



TECHNICAL MEMO

DATE: February 18th, 2026 EMAIL

TO: City of Ottawa ATTN: Vincent Duquette

SUBJECT: 40 Beechcliffe Street Site Plan - Stormwater Management Facility (SWMF) Design and Volumetric Analysis

OUR FILE: 24-1416

CITY FILE: D07-12-25-0091

Attachments: City email dated 2025-11-13
DSEL Drawings dated 2026-02-17:
2 Details
2A Cross-Sections
4 General Plan
5 Plan and Profile
7 Grading Plan
Rational Method Calculation Sheet

Purpose and Background

This memorandum discusses the design rationale, volumetric assessment, and operation of the proposed Stormwater Management Facility (SWMF) for the 40 Beechcliffe Street development. The design has been prepared in response to direction provided by the City via email dated November 13, 2025 (attached for reference).

Under existing conditions, the subject site provides relief storage for overland flow originating from Beechcliffe Street. The proposed development removes a portions of this storage volume through grading modifications required to support the site plan. As directed by the City, a compensatory storage strategy has been developed by DSEL to re-establish equivalent relief storage capacity within the subject lands.

Proposed System Configuration

The proposed design connects catchbasin CB 32873 to a new catch basin manhole CBMH replacing CB 32874 as seen on DSEL drawings. This interconnection will direct flows to a proposed storage pond located on City-owned lands within the Sovereign Avenue road allowance.

This configuration hydraulically links the two contributing drainage areas and conveys runoff that previously ponded at CB 32873 into the dedicated SWMF.

The proposed pond fulfills two primary hydraulic objectives. First, it replaces the relief storage volume that will be eliminated by development. Second, it attenuates additional uncontrolled runoff from the redeveloped site prior to discharge toward the Beechcliffe ROW.

Vertical Datum and Spill Elevations

A discrepancy exists between historical and current topographic datasets due to differing vertical datums. To ensure an accurate comparison between existing and proposed conditions, the spill elevations were normalized.

The City's 2024 Digital Elevation Model identifies the controlling spill elevation at 88.05m (CGG2013a). The DSEL grading design is based on the City's topographic survey referenced to CGVD28. A 0.31m offset exists between these two datums, accordingly, the equivalent spill elevation was set to 88.36m in CGVD28 to maintain consistency with the DSEL grading design.

Volumetric Analysis

A detailed volumetric analysis was undertaken to quantify the existing relief storage and to confirm that the proposed design provides an equivalent or greater volume below the normalized spill elevation. See figures below:

Figure 1 (Existing Condition): Analyzes topography on the subject property behind the curb line. Existing relief storage below the 88.05m spill elevation is approximately 980 m³. Volumes were derived using the City of Ottawa 2024 Digital Elevation Model (DEM) referenced to CGG2013a.



Figure 2 (Ultimate Condition): Quantifies the residual storage capacity (550 m³) maintained at the toe of the slope outside of the proposed site plan limits, which acts in conjunction with the new SWMF. Volumes were calculated using the City of Ottawa 2024 DEM referenced to CGG2013a.



Figure 3 (Proposed Design): Evaluates the DSEL design against the adjusted spill elevation, providing 140 m³ of storage. Volumes were calculated using DSEL design grades referenced to CGVD28 and spill elevation of 88.36 as discussed above.



The following table illustrates how the proposed design replaces the existing relief storage:

Storage Component	Condition	Volume (m3)
Existing Relief Storage	Pre-Development (Below 88.05 m)	980
Retained Volume	Post-Dev (Toe of slope behind site)	550
Front Yard Storage	Post-Dev (Proposed Grading)	140
Proposed Pond Capacity	Post-Dev (Below 88.36 m)	350
Total Post-Dev Storage	Sum of Proposed/Retained	1,040
Net Storage Surplus	Post-Dev vs. Pre-Dev	+60

Table 1 – Summary of storage volumes

Hydrologic Modeling

The Rational Method was applied to quantify the storage volume required to offset uncontrolled post-development runoff. The analysis compared pre-development and post-development conditions using standard runoff coefficients and drainage areas consistent with the approved site plan model.

The pre-development drainage area contributing toward Beechcliffe Street is 4,900 m², with a runoff coefficient of 0.25. The post-development impervious drainage area contributing to the system is 2,200 m², with a runoff coefficient of 0.89. In accordance with City criteria, the 100-year post-development flow was attenuated to the 2-year pre-development discharge rate.

As seen in the attachments, the analysis determined that 41.3 m³ of storage is required to offset the incremental uncontrolled runoff. This requirement is fully accommodated within the 60 m³ net storage surplus identified in the volumetric assessment.

It is further noted that the pre-development drainage area used in the calculation is based on the pre-development site plan model and is considered conservative, as it likely underrepresents the actual contributing drainage to Beechcliffe Street.

Model Integration

The proposed site plan and stormwater facility were integrated into the City's community-wide PCSWMM model. This evaluation confirms that the system functions as intended under major storm conditions and establishes the 100-year Hydraulic Grade Line (HGL) within both the proposed pond and the Beechcliffe ROW.

The modeling confirms that the compensatory storage approach maintains hydraulic performance consistent with existing conditions and does not adversely impact the municipal drainage system.

Facility Design and Maintenance

The design of the SWMF adheres to the City of Ottawa Sewer Design Guidelines and is summarized below:

Internal Drainage: The pond bottom is designed with a minimum 2% longitudinal slope to ensure positive drainage toward the outlet and prevent standing water between storm events.

Inlet/Outlet Infrastructure: A ditch inlet structure is proposed to manage flow transition between the pipe network and the pond. Details of the structure are shown on DSEL drawing 2.

Grading: The facility side slopes are designed at a 4:1 ratio.

Fencing: Per the City's specific request, a post-and-rail fence will be installed along two sides of the facility to delineate the SWMF area from adjacent lands.

Operations and maintenance: Detailed procedures for the inspection and upkeep of the facility are provided under a separate Operations and Maintenance (O&M) Manual.

Conclusion and Recommendations

The proposed stormwater management design satisfies the City's requirement of replace existing relief storage removed by development while also mitigating post-development runoff. The design provides a total of 1,040 m³ of storage below the controlling spill elevation: 550 m³ of retained storage, 140 m³ of front yard storage, and 350 m³ of dedicated pond storage. This exceeds the 980 m³ of existing relief storage by approximately 60 m³.

Hydrologic analysis demonstrates that 41.3 m³ of storage is required to attenuate incremental uncontrolled runoff, and this requirement is fully satisfied within the available surplus volume. PCSWMM modeling further confirms acceptable hydraulic performance under the 100-year design event.

Please contact the undersigned should additional clarification regarding datum normalization, volumetric calculations, or hydraulic modeling be required.

Prepared by,

David Schaeffer Engineering Ltd.



Per: Jeremy Chouinard, P.Eng.



RE: 40 Beechcliffe - Site Plan D07-12-25-0091

From Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Date Thu 11/13/2025 5:21 PM

To Adam Fobert <AFobert@dsel.ca>

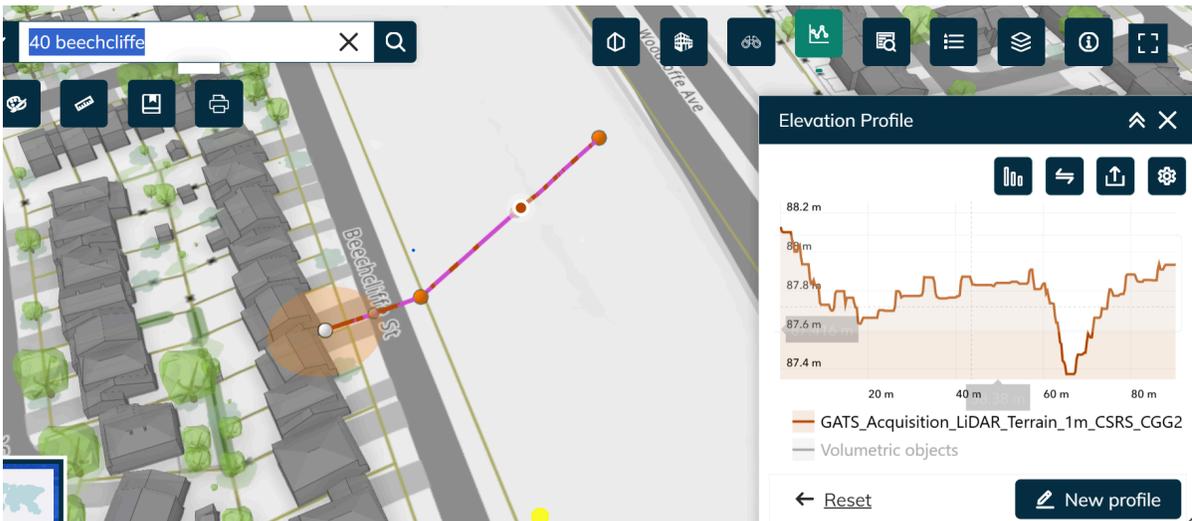
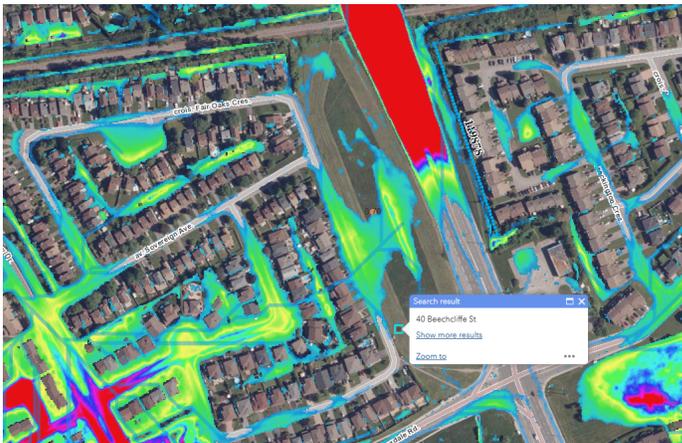
Cc Jeremy Chouinard <JChouinard@dsel.ca>; Jhamb, Nishant <nishant.jhamb@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Bourke, Simone <simone.bourke@ottawa.ca>

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Hi Adam,

As mentioned over the phone, this site was providing storage relief to the overland flow from Beechcliffe Street under existing conditions. See image below. The proposed development will not only remove this existing storage but also add more flow to Beechcliffe Street. Therefore, we believe the total capture required in the ROW minor system will be much greater than what is described in the email below to ensure there is no negative impact on existing properties from the increased overland flow.

We understand the entire road will need to be excavated to replace the water main, sanitary, and add service laterals. That provides an opportunity to add road sags in the ROW, which could offset the loss in storage and the increased runoff from 40 Beechcliffe



Also, under existing conditions, the Beechcliffe overland flow would spill on the East Side (40 Beechcliffe) before it spills on the West Side. The proposed grade increase on 40 Beechcliffe will divert all of the emergency overland flow to the West Side. We need to ensure the proposed development does not increase the flow rate or volume of water that will spill on the West Side.

In summary, we would like the applicant to explore options to maximize the storage in the ROW to ensure the properties on the West Side are not negatively impacted. Due to the limitations in the Pinecrest Creek/Westboro sub-watershed study, we cannot increase the capture in the minor system.

I suggest we have a small meeting to discuss these SWM complications for this site. We are available at the following times:

- Wednesday November 19, 2025, 1130-230
- Thursday November 20, 2025, 10-1

Best Regards,

Vincent Duquette, P.Eng

Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de
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613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

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From: Duquette, Vincent

Sent: Friday, October 31, 2025 3:01 PM

To: Adam Fobert <AFobert@dsel.ca>

Cc: Erin O'Connor <eoconnor@habitatgo.ca>; JChouinard <JChouinard@dsel.ca>; William Froggatt <William.Froggatt@caivan.com>;
Jhamb, Nishant <nishant.jhamb@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Ireland, James
<james.ireland@ottawa.ca>; susan.murphy <susan.murphy@caivan.com>

Subject: RE: 40 Beechcliffe - Site Plan D07-12-25-0091

Hi Adam,

We are currently reviewing our models internally and it does appear that sending an increased amount of flows to storm sewer and Beechcliffe ROW will have a negligible impact on the HGL of the receiving sewers. This is most likely because of the early peaking of the flows from the subject site compared to rest of the larger drainage area. We will confirm next week if the current proposed flows are acceptable and if any ICD upsizing will be required.

Regarding the backflow preventers proposed, we have reviewed both the Tideflex Series 37G and CheckMate Ultraflex. We are ok with accepting both options. However, we request that the backflow preventer be placed downstream from the ICD to protect it. Please also ensure the backflow preventer is located within private property.

Best Regards,

Vincent Duquette, P.Eng

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From: Adam Fobert <AFobert@dsel.ca>

Sent: Tuesday, October 28, 2025 4:41 PM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; susan.murphy <susan.murphy@caivan.com>; Ireland, James
<james.ireland@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>

Cc: Erin O'Connor <eoconnor@habitatgo.ca>; JChouinard <JChouinard@dsel.ca>; William Froggatt <William.Froggatt@caivan.com>;
Jhamb, Nishant <nishant.jhamb@ottawa.ca>

Subject: RE: 40 Beechcliffe - Site Plan D07-12-25-0091

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Hello Vincent,

Thank you for organizing the meeting today where we reviewed the City's concerns for existing flooding on Beechcliffe and the proposed backwater flow control.

As discussed, the tributary area to the existing 1800mm diameter storm sewer is roughly 112ha, whereas the subject lands measure 0.65ha; 0.6% of the drainage area. It is my opinion that the site itself will not have a meaningful impact on the HGL in the receiving sewer. There is also the matter of water being directed to the existing ROW. It was mentioned that we were doubling flow from existing. I believe that when compared to the target release rate (2yr flow C=0.25), that may be true. However, a Rational Method estimate of the runoff from the site to the existing ROW is 75.9L/s (0.49ha) during the 100-year storm. Whereas, the post-development condition will contribute 98.2L/s (0.22ha) as estimated through the Rational Method. Looking at the roof line and highpoints in the side yard swales, the post-development flow is more accurately estimated at 84.8L/s (0.19ha). 8.9L/s more than the existing condition.

I understand that the City will review the model for the community and consider an increase in rate at the CBs along Beechcliffe. I suggest that the increase can be nominal, as the development is estimated to add 8.9L/s to the existing 4 CBs on the east side of Beechcliffe. Or ~2.2L/s each.

I would like to reiterate that the development as a whole reduces the runoff from the subject lands below existing rates. Furthermore, that the site itself is too small compared to the catchment to have a meaningful impact. Lastly, engineering solutions to reduce flows from the site to meet target release rate require significant capital investment and will not have a meaningful impact on the receiving sewer.

We have considered your comments for future maintenance in regards to backflow prevention. In the proposed arrangement, the backflow preventor would be installed behind the orifice plate. Future maintenance would require unbolting the face plate for the ICD. Alternatively, we propose the attached. This valve is installed inline on the upstream sewer. There would be no need to unbolt the ICD plate. The device would be accessible inside the structure. I would add that we have used this product as well on existing private sites. Let me know if you have any questions or concerns.

Appreciate all your time and efforts.

Adam Fobert, P.Eng.

DSEL

david schaeffer engineering ltd.

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: October 23, 2025 2:18 PM

To: susan.murphy <susan.murphy@caivan.com>; Ireland, James <james.ireland@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>

Cc: Erin O'Connor <eoconnor@habitatgo.ca>; Adam Fobert <AFobert@dsel.ca>; Jeremy Chouinard <JChouinard@dsel.ca>; William Froggatt <William.Froggatt@caivan.com>; Jhamb, Nishant <nishant.jhamb@ottawa.ca>

Subject: RE: 40 Beechcliffe - Site Plan D07-12-25-0091

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Hi Susan,

I agree a meeting would be beneficial. Here are some time slots that work for the us.

- Tuesday October 28th. 9-12
- Wednesday October 29th. 9-10, 1-2
- Tuesday October 30th. 9-12, 230-4

Best Regards,

Vincent Duquette, P.Eng

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613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

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From: Susan Murphy <susan.murphy@caivan.com>
Sent: Thursday, October 23, 2025 1:51 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Erin O'Connor <eoconnor@habitatgo.ca>; Adam Fobert <afobert@dsel.ca>; JChouinard <JChouinard@dsel.ca>; William Froggatt <William.Froggatt@caivan.com>
Subject: RE: 40 Beechcliffe - Site Plan D07-12-25-0091

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Good Afternoon,

We have had a chance to review the comments pertaining to stormwater management. We would appreciate having a meeting with yourselves and the staff providing the stormwater management comments. Prior to formally replying, we feel it would be beneficial to discuss the comments and the design to confirm next steps.

It would be appreciated if you could provide some suggested meeting dates and times.

Thank you,

Sue

SUSAN MURPHY

President, Land Development
3713 Borrisokane Road
Ottawa, ON K2J 4J4
C: 613-355-6706

CAIVAN

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From: William Froggatt <William.Froggatt@caivan.com>
Sent: Wednesday, October 22, 2025 3:49 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Susan Murphy <susan.murphy@caivan.com>; Erin O'Connor <eoconnor@habitatgo.ca>; Ireland, James <james.ireland@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: Re: 40 Beechcliffe - Site Plan D07-12-25-0091

Hi Vincent,

Thank you for providing! I will speak with our engineers and let you know if we have any further questions.

Thank you,

William Froggatt

Project Coordinator, Land Development

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Wednesday, October 22, 2025 2:52 PM
To: William Froggatt <William.Froggatt@caivan.com>
Cc: Susan Murphy <susan.murphy@caivan.com>; Erin O'Connor <eoconnor@habitatgo.ca>; Ireland, James <james.ireland@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
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Hi William,

Thank you for your patience awaiting my comments. See attached my third review comments. The only comments left are related to SWM. Feel free to reach out if you have any questions about these comments.

Best Regards,

Vincent Duquette, P.Eng

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From: William Froggatt <William.Froggatt@caivan.com>
Sent: Thursday, October 16, 2025 9:11 AM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>
Cc: susan.murphy <susan.murphy@caivan.com>; Erin O'Connor <eoconnor@habitatgo.ca>
Subject: Re: 40 Beechcliffe - Site Plan D07-12-25-0091

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Hi Vincent,

Yes, we would now like to include the north parcel in the scope of our application (blocks 7-8). Once we receive your final comments, we will resubmit the full package making clear reference to all 8 blocks in the site.

We spoke with our lawyer yesterday who informed us that new lots within 150m of a rail corridor must be subject to site plan control.

James, could you confirm that a full re-circulation will not be required since our package had already included these blocks in the design?

Thank you,

William Froggatt

Project Coordinator, Land Development

3713 Borrisokane Road

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C: 343-961-8717



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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Wednesday, October 15, 2025 10:49 PM
To: William Froggatt <William.Froggatt@caivan.com>
Cc: Ireland, James <james.ireland@ottawa.ca>; Susan Murphy <susan.murphy@caivan.com>; Erin O'Connor <eoconnor@habitatgo.ca>
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Hi William,

Unfortunately, I've been swamped since my return and won't be able to get you the review comments this week. I will aim for early next week.

On a separate note, I have a question regarding the scope of the SPC application. At our last meeting there was some discussion about formally including the north phase in scope of the application. Has there been a decision on that matter?

Best Regards,

Vincent Duquette, P.Eng

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From: William Froggatt <William.Froggatt@caivan.com>
Sent: Tuesday, October 14, 2025 12:38 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Ireland, James <james.ireland@ottawa.ca>; susan.murphy <susan.murphy@caivan.com>; Erin O'Connor <eoconnor@habitatgo.ca>
Subject: Re: 40 Beechcliffe - Site Plan D07-12-25-0091

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Hi Vincent,

Following up on the engineering review for our latest submission in Beechcliffe. When can we expect it to be complete?

Thank you,

William Froggatt
Project Coordinator, Land Development
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C: 343-961-8717



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From: William Froggatt <William.Froggatt@caivan.com>
Sent: Wednesday, September 24, 2025 4:43 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Erin O'Connor <eoconnor@habitatgo.ca>; Susan Murphy <susan.murphy@caivan.com>; Dickinson, Mary <mary.dickinson@ottawa.ca>; Hodgins, Cameron <cameron.hodgins@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>
Subject: Re: 40 Beechcliffe - Site Plan D07-12-25-0091

Hi Vincent,

Thank you for letting us know. I hope all is still well considering this is an unexpected leave.

Thanks,

William Froggatt
Project Coordinator, Land Development
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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Wednesday, September 24, 2025 3:56 PM
To: William Froggatt <William.Froggatt@caivan.com>

Cc: Erin O'Connor <eoconnor@habitatgo.ca>; Susan Murphy <susan.murphy@caivan.com>; Dickinson, Mary <mary.dickinson@ottawa.ca>; Hodgins, Cameron <cameron.hodgins@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>
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Hi William,

Resubmission has been received. Unfortunately, I will be away all of next week and returning on October 7th. This unexpected absence means I won't be able to review your resubmission until I'm back. Thank you for your understanding in advance.

Best Regards,

Vincent Duquette, P.Eng

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From: William Froggatt <William.Froggatt@caivan.com>
Sent: Monday, September 22, 2025 4:37 PM
To: Ireland, James <james.ireland@ottawa.ca>; Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Erin O'Connor <eoconnor@habitatgo.ca>; susan.murphy <susan.murphy@caivan.com>; Dickinson, Mary <mary.dickinson@ottawa.ca>; Hodgins, Cameron <cameron.hodgins@ottawa.ca>
Subject: 40 Beechcliffe - Site Plan D07-12-25-0091

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Hi James and Vincent,

As a response to the Formal Circulation Comments on August 21st, please see following link to our resubmission as well as the attached comment response table. The updated reports include the following:

- Revised Engineering Submission
- Geotechnical Grading Plan Review
- Geotechnical Comment Response Memo
- Updated Survey Plan, Site Plan, and Landscape Plan
 - Only changes made to title block and sheet format.

[250922 - 40 Beechcliffe - 3rd Submission](#)

Thank you,

William Froggatt

Project Coordinator, Land Development

3713 Borrisokane Road

Ottawa, ON K2J 4J4

C: 343-961-8717

CAIVAN

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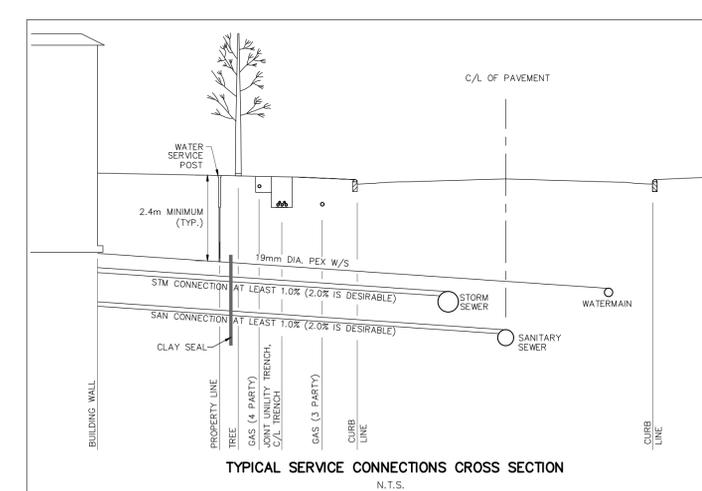
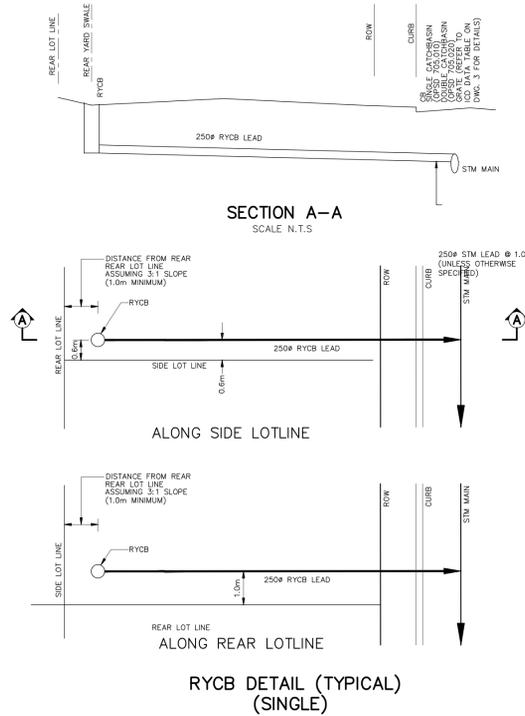
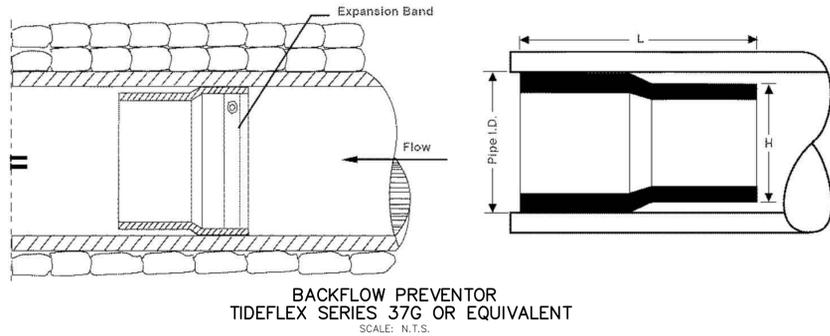
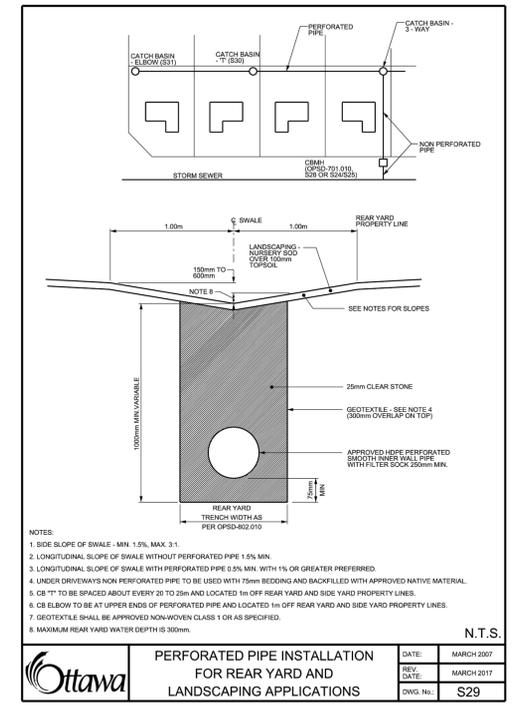
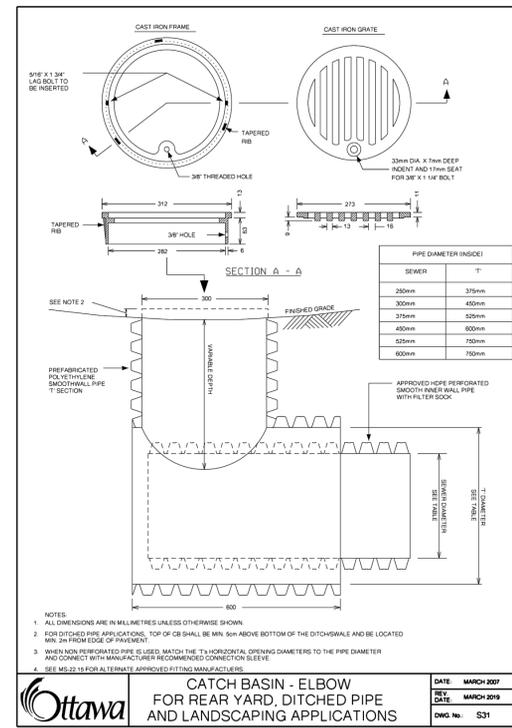
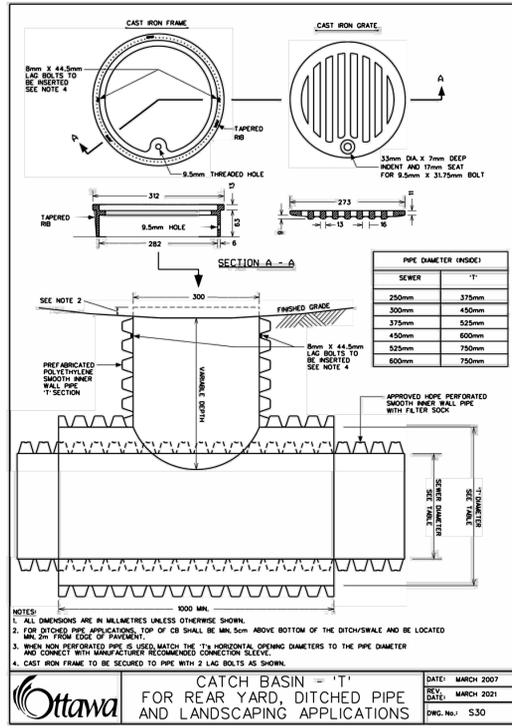
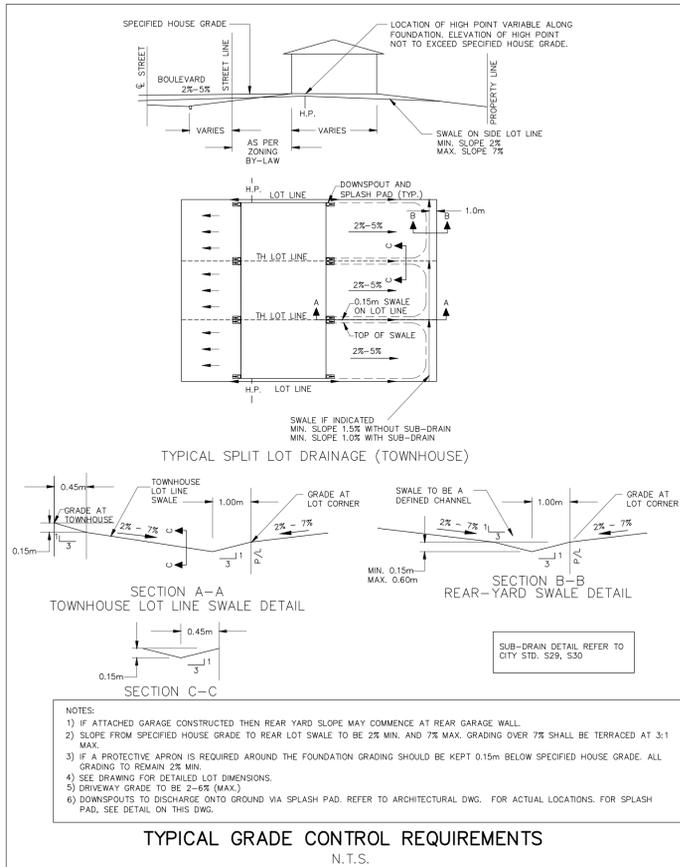
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 ADDITIONAL TOPOGRAPHIC INFORMATION PROVIDED BY AOV LTD., PROJECT No. 25159-25, SURVEY DATED MAY 2025 AND JUNE 2025.

LEGAL INFORMATION
 REGISTERED PLAN PROVIDED BY AOV LTD., PROJECT No. 25159-25, RECEIVED ON MAY 12, 2025.

ELEVATION NOTE
 ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC AND ARE REFERRED TO THE GVD28 GEODETIC DATUM. SITE BENCH MARK ON TOP OF FH SPINDLE FRONTING CIVIC ADDRESS 33 BEECHCLIFFE STREET. ELEVATION=88.966m

No.	BY	DATE	DESCRIPTION
5	W.L.	26-02-17	4th SUBMISSION
4	W.L.	25-09-15	3rd SUBMISSION
3	W.L.	25-08-01	2nd SUBMISSION
2	W.L.	25-07-15	ISSUED FOR TENDER
1	W.L.	25-06-20	1st SUBMISSION

CITY OF OTTAWA

PROJECT No. 24-1416

W. LIU
100167932
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

HABITAT FOR HUMANITY

40 BEECHCLIFFE STREET

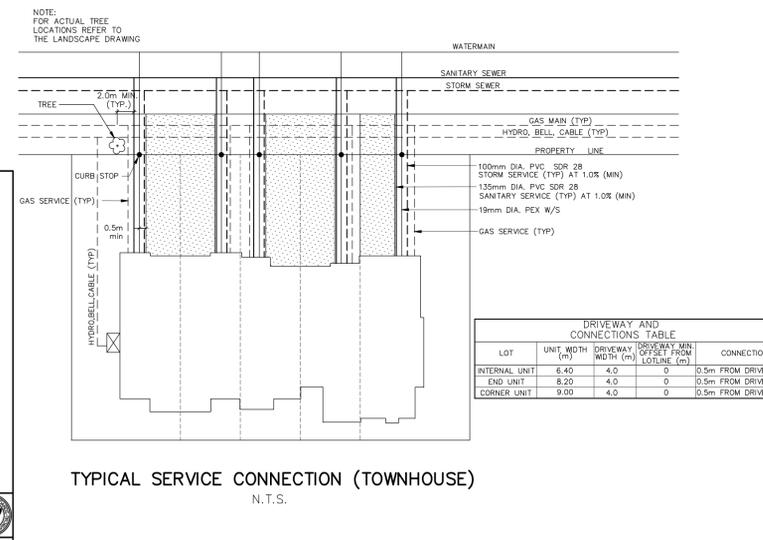
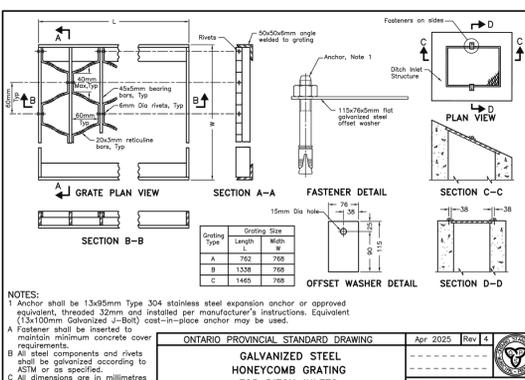
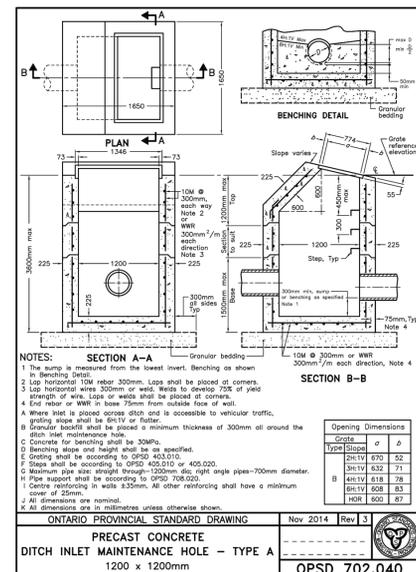
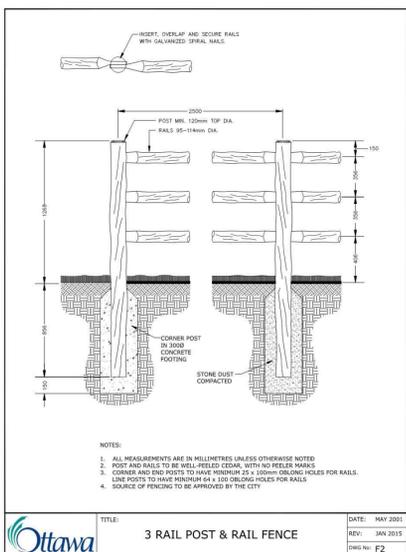
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120 Ier Road, Unit 103
Stittville, ON K2S 1E9
Tel: (613) 836-0856
Fax: (613) 836-7185
www.DSEL.ca

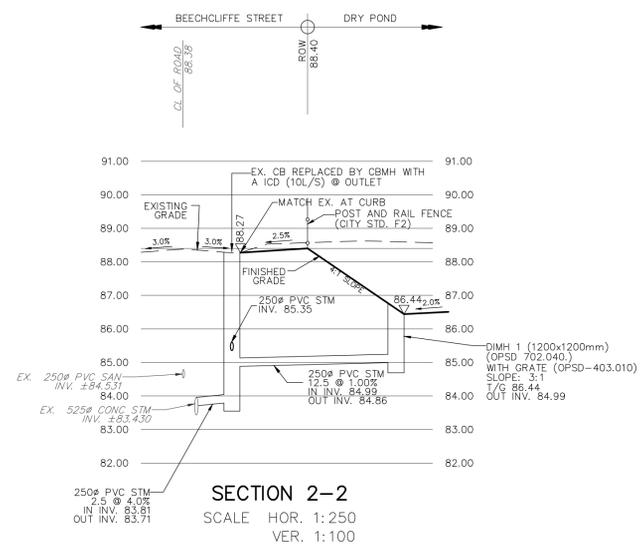
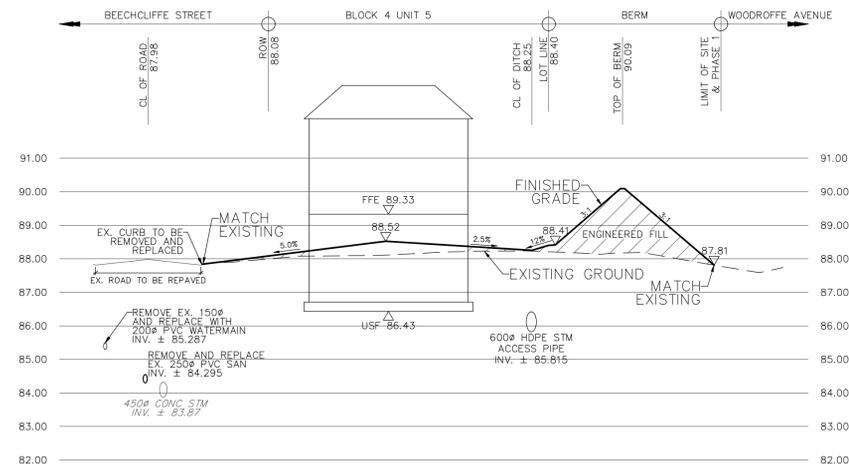
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DETAILS

DRAWN BY: A.S.	CHECKED BY: W.L.	SHEET NO.
DESIGNED BY: A.S.	CHECKED BY:	2 OF 12
SCALE: 1:500	DATE: JUNE 2025	



CITY PLAN No. 19322
 CITY FILE No. D07-12-25-0091



TOPOGRAPHIC INFORMATION
 TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF OTTAWA.
 PROJECT 40 BEECHCLIFFE STREET, SURVEY DATED JANUARY 2025.
 ADDITIONAL TOPOGRAPHIC INFORMATION PROVIDED BY AOV LTD.
 PROJECT No. 25159-25, SURVEY DATED MAY 2025 AND JUNE 2025.

LEGAL INFORMATION
 REGISTERED PLAN PROVIDED BY AOV LTD., PROJECT No. 25159-25, RECEIVED ON MAY 12, 2025.

ELEVATION NOTE
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No.	BY	DATE	DESCRIPTION
5	W.L.	26-02-17	4th SUBMISSION
4	W.L.	25-09-15	3rd SUBMISSION
3	W.L.	25-08-01	2nd SUBMISSION
2	W.L.	25-07-15	ISSUED FOR TENDER
1	W.L.	25-06-20	1st SUBMISSION

CITY OF OTTAWA

PROJECT No. 24-1416

PROFESSIONAL ENGINEER
 W. LIU
 100167932
 26-02-17
 PROVINCE OF ONTARIO

HABITAT FOR HUMANITY 40 BEECHCLIFFE STREET

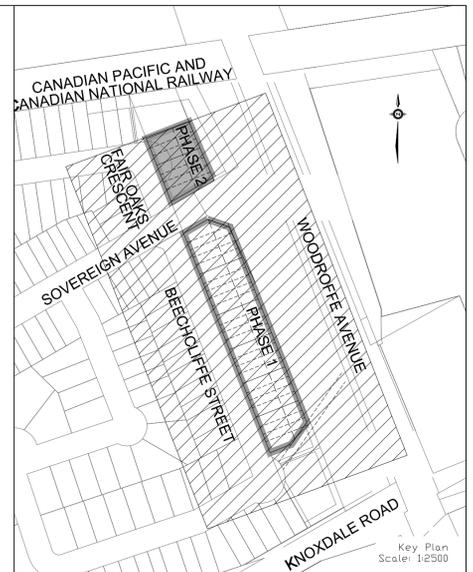
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DESIGNED BY: A.S.	CHECKED BY:	2A OF 12
SCALE: AS SHOWN	DATE: JUNE 2025	

CITY PLAN No. 19322
CITY FILE No. _D07-12-25-0091

UNIT NUMBER	8(1)	8(2)	8(3)	7(1)	7(2)	7(3)	7(4)	6(1)	6(2)	6(3)	6(4)	6(5)	5(1)	5(2)	5(3)	5(4)	5(5)	4(1)	4(2)	4(3)	4(4)	3(1)	3(2)	3(3)	3(4)	2(1)	2(2)	2(3)	2(4)	1(1)	1(2)	1(3)	1(4)
SAN Lateral Invert at SAN Main	84.86	84.84	84.82	84.80	84.78	84.76	84.74	84.19	84.21	84.23	84.26	84.28	84.31	84.33	84.35	84.36	84.39	84.42	84.44	84.47	84.50	84.53	84.56	84.58	84.60	84.63	84.65	84.67	84.70	84.73	84.75	84.77	84.79
USF	86.61	86.61	86.61	86.61	86.61	86.61	86.61	86.39	86.39	86.39	86.39	86.39	86.43	86.43	86.43	86.43	86.43	86.47	86.47	86.47	86.47	86.50	86.50	86.50	86.53	86.53	86.53	86.53	86.53	86.53	86.53	86.53	86.53
Invert of Lateral at Foundation	86.33	86.33	86.33	86.33	86.33	86.33	86.33	86.11	86.11	86.11	86.11	86.11	86.15	86.15	86.15	86.15	86.15	86.19	86.19	86.19	86.19	86.22	86.22	86.22	86.22	86.25	86.25	86.25	86.25	86.25	86.25	86.25	86.25
Obvert of STM Main Intersecting SAN Lateral	85.15	84.91	84.76	84.48	84.24	84.07	83.82	84.03	84.07	84.10	84.14	84.17	84.22	84.25	84.28	84.31	84.28	84.35	84.40	84.44	84.50	84.57	84.62	84.66	84.72	84.77	84.92	84.93	84.97	85.01	85.04	85.06	85.09
SAN Lateral Invert Intersecting STM Main	85.84	85.84	85.84	85.84	85.84	85.84	85.83	85.62	85.62	85.62	85.62	85.62	85.66	85.66	85.66	85.65	85.66	85.70	85.70	85.70	85.70	85.73	85.73	85.73	85.75	85.76	85.76	85.76	85.76	85.76	85.76	85.76	85.76

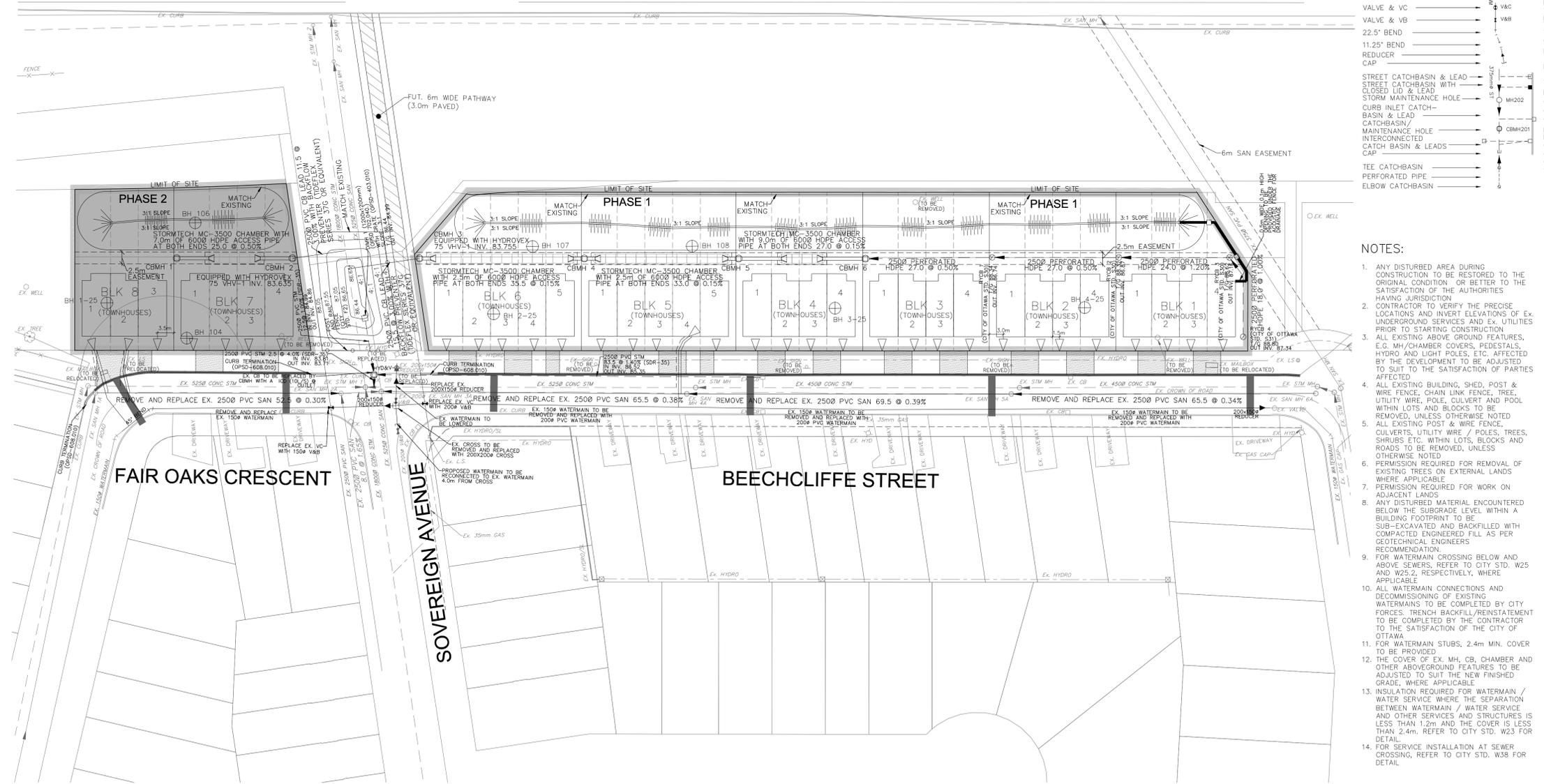


CONTRACTOR TO LOCATE EXISTING SERVICING INFRASTRUCTURE AND REMOVE OR REPLACE PER THIS DRAWING AND DWG. 3 AND 5.

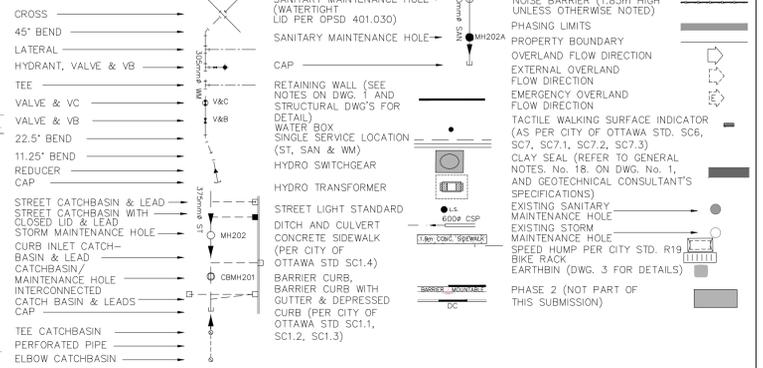
ALL EXISTING SANITARY MANHOLES TO REMAIN AND BE REUSED AS NECESSARY.

PHASE 2 IS NOT PART OF THIS APPLICATION AND ITS APPROVAL WILL BE SUBJECT TO A SUBSEQUENT DEVELOPMENT APPLICATION.

WOODROFFE AVENUE



LEGEND



NOTES:

- ANY DISTURBED AREA DURING CONSTRUCTION TO BE RESTORED TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES.
- HAVING JURISDICTION, CONTRACTOR TO VERIFY THE PRECISE LOCATIONS AND INVERT ELEVATIONS OF EX. UNDERGROUND SERVICES AND EX. UTILITIES PRIOR TO STARTING CONSTRUCTION.
- ALL EXISTING ABOVE GROUND FEATURES, E.G. MH/CHAMBER COVERS, PEDESTALS, HYDRO AND LIGHT POLES, ETC. AFFECTED BY THE DEVELOPMENT TO BE ADJUSTED TO SUIT TO THE SATISFACTION OF PARTIES AFFECTED.
- ALL EXISTING BUILDING, SHED, POST & WIRE FENCE, CHAIN LINK FENCE, TREE, UTILITY WIRE, POLE, CULTURE AND POOL WITHIN LOTS AND BLOCKS TO BE REMOVED, UNLESS OTHERWISE NOTED.
- ALL EXISTING POST & WIRE FENCE, CULTURES, UTILITY WIRE / POLES, TREES, SHRUBS ETC. WITHIN LOTS, BLOCKS AND ROADS TO BE REMOVED, UNLESS OTHERWISE NOTED.
- PERMISSION REQUIRED FOR REMOVAL OF EXISTING TREES ON EXTERNAL LANDS WHERE APPLICABLE.
- PERMISSION REQUIRED FOR WORK ON ADJACENT LANDS.
- ANY DISTURBED MATERIAL ENCOUNTERED BELOW THE SUBGRADE LEVEL WITHIN A BUILDING FOOTPRINT TO BE SUB-EXCAVATED AND BACKFILLED WITH COMPACTED ENGINEERED FILL AS PER GEOTECHNICAL ENGINEER'S RECOMMENDATION.
- FOR WATERMAIN CROSSING BELOW AND ABOVE SEWERS, REFER TO CITY STD. W25 AND W25-2, RESPECTIVELY, WHERE APPLICABLE.
- ALL WATERMAIN CONNECTIONS AND DECOMMISSIONING OF EXISTING WATERMANS TO BE COMPLETED BY CITY FORCES. TRENCH BACKFILL/REINSTATEMENT TO BE COMPLETED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY OF OTTAWA.
- FOR WATERMAIN STUBS, 2.4m MIN. COVER TO BE PROVIDED.
- THE COVER OF EX. MH, CB, CHAMBER AND OTHER ABOVEGROUND FEATURES TO BE ADJUSTED TO SUIT THE NEW FINISHED GRADE, WHERE APPLICABLE.
- INSULATION REQUIRED FOR WATERMAIN / WATER SERVICE WHERE THE SEPARATION BETWEEN WATERMAIN / WATER SERVICE AND OTHER SERVICES AND STRUCTURES IS LESS THAN 1.2m AND THE COVER IS LESS THAN 2.4m. REFER TO CITY STD. W23 FOR DETAIL.
- FOR SERVICE INSTALLATION AT SEWER CROSSING, REFER TO CITY STD. W38 FOR DETAIL.

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF OTTAWA, PROJECT 40 BEECHCLIFFE STREET, SURVEY DATED JANUARY 2025.
ADDITIONAL TOPOGRAPHIC INFORMATION PROVIDED BY AOV LTD., PROJECT No. 25159-25, SURVEY DATED MAY 2025 AND JUNE 2025.

LEGAL INFORMATION
REGISTERED PLAN PROVIDED BY AOV LTD., PROJECT No. 25159-25, RECEIVED ON MAY 15, 2025.

ELEVATION NOTE
ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC AND ARE REFERRED TO THE CGVD28 GEODETIC DATUM. SITE BENCH MARK ON TOP OF FIRE SPRINKLER FRONTING CIVIC ADDRESS 33 BEECHCLIFFE STREET. ELEVATION=88.966m.

No.	BY	DATE	DESCRIPTION
5	W.L.	26-02-17	4th SUBMISSION
4	W.L.	25-09-15	3rd SUBMISSION
3	W.L.	25-08-01	2nd SUBMISSION
2	W.L.	25-07-15	ISSUED FOR TENDER
1	W.L.	25-06-20	1st SUBMISSION

Ottawa CITY OF OTTAWA

PROJECT No. 24-1416

W. LIU
100167932
26-02-17
PROVINCE OF ONTARIO

HABITAT FOR HUMANITY 40 BEECHCLIFFE STREET

DSEL

120 Ibor Road, Unit 103
Stittsville, ON K2S 1E9
Tel: (613) 836-0856
Fax: (613) 836-7183
www.DSEL.ca

GENERAL PLAN © DSEL

DRAWN BY:	CHECKED BY:	SHEET NO.
A.S.	W.L.	4 OF 12
DESIGNED BY:	CHECKED BY:	SCALE:
A.S.	W.L.	1:500
DATE:	DATE:	DATE:
JUNE 2025	JUNE 2025	JUNE 2025

CITY PLAN No. 19322
CITY FILE No. D07-12-25-0091

PAVEMENT DESIGN

40mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
 50mm HL-8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
 150mm OPSS GRANULAR A CRUSHED STONE
 400mm OPSS GRANULAR B TYPE II

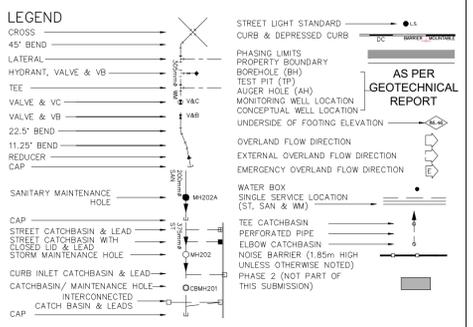
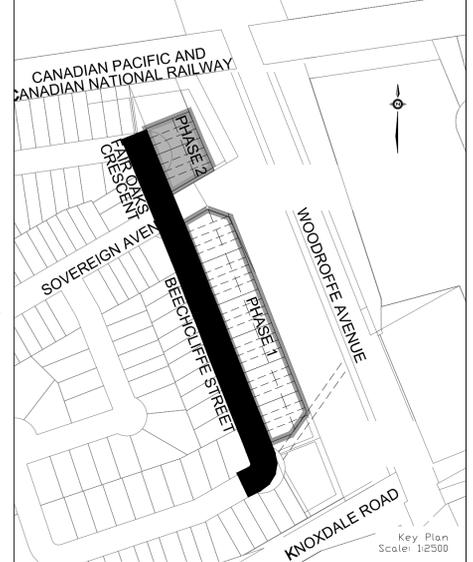
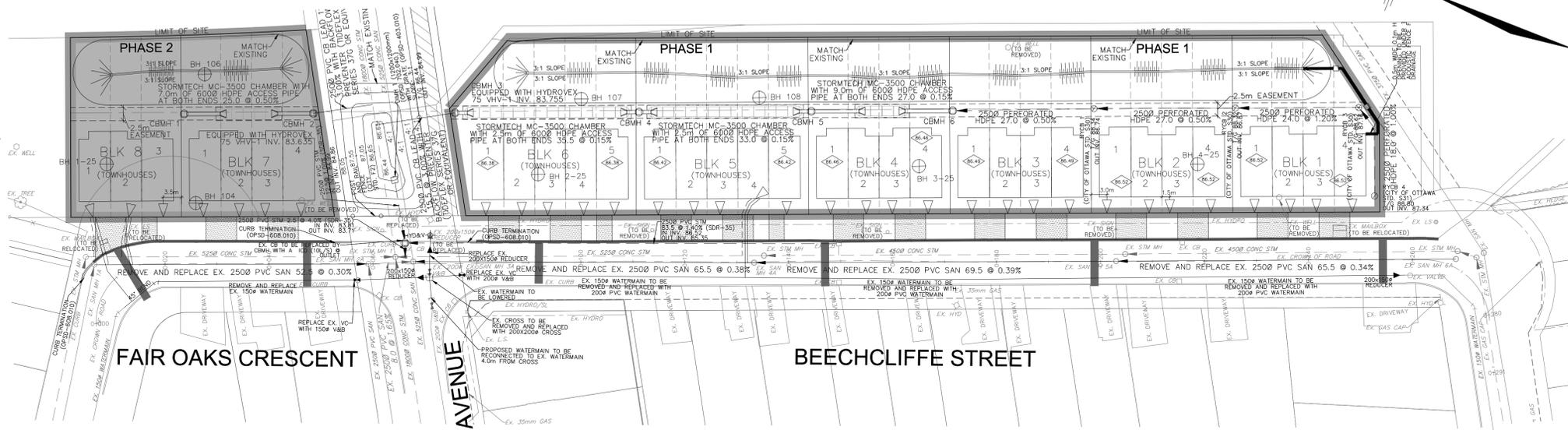
NOTES:

1. ANY DISTURBED AREA DURING CONSTRUCTION TO BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION. CONTRACTOR TO VERIFY THE PRECISE LOCATIONS AND INVERT ELEVATIONS OF EX. UNDERGROUND SERVICES AND EX. UTILITIES PRIOR TO STARTING CONSTRUCTION.
2. ALL EXISTING TREES, SHRUBS ETC. WITHIN LOTS, BLOCKS AND ROADS TO BE REMOVED, UNLESS OTHERWISE NOTED. PERMISSION REQUIRED FOR WORK ON ADJACENT LANDS.
3. FOR WATERMAIN STUBS, 2.4m MIN. COVER TO BE PROVIDED.
4. ANY DISTURBED MATERIAL ENCOUNTERED BELOW THE SUBGRADE LEVEL WITHIN A BUILDING FOOTPRINT TO BE SUB-EXCAVATED AND BACKFILLED WITH COMPACTED ENGINEERED FILL AS PER GEOTECHNICAL ENGINEERS RECOMMENDATION.

CONTRACTOR TO LOCATE EXISTING SERVING INFRASTRUCTURE AND REMOVE OR REPLACE PER THIS DRAWING AND DWG. 3 AND 4.

ALL EXISTING SANITARY MANHOLES TO REMAIN AND BE REUSED AS NECESSARY.

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LEGAL INFORMATION
 REGISTERED PLAN PROVIDED BY AOV LTD., PROJECT No. 25159-25, RECEIVED ON MAY 14, 2025.
ELEVATION NOTE
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No.	BY	DATE	DESCRIPTION
5	W.L.	26-02-17	4th SUBMISSION
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1	W.L.	25-06-20	1st SUBMISSION

Ottawa CITY OF OTTAWA

PROJECT No. 24-1416

W. LIU
 100167932
 26-02-17
 PROVINCE OF ONTARIO

TOP OF WATERMAIN	SANITARY INVERT	STORM INVERT	PROPOSED GRADES	CENTERLINE CHAINAGE
89.100				0+000.000
89.000				0+005.357
88.800				0+008.650
88.700				0+018.196
88.600				0+020.376
88.500				0+040.000
88.400				0+051.892
88.300				0+051.127
88.200				0+059.028
88.100				0+063.544
88.000				0+062.717
87.900				0+070.864
87.800				0+077.065
87.700				0+086.073
87.600				0+100.000
87.500				0+108.248
87.400				0+120.000
87.300				0+130.507
87.200				0+133.346
87.100				0+135.272
87.000				0+140.000
86.900				0+153.332
86.800				0+160.000
86.700				0+176.043
86.600				0+180.000
86.500				0+198.250
86.400				0+200.000
86.300				0+203.016
86.200				0+204.772
86.100				0+220.000
86.000				0+221.697
85.900				0+240.000
85.800				0+246.654
85.700				0+256.296
85.600				0+257.664
85.500				0+259.594
85.400				0+267.608
85.300				0+270.572
85.200				
85.100				
85.000				
84.900				
84.800				
84.700				
84.600				
84.500				
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81.400				
81.300				
81.200				
81.100				
81.000				

HABITAT FOR HUMANITY

40 BEECHCLIFFE STREET

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 Tel: (613) 836-0856
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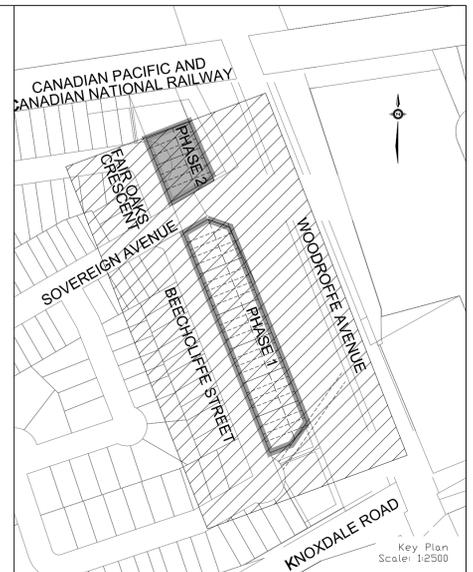
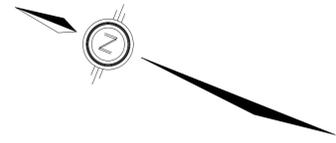
BEECHCLIFFE ST & FAIR OAKS CRES
 STA. 0+000.000 TO STA. 0+291.090

DRAWN BY: A.S. CHECKED BY: W.L. SHEET NO. 5 OF 12
 DESIGNED BY: A.S. CHECKED BY: W.L. DATE: JUNE 2025

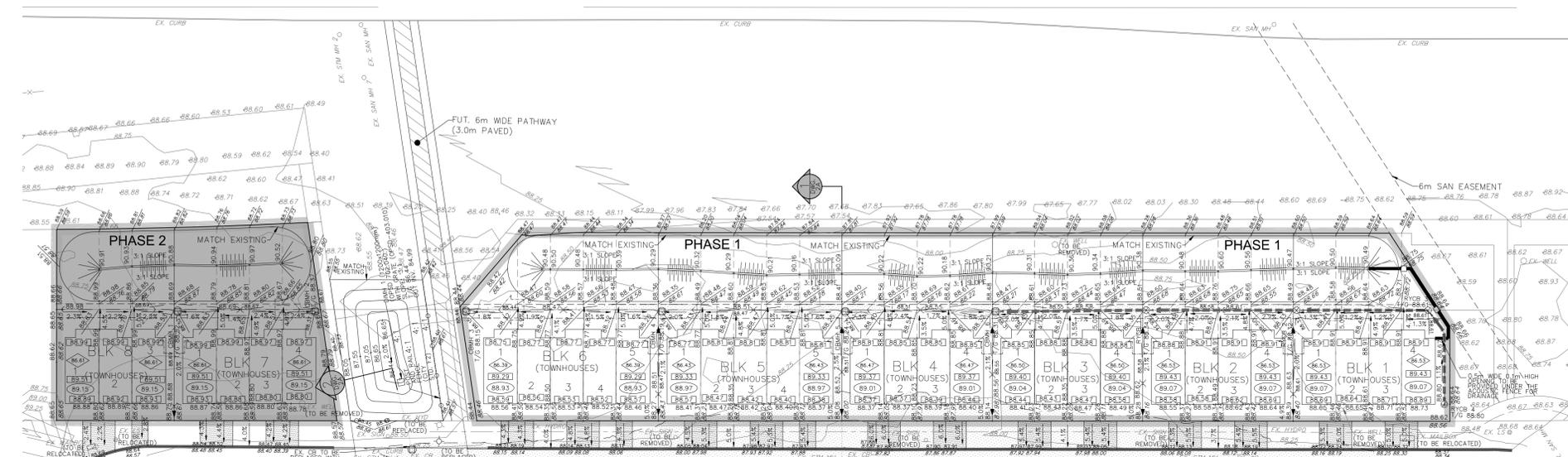
CITY PLAN No. 19322
 CITY FILE No. D07-12-25-0091

2156m² OF ROAD PAVEMENT TO BE REMOVED AND REPLACED PER DWG. 3.

PHASE 2 IS NOT PART OF THIS APPLICATION AND ITS APPROVAL WILL BE SUBJECT TO A SUBSEQUENT DEVELOPMENT APPLICATION.



WOODROFFE AVENUE



LEGEND

- PROPOSED ELEVATION → 103.45
- EXISTING ELEVATION → 102.73
- PROPOSED SWALE GRADE → 1.5%
- HIGH POINT → 102.16
- STREET CATCHBASIN → □
- CATCHBASIN MANHOLE → ○
- TEE CATCHBASIN → ⊥
- ELBOW CATCHBASIN → ∟
- HYDRANT, VALVE & VB → ●
- VALVE & VC → ⊕
- VALVE & VB → ⊖
- TOP OF FOUNDATION (TOF) → []
- FINISHED FLOOR ELEVATION (FFE) → []
- UNDERSIDE OF FOOTING ELEVATION (USF) → []
- FRONT/REAR ENVELOPE ELEVATION → []
- WALKOUT UNITS → []
- STREET LIGHT STANDARD → ●
- CURB TRANSITION → []
- OVERLAND FLOW DIRECTION → []
- EXTERNAL OVERLAND FLOW DIRECTION → []
- REAR YARD OVERLAND FLOW DIRECTION → []
- PHASE LIMITS → []
- NOISE BARRIER (1.85m HIGH UNLESS OTHERWISE NOTED) → []
- PROPERTY BOUNDARY → []
- 3:1 TERRACING MAXIMUM SLOPE → []
- PONDING AREA WITH SPILLWAY ELEVATION → []
- 250# PVC PERFORATED PIPE (REFER TO CITY STD S29 FOR REAR YARD TRENCH AND PIPE DETAILS ONLY) (SUBDRN APPLIED FOR SLOPE LESS THAN 1.5%) → []
- EXISTING SANITARY MAINTENANCE HOLE → []
- EXISTING STORM MAINTENANCE HOLE → []
- SANITARY MAINTENANCE HOLE PHASE 2 (NOT PART OF THIS SUBMISSION) → []

NOTES:

1. ANY DISTURBED AREA DURING CONSTRUCTION TO BE RESTORED TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION
2. CONTRACTOR TO VERIFY THE PRECISE LOCATIONS AND INVERT ELEVATIONS OF EX. UNDERGROUND SERVICES AND EX. UTILITIES PRIOR TO STARTING CONSTRUCTION
3. ALL EXISTING ABOVE GROUND FEATURES, E.G. MH/CHAMBER COVERS, PRECASTS, HYDRO AND LIGHT POLES, ETC. AFFECTED BY THE DEVELOPMENT TO BE ADJUSTED TO SUIT TO THE SATISFACTION OF PARTIES AFFECTED
4. ALL EXISTING BUILDING, SHED, POST & WIRE FENCE, CHAIN LINK FENCE, TREE, UTILITY WIRE, POLE, CULVERT AND POOL WITHIN LOTS AND BLOCKS TO BE REMOVED, UNLESS OTHERWISE NOTED
5. ALL EXISTING POST & WIRE FENCE, CULVERTS, UTILITY WIRE / POLES, TREES, SHRUBS ETC. WITHIN LOTS, BLOCKS AND ROADS TO BE REMOVED, UNLESS OTHERWISE NOTED
6. PERMISSION REQUIRED FOR REMOVAL OF EXISTING TREES ON EXTERNAL LANDS WHERE APPLICABLE
7. PERMISSION REQUIRED FOR WORK ON ADJACENT LANDS
8. A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO IS TO INSPECT ALL SUBGRADE SURFACES FOR FOOTING AND PAVEMENT STRUCTURES PRIOR TO CONSTRUCTION

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY CITY OF OTTAWA, PROJECT 40 BEECHCLIFFE STREET, SURVEY DATED JANUARY 2025.
ADDITIONAL TOPOGRAPHIC INFORMATION PROVIDED BY AOV LTD., PROJECT NO. 25159-25, SURVEY DATED MAY 2025 AND JUNE 2025.

LEGAL INFORMATION
REGISTERED PLAN PROVIDED BY AOV LTD., PROJECT NO. 25159-25, RECEIVED ON MAY 14, 2025.

ELEVATION NOTE
ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC AND ARE REFERRED TO THE CGVD28 GEODETIC DATUM. SITE BENCH MARK ON TOP OF F# SPINDLE FRONTING CIVIC ADDRESS 33 BEECHCLIFFE STREET. ELEVATION=88.966m.

No.	BY	DATE	DESCRIPTION
5	W.L.	26-02-17	4th SUBMISSION
4	W.L.	25-09-15	3rd SUBMISSION
3	W.L.	25-08-01	2nd SUBMISSION
2	W.L.	25-07-15	ISSUED FOR TENDER
1	W.L.	25-06-20	1st SUBMISSION



HABITAT FOR HUMANITY

40 BEECHCLIFFE STREET

DSEL

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Stittsville, ON K2S 1E9
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Fax: (613) 836-7183
www.DSEL.ca

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GRADING PLAN

DRAWN BY: A.S.	CHECKED BY: W.L.	SHEET NO.
DESIGNED BY: A.S.	CHECKED BY:	7 OF 12
SCALE: 1:500	DATE: JUNE 2025	

CITY PLAN No. 19322
CITY FILE No. _D07-12-25-0091



Target Flow Rate

Area 0.78 ha
C 0.25 Rational Method runoff coefficient
t_c 10.0 min

2-year

i 76.5 mm/hr
Q 41.4 L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area 0.00 ha
C 0.00 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
10.0	104.2	0.0	0.0	0.0	0.0	178.6	0.0	0.0	0.0	0.0

Note:

C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Estimated Post Development Peak Flow from Attenuated Areas

Total Area 0.22 ha
C 0.89 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
10	104.2	56.5	21.5	35.0	21.0	178.6	109.1	41.4	67.7	40.6
15	83.6	45.3	21.5	23.8	21.4	142.9	87.3	41.4	45.9	41.3
20	70.3	38.1	21.5	16.6	19.9	120.0	73.3	41.4	31.9	38.2
25	60.9	33.0	21.6	11.5	17.2	103.8	63.5	41.4	22.0	33.0
30	53.9	29.2	21.6	7.7	13.8	91.9	56.1	41.4	14.7	26.5
35	48.5	26.3	21.6	4.7	9.9	82.6	50.5	41.4	9.0	18.9
40	44.2	24.0	21.6	2.3	5.6	75.1	45.9	41.4	4.5	10.7
45	40.6	22.0	21.6	0.4	1.1	69.1	42.2	41.4	0.8	2.0
50	37.7	20.4	20.4	0.0	0.0	64.0	39.1	39.1	0.0	0.0
55	35.1	19.0	19.0	0.0	0.0	59.6	36.4	36.4	0.0	0.0
60	32.9	17.9	17.9	0.0	0.0	55.9	34.2	34.2	0.0	0.0
65	31.0	16.8	16.8	0.0	0.0	52.6	32.2	32.2	0.0	0.0
70	29.4	15.9	15.9	0.0	0.0	49.8	30.4	30.4	0.0	0.0
75	27.9	15.1	15.1	0.0	0.0	47.3	28.9	28.9	0.0	0.0
80	26.6	14.4	14.4	0.0	0.0	45.0	27.5	27.5	0.0	0.0
85	25.4	13.8	13.8	0.0	0.0	43.0	26.2	26.2	0.0	0.0
90	24.3	13.2	13.2	0.0	0.0	41.1	25.1	25.1	0.0	0.0
95	23.3	12.6	12.6	0.0	0.0	39.4	24.1	24.1	0.0	0.0
100	22.4	12.2	12.2	0.0	0.0	37.9	23.2	23.2	0.0	0.0
105	21.6	11.7	11.7	0.0	0.0	36.5	22.3	22.3	0.0	0.0
110	20.8	11.3	11.3	0.0	0.0	35.2	21.5	21.5	0.0	0.0

Note:

C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

5-year Q _{attenuated}	21.51 L/s	100-year Q _{attenuated}	41.45 L/s
5-year Max. Storage Required	21.4 m ³	100-year Max. Storage Required	41.3 m ³

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m ³)	100-Year Release Rate (L/s)	100-Year Storage (m ³)
Unattenuated Areas	0.00	0.0	0.00	0.0
Attenuated Areas	21.51	21.4	41.45	41.3
Total	21.5	21.43	41.45	41.3