary Sub-Trunk 2 Plan & Profile (Part 1)
Drawing 4G	Preliminary Sub-Trunk 3 Plan & Profile (Part 1)
Drawing 4H	Preliminary Sub-Trunk 3 Plan & Profile (Part 2)
Drawing 4I	Preliminary Sub-Trunk 3 Plan & Profile (Part 3)
Drawing 4J	Preliminary Sub-Trunk 3 Plan & Profile (Part 4)
Drawing 4K	Preliminary Sub-Trunk 3 Plan & Profile (Part 5)
Drawing 4L	Preliminary Sub-Trunk 4 Plan & Profile (Part 1)
Drawing 4M	Preliminary Sub-Trunk 4 Plan & Profile (Part 2)
Drawing 4N	Preliminary Sub-Trunk 4 Plan & Profile (Part 3)
Drawing 5	Preliminary Watermain Plan

Appendix E – ISS TOR Checklist

ISS TOR Review and Checklist

5

1 INTRODUCTION

1.1. STUDY PURPOSE

The Heritage Heights Infrastructure Servicing Study (ISS) is a functional report that establishes a comprehensive servicing strategy for the Heritage Heights Secondary Plan. Developed on behalf of the Heritage Heights Landowners in collaboration with the City of Brampton and the Region of Peel, the ISS provides a high-level framework to guide and inform more detailed infrastructure planning at the Precinct Plan Draft Plan level.

Specifically, the ISS includes:

- Population and employment targets for the Secondary Plan area, both overall and by precinct.
- Sanitary sewer and water servicing strategies, confirming the logical extension of existing and planned infrastructure.
- Servicing, grading, and environmental constraints and opportunities.
- Preliminary stormwater management (SWM) requirements, including:
 - Approximate drainage boundary delineation.
 - Proposed location and sizing of SWM facilities.
 - Servicing constraints and use of sump pumps.
 - Opportunities to explore alternative and innovative SWM approaches in future studies.

The ISS incorporates, where practical, the most recent Subwatershed Study updates, previous studies completed for Northwest Brampton (including adjacent Block 51-1), and the Region of Peel's ongoing Water and Wastewater Master Plan (to 2051). A Terms of Reference (TOR) was provided to the Landowners to guide the preparation of this study. The requirements outlined in the TOR have been followed, with the exception of certain elements that are intended to be addressed through the Subwatershed Study or during subsequent stages of planning, such as the Precinct Plan and Draft Plan processes. A checklist summarizing how specific items are addressed across the three levels of study is provided in **Appendix E**.

The ISS is intended to serve as general guidance for future Precinct Plan studies and Draft Plans. It is acknowledged that elements of the strategy may evolve as planning advances, in consultation with the City and Region.

1.2. STUDY AREA

The Study Area for the ISS encompasses the full Heritage Heights Secondary Plan (HHSP), as illustrated in **Drawing 1** in **Appendix D**. The Secondary Plan area covers approximately 1,626 hectares (4,018 acres), entirely within the City of Brampton, and is bounded by:

- Mayfield Road to the north (Regional Road 14).
- Mississauga Road to the east (Regional Road 1).
- Credit River to the south.
- Winston Churchill Road to the west (Regional Road 19).

Wanless Drive and Bovaird Drive extend west-to-east through the HHSP, while Heritage Road and the planned Highway 413 traverse the area north-to-south. The Canadian National Rail (CNR) and Trans Canada Pipeline (TCPL) corridors bisect the study area.

Approximately 420 hectares of the HHSP falls within the West Huttonville Creek subwatershed (CVC subwatershed 7) and drains toward the south / southeast. The remaining 1,208 hectares lie within the Credit River subwatershed (CVC subwatershed 9) and generally drain south / southwest. A significant portion of the Secondary Plan includes Natural Heritage System (NHS) features associated with the Credit River and West Huttonville Creek.

1.3. PLANNING CONTEXT

The HHSP was adopted by City of Brampton Council in April 2022. Several appeals to the Ontario Land Tribunal (OLT) were filed encompassing both Secondary Plan policies and Schedules.

After the adoption of the appeals of the Secondary Plan, the Province of Ontario confirmed its intention to proceed with Highway 413, which bisects the Secondary Plan area. Through 2023 and 2024, the City of Brampton updated the HHSP land use schedule and associated policies to reflect planning for Highway 413 and other substantive matters and held OLT mediation sessions with appellants. The mediation process concluded by mid-2024 and the OLT approved the Secondary Plan on August 21, 2024.

The approved 2024 Secondary Plan Land Use Structure is available as **Drawing 1** in **Appendix D**. The figure illustrates the general location of Highway 413, CNR, proposed street network, Natural Heritage System (NHS) and other land uses.

Following the 2024 approval of the HHSP, the City of Brampton re-initiated the HHSWS, the Heritage Heights Infrastructure Servicing Study (ISS), and the Heritage Heights Transportation Master Plan (TMP). All three studies are intended to be complete in 2025 with key findings and recommendations to be incorporated into Precinct and Draft Plans.

Finally, and as an aside, a Planning Protocol Agreement was developed with the City Planning Department that describes how the development of the Precincts is to unfold. The document provides details related to what studies will be required in order to have a complete submission, as well as clarifies the relationship of the three Secondary Plan studies outlined above with individual Precinct and Draft Plan submissions, many of which will be submitted in advance of the Secondary Plan studies being completed. We have included the Protocol as an appendix to this study.

1.4. BACKGROUND STUDIES

In preparation of the ISS, the following reports and documents were referenced:

- City of Brampton Development Design Guidelines (2003)
- Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) Stormwater Management Criteria (2022)
- City of Brampton Official Plan (August, 2024)
- Peel Public Works Stormwater Design Criteria and Procedures Manual (June, 2019)
- Region of Peel Public Works Watermain Design Criteria (June, 2010)
- Region of Peel Public Works Linear Wastewater Standards (March, 2023)
- Region of Peel Development Charges Background Study – Consolidated Report (November, 2020)
- Region of Peel Water and Wastewater Master Plan for the Lake-Based System (2020)
- Region of Peel Settlement Area Boundary Expansion Water and Wastewater Service Analysis (August, 2021)
- Region of Peel Wastewater Development Charges 2025 (Mapping)
- Region of Peel Water Development Charges 2025 (Mapping)
- Credit Valley Conservation (CVC) Watershed Planning and Regulation Policies (2010)
- Mount Pleasant Huttonville and Fletchers Creeks Subwatershed Study (AMEC, 2011)
- Heritage Heights Subwatershed Study Phase 1: Subwatershed Characterization and Integration Report (Wood, 2021)
- Heritage Heights Subwatershed Study Phase 2: Preliminary Impact Assessment Technical Memorandum (Wood, 2021)
- Heritage Heights Subwatershed Study Phase 2: Subwatershed Impact Assessment (Wood, 2022)

The following studies are under development concurrently with the ISS to support the future development HHSP. When complete later this year, these will also inform future Precinct Planning and Draft Planning:

- Heritage Heights Transportation Master Plan
- Heritage Heights Subwatershed Study (SWS) Update

2 POPULATION AND EMPLOYMENT TARGETS

2.1. SECONDARY PLAN LAND USE

The Heritage Heights Secondary Plan (HHSP) establishes the land use vision and planning framework to guide future growth and development within the area. The Secondary Plan supports the development of a complete, mixed-use, transit-supportive community that offers a balance of housing and employment opportunities. Population and land use targets have been strategically set to capitalize on the area's proximity to key transportation infrastructure, including the future Highway 413 provincial corridor and the existing rail hub (the Metrolinx Mount Pleasant GO Station).

The Secondary Plan includes the following land uses (also refer to **Drawing 1** in **Appendix D**):

- Neighbourhoods *
- Mixed-Use Residential (Medium Density) *
- Mixed-Use Residential (High Density) *
- Corridor Mixed-Use A (Predominantly employment, adjacent to the highway corridor) *
- Corridor Mixed-Use B (Mixed use employment and residential) *
- Major Institutional *
- Employment *
- Natural Heritage System
- Community Parks *
- CN Railway Layby and Maintenance Facility
- Pump Station
- Special Policy Areas *
- Deferred Area *

For the purposes of this study, note that land uses marked with an asterisk have been assigned specific population/employment densities and water demand/wastewater generation rates in accordance the overall population and employment targets for the Secondary Plan. The specific assumptions used in this assessment are detailed in the following sections.

2.2. POPULATION AND EMPLOYMENT PROJECTIONS FOR ISS

Following the approval of the HHSP and associated land use framework in 2024, the City of Brampton forecasted a full build-out population of approximately 132,188 residents and 54,307 jobs within the Secondary Plan area. Since that time, Urbantech has worked closely with the City and the Region of Peel to further refine population and employment projections—both at the Secondary Plan level and within individual precincts—guided by the following principles:

- Maintain the overarching vision of the Secondary Plan as a complete, mixed-use, transit-supportive community.
- Adhere to the Region of Peel's established design criteria for sanitary and water infrastructure, to the greatest extent possible, while accounting for the planned urban form and land use mix within Heritage Heights.
- Recognize the growing trend toward higher density built form, particularly within growth nodes and near mobility hubs.
- Ensure that servicing strategies for water and sanitary infrastructure are foundational, supporting the Secondary Plan's long-term vision for higher-density, mixed-use development. Infrastructure must be designed with sufficient capacity to support future growth and avoid downstream planning constraints.

Ultimately, population and employment projections herein will be aligned with Precinct Planning Studies and Peel Region's ongoing Water and Wastewater Master Plan, to support integrated, long-term infrastructure planning.

The final Secondary Plan projections put forward are as follows:

Residential Population:	145,680 people
Employment Population:	59,860 jobs
Total:	205,540 people + jobs

2.2.1. Population Distribution Assumptions

The Region of Peel's Linear Wastewater Design Criteria (2023) establishes population density targets for various land uses to guide infrastructure planning. However, applying these standard targets to the Heritage Heights Secondary Plan area results in population projections that fall short of the overall objectives. This discrepancy suggests that the standard density targets currently used by the Region may not align with the ultimate development vision for Heritage Heights, which emphasizes higher-density, mixed-use communities. To address this, population density assumptions specifically for high-density development and employment development have been adjusted from Peel's current criteria to reflect the planned urban form and land use mix in Heritage Heights. This will ensure that infrastructure planning supports the long-term anticipated growth and development patterns.

Specifically, the following assumptions regarding population density have been applied to the HHSP. All other density assumptions remain consistent with Peel's criteria, as shown in **Table 2.1**.

- High-Density Residential: Increased from 475 ppl/ha to **1,100 ppl/ha**, aligning with current densities in growth areas and transit hubs in Peel and Halton.
- Employment Density (Commercial, Light Industrial): Increased from 50 ppl/ha to **200 ppl/ha**, reflecting higher density uses such as office spaces and mixed-use retail.

Table 2.1: Comparison of Population Density Criteria (Peel Region¹ versus HHSP)

Land Use Type	Peel Region Criteria ¹	Proposed Heritage Heights Secondary Plan Criteria
Single Family (> 10 m Frontage)	50	N/A
Single Family (< 10 m Frontage)	70	70
Semi-detached	70	70
Townhouses	175	175
Apartment Buildings	475	1100
Light Industrial	70	200
Commercial	50	200

¹ Taken from Peel Region Linear Wastewater Standards, 2023 (Table 2-1 and Section 2.1.2)

The Heritage Heights Secondary Plan land use categories do not directly align with Peel Region's criteria. **Table 2.2** outlines the assumed relationships between land use types.

Peel Region's criteria also do not specify residential/commercial splits for mixed-use neighbourhoods. For this analysis, residential mixed-use areas are assumed to be 79% residential and 21% commercial/retail (by area), based on the Region of Peel 2022 Development Charges Background Study.

Exceptions apply to Corridor Mixed-Use A and B areas, which are designated as employment-focused with residential components. Per Secondary Plan policies, these areas must collectively support at least 2,000 jobs. These areas assume:

- Corridor Mixed-Use A: 100% employment (light industrial)
- Corridor Mixed-Use B: 71% residential (high density) and 29% employment (light industrial).

The *Combined Density* column in **Table 2.2** reflects the final density for each land use, incorporating these mixed-use assumptions.

Table 2.2: Proposed Density Assumptions for HHSP Land Use

HHSP Land Use Designation	Associated Peel Region Land Use Category	Residential Density (ppl/ha)	Commercial / Retail Density (jobs/ha)	Employment Density (jobs/ha)	Combined Density (ppl+jobs/ha) ^{1,2}
Mixed Use Residential (High)	High Density / Commercial	1100	200	-	839
Mixed Use Residential (Med)	Med Density / Commercial	175	200	-	182
Neighbourhoods	Low Density / Commercial	70	70 ³	-	70
Corridor Mixed Use A	Employment (Light Industrial)	-	-	200	200
Corridor Mixed Use B	High Density / Employment	1100	-	200	839
Major Institutional	Institutional	-	200	-	200
Employment	Light Industrial	-	-	200	200
Special Policy Area 1	High Density	1100	200	-	839
Special Policy Area 2	Med Density (outside of NHS)	175	200	-	182

¹ Peel Region does not specify residential and employment splits for mixed-use areas. For the purposes of this exercise a 79% residential, 29% employment split (by area) for mixed-use has been assumed (consistent with the Region's 2022 Development Charges Background Study for res versus non-res splits).

² Corridor Mixed-Use A and Corridor Mixed-Use B are intended to develop as employment areas with mixed-use residential. Corridor Mixed-Use A is assumed 100% employment (light industrial) and Corridor Mixed-Use B is assumed 71% residential (high density) and 29% employment (light industrial), by area. These assumptions create the capacity to exceed the 2000 job requirement for these areas as outlined in Secondary Plan policies.

³ Neighbourhoods (low density residential areas) are the only land use designation that is not assigned the higher 200 ppha employment density. Dense employment uses (either retail or commercial) are not complementary to low rise residential and do not make sense as an assumption for these areas. 70 ppha is used for neighbourhood employment to maintain similar densities throughout.

2.2.2. HHSP Population Projections – Total and By Precinct

Population totals for the Secondary Plan area and by Precinct are outlined below in **Table 2.3** with details for each drainage area available in **Drawing 4**. These reflect the criteria and methodology

outlined above. These populations have been utilized in this study to determine overall servicing requirements and recommendations for the Heritage Heights Secondary Plan.

Table 2.3: Population and Employment Totals for the HHSP

Precinct	Residential Population (ppl/ha)	Employment Population (jobs/ha)	Total Population (ppl+jobs/ha)
52-1	27,590	6,830	34,420
52-2	25,170	7,310	32,480
52-3	2,590	20,640	23,230
52-4	9,220	1,040	10,260
52-5	23,240	6,620	44,860
52-6	20,410	3,510	23,920
52-7	22,460	13,920	36,380
Total Secondary Plan	145,680	59,860	205,540

It is important to note that:

- Special Policy Area 1 (Precinct 52-7) is assumed as Mixed-Use Residential (High).
- Special Policy Area 2 (Precinct 52-2) is predominantly Natural Heritage System (NHS). The total population estimate is based on 11.6 ha of NHS and 1.4 ha of Mixed-use Residential (Medium)
- Deferred Area (Precinct 52-3) is assumed as predominantly employment with some mixed-use residential. The total population estimate is based on 25.1 ha of employment, 5.2 ha of Mixed-Use Residential (Medium) and 2.1 ha of Mixed-Use Residential (High). Note that discussions regarding the final residential / employment splits within the Deferred Area are on-going with the City. Population estimates are subject to change as land use is finalized.
- Residential populations are slightly higher than the City's targets (145,680 vs. 132,188 residents across the Secondary Plan), reflecting the 1,100 ppl/ha density target. This provides flexibility for future adjustments (including potential employment conversions) and ensures appropriate long-term infrastructure sizing.
- Population estimates in **Table 4-1** are planning-level figures intended to guide infrastructure planning and demonstrate general alignment with the Secondary Plan objectives. These estimates will be refined through Precinct Plans and Draft Plans as more information becomes available regarding final built form and unit counts.

3 SANITARY SERVICING

3.1. EXISTING SANITARY SERVICES

The HHSP is serviced by the Region of Peel's lake-based wastewater system. The lake-based system consists of two wastewater treatment facilities and a network of pumping stations, forcemains and gravity sewers (both trunk and local). The system is divided into three main trunk systems – McVean, East and West.

The HHSP lands are tributary to the Peel West trunk system and the Clarkson Wastewater Treatment Plant. There is an existing 1200 mm Regional trunk sewer on Mississauga Road that currently terminates at Sandalwood Parkway (refer to **Drawing 4** in **Appendix D**). The trunk sewer was originally constructed to service the Block 51-1 lands east of Heritage Heights but is sized with capacity to support the following (see **Drawing 4A** in **Appendix D**):

- 80% of Block 51-1
- 100% of Block 51-3
- 100% of the Heritage Heights Secondary Plan
- Over 1000 hectares of growth north of Mayfield Road, including a portion of the Alloa Secondary Plan and future settlement area boundary expansion lands north and west of Highway 413.

When the trunk sewer was installed, stub connections were extended into the HHSP at Sandalwood Parkway, north of the CNR, north of Bovaird Drive and at Williams Parkway, to provide future service connections for the HHSP. The installed sewer ranges in depth from 15 m to over 30 m.

3.2. SANITARY DESIGN CRITERIA

Peel Region wastewater design criteria and design standards are taken from the Public Works Linear Wastewater Standards (March, 2023). Pipe size, slope and depth, as shown in **Drawing 4** follow the requirements set out in the March 2023 Design Manual.

The calculated overall wastewater generation rates for the HHSP at build-out are shown in **Table 3.2**. The full sanitary design sheet is available in **Appendix A**. Note that the design sheet also includes the external area contributions as shown in **Drawing 4A**.

Sanitary flow rates are determined using:

- Land use areas as shown in **Drawing 1** in **Appendix D** (Heritage Heights Secondary Plan).
- Population / Employment density targets as discussed in **Section 2.2**.

- Peel Region Sanitary Design Criteria shown in **Table 3.1**, taken from the March 2023 Design Manual and consistent with the 2020 Master Plan.

Table 3.1: Peel Region Wastewater Generation Design Criteria

Population Type	Average Dry Weather Flow (L/cap/day)	Peaking Factor	Inflow and Infiltration (L/s/ha)
Residential	290	Harmon Formula	0.260
Employment	270	Harmon Formula	0.260

Table 3.2: HHSP Wastewater Generation Total (Cumulative)

	Population + Jobs (Total)	Total HHSP Infiltration Flow (L/s)	Total HHSP Flow (L/s)
HHSP	205,540	230	1,650

It is important to note that:

- The values in **Table 3.2** are preliminary and subject to refinement at the Precinct Plan and Draft Plan level as more information becomes available.
- The HHSP will build-out over time. Flow will enter the downstream system gradually as planning and development proceeds. Information regarding preliminary phasing is included in **Section 7**.

3.3. PROPOSED HHSP SANITARY SERVICING STRATEGY

Drawing 4 in **Appendix D** illustrates the proposed sanitary servicing strategy for the HHSP, including all existing and planned service connections to Peel Region infrastructure. The strategy builds upon the servicing framework outlined in the 2020 Water and Wastewater Master Plan and Peel Region's 2025–2041 Wastewater Development Charges (DC) Mapping. Several DC-funded capital projects have been identified to support growth within the HHSP, including but not limited to the following:

- Projects 25-2224 / 25-1114 – extension of Mississauga Road trunk sewer from Sandalwood Parkway north to Mayfield Road (2027 construction start);
- Project 27-2229 – Sandalwood Parkway trunk sewer from Mississauga Road west to Heritage Road (2028 construction start);

- Project 24-2223 – Bovaird Drive trunk sewer from Mississauga Road west to Heritage Road (Detailed Design ongoing, 2026 construction start, 2027 in-service). Note that there is ongoing coordination with the Region to extend this sewer further west to Street 6 (as shown in **Drawing 4**)
- Project 26-2221 – Williams Parkway trunk sewer from Mississauga Road east (2026 construction start).

As illustrated in **Drawing 4**, the Secondary Plan is proposed to be serviced by a network of local sub-trunk sanitary sewers, generally conveying flows from north to south, and west to east across the plan area, with all areas ultimately connecting to the existing 1200 mm trunk sewer on Mississauga Road. Four major sub-trunk systems are proposed, as described in further detail below.

The sub-trunk configuration developed through this study differs from the layout shown in Peel Region's 2025 DC Mapping. Urbantech has worked in close coordination with Region staff to refine the servicing approach for the HHSP, with the objectives of minimizing future crossings of Highway 413 and optimizing the use of capacity within existing and planned Regional sewer infrastructure. It is anticipated that future DC mapping and the ongoing Peel Region Master Plan will be updated to reflect the servicing approach outlined in this study.

It is also important to note that:

- Pipe sizes proposed as part of this study are based on populations outlined in **Section 2.2.2**, and in coordination with the Region of Peel.
- The sanitary design sheet is provided in **Appendix A**. It reflects full build-out conditions for the HHSP, based on the population projections outlined in **Section 2.2.2**. The analysis also includes projected wastewater flows from future development lands north of Mayfield Road (assumed at an average population density of 80 persons per hectare), as well as external contributions from Blocks 51-1, Block 51-3 and the existing Four X Development Inc. subdivision south of 52-1. The analysis confirms that the Mississauga Road trunk sewer is not capacity constrained, with a maximum peak flow utilization of 84% full, and can accommodate the future proposed growth within the Secondary Plan.
- Detailed plan and profiles for all major sub-trunk components can be found in **Drawing 4B** to **Drawing 4N** in **Appendix D**.
- Any sanitary crossings of the NHS and associated watercourses are intended to be installed by tunnelling below the channels with sufficient clearance and erosion protection. Plan and profiles provide additional information regarding depths at crossings.

- Depending on the timing and phasing of development within the HHSP, some sewers may be front-end financed and constructed by the landowners, assuming appropriate cost recovery from benefitting landowners and/or Peel DCs. Otherwise, they will proceed as planned in the Peel capital program, with design and construction by the Region.
- The servicing plan shown in **Drawing 4** is representative of the ultimate strategy under full build-out conditions. The actual timing and phasing of development in the Secondary Plan may require interim and / or alternative servicing solutions, which will be identified at the draft plan / detailed design stage.
- Final drainage boundaries will be refined in coordination with the Region as Precinct Planning and Draft Plans proceed.

3.3.1. Sub-Trunk 1 – West of Highway 413, Heritage Road and Wanless Drive

Sub-Trunk 1 is a 900 mm to 975 mm sub-trunk sewer network proposed from along Heritage Road, from Mayfield Road to Wanless Drive, and along Wanless Drive, from Heritage Road to Mississauga Road. This sub-trunk system is designed to service approximately 435 hectares of external area north of Mayfield Road as well as all Heritage Heights Precincts north of Wanless Drive (i.e., Precincts 52-7, and 52-3).

All wastewater flow from this area is proposed to drain south to the proposed 1200 mm extension of the existing Mississauga Road trunk sewer.

Depending on the timing of the trunk sewer extension on Mississauga Road, the south portion of Precinct 52-3 may elect to drain south through Precinct 52-2 to Sandalwood Parkway. This will be further reviewed as part of the Precinct Plan work.

3.3.2. Sub-Trunk 2 – East of Highway 413, Sandalwood Parkway

Sub-Trunk 2 is a proposed 600 mm sanitary sewer that runs from north to south along future Pinnacle Parkway (south of Wanless Drive) to the future Sandalwood Parkway extension and then along Sandalwood Parkway from east of Highway 413 to the existing stub connection at Mississauga Road.

This sub-trunk provides drainage to the portion of Precinct 52-2 north of Sandalwood Parkway. The south portion of Precinct 52-2 (from Sandalwood Parkway to the CNR) is serviced by a 375 mm local system, also connecting to the Mississauga trunk sewer.

This represents a key departure from the current Peel Region DC Mapping, which illustrates the Sandalwood Parkway trunk sewer extending west across Highway 413 to service Precincts 52-6 and 52-7. Through discussions with Regional staff, this westward extension has been removed to avoid

a service crossing of the highway. Instead, sanitary flows from Precincts 52-6 and 52-7 are now proposed to be directed further south to connect with the 1200 mm trunk sewer along Bovaird Drive.

Depending on the timing of development within Precinct 52-2 and the extension of Sandalwood Parkway, it may be preferable to extend Sub-Trunk 2 further south along Pinnacle Parkway to Yardmaster Drive. This alternative configuration is illustrated in **Drawing 4**. It will be evaluated further as part of the Precinct Plan and Draft Plan stages, in coordination with the City and Region.

3.3.3. Sub-Trunk 3 – West of Highway 413, to Bovaird Drive

Sub-Trunk 3 is a 600 mm to 1200 mm sub-trunk sewer network proposed west of Highway 413, generally following Net Street, Sandalwood Parkway extension, Heritage Road, Lagerfeld Drive, and future Street 6, extending from just south of Wanless Drive to Bovaird Drive. This sub-trunk system is designed to service Heritage Heights Precincts west of Highway 413, and south of Wanless Drive (i.e., Precincts 52-6, 52-5, and the northwest portion of 52-4).

All wastewater flow from this area is proposed to drain south to Peel Region's new 1200 mm trunk sewer on Bovaird Drive (currently in detailed design), which conveys flow eastward to the Mississauga Road trunk sewer. While the Bovaird sewer was originally intended to service a smaller catchment, detailed design work confirmed that the sewer will be constructed using micro-tunneling at a diameter of 1200 mm. This increased size provides additional capacity and enables alternative servicing options.

As a result, wastewater from areas west of Highway 413 has been redirected from the Sandalwood Parkway corridor to Bovaird Drive. This approach avoids the need for a highway crossing and optimizes use of the available capacity in the Bovaird trunk sewer.

The northwest corner of Precinct 52-5 is proposed to be serviced by Sub-Trunk 3 via a local pump station and associated forcemains. A gravity sewer alternative was evaluated; however, it was deemed impractical due to the significant downstream depth that would be required to service the remainder of the system. The drainage area associated with the pump station will be further confirmed and refined at Precinct Plan and Draft Plan stage.

3.3.4. Sub-Trunk 4 – East of Highway 413, Williams Parkway

Sub-Trunk 4 is a proposed 450 mm to 750 mm sanitary sewer along Williams Parkway from Mississauga Road east to Highway 413. This sub-trunk services Precinct 52-1 and the east portion of Precinct 52-4. Ground elevations in Precinct 52-4 drop significantly across the plan, east of the NHS. It is not practical for this area to drain by gravity north to the Bovaird sub-trunk. As such, this portion of 52-4 is proposed to drain to the Williams Parkway sewer.

3.4. PEEL REGION DOWNSTREAM SYSTEM CAPACITY

The Mississauga Road Trunk Sewer and HHSP lands are tributary to the Peel West trunk wastewater system. Wastewater collected from the Secondary Plan will be conveyed south via the Upper West Trunk Sewer and Lower West Trunk Sewer, ultimately discharging to the Clarkson Wastewater Treatment Plant. As outlined in the 2020 Water and Wastewater Master Plan and the Peel Region 2025 DC Mapping there are upgrades planned for downstream infrastructure to ensure future capacity for all tributary growth areas.

A servicing analysis carried out as part of previous iterations of the ISS and through the mediation process determined that existing downstream wastewater infrastructure could accommodate approximately 85,500 people + jobs prior to any planned upgrades. This is roughly 41% of proposed build-out in the HHSP.

Project timing and final interim / ultimate capacity availability will be discussed with Peel Region Staff as work proceeds for individual Precinct Plans as well as for the Region's Master Plan. As above, it is our understanding that there is existing capacity in the downstream trunk network and the Clarkson Wastewater Treatment Plant to accommodate all near-term development within the HHSP (for areas outlined in **Section 7**). Downstream upgrades are intended to come on-line in parallel with growth (i.e., 2026 to 2028 construction start in accordance with the Peel Region 2025 Wastewater Development Charges Mapping).

4 WATER SERVICING

4.1. EXISTING WATER SERVICES

The HHSP is serviced by the Region of Peel's lake-based water system, which consists of two treatment facilities, transmission mains, pumping stations, water reservoirs and elevated tanks. There are a total of seven (7) water pressure zones, separated by approximately 30 m intervals of elevation.

The HHSP lands are serviced by the Lorne Park Water Treatment Plant and the Region's West Transmission System. The Secondary Plan spans three pressure zones. The majority of the Secondary Plan is within Pressure Zone 6, with the southern most areas serviced by Pressure Zone 5 and the northern most areas serviced by Pressure Zone 7. Additional discussion regarding each Zone is provided in the sections that follow. Refer to **Drawing 5** in **Appendix D** for further details.

4.1.1. Pressure Zone 4 Existing Infrastructure

No part of the HHSP is within the Zone 4 area, or will be serviced by Zone 4 watermain. However, the West Brampton Pumping Station within the Zone 5 area the HHSP is fed by a 1500 mm Zone 4 feedermain, that extends along from the existing West Brampton Reservoir through the 52-1 Precinct and then south on Heritage Road beyond the plan limits.

4.1.2. Pressure Zone 5 Existing Infrastructure

Only the south limit of the HHSP (Precinct 52-1, generally south of Doubles Drive) is serviced by Zone 5. Water is pumped to Zone 5 via the Meadowvale North Booster Station (high lift pumps) and the West Brampton Pumping Station (low lift pumps). Floating storage is provided by the Alloo Reservoir.

There are two existing 300 mm Zone 5 watermain stubs extending north from the Four X Development Inc. subdivision at the south boundary of the Secondary Plan that will be used to service Precinct 52-1. There is also an existing 750 mm Zone 5 transmission main on Mississauga Road adjacent to Precinct 52-1.

4.1.3. Pressure Zone 6 Existing Infrastructure

Water is distributed to Pressure Zone 6 via the existing West Brampton Pumping Station (high lift pumps) and the Alloo Pumping Station (low lift pumps). Equalization storage and fire storage is provided (via pumping) by both the West Brampton Reservoir and the Alloo Reservoir.

There are existing Regional Zone 6 watermain on Mississauga Road ranging in size from 600 mm to 1200 mm that run adjacent to the HHSP. These watermain provide the main connection points for the Secondary Plan. Existing stub connections at Deuce Street, Wanless Drive, Muscovy Drive, Buick Boulevard, Sandalwood Parkway, Yardmaster Drive, Lagerfeld Drive and Williams Parkway provide connection locations for servicing and looping within the Secondary Plan.

4.1.4. Pressure Zone 7 Existing Infrastructure

The northern portions of the Secondary Plan, generally north of Deuce Street and south of Mayfield Road, will be serviced by Pressure Zone 7. Water is pumped to Zone 7 through the existing Alloa Booster Pump Station (high lift pumps). The future West Caledon Elevated Tank (currently in design) will provide additional floating storage for Zone 7.

Existing Zone 7 infrastructure in proximity to the Secondary Plan includes a 300 mm watermain on Mississauga Road from Mayfield Road to Goderich Drive, and existing stub connections at Mayfield Road (600mm) and Goderich Drive (400mm).

4.2. WATER DESIGN CRITERIA AND SYSTEM DEMAND

Peel Region provides design criteria and water supply standards to ensure uniformity in their system. The Region of Peel Public Works Design, Specifications and Procedures Manual (June, 2010) provides comprehensive instruction for the design and construction of municipal services. Watermain size, slope and depth, as shown in **Drawing 5**, follows the June 2010 Design Manual.

Peel Region per capita water demand criteria were updated through the 2020 Water and Wastewater Master Plan. As such, the criteria in the June 2010 Design Manual are considered superseded by the 2020 Master Plan values. The Master Plan water demand criteria are shown in **Table 4.1**.

Similar to sanitary flow rate calculations, water demand rates are determined using:

- Land use areas as shown in **Drawing 1** (Heritage Heights Secondary Plan).
- Population / Employment density targets as discussed in **Section 2.2**.
- Peel Region Water Demand Criteria shown in **Table 4.1**.

Table 4.1: Peel Region Water Demand Design Criteria

Population Type	Average Dry Water Demand (L/cap/day)	Max Day Peaking Factor	Peak Hour Peaking Factor
Residential	270	1.8	3.0

Employment	250	1.4	3.0
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Preliminary water demand rates associated with the HHSP are tabulated in **Table 4.2**. The values are preliminary and subject to refinement in future studies as more information becomes available.

Table 4.2: HHSP Water Demand (Domestic)

Pressure Zone	Average Day Demand (L/s)	Max Day Demand (L/s)	Peak Hour Demand (L/s)
Zone 5	22	38	65
Zone 6	485	828	1,456
Zone 7	117	187	350

In addition to the domestic demand outlined above, the water distribution system will provide water capacity for fire protection, in accordance with the requirements of the Underwriters Laboratories of Canada. Fire flow will be further defined as more information becomes available regarding built form.

The Region requires delivery pressures between 40 psi and 100 psi (not including during fire events).

The water distribution system analysis, including local watermain sizing and layout, for the subject site will be completed/confirmed as engineering proceeds and more information is available regarding built form and neighbourhood concept plans. Interim water servicing and looping is also to be determined, based on the future development phasing, as applicable. The HHSP watermains will be designed to supply demand under all operating scenarios, while maintaining adequate pressure to the system as required by Peel Region.

4.3. PROPOSED HHSP WATER SERVICING STRATEGY

Drawing 5 in **Appendix D** illustrates the proposed water servicing strategy for the HHSP, including all existing and planned service connections to Peel Region infrastructure. The strategy is consistent with the framework outlined in the 2020 Water and Wastewater Master Plan and Peel Region's 2025–2041 Wastewater Development Charges (DC) Mapping, with some minor modifications through coordination with Region staff. There are multiple DC-funded capital water projects identified to support growth within the HHSP.

The servicing strategy for the HHSP includes the extension of existing Zone 5, Zone 6 and Zone 7 watermains along east-west roads internal to the plan (e.g., Mayfield Road, Deuce Street, Wanless Drive, Sandalwood Parkway, Lagerfeld Drive, Bovaird Drive, and Williams Parkway) as well as the

north-south roads (Heritage Road, Street 6, and Winston Churchill Boulevard). These watermains form an integrated and looped network with multiple connections to existing infrastructure on Mississauga Road. Looping systems have also been proposed at pressure zone boundaries, to minimize zone cross connections. Pressure zones are indicated in **Drawing 5**. The trunk water mains on **Drawing 5** are generally consistent with the Region's Master Plan, with slightly different road alignments in some locations to reflect the approved Secondary Plan Land Use Schedule.

Regional water infrastructure will be located on road right of ways wherever possible to allow for the seamless implementation of the infrastructure as planning proceeds, without reliance on private landowners to deliver infrastructure. Watermains will be aligned to provide permanent access to the Region for maintenance and operation of the infrastructure. Watermains within individual precincts will be designed to support growth in neighbouring precincts (as required) in accordance with the HHSP and the guiding framework presented herein. Ultimately, the watermain network will be fully looped with planned Regional infrastructure. Any dead ends in the interim condition can be equipped with hydrants for periodic flushing.

It is important to note that:

- Depending on the timing and phasing of development within the HHSP, some watermains may be front-end financed and constructed by the landowners, assuming appropriate cost recovery from benefitting landowners and/or Peel DCs. Otherwise, they will proceed as planned in the Peel capital program, with design and construction by the Region.
- The servicing plan shown in **Drawing 5** is representative of the ultimate strategy under full build-out conditions. The actual timing and phasing of development in the Secondary Plan may require interim and / or alternative servicing solutions, which will be identified at the draft plan / detailed design stage.
- Pressure zone boundaries shown will be refined in coordination with the Region as Precinct Planning and Draft Plans proceed.

4.4. WATER SUPPLY ANALYSIS

AECOM was retained by Urbantech in 2021, as part of earlier iterations of the Infrastructure Servicing Strategy (ISS), to identify opportunities and constraints within the Peel West Water System that could impact development in the HHSP area.

Key findings from the 2021 analysis include:

- The Peel West Water System can accommodate approximately 62,000 people and 23,000 jobs before triggering any major capital upgrades in the Peel Region West Water System. This

provides sufficient capacity to support initial phases of development within the HHSP in the near term.

- Growth beyond the 62,000 population and 23,000 jobs threshold may require system upgrades, which could include expansion of the Lorne Park Treatment Plant and/or upgrades to key pump stations, such as West Brampton and Alloo, depending on the ultimate build-out projections and other development considerations in Mississauga, Brampton and Caledon.
- Transmission main infrastructure is currently sufficient to support the full HHSP build-out population.

Given that the Region is undertaking a Master Plan update to the 2051 planning horizon, the Region's Infrastructure Planning team will be confirming these findings through the associated modeling exercise. Additional capacity considerations may emerge as this work progresses. Project timing and associated interim/ultimate capacity availability will be discussed with Peel Region staff as work proceeds on individual Precinct and Draft Plans and through the Region's Master Plan process.

It is our understanding that there is existing capacity in the treatment plant, booster stations, reservoirs, and transmission network to support near-term development within the HHSP (with Phasing as outlined in **Section 7**). Additional hydraulic modelling can be completed at the Precinct Plan or Draft Plan stage as required, in coordination with the Region.

5 GRADING AND SERVICING CONSTRAINTS

5.1. HHSP PROPOSED GRADING

The preliminary grading plan for the HHSP shown on **Drawing 2** in **Appendix D**. Grades are influenced by:

- Existing and/or proposed grades along major road corridors (Mississauga Road, Bovaird Road, Mayfield Road, etc.) and the CNR.
- Highway 413 grading is based on the latest available design information provided by MTO in April 2025. It has been assumed that collector roads will cross above both the CNR corridor and Highway 413. Recognizing that MTO's design work remains on-going, the grading concept proposed is preliminary and will need to be reviewed and confirmed by MTO as development proceeds.
- NHS boundaries and buffer limits.
- Downstream stormwater outlet invert elevations which determine the elevation of future SWM facilities' normal water levels and, ultimately, storm sewer depth and serviceable drainage areas.

Development of site grading has taken into consideration the following requirements and constraints:

- Conform to the City's grading criteria.
- Minimize cut and fill operations and work towards a balanced site.
- Match existing boundary grading conditions, where feasible.
- Match existing grades at woodland and wetland features and their buffers, where possible. Transition grading may be required within buffers in some areas in order to avoid the use of retaining walls on private properties. This will be further discussed with Agencies at the Precinct Plan and Draft Plan stage.
- Maintain subwatershed drainage boundaries, where possible. The drainage area diversion caused by the implementation of Highway 413 will be required and assessed through the ongoing Heritage Heights Subwatershed Study.
- Maintain existing drainage patterns and accommodate external drainage from north of Mayfield Road.
- Provide suitable cover on proposed servicing.

- Provide overland flow conveyance for major storm conditions.

The majority of the lands slope from the north to the south in existing conditions. The proposed development grading is generally consistent with the pre-development drainage pattern, and it is based on an overall SWM strategy that includes maximizing the lands that can drain by gravity to the proposed SWM facilities.

As noted in **Section 1.2** and identified on **Drawing 1**, the Trans Canada Pipeline (TCPL) corridor bisects the HHSP area. There are three natural gas pipelines within the TCPL corridor ranging in size between 600 mm and 1050 mm in diameter. TCPL has recently expanded their services by twinning the pipeline through the corridor. In Block 51-3, TCPL infrastructure has been surveyed and is buried less than 2 m below the existing ground surface. For the purposes of this preliminary work, a similar pipeline depth has been assumed for the HHSP. As work proceeds, the TCPL infrastructure will be daylighted and surveyed for confirmation of potential conflicts and grading impacts.

5.2. NATURAL HERITAGE SYSTEM CONSTRAINTS

The NHS feature limits and governing constraints continue to evolve through the SWS and the Precinct Plan and Draft Plan studies. The proposed NHS takes into consideration the environmental features and hydraulics / flood hazards related to the watercourses. To optimize the land use within the HHSP area, channel realignments and lowering are proposed which impact grading design as follows:

- Existing headwater systems are extremely flat and shallow and do not provide enough depth to allow for gravity servicing of the future roads and basements.
- Without watercourse lowering, future road grades would need to be raised 2 m or more across 100 hectares requiring the need to import more than 2 million cubic meters of fill, which is not a practical solution.
- Watercourse lowering, grading, and regularization are all commonly utilized to manage wide floodplains that are generally attributed to flat shallow drainage systems and undersized road and rail crossings, creating significant backwater and flooding. Creation of deeper channel corridors will improve flooding conditions.

Drawing 3 illustrates the preliminary NHS system, including realignments and the proposed channel corridors currently under consideration. These have been incorporated into the preliminary grading plan.

6 STORMWATER MANAGEMENT

The ongoing Heritage Heights Subwatershed Study (SWS) (Wood, 2021 / 2022) provides the latest characterization of the existing drainage conditions for the HHSP area, as well as the proposed NHS channel alignments and stormwater management criteria.

6.1. EXISTING CONDITIONS

Drawing 3 in **Appendix D** illustrates the overall existing drainage areas delineated based on the available LIDAR topographic information (RPE), CVC catchment delineation shapefiles, as well as mapping coordinated with Wood as part of the subwatershed study update.

As shown in **Table 6.1**, a portion of the subject lands are within the West Huttonville Creek subwatershed, with the remaining area discharging into the Credit River tributary.

Table 6.1: Overall Drainage Areas Within the HHSP

Watershed	Outlet	HHSP Area (hectares)	Overall Proposed Drainage Area (hectares)
West Huttonville	West Huttonville Creek at Mississauga Road south of Bovaird Drive	420	+ 12.1 ha, (+ 2.88%) (to Credit River watershed)
Credit River	Credit River at south/southwest boundary of study area; crossing Mississauga Road south of Queen Street	1,208	-12.1 (- 1.00%) (from West Huttonville Creek watershed)

As shown in the preceding table, approximately 12.1 ha from the Credit River watershed will be diverted towards the West Huttonville Creek watershed overall due to the alignment of Highway 413. This diversion is considered to be negligible given the overall areas of each subwatershed catchment in the vicinity of the study area (420 ha and 1,208 ha for West Huttonville and Credit River, respectively). Nonetheless, the proposed SWM facilities will mitigate any exceedance beyond the existing flows. The Subwatershed Study update and subsequent Precinct Plan and Draft Plan analyses, including HSP-F model verifications, will address the efficacy of the SWM strategy to mitigate impacts resulting from drainage diversions.

6.1.1. Topography and Soils

As described in the Heritage Heights Phase 1 SWS, the Halton Till overlies the Queenston shale bedrock over the majority of the area. Isolated sand or gravel units may occur at or near bedrock. The plain is relatively flat in the upper Study Area and slopes to the southeast in the lower reaches.

Along portions of the Credit River and tributaries in the southwest and west central portion of the Study Area, erosion through both the glaciolacustrine and Halton Till deposits has exposed the shale bedrock within the stream valleys. Minor bedrock valleys associated with these stream reaches occasionally contain sand and gravel infill deposits. More significant deposits of sand and gravel may infill the lower reaches of these creeks as they enter the Credit River valley.

The depth to the water table is typically related to the topography, with relatively shallow groundwater levels in the lower lying areas and deeper groundwater levels in the topographically higher areas. Groundwater levels across the Plan range from at or above ground surface to eight (8) m below ground surface depending on the location. Groundwater levels typically fluctuate by approximately 1.5 m to 2 m seasonally.

6.2. STORMWATER MANAGEMENT SYSTEM DESIGN

6.2.1. Post Development Drainage

Drawing 3 illustrates the approximate post-development drainage boundaries within the Heritage Heights Secondary Plan area, in addition to the receiving SWM facility / outlets. The post-development drainage areas were based on the preliminary grading plan (refer to **Drawing 2**).

6.2.2. SWM Pond Block Locations

The SWM facility locations shown on **Drawing 3** were coordinated with the Heritage Heights Subwatershed Study team based on the updated City land use plan. Pond locations also reflect the latest information from ongoing Precinct Plan and Draft Plan studies, which remain subject to further review and refinement as planning proceeds.

Unnecessary crossings of the TCPL or CNR have been avoided and therefore natural “breaks” in the storm drainage boundaries have been introduced in the form of SWM facilities to capture and treat runoff and discharge it into the NHS.

Other considerations for SWM Pond placement include:

- Maintaining flow input locations along the receiving watercourse.
- Minimizing storm sewer infrastructure size.
- Efficiently use land and maximize serviceable area.

A total of 25 ponds have been established for the Secondary Plan area, with an additional four (4) ponds proposed by the MTO which will be associated with Highway 413.

6.2.3. Imperviousness

The Heritage Heights Subwatershed Study provides recommendations for SWM end-of-pipe facility sizing based on a required storage per impervious hectare and a release rate per hectare. As such, to establish the preliminary pond design, the imperviousness of the contributing drainage areas to each proposed SWM facility is required.

The catchment imperviousness values for each drainage area were determined based on the land use composition of each catchment. The proposed unit types and land use distribution within each catchment were determined from the HHSP Land Use Plan, as per **Drawing 1**. A total imperviousness was assumed for each land use type based on the ratio of impervious surface (roofs, pavement, etc.) to total catchment area. The land use imperviousness values are summarized in **Table 6.2**.

Table 6.2: Percent Imperviousness by Land Use

Land Use Type	Percent Imperviousness
Community Parks	10%
NHS – Greenbelt Area	0%
NHS	0%
Corridor Mixed Use A	95%
Corridor Mixed Use B	95%
Mixed Use Residential (High)	90%
Mixed Use Residential (Medium)	75%
Neighbourhoods	55%
Institutional	55%
Employment	95%
Pumping Station	100%
CN Railway Corridor	55%
Roads	90%
Highway / Transit Corridor	60%

Also refer to **Drawing 3** for all drainage areas and associated imperviousness values.

6.2.4. SWM Pond Sizing

Table 6.3 summarizes the revised January 4th, 2011 SWM Pond design criteria provided by the City of Brampton, which are considered to be the currently accepted standards for Heritage Heights. These design criteria have been utilized in Blocks 51-1 and 51-2. The preliminary sizing carried out for this study has considered these approved grading design requirements and other pond block components.

The SWS has identified the following criteria for pond block sizing:

- 80% TSS removal through provision of a permanent pool sized according to Table 3.2 in the MECP SWM Planning and Design Manual (2003).
- Extended detention / erosion control.
- Quantity controls up to and including the Regional event.

These criteria have been taken into account to create a “rule of thumb” block sizing criteria.

Table 6.3: Updated SWM Pond Design Criteria

Pond Element	Design Criteria
Rescue Shelf	Brampton’s Fire and Emergency Services Division will require a 2.4 m wide rescue shelf (with a cross slope of 2% into the pond) located at a minimum height of 0.3 m above the high-water level and around the periphery of the pond.
Mow Strip	A mow strip with a width of 2.4m (with a cross slope of 2% into the pond) will be required where the pond abuts residential properties. This mow strip could also function as the rescue shelf.
Maintenance Access Road	A maintenance access road with a width of 4.0 meters (with a cross slope of 2% into the pond) shall be provided on at least two sides of the pond (i.e. one long side and one short side). The maintenance access road shall be configured such that two points of entry are provided from a street. Secondary access points could also be made through open space blocks that have street frontages. Access should be provided to all inlets, outlets with 12:1 (horizontal: vertical) gravel access to the bottom of the pond forebay and main cell. The access road shall be situated in a manner that allows trucks to drive through the pond without having to turn around. Where possible the maintenance access road may also be utilized as a rescue shelf.
Staging/Loading Area	A separate staging / loading area will be required for both the pond forebay and the main cell. Minimum dimensions for the staging / loading areas would be 4.5 m x 5.5 m. The staging / loading areas should be situated between the permanent pool and the maintenance access road and should be placed adjacent to the 12:1 slope to the bottom of the pond.

Pond Element	Design Criteria
Side Slopes	Side slopes of 3:1 (h:v) will only be allowed above the rescue shelf. Side slopes of 4:1 (h:v) will be provided in the following situations: - Below the rescue shelf to the maintenance access road; - Below the rescue shelf to 5-year predicted water level; and - Adjacent to right-of-ways All other criteria for side slopes noted in the City of Brampton design guidelines shall remain the same.
Armor Stone Retaining Walls	Not permitted with Pond Blocks. Note, in the case of Pond F-3 the use of retaining wall was accepted at the draft plan approval stage to increase the community park size adjacent to the pond.
Trails	A continuous trail shall be constructed around the pond and shall adhere to the following criteria: - Minor trails shall be: 2.4 meters wide with a 0.5 meter buffer on either side of the trail; - Constructed of 5/8" clear stone; and - Located at a minimum height of 0.3 m above the 5-year predicted water level. - Major trails (which form part of the City's trail system) shall be: 3.0 meters wide - Constructed of asphalt; - Located at a minimum height of 0.3 m above the regulatory storm event; and - Located one meter away from the pond embankment. - The trail shall be located a minimum of three meters away from the property line, where the trails abut residential properties; - The maintenance access road and/or the rescue shelf can facilitate the trail; Every effort shall be made to locate paved trails away from the maintenance access road.
Sediment Drying Area, Bypass pipe	Not required as agreed with City

"Rule of thumb" pond sizing is often estimated as a percentage of the contributing drainage area ranging from 6% to 8% (for Regional ponds). In the case of the HHSP area, there are many available pond designs as well as actual, implemented ponds adjacent to the study area with similar sizing criteria and design assumptions. Therefore, the rule of thumb sizing has been based on actual / previously sized pond blocks in the area.

The previously sized Huttonville and Fletchers Creek SWS (AMEC, 2011) pond blocks and the implemented Blocks 51-1 and 51-2 ponds were plotted against their respective contributing drainage

areas to establish a line of best fit. As shown below in **Figure 6-1**, a reasonable correlation was noted for the “designed” HFSWS ponds, but not for the actually implemented Block 51-1 and 51-2 ponds.

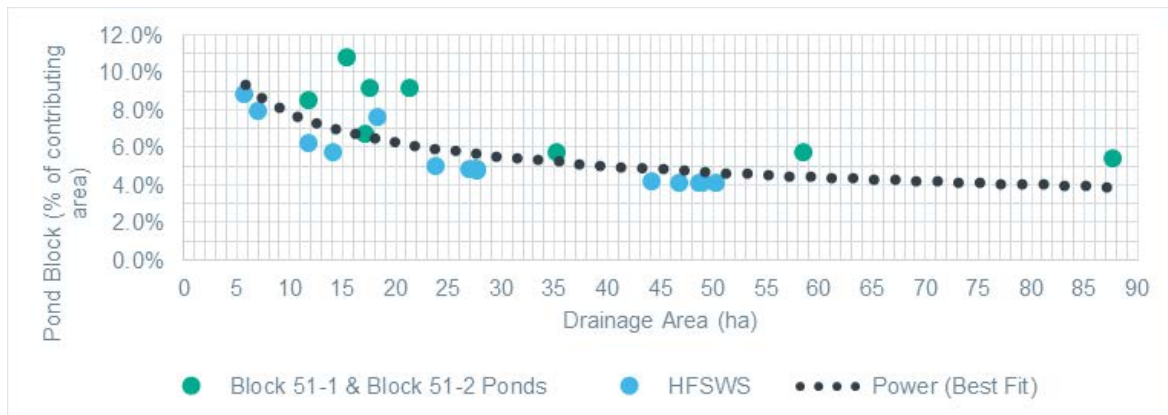


Figure 6-1: Comparison of Previously Sized and Implemented Pond Blocks vs Drainage Area

However, when pond blocks were plotted against **impervious** drainage area, a much better fit was noted as shown below in **Figure 6-2**.

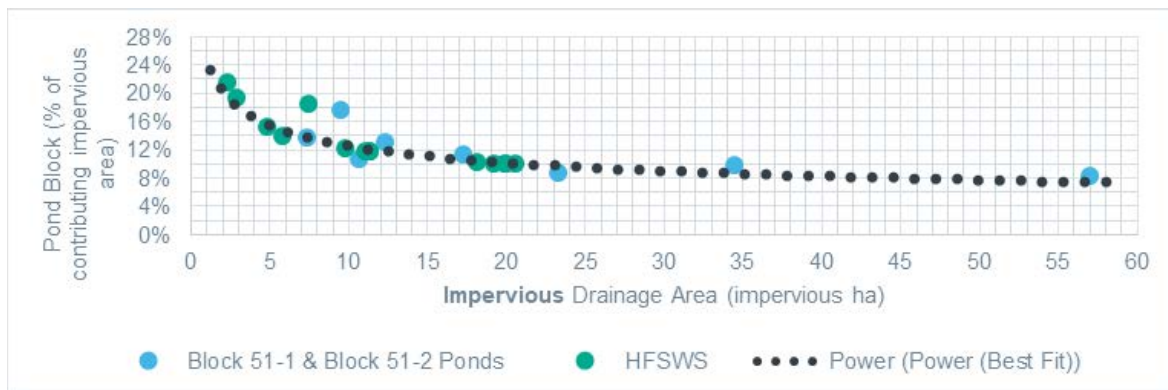


Figure 6-2: Comparison of Previously Sized and Implemented Pond Blocks vs Impervious Drainage Area

This relationship was translated to express pond block area versus contributing impervious area as shown in **Figure 6-3**, which results in a simple, strong linear correlation.

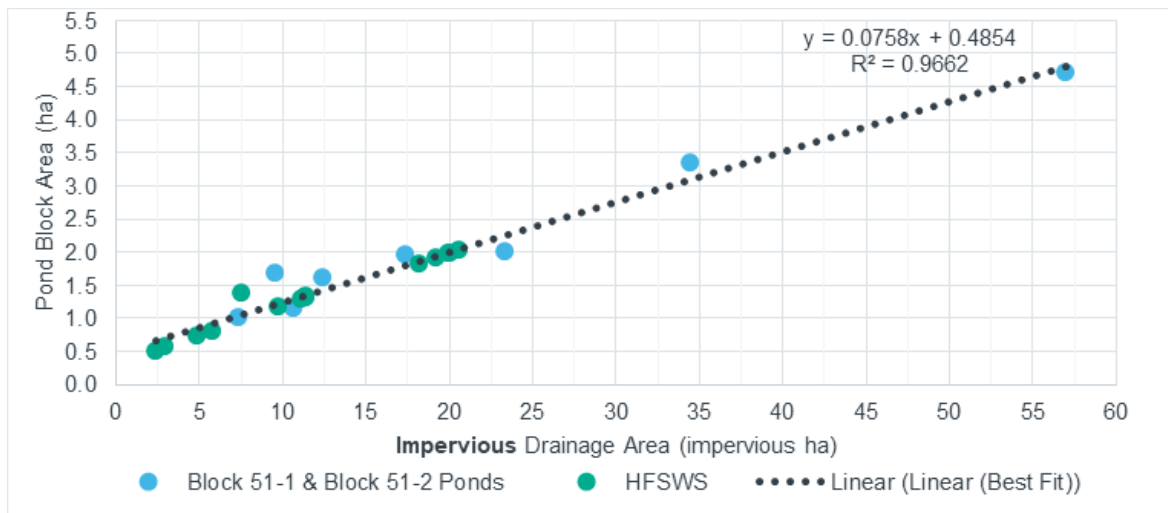


Figure 6-3: Pond Block Area vs Impervious Drainage Area Relationship

In accordance with the assessment above, the pond block sizing equation selected for the HHSP area is:

- **Pond Block Area (ha) = 7.5% x Impervious Drainage Area + 0.5**

Based on this equation, all pond blocks in the HHSP were sized as shown in **Table 6.4**.

Table 6.4: HHSP Preliminary Stormwater Management Facility Sizing

Pond ID	Drainage Area (hectares)	Percent Impervious (%)	Preliminary Pond Block Area (hectares)
Credit River Ponds			
CR-1	89.10	86%	6.23
CR-2	80.30	78%	5.22
CR-3	34.30	66%	2.19
CR-4	20.50	75%	1.65
CR-5	52.10	63%	2.95
CR-6	36.20	64%	2.24

Pond ID	Drainage Area (hectares)	Percent Impervious (%)	Preliminary Pond Block Area (hectares)
CR-7	47.50	59%	2.60
CR-8	21.80	74%	1.71
CR-9	39.80	67%	2.50
CR-10	23.10	87%	2.01
CR-11	27.00	62%	1.75
CR-12	20.90	68%	1.57
CR-13	32.50	83%	2.52
CR-14	41.50	69%	2.65
CR-15	21.90	65%	1.57
West Huttonville Creek Ponds			
HW-1	30.00	94%	2.61
HW-1A	24.80	95%	2.27
HW-2	29.20	91%	2.49
HW-2A	63.20	94%	4.95
HW-3	53.10	88%	4.01
HW-4	27.90	77%	2.11
HW-5	19.30	65%	1.44
HW-6	35.90	68%	2.33
Huttonville Creek Pond			
Ex. H-7	60.90	71%	3.72
H-8	42.60	82%	3.12
Highway 413 Ponds			
413 Pond #2	23.50	47%	2.40
413 Pond #3	65.20	70%	3.68
413 Pond #4	14.60	67%	2.39
413 Pond #5	18.00	50%	1.93

Refer to **Drawing 3** in **Appendix D** for pond locations.

Please note that preliminary pond blocks sizes shown above are based on Secondary Plan land use areas. Ponds are subject to refinement as detailed information becomes available through Precinct Plan and Draft Plan stages.

6.2.5. Stormwater System Design

The stormwater management system will be designed in accordance with City of Brampton standards. Both the major and minor drainage systems for the Secondary Plan area will direct stormwater runoff to the proposed stormwater management (SWM) facilities. Minor systems, including storm sewers, will be designed to convey runoff from the 1-in-10 year storm event, while major systems will accommodate the 100-year return storm through overland flow routes.

It is recognized that City of Brampton standards prohibit the use of sump pumps in new developments, requiring instead that foundation drains connect to private drain connections. However, due to site-specific grading constraints and the desire to reduce capital and long-term maintenance costs, a few areas within the HHSP will require sump pumps. These locations are identified in **Drawing 3**. Alternative servicing options will be further reviewed with the City during the Precinct Plan and Draft Plan stages. Preliminary discussions with City staff have already been initiated to address this matter.

6.3. LOW IMPACT DEVELOPMENT

In addition to conventional wet ponds described in the preceding section, the City of Brampton has identified that the HHSP area should consider the use of innovative SWM best management practices including the use of Low Impact Development (LID) measures. The use of LIDs can be helpful to reduce the amount of runoff by increasing on site retention, infiltration, and evapotranspiration. The use of LIDs in a “treatment-train” approach has long been endorsed by the CVC.

There are many LID measures available for use. Techniques to maximize the water availability in pervious areas such as designing grades to direct roof runoff towards open space areas throughout the development (e.g., yards, boulevards, landscaped areas, swales, green space in parking lots, etc.), can increase recharge in the developed area. Where possible, increasing topsoil depths in the pervious areas to retain more water in storage can also assist to reduce runoff volumes and increase the potential for infiltration. Other engineered LID measures such as infiltration and/or exfiltration trenches, HDFs, enhanced grass swales, and bioswales can be used to reduce runoff volumes and increase the potential for infiltration. Further, LID facilities can be combined with other land uses such as parks to improve the plan efficiency and create dual-purpose public areas, like parks and sports fields in the City of Markham, Richmond Hill, and King City.

Some examples of possible LIDs that are typical for this type of development include:

Downspout Disconnection:

Roof leader discharge to pervious surfaces such as lawns or to LID measures provides a source of clean water that can be infiltrated. This is a low / no maintenance, lot-level control that is typically implemented by default.

Infiltration Trench:

These are rectangular trenches lined with geotextile fabric, filled with clean granular stone or void-forming materials. They are suitable for sites with limited space for infiltration, such as narrow strips of land between buildings or properties, or along road rights-of-way. They primarily handle roof and walkway runoff.

Bioretention:

This infiltration practice utilizes the natural properties of soil and vegetation to treat runoff from paved areas and remove contaminants. Variations can include the inclusion or exclusion of an underdrain and impermeable liner. Bioretention can help achieve Stormwater Management (SWM) objectives related to water quality, water balance, and erosion control.

Rain Barrel:

Water collected in rain barrels can serve as a non-potable source for various purposes like toilet flushing, urinals, and irrigation. Rain barrels can contribute to meeting SWM objectives related to water quality, water balance, and erosion control.

Soil Cells:

A modular storage system designed to support the growth of large trees and provide effective stormwater management through processes like absorption, evapotranspiration, and interception.

Infiltration Chambers:

Infiltration chambers provide large volume of underground void space, all the while maintaining the necessary structural stability for sub-surface Best Management Practices (BMPs). They consist of a variety of proprietary modular structures that can be installed beneath paved parking lots or landscaped areas. Typically featuring open bottoms, perforated side walls, and optional stone-filled reservoirs below, these chambers are versatile in treating runoff from roofs, walkways, parking lots, and roads, given proper sedimentation pre-treatment measures. Due to their significant storage capacity, this technology is often utilized in areas where little to no space is available for other stormwater BMP solutions.

Further evaluation of LID options will be completed through Precinct Plans and Draft Plans. The evaluation will consider technical feasibility, cost, maintenance requirements, and operational feasibility. While some LID approaches may be technically feasible, they may ultimately be cost-prohibitive or pose challenges in terms of maintenance and operation, particularly on a scale of this

36

magnitude. Additional geotechnical / hydrogeological studies may be required prior to finalizing and confirming the selection of LID techniques.

6.3.1. Thermal Mitigation

Thermal mitigation practices are recommended for some areas of the HHSP where ponds discharge to receiving watercourses with cold water fish and/or protected species (i.e., Redside Dace). Thermal mitigation can be achieved by implementing effective stormwater management facility measures (shading, orientation, outlet design, floating islands, etc.), including LIDs. The target SWM facility discharge temperature for thermal mitigation is 24°C.

MECP has requested that cooling trenches and/or deeper permanent pools (i.e., average depth of three (3) m) be provided for effective thermal mitigation. Although a deeper permanent pool is not consistent with City design standards for SWM pond facilities, it should be noted that the application of this thermal mitigation measure has been previously agreed upon with both the City and CVC for adjacent developments including the Mount Pleasant Community where thermal impacts to cool water systems and Redside Dace habitat were noted.

The preferred thermal mitigation strategy will be further refined through Precinct Plans, Draft Plans and detailed design.

7 IMPLEMENTATION AND TIMING

As discussed in **Section 3**, the sanitary servicing outlet for the HHSP is the existing 1200 mm Mississauga Road Trunk Sewer, which has sufficient capacity to accommodate all proposed growth within the Secondary Plan. Similarly, the main water transmission infrastructure required to support the HHSP is already in place. Downstream capacity assessments indicate that approximately 85,000 people + jobs can be accommodated in the existing Regional water and wastewater system, without any planned downstream upgrades in place.

Given that the Mississauga Road Trunk Sewer is the designated outlet for the entire HHSP area, there is no formally defined geographical phasing plan. Any landowner or group of landowners may proceed with development, provided that the necessary planning approvals are secured, and appropriate local servicing is established within the Secondary Plan area.

Nonetheless, for infrastructure planning purposes and to support hydraulic modelling efforts, a preliminary phasing framework is outlined below, based on the status and timing of current development applications:

- Development applications have been filed within Precinct Plans 52-1 and 52-2 (East). Precinct Plan and Draft Plan Approvals are expected to commence in Fall 2025. It is anticipated that the Precinct areas adjacent to Mississauga Road will start preliminary servicing in 2026, proceeding from east to west over the course of two to three years. House construction will commence in late 2026 and proceed for five to seven years throughout these Precincts.
- Applications are expected to be filed within 52-5 in Winter 2025, with approvals anticipated in late-2026. It is anticipated that the first sites adjacent to Bovaird will start to be serviced in 2027 and proceed from south to north over the course of two to three years. House construction will commence in late 2027 and proceed for seven to ten years throughout the Precinct.
- The remaining HHSP Precincts have either not initiated planning work or are still in the early stages. As such, they are expected to advance after the initial development in 52-1, 52-2, and 52-5.

To assist with tracking and coordination, the City of Brampton has developed a Development Application Tracker that includes all HHSP Precincts (example available in **Appendix B**). This live document is intended to be updated regularly and will provide valuable insight into application status, timing, phasing, and implications for downstream system capacity. It will serve as a key tool for coordination between the City, Region, and landowners as development proceeds.

In addition to the information above, it is also important to note that:

- If required to accommodate development timing and phasing, Landowners may consider entering into a front-ending agreement with Peel Region to deliver necessary regional infrastructure ahead of the capital program planning schedule. This will be further discussed as planning proceeds.
- Phasing internal to each Precinct will be determined as work proceeds and draft plans come forward. Considerations for interim phasing of stormwater management, water, sanitary, creek re-alignment and floodplain management will be reviewed, as required, with the Planning Authorities at an appropriate time in the process.

8 CONCLUSION

The Infrastructure Servicing Study (ISS) provides a comprehensive and coordinated servicing framework to support the full build-out of the Heritage Heights Secondary Plan (HHSP). The plan anticipates approximately **145,680 residents and 59,860 jobs**, aligned with City of Brampton growth targets.

Sanitary and water servicing strategies confirm sufficient downstream capacity exists for initial development within the HHSP, with future infrastructure projects identified to support staged development. Four sanitary sub-trunk systems are proposed within the Secondary Plan, optimized to minimize crossings of Highway 413 and maximize use of existing / planned infrastructure. The water servicing strategy builds on the Region's existing lake-based system across three pressure zones (Zone 5W, 6W and 7W), ensuring a fully looped, resilient network.

Depending on the timing and phasing of development within the HHSP, some watermain and sewers may be front-end financed and constructed by the landowners, assuming full (100%) cost recovery from benefitting landowners and/or Peel DCs. Otherwise, they will proceed as planned in the Peel capital program, with design and construction by the Region.

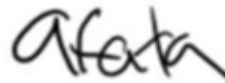
The stormwater management approach includes 25 SWM ponds (plus 4 for Highway 413). Innovative low-impact development (LID) and thermal mitigation techniques are proposed to enhance environmental sustainability.

Phasing is flexible and front-ended by available trunk capacity on Mississauga Road. Precincts 52-1, 52-2, and 52-5 are prioritized for near-term development, with others to follow. The ISS provides a strong foundation for future Precinct and Draft Plans and ensures alignment with City and Regional infrastructure goals.

Report prepared by:
Urbantech Consulting



Dragan Zec, P.Eng.
Partner



Andrew Fata, M. Sc., P. Eng.
Senior Associate, Water Resources

APPENDIX A

Sanitary Sewer Design Sheet



SANITARY SEWER DESIGN SHEET

HERITAGE HEIGHTS SECONDARY PLAN

INFRASTRUCTURE SERVICING STUDY

Region of Pee

PROJECT DETAILS

Project No: 17-531

Date: 10-Aug-25

Designed by: M.H

Checked by: J.O

Mixed Use Area Breakdown

Land Use	Residential	Employment
----------	-------------	------------

Nieghbourhoods	79%	21%
----------------	-----	-----

Mixed Res. (Med.)	79%	21%
-------------------	-----	-----

Mixed Res. (High)	79%	21%
-------------------	-----	-----

Mixed Cor. A	0%	100%
--------------	----	------

DESIGN CRITERIA

Min. Flow =	13	/s	Avg. Domestic Flow =	290.0	l/c/d
Min Diameter =	200	mm	Avg. Commercial Flow =	270.0	l/c/d
Mannings 'n' =	0.013		Infiltration =	0.260	l/s/ha
Min. Velocity =	0.75	m/s	Max. Peaking Factor =	4.00	
Max. Velocity =	3.00	m/s	Min. Peaking Factor =	2.00	

Domestic Sewage flow for < 1000 ppl = $0.013\text{m}^3/\text{s}$

NOMINAL PIPE SIZE USED

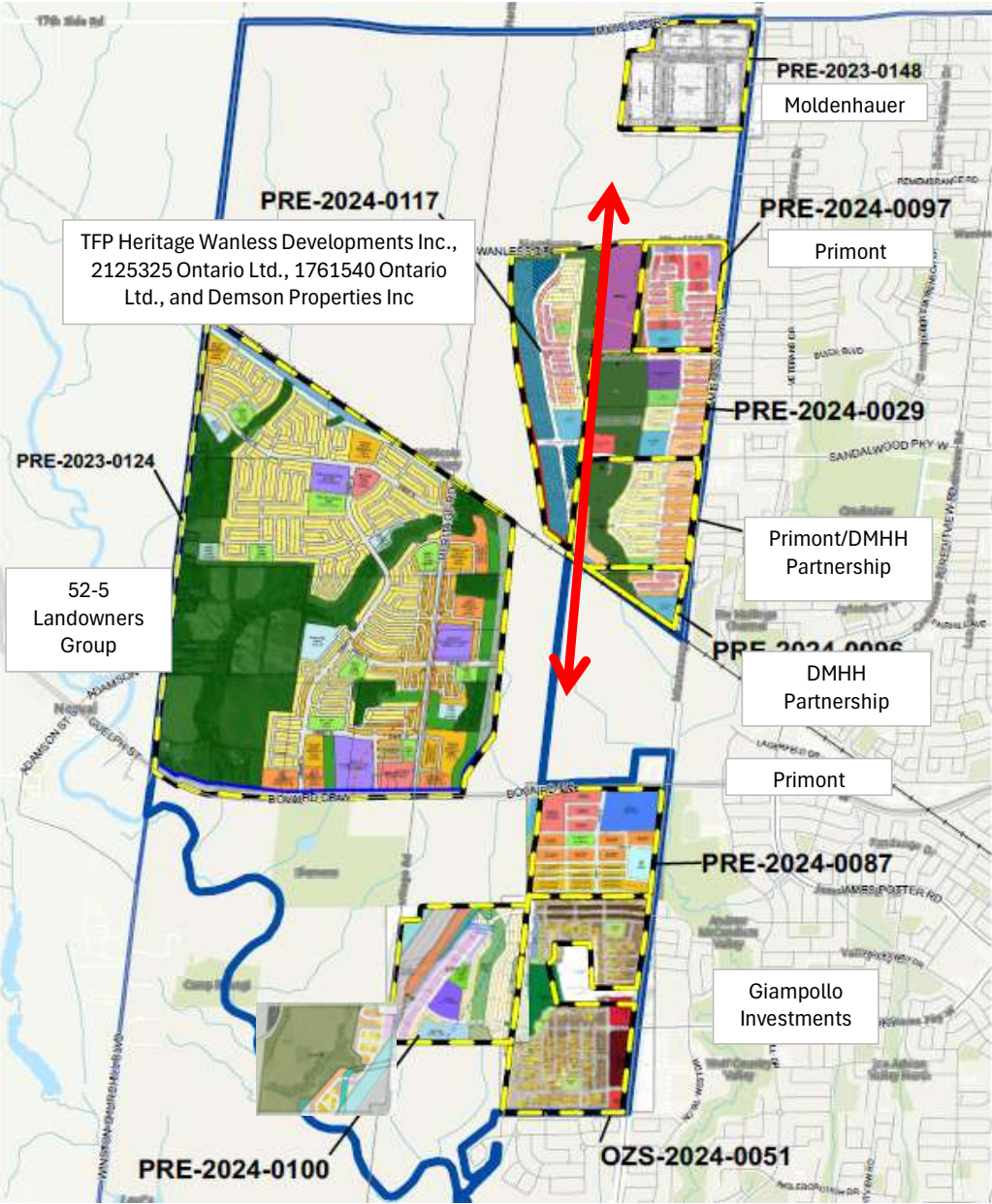
[illegible]

APPENDIX B

Heritage Heights Precinct Application Tracker – GANTT Chart
Composite Map

Category	Application / Study	Ownership	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26		
HHSP Study	Subwatershed Study	City of Brampton										•	X															
HHSP Study	Infrastructure Servicing Study	HHLOG				•			X																			
HHSP Study	Transportation Master Plan	HHLOG									•	X																
Scheduled PDC Dates			13-Jan	10-Feb	17-Mar	07-Apr	12-May	09-Jun	07-Jul	11-Aug	08-Sep	06-Oct	03-Nov	01-Dec														
			27-Jan	24-Feb		28-Apr	26-May	23-Jun			22-Sep	20-Oct	17-Nov	15-Dec														
Precinct 52-1																												
	OZS-2024-0051	DG Group								O		✓																
	PRE-2024-0087	Giampollo Investments					O				◊				✓													
	PRE-2024-0100	ATFP					O				◊				✓													
Precinct 52-2																												
Precinct 52-2 East																												
	OZS-2025-0014	Primont/DMHH Partnership	O				◊						✓															
	OZS-2025-0016	Primont	O				◊						✓															
	OZS-2025-0015	DMHH Partnership (Mattamy & D'Orazio)		O			◊						✓															
	OZS-2025-0017	Primont	O				◊						✓															
	PRE-2025-0009	Ashley Family Homes Limited and Mother and		O			◊						✓															
Precinct 52-2 West																												
	OZS-2025-0028	TFP Heritage Wanless Developments Inc., 21										◊			✓													
	Draft Plan Application	TFP Wanless						O				◊			✓													
	Draft Plan Application	Laurelcrest (NIDEVA)						O				◊			✓													
Precinct 52-3																												
	PRE-2023-0148	Moldenhauer																										
Precinct 52-4																												
	Precinct / Draft Plan Application X	Argo TFP / City of Brampton																										
Precinct 52-5																												
	PRE-2023-0124	52-5 Landowners Group									O	◊																
	Draft Plan Application 1	Reeds									O				◊						✓							
	Draft Plan Application 2	State Building Group									O				◊						✓							
	Draft Plan Application 3	Laurelcrest (NIDEVA)									O				◊						✓							
	Draft Plan Application 4	Laurelcrest (NIDEVA)									O				◊						✓							
Precinct 52-6																												
	?	Primont																										
Precinct 52-7																												
	?	Tiber Brampton Holdings Inc.																										
LEGEND	*RED IS TARGET/UNCONFIRMED SUBMISSION																											
Draft Technical Study Submitted	•																											
Final Technical Study Submitted	X																											
Last Application Filed	O																											
Target Public Meeting Date	◊																											
Recommendation Report	✓																											
Precinct Plan																												

Composite Map



File Number	Ownership
OZS-2024-0051	DG Group
PRE-2024-0087	Giampollo Investments
PRE-2024-0100	ATFP
PRE-2024-0029	Primont/DMHH Partnership
PRE-2024-0096	Primont
PRE-2024-0118	DMHH Partnership (Mattamy & D'Orazio)
PRE-2024-0097	Primont
PRE-2025-0009	Ashley Family Homes Limited and Mother and Son Holdings Ltd
PRE-2024-0117	TFP Heritage Wanless Developments Inc., 2125325 Ontario Ltd., 1761540 Ontario Ltd., and Demson Properties Inc
Draft Plan Application	TFP Wanless
Draft Plan Application	Laurelcrest (NIDEVA)
PRE-2023-0148	Moldenhauer
PRE-2023-0124	52-5 Landowners Group

ATFP

DG Group

APPENDIX C

SWM Pond Sizing Calculations

Urbantech Presentation: LID/SWM BMP Land Use Applications



ROADS



LOW-RISE



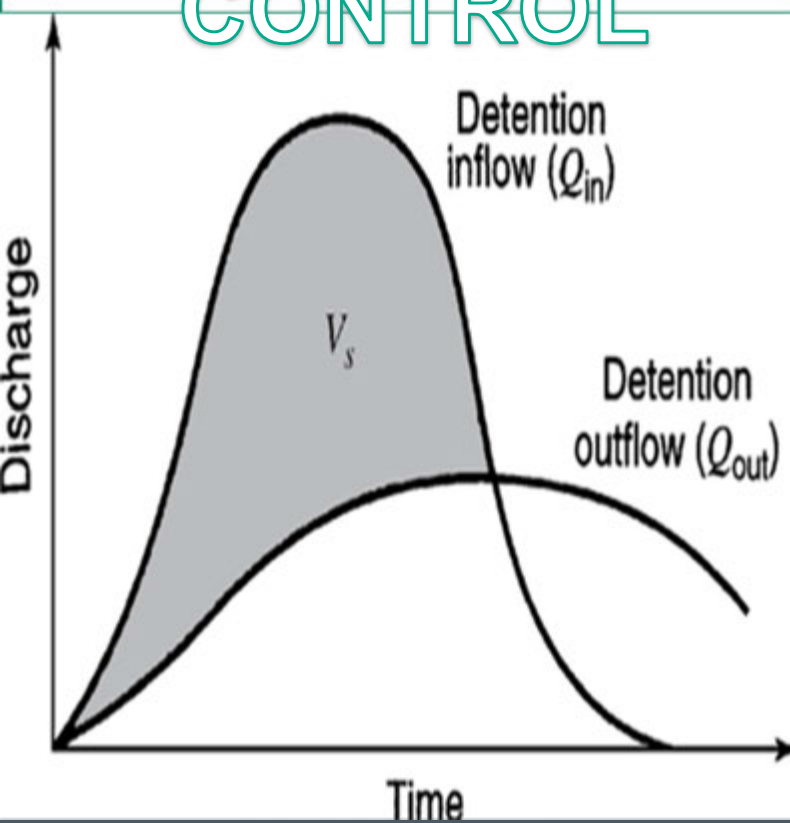
END-OF-PIPE



HIGH DENSITY /
INDUSTRIAL

LID / SWM BMP LAND USE APPLICATIONS

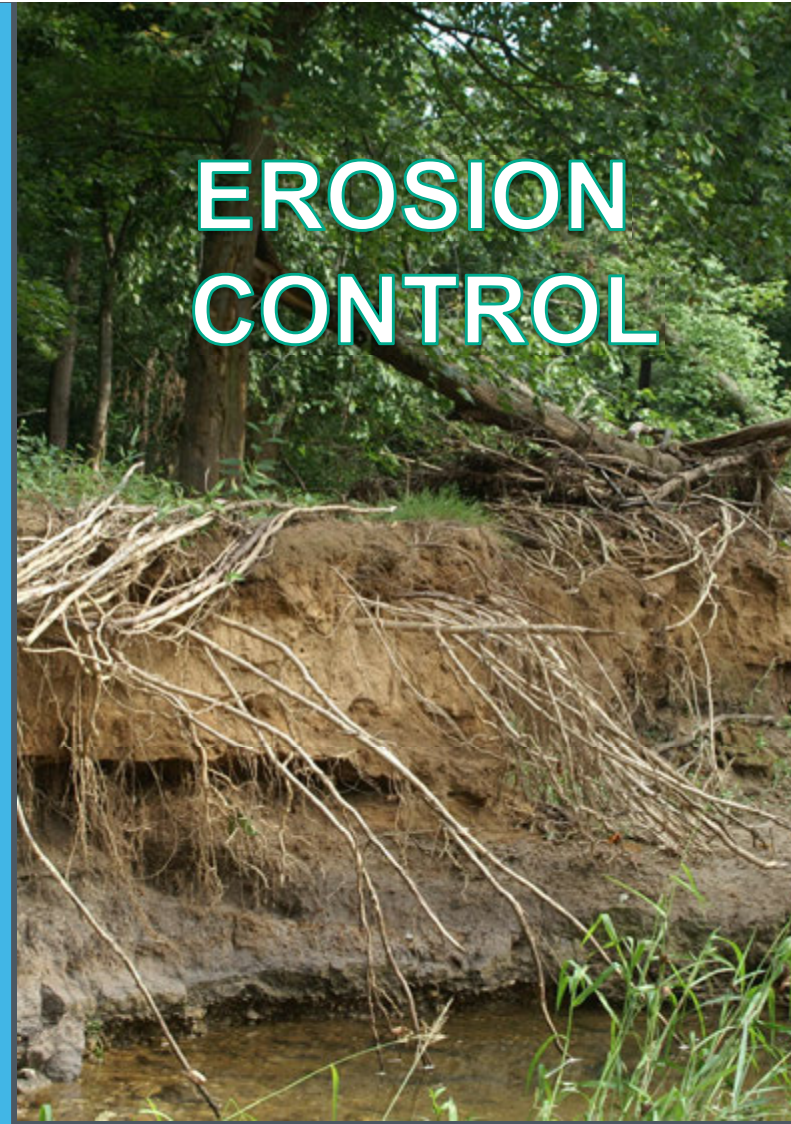
QUANTITY CONTROL



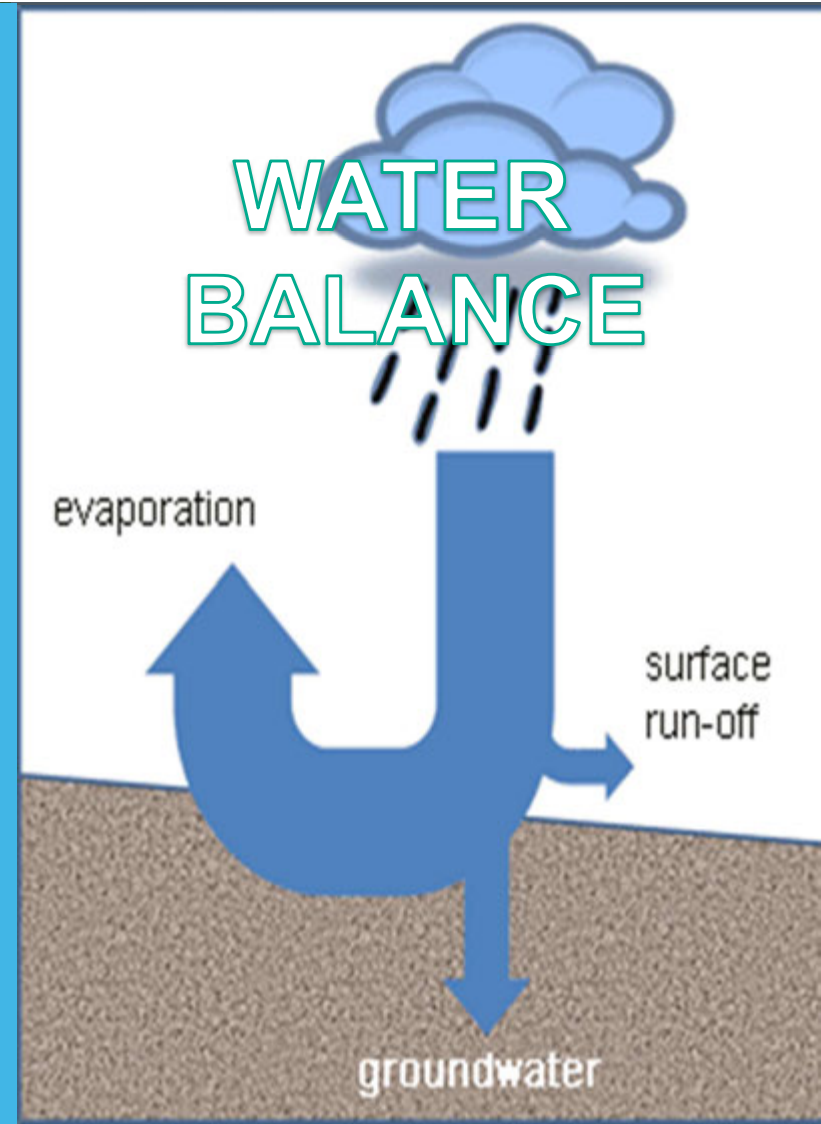
QUALITY CONTROL & THERMAL MITIGATION



EROSION CONTROL



WATER BALANCE



STORMWATER MANAGEMENT OBJECTIVES



URBANTECH®

APPLICABLE SWM MEASURES - LOW RISE	Quantity Control	Quality Control	Erosion Control	Water Balance	Reduce EOP Facility Size?
Oil / grit separators		▲			▲
CB Shields		▲			
Filter strip		▲			
Super Pipe	▲				▲
Infiltration Trench	▲	▲	▲	▲	▲
Bioretention	▲	▲	▲	▲	▲
Tree Pits	▲	▲	▲	▲	▲
U/G Tanks	▲				▲
Permeable pavement	▲	▲	▲	▲	▲
Rain Barrel / Cistern					
ROW storage (surface of road / sag areas)	▲				
Front yard cisterns / U/G tanks in detached lots (i.e. public easements up to front door)	▲		▲	▲	
Rain gardens	▲		▲	▲	

APPLICABLE SWM MEASURES – HIGH DENSITY / INDUSTRIAL / COMMERCIAL	Quantity Control	Quality Control	Erosion Control	Water Balance	Reduce EOP Facility Size?
Oil / grit separators		▲			▲
CB Shields		▲			
Filter strip		▲			
Super Pipe	▲				▲
Infiltration Trench	▲	▲	▲	▲	▲
Bioretention	▲	▲	▲	▲	▲
Tree Pit	▲	▲	▲	▲	▲
U/G Tanks	▲				▲
Permeable pavement	▲	▲	▲	▲	▲
Rain Barrel / Cistern	▲	▲	▲	▲	
Rooftop Storage	▲		▲	▲	▲
Green Roofs	▲		▲	▲	▲
Blue roofs	▲		▲	▲	▲

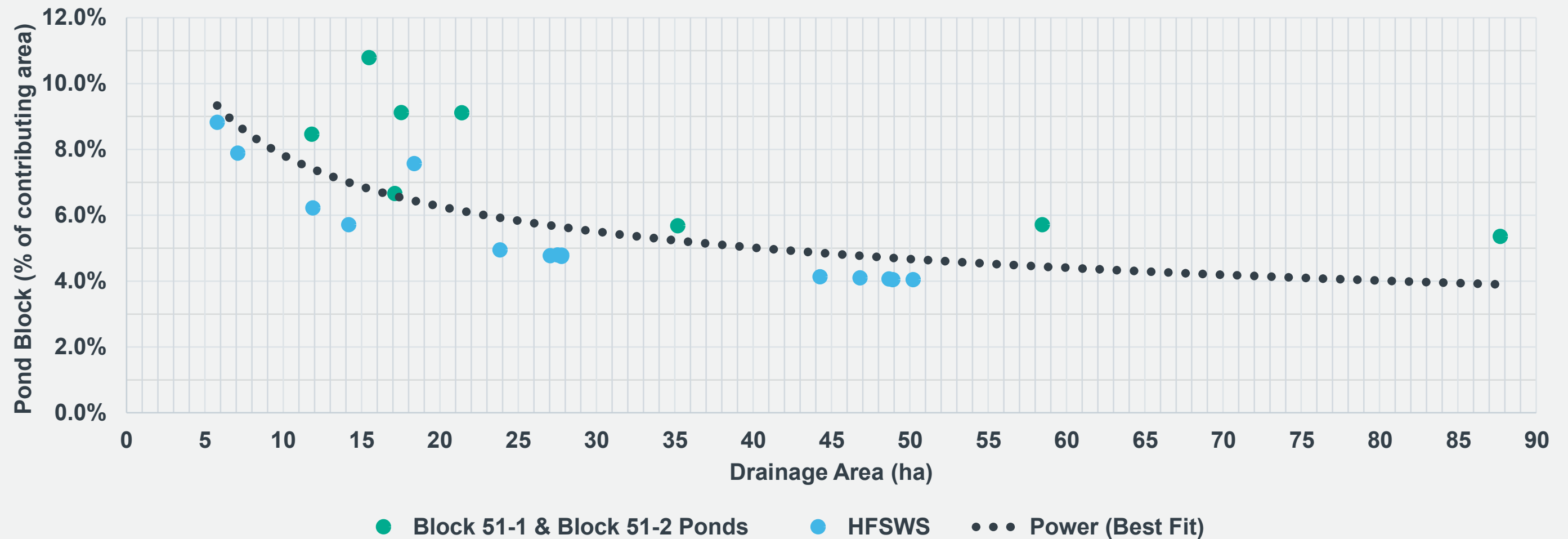
APPLICABLE SWM MEASURES – ROW	Quantity Control	Quality Control	Erosion Control	Water Balance	Reduce EOP Facility Size?
Oil / grit separators		▲			▲
CB Shields		▲			
Filter strip		▲			
Super Pipe	▲				▲
Infiltration Trench	▲	▲	▲	▲	▲
Bioretention	▲	▲	▲	▲	▲
Tree Pit	▲	▲	▲	▲	▲
U/G Tanks	▲				▲
Permeable pavement	▲	▲	▲	▲	▲
Long swales / linear ponds	▲	▲	▲	▲	▲
ROW storage (surface of road / sag areas)	▲				
Pervious catchbasins	▲	▲	▲	▲	

APPLICABLE SWM MEASURES – END-OF-PIPE	Quantity Control	Quality Control	Erosion Control	Water Balance
Oil / grit separators		▲		
Bioretention	▲	▲	▲	▲
U/G Tanks	▲			
Wetland Ponds	▲	▲	▲	▲
Active / controlled-release ponds	▲	▲	▲	▲
Wet Ponds	▲	▲	▲	
Dry ponds	▲		▲	
Ponds in parks	▲		▲	
Long swales / linear ponds	▲	▲	▲	▲
“Urban” ponds with retaining walls	▲	▲	▲	
SWM Shield		▲		

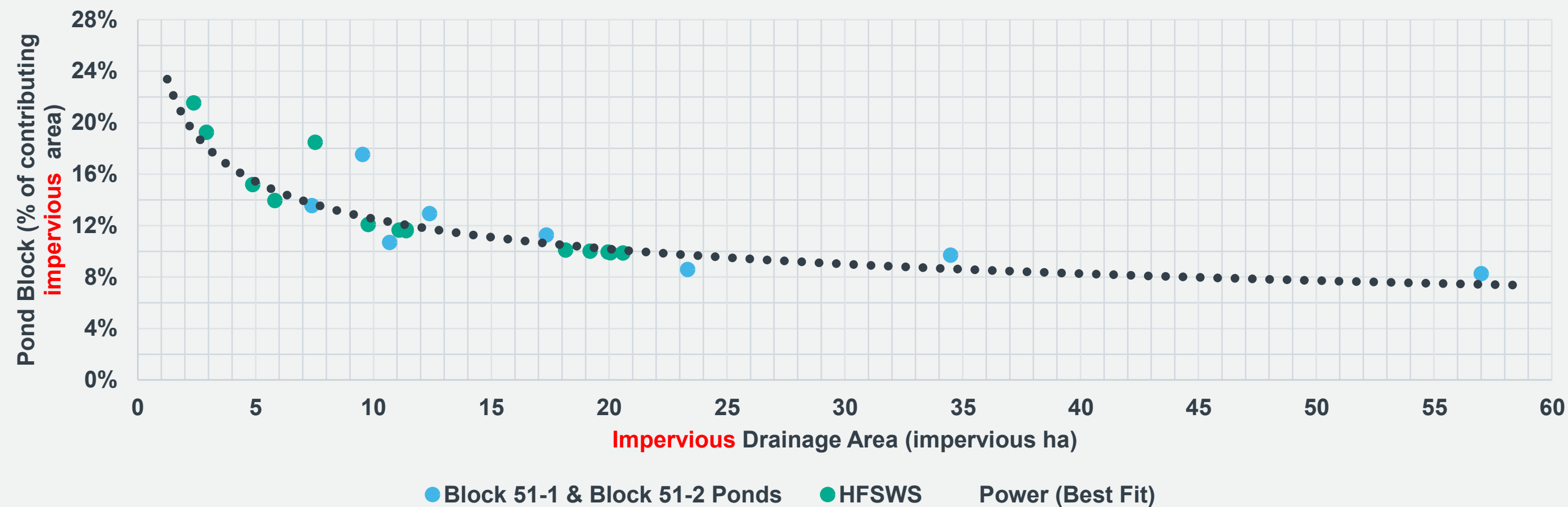
Northwest Brampton SWM Facility Data

Pond ID	Location	Watercourse	Type	Status	Contributing Drainage Area	Pond Block Area	Imperviousness	Pond Block as % of contributing area	Pond Block as % of contributing Impervious area
					[ha]	[ha]	%	%	%
F1	Block 51-1	Fletcher's Creek	Regional Control / Wet Pond	Constructed	87.7	4.7	65	5%	8%
F2	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	35.19	2	66.3	6%	9%
F3	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	17.54	1.6	70.6	9%	13%
F6	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	15.48	1.67	61.6	11%	18%
F7	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	17.12	1.14	62.4	7%	11%
F8	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	11.82	1	62.5	8%	14%
F10	Block 51-2	Fletcher's Creek	Regional Control / Wet Pond	Constructed	58.46	3.34	59	6%	10%
H6	Block 51-1	East Huttonville Creek	Regional Control / Wet Pond	Constructed	21.4	1.95	81	9%	11%
704	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	50.22	2.03	41	4%	10%
705	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	18.36	1.39	41	8%	18%
706	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	44.27	1.83	41	4%	10%
707	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	48.92	1.98	41	4%	10%
708	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	5.78	0.51	41	9%	22%
709	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	46.82	1.92	41	4%	10%
711	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	27.77	1.32	41	5%	12%
713	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	27.52	1.32	41	5%	12%
715	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	14.18	0.81	41	6%	14%
716	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	23.84	1.18	41	5%	12%
718	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	27.04	1.29	41	5%	12%
720	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	11.89	0.74	41	6%	15%
721	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	48.67	1.98	41	4%	10%
725	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	27.78	1.33	41	5%	12%
726	Heritage Heights	West Huttonville Creek	Regional Control / Wet Pond	Planned (previous Wood HFSWS)	7.1	0.56	41	8%	19%

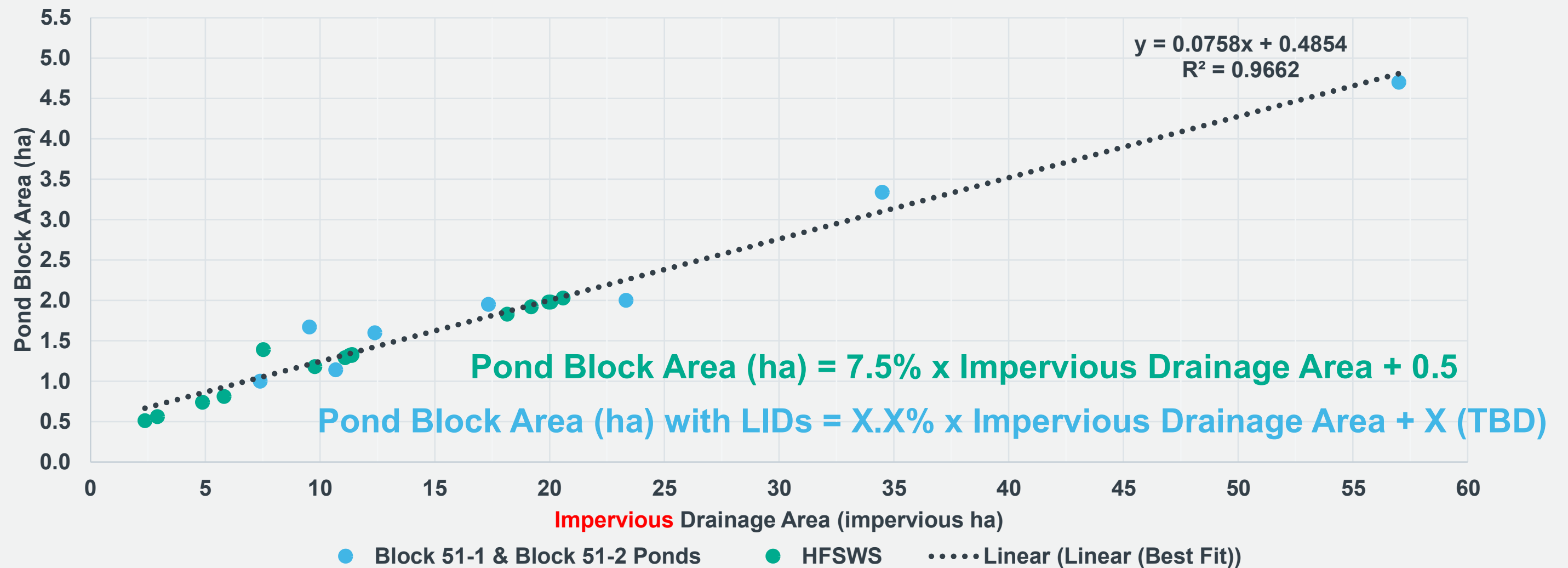
SWM Pond Sizing Rule of Thumb



SWM Pond Sizing Rule of Thumb



SWM Pond Sizing Rule of Thumb



APPENDIX D

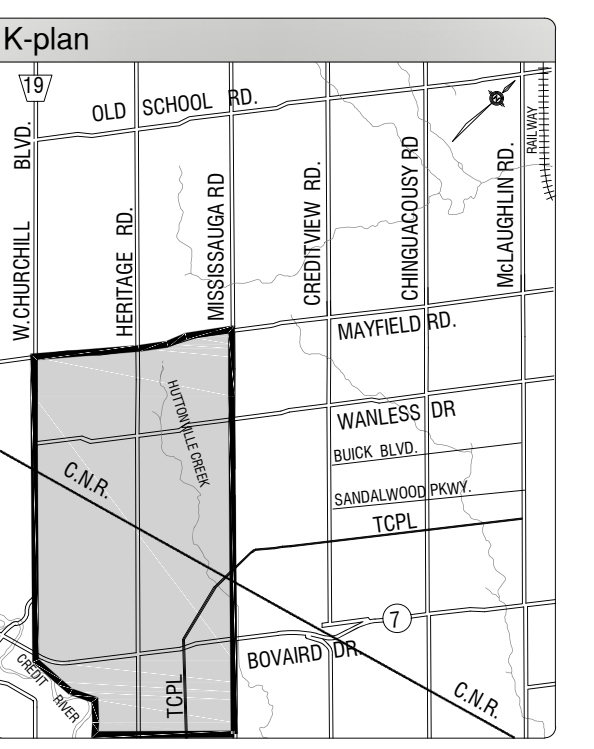
DRAWING PACKAGE

TOWN OF HALTON HILLS

TOWN OF CALEDON

MT. PLEASANT
51-1

51-3



- GREENBELT
- NATURAL HERITAGE SYSTEM
- HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
- COMMUNITY PARKS
- EMPLOYMENT
- NEIGHBORHOODS
- MIXED USE RESIDENTIAL (MED)
- MIXED USE RESIDENTIAL (HIGH)
- CORRIDOR MIXED USE A
- CORRIDOR MIXED USE B
- MAJOR INSTITUTIONAL
- EXISTING PUMPING STATION AND WATER RESERVOIR
- TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY
- SPECIAL POLICY AREA
- CANADIAN NATIONAL RAILWAY (CNR)
- ROADWAY
- TRANSCANADA GAS PIPELINE (TCPL)
- STORMWATER MANAGEMENT FACILITY AND OUTLET
- DEFERRED LANDS
- FOCUSED AREA ANALYSIS (FAA)
- SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
- WOODLANDS
- RAPID TRANSIT STATION
- FIRE STATION

URBANTECH[®]

HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY

HERITAGE HEIGHTS
SECONDARY PLAN AREA
PRELIMINARY LAND USE PLAN

PROJECT No. 17-531 DATE AUG. 2025 SCALE 1:6000 DWG No. 1

FILE: P:\Projects\17-531\Heritage Heights\17-531_Prelim Land Use Plan.dwg

TOWN OF HALTON HILLS

TOWN OF CALEDON

MT. PLEASANT
51-1

LEGEND:

- GREENBELT
- NATURAL HERITAGE SYSTEM
- HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
- COMMUNITY PARKS
- EMPLOYMENT
- NEIGHBORHOODS
- MIXED USE RESIDENTIAL (MED)
- MIXED USE RESIDENTIAL (HIGH)
- CORRIDOR MIXED USE A
- CORRIDOR MIXED USE B
- MAJOR INSTITUTIONAL
- EXISTING PUMPING STATION AND WATER RESERVOIR
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- CANADIAN NATIONAL RAILWAY (CNR)
- ROADWAY
- TRANSCANADA GAS PIPELINE (TCPL)
- STORMWATER MANAGEMENT FACILITY AND OUTLET
- DEFERRED LANDS
- FOCUSED AREA ANALYSIS (FAA)
- SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
- WOODLANDS
- EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
- EXISTING WATERCOURSE
- EXISTING HEADWATER DRAINAGE FEATURES
- SWMP CR-4 NWL 247.50
- EXISTING CONTOUR
- EXISTING ELEVATION
- PROPOSED GRADE
- PROPOSED CENTERLINE GRADE
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED STORM CULVERT

NOTES:

- EXISTING WETLANDS SHOWN EXTENDING ONTO PROPOSED DEVELOPMENT LANDS AND ROADWAYS ARE TO BE FURTHER STUDIED IN THE PRECINCT PLAN LEVEL EIR-FSR, AND BY THE MTO WHERE WETLANDS EXTEND INTO THE HIGHWAY 413 CORRIDOR.
- COLLECTOR ROAD CROSSINGS WITH CN CORRIDOR AND HIGHWAY 413 ARE PROPOSED TO CROSS ABOVE THE CN AND HIGHWAY CORRIDORS.
- FURTHER COORDINATION WITH MTO REQUIRED TO FINALIZE LAGERFELD DRIVE CROSSING DETAILS, AND INTERFACE WITH EXISTING LIMIT OF LAGERFELD DRIVE.

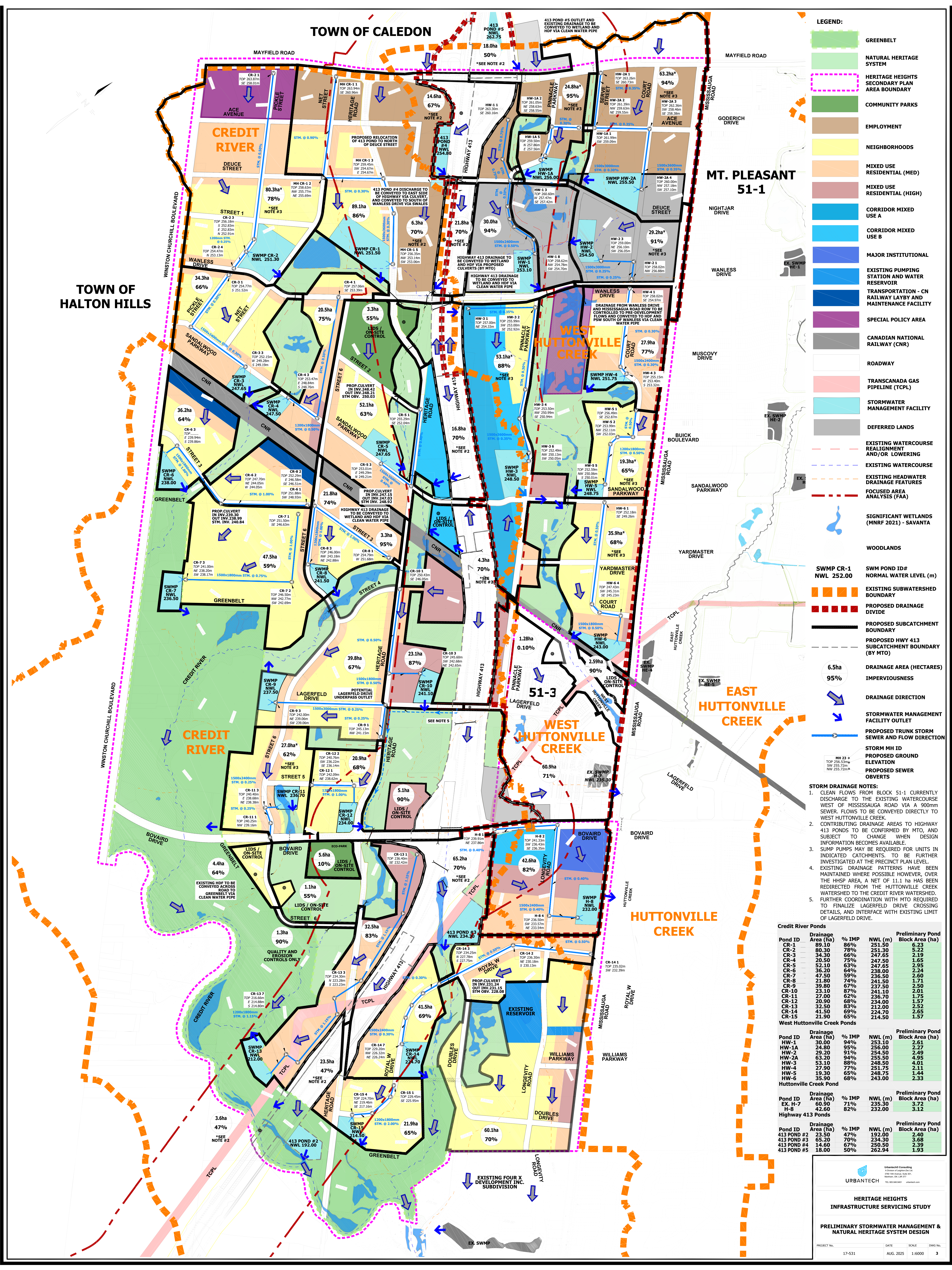
URBANTECH

HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY

PRELIMINARY GRADING PLAN

PROJECT NO. 17-531 DATE AUG. 2025 SCALE 1:6000 DWG. NO. 2

File: P:\Projects\17-531\Report\2025\Grading\Grading_Plan.dwg - Created by: CHEN/BD - Date: 2025-08-01 - 12:20:00



LEGEND:

GREENBELT

NATURAL HERITAGE SYSTEM

HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY

COMMUNITY PARKS

EMPLOYMENT

NEIGHBORHOODS

MIXED USE RESIDENTIAL (MED)

MIXED USE RESIDENTIAL (HIGH)

CORRIDOR MIXED USE A

CORRIDOR MIXED USE B

MAJOR INSTITUTIONAL

EXISTING PUMPING STATION AND WATER RESERVOIR

TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY

SPECIAL POLICY AREA

CANADIAN NATIONAL RAILWAY (CNR)

ROADWAY

TRANSCANADA GAS PIPELINE (TCPL)

STORMWATER MANAGEMENT FACILITY

DEFERRED LANDS

EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING

EXISTING WATERCOURSE

EXISTING HEADWATER DRAINAGE FEATURES

FOCUSED AREA ANALYSIS (FAA)

SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA

WOODLANDS

SWMP CR-1 NWL 252.00

SWMP POND ID# NORMAL WATER LEVEL (m)

EXISTING SUBWATERSHED BOUNDARY

PROPOSED DRAINAGE DIVIDE

PROPOSED SUBCATCHMENT BOUNDARY

PROPOSED HWY 413 SUBCATCHMENT BOUNDARY (BY MTO)

6.5ha

95%

DRAINAGE AREA (HECTARES)

IMPERVIOUSNESS

DRAINAGE DIRECTION

STORMWATER MANAGEMENT FACILITY OUTLET

PROPOSED TRUNK STORM SEWER AND FLOW DIRECTION

STORM MH ID

PROPOSED GROUND ELEVATION

PROPOSED SEWER OVERTS

STORM DRAINAGE NOTES:

1. CLEAN FLOWS FROM BLOCK 51-1 CURRENTLY DISCHARGE TO THE EXISTING WATERCOURSE WEST OF MISSISSAUGA ROAD VIA A 900mm SEWER. FLOWS TO BE CONVEYED DIRECTLY TO WEST HUTTONVILLE CREEK.

2. CONTRIBUTING DRAINAGE AREAS TO HIGHWAY 413 PONDS TO BE CONFIRMED BY MTO, AND SUBJECT TO CHANGE WHEN DESIGN INFORMATION BECOMES AVAILABLE.

3. SUMP PUMPS MAY BE REQUIRED FOR UNITS IN INDICATED CATCHMENTS. TO BE FURTHER INVESTIGATED AT THE PRECINCT PLAN LEVEL.

4. EXISTING DRAINAGE PATTERNS HAVE BEEN MAINTAINED WHERE POSSIBLE HOWEVER, OVER THE HHSD AREA, A NET OF 11.1 ha HAS BEEN REDIRECTED FROM THE HUTTONVILLE CREEK WATERSHED TO THE CREDIT RIVER WATERSHED.

5. FURTHER COORDINATION WITH MTO REQUIRED TO FINALIZE LAGERFELD DRIVE CROSSING DETAILS, AND INTERFACE WITH EXISTING LIMIT OF LAGERFELD DRIVE.

Credit River Ponds

Pond ID	Drainage Area (ha)	% IMP	NWL (m)	Preliminary Pond Block Area (ha)
CR-1	89.10	96%	251.50	2.23
CR-2	80.30	78%	251.30	5.22
CR-3	34.30	66%	247.65	2.19
CR-4	20.50	75%	247.50	1.65
CR-5	22.10	63%	247.65	2.95
CR-6	36.20	64%	238.00	2.24
CR-7	47.50	59%	236.50	2.60
CR-8	21.80	74%	241.50	1.71
CR-9	39.80	67%	237.50	2.50
CR-10	23.10	87%	241.10	2.01
CR-11	27.00	62%	236.70	1.75
CR-12	20.90	68%	234.00	1.37
CR-13	32.50	83%	212.00	2.52
CR-14	41.50	69%	224.70	2.65
CR-15	21.40	59%	214.50	1.57

West Huttonville Creek Ponds

Pond ID	Drainage Area (ha)	% IMP	NWL (m)	Preliminary Pond Block Area (ha)
HW-1	30.00	94%	253.10	2.61
HW-1A	24.80	95%	256.00	2.27
HW-2	29.20	91%	254.50	2.49
HW-2A	63.20	94%	255.50	4.95
HW-3	53.10	88%	248.50	4.01
HW-4	27.90	77%	251.75	2.11
HW-5	19.30	65%	248.75	1.44
HW-6	35.90	68%	243.00	2.33

Huttonville Creek Pond

Pond ID	Drainage Area (ha)	% IMP	NWL (m)	Preliminary Pond Block Area (ha)
EX-H-7	60.90	71%	235.30	3.72
H-8	42.60	82%	232.00	3.12

Highway 413 Ponds

Pond ID	Drainage Area (ha)	% IMP	NWL (m)	Preliminary Pond Block Area (ha)
413 POND #2	23.50	47%	192.00	2.40
413 POND #3	65.20	70%	234.30	3.68
413 POND #4	14.60	67%	250.50	2.39
413 POND #5	18.00	50%	262.94	1.93

HERITAGE HEIGHTS INFRASTRUCTURE SERVICING STUDY

PRELIMINARY STORMWATER MANAGEMENT & NATURAL HERITAGE SYSTEM DESIGN

PROJECT NO. 17-531

DATE AUG. 2025

SCALE 1:6000

DWG NO. 3

REFER TO FIGURE 4A FOR EXTERNAL DRAINAGE AREAS

TOWN OF CALEDON

TOWN OF HALTON HILLS

LEGEND:

- EXISTING RESERVOIR
- GREENBELT
- NATURAL HERITAGE SYSTEM
- HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
- COMMUNITY PARKS
- EMPLOYMENT
- NEIGHBOURHOODS
- MIXED USE RESIDENTIAL (MED)
- MIXED USE RESIDENTIAL (HIGH)
- CORRIDOR MIXED USE A
- CORRIDOR MIXED USE B
- MAJOR INSTITUTIONAL
- EXISTING PUMPING STATION AND WATER RESERVOIR
- TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY
- SPECIAL POLICY AREA
- CANADIAN NATIONAL RAILWAY (CNR)
- ROADWAY
- TRANSCANADA GAS PIPELINE (TCPL)
- STORMWATER MANAGEMENT FACILITY
- DEFERRED LANDS
- EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
- EXISTING WATERCOURSE
- EXISTING HEADWATER DRAINAGE FEATURES
- FOCUSED AREA ANALYSIS (FAA)
- SIGNIFICANT WETLANDS (MNR 2021)
- WOODLANDS
- EXISTING LOCAL SAN SEWER AND FLOW DIRECTION
- EXISTING TRUNK SAN. SEWER AND FLOW DIRECTION
- PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION
- INTERMEDIATE SANITARY MANHOLE
- PROPOSED LOCAL SAN SEWER AND FLOW DIRECTION
- SAN SEWER DRAINAGE BOUNDARY
- ALTERNATIVE TRUNK SAN. ALIGNMENT AND FLOW DIRECTION
- PROPOSED PUMPING STATION AND FORCEMAIN
- PUMPING STATION DRAINAGE BOUNDARY (FOR PREFERRED P.S. LOCATION)
- EXTERNAL CONTRIBUTING DRAINAGE AREA
- ESTIMATED FUTURE POPULATION

NOTES:

- PROPOSED HERITAGE HEIGHTS SUB-TRUNK SANITARY SEWERS TO BE UTILIZED WITHIN EXISTING ROADS WHERE POSSIBLE. INTERNAL SEWER ALIGNMENTS SHOWN ON THIS DRAWING HAVE BEEN COORDINATED WITH PEEL REGION BASED ON THE APPROVED HH SECONDARY PLAN LAND USE SCHEDULE AND ROAD NETWORK.
- AS RECOMMENDED BY PEEL REGION, A PUMPING STATION IS PROPOSED FOR LANDS AT WINSTON CHURCHILL BLVD., SOUTH OF CNR AND WEST OF EXISTING WATERCOURSE TO REDUCE THE SANITARY SUB-TRUNK SEWER DEPTH DOWNSTREAM OF THE CREEK CROSSING. REFER TO DRAWINGS 4B-4N FOR PRELIMINARY SUB-TRUNK PROFILES.
- AS AGREED WITH PEEL REGION, THE FUTURE DEVELOPMENT LANDS NORTH OF MAYFIELD ROAD HAVE BEEN ASSUMED TO HAVE A POPULATION DENSITY OF 80 PERSONS / Ha. ALTERNATIVE YARDMASTER TRUNK SEWER ALIGNMENT IN PRECINCT 52-2 IS NOT CONSIDERED IF THE FUTURE SANDALWOOD PARKWAY ROW CORRIDOR IS NOT ACCESSIBLE DUE TO THE CURRENT OWNERSHIP AND UNKNOWN DEVELOPMENT TIMING OF THE HOLDOUT PROPERTY.
- THE FOLLOWING RESIDENTIAL / COMMERCIAL SPLITS HAVE BEEN ASSUMED FOR MIXED USE AREAS. THESE SPLITS ARE REFLECTED ON THE POPULATION BREAKDOWNS FOR DRAINAGE AREAS SHOWN ON THIS PLAN.
- REFER TO THE HHSIP INFRASTRUCTURE SERVICING STUDY REPORT FOR ADDITIONAL DETAILS ON POPULATION DENSITIES.

LAND USE	RES.	COM.
NEIGHBOURHOODS	79%	21%
MIXED USE (MED.)	79%	21%
MIXED USE (HIGH)	79%	21%
SPA 1	79%	21%
SPA 2	79%	21%
MIXED COR. 'A'	-	100%
MIXED COR. 'B'	71%	29%

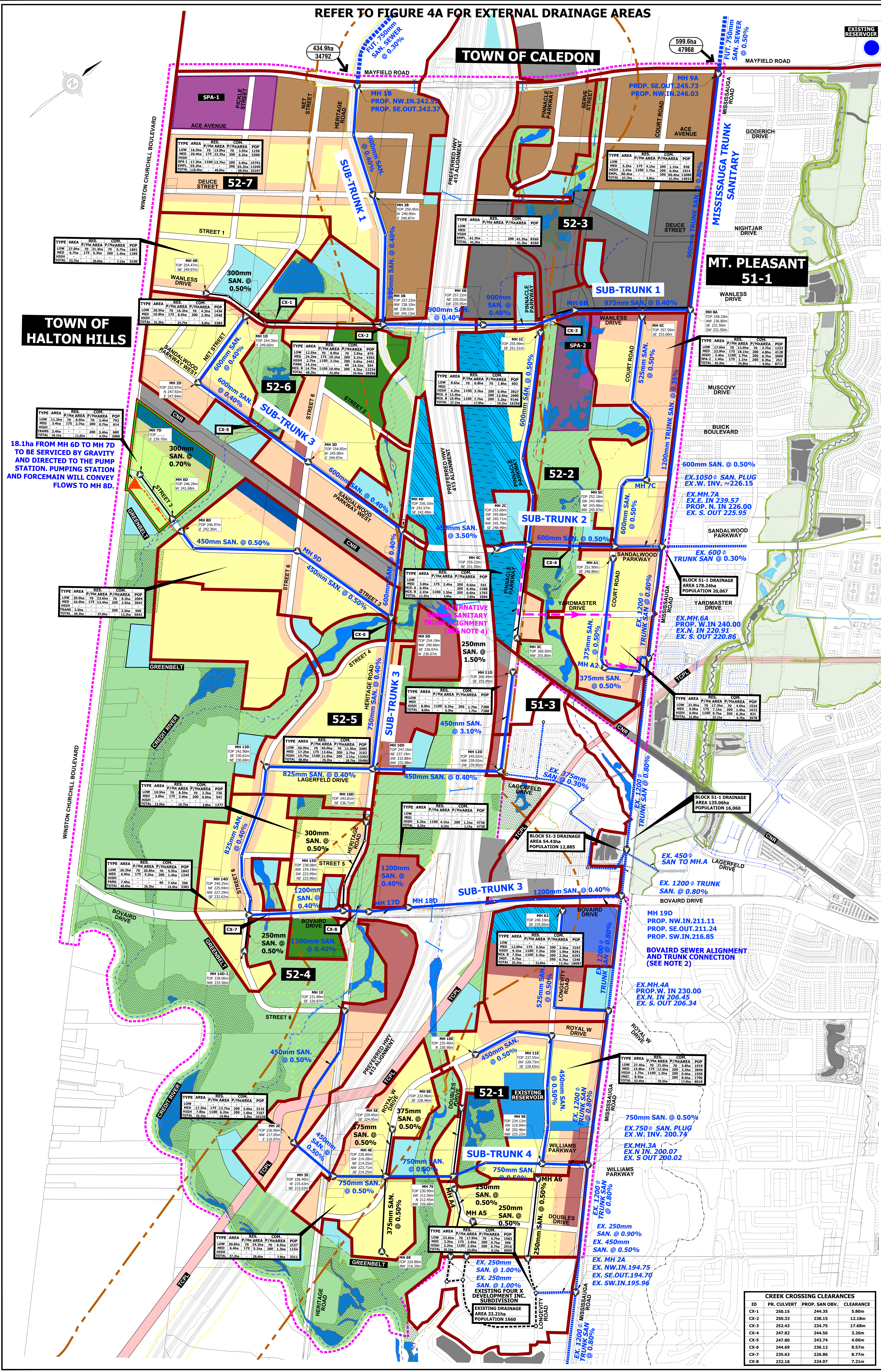
REFER TO THE HHSIP INFRASTRUCTURE SERVICING STUDY REPORT FOR ADDITIONAL DETAILS ON POPULATION DENSITIES.

URBANTECH[®] CONSULTING
A Division of URBANTECH LTD.
Mississauga, ON L4R 1P1
TEL: 905.882.8881 • WWW.URBANTECH.COM

HERITAGE HEIGHTS
PRELIMINARY INTERNAL WASTEWATER SERVICING

PROJECT NO. 17-531 DATE AUG. 2025 SCALE 1:6000 DWG. NO. 4

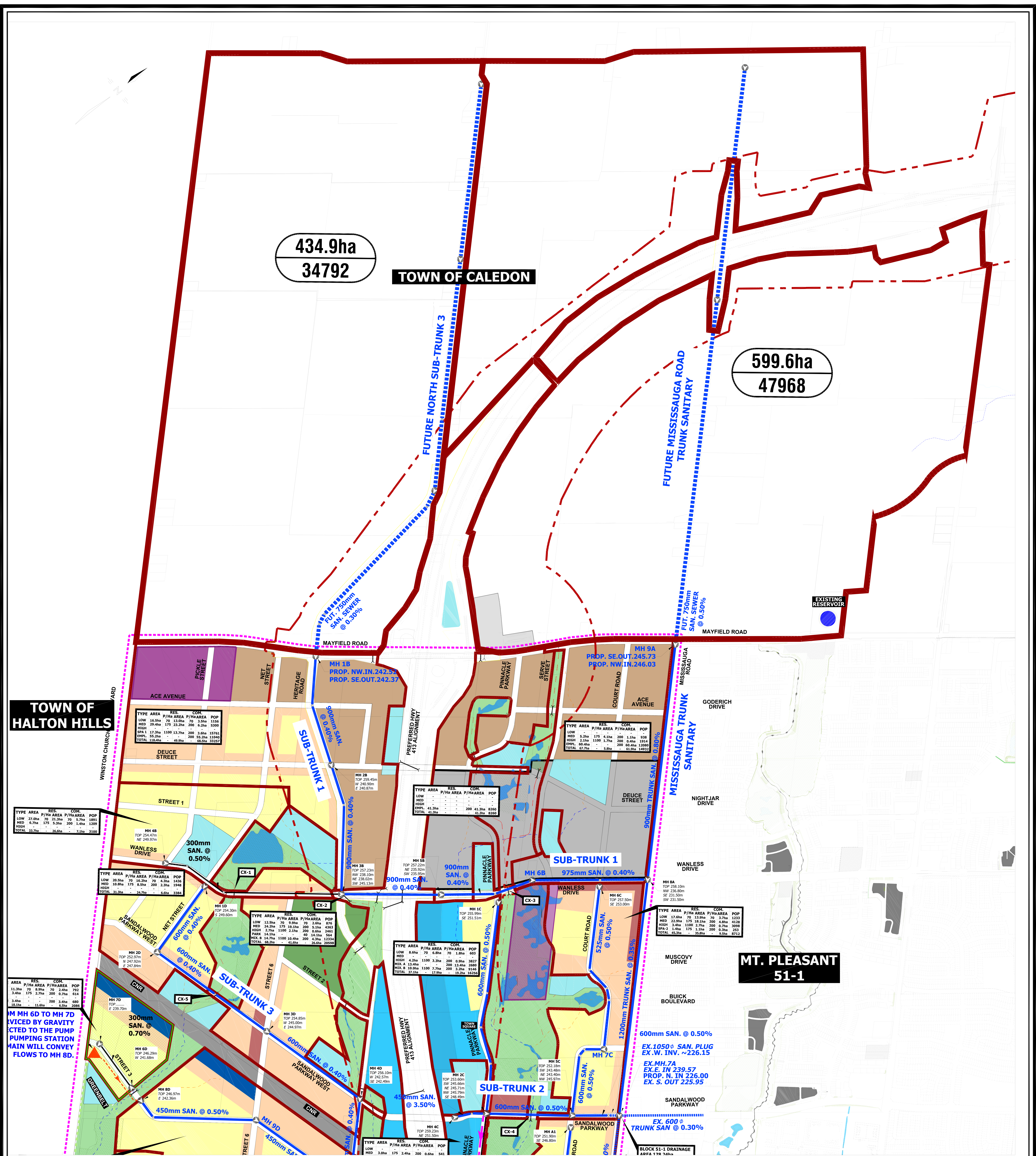
ID	PR. CULVERT	PROP. SAN. OVB.	CLEARANCE
CK-1	250.15	244.35	5.80m
CK-2	250.33	238.15	12.18m
CK-3	252.43	234.75	17.68m
CK-4	247.82	244.56	3.26m
CK-5	247.80	243.74	4.06m
CK-6	244.69	236.12	8.57m
CK-7	235.63	236.56	8.97m
CK-8	232.18	224.97	7.21m



18.1ha FROM MH 6D TO MH 7D TO BE SERVICED BY GRAVITY AND DIRECTED TO THE PUMP STATION. PUMPING STATION AND FORCEMAIN WILL CONVEY FLOWS TO MH 8D.

BOVAIRD SEWER ALIGNMENT AND TRUNK CONNECTION (SEE NOTE 2)

EXISTING DRAINAGE AREA 52-11b POPULATION 1660



LEGEND:

- HERITAGE HEIGHTS STUDY AREA
- EXISTING LOCAL SAN SEWER AND FLOW DIRECTION
- EXISTING TRUNK SAN SEWER AND FLOW DIRECTION
- PROPOSED TRUNK SAN SEWER AND FLOW DIRECTION
- PROPOSED LOCAL SAN SEWER AND FLOW DIRECTION
- INTERNAL SAN SEWER DRAINAGE BOUNDARY

220.9ha
17672

- EXTERNAL DRAINAGE AREA IN HECTARES
- ESTIMATED FUTURE POPULATION
- EXTERNAL SAN SEWER DRAINAGE BOUNDARY
- FUTURE EXTERNAL SANITARY SEWER
- FOCUSED AREA ANALYSIS (FAA)

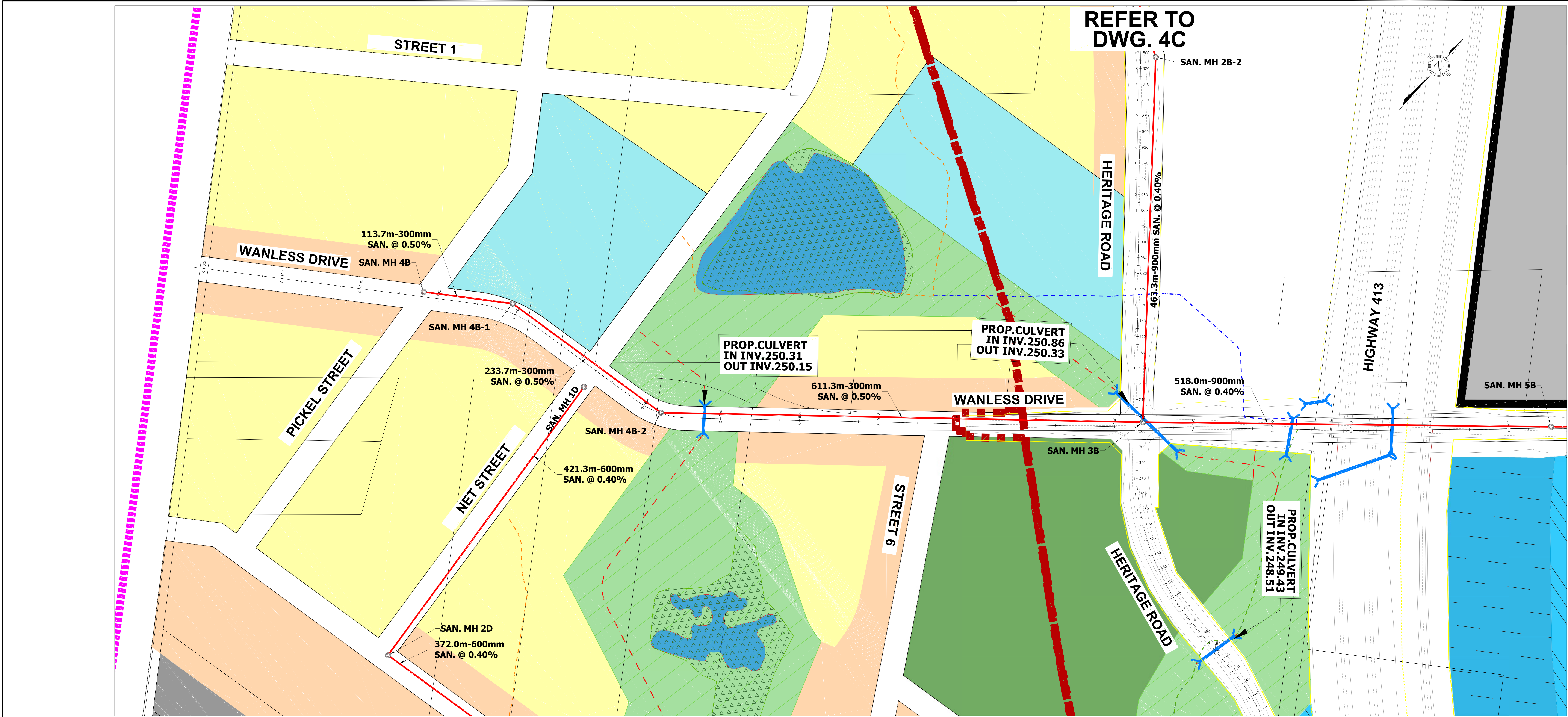
NOTES:
1. FUTURE DEVELOPMENT LANDS NORTH OF MAYFIELD STREET HAVE BEEN ASSUMED TO HAVE A POPULATION DENSITY OF 80 PERSONS / Ha.

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1700 West Beaver Creek Road
Markham, ON L3R 9V9
TEL: 905.546.8441 | urban@urban-tech.com

HERITAGE HEIGHTS

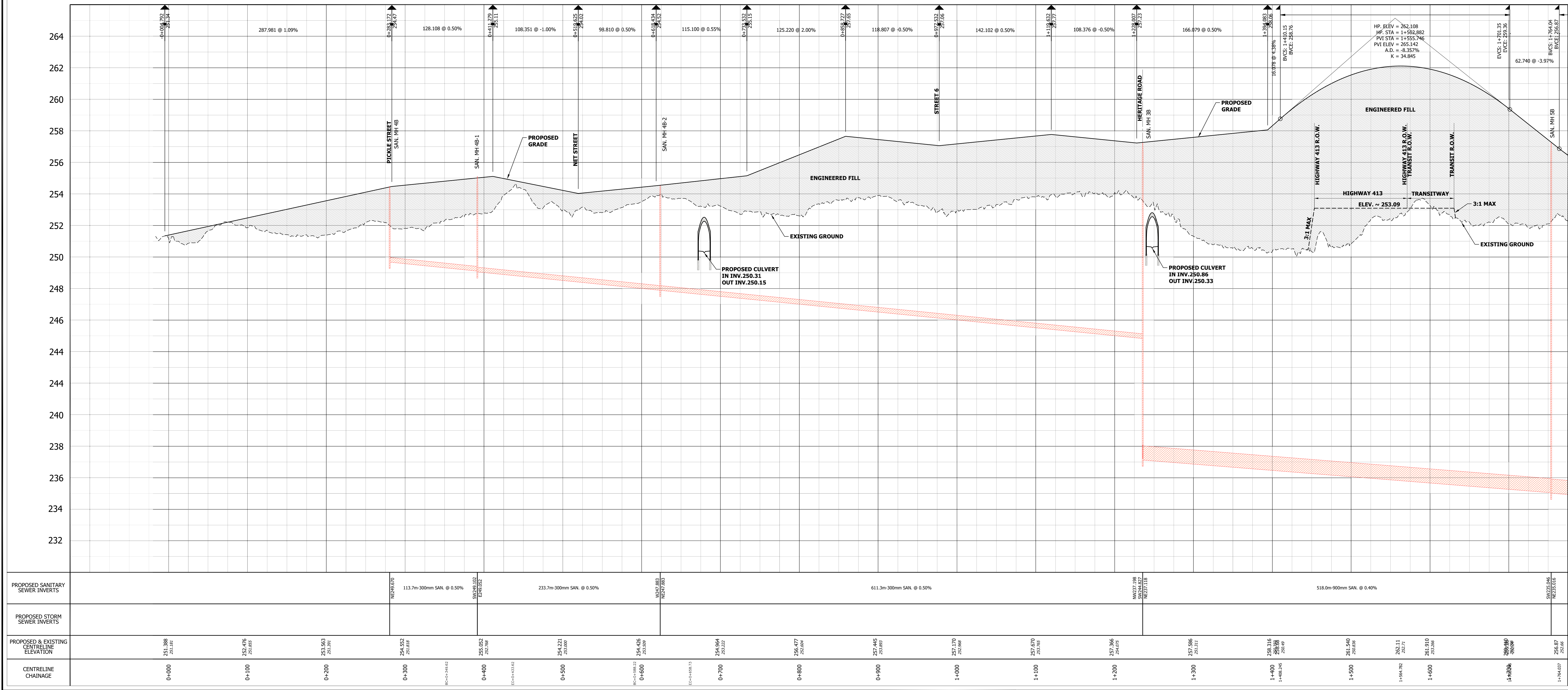
EXTERNAL SANITARY DRAINAGE AREAS

PROJECT No. 17-531 DATE AUG. 2025 SCALE 1:6000 DWG No. 4A



REFER TO
DWG. 4E

- LEGEND:**
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
 - MIXED USE RESIDENTIAL (HIGH)
 - CORRIDOR MIXED USE A
 - CORRIDOR MIXED USE B
 - SPECIAL POLICY AREA
 - HIGHWAY 413
 - ROADWAY
 - STORMWATER MANAGEMENT FACILITY
 - DEFERRED LANDS
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
 - EXISTING WATERCOURSE
 - EXISTING HEADWATER DRAINAGE FEATURES
 - SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

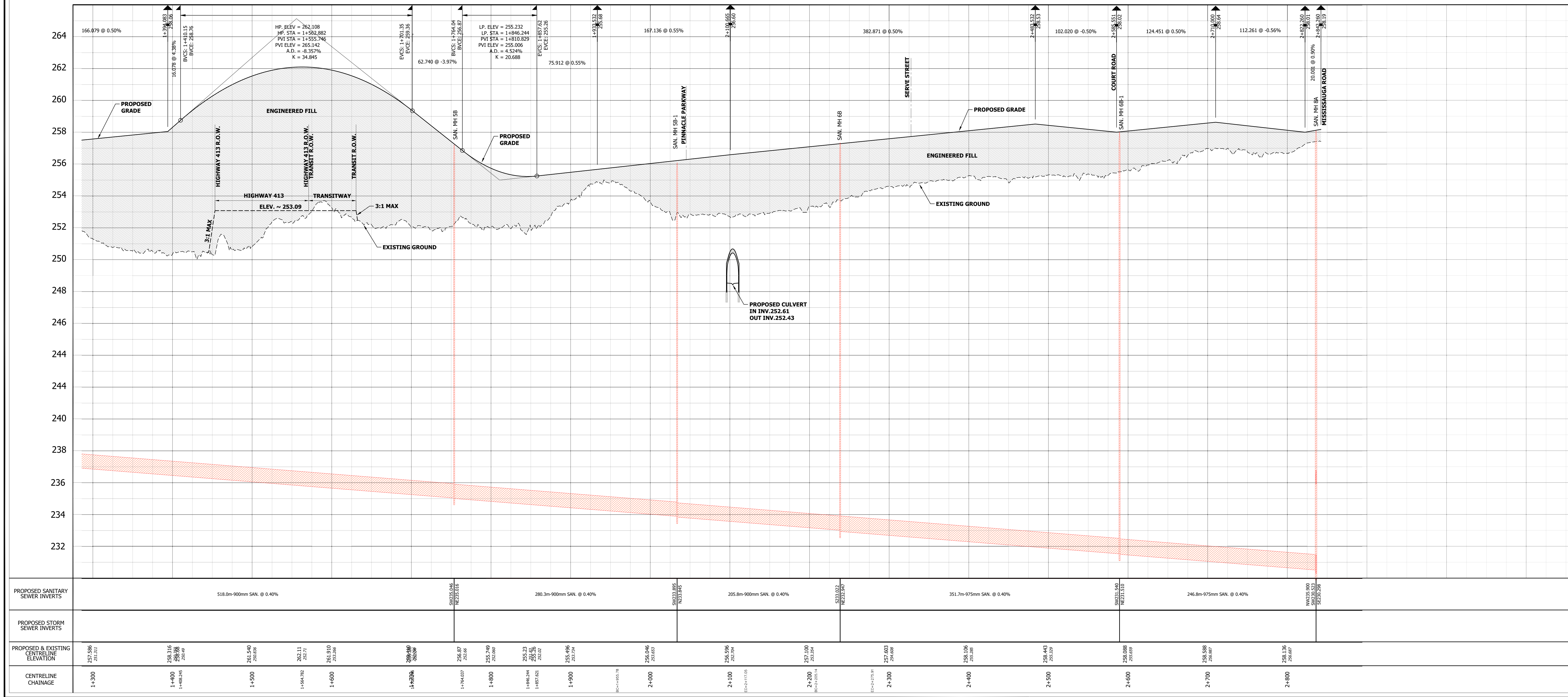
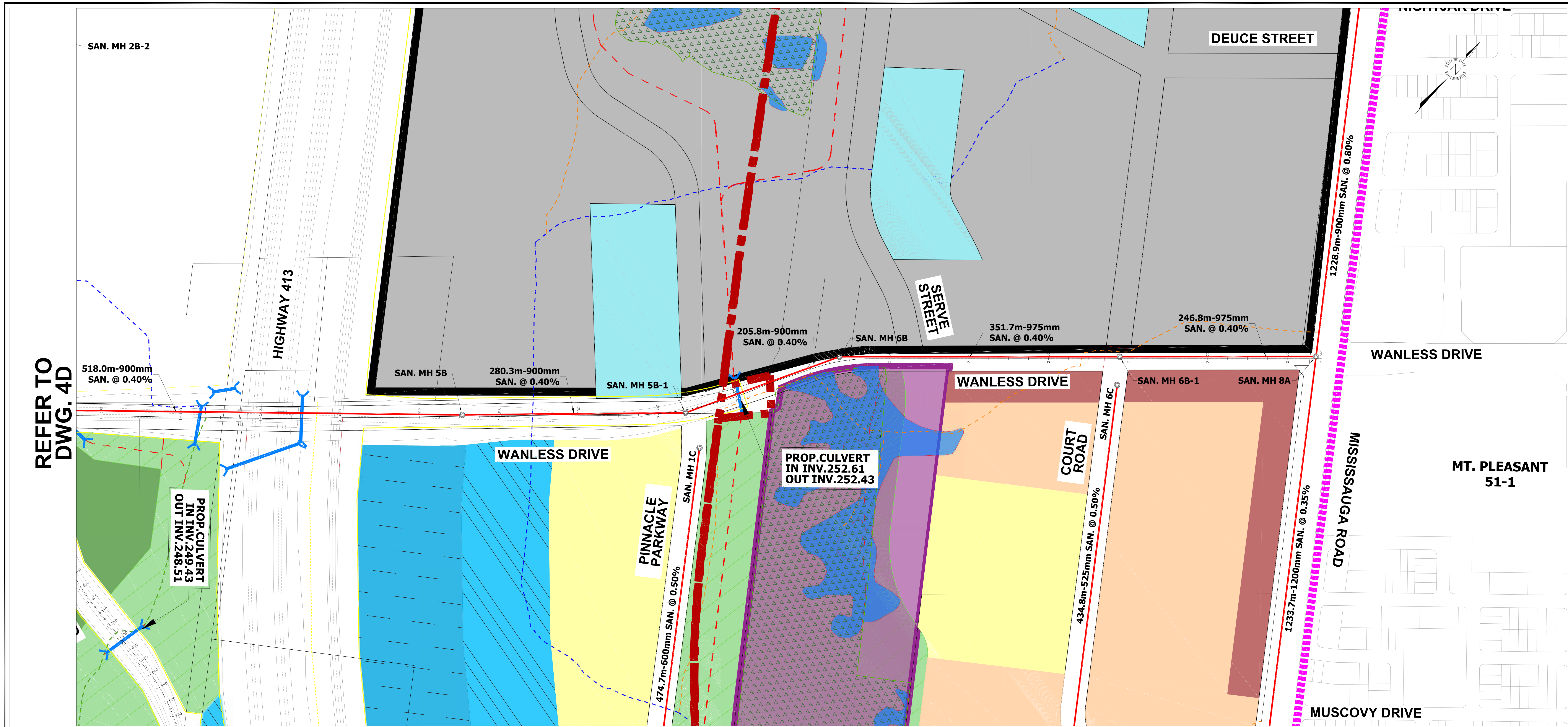


URBANTECH

**HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY**

**PRELIMINARY SUB TRUNK 1
PLAN & PROFILE
(PART 3)**

PROJECT No.	17-531	DATE	AUG. 2025	SCALE	H 1:2000 V 1:100	DWG No.	4D
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- LEGEND:
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
 - MIXED USE RESIDENTIAL (HIGH)
 - CORRIDOR MIXED USE A
 - CORRIDOR MIXED USE B
 - SPECIAL POLICY AREA
 - HIGHWAY 413
 - ROADWAY
 - STORMWATER MANAGEMENT FACILITY
 - DEFERRED LANDS
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
 - EXISTING WATERCOURSE
 - EXISTING HEADWATER DRAINAGE FEATURES
 - SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

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URBANTECH Consulting

HERITAGE HEIGHTS INFRASTRUCTURE SERVICING STUDY

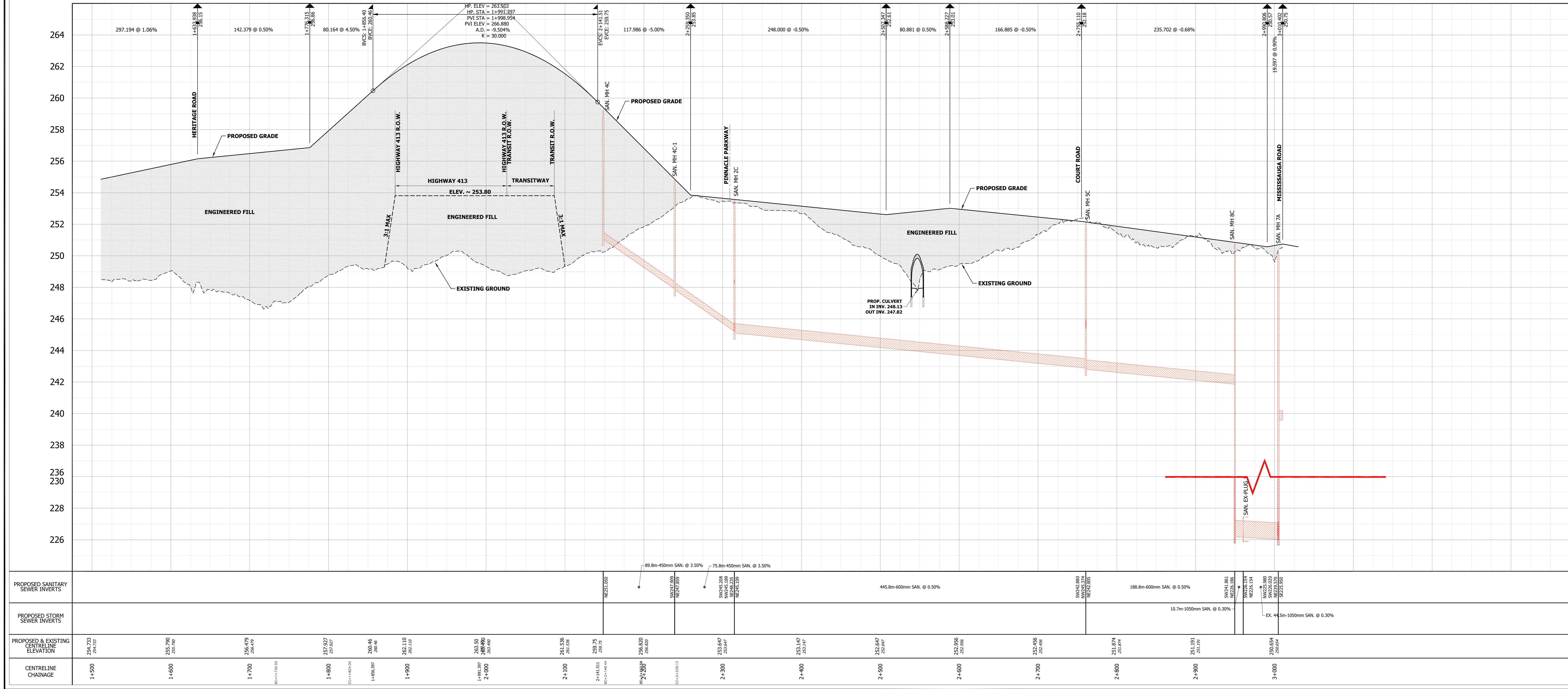
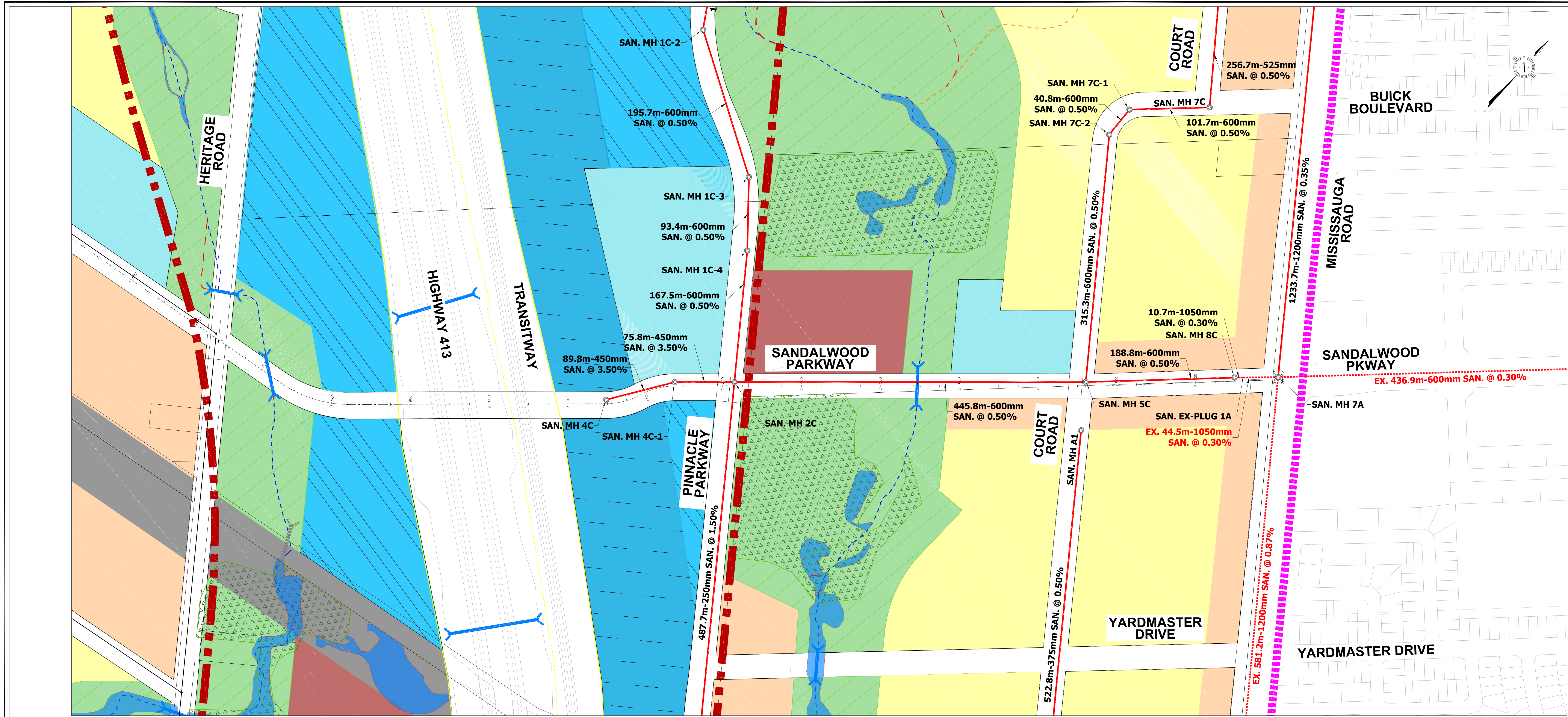
PRELIMINARY SUB TRUNK 1 PLAN & PROFILE (PART 4)

PROJECT No. 17-531

DATE AUG. 2025

SCALE H 1:2000 V 1:100

DWG No. 4E



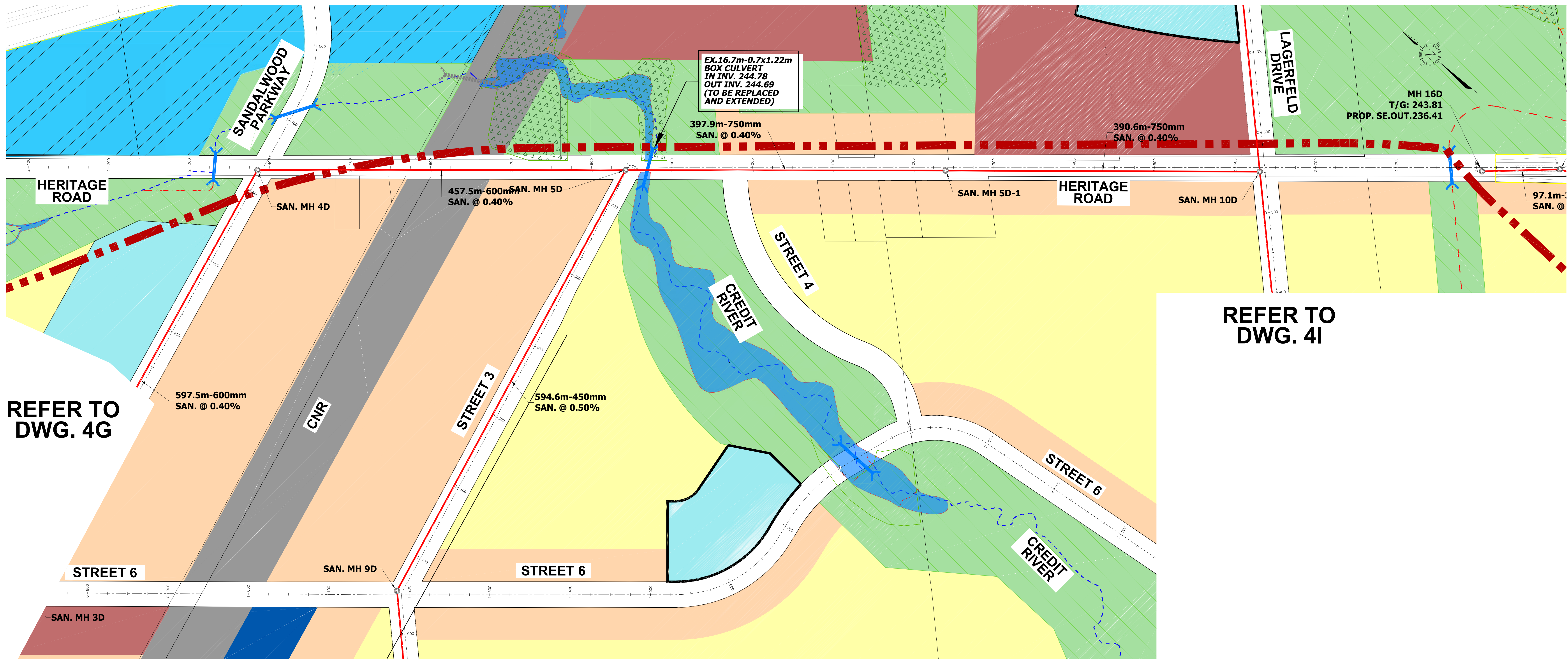
- LEGEND:**
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
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 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

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HERITAGE HEIGHTS INFRASTRUCTURE SERVICING STUDY

PRELIMINARY SUB TRUNK 2 PLAN & PROFILE (PART 1)

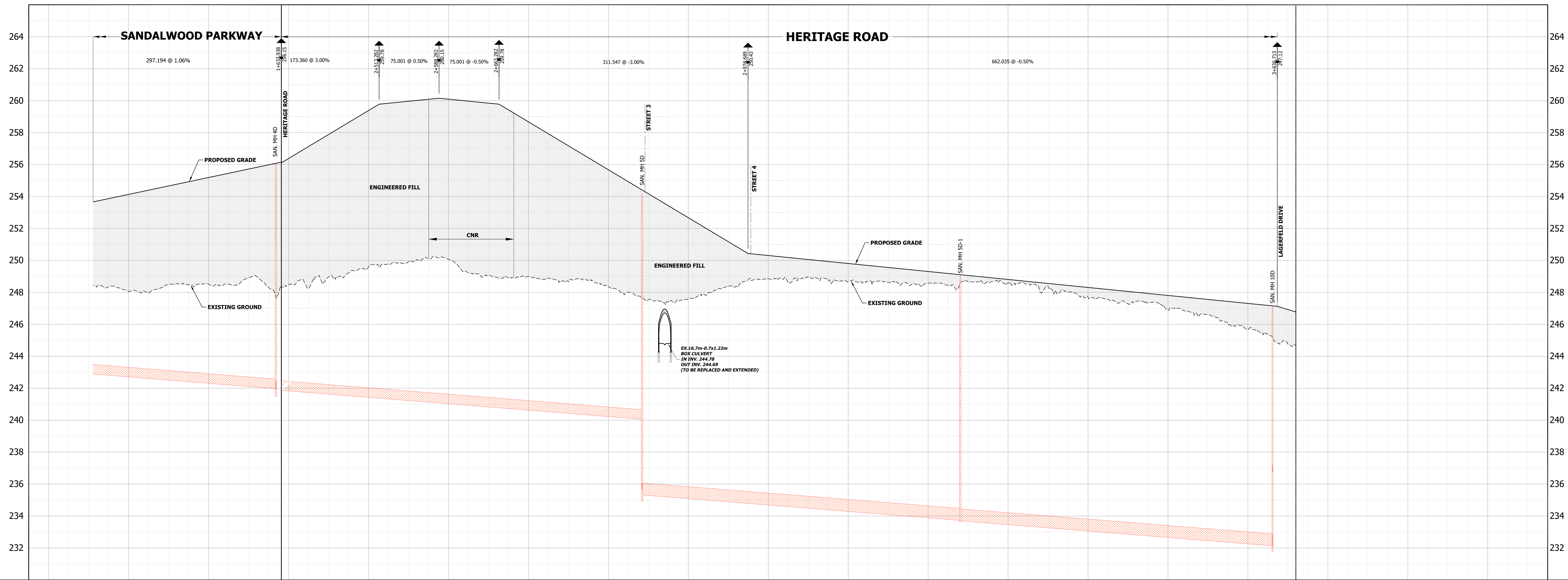
PROJECT No. 17-531 DATE AUG. 2025 SCALE H 1:2000 V 1:100 DWG No. 4F



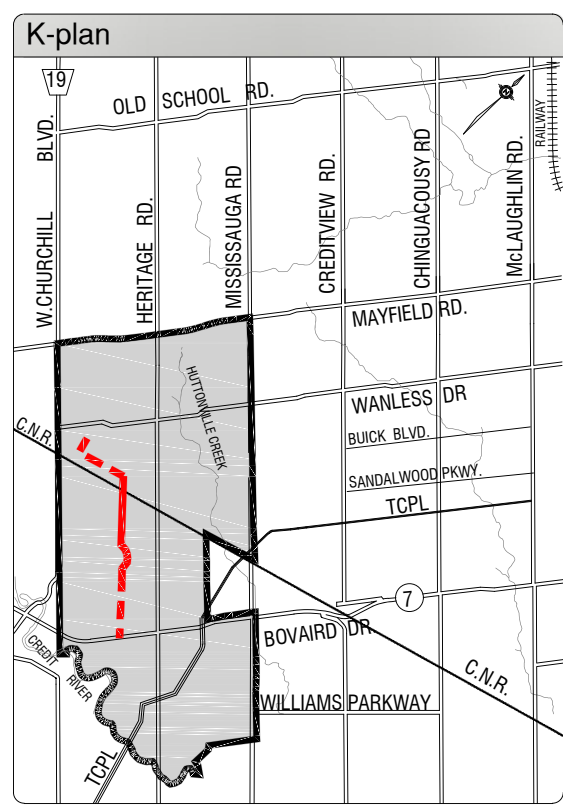
REFER TO
DWG. 4G

REFER TO
DWG. 4I

REFER TO
DWG. 4K



PROPOSED SANITARY SEWER INVERTS	601.5m-975mm SAN. @ 0.40%										PROPOSED SANITARY SEWER INVERTS
PROPOSED STORM SEWER INVERTS	457.5m-600mm SAN. @ 0.40%										PROPOSED STORM SEWER INVERTS
PROPOSED & EXISTING CENTRELINE ELEVATION	252.674 246.69	252.671 246.67	252.706 246.64	253.377 246.64	253.377 246.67	250.051 246.07	252.671 246.08	252.366 246.05	249.866 246.08	249.396 246.01	PROPOSED & EXISTING CENTRELINE ELEVATION
CENTRELINE CHAINAGE	1+400	1+500	1+600	2+400	2+500	2+600	2+700	2+800	2+900	3+400	CENTRELINE CHAINAGE



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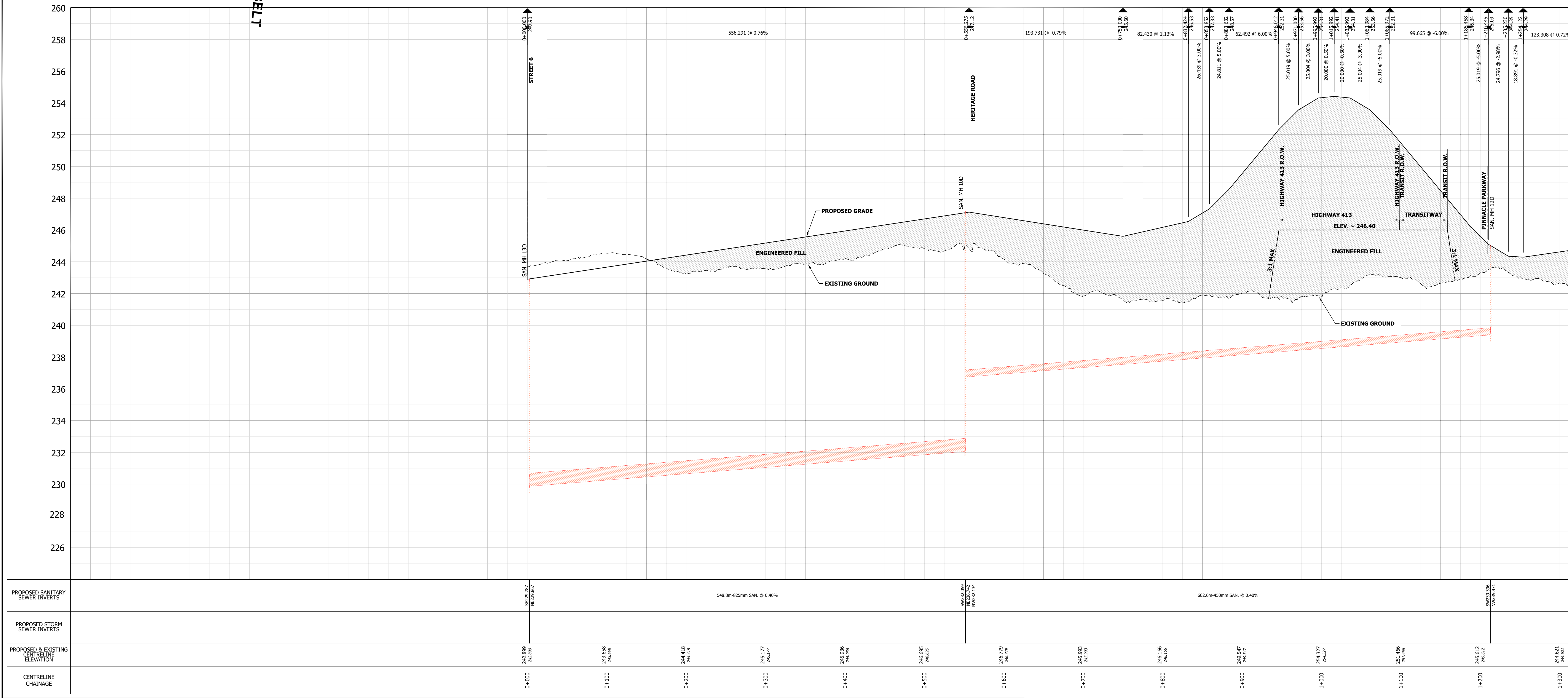
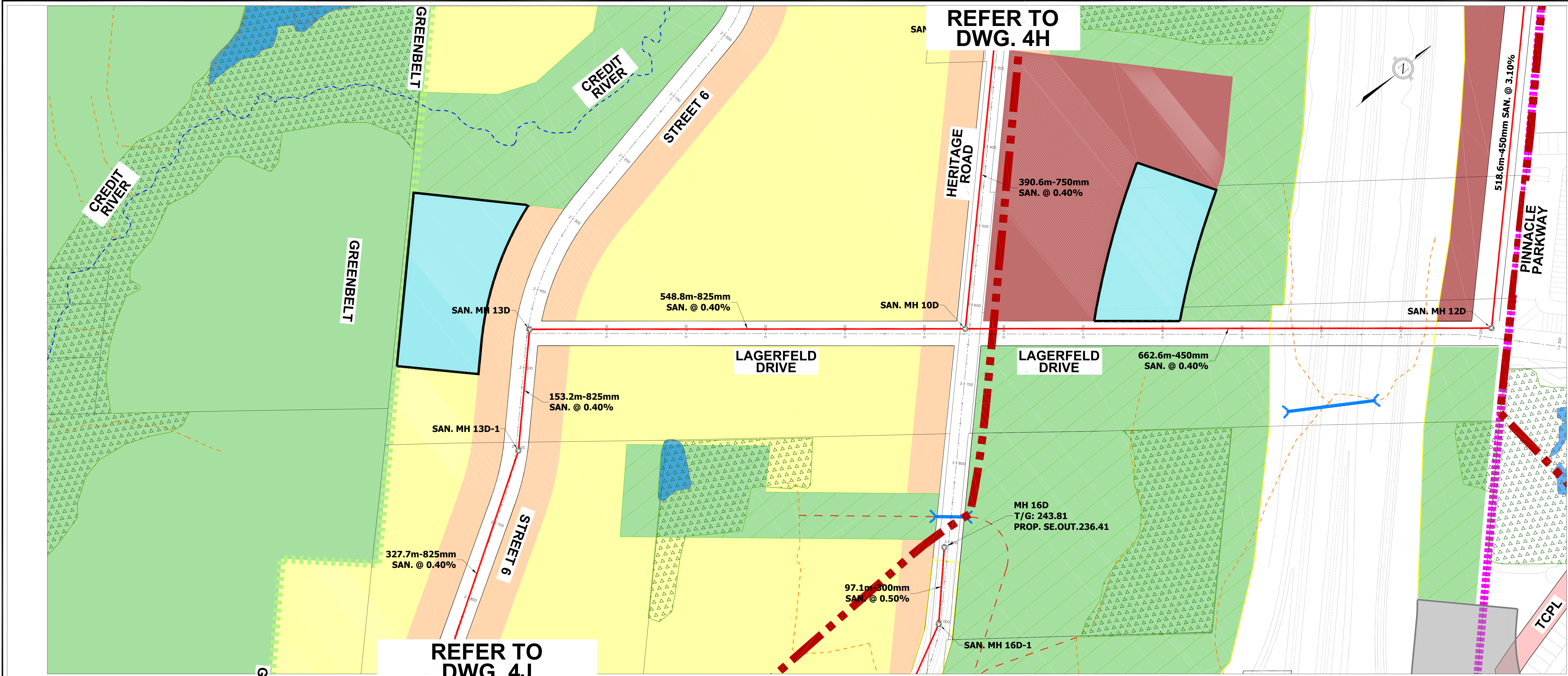
- NATURAL HERITAGE SYSTEM
- HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
- COMMUNITY PARKS
- EMPLOYMENT
- NEIGHBORHOODS
- MIXED USE RESIDENTIAL (MED)
- MIXED USE RESIDENTIAL (HIGH)
- CORRIDOR MIXED USE A
- CORRIDOR MIXED USE B
- SPECIAL POLICY AREA
- HIGHWAY 413
- ROADWAY
- STORMWATER MANAGEMENT FACILITY
- DEFERRED LANDS
- GREENBELT
- TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY
- EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
- EXISTING WATERCOURSE
- EXISTING HEADWATER DRAINAGE FEATURES
- SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
- WOODLANDS
- FOCUSED AREA ANALYSIS (FAA)
- PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

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HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY

**PRELIMINARY SUB TRUNK 3
PLAN & PROFILE
(PART 2)**

PROJECT No.	17-531	DATE	AUG. 2025	SCALE	H 1:2000 V 1:100	DWG No.	4H
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- LEGEND:
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
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 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

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HERITAGE HEIGHTS INFRASTRUCTURE SERVICING STUDY

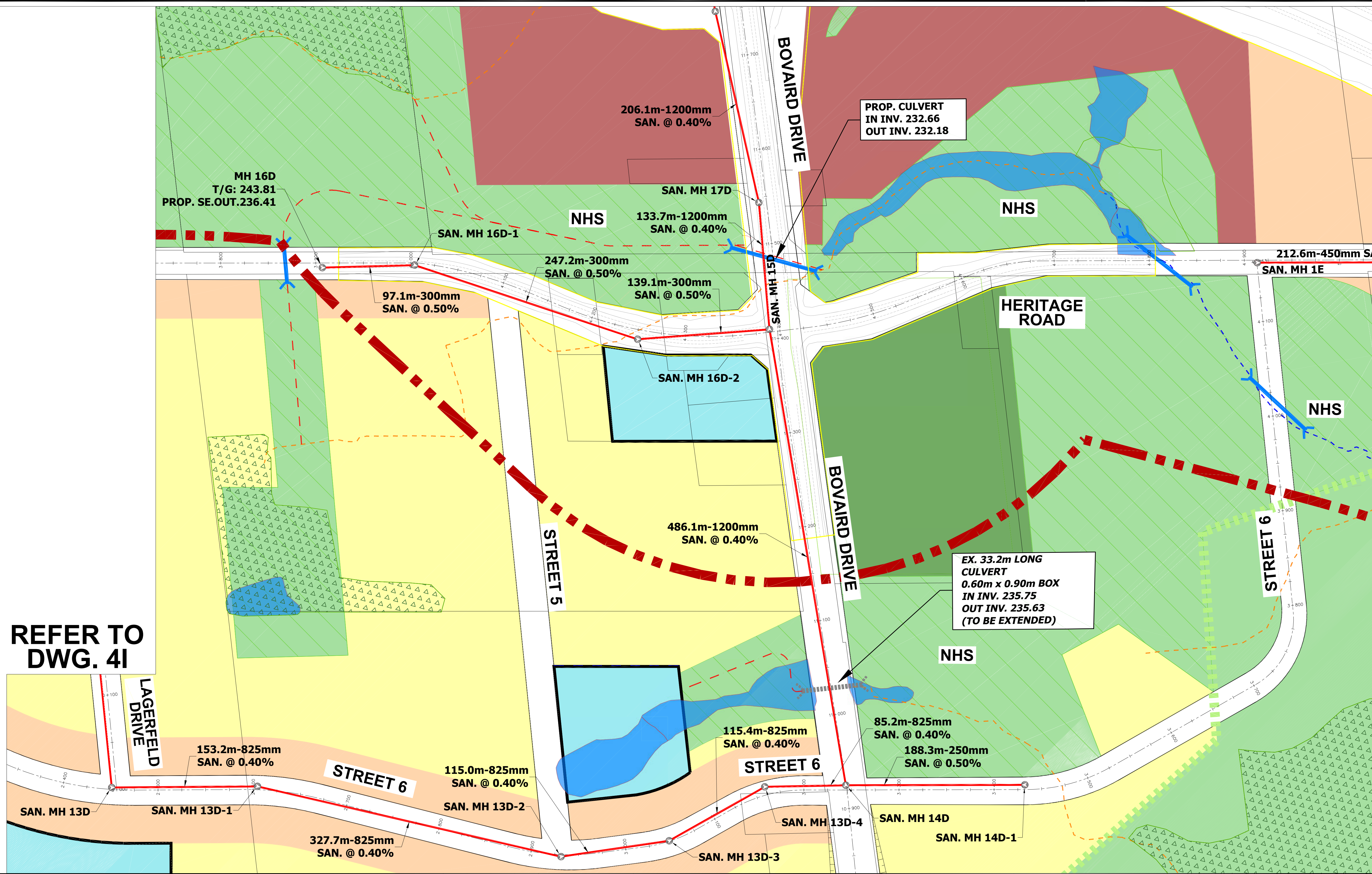
PRELIMINARY SUB TRUNK 3 PLAN & PROFILE (PART 3)

PROJECT No. 17-531

DATE AUG. 2025

SCALE H 1:2000 V 1:100

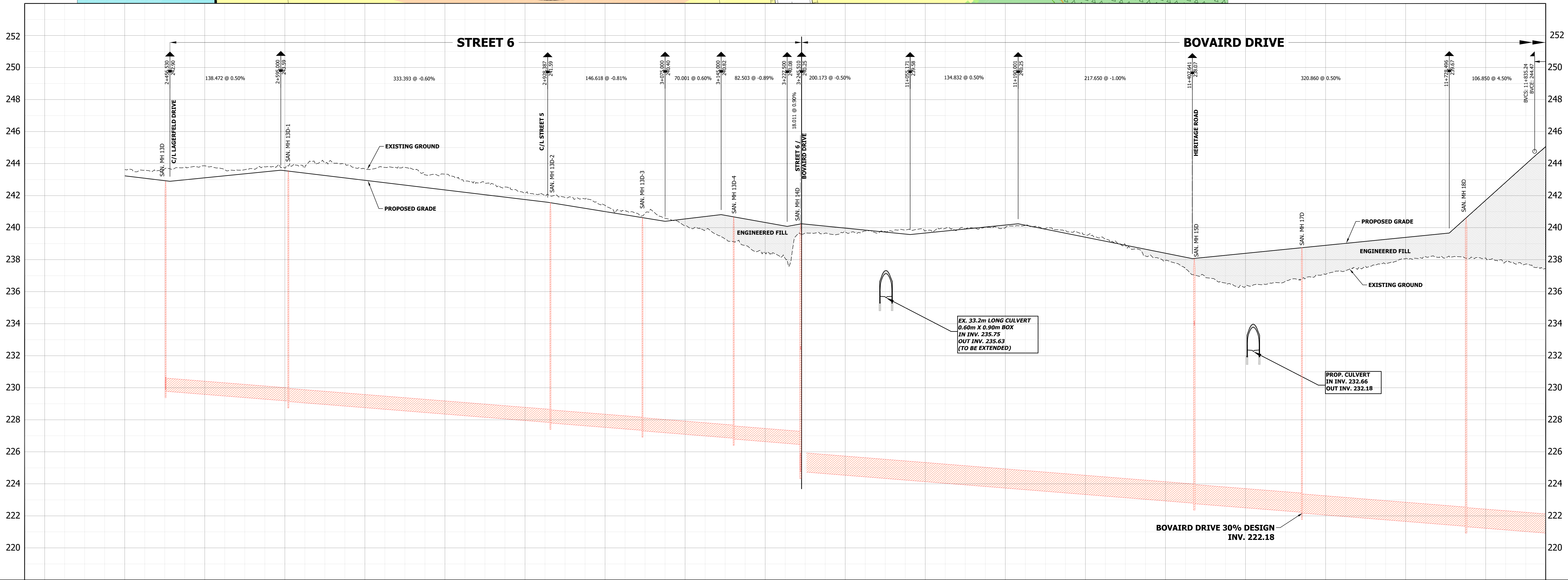
DWG No. 41



REFER TO
DWG. 41

PROP. CULVERT
IN INV. 232.66
OUT INV. 232.18

EX. 33.2m LONG
CULVERT
0.60m x 0.90m BOX
IN INV. 235.75
OUT INV. 235.63
(TO BE EXTENDED)



PROPOSED SANITARY SEWER INVERTS	133.2m-825mm SAN. @ 0.40%										PROPOSED SANITARY SEWER INVERTS
PROPOSED STORM SEWER INVERTS	M0221.862 222.787	M0221.874 222.144	M0221.881 222.144	M0221.888 222.144	M0221.895 222.144	M0221.902 222.144	M0221.909 222.144	M0221.916 222.144	M0221.923 222.144	M0221.930 222.144	PROPOSED STORM SEWER INVERTS
PROPOSED & EXISTING CENTRELINE ELEVATION	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	243.116 243.116	PROPOSED & EXISTING CENTRELINE ELEVATION
CENTRELINE CHAINAGE	2+500	2+600	2+700	2+800	2+900	3+000	3+100	3+200	3+300	3+400	CENTRELINE CHAINAGE

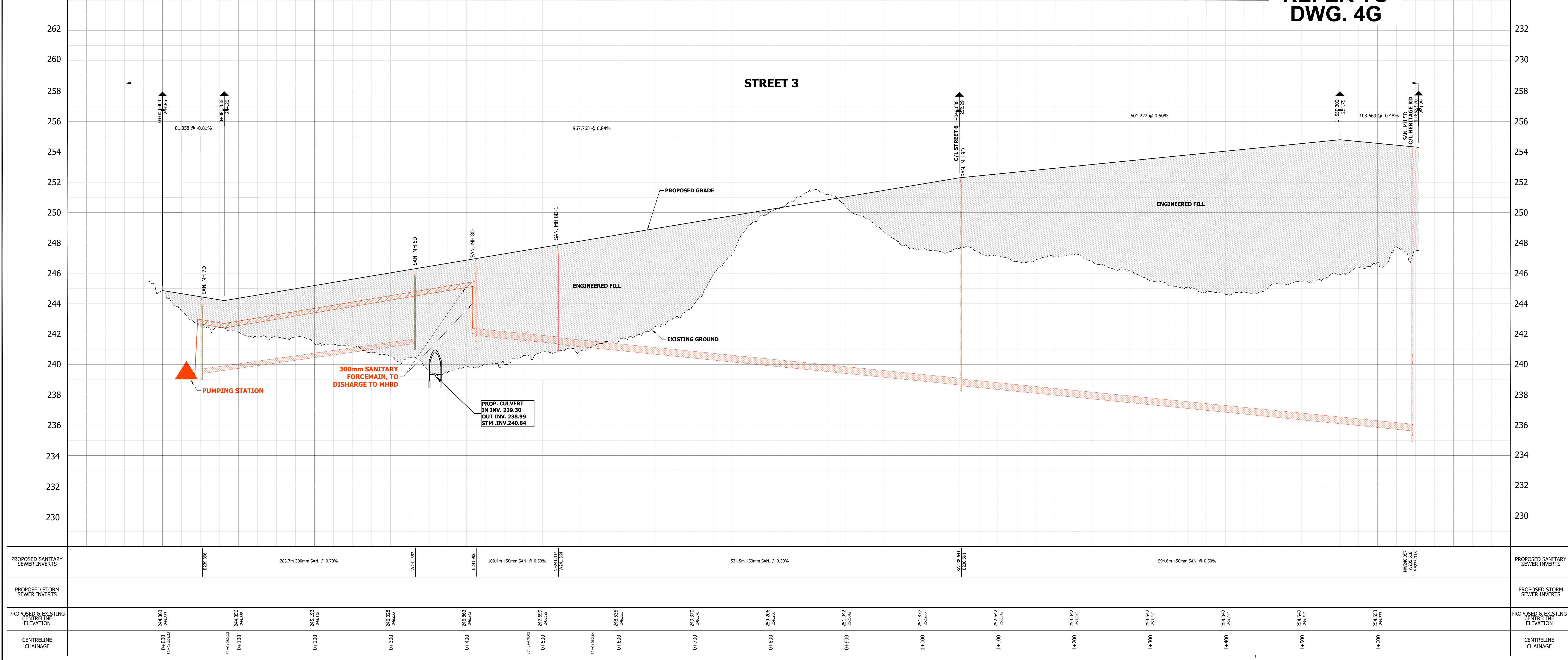
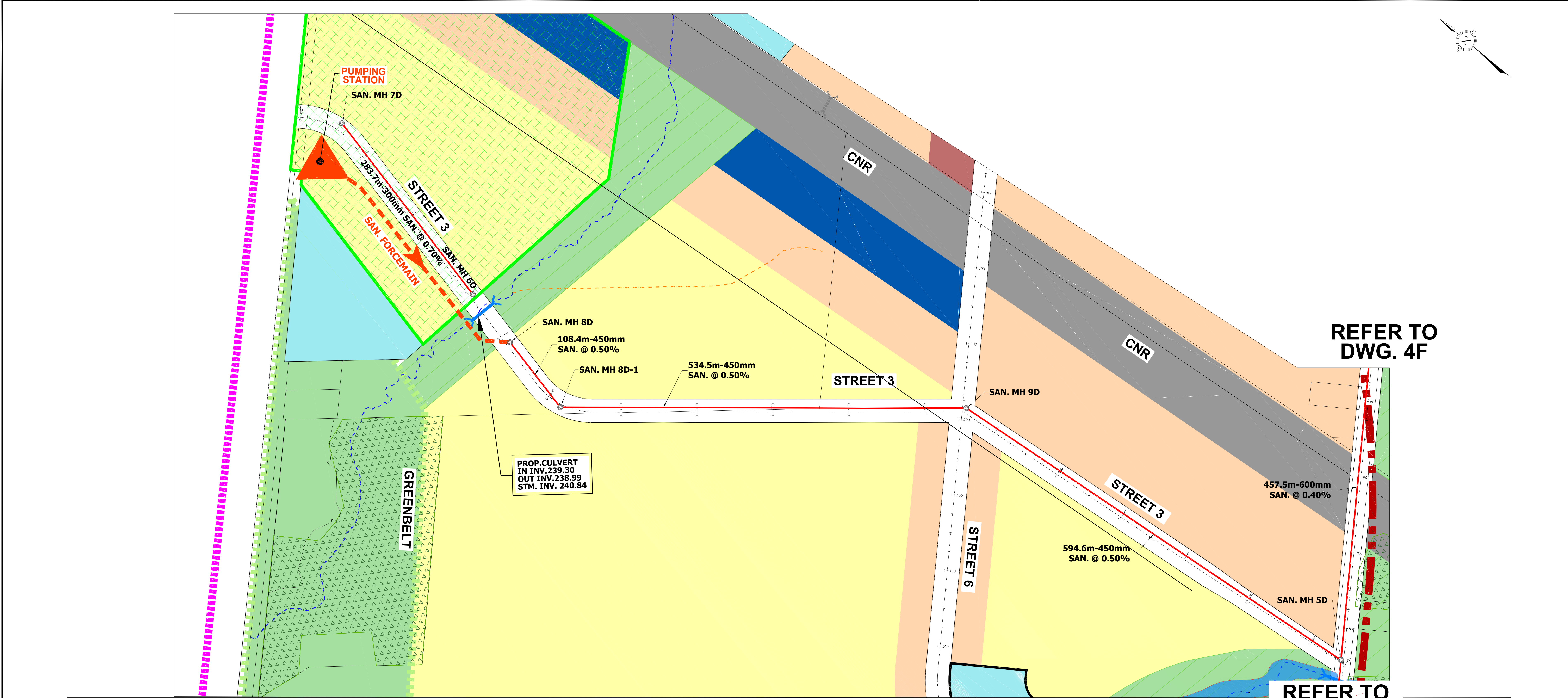
- LEGEND:
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
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 - CORRIDOR MIXED USE B
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 - ROADWAY
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 - GREENBELT
 - TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
 - EXISTING WATERCOURSE
 - EXISTING HEADWATER DRAINAGE FEATURES
 - SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

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HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY

PRELIMINARY SUB TRUNK 3
PLAN & PROFILE
(PART 4)

PROJECT No.	DATE	SCALE	DWG No.
17-531	AUG. 2025	H 1:2000 V 1:100	43



- LEGEND:**
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
 - MIXED USE RESIDENTIAL (HIGH)
 - CORRIDOR MIXED USE A
 - CORRIDOR MIXED USE B
 - SPECIAL POLICY AREA
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 - STORMWATER MANAGEMENT FACILITY
 - DEFERRED LANDS
 - GREENBELT
 - TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
 - EXISTING WATERCOURSE
 - EXISTING HEADWATER DRAINAGE FEATURES
 - SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION
 - PROPOSED PUMPING STATION AND FORCEMAIN
 - PUMPING STATION DRAINAGE BOUNDARY (FOR PREFERRED P.S. LOCATION)

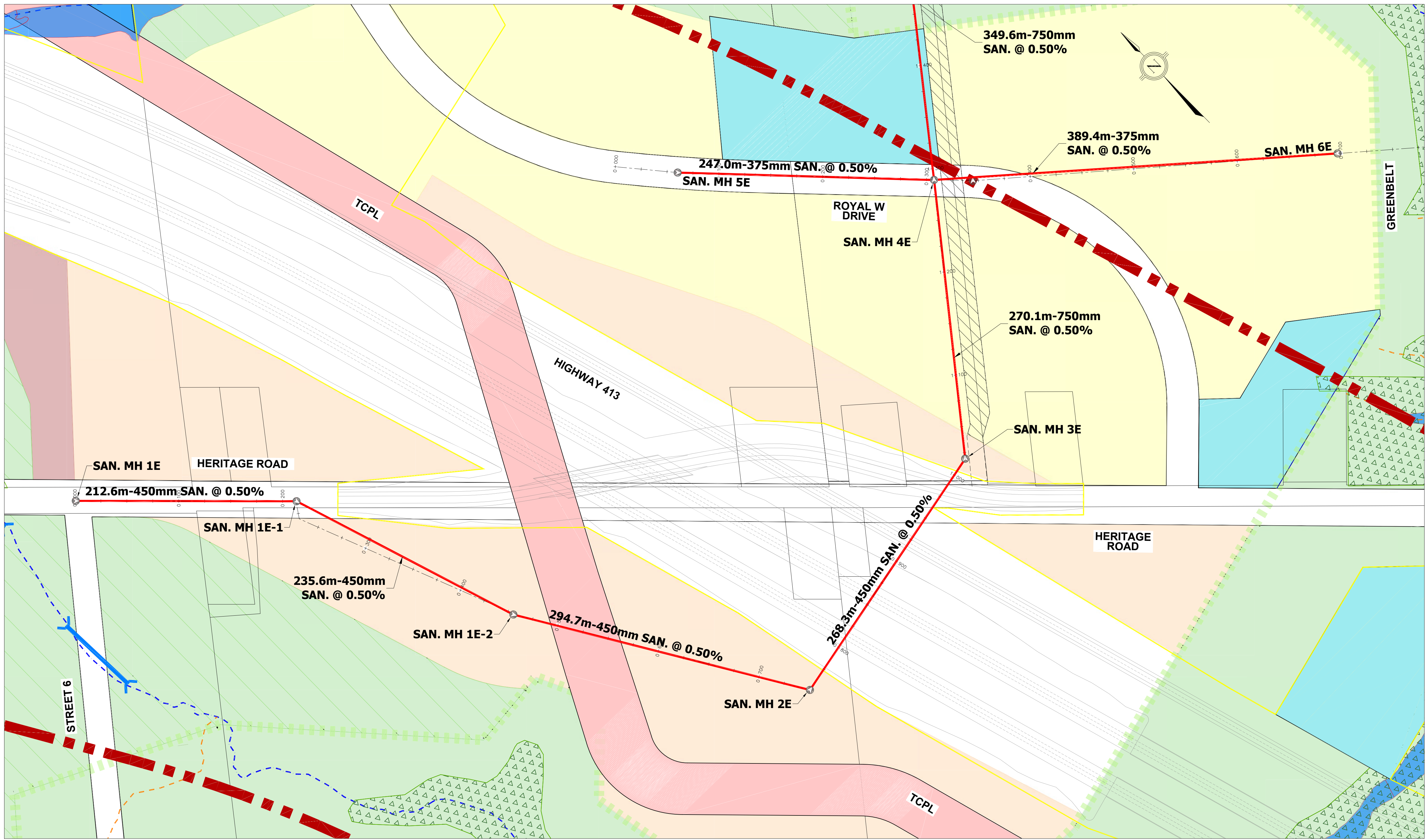
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Heritage Heights Infrastructure Servicing Study

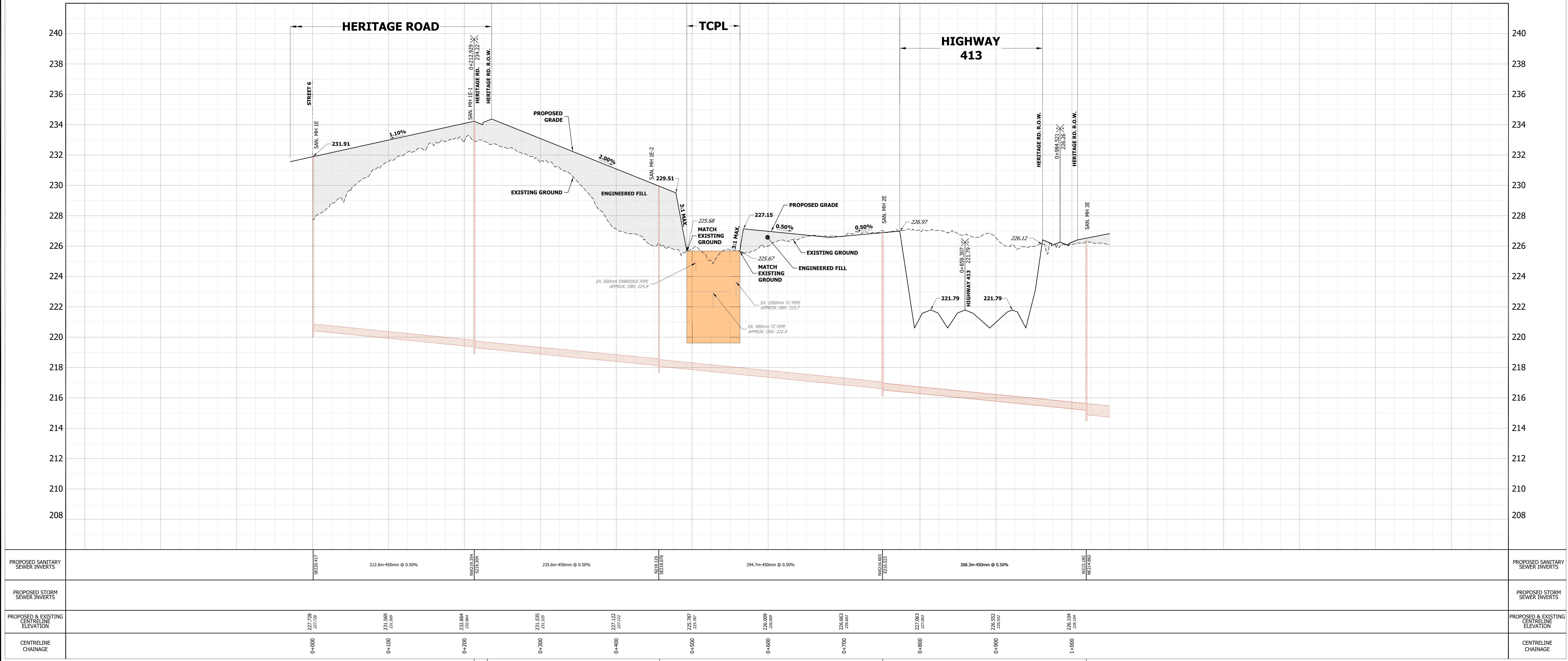
PRELIMINARY SUB TRUNK 3 PLAN & PROFILE (PART 5)

PROJECT No. 17-531 DATE AUG. 2025 SCALE H 1:2000 V 1:100 DWG No. 4K

REFER TO
DWG. 4M



- LEGEND:**
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
 - MIXED USE RESIDENTIAL (HIGH)
 - CORRIDOR MIXED USE A
 - CORRIDOR MIXED USE B
 - SPECIAL POLICY AREA
 - HIGHWAY 413
 - ROADWAY
 - STORMWATER MANAGEMENT FACILITY
 - DEFERRED LANDS
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
 - EXISTING WATERCOURSE
 - EXISTING HEADWATER DRAINAGE FEATURES
 - SIGNIFICANT WETLANDS (MNRFP 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION



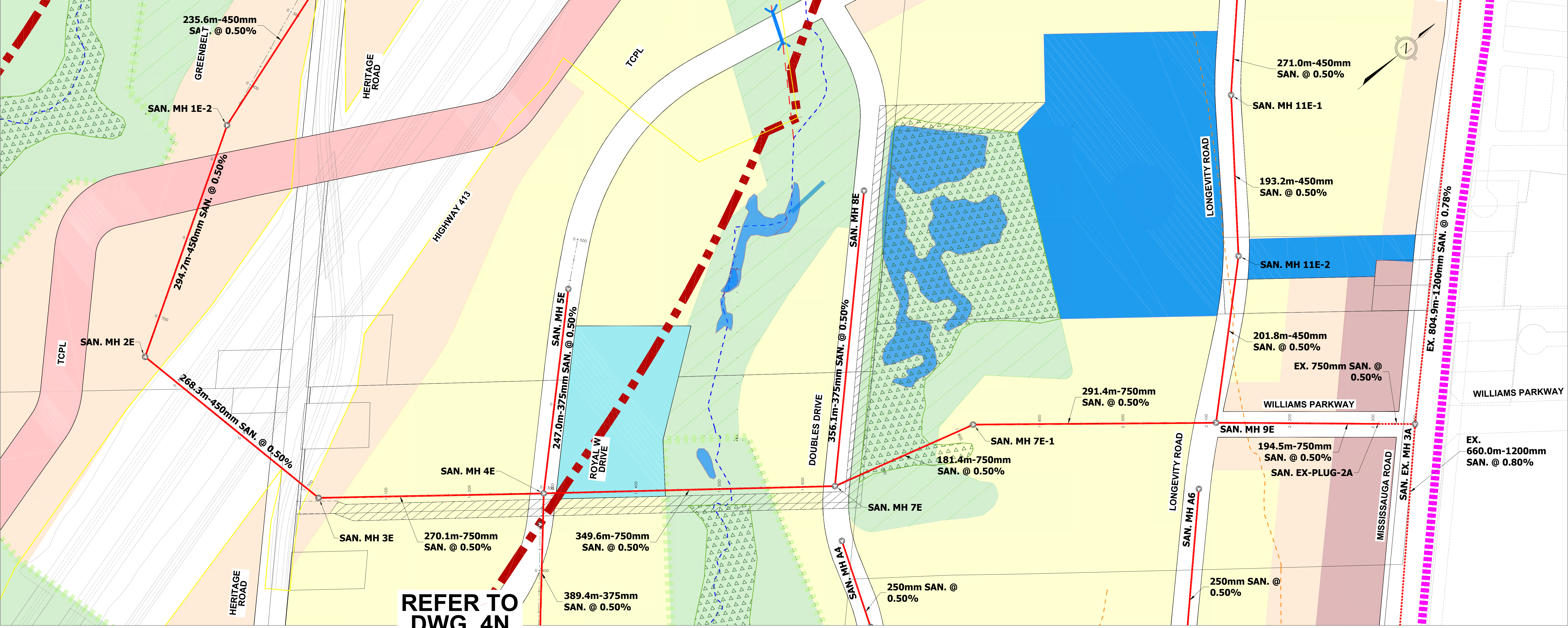
Urbantech Consulting
A Division of Urban Systems Inc.
2700 10th Avenue, Suite 401
Markham, ON L3R 9V7
TEL: 905.946.5461 • info@urbantech.com

**HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY**

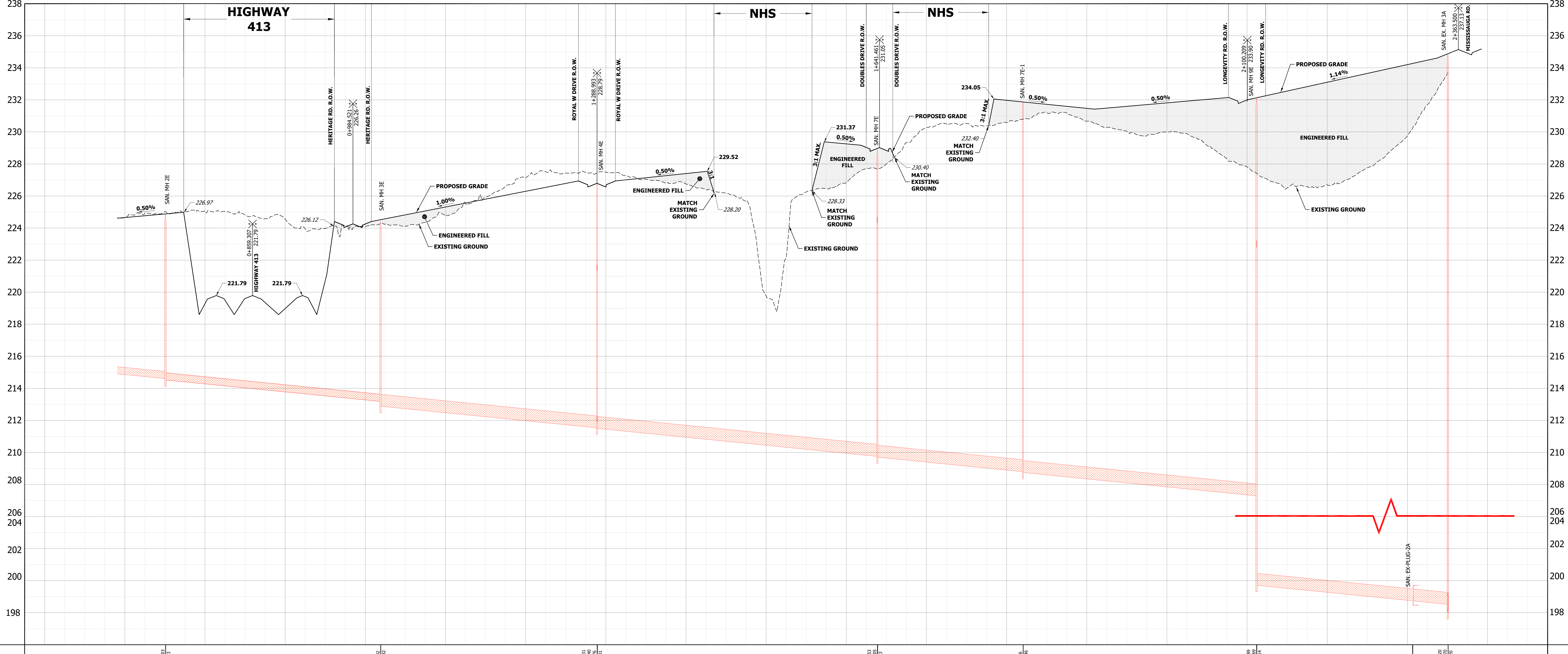
**PRELIMINARY SUB TRUNK 4
PLAN & PROFILE
(PART 1)**

PROJECT No.	DATE	SCALE	DWG No.
17-531	AUG. 2025	H 1:2000 V 1:100	4L

REFER TO
DWG. 4L



REFER TO
DWG. 4N



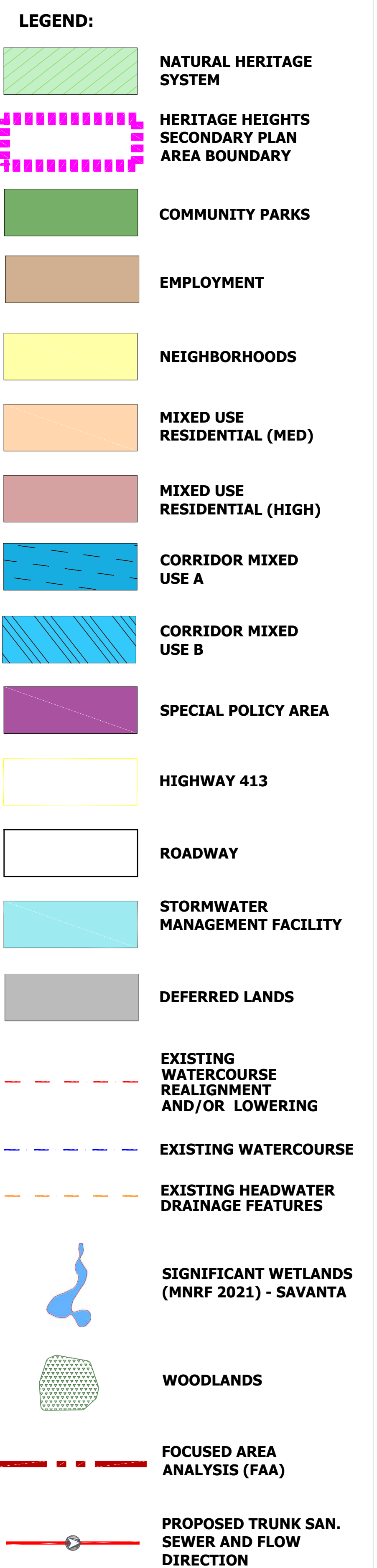
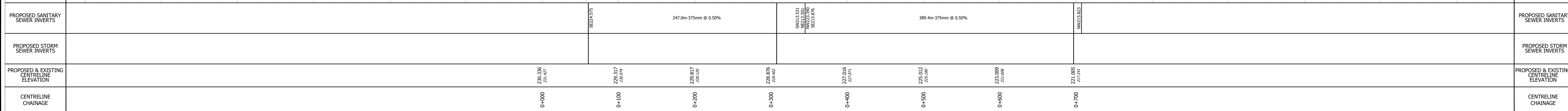
- LEGEND:**
- NATURAL HERITAGE SYSTEM
 - HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY
 - COMMUNITY PARKS
 - EMPLOYMENT
 - NEIGHBORHOODS
 - MIXED USE RESIDENTIAL (MED)
 - MIXED USE RESIDENTIAL (HIGH)
 - CORRIDOR MIXED USE A
 - CORRIDOR MIXED USE B
 - SPECIAL POLICY AREA
 - HIGHWAY 413
 - ROADWAY
 - STORMWATER MANAGEMENT FACILITY
 - DEFERRED LANDS
 - EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING
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 - SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA
 - WOODLANDS
 - FOCUSED AREA ANALYSIS (FAA)
 - PROPOSED TRUNK SAN. SEWER AND FLOW DIRECTION

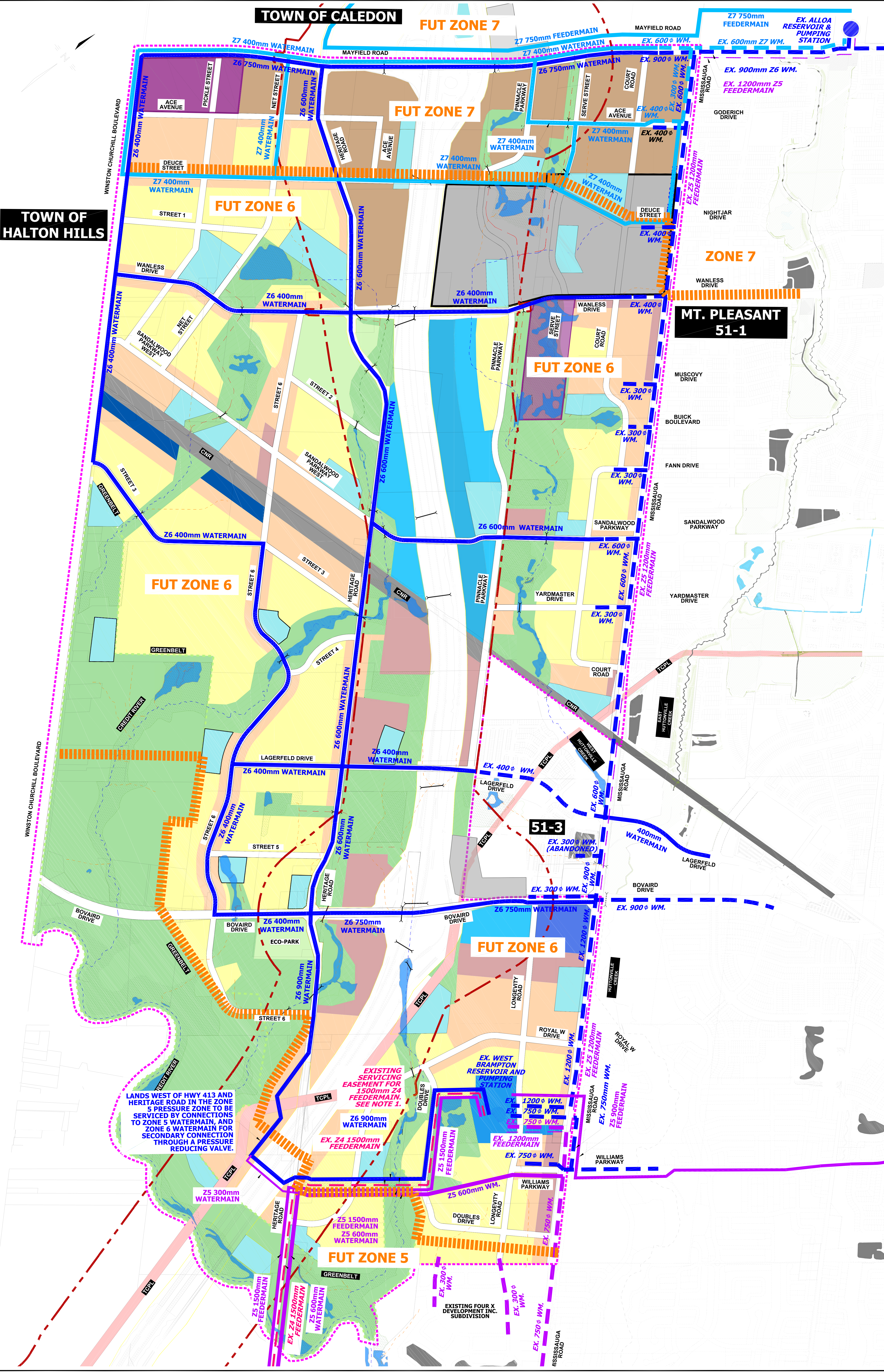
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**HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY**

**PRELIMINARY SUB TRUNK 4
PLAN & PROFILE
(PART 2)**

PROJECT No.	DATE	SCALE	DWG No.
17-531	AUG. 2025	H 1:2000 V 1:100	4M





LEGENDA

GREENBELT

NATURAL HERITAGE SYSTEM

HERITAGE HEIGHTS SECONDARY PLAN AREA BOUNDARY

COMMUNITY PARKS

EMPLOYMENT

NEIGHBOURHOODS

MIXED USE RESIDENTIAL (MED)

MIXED USE RESIDENTIAL (HIGH)

CORRIDOR MIXED USE A

CORRIDOR MIXED USE B

MAJOR INSTITUTIONAL

EXISTING PUMPING STATION AND WATER RESERVOIR

TRANSPORTATION - CN RAILWAY LAYBY AND MAINTENANCE FACILITY

SPECIAL POLICY AREA

CANADIAN NATIONAL RAILWAY (CNR)

ROADWAY

TRANSCANADA GAS PIPELINE (TCPL)

STORMWATER MANAGEMENT FACILITY

DEFERRED LANDS

EXISTING WATERCOURSE REALIGNMENT AND/OR LOWERING

EXISTING WATERCOURSE

EXISTING HEADWATER DRAINAGE FEATURES

FOCUSED AREA ANALYSIS (FAA)

SIGNIFICANT WETLANDS (MNR 2021) - SAVANTA

WOODLANDS

EXISTING PRESSURE ZONE 4 WATERMAIN

EXISTING PRESSURE ZONE 5 WATERMAIN

PROPOSED PRESSURE ZONE 5 WATERMAIN

EXISTING PRESSURE ZONE 6 WATERMAIN

PROPOSED PRESSURE ZONE 6 WATERMAIN

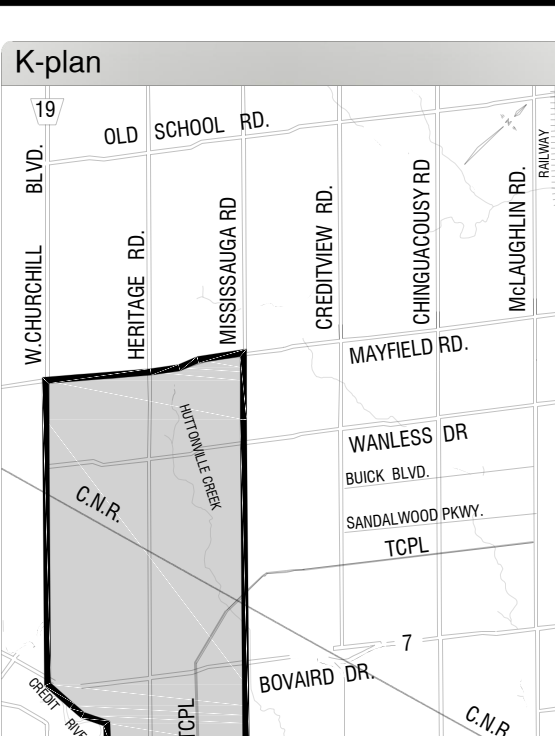
EXISTING PRESSURE ZONE 7 WATERMAIN

PROPOSED PRESSURE ZONE 7 WATERMAIN

FUTURE PRESSURE ZONE BOUNDARY

NOTES

1. EXISTING SERVICING EASEMENT TO BE WIDENED TO ACCOMMODATE ADDITIONAL WATERMAIN AND SANITARY TRUNK INFRASTRUCTURE. ADDITION EASEMENT WIDTH REQUIREMENTS TO BE INVESTIGATED FOR PRECINCT S2.1 AT THE DRAFT PLAN APPLICATION STAGE



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**HERITAGE HEIGHTS
INFRASTRUCTURE SERVICING STUDY**

**HERITAGE HEIGHTS
PRELIMINARY WATERMAIN PLAN**

PROJECT NO. 17-531 DATE AUG. 2025 SCALE 1:6000 DWG. NO. 5

APPENDIX E

ISS TOR Review and Checklist

Section	TOR Comment	ISS	Subwatershed Study	Precinct Plan EIR/FSS	Response
2.0	Mitigation of on-site and off-site risks related to flooding, water quality degradation, and channel erosion.		✓	✓	This comment will be addressed through the SWS and Precinct submissions
	Integration of sustainable practices into the proposed infrastructure plan to address potential environmental impacts.		✓	✓	This comment will be addressed through the SWS and Precinct submissions. Final ISS to include a summary of SWS recommendations
	...a high level financial planning and resource management plan to guide infrastructure expansions and improvements.	✓			This comment is applicable to the Region's water and wastewater infrastructure as input to their Capital Plan and Development Charge infrastructure. Region to confirm if this information is still required in the ISS.
4.0	a review of topographical background information provided by the Region for the Study area to confirm sanitary drainage boundaries and pressure zones to service the Secondary Planning Area;	✓	✓		Lidar topographical information was provided by the Heritage Heights Landowners Group. The same source of information is used by the SWS team.
4.0 Part 3, 2)	<u>Stormwater Management Criteria</u> Establish stormwater management criteria that integrate requirements for storm sewer system design, quantity and quality controls, erosion controls, water balance considerations, and compliance with CLI ECA.		✓	✓	This comment will be addressed through the SWS and Precinct submissions. Final ISS to include a summary of SWS recommendations
	Ensure criteria align with principles, objectives, and regulatory requirement standards set by Credit Valley Conservation Authority, the City of Brampton, Ontario Regulation 160/06, Endangered Species Act, and the Federal Fisheries Act		✓	✓	Agreed
	<u>Proposed Stormwater Management Strategy</u> Identify proposed drainage patterns, drainage areas, and boundaries within the planning area	✓	✓		This comment will be addressed in the ISS and SWS at a high level and further refined through the Precinct submissions.
	Evaluate the feasibility of potential SWM pond locations, recommending preferred locations based on hydrological, hydraulic, environmental, and practical considerations	✓	✓	✓	This comment will be addressed in the ISS and SWS at a high level and further refined through the Precinct submissions.
	Provide preliminary designs of the storm sewer profiles, sizing of SWM ponds, and conceptual SWM blocks	✓	✓	✓	This comment will be addressed in the ISS and SWS at a very high level and further refined through the Precinct submissions. The ISS and SWS will identify conceptual swm pond locations and contributing drainage areas. Preliminary trunk storm sewer and pond sizing will be provided in Precinct submissions.
	<u>Watercourse Modifications</u> Identify areas where the invert of a watercourse may require lowering or realignment to facilitate a positive outlet for SWM facilities	✓	✓	✓	This comment will be addressed in the ISS and SWS at a very high level and further refined through the Precinct submissions. The ISS and SWS will identify watercourse realignment and/or lowering to accommodate development based on the approved HH SP schedule. Future precincts will further refine NHS limits defined by the existing constraints.

	Provide preliminary designs for the proposed modifications to watercourses, ensuring regulatory compliance and minimum environmental impact and regulatory compliance			✓	This comment will be addressed in the Precinct plan submissions to support draft plans.
	<u>LID Opportunities</u> identify and evaluate Low Impact Development (LIDs) opportunities for implementing LID practices through-out the Secondary Plan area, focusing on sustainable stormwater management strategies.	✓	✓	✓	This comment will be addressed in the ISS and SWS at a high level and further refined through the Precinct submissions.
	Recommend LID options appropriate for the planning area, focusing on sustainable stormwater management strategies			✓	This comment will be addressed in the Precinct submissions where more detailed land use, swm plans and geotechnical/hydrogeological information is available
	<u>Compliance and Approval</u> Ensure the subject study area complies with the City design manual and standards	✓	✓	✓	Acknowledged.
	Proposal of any new standards or methodologies, subject to approval by the City, to enhance stormwater management practices within the planning area	✓	✓	✓	Agreed
4.0 Part 3, 3)	<u>Environmental Implementation and Functional Servicing</u> Outline scopes of work for with the understanding that the SWM plan will be subsequently refined in greater detail through the Environmental Implementation Report and Functional Servicing Report	✓	✓		ISS and SWS will establish generic scope of work for future Precinct
	Establish a framework for subsequent studies, ensuring alignment with the overall stormwater management strategy. Identify any areas where the invert of a watercourse may require lowering, if necessary, to facilitate a positive outlet for the SWM facilities.	✓	✓		ISS and SWS will establish generic SWM framework for future Precinct studies
	<u>Public Consultation</u> While public consultations will be addressed in the subsequent studies, establish preliminary goals and objectives for community engagement to ensure transparency and stakeholder engagement in the planning process	✓			Agreed
	Other items such as constraint mapping, environmental planning and modeling, management strategy and implementation plan development, and public consultation will be dealt with in the subsequent studies and environmental implementation reports. However, it is expected that this Study will establish goals and objectives for servicing of the Secondary Planning Areas to set a framework for subsequent studies and ensure duplication of work is minimized.		✓	✓	This will be addressed through the SWS and Precinct Plan submissions
	The Study must comply with the City Design Manual and standards. Any new proposal or standard shall be revised and approved by the City prior to the application of such proposal.	✓	✓	✓	Agreed