UPPER THAMES RIVER
CONSERVATION AUTHORITY

Meeting of the Upper Thames River Conservation Authority Hearing Committee Agenda for Thursday April 25, 2024 12:30pm – Zoom

Memo to Hearing Committee Members: Sandy Levin, Paul Mitchell, Brian Petrie, Mark Schadenberg, Dean Trentowsky

Please be advised that a meeting of the Hearings Committee will be as follows:

1. **Approval of Agenda**

2. **Declaration of Conflicts of Interest**

3. **Minutes of the Previous Meeting - March 26, 2024**

4. **Business Arising from the Minutes**

5. **Application #54-24**
   Proposed development within riverine flood hazard land regulated by the Upper Thames River Conservation Authority at 412, 418, and 450 Oxford Street West in the City of London, Ontario.

6. **Application # 84-23**
   Proposed development within an area regulated by the Upper Thames River Conservation Authority at 80 Water Street North, St. Marys

7. **Adjournment**

<original signed by>
Tracy Annett, General Manager

NOTICE OF HEARING

IN THE MATTER OF
The Conservation Authorities Act, R.S.O. 1990, Chapter C. 27 as amended;

AND IN THE MATTER OF
An Application By:
Landowner: Bluestone Properties Inc. c/o Mardi Turgeon
Agent: LDS Consultants Inc. c/o Rebecca Walker (Application #54-24)

For the permission of the Upper Thames River Conservation Authority pursuant to Regulations made under Section 28 of said Act.

TAKE NOTICE that a hearing before the Hearings Committee of the Upper Thames River Conservation Authority will be held under Section 28 of the Conservation Authorities Act using the Zoom video conferencing platform for remote hearings at the hour of 12:30 pm, Thursday, April 25, 2024 with respect to the application by Bluestone Properties Inc. c/o Mardi Turgeon to permit interference with a flood hazard associated with a river or stream valley and within an area regulated by the Upper Thames River Conservation Authority under Ontario Regulation 157/06 - *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* made pursuant to Section 28 of the Conservation Authorities Act at 412, 418, and 450 Oxford Street West in the City of London, Ontario.

TAKE NOTICE THAT you are invited to make a delegation and submit supporting written material (electronically) to the Hearings Committee for the meeting of April 25, 2024. If you intend to appear and/or submit further written material, please contact Jessica Schnaithmann ((519)-451-2800 ext. 307, e-mail schnaithmannj@thamesriver.on.ca). Any further written material (submitted electronically) will be required as soon as possible, to enable the Committee members to review the material prior to the meeting.

The Hearing is being held electronically. Participants who intend to join must provide:

- **full name**;
- **email address**; and,
- **a phone number where they can be reached during the Zoom hearing** (should technical support from our Zoom host/administrator be required);

to Jessica Schnaithmann at least 48 hours prior to the scheduled Hearing. Participants will be sent an e-mail with a hyperlink to access the Zoom hearing as well as further instructions.

If you believe that holding the hearing electronically is likely to cause significant prejudice please contact Michelle Viglianti ((519)-451-2800, e-mail: vigliantim@thamesriver.on.ca).

AND FURTHER TAKE NOTICE that if you do not attend at this Hearing, the Hearings Committee may proceed in your absence, and you will not be entitled to any further notice in the proceedings.

PLEASE NOTIFY THIS OFFICE by 12:00 noon March 18, 2024 (local time) as to whether you and/or your agent(s) will be attending. A copy of Ontario Regulation 157/06 and Section 28 of the Conservation Authorities Act will be made available to you upon request.

DATED the 18th Day of April, 2024

Registered

The Hearings Committee of
The Upper Thames River Conservation Authority

<original signed by>
Tracy Annett, General Manager/Secretary-Treasurer

HEARING PROCEDURES

1. Motion to sit as a Hearings Committee to consider the application by
Landowner: Bluestone Properties Inc. c/o Mardi Turgeon
Agent: LDS Consultants Inc. c/o Rebecca Walker, 412, 418 and 450 Oxford Street West, City of London, Ontario (Application #54-24)

1. Chair's opening remarks.

2. Staff will introduce Hearings Committee members (and the UTRCA Solicitor if present) to the applicant/owner, his/her agent and others wishing to speak.

3. Staff will indicate the nature and location of the subject application.

4. Staff will present their report on the application.

5. The applicant and/or his/her agent will speak and also make any comments on the staff report, if he desires.

6. Members of the Hearings Committee will question, if necessary, both the staff and the applicant/agent.

7. The Hearings Committee may make a motion to adjourn and go into camera and/or may make a motion to arrange to visit the subject site.

8. Upon completion of their deliberations, members of the Hearings Committee may make a motion regarding the application or may resolve to defer any decision on the application.

9. A motion will be carried which will culminate in the decision.

10. The Hearings Committee will move out of camera.

11. The Chair will advise the owner/applicant of the Hearings Committee decision, through Conservation Authority staff if the applicant/agent has left the Hearing location or in person if a decision is rendered with the Applicant/agent still on hand at the UTRCA office.

12. If decision is made to "to refuse", the Chair or Acting Chair shall notify the owner/applicant of his right to appeal the decision to the Minister of Natural Resources and Forestry within 30 days of receipt of the reasons for the decision.

13. Motion to move out of the Hearing.

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: Chair and Members of the UTRCA Hearing Committee
From: Jessica Schnaithmann, Land Use Regulations Officer
Date: April 18, 2024
File Number: HC-04-24-04
Agenda Number: 5
Subject: Section 28 Permit Application #54-24 for Proposed Development within Riverine Flood Hazard Land Regulated by the Upper Thames River Conservation Authority at 412, 418 and 450 Oxford Street West, City of London, Ontario

Recommendation

THAT the Hearing Committee of the Upper Thames River Conservation Authority (UTRCA) approve the issuance of a *Development Interference With Wetlands and Watercourses* permit (Application #54-24) made pursuant to Section 28 of the *Conservation Authorities Act* for proposed development (specifically the placement of fill material) within a riverine flood hazard associated with a river or stream valley and area regulated by the UTRCA at 412, 418 and 450 Oxford Street West, City of London Ontario.

AND

THAT revisions to the plans be made to mitigate impacts to adjacent properties if deemed necessary through UTRCA review and acceptance of the pending Technical Attachment to the Appendix 4 Memorandum dated April 5, 2024, attached to the recently UTRCA Board approved Two-Zone Flood Policy Area.

AND

THAT given this property is located within a recently UTRCA Board approved Two-Zone Flood Policy Area, future development applications for these lands will be reviewed by Authority staff to ensure compliance with the existing Board approved policies for development within the flood fringe and floodway.

Application

A Section 28 *Application for Development, Interference with Wetlands and Watercourses* permit application (#54-24) has been submitted for the proposed development, specifically, the temporary stockpiling of clean fill material on lands entirely regulated by the UTRCA due to the presence of riverine flood hazard land associated with Mud Creek and the main branch of the Thames River at 412, 418 and 450 Oxford Street West in the City of London, Ontario.

Site Information

The subject lands known municipally as 412, 418 and 450 Oxford Street West in London, ON are entirely regulated by the Upper Thames River Conservation Authority (in accordance with Section 28 of the *Conservation Authorities Act* and Ontario Regulation 41/24), due to the presence of a riverine flooding hazard associated with Mud Creek and the main branch of the Thames River. The lands are identified as flood fringe within the newly approved two-zone flood

concept area for the defined area within the Mud Creek Subwatershed. The property is zoned Restricted Office (RO2), Day Care (DC) and Open Space (OS4). The existing lands at 412, 418 and 450 Oxford Street West are vacant with no buildings or structures and are currently manicured grass. The lands at 412 and 418 Oxford Street West are being utilized as a construction laydown area for previous stages of the Mud Creek corridor works.

Attachment #1 is a location map of the property at 412, 418 and 450 Oxford Street West, London, Ontario.

Attachment #2 is an excerpt of the City of London Zone mapping for 412, 418 and 450 Oxford Street West, London, Ontario.

Attachment #3 is an excerpt of the April 16, 2024 Board Report which provides background to the Mud Creek EA and the approved Two-Zone Concept Area for a defined portion of the Mud Creek Subwatershed.

Background

The subject lands are situated within an area impacted by the floodplain of Mud Creek and the Thames River.

The lands were identified in the Mud Creek EA (2017) as a potential location for future development. The following sections of the EA speak to the Two-Zone Concept Area and potential Cut/Fill options:

a. ***Section 4.3.17*** *- A two-zone concept may be an appropriate management alternative for development areas within the Mud Creek subwatershed if appropriate measures are taken to protect development from flooding within the flood fringe. Flood protection options may include an appropriate cut/fill balance in the flood plain;*

b. ***Section 4.3.18 -*** *Cut/fill options have not been assessed directly as part of this EA, since the EA does not include the analysis of specific development options. However, during future stages of development within the subwatershed, the modelling tools developed for the EA could be used to provide guidance on the level of flood protection afforded by various cut/fill options;*

Through pre-consultation with the UTRCA and the City of London, the applicants were advised that any development plans for these lands were to await the completion of the Mud Creek EA. City staff were advised that new planning applications could possibly be brought forward in parallel with the implementation of the channel works. However, it was noted that until all of the required flood mitigation works, including connection of an upsized culvert under Oxford Street, had been completed, it would be challenging for the Authority to support the approval of any planning applications or Section 28 permit applications on flood susceptible lands.

The City of London has submitted an application to the UTRCA for the Mud Creek Phase 2B Channel Rehabilitation Project. This project extends a natural corridor from the CN Rail at the southerly limit to just north of Oxford Street West. The project objectives are to increase flood conveyance, reduce the flooding limits of Mud Creek, enhance the natural environment through restoration plans, and provide a community walking trail. As part of the channel rehabilitation work, and in order to reduce the costs of relocating excess fill material, the City wishes to place

fill that will be removed from the channel onto the privately-owned lands located at 412, 418 and 450 Oxford Street West.

Authority Staff had advised the City that the proposal to of fill undeveloped privately owned properties in the floodway to reduce flood risk and increase development potential is contrary to UTRCA, City of London and Provincial Policy. Now that the lands are in the flood fringe of an approved Two Zone Concept Area, the opportunity to fill undeveloped properties as a floodproofing measure would be consistent with UTRCA policies.

Proposal

On April 9, 2024, UTRCA (J. Schnaithmann) received an application from LDS Consultants Inc. c/o Rebecca Walker on behalf of Bluestone Properties Inc. c/o Mardi Turgeon for proposed temporary stockpiling of fill material. This proposal was intended to work in parallel with the removal/relocation of excess fill from the City of London Phase 2B Mud Creek Channel works, for which an application has also been received and is currently under review. It is understood that Bluestone Properties Inc. would continue to work with the City of London and the UTRCA to complete the appropriate planning and regulatory review (including floodproofing) to support future residential development opportunities on the lands.

Discussion/Analysis

Copies of the UTRCA Permit Application Form, Drawing Package and Soil Management Plan from LDS Consultants Inc. (**Attachment #4a, b & c**), – as well as applicable UTRCA Natural Hazard policies are included with this report. The application has been evaluated for conformity with our general flood hazard policies contained within Section 4 of the *UTRCA Environmental Planning Policy Manual (June 2006)*.

Applicable Policy

Please Note: the following policies referenced are taken from the *UTRCA Environmental Planning Policy Manual,* approved by the Board of Directors, June 28, 2006. While the following policies have been included within this report to assist with review, we note that policies in the manual are intricately interwoven and should always be read in their entirety. The UTRCA Environmental Planning Policy Manual (2006) is available on our website at:

http://thamesriver.on.ca/wp-content/uploads//PlanningRegulations/UTRCA-EnvironmentalPlanningPolicyManual-2006.pdf.

A hard-copy can be made available upon request. It is advised that all of the policies contained within the manual as well as other policies, not listed below, may also be applicable and should be referred to.

A) Regulation of Development

The proposed addition of fill to the lands would be considered development (by definition).

Definitions

Development:

(a) the construction, reconstruction, erection or placing of a building or structure of any kind,
(b) any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
(c) site grading, or
(d) the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

(*Conservation Authorities Act, R.S.O. 1990 c. C.27*)

Through Section 28 of the *Conservation Authorities Act* and Ontario Regulation *41/24,* Conservation Authorities have a legislated responsibility to regulate development and activities in or adjacent to river or stream valleys, Great Lakes and inland lakes shorelines, watercourses, hazardous lands, and wetlands. Development taking place on these lands within the watershed requires permission from the Conservation Authority.

Subsection 28 (1) of the *Conservation Authorities Act* states that "no person shall carry on, or permit another person to carry on" "Development activities in areas that are within the authority's area of jurisdiction and are" "river or stream valleys".

Subject to subsection 28.1 (1):

28.1 *(1) An authority may issue a permit to a person to engage in an activity specified in the permit that would otherwise be prohibited by section 28, if, in the opinion of the authority,*

(a) the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock;

(b) the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

The UTRCA Environmental Planning and Policy Manual (2006) provides guidance for where development could be approved including floodplain two-zone concept areas. Given that the UTRCA Board of Directors has approved a two-zone concept for the identified areas within the Mud Creek Subwatershed, these existing policies (and any future updates) will be applied to the approved area. While the current proposal is for general augmentation of the site with fill material, it is understood that the filling is with the intent of future residential construction – should that meet City and UTRCA policies for residential development including parking and safe/dry access requirements. Any proposal for site alteration or development within the identified two-zone concept area in the future will require a separate Section 28 permit and will be subject to the policies (and any future updates to these policies) provided below.

B) General Flood Hazard Policies

Section 4 – Section 28 Review & Approval Process of the UTRCA Planning and Policy Manual, contains the following policies for Floodway and Flood Fringe Areas:

4.2.2 Riverine Flooding Hazard Polices

1. Floodway – New development is generally not permitted within the floodway of any watercourse.
2. Flood Fringe – Development and site alteration is permitted in identified flood fringe areas, subject to satisfying floodproofing requirements through the UTRCA's Section 28 Permit Process. Specific policies are provided below.

a. Residential – For new development, no building openings are permitted below the Regulatory Flood Elevation. Construction drawings with floodproofing considerations must be prepared by a qualified professional. If a basement is proposed, dry, passive floodproofing measures must be presented on detailed drawings prepared by a qualified professional. Sufficient surveys and inspections will be required to allow for the provision of as-built drawings upon completion of the project. Additions will be permitted (including bedrooms and associated increases in density) if access is safe or dry and floodproofing is achieved to the level of the Regulatory Flood Elevation. If floodproofing to the Regulatory Flood Elevation is not feasible, additions must be less than 25 per cent of the existing ground floor area and must not include bedrooms or require zoning by-law amendments to increase population density.
b. Industrial/Commercial - Access must be at a minimum of the floodway elevation and within 0.3 metres of the Regulatory Flood Elevation. Dry, passive floodproofing is preferred, with no building openings below the Regulatory Flood

4.2.5 Watercourse & Flood Plain Alteration Policies

1. Major flood plain alterations (including placement of fill to create a building lot) and major watercourse alterations (including enclosures) are generally not permitted. Such alterations may be considered where justification is provided through a subwatershed study, an Environmental Assessment or similar comprehensive study and are subject to conformity with municipal planning documents.

The proposed temporary stockpiling of fill material for 412, 418 and 450 Oxford Street West as currently proposed:

- Meets current policies as a floodproofing measure. While this application does not include a development application which would address specific floodproofing requirements, it is our understanding that the applicant will be coming forward with a future development proposal. Through appropriate planning and regulation review, any requirements, including floodproofing, safe/dry vehicle and pedestrian access and parking, shall be addressed for all future development.
- Promotes cost-effective and responsible soils management for the City of London's project in accordance with the Ministry of Environment, Conservation and Parks (MECP) Excess Soils Regulation (i.e., Ontario Regulation 406/19).

With respect to Flood Fringe areas, UTRCA policies speak to residential/commercial/industrial development, parking and access. It is not standard practice to allow the full augmentation of a site with fill due to the potential loss of flood storage. While the lands now fall within a Two-Zone Flood Concept area, it has been standard staff review criteria to not approve generic augmentation of a flood fringe property without a development proposal.

Generally, when staff review for new structures within a flood fringe it is our standard requirement to limit the amount of fill required to be placed just around the structures so as not to impact or reduce the flood storage provided by the flood fringe. We generally do not allow the entire flood fringe to be filled because it could have upstream and downstream effects on the flood hazard.

Therefore, the proposed temporary fill placement does not meet all of the standard review criteria for staff to issue the necessary Section 28 approvals. However, it is recommended that these works be approved by the UTRCA Hearings Committee given that:

- Mud Creek EA which was completed for the broader area and identified these lands for future development;
- There are benefits of completing this work in parallel with the City of London led Phase 2B Mud Creek Channel works, and;
- Understanding that the application will continue to work with the City of London and the UTRCA to complete the appropriate planning and regulatory review (including floodproofing, safe/dry vehicle and pedestrian access) to support future residential development opportunities on the property.

Conclusion

The Authority's approval is required for the issuance of permits under Section 28 of the Conservation Authorities Act. Applications which conform to Subsection 28.1 (1) of the Act and board-approved policy found within the UTRCA *Environmental Planning Policy Manual* (June 2006) may be recommended for approval by Authority staff who have been granted responsibility to process such applications. When applications for development are submitted that do not conform to board approved policy, authority staff cannot refuse the application without the benefit of a hearing. Approval of a non-conforming application is then subject to the review and consent of the UTRCA Hearing Committee. Only the UTRCA Hearing Committee can refuse the application.

This report is provided to the UTRCA Hearing Committee to advise that the application meets most riverine flood hazard policies (found within Section 4 of the UTRCA Environmental Planning Policy Manual (June 2006)). The proposal is non-conforming because it does not meet all flood hazard, floodplain alteration and general staff review criteria for similar projects. However, UTRCA staff are satisfied that the proposal will benefit the City of London with their excess soil reuse for the adjacent channel works, and that policies support filling of flood fringe lands (where safe/dry access can also be achieved) to accommodate development.

The applicant has advised they wish to proceed with a hearing before the UTRCA Hearing Committee to obtain consent for the proposed fill placement within the flood fringe of the Two-Zone Concept Area.

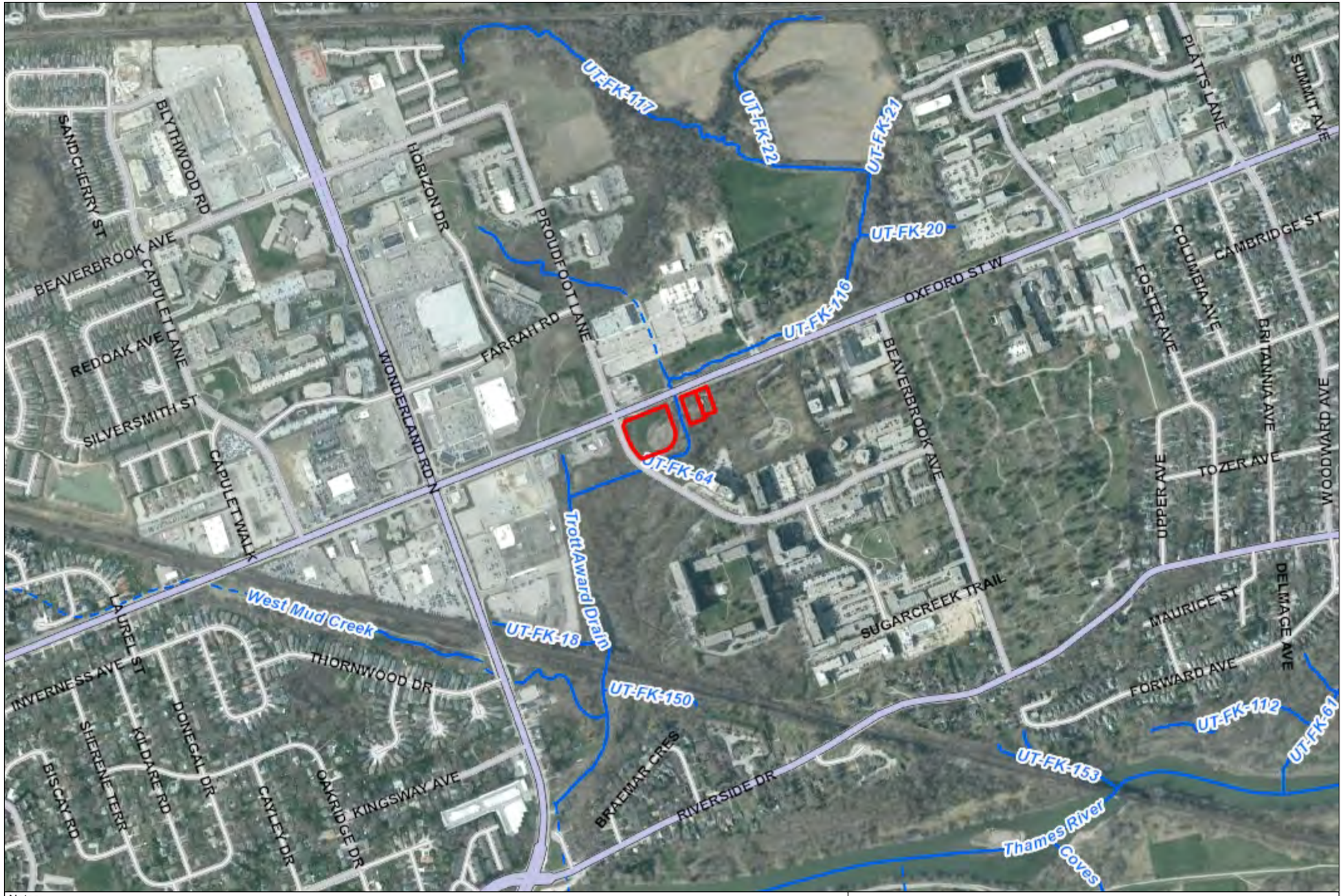
Recommended by:
Jenna Allain, Manager, Environmental Planning and Regulations

Prepared by:
Jessica Schnaithmann, Land Use Regulations Officer

c.c. Members of the UTRCA Hearing Committee
Tracy Annett, UTRCA
Grant Inglis, UTRCA Solicitor

Attachments:

Attachment #1 – Location map of the property at 412, 418 and 450 Oxford Street West, London, ON
Attachment #2 – Excerpt of the City of London Zone mapping at 412, 418 and 450 Oxford Street West, London, ON
Attachment #3 – Excerpt of the April 16, 2024 Board Report which provides background to the Mud Creek EA and approved two-zone concept area for a defined portion of the Mud Creek Subwatershed.
Attachment #4a, b, & c – LDS Consultants Inc. Application for Consent, including supporting documentation



Regulated Areas

Regulation under s.28 of the *Conservation Authorities Act*

Development, interference with wetlands, and alterations to shorelines and watercourses. O.Reg 157/06, 97/04.

Legend

- UTRCA Watershed (2017 LiDAR)
- Watercourse (UTRCA, 2020)
  - Open
  - Closed Design/Tiled

Attachment #1

Notes:
412, 418 and 450 Oxford Street West, London, Ontario

Created By: JS April 18, 2024

* Please note: Any reference to scale on this map is only appropriate when it is printed landscape on legal-sized (8.5" x 14") paper.

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The mapping is for information screening purposes only, and shows the approximate regulation limits. The text of Ontario Regulation 157/06 supersedes the mapping as represented by this data layer. This mapping is subject to change. A site specific determination may be made by the UTRCA.

This layer is the approximate limit for areas regulated under Ontario Regulation 157/06 - Upper Thames River Conservation Authority: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, which came into effect May 4, 2006.

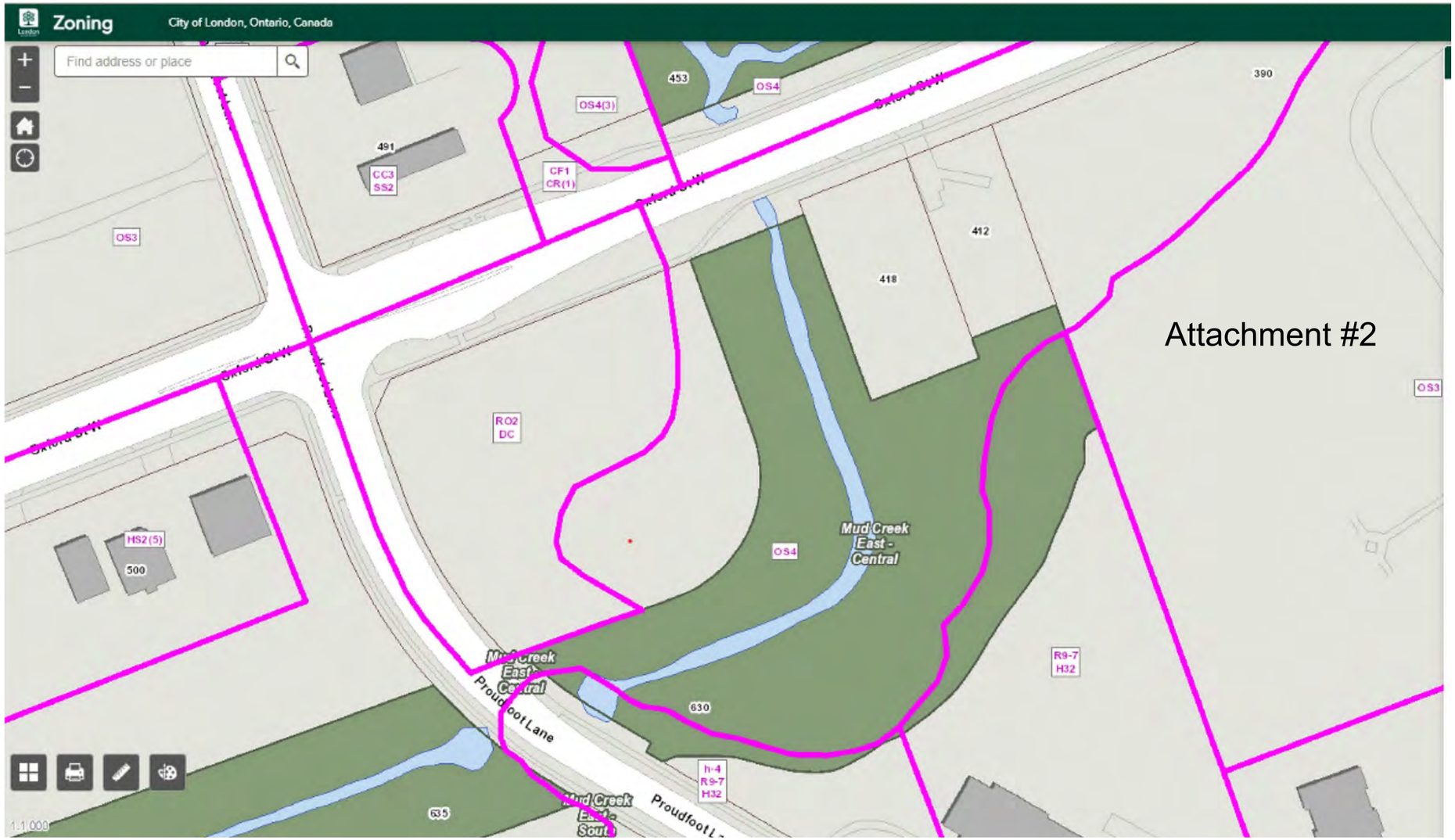
The UTRCA disclaims explicitly any warranty, representation or guarantee as to the content, sequence, accuracy, timeliness, fitness for a particular purpose, merchantability or completeness of any of the data depicted and provided herein.

The UTRCA assumes no liability for any errors, omissions or inaccuracies in the information provided herein and further assumes no liability for any decisions made or actions taken or not taken by any person in reliance upon the information and data furnished hereunder.

This map is not a substitute for professional advice. Please contact UTRCA staff for any changes, updates and amendments to the information provided.

This document is not a Plan of Survey.

UPPER THAMES RIVER CONSERVATION AUTHORITY


Zoning
City of London, Ontario, Canada
Find address or place
Attachment #2
OS4(3)
453
OS4
390
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CC3
SS2
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412
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RO2
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OS4
Mud Creek
East -
Central
OS3
HS2(5)
500
R9-7
H32
630
h-4
R9-7
H32
635
Proudfoot Lane

UPPER THAMES RIVER CONSERVATION AUTHORITY

Attachment #3 **MEMO**

To: UTRCA Board of Directors
From: Jenna Allain, Manager, Environmental Planning and Regulations
Date: April 5, 2024
File Number: 04-24-29
Agenda #: 6.1
Subject: Mud Creek Two-Zone Concept

Recommendation

THAT the UTRCA Board of Directors approve the concept for a two-zone approach for a defined area within the Mud Creek Subwatershed in the City of London;

AND

THAT the existing board-approved policies for flood fringe and floodway be Implemented for the area identified for the two-zone approach,

AND FURTHER,

THAT the two-zone concept within the Mud Creek Subwatershed be reviewed every 10 years.

Background

Mud Creek Subwatershed

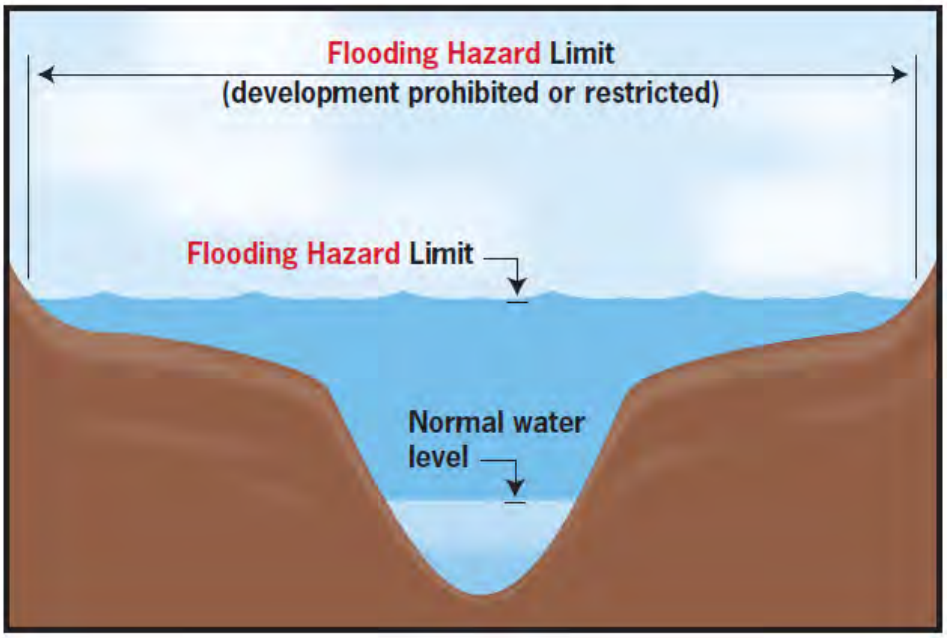
The Mud Creek Subwatershed is located within the northwest area of the City of London and is a major tributary to the Thames River. The area is generally bounded by Riverside Drive to the South, Wonderland Road to the west, the CP rail line to the north and Cherryhill Boulevard to the east.

In 2017, the City of London finalized the Mud Creek Subwatershed Schedule B Municipal Class Environmental Assessment (Mud Creek EA) through a public review process that was completed in consultation with the UTRCA. The recommended solutions from the Mud Creek EA included channel conveyance improvements that would alleviate existing and future flooding concerns. Further to this, the City has also undertaken a hydraulic floodway analysis to investigate the impacts of flooding in the area, and to identify potential flood fringe lands. The City is requesting that a two-zone concept be applied to a portion of the Mud Creek Subwatershed area to allow for development or redevelopment of the lands that have been identified as flood fringe.

Two-Zone Concept

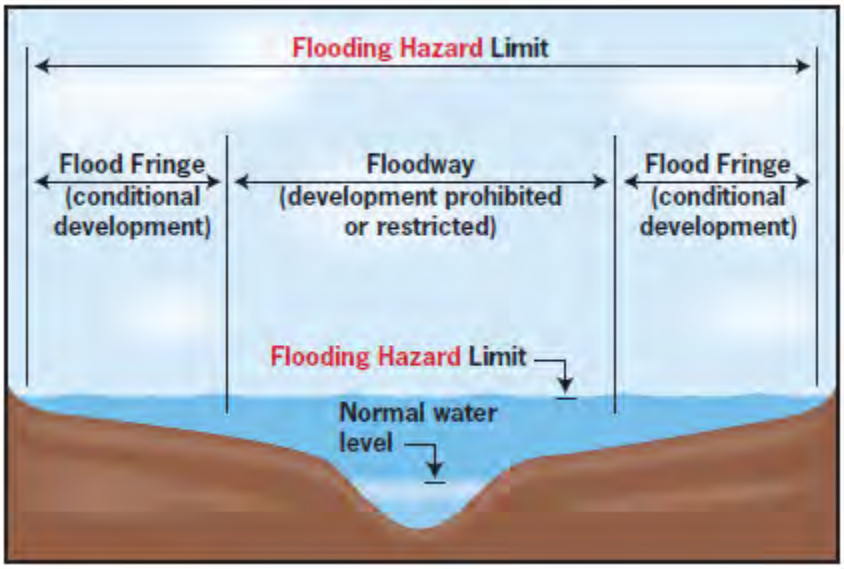
Generally, a flood plain consists of one zone, defined by the applicable flood standard (see Figure 1 below). For the UTRCA, the flood standard is the 1937 flood, deemed equivalent to a 250-year storm event, or a flood with a 0.4 percent chance of occurring in any given year. Most of the flood plains in the UTRCA watershed are regulated as one zone policy areas. In these areas, the entire flood plain is considered the floodway, and new development is generally prohibited or restricted.

Figure 1. One-Zone Floodplain Concept (Image from MNRF Technical Guide for River and Stream Systems: Flood Hazard Limit, 2002)



The two-zone concept recognizes the fact that the flood plain can often be divided into two zones: the floodway, where most of the flow is conveyed, and flood fringes, which may exist on both sides of the floodway (see Figure 2 below). Where the two-zone concept is applied, the floodway is the inner portion of the flood plain, representing that area required for the safe passage of flood flow and/or the area where flood depth and/or velocities are such that they pose a potential threat to life and/or property damage.

Figure 2. Two-Zone Floodway – Flood Fringe Concept (Image from MNRF Technical Guide for River and Stream Systems: Flood Hazard Limit, 2002)



The Provincial Policy Statement (2020) recognizes the application of the two-zone concept, and Policy 3.1.6 states that “where the two-zone concept for flood plains is applied, development and site alteration may be permitted in the flood fringe, subject to appropriate floodproofing to the flooding hazard elevation or another flooding hazard standard approved by the Minister of Natural Resources and Forestry”.

The UTRCA’s Environmental Planning and Policy Manual (2006) also recognizes the application of the two-zone concept. It states that “The UTRCA, in cooperation with watershed municipalities, may apply a Two Zone Policy Approach in serviced settlement areas. In areas where the Two Zone Policy Approach is applied, the flood plain consists of a Floodway area and a Flood Fringe area”.

Finally, the City of London’s Official Plan also references the Two-Zone Concept. Policy 1458 states “In keeping with provincial policies, the City of London and the Upper Thames River Conservation Authority have adopted a two zone floodway-flood fringe concept to allow infill development and redevelopment of an existing use for identified areas along the Thames River and its tributaries where there is a significant difference between the One Hundred year Flood Standard and the Regulatory Flood Standard or where a flood fringe has been delineated through hydraulic floodway analysis. Flood fringe areas may be identified and delineated by the Upper Thames River Conservation Authority and added to Map 6 by amendment to this Plan.

Application of the Two Zone Concept for a portion of the Mud Creek Subwatershed

The Ontario Ministry of Natural Resources Technical Guide – River and Stream Systems: Flood Hazard Limit (2002) is a guidance document which presents the hydrologic and hydraulic work needed to conduct flood plain analyses. The guide includes an appendix (Appendix 4) which describes the factors that must be considered, and the application procedures for when a two-zone concept is proposed. The City of London has prepared the attached memo which describes how each of the factors listed

in Appendix 4 of the Technical Guide have been considered and provides the justification for applying the two-zone concept to a portion of the Mud Creek Subwatershed area. It is important to note that the factors have been considered using the assumption that the channel improvements being undertaken by the City of London (Phase 1 and 2) have already been completed. The memo provides maps indicating the areas that have been identified as proposed flood fringe lands.

Two-Zone Concept Policy Approach

The UTRCA Environmental Planning and Policy Manual (2006) provides policies for two-zone concept areas. Should the UTRCA Board of Directors approve the two-zone concept for the identified areas within the Mud Creek Subwatershed, these existing policies (and any future updates to these policies) will be applied to the approved area. Any proposal for site alteration or development within the identified two-zone area will require a Section 28 permit and will be subject to the policies provided below.

Section 3 – Municipal Plan Review of the UTRCA Planning and Policy Manual, contains the following policies for Floodway and Flood Fringe Areas:

3.2.3.1 Floodway Policies

1. Floodway policies apply to all land within the Regulatory Flood Plain except for specifically identified flood fringe areas and specifically identified Special Policy Areas.
2. Development and site alteration is generally prohibited within the floodway of any watercourse regardless of whether the area of inundation contains high points of land not subject to flooding.
3. Parking is considered to be a component of development. The expansion of parking in a floodway to service new development that is not located in the floodway is not permitted. Parking must be located in the same zone as the use (e.g. parking for residential use must be zoned residential).
4. For new development, vehicular and pedestrian access must dry (at or above the Regulatory Flood Elevation).
5. For existing legal non-conforming uses, the Authority will encourage improvements to parking, access and floodproofing.
6. Where a development proposal contains flood plain lands is submitted in a municipality that has a flood plain assembly scheme, the Authority shall recommend that those lands be dedicated to the Authority and/or the municipality.

3.2.3.2 Flood Fringe Policies

1. Flood fringe policies are applied in those special cases where a Two Zone Policy Approach is implemented.

2. Development and site alteration is permitted in flood fringe areas subject to satisfying the Authority's floodproofing requirements. These requirements are implemented through the Section 28 Permit process.
3. Parking for existing, infill and re-development as a minimum must be provided at the 1:100 Year Flood elevation and this elevation must be within 0.3 metres of the Regulatory Flood Elevation.
4. Parking for new development must be at the Regulatory Flood Elevation.
5. For new development, vehicular and pedestrian access must be dry (at or above the Regulatory Flood Elevation).
6. For infill development and re-development, vehicular and pedestrian access must be safe, within 0.3 metres of the Regulatory Flood Elevation or determined using the Technical Guide – River & Stream Systems: Flooding Hazard Limit (OMNR and Watershed Science Centre, 2002).

Section 4 – Section 28 Review & Approval Process of the UTRCA Planning and Policy Manual, contains the following policies for Floodway and Flood Fringe Areas:

4.2.2 Riverine Flooding Hazard Polices

1. Floodway – New development is generally not permitted within the floodway of any watercourse.
2. Flood Fringe – Development and site alteration is permitted in identified flood fringe areas, subject to satisfying floodproofing requirements through the UTRCA's Section 28 Permit Process. Specific policies are provided below.
    a. Residential – For new development, no building openings are permitted below the Regulatory Flood Elevation. Construction drawings with floodproofing considerations must be prepared by a qualified professional. If a basement is proposed, dry, passive floodproofing measures must be presented on detailed drawings prepared by a qualified professional. Sufficient surveys and inspections will be required to allow for the provision of as-built drawings upon completion of the project. Additions will be permitted (including bedrooms and associated increases in density) if access is safe or dry and floodproofing is achieved to the level of the Regulatory Flood Elevation. If floodproofing to the Regulatory Flood Elevation is not feasible, additions must be less than 25 per cent of the existing ground floor area and must not include bedrooms or require zoning by-law amendments to increase population density.
    b. Industrial/Commercial - Access must be at a minimum of the floodway elevation and within 0.3 metres of the Regulatory Flood Elevation. Dry, passive floodproofing is preferred, with no building openings below the Regulatory Flood

Summary

UTRCA staff have worked closely with the City of London staff, and their consultants to review the completed flood plain analysis and the Appendix 4 memo. Staff are satisfied that the appropriate modelling has been completed and the justification provided to apply the two-zone concept approach to the portions of the Mud Creek Subwatershed identified on the maps included in the memo. It should be noted however, that the mapping included is for information purposes only, and shows the approximate regulatory floodline limits. As indicated in subsection 4.(5) of Ontario Regulation 41/24, the description of a regulated area defined in the regulation prevails over the depiction of those areas on maps. The mapping is subject to change, is not a substitute for professional advice, and a site-specific determination may be required. As flood fringe lands are developed or redeveloped over time, the impacts of that development on flood flow conveyance and flood storage should be assessed. It is therefore recommended that, should the two-zone concept for the Mud Creek Subwatershed area be approved by the UTRCA Board of Directors, a review of the concept should be undertaken at least every 10 years.

Next Steps

The City of London has submitted a Section 28 permit application for the Mud Creek Phase 2B Channel rehabilitation project. This project extends a 45-60 metre wide natural corridor from the CN Rail to just north of Oxford Street following the concepts of a “complete corridor” to move water, wildlife and people. The project objectives are to increase flood conveyance, reduce flooding limits in Mud Creek, enhance the natural environment through restoration plans, and provide a community walking trail. As part of the channel rehabilitation work, the City intends to place fill that will be removed from the channel onto the privately-owned lands located at 450 Oxford Street. Subject to the approval of the two-zone concept, staff will proceed later this month with a hearing to evaluate a Section 28 permit to accept the fill on this property.

Recommended by:

Jenna Allain, Manager, Environmental Planning and Regulations

AECOM Canada Ltd.
250 York Street
Suite 410, Citi Plaza
London, ON N6A 6K2
Canada

T: 519.673.0510
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aecom.com

To:
Jessica Schnaithmann

CC:
Mark Shifflett (UTRCA)
Shawna Chambers (CoL)
Paul Titus (CoL)

Project name:
Mud Creek Phase 2

Project ref:
60664534

From:
Brian Richert (AECOM)
Bill Trenouth (AECOM)

Date:
April 5, 2024

Memorandum

Introduction

Background

In 2017, the Mud Creek Subwatershed Schedule B Municipal Class Environmental Assessment (Mud Creek EA) was finalized through a public review process in consultation with UTRCA and MECP (CH2M Hill, 2017). The recommended solutions from the Mud Creek EA include the following infrastructure:

- Upgrades to the CNR culvert.
- Upgrades to the Oxford Street culvert, and the Proudfoot Lane culvert.
- Enlargement, deepening and realignment of the east branch of Mud Creek from Wonderland Road South, northerly to Oxford Street West.
- A mitigation / compensation and environmental management plan to improve ecological conditions within Mud Creek. Natural channel design will be used to restore the aquatic and terrestrial habitat within the Mud Creek corridor. Implementing the preferred alternative will result in a reduced frequency of flooding and approximately 2.1 kilometers of enhanced creek corridor.
- In addition to the City-led works, there are developer-led works which include an enhanced natural corridor from Oxford Street West, northerly to the CPR tracks.

Purpose

The City is requesting that a two-zone concept be applied to identify flood fringe lands in the vicinity of Oxford Street in the Mud Creek watershed **(as shown on Figure 1)** and allow for the use of flood fringe policies when or if these lands are redeveloped during a future planning process or building review process. During the implementation of the recommended solutions from the Mud Creek EA this area was identified as Phase 2A/B.

The proposed conveyance upgrades – which includes channel restoration, realignment, corridor grading and crossing upsizing – will significantly reduce flood risks in the area. Further, a large number of the properties which stand to benefit from the works are already host to varying types of development: structures, parking, or combinations thereof. Further development is also contemplated for this area in the City's Official Plan following the completion of the conveyance upgrades recommended in the Mud Creek EA. Such redevelopment in this area would require floodproofing. It is expected that this document will assist in coordinating and clarifying appropriate approaches for redevelopment and floodproofing in the area. **Figure 1** identifies the properties situated within the proposed two-zone area

(both public and private), and **Figure 2** and **Figure 3** include identification of dry access (as applicable), as well as the locations where such access would be sited as a condition of future Development Approvals.

Two-Zone Concept Factors

The Ontario Ministry of Natural Resources Technical Guide – River and Stream Systems: Flood Hazard Limit (2002) is a guidance document which presents the hydrologic and hydraulic work needed to conduct flood plain analyses. In it, the guide *"recognizes the fact that the flood plain can often be divided into two zones: the floodway, where the majority of the flow is conveyed, and the flood fringes, which exist on both sides of the floodway."* The guide includes an appendix (Appendix 4) which describes the factors that must be considered, and the application procedures for when a two-zone concept is proposed.

The following provides an overview of the two-zone concept factors to be considered as found within Appendix 4, as they apply to the subject area.

(1) Frequency of Flooding

From the Technical Guide: *Caution should be exercised in applying the two-zone concept for chronic problem areas. While development in such areas could adequately be floodproofed, maintenance and upkeep would continuously be required to ensure floodproofing measures and local services remain effective.*

In general, the Mud Creek improvement project is expected to reduce flood frequency in the proposed flood fringe lands from an almost annual basis to less than a 100-year return period frequency. As such, with the completion of the Mud Creek improvement project, this area should no longer be the chronic problem area for flooding as it has been in the past. It is therefore, a generally suitable area to consider the application of the two-zone concept. The proposed flood fringe lands are expected to remain partially or entirely within the 250-year floodplain.

(2) Physical Characteristics of The Valley

From the Technical Guide: *Steepness of valley slopes, instability of banks and poor soil conditions in flood fringe areas can physically render the flood fringe unsuitable for development. Adopting the two-zone concept would show more promise for areas with a flat overbank and shallow flow. Topography varies, so evaluation is necessary on a local basis in determining suitability.*

The existing Mud Creek corridor is very flat, and steep slopes are beyond the limits of grading of the site. The majority of properties within the proposed flood fringe lands are situated in a flat overbank area that would be impacted by shallow, low velocity flooding.

(3) Local Need

From the Technical Guide: *Suitability of flood fringe areas for development can be influenced by municipal planning considerations including availability of developable land elsewhere in the municipality. In urban area where land values are high and pressure development is usually the greatest, the concept shows promise. Lot sizes are usually larger in rural areas, and it is generally possible to locate development outside the flood plain. Therefore, proposed application of the two-zone concept in rural/agricultural areas will require detailed rationale/justification.*

The City of London wishes to achieve several objectives by implementing the two-zone concept for the floodplain:

- Maximize Land Use to highest and best use within the Mud Creek corridor to support:
    - New and infill development and intensification along one of the major transportation corridors within the City of London.

    - Optimize residential unit yields in the context of the infrastructure investments to date funded by the City of London and the Development Charges.
- Promote cost-effective and responsible soils management for the City's Mud Creek project in accordance with the Ministry of Environment, Conservation and Parks (MECP) Excess Soils Regulation (i.e., Ontario Regulation 406/19).
    - The re-use of 15,795 m^3 of environmentally suitable soil on these lands prevents the off-site disposal of excess soil generated from the Project Area, which is consistent with the objectives of O.Reg. 406/19.
- Assist with meeting London's Housing commitment to construct 47,000 units by creating a larger developable land block.
- Prevent further expansion of the Urban Growth Boundary by supporting infill and intensification within the existing Built Area.
- Enable lands to be developed as identified in the Mud Creek EA and as shown on Map 1 of the City of London's Official Plan that was developed in consultation with UTRCA during the Official Plan Appeal process during the Official Plan Appeal process.
- Update the Natural Hazards Map 6 of the Official Plan to reflect an updated floodplain following completion of the channel reconstruction works to allow for development to occur per Map 1 Placetypes and Map 5 Natural Heritage in the Official Plan.

The province of Ontario has given the City of London a target to construct 47,000 new homes in 10 years. To mitigate greenfield and urban sprawl development, the City is in the process of establishing a 40-60% infill and intensification target. Housing constructed within the Mud Creek subwatershed supports infill and intensification efforts. More infill development indirectly supports environmental and land conservation efforts by preventing urban sprawl outside of the Urban Growth Boundary, into prime agricultural lands that are often bordered by lands with Natural Heritage significance. In addition, the Official Plan specifically contemplates this area developing for urban uses upon the completion of the Mud Creek channel and stormwater works.

(4) Impacts of Proposed Development

From the Technical Guide: *Encroachment within the flood fringe area usually results in an increase in flood levels. The extent of potential increases will be dependent on a number of factors in watershed characteristics and the degree to which the two-zone concept is to be applied. As a result, it may be necessary to recalculate for the flood standard the flood levels for floodproofing purposes and identify and assess the upstream and downstream impacts where the two-zone concept is being considered. This is particularly true where the two-zone concept is to be applied over extensive areas.*

(a) Flood Levels at the Site and Upstream

> *Filling and construction within the flood fringe area reduces the cross-sectional area of the waterway, so the corresponding flood level increases at the site and immediately upstream. This increase in the flood level can be estimated with reasonable accuracy and normally does not require major engineering studies.*

The subject area is impacted by flooding from Mud Creek itself, as well as, from the downstream Thames River confluence. A modelling exercise was undertaken to investigate potential impacts on flooding at the site and upstream from filling (floodproofing) in the potential flood fringe lands. The basic hydraulic model utilized was developed as part of the Mud Creek Phase 2 Detailed Design Hydrology and Hydraulics Report (AECOM, 2023), and reflects completion of the proposed Phase 2 project (public property works only) expected to be constructed in 2024. Potential impacts on flooding at the site and upstream were investigated by assuming the entire proposed flood fringe lands were filled above the 250-year flood level in the hydraulic model.

Model results indicate that the 250-year water surface elevation increases by up to 0.10 m above the water surface elevation of the model results without the fill, and is limited to the properties in the immediate vicinity of Oxford Street. The increased flood elevations result in flood depths over Oxford

Street being increased by 0.06 m, during the 250-year flood event. The increased flood elevations would not impact any additional buildings or structures; flood extents would not significantly increase.

Both Oxford Street and Proudfoot Lane experience overtopping in both the base case (Phase 2 improvements implemented, but with no additional fill placed on the adjacent private properties) and in the proposed conditions (with fill included). For both transportation routes, the impacts to pedestrian and vehicle safety were evaluated by examining flood depths and velocities for both cases. The evaluation found that there would be an increased risk to vehicles and pedestrians for both Oxford Street and Proudfoot Lane. The depth of flooding over the road under existing, base, and proposed conditions poses a hazard to vehicle and pedestrian traffic and would render the street impassable during the flood conditions.

Road works and other improvements associated with future City projects along Oxford Street will be confined within the existing right-of-way. Future city projects will also maintain the existing profile of Oxford Street and will not require additional fill placement within the floodplain.

(b) Flood Levels Downstream

> *General encroachment within the flood fringe area reduces the storage capacity of the flood plain and results in an increase in flood flows and the flood levels along the downstream reaches of the river. If undertaken during the initial flood plain mapping process, the revised levels can be computed without major additional expense. Where flood plain mapping was undertaken several years earlier and the data base utilized in preparing the maps is not readily available, the calculation of the revised flood levels may require major engineering studies at substantial cost.*

Downstream of the proposed two-zone concept area along Mud Creek is impacted primarily as a result of backwater from the Thames River. Several existing buildings (primarily single-family homes) and two major transportation corridors (Wonderland Road and Riverside Drive) are located within the flood hazard downstream of the subject area. The existing infrastructure is primarily at risk of flooding from the Thames River, as it is substantially outside the existing impacts from Mud Creek 250-year flood flows.

Due to the relative magnitude of proposed filling compared to the size of the Thames River watershed, the reduction in storage capacity in the floodplain caused by filling of the proposed flood fringe lands is negligible with respect to flooding impacts from the Thames River.

With respect to flooding from Mud Creek 250-year flood flows, the Mud Creek improvement project provides a net overall increase in flood storage; however, it is insufficient to provide a complete flood storage balance with the proposed filling of flood fringe lands. It should be noted that the Mud Creek improvement project will significantly improve conveyance of flood flows through the improved Mud Creek channel to the Thames River. The improved conveyance results in reduced flood storage for more frequent flood events (less than 100-year return period). Over 90% of the fill estimated to completely floodproof the proposed flood fringe lands will be located above the 100-year return period flood level (Mud Creek 250-year return period flows). The increased flood storage from the Mud Creek channel improvements (above 100-year return period levels) balances approximately 70% of the proposed loss of flood storage due to filling of the flood fringe lands (above 100-year return period levels).

Model results confirm that filling of the proposed flood fringe lands will not significantly increase downstream flood impacts.

(5) Feasibility of Floodproofing

From the Technical Guide: *One of the major factors in determining if a flood fringe area is suitable for development is the feasibility and cost of floodproofing.*

The primary method of floodproofing future development (re-development) in the proposed flood fringe is anticipated to be through filling to raise the development above the 250-year flood level. Such method

of floodproofing generally does not require any specific maintenance or upkeep to ensure floodproofing measures remain effective.

As part of the Mud Creek improvement project (Phase 2B), the City is proposing to relocate excess soils from public land to the adjacent potential flood fringe lands on private properties (412, 418, and 450 Oxford Street). The public lands at 630 Proudfoot Lane are a part of the existing Mud Creek Channel and fill placement in this location will occur as part of the Phase 2 works. Given that the City of London's channel project is anticipated to generate excess soils, the beneficial re-use of excess soil on the subject lands will ultimately reduce soil management costs. The landowner has agreed, in principle, to accept excess soils from the City's project, subject to confirmation from a Qualified Person (QP) regarding the overall quality of the soil being generated though this work.

Local re-use and proper management of excess soil are the primary tenets of O.Reg. 406/19, and this has many benefits including significantly reducing greenhouse gas emissions from transporting soil, reducing illegal dumping and inappropriate relocation, and decreasing the amount of reusable soil going to landfill. Re-using this volume of the private property would result in avoiding the transportation of approximately 1,040 truckloads of excess soil off-site. The local re-use of suitable excess soils generated from City of London's channel project provides significant benefits, both from a financial and environmental perspective. Ultimately, it is perhaps one of the most cost-effective forms of flood proofing which can be utilized.

(6) Constraints to The Provision of Services

From the Technical Guide: *Flood fringe areas are low-lying, and it is often difficult and expensive to provide necessary services (watermains, sewers, drainage works, etc.) to serve the developments. Drainage systems should provide protection against the flood standard, and it may be difficult to provide outlets above the level of flood standard. In these situations, it may be necessary to provide pumping facilities which would result in some additional expense in new developments.*

The subject lands are currently fully serviced through water, sanitary sewer, gas, hydro and telecommunication infrastructure running on Oxford Street. Existing stub connections are provided to the subject lands, and no major servicing upgrades are anticipated. Site stormwater controls will be designed and constructed by the respective development proponents and accepted by the City through the existing Site Plan Approval process.

(7) Ingress/Egress

From the Technical Guide: *Major accessways to development potentially located in the flood fringe must be examined. It is not acceptable to have development isolated during the flood conditions because roads and escape routes are not passable.*

Oxford Road and Proudfoot Lane are the two major existing access ways in the two-zone concept area. **Figure 2** highlights the portions of each accessway that are not dry, based upon evaluation of flood depth and velocities. **Figure 2** also highlights the corresponding adjacent properties that have dry access or not. The following describes the expected access strategy for each property (or group of properties) within the proposed flood fringe lands (will be addressed through Planning Act Process and Section 28 Permitting Process – noting that some lands may be rezoned and require site plans).

- 450 Oxford Street will have a dry access lane into the property constructed to connect to the southern part of Proudfoot Lane beyond the 250-year flood extents;
- 630 Proudfoot Lane, 412 Oxford Street and 418 Oxford Street will form a part of a larger development block with 450 Oxford Street and will share the proposed dry access lane;
- 415 Oxford Street will have dry access through a future internal subdivision street per subdivision draft plan conditions (39T-21505) and the development agreement for this parcel;
- 700 Proudfoot Lane has access to Proudfoot Lane north of the 250-year flood extents, and 720 Proudfoot Lane maintains a shared access through 700 Proudfoot Lane;

- 500 Oxford Street has access to Oxford Street west of the 250-year flood extents;
- 491 Oxford Street West does not have dry access to Oxford Street or Proudfoot Lane beyond the 250-year flood extents, and does not have an established shared access agreement with any adjacent properties. Under current conditions, dry ingress and egress from this property cannot be provided, but safe access may be possible at the northern edge of the flood extents; additional assessment of the location will be required to confirm; and,
- 453 Oxford Street has no dry access but is zoned OS4 and is to remain open space.

(8) Changes in Land Use

From the Technical Guide: *Land use is a key factor considered in flood plain studies and the calculation of flood lines. Proposed development, not anticipated in these calculations, could create increased flood risks and thus reduce the effectiveness of flood plain management programs.*

It is therefore imperative that municipalities discuss proposed changes in land use with the local Conservation Authority or Ministry of Natural Resources, where one does not exist.

The majority of the land within the proposed two-zone concept area is already developed. Future development within the Mud Creek subwatershed was accounted for during the Mud Creek EA and subsequent modelling completed during the Phase 1A/B projects. The modelling was further updated during the Phase 2A/B projects.

(9) Administrative Capability

From the Technical Guide: *The feasibility of the two-zone concept requires the examination of a number of factors and implementation requires assurance that various conditions are complied with. Therefore, staff availability and expertise must also be considered.*

As well, certain planning tools (e.g. zoning, site plan control, subdivision control) are required to effectively implement the necessary land use controls. Where such tools are not available, e.g. areas without municipal organization, application of the two-zone concept is not a viable option unless supported by detailed methods of implementation.

It is not mandatory that a municipal official plan contain floodway - flood fringe policies prior to utilizing the two-zone concept. It is certainly intended that the municipal documents ultimately outline the basis for utilizing the two-zone concept and the areas of the municipality where it would apply. However, some municipalities in conjunction with the Conservation Authority 2002 appendix 19 Technical Guide - River and Stream Systems: Flooding Hazard Limit Ontario Ministry of Natural Resources (Fill, Construction and Alteration to Waterways Regulation) or the Ministry of Natural Resources, may have already been utilizing the two-zone concept. In this regard, it is not the intent of the Provincial Flood Plain Policy that the water management options be applied retroactively to municipal planning documents.

During the preparation of an official plan update or a major official plan amendment affecting flood plain areas, the municipality in conjunction with the Conservation Authority or Ministry of Natural Resources, should include policies addressing:

- *existing areas of the municipality utilizing the two-zone concept and/or;*
- *a framework for analyzing potential areas of two-zone application, including both land use considerations and technical flood plain information and*
- *The inter-relationship between the official plan, zoning by-law and the Conservation Authority's Fill, Construction and Alteration to Water-ways Regulation.*

The Regional Engineer of the Ministry of Natural Resources shall be involved in decision making regarding potential application of a two-zone concept.

The City of London in collaboration with the Upper Thames Conservation Authority (UTRCA) has the administrative capacity to oversee and manage development within the Mud Creek corridor and proposed two-zone area, in conjunction with the recommended EA solution and other applicable

legislation and policies including the PPS, and the UTRCA's Policy Manual. The City is actively working with all approval agencies, developers, and other interested parties to facilitate responsible development in accordance with The London Plan (Official Plan) to realize a vision of increased urban density, the creation of community nodes, and infill/redevelopment of existing land assets.

The City and UTRCA are in agreement that sufficient administrative capacity and expertise exist within the organizations such that involvement by MNR is unnecessary at this time.

Summary

In order to facilitate development of properties along Oxford Street in the Mud Creek watershed, flood proofing measures are required to raise the area above the level of the 250-year floodplain. A two-zone concept area is recommended to identify flood fringe lands in the vicinity of Oxford Street within the Mud Creek watershed and allow for the use of flood fringe policies when or if these lands are redeveloped.

Seven (7) of the nice (9) concept factors that must be considered are fully supportive of the two-zone concept. This memo and the associated technical attachment show:

- The Mud Creek improvement project is expected to reduce the flood frequency in the proposed flood fringe lands and as such, this area should no longer be the chronic problem area for flooding it has been in the past;
- There is a local need to maximize land use within the Mud Creek corridor to support development and intensification along a major transportation corridor within the City of London, optimize infrastructure investments, and meet London's housing commitment;
- Impacts associated with fill placed on developing properties are minor and pose no significant increased risk of damages to existing development or risk to the public;
- Filling to raise the development above the 250-year flood level does not require any maintenance or upkeep to ensure the implemented measure remains effective and provides financial and environmental benefits associated with the transportation of excess soils off-site; and,
- Strategy is outlined to provide dry / safe access, under 250-year flood conditions, for the properties that front Oxford Street and Proudfoot Lane.

As such, impacts under proposed development and ingress/egress are deemed to be manageable.

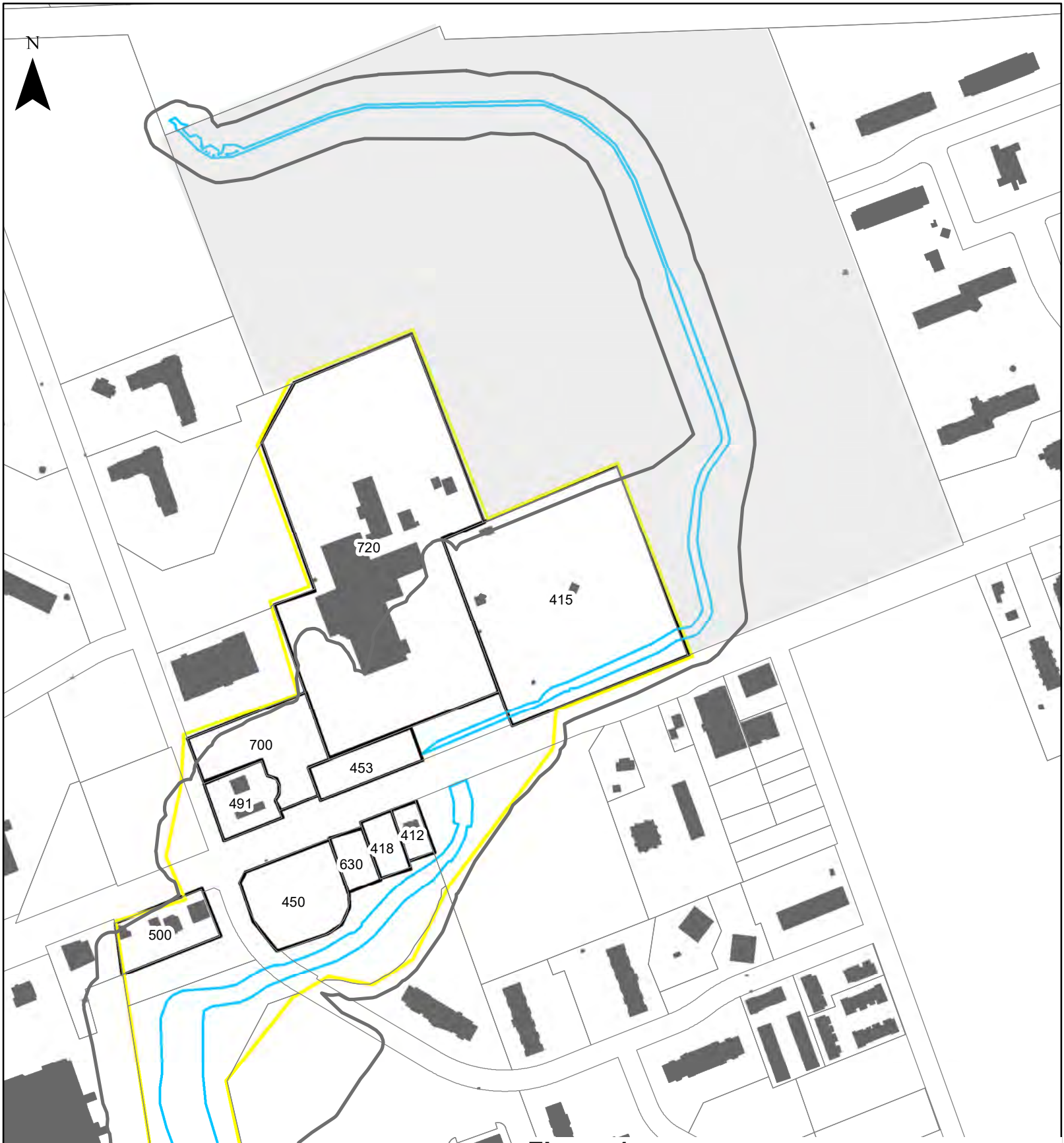


Figure 1
Two-Zone Concept Area

Future Flood Hazard (After Mud Creek Reconstruction)

Not included in two-zone assessment

Watercourse

Properties within Proposed Two-Zone Concept Limit

Study Area Limit

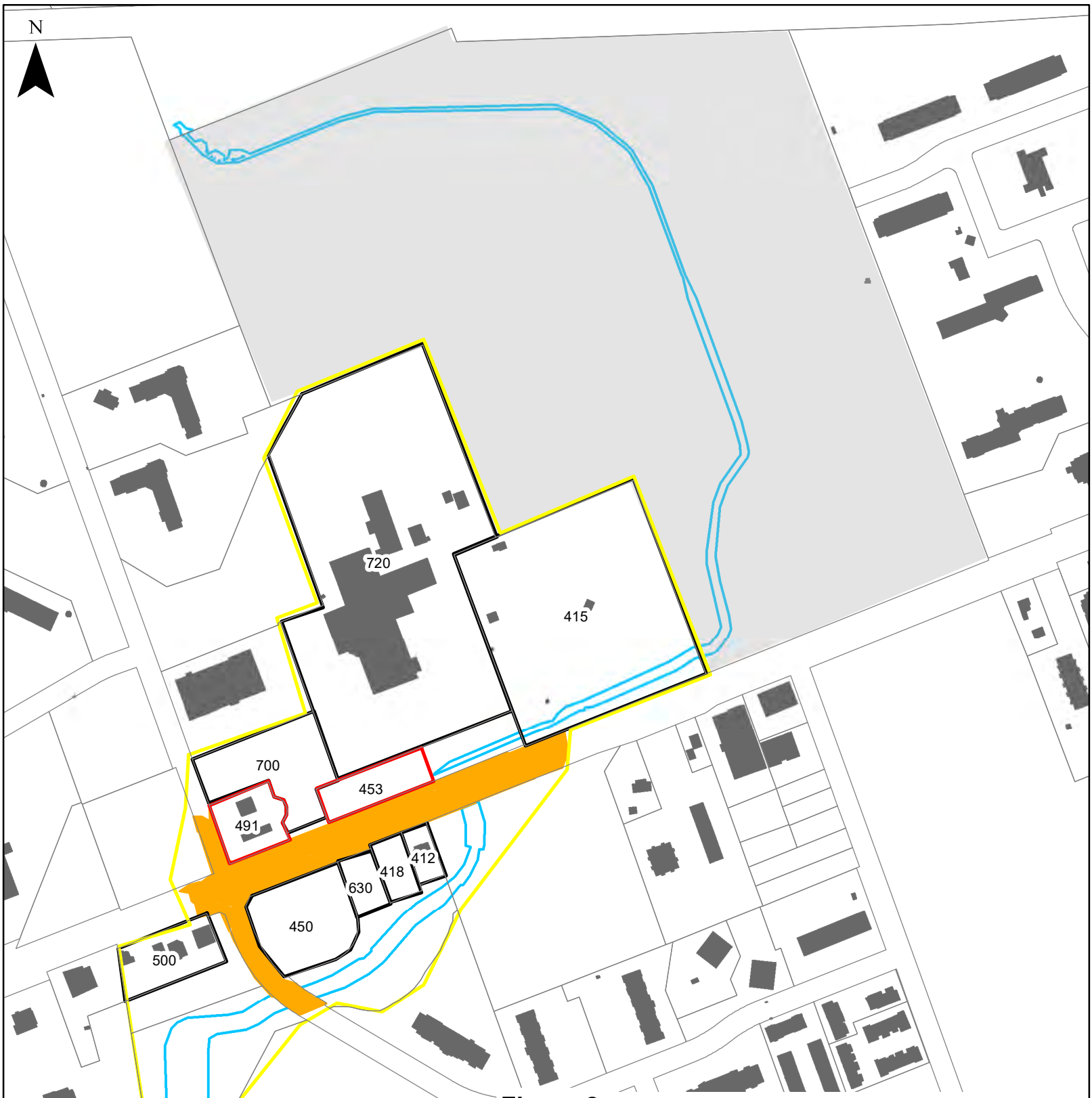


Figure 2
Existing and Proposed Dry Access Locations

Road Flood Conditions

- Flooded Road
- Not included in two-zone assessment
- Watercourse
- Properties within Proposed Two-Zone Concept Limit
- Study Area Limit
- No Dry Access

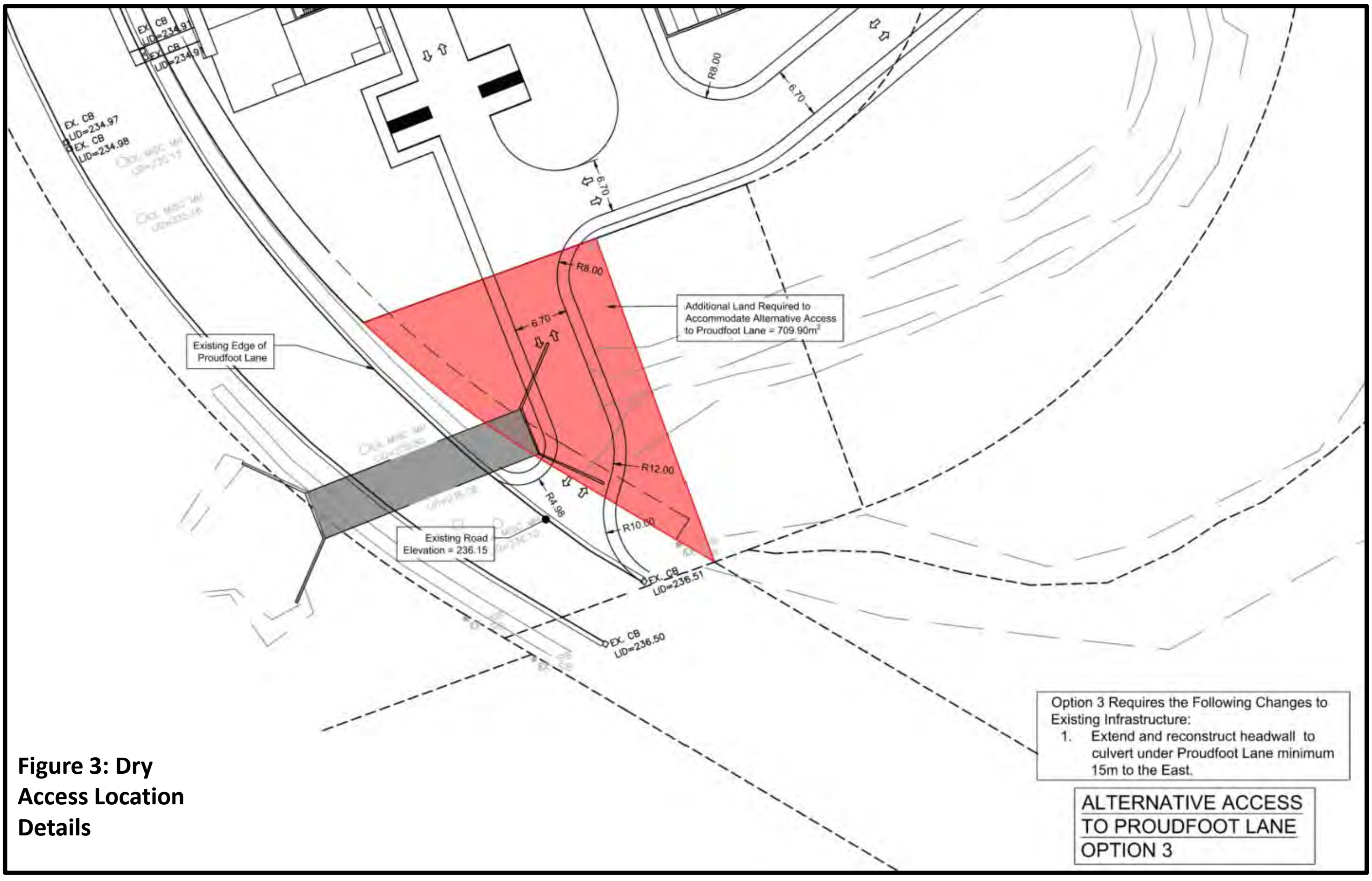


Figure 3: Dry Access Location Details

*Dry Access from 450, 630, 418, and 412 provided through proposed future access lane

UPPER THAMES RIVER
CONSERVATION AUTHORITY

Application For Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Upper Thames River Conservation Authority
1424 Clarke Road London, Ontario N5V 5B9
Tel. (519) 451-2800 Fax (519) 451-1188

Conservation Authorities Act - Ontario Regulation 157/06, under O.reg. 97/04

Application # _____

Name of Landowner: BLUESTONE PROPERTIES INC. Tel. Home: 226-688-8448
Address: 105-130 DUFFERIN AVE, LONDON ON Postal Code: N6A 5R2 Tel. Business: 519-433-0391
Location of Project: 450 OXFORD STREET WEST
Street and Number, or Lot(s) and Concession Number/ 911 Address Municipality

DESCRIPTION OF PROJECT

General description of project:
RECEIVING OF QUALITY FILL FROM CITY OF LONDON PROJECT - MUD CREEK RESTORATION PROJECT
SEE DOCUMENTS PROVIDED BY LDS CONSULTANTS INC. FOR ADDITIONAL DETAILS
CURRENT EFFORT IS RELATED TO CITY'S PROJECT ONLY - RECEIVING AND SPREADING OF FILL MATERIAL ONLY

All applications must be accompanied by a detailed site plan, providing information on the following:

1. general location of property in relation to roads
2. location and dimensions of all existing structures on the property
3. location of any watercourse, wetland or steep slope on or near the subject property
4. intended location of all proposed work, including construction, filling/grading/excavation, wetland interference or watercourse alteration
5. location of septic system, if applicable and other property utilities, wells, etc.
6. cross-section of proposed work, showing existing and final grades and structure openings

Works including floodproofing of structures must be accompanied by detailed drawings, prepared by qualified professional engineers, with proper dates and stamps appearing on all plans. If filling is proposed, details on the type, area and volume of fill must be provided to the UTRCA, with existing and proposed grades clearly presented on plans.

UNLESS OTHERWISE REQUESTED, THE CONSERVATION AUTHORITY ONLY REQUIRES ONE COPY OF ALL PROJECT DRAWINGS.
MULTI-PAGED ENGINEERING DRAWINGS MUST BE FOLDED OR REPRODUCED ON 11 x 17" SHEETS.

Dates of Commencement and Completion of Project: JUNE 2024 to NOVEMBER 2024
If other approvals required for this project please indicate

- ☐ Federal - Fisheries Act
- ☐ Province - MNR Work Permit
- ☐ Municipal - Building Permit
- ☐ Other
- ☐ Permit to Take Water
- ☐ Zoning ☐ Severance ☐ OPA ☐

Name of Applicant if different than Landowner: BLUESTONE PROPERTIES INC. c/o MARDI TURGEON
Mailing Address if different than above: 105-130 DUFFERIN AVENUE, LONDON ON
Postal Code: N6A 5R2 [redacted] Phone Number: 226-688-8448 Email Address: mturgeon@bluestoneprop.com

Applicant's Signature: [redacted]
Application Date Month: _____ Day: _____ Year: _____
Agent for Applicant (if different from above): REBECCA WALKER P.ENG - LDS CONSULTANTS INC.
Mailing Address: 2323 TRAFALGAR ST, LONDON ON
Postal Code: NN5V 4K4 Phone Number: 519-200-3742 Email Address: rebecca.walker@ldsconsultants.ca

For UTRCA Completion Only

Application fee:_____ Date received:_____ Received by:_____

Regulatory floodline elevation:_____ Typical ground elevation:_____

Other pertinent comments_____

Project-specific requirements (refer to page 2 for general conditions) _____

_____

_____

Approved by:_____ Date approved:_____

Site inspection: Date:_____ By:_____

TERMS AND CONDITIONS

The Owner and Applicant, by acceptance of and in consideration of the issuance of this permit, agree to the following terms and conditions:

1. Permission granted by the Upper Thames River Conservation Authority cannot be transferred without prior written approval from the Upper Thames River Conservation Authority.

2. Approvals may be required from other agencies prior to undertaking the work proposed. The Upper Thames River Conservation Authority does not exempt the Applicant from complying with any or all other approvals, laws, statutes, or regulations.

3. The Upper Thames River Conservation Authority may at any time withdraw any permission given if, in the opinion of the Conservation Authority, the representations contained in the application for permission are not carried out or the conditions/requirements of the permit are not complied with.

4. Authorized representatives of the Upper Thames River Conservation Authority may at any time enter onto the lands that are described herein, in order to make any surveys, examinations, investigations or inspections that are required for the purpose of insuring that the work(s) authorized by this permit are being carried out according to the terms of this permit.

5. The Owner and Applicant agree:

- To indemnify and save harmless the Upper Thames River Conservation Authority and its officers, employees, or agents from and against all dam age, loss, costs, claims, demands, actions and proceedings, arising out of or resulting from any act or omission of the Owner and/or Applicant or any of his agents, employees or contractors relating to any of the particulars, terms or conditions of this permit;

- That this permit shall not release the Applicant from any legal liability or obligation and remains in force subject to all limitations, requirements and liabilities imposed by law;

- That all complaints arising from the execution of the works authorized under this permit shall be reported immediately by the Applicant to the Up per Thames River Conservation Authority. The Applicant shall indicate any action that has been taken, or is planned to be taken, with regard to each complaint.

6. The project shall be carried out in full accordance with the plans submitted in support of the application.

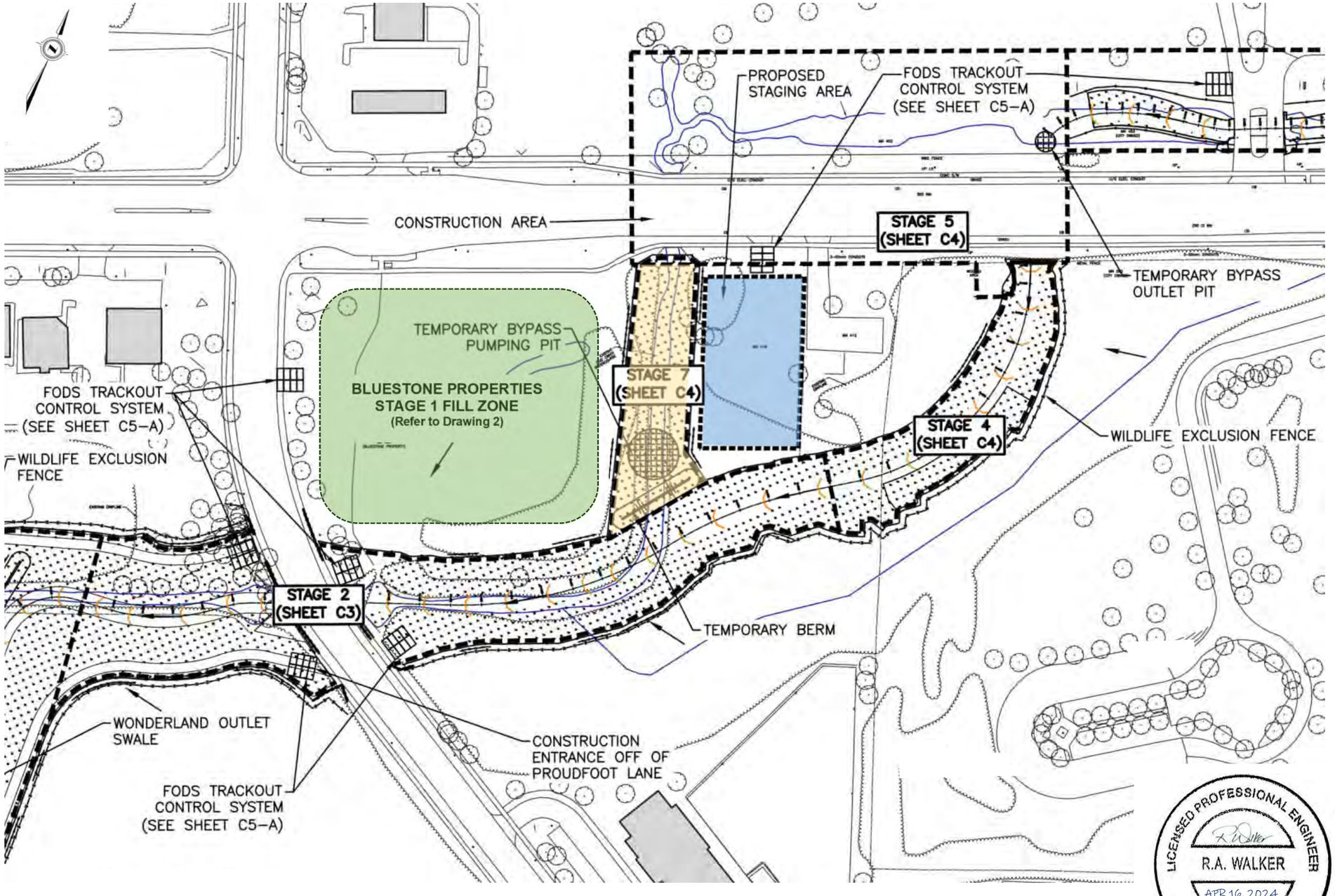
7. The Applicant agrees to install and maintain all sedimentation controls until all disturbed areas have been stabilized.

8. All disturbed areas shall be seeded, sodded, or stabilized in some other manner acceptable to the Conservation Authority as soon as possible, and prior to the expiry of this permit.

9. The Applicant agrees to maintain all existing drainage patterns, and not to obstruct external drainage from other adjacent private lands.

NOTE: The information on this form is being collected for the purpose of administering a regulation made pursuant to Section 28, Conservation Authorities Act, R.S.O. 1990, Chapter 27. This application and supporting documents and any other documentation received relating to this application, may be released, in whole or in part, to other persons in accordance with the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990c. M.56, as amended

Attachment #4b



NOTES:

1. RESTORATION OF STAGE 7 AREA (DENOTED WITH YELLOW OVERLAY) IS THE RESPONSIBILITY OF THE CITY OF LONDON AND THEIR CONTRACTOR AS PART OF THE CREEK REALIGNMENT
2. WHEN STAGING AREA (DENOTED WITH BLUE OVERLAY) IS NO LONGER REQUIRED, AND/OR WHEN STAGE 7 SITE RESTORATION WORK IS COMPLETE, THESE AREAS MAT BE USED FOR SOIL STOCKPILING IN FUTURE STAGES OF CONSTRUCTION. AN UPDATED ESC PLAN WILL BE PREPARED TO UTRCA FOR THEIR RECORDS, PRIOR TO FILL PLACEMENT
3. REFER TO ESC PLAN FOR BLUESTONE FILL AREA (STAGE 1 – 450 OXFORD ST W), DENOTED WITH GREEN OVERLAY, ON DWG 2.
4. REFER TO ESC NOTES AND DETAILS ON DWG 4.

SOURCE:
BASE DRAWING IS AN EXCERPT TAKEN FROM CITY OF LONDON MUD CREEK AREA PLAN, 2023

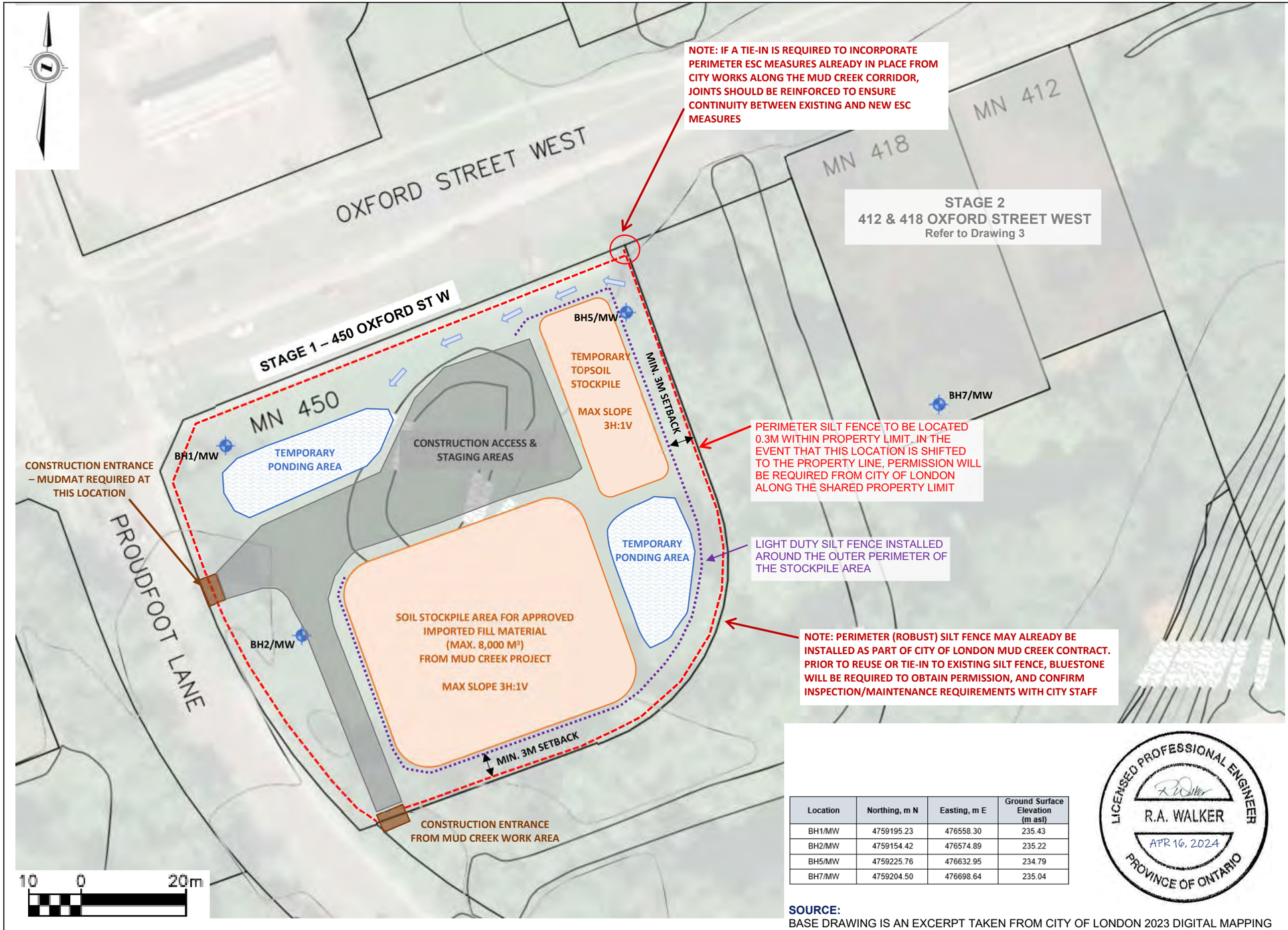
LICENSED PROFESSIONAL ENGINEER
R.A. WALKER
APR 16, 2024
PROVINCE OF ONTARIO

PROJECT NAME
SOIL STOCKPILING AND STAGING
IMPORTED FILL INTENDED
FOR ONSITE REUSE

PROJECT LOCATION
412, 418 & 450OXFORD STREET
LONDON, ONTARIO

DRAWING NAME
CITY OF LONDON MUD CREEK AREA PLAN

SCALE	PROJECT NO.
NTS	GE-00453
DATE	**DRAWING NO.**
APRIL 16, 2024	1



Location	Northing, m N	Easting, m E	Ground Surface Elevation (m asl)
BH1/MW	4759195.23	476558.30	235.43
BH2/MW	4759154.42	476574.89	235.22
BH5/MW	4759225.76	476632.95	234.79
BH7/MW	4759204.50	476698.64	235.04

SOURCE:
BASE DRAWING IS AN EXCERPT TAKEN FROM CITY OF LONDON 2023 DIGITAL MAPPING

NOTES:

1. REFER TO ADDITIONAL ESC NOTES AND DETAILS ON DRAWINGS 4 AND 5.
2. MONITORING WELLS LOCATED IN THE STOCKPILING AREA (LDS GEOTECHNICAL INVESTIGATION – DRAFT ISSUED MAR 2021) WILL BE DECOMMISSIONED IN ACCORDANCE WITH O.REG. 903.
3. GRADES WITHIN THE SITE SHALL BE SET TO PROMOTE OVERLAND FLOWS TO TEMPORARY PONDING AREAS.
4. WHEN CITY OF LONDON MUD CREEK PROJECT ACTIVITIES ARE COMPLETED IN THE STAGE 2 AREA (412-418 OXFORD ST W) WORK TO PREPARE THE SITE TO ACCEPT FILL PLACEMENT MAY PROCEED.

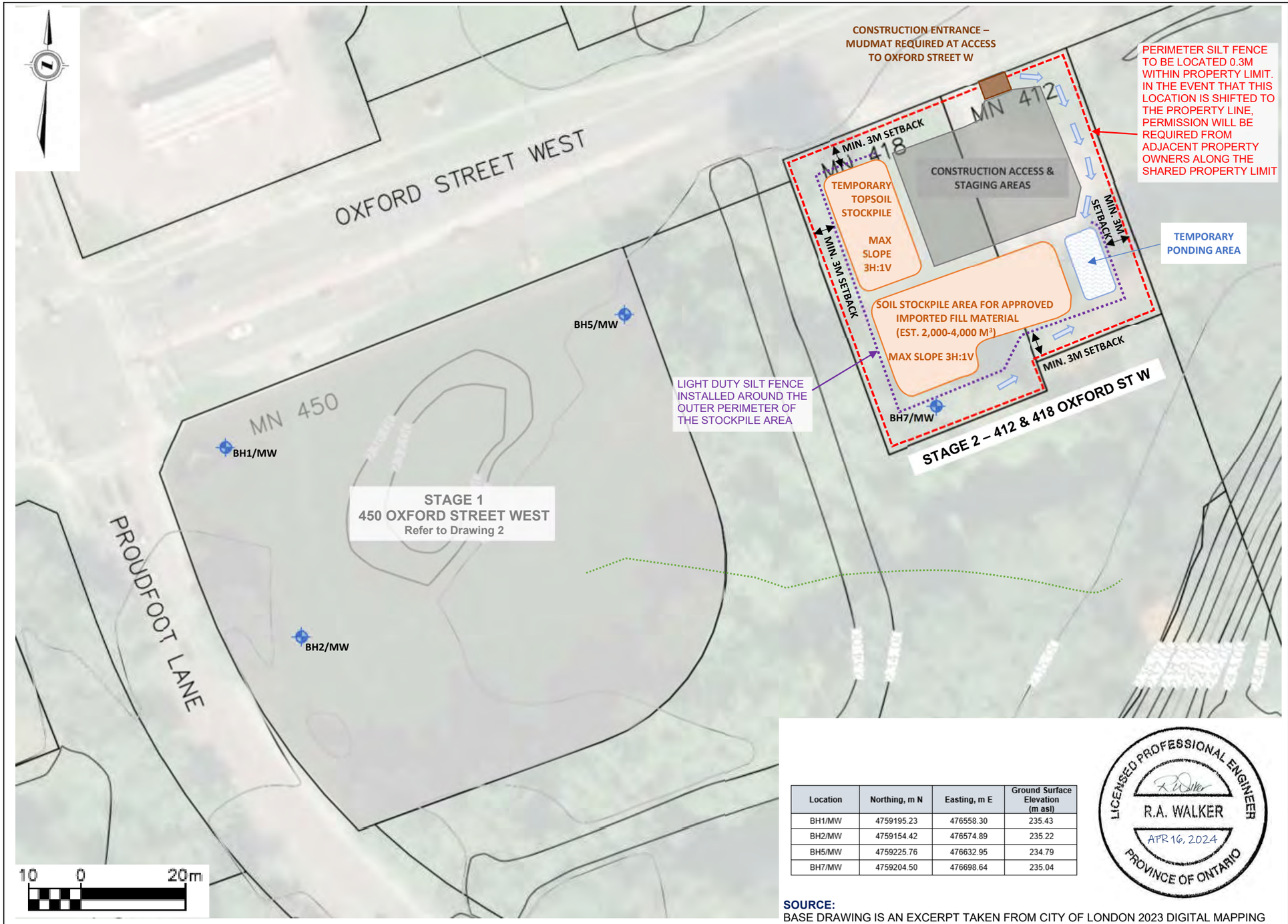
LICENSED PROFESSIONAL ENGINEER
R.A. WALKER
APR 16, 2024
PROVINCE OF ONTARIO

PROJECT NAME
SOIL STOCKPILING AND STAGING
IMPORTED FILL INTENDED
FOR ONSITE REUSE

PROJECT LOCATION
412, 418 & 450 OXFORD STREET
LONDON, ONTARIO

DRAWING NAME
EROSION AND SEDIMENT CONTROL
SITE PLAN – STAGE 1

SCALE	PROJECT NO.
AS SHOWN	GE-00453
DATE	**DRAWING NO.**
APRIL 16, 2024	2



Location	Northing, m N	Easting, m E	Ground Surface Elevation (m asl)
BH1/MW	4759195.23	476558.30	235.43
BH2/MW	4759154.42	476574.89	235.22
BH5/MW	4759225.76	476632.95	234.79
BH7/MW	4759204.50	476698.64	235.04

SOURCE:
BASE DRAWING IS AN EXCERPT TAKEN FROM CITY OF LONDON 2023 DIGITAL MAPPING

LICENSED PROFESSIONAL ENGINEER
R.A. WALKER
APR 16, 2024
PROVINCE OF ONTARIO

NOTES:

1. WHEN CITY OF LONDON MUD CREEK PROJECT ACTIVITIES ARE COMPLETED THROUGH THIS AREA (STAGE 2) , ESC MEASURES WILL BE INSTALLED AT THE SITE TO PREPARE THE AREA TO RECEIVE IMPORTED FILL SOILS.
2. GRADES WITHIN THE SITE SHALL BE SET TO PROMOTE OVERLAND FLOWS TO TEMPORARY PONDING AREAS.
3. REFER TO ADDITIONAL ESC NOTES AND DETAILS ON DRAWINGS 4 AND 5.
4. MONITORING WELLS LOCATED IN THE STOCKPILING AREA (LDS GEOTECHNICAL INVESTIGATION – DRAFT ISSUED MAR 2021) WILL BE DECOMMISSIONED IN ACCORDANCE WITH O.REG. 903.

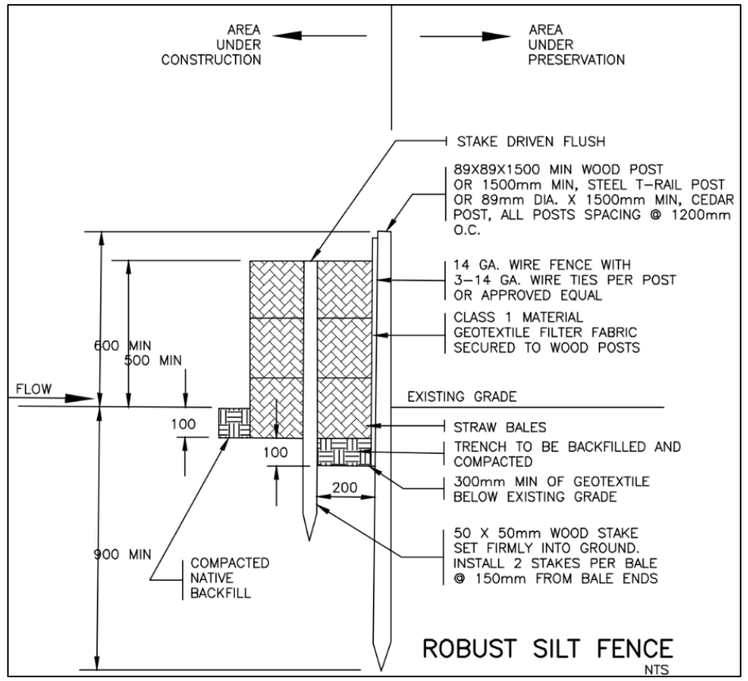
PROJECT NAME
SOIL STOCKPILING AND STAGING
IMPORTED FILL INTENDED
FOR ONSITE REUSE

PROJECT LOCATION
412, 418 & 450 OXFORD STREET WEST
LONDON, ONTARIO

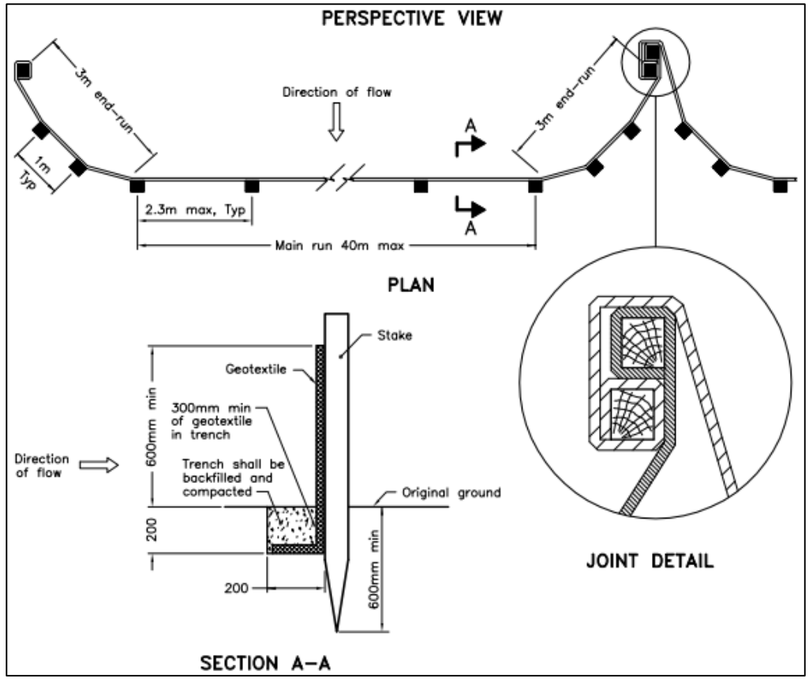
DRAWING NAME
EROSION AND SEDIMENT CONTROL
SITE PLAN – STAGE 2

SCALE	PROJECT NO.
AS SHOWN	GE-00453
DATE	**DRAWING NO.**
APRIL 16, 2024	3

DETAIL 1 – ROBUST SILT FENCE

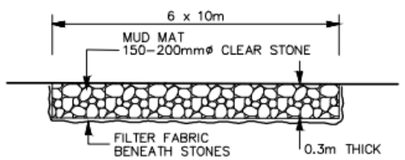


DETAIL 2– LIGHT DUTY SILT FENCE (AS PER OPSD 219.110)



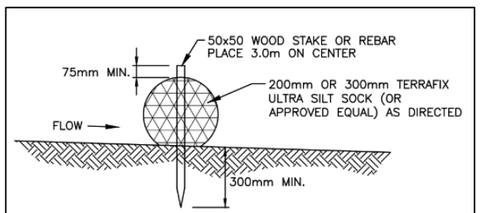
DESIGNATED ACCESS FOR ALL CONSTRUCTION TRAFFIC.

INSTALL 'MUD MAT', AS PER DETAIL BELOW, PRIOR TO ANY OTHER CONSTRUCTION. MAT TO BE MAINTAINED IN GOOD WORKING ORDER UNTIL GRADING WORKS ARE COMPLETED AND GRANULAR "A" & "B" HAVE BEEN PLACED.



DETAIL 3 – MUDMAT DETAIL

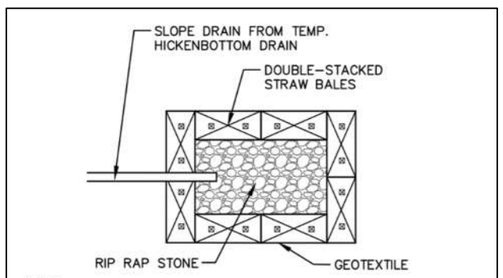
N.T.S.



NOTE:
REMOVE SEDIMENT FROM UPSLOPE SIDE OF THE SILT SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE SOCK.

DETAIL 4 – SILT SOCK DETAIL

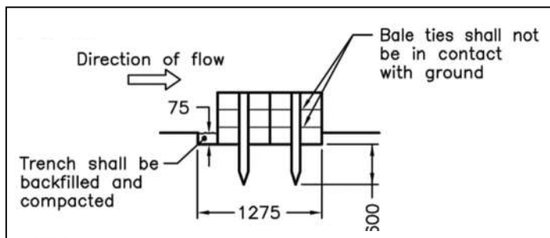
N.T.S.



NOTE:
REFER TO CONSTRUCTION NOTES.

DETAIL 5 – DISCHARGE BASIN

N.T.S.



NOTES:
STRAW BALES SHALL BE BUTTED TIGHTLY AGAINST ADJOINING BALES AND SHOED TO CONFORM TO THE EXPOSED SUBGRADE TO PREVENT WATER FLOW FROM UNDERMINING THE BASE

DETAIL 6 – STRAW BALES

	PROJECT NAME	PROJECT LOCATION	DRAWING NAME	SCALE	PROJECT NO.
LDS	SOIL STOCKPILING AND STAGING IMPORTED FILL INTENDED FOR ONSITE REUSE	412, 418 & 450 OXFORD STREET WEST LONDON, ONTARIO	EROSION AND SEDIMENT CONTROL DETAILS	NTS	GE-00453
				DATE	DRAWING NO.
				APRIL 16, 2024	4

ESC NOTES AND DETAILS

1. PRIOR TO SITE WORK BEING COMPLETED, THE CONTRACTOR MUST INSTALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AROUND THE PERIMETER OF THE WORK AREA. THIS IS EXPECTED TO INCLUDE THE ROBUST PERIMETER SILT FENCE AROUND THE PERIMETER OF THE SITE, AND THE LIGHT DUTY SILT FENCE AROUND THE PERIMETER OF THE STOCKPILING AREAS. A 3 M BUFFER BETWEEN THE ROBUST SILT FENCE AND LIGHT DUTY SILT FENCE IS REQUIRED FOR INSPECTION AND MAINTENANCE. INSTALLATION SHOULD FOLLOW THE MANUFACTURER'S INSTRUCTIONS & STANDARD INDUSTRY PRACTICE. REFER TO DETAILS PROVIDED.
2. SITE GRADES OUTSIDE OF THE WORK AREA ARE EXPECTED TO REMAIN. NO SIGNIFICANT CUT/FILL ACTIVITIES ARE PLANNED OUTSIDE OF THE PROJECT AREA.
3. TOPSOIL STRIPPED FROM THE WORK AREA MAY BE STOCKPILED ONSITE WITHIN THE DESIGNATED AREAS, AND/OR TAKEN OFFSITE FOR DISPOSAL/BENEFICIAL REUSE, IN ACCORDANCE WITH O.REG. 406/19 REQUIREMENTS FOR EXCESS SOIL.
4. THE HEIGHT OF THE SOIL STOCKPILES CANNOT IMPEDE SITE LINES AT PROUDFOOT LANE & OXFORD STREET WEST. STOCKPILES SHOULD HAVE A MAXIMUM 3H:1V SIDE SLOPE.
5. IMPORTED FILL SOILS MUST BE REVIEWED AND APPROVED BY THE GEOTECHNICAL CONSULTANT TO CONFIRM THAT SOILS ARE GEOTECHNICALLY SUITABLE FOR REUSE.
6. SOIL QUALITY INFORMATION MUST BE PROVIDED FOR REVIEW BY THE OWNER'S QP (LDS CONSULTANTS INC.) TO ENSURE THAT SOILS MEET O.REG. 406/19 ACCEPTANCE CRITERIA PRIOR TO ARRIVAL ONSITE.
7. A MUDMAT IS RECOMMENDED AT THE SITE ENTRANCE FOR FILL PLACEMENT INTO THE SITE – SEE DETAIL 3.
8. IN THE EVENT THAT CONCENTRATED SURFACE WATER FLOWS OCCUR WITHIN THE 3M BUFFER AREA, CONSIDERATION MAY BE GIVEN TO ADDING STRAW BALES OR SILT SOCK (SEE DETAILS 4 OR 6) TO ASSIST IN FILTERING STORMWATER RUNOFF.
9. CARE SHOULD BE TAKEN BY THE CONTRACTOR TO LIMIT THE EXTENT OF DISTURBED AREAS, WHERE POSSIBLE. RE-ESTABLISHING VEGETATIVE COVER IN EXPOSED AREAS WHICH ARE ADJACENT TO NATURAL AREAS SHOULD BE CARRIED OUT AS SOON AS SITE AND WEATHER CONDITIONS PERMIT. SHORT TERM RESTORATION WITH MULCHING MAYBE REQUIRED, UNTIL VEGETATIVE COVER IS SEEDED IN PLACE.
10. EROSION AND SEDIMENT CONTROL MEASURES SHOULD REMAIN IN PLACE, UNTIL SUCH TIME AS CONSTRUCTION IS COMPLETE AND DISTURBED SURFACES ARE STABILIZED/REVEGETATED. HYDROSEEDING OF STOCKPILES MAY BE CONSIDERED TO IMPROVE VEGETATIVE COVER.

IN ACCORDANCE WITH PROVINICIAL REGULATIONS,
IN THE EVENT OF AN UNCONTROLLED SEDIMENT DISCHARGE OR CONTAMINANT RELEASE OFFSITE,
THE INCIDENT MUST BE REPORTED TO :

ONTARIO SPILLS ACTION CENTRE 1-800-268-6060

CONTINGENCY MEASURES

1. THE PRIMARY MODE OF DEALING WITH STORMWATER RUNOFF IS TO ACCOMMODATE THE RUNOFF WITH ONSITE CONTAINMENT USING TEMPORARY PONDING AREAS. CONTINGENCY MEASURES ARE INTENDED TO MINIMIZE THE RISK OR CONSEQUENCE OF FAILURE OF THE EROSION AND SEDIMENT CONTROL MEASURES AT THE SITE.
2. THE CONTRACTOR IS RESPONSIBLE TO FOLLOW THE CONTINGENCY PLAN, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS
   - THE CONTRACTOR WILL FOLLOW THE REQUIREMENTS OUTLINED IN THE SEDIMENT AND EROSION CONTROL PLANS, AND IN ACCORDANCE WITH APPLICABLE TERMS AND CONDITIONS FROM THE UTRCA SECTION 28 PERMIT
   - THE CONTRACTOR WILL BE RESPONSIBLE TO CONTROL SURFACE WATER RUNOFF AND PUMPED SURFACE WATERIN ACCORDANCE WITH THE REQUIREMENTS NOTED.
   - THE CONTRACTOR WILL CARRY OUT REGULAR INSPECTIONS OF THE PERIMETER ESC MEASURES.
   - THE CONTRACTOR WILL MAINTAIN AN EMERGENCY CONTACT LIST
   - WORKERS AND EQUIPMENT WILL BE MADE AVAILBALE TO CARRY OUT REMEDIAL WORK FOR EMERGENCY SITUATIONS
   - THE CONTRACTOR WILL MAINTAIN OR HAVE ACCESS TO AN ADEQUATE SUPPLY OF EROSION AND SEDIMENT CONTROL MATERIALS FOR EMERGENCY INSTSALLATION. THIS MATERIALS MAY INCLUDE SILT FENCE, STRAW BALES, SILT SOCK, PUMPS, PROPERLY FITTED HOSES, GENERATORS.
3. IF UNFORESEEN EVENTS CAUSE THE STRATEGIES SET OUT IN THE CONTINGENCY PLAN TO BE INSUFFICEINT TO MEET THE OBJECTIVES, THE CONTRACTOR WILL RESPOND IN A TIMELY MANNER WITH ALL REASONABLE MEASURES TO PREVENT, COUNTERACT OR REMOEDY ANY OFFSITE IMPACTS.
4. WHEN SIGNIFICANT RAIN EVENTS ARE FORECASTED, THE CONTRACTOR WILL CONDUCT A SITE REVIEW TO CHECK THE CONDITION OF THE EXISTING ESC MEASURES. ANY DEFICIENCIES WILL BE IMMEIDATELY REPORTED TO THE CLIENT, WITH A PLAN FOR REMEDIAL ACTION.
5. WHERE MONITORING HAS IDENTIFIED A HIGH POTENTIAL FOR FAILURE, THE CONTRACTOR WILL DOCUMENT THE PROPSOED APPROACH TO REMEDY THE SITUATION AND SUBMIT IT TO THE CLIENT AND THEIR ENGINEER FOR REVIEW AND RESPONSE. THE CONTRACTOR SHALL BE PREPARED TO IMMEDIATELY PROCEED WITH IMPLEMENTATION PENDING APPROVAL.
6. WHERE AN ESC FAILURE HAS OCCURRED, THE CONTRACTOR SHALL REPORT THE INCIDENT TO THE CLIENT AND THEIR ENGINEER. REPORTABLE SPILLS WILL BE REPORTED TO THE ONTARIO SPILLS ACTION CENTRE.
7. THE CONTRACTOR WILL CEASE FILLING ACTVITIES AND WILL FOCUS ON REPAIRS AND/OR ENHANCEMENTS TO EFFECTIVELY STABILIZE THE SITE WHERE FALUURE HAS OCCURRED OR IS IMMINENT. SITE RESTORATION WILL BE CARRIED OUT TO THE SATAISFACTION OF THE CLIENT, ENGINEER AND REGULATORY AUTHORITIES, AS APPROPRIATE.

SURFACE STORAGE OF STORMWATER RUNOFF

1. TEMPORARY PONDING AREAS ARE IDENTIFIED IN STAGE 1 AND STAGE 2 TO PROVIDE TEMPORARY ONSITE STORAGE FOR STORMWATER RUNOFF. SIDE SLOPES OF THE PONDING AREAS ARE TO BE CUT WITH A MAXIMUM 4H:1V SIDE SLOPE. THE BASE AND SIDEWALLS SHALL BE EXAMINED BY A GEOTECHNICAL ENGINEER TO CONFIRM SUITABILITY AND STABILITY.
2. WATER QUALITY WITHIN THE PONDING AREAS SHALL BE ASSESSED BY THE GEOTECHNICAL ENGINEER, CHECKING FOR EVIDENCE OF ADVERSE IMPACTS, AND INCLUDING TESTING FOR TURBIDITY LEVELS, USING FIELD SCREENING EQUIPMENT.
3. ACTIVE PUMPING OF STORMWATER RUNOFF OR GROUNDWATER IS NOT EXPECTED DURING THE SOIL STOCKPILING ACTIVITIES ONSITE. IN THE EVENT THAT PUMPING IS REQUIRED TO PROVIDE ADDITIONAL STORAGE CAPACITY. DISCHARGE WATER MUST BE DIRECTED TO A TEMPORARY DISCHARGE BASIN (OR APPROVED EQUIVALENT) TO PROVIDE EFFECTIVE FILTERING OF SEDIMENT. REFER TO DETAIL 5.
4. ANY PUMPED WATER DIRECTED TOWARDS CITY OF LONDON SEWER INFRASTRUCTURE MUST HAVE A TURBIDITY LEVEL WHICH DOES NOT EXCEED 50 NTU.

ESC INSPECTION & MONITORING

1. PRIOR TO CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE INSPECTED BY A QUALIFIED PERSON,TO ENSURE THAT SUITABLE METHODS OF DIVERTING, FILTERING AND CONTAINING SEDIMENT-LADEN STORMWATER RUN-OFF FROM THE WORK AREA HAS BEEN IMPLEMENTED.
2. REGULAR INSPECTION OF SOIL STOCKPILES WILL BE CARRIED OUT TO CONFIRM THAT STOCKPILES SLOPES ARE IN A STABLE CONDITION.
3. REGULAR INSPECTION OF THE ESC MEASURES SHOULD BE UNDERTAKEN, AND IF REPAIRS OR ENHANCEMENTS ARE REQUIRED, THEY SHOULD BE CARRIED OUT IMMEDIATELY, TO ENSURE THAT SEDIMENT-LADEN STORMWATER IS SUITABLY CONTAINED AND FILTERED, PRIOR TO SHEET FLOWING BEYOND THE WORK AREA. INSPECTION AND TESTING REPORTS MUST BE MADE AVAILABLE TO UTRCA UPON REQUEST.
4. RECOMMENDED FREQUENCY FOR INSPECTION AND TESTING IS AS FOLLOWS :
   - DAILY DURING EXTENDED RAIN EVENTS AND SIGNIFICANT SNOW MELT
   - IMMEDIATELY FOLLOWING SIGNIFICANT RAIN EVENTS (SIGNIFICANT RAIN EVENTS > 25 MM OF RAINFALL IN 24 HOURS)
   - WEEKLY DURING GOOD WEATHER CONDITIONS
5. EROSION AND SEDIMENT CONTROL MEASURES SHOULD REMAIN IN PLACE, UNTIL SUCH TIME AS CONSTRUCTION IS COMPLETE AND DISTURBED SURFACES ARE STABILIZED/REVEGETATED.

LICENSED PROFESSIONAL ENGINEER
R.A. WALKER
APR 16, 2024
PROVINCE OF ONTARIO

LDS

PROJECT NAME	PROJECT LOCATION	DRAWING NAME	SCALE	PROJECT NO.
SOIL STOCKPILING AND STAGING IMPORTED FILL INTENDED FOR ONSITE REUSE	412, 418 & 450 OXFORD STREET WEST LONDON, ONTARIO	EROSION AND SEDIMENT CONTROL NOTES	NTS	GE-00453
			DATE: APRIL 16, 2024	DRAWING NO.: 5

Attachment #4c

April 8, 2024
File: GE-00453

BlueStone Properties Inc.
130 Dufferin Ave, Suite 105
London, ON N6A 5R2

Attention: Mardi Turgeon, CPT

Reference: Soil Management Plan - Requirements for Importing Fill
412-450 Oxford Street West, London

This Soil Management Plan has been prepared by LDS Consultants Inc. (LDS), to outline the excess soil quality requirements for BlueStone Properties Inc. to import their excess soils to their project site located at 412-450 Oxford Street West, in London, Ontario. The property is located on the south side of Oxford Street West, east of Proudfoot Lane, as shown on the key plan below. It will also include a portion of the Mud Creek alignment which is being re-routed along the east side of MN412 Oxford Street West, when relocation work by the City of London is complete.

Figure 1: Key Plan

The document has been prepared to address the requirements in Ontario Regulation O.Reg. 406/19 (On Site and Excess Soil Management) and the associated Soils Rules document, which was last amended in December 2022.

LDS Background Studies

In March 2021, LDS issued a Draft Geotechnical Report in support of the proposed site redevelopment. The report presents findings for a series of eight (8) geotechnical boreholes which were advanced throughout the three properties. Localized fill materials were reported in the boreholes located closest to the Mud Creek Alignment which separates MN418 and MN450 Oxford Street. Throughout the remainder of the properties, subgrade soils were comprised of topsoil overlying sand and/or sand and gravel soils. There was no visual or olfactory evidence of impacted soils observed from the open boreholes or collected soil samples.

Acceptance Criteria for Imported Soils

Historic land use at the Site, has primarily residential, with nearby properties north of Oxford Street West and west of Proudfoot Lane having commercial property use. Future land-use is expected to be a mix of commercial and residential, when re-development of the site is complete. Based on the current and proposed property use at the site, it is LDS' recommendation (as the environmental QP for Blue Stone Properties Inc.), that imported soils which meet the following soil quality acceptance criteria can be considered for beneficial re-use at the site:

- Excess Soils meeting MECP Table 2.1 Excess Soil Quality Standards (ESQS) for Residential / Parkland / Institutional Property Use or better. *This may include soils which have exceedances for salt related parameters (i.e., Electrical Conductivity [EC] and Sodium Adsorption Ratio [SAR]; however, final fill placement of salt-impacted soils are to be located in areas where buildings or hard landscaping will be present, or where the fill is placed at least 1.5 m below final grade in soft landscaped areas.*

It should be noted that fill accepted at the site for beneficial reuse will also be required to meet the geotechnical requirements identified in LDS' Geotechnical Report for use as structural fill and/or engineered fill. These requirements include the following:

- Fill must be free of topsoil, organics and other deleterious material.
- Fill must be within 3% of optimum moisture (as determined by the Standard Proctor maximum dry density test), to achieve specified compaction levels. Soil conditioning and blending with drier soils may be considered for marginally wet soils, subject to review and approval by the geotechnical engineer.

Under Section 8 of the Regulation, the existing property use (residential) is considered to be a low-risk site from an environmental standpoint, and as such, is considered exempt from the Filing a Notice on the RPRA Soil Registry. Sites which do not need to file a notice, are also not required to prepare the regulatory planning documents, which includes the Assessment of Past Uses, Sampling and Analysis Plan and Soil Characterization Report.

Soil Quality Screening

To ensure that source sites are compliant with the above requirements for soil quality which can be accepted at the site, a soil quality screening process will be implemented to ensure that suitable documentation is provided which characterizes the soils, prior to being accepted at the site.

Project Sites will be required to provide soil quality data (including sample location, depth, soil description, soil quality and confirmation that the above-noted acceptance criteria are satisfied) for review by BlueStone's QP. At a minimum, soil being imported from low-risk sites should be tested for the following parameters:

- Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX),
- Petroleum Hydrocarbons (PHCs, fractions F1-F4),
- ICP Metals,
- Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), and pH.

If soil is considered from sites which are not considered a low risk for environmental impacts, BlueStone's QP will review proposed source sites to confirm if additional soil quality testing requirements will apply.

Unmanifested (i.e., undocumented or untested) material with no hauling record should be rejected immediately. In addition, if visual and/or olfactory observations indicate that imported materials are impacted and are not expected to meet the required quality standards (if for example, petroleum odour and staining is noted), the soil load should be rejected, and all further soil import from the Source Site should be placed on hold until BlueStone's QP can be consulted to assess the situation.

The additional requirements are summarized in the following table.

Source Site	Information Required for Import of Excess Soils for Beneficial Reuse
Lower-Volume, Lower-Risk Source Sites Sites which are considered exempt from the Sections 8, 11, 12, 13 of O.Reg. 406/19.	1 Correspondence signed by a QP confirming the O.Reg. 406/19 exemptions. 2. Due-Diligence Soil Sampling Program – including Laboratory Certificate of Analysis indicating that soils meet MECP Table 2.1 ESQS (Residential/Parkland/Institutional land use), noting exceptions for the following salt-related parameters: EC/SAR
Higher-Volume, Higher-Risk Source Sites Sites which are required to fulfil the regulatory requirements for planning documents and soil characterization, in accordance with O.Reg. 406/19.	1. Assessment of Past Uses or Phase I Environmental Site Assessment Report 2. Excess Soil Characterization Report – including O.Reg. 406/19-Compliant Excess Soil Field Program including Laboratory Certificate of Analysis indicating that soils meet MECP Table 2.1 ESQS (Residential/Parkland/Institutional land use), noting exceptions for the following salt-related parameters: EC/SAR. 3. Excess Soil Destination Assessment Report (ESDAR)

A record of all soil transported to the BlueStone property will be required from all source sites to confirm the total volume of fill which has been imported to the subject property. Records should include a daily load count, and confirmation of soil quality testing associated with the imported material.

Excess Soil Registry

Although not strictly required due to the applicable O.Reg, 406/19, consideration may be given to register the property as a Beneficial Reuse Site on the RPRA Excess Soils Registry, listing the applicable Soil Quality Standard as Table 2.1 ESQS for residential / parkland / institutional property use.

Qualifications of Assessor

This Soil Management Plan was prepared by Rebecca Walker, P. Eng., QP. She has been thoroughly trained in conducting geotechnical and hydrogeological assessments. Rebecca obtained a Bachelor of Applied Science in Geotechnical Engineering from Queen's University in 1998 and is a Qualified Person (QP) registered with the Ontario Ministry of Environment, Conservation and Parks (MECP), in accordance with Ontario Regulation 153/04. Rebecca is a licensed professional engineer in the Province of Ontario, and meets the requirements set out in the Professional Geoscientists Act, 2000 for the preparation of this document.

Rebecca is the Principal Engineer, Geotechnical Services at LDS Consultants Inc. (LDS) and has 25 years of experience in the geotechnical and hydrogeological consulting industry. Over 5,000 projects have been completed under her supervision. She is also a recognized expert in the industry as has testified as an expert witness in Local Planning Appeal Tribunals (formerly Ontario Municipal Board hearings) and Municipal Councils related to groundwater hydrogeology and geotechnical matters relating to land development and various types of construction.

Rebecca has been actively engaged in environmental consulting services related to the implementation and achieving conformance with the Excess Soils Regulation, since its initial introduction in 2019, and it various amendments to its current form; working with municipalities, developers, contractors and material suppliers. Rebecca's qualifications, background and work experience are consistent with the requirements to be identified as a 'Qualified Person' as outlined in O.Reg. 406/19.

Closing

We trust this meets your current requirements. If there are any questions, please contact the undersigned.

LDS CONSULTANTS INC.

Rebecca A Walker, P. Eng., QP
Principal, Geotechnical Services
o: 226-289-2952 c: 519-200-3742
rebecca.walker@LDSconsultants.ca

NOTICE OF HEARING

IN THE MATTER OF
The Conservation Authorities Act, R.S.O. 1990, Chapter C. 27 As Amended;

AND IN THE MATTER OF
An Application By: The Town of St. Marys c /o Andre Morin of The Town of St. Marys (Application #84-23)

For the permission of the Upper Thames River Conservation Authority pursuant to Regulations made under Section 28 (12) of said Act.

TAKE NOTICE that a hearing before Hearing Committee of the Upper Thames River Conservation Authority will be held under Section 28 of the Conservation Authorities Act using the Zoom video conferencing platform for remote hearings at the hour of 12:30 pm, Thursday April 25, 2024 with respect to the application by The Town of St. Marys c/o Andre Morin to permit development within an area regulated by the Upper Thames River Conservation Authority under Ontario Regulation 41/24 (formerly Ontario Reg. 157/06)- Development, Interference with Wetlands and Watercourses and made pursuant to Section 28 of the Conservation Authorities Act on 80 Water St. N in the Town of St. Marys, Ontario.

TAKE NOTICE THAT you are invited to make a delegation and submit supporting written material (electronically) to the Hearings Committee for the meeting of April 25, 2024. If you intend to appear and/or submit further written material, please contact Ben Dafoe ((519)-451-2800, e-mail dafoeb@thamesriver.on.ca). Any further written material (submitted electronically) will be required as soon as possible, to enable the Committee members to review the material prior to the meeting.

The Hearing is being held electronically. Participants who intend to join must provide:

- **full name**;
- **email address**; and,
- **a phone number where they can be reached during the Zoom hearing** (should technical support from our Zoom host/administrator be required);

to Ben Dafoe at least 48 hours prior to the scheduled Hearing. Participants will be sent an e-mail with a hyperlink to access the Zoom hearing as well as further instructions.

If you believe that holding the hearing electronically is likely to cause significant prejudice please contact Michelle Viglianti ((519)-451-2800, e-mail: vigliantim@thamesriver.on.ca).

AND FURTHER TAKE NOTICE that if you do not attend at this Hearing, the Hearing Committee may proceed in your absence, and you will not be entitled to any further notice in the proceedings.

PLEASE NOTIFY THIS OFFICE by 12:00 noon April 18, 2024 (local time) as to whether you and/or your agent will be attending. **Ontario Regulation 41/24 (formerly Ontario Reg. 157/06)** and Section 28 of the Conservation Authorities Act will be made available to you upon request.

DATED the 18th day of April, 2024.

Registered

The Hearings Committee of
The Upper Thames River Conservation Authority

<original signed by>
Tracy Annett, General Manager/Secretary-Treasurer

HEARING PROCEDURES

1. Motion to sit as a Hearings Committee to consider the application by the Town of St. Marys c/o Andre Morin of the Town of St. Marys, 80 Water Street N, St. Marys Ontario (Application 84-23)

2. Chair's opening remarks.

3. Staff will introduce Hearings Committee members (and the UTRCA Solicitor if present) to the applicant/owner, his/her agent and others wishing to speak.

4. Staff will indicate the nature and location of the subject application.

5. Staff will present their report on the application.

6. The applicant and/or his/her agent will speak and also make any comments on the staff report, if he desires.

7. Members of the Hearings Committee will question, if necessary, both the staff and the applicant/agent.

8. The Hearings Committee may make a motion to adjourn and go into camera and/or may make a motion to arrange to visit the subject site.

9. Upon completion of their deliberations, members of the Hearings Committee may make a motion regarding the application or may resolve to defer any decision on the application.

10. A motion will be carried which will culminate in the decision.

11. The Hearings Committee will move out of camera.

12. The Chair will advise the owner/applicant of the Hearings Committee decision, through Conservation Authority staff if the applicant/agent has left the Hearing location or in person if a decision is rendered with the Applicant/agent still on hand at the UTRCA office.

13. If decision is made to "to refuse", the Chair or Acting Chair shall notify the owner/applicant of his right to appeal the decision to the Minister of Natural Resources and Forestry within 30 days of receipt of the reasons for the decision.

14. Motion to move out of the Hearing.

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: Chair and Members of the UTRCA Hearings Committee
From: Ben Dafoe, Land Use Regulations Officer
Date: April 17, 2024
File Number: HC-04-24-03
Agenda #: 6
Subject: Section 28 Permit Application #84-23: Proposed Construction of Removable Floating Dock, 80 Water Street N, Town of St Marys

Recommendation:

THAT the Hearing Committee of the Upper Thames River Conservation Authority (UTRCA) approve the issuance of a *Development Interference With Wetlands and Alterations to Shorelines and Watercourses* permit (Application #84-23) made pursuant to Section 28 of the *Conservation Authorities Act* for the proposed development within hazard lands associated with the construction of a removable floating dock and approach ramp located at 80 Water Street North in the Town of St. Marys.

Application

A Section 28 *Application for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*, Application #84-23 (see Attachment #1), has been submitted by the Town of St Marys, for the proposed installation of a floating dock and approach ramp within the flood hazard associated with the North Thames River and Trout Creek, located at 80 Water Street North, in the Town of St. Marys (the “subject lands”) also known as Milt Dunnel Field/the Flats Park.

Site Information

The subject lands are regulated by the Upper Thames River Conservation Authority (UTRCA) in accordance with Ontario Regulation 41/24 (formerly Ontario Reg. 157/06) pursuant to Section 28 of the *Conservation Authorities Ac*t due to the presence of riverine flooding and erosion hazard lands associated with the North Thames River and Trout Creek. Refer to UTRCA Regulation Limit Mapping on Attachment #2 and #3 that outlines the location of the subject lands and the extent of the mapped hazards.

This area of St. Marys is highly susceptible to flooding. This has been observed through a variety of flood events in the past 15 years alone. Attachment #4 in this report provides photographic evidence of a variety of flood events on the subject lands (labelled to indicate the year the photos were taken by UTRCA staff). This many significant flood events over a relatively short period of time are indicative of the high flood risk nature of the park. Additionally, there are ample flood photos pre-dating this 15-year period available at UTRCA’s office and on the St. Marys library website.

Background

Following several meetings and the receipt of concept park plans the UTRCA staff received a formal submission package from The Town on July 17, 2023 (See Attachment #5) Package included

- EZ Dock Specification drawing
- EZ Dock Specification sheet
- Floating Dock Anchoring Report (Engineer Review)
- Dock Site Grading Plan
- Site Topographic Survey
- Flood Response Plan
- Public Engagement survey results in relation to Accessible Dock Letter of Support – Community Living (Town of St. Marys)

On July 18, 2023, after reviewing public input and [Town] staff recommendations on concept plans for the revitalization of the Milt Dunnel Park, the Town of St. Marys Strategic Priorities Committee identified the installation of a removable dock as a priority item for the park.

Additional town Submissions and UTRCA technical comments were provided to form a complete engineering report and contingency plan as per the below chart and timeline.

Submission Date	**UTRCA Comments Provided On:**
July 17, 2023	September 19, 2023
October 20, 2023	October 20, 2023
November 3, 2023	November 10, 2023
December 5, 2023	January 26, 2024 (2 Meetings with Follow up Email February 1, 2024)

The final submission provided by the Town on March 4, 2024, confirms that the dock and anchoring design received sign-off by a qualified professional engineer that the dock was designed as to not become detached during a major storm event, but not designed to the Regulatory (1:250 year) Flood event. As the dock is temporary in nature, calculation inputs and considerations were based on the historic maximum instantaneous discharge period during the operational season (July 2000). The dock is designed to be cross tethered to two 2600lb concrete blocks using two 3/8” diameter, grade 30 galvanized mooring chains. In addition to the moorings, the dock is proposed to be anchored by four vertical stud pipes secured to the riverbed. It should be noted that the stud pipes will not provide any additional support to the dock and only offer positional stability during times of normal operation. Engineering review also considered debris loading and flows during a flood event that would put lateral pressure on the proposed dock and associated anchoring system. Mooring chain length and factors of safety were added to the calculations. A contingency plan (Flood Response Plan) was provided by the Town detailing the protocol to be followed for the removal of the dock prior to large storm events. The Flood Response Plan provides measurable parameters for when the dock should be removed during a major storm event. These parameters were applied for the operational season only. The intent of the Flood Response Plan is for the dock to be removed safely during events that are less than the regulatory storm, and not installed during seasons with traditionally higher instances of flooding (Winter, Early Spring, Fall).

Discussion

The application has been evaluated by staff for conformity with Section 28 of the Conservation Authorities Act, Ontario Regulation 41/24, the interim Policy Guidelines for the Implementation of O. Reg. 41/24 (April 2024), the policies contained within the UTRCA Board-approved *Environmental Planning Policy Manual* (June 2006) (EPPM) and the UTRCA [Draft] Interim Dock Policy.

Under the Current Ontario Regulation 41/24 Section 5(a)(i), the construction, reconstruction, erection, or placement of a seasonal or floating dock that is:

- 10 square metres or less;
- does not require permanent support structures; and.
- can be removed in the event of flooding

is exempt from approval/subsection 28(1) of the *Conservation Authorities Act*. This means docks that meet the above-noted design parameters do not require a UTRCA Section 28 permit. The proposed dock for UTRCA Application 84/23 is approximately 32 square meters and does require a permanent seasonal anchoring support structure. Therefore, it would not meet the requirements for exemption under the new Regulation.

Current UTRCA policies generally do not support new development (which would include docks) in hazard lands. However, it is recognized that any dock must be located within hazard land by nature. The Environmental Planning Policy Manual contains policies which allow for water access points supporting low intensity recreational uses within flooding hazards if further justification can be provided. The UTRCA itself owns and operates a variety of seasonal, floating docks that allow for recreational opportunities within UTRCA-owned lands. These docks are typically located within protected areas of reservoirs or offline ponds where depths and velocity of flows are reduced. Planning and Regulations staff have been referring to an internal, draft document titled, “Interim Dock Policy” as guidance in response to an increased volume of dock requests in the watershed in recent years (see Attachment #6). This draft policy was developed using similar policies prepared by other conservation authorities in Ontario. The proposed dock did not meet the following review criteria taken from the draft "Interim Dock Policy”:

- The proposed location of the dock is within the North Branch of the Thames River/Trout Creek where the risk of riverine flooding and subsequent detachment is high;
- The proposed location of the dock is downstream of a flood control structure (Wildwood Dam) where the risk of detachment is high;

Board Approved Policy:

Section 4.2.1 General Policies for Hazard Limit (1) states that, “*Development and site alteration shall be directed away from hazard lands where there is an unacceptable risk to public health or safety or property damage and shall be directed to areas located outside of the defined limits of the hazard.”*

Policy 4.2.1.2 states that, *“Development and site alteration may only be permitted in hazard lands provided that all of the following conditions can be implemented to the satisfaction of the Authority: a) Appropriate floodproofing measures, protection works and safe and dry access during times of flooding, erosion and other emergencies are provided. b) No new hazards will be created, and existing hazards will not be aggravated. c) No adverse environmental impacts will result.”*

Policy 4.2.1.7 states that *“Passive low intensity recreational uses, associated with public parks, outdoor recreation and education, pathway and trail systems, water access points or*

conservation activities may be permitted within a flooding hazard provided it can be demonstrated that: there is no feasible alternative site outside of the flooding hazard; where unavoidable, intrusions on hydrologic functions are minimized; best management practices including site, facility and/or landscape design and appropriate remedial measures will mitigate disturbance to hydrologic functions; and the risk of property damage is minimized through site, facility , and/or landscape design and flood emergency plans."

Policy 4.2.2.14 states that *"Minor works will be permitted within the flood plain subject to satisfying the Authority's requirements."*

Since the proposed location of the dock is within a high-risk floodplain and located in an area that historically and routinely floods, further support and consideration was required as part of a complete permit application. During even minor flood events at this location, there exists high velocity of flow and an increased chance of detachment to any removable dock. This is something staff would not support for a private landowner. Unlike docks in a lake environment, docks in a riverine (with running water) system have been known to detach easily and float downstream where they may cause or contribute to blockages at bridges/culverts, and damage infrastructure or other private property. In addition, given the nature of the development (a dock), safe and dry access will not be achievable at this location during times of flooding and the dock's anchoring is not designed to withstand a regulatory flood event. However, the Town of St. Marys is a municipal partner with a higher level of resources available to appropriately respond during times of flooding, and to offset the cost of damages should any occur. Staff have taken into consideration the supplementary engineering and contingency flood response plan provided and have deemed them sufficient. UTRCA staff are satisfied that the appropriate justification has been provided and that the following criteria has been met:

a) No unacceptable risk to public health or safety/property damage;
b) Risk of property damage is minimized through site, facility, and/or landscape design and flood emergency plans;
c) Appropriate floodproofing measures, protection works and dry access during times of flooding, erosion and other emergencies are provided;
d) No feasible alternative site outside of flooding hazard;
e) No new hazards will be created, and existing hazards will not be aggravated;
f) No adverse environmental impacts will result;

The applicant has provided assurances in the form of engineering support that the dock has been designed to not become detached during an extreme event based on historic highs. Further, the Town has advised that they have the staff and resources to undertake yearly installation and removal during the lower flow/water level months and have provided built in redundancies to remove the dock prior to large events. UTRCA staff feel contingency planning is appropriate to try to offset design limitations. UTRCA staff also recognize the value of providing an opportunity for all residents of the watershed (and outside the watershed) to access the Thames River for recreational purposes during the regular operational season. UTRCA provides similar opportunities in backwater/lower risk areas for access to the river on properties we own or manage and are generally supportive of getting more people to the rivers and streams within our watershed.

Conclusion

The Conservation Authority's approval is required for the issuance of permits under the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* Regulation in accordance with Section 28 of *the Conservation Authorities Act*. Applications which conform to regulation and board approved policies may be recommended for approval by authority staff who have been granted responsibility to process such applications. When

applications for development are submitted that do not conform to board approved policy, authority staff cannot refuse the application without the benefit of a hearing. Approval of a non-conforming application is then subject to the review and consent of the UTRCA Hearings Committee.

This report is provided to the UTRCA Hearing Committee to advise that the application meets most riverine flood hazard policies (found within Section 4 of the UTRCA Environmental Planning Policy Manual (June 2006)). The proposal is non-conforming because the dock cannot be sufficiently anchored to the level of the regulatory flood event and does not meet our guidance dock policies due to the location below a flood control dam, and in the North Thames River in an area known for high velocity of flows. UTRCA staff are satisfied that the applicant has provided the necessary design mitigations, operational time periods, and flood response plans to balance the risk. Additionally, as a municipality, the applicant has access to a greater supply of resources for seasonal removal and remediation (if necessary) should damage occur. Staff provide a recommendation of approval for Application #84-23.

Prepared by:

Ben Dafoe, Land Use Regulations Officer

Reviewed by:

Jenna Allain, Manager, Environmental Planning and Regulations

Attachments:

1. Application For Development
2. UTRCA Regulatory Mapping_1
3. UTRCA Regulatory Mapping_2
4. Site Flooding Photos
5. Town of St. Marys Final Submission (Dated Mar. 4, 2024)
6. UTRCA Interim Dock Policy (DRAFT)

UPPER THAMES RIVER
CONSERVATION AUTHORITY

Application For Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Upper Thames River Conservation Authority
1424 Clarke Road London, Ontario N5V 5B9
Tel. (519) 451-2800 Fax (519) 451-1188

Conservation Authorities Act - Ontario Regulation 157/06, under O.reg. 97/04

Application # 84 - 2023

Name of Landowner: The Corporation of the Town of St. Marys Tel. Home:
Address: 175 Queen St. E, St. Marys Postal Code: N4X 1B6 Tel. Business: 519-284-2340
Location of Project: Mill Dunnell Field, 80 Water St. N. St. Marys
Street and Number, or Lot(s) and Concession Number/ 911 Address Municipality

DESCRIPTION OF PROJECT

General description of project: The Town is requesting permission to install a seasonal Accessible dock as per the attached site map and specifications.

All applications must be accompanied by a detailed site plan, providing information on the following:

1. general location of property in relation to roads
2. location and dimensions of all existing structures on the property
3. location of any watercourse, wetland or steep slope on or near the subject property
4. intended location of all proposed work, including construction, filling/grading/excavation, wetland interference or watercourse alteration
5. location of septic system, if applicable and other property utilities, wells, etc.
6. cross-section of proposed work, showing existing and final grades and structure openings

Works including floodproofing of structures must be accompanied by detailed drawings, prepared by qualified professional engineers, with proper dates and stamps appearing on all plans. If filling is proposed, details on the type, area and volume of fill must be provided to the UTRCA, with existing and proposed grades clearly presented on plans.

UNLESS OTHERWISE REQUESTED, THE CONSERVATION AUTHORITY ONLY REQUIRES ONE COPY OF ALL PROJECT DRAWINGS.
MULTI-PAGED ENGINEERING DRAWINGS MUST BE FOLDED OR REPRODUCED ON 11 x 17" SHEETS.

Dates of Commencement and Completion of Project: November 1, 2023 to June 30, 2024
If other approvals required for this project please indicate

- ☐ Federal - Fisheries Act
- ☐ Other
- ☐ Province - MNR Work Permit
- ☐ Permit to Take Water
- ☐ Municipal - Building Permit
- ☐ Zoning ☐ Severance ☐ OPA ☐

Name of Applicant if different than Landowner:
Mailing Address if different than above:
Postal Code: Phone Number: Email Address:

Applicant's Signature: [redacted]
Application Date Month: Oct Day: 18 Year: 2023
Agent for Applicant (if different from above): Technical Expertise - Montana Wilson, GRIT Engineering
Mailing Address: 133 Regent Street, Stratford, ON
Postal Code: N5A 3W2 Phone Number: 519-949-7254 Email Address:

For UTRCA Completion Only

Application fee:_____ Date received:_____ Received by:_____

Regulatory floodline elevation:_____ Typical ground elevation:_____

Other pertinent comments_____

Project-specific requirements (refer to page 2 for general conditions)_____

_____

_____

Approved by:_____ Date approved:_____

Site inspection: Date:_____ By:_____

TERMS AND CONDITIONS

The Owner and Applicant, by acceptance of and in consideration of the issuance of this permit, agree to the following terms and conditions:

1. Permission granted by the Upper Thames River Conservation Authority cannot be transferred without prior written approval from the Upper Thames River Conservation Authority.

2. Approvals may be required from other agencies prior to undertaking the work proposed. The Upper Thames River Conservation Authority does not exempt the Applicant from complying with any or all other approvals, laws, statutes, or regulations.

3. The Upper Thames River Conservation Authority may at any time withdraw any permission given if, in the opinion of the Conservation Authority, the representations contained in the application for permission are not carried out or the conditions/requirements of the permit are not complied with.

4. Authorized representatives of the Upper Thames River Conservation Authority may at any time enter onto the lands that are described herein, in order to make any surveys, examinations, investigations or inspections that are required for the purpose of insuring that the work(s) authorized by this permit are being carried out according to the terms of this permit.

5. The Owner and Applicant agree:

- To indemnify and save harmless the Upper Thames River Conservation Authority and its officers, employees, or agents from and against all dam age, loss, costs, claims, demands, actions and proceedings, arising out of or resulting from any act or omission of the Owner and/or Applicant or any of his agents, employees or contractors relating to any of the particulars, terms or conditions of this permit;

- That this permit shall not release the Applicant from any legal liability or obligation and remains in force subject to all limitations, requirements and liabilities imposed by law;

- That all complaints arising from the execution of the works authorized under this permit shall be reported immediately by the Applicant to the Up per Thames River Conservation Authority. The Applicant shall indicate any action that has been taken, or is planned to be taken, with regard to each complaint.

6. The project shall be carried out in full accordance with the plans submitted in support of the application.

7. The Applicant agrees to install and maintain all sedimentation controls until all disturbed areas have been stabilized.

8. All disturbed areas shall be seeded, sodded, or stabilized in some other manner acceptable to the Conservation Authority as soon as possible, and prior to the expiry of this permit.

9. The Applicant agrees to maintain all existing drainage patterns, and not to obstruct external drainage from other adjacent private lands.

NOTE: The information on this form is being collected for the purpose of administering a regulation made pursuant to Section 28, Conservation Authorities Act, R.S.O. 1990, Chapter 27. This application and supporting documents and any other documentation received relating to this application, may be released, in whole or in part, to other persons in accordance with the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990c. M.56, as amended

Regulated Areas

Regulation under s.28 of the *Conservation Authorities Act*

Development, interference with wetlands, and alterations to shorelines and watercourses. O.Reg 157/06, 97/04.

Legend

- UTRCA Watershed (2017 LiDAR)
- Assessment Parcel (St. Marys)
- Watercourse (UTRCA)
  - Open
  - Tiled
- Flooding Hazard Limit
- Regulation Limit 2021

The mapping is for information screening purposes only, and shows the approximate regulation limits. The text of Ontario Regulation 157/06 supersedes the mapping as represented by this data layer. This mapping is subject to change. A site specific determination may be made by the UTRCA.

This layer is the approximate limit for areas regulated under Ontario Regulation 157/06 - Upper Thames River Conservation Authority: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, which came into effect May 4, 2006.

The UTRCA disclaims explicitly any warranty, representation or guarantee as to the content, sequence, accuracy, timeliness, fitness for a particular purpose, merchantability or completeness of any of the data depicted and provided herein.

The UTRCA assumes no liability for any errors, omissions or inaccuracies in the information provided herein and further assumes no liability for any decisions made or actions taken or not taken by any person in reliance upon the information and data furnished hereunder.

This map is not a substitute for professional advice. Please contact UTRCA staff for any changes, updates and amendments to the information provided.

This document is not a Plan of Survey.

UPPER THAMES RIVER CONSERVATION AUTHORITY

Notes:
80 Water St. N (Town of St. Marys) - Flood Hazard

Created By: BD October 19, 2023

* Please note: Any reference to scale on this map is only appropriate when it is printed landscape on legal-sized (8.5" x 14") paper.

0 40 80 160
metres
1:2,000

N

Regulated Areas

Regulation under s.28 of the Conservation Authorities Act

Development, interference with wetlands, and alterations to shorelines and watercourses. O.Reg 157/06, 97/04.

Legend

- UTRCA Watershed (2017 LiDAR)
- Assessment Parcel (St. Marys)
- Watercourse (UTRCA)
  - Open
  - Tiled
- Erosion Hazard Limit
- Regulation Limit 2021

The mapping is for information screening purposes only, and shows the approximate regulation limits. The text of Ontario Regulation 157/06 supersedes the mapping as represented by this data layer. This mapping is subject to change. A site specific determination may be made by the UTRCA.

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This document is not a Plan of Survey.

UPPER THAMES RIVER CONSERVATION AUTHORITY

Notes:
80 Water St. N (Town of St. Marys) - Erosion Hazard

Created By: BD October 19, 2023

* Please note: Any reference to scale on this map is only appropriate when it is printed landscape on legal-sized (8.5" x 14") paper.

0 40 80 160
metres
1:2,000

N

Site Location – Milt Dunnel Field

Proposed Location-Typical Summer (Operational) Water Level

Proposed Location (Typical Winter Water Levels-Non Operational Season)

Proposed Location (Non Operational Season)

2008 (April)

(Photo taken by UTRCA of Milt Dunnell Field during the flood of April 2008.)

2008 (December)

(Photo taken by UTRCA of Milt Dunnell Field during the flood of December 2008.)

2009 (February)

(Photo taken by UTRCA of Milt Dunnell Field during the flood of February 2009.)

2018 (February)

(Photo taken by UTRCA of Milt Dunnell Field during the flood of February 2018.)
***From the 2018 flood we also have on-the-ground and aerial photos of Town staff trying to undertake emergency repairs in the park – working with an excavator and large dewatering pumps. A discussion may be warranted regarding the history of past damages and repair costs incurred with long term public works staff.

VIA EMAIL

October 19, 2023

Upper Thames River Conservation Authority
1424 Clarke Road,
London, Ontario, N5V5B9

Attention: Ben Dafoe, Land Use Regulations Officer
dafoeb@thamesriver.on.ca

RE: Application #84-23 – Town of St. Marys

Please accept the attached application for the proposed installation of a seasonal accessible dock structure at the property known as Milt Dunnell Field in St. Marys, Ontario.

The following correspondence has been attached to accompany the Town's application request:

1. Signed Application #84-23
2. Dock Site Map and grading plan
3. Site Topographic Survey
4. Yak Shack Information Sheet and example poster
5. Town of St. Marys survey results
6. Letter of Support – Community Living
7. Dock – EZ Dock Drawing
8. Dock – EZ Dock Specifications
9. Town Flood Response SOP
10. Professional Engineer Recommendation letter
11. Town Response to Sept 19, 2023 UTRCA comments

The following section will summarize the need and the solution proposed by the Town of St. Marys to provide context to the application,

<u>The Need:</u>

Milt Dunnell Field is a beloved community asset with a long history in St. Marys. It is a place for peaceful walks along the river; a gathering space for family and friends; a venue for activities and events; and a connection to the Town's trail system. It was one of the only local amenities that remained open during the COVID-19 pandemic, allowing residents the opportunity to escape the confines of their homes. Post-pandemic, the demand for outdoor amenities is at an all-time high. This trend is likely to increase as affordable housing plans result in increased density and a further need for more natural, open spaces.

Two important aspects the Town must consider when providing these amenities are health and safety and accessibility. As the use of Milt Dunnell has expanded, so too has the use of the adjacent Thames River. Since then, the Town has consistently heard complaints about the lack of easy access to the river. This makes entering the river unsafe and inaccessible to many people.

In 2021, the Town developed a free kayak loan program to improve health and safety and accessibility to experience paddling the river system. The program educated users by offering information, safety instructions, safety equipment, etc. The Town partnered with the St. Marys Public Library and the St. Marys Kinsmen Club to build a structure to store the kayaks near the river. Several local donations were made toward the project, including money, kayaks and building materials for the structure. The program was named "The Yak Shack" and officially launched on July 26, 2021. The Yak Shack offers 6 single person kayaks. The Town used several tactics to educate users on water safety, including:

- A handout (attachment #4) provided to each Yak Shack user upon picking up their lifejacket, safety kit and key for the kayak. The handout includes tips on navigating our part of the Thames River.
- Two free, in person, on the water training sessions with experienced and qualified paddlers to learn the safety basics.
- A video series outlining water safety tips that was posted on the Town's social media channels.
- Due to unpredictable Fall weather the Yak Shack loan program closes on the Labour Day weekend along with closing of the Quarry season.

The annual usage of the kayak program is as follows:

2021 July 26 – September 20	386 Users
2022 May 24 – September 4	975 Users
2023 May 23 – September 2	865 Users

In 2022, the Town began working on a master plan for the entirety of Milt Dunnell Field. The guiding principles were to improve accessibility, increase usability, and attract more people to the park. UTRCA staff were invited to participate in the internal discussions as part of that process. In May 2023, the Town launched a public engagement campaign to help guide the master planning process. The Town received an overwhelming response to our public survey, with 1,350 people providing responses. Of importance to this application, when asked what activities/amenities are enjoyed by users of the park, "Accessing the River" was one of the top responses (see Figure 1).

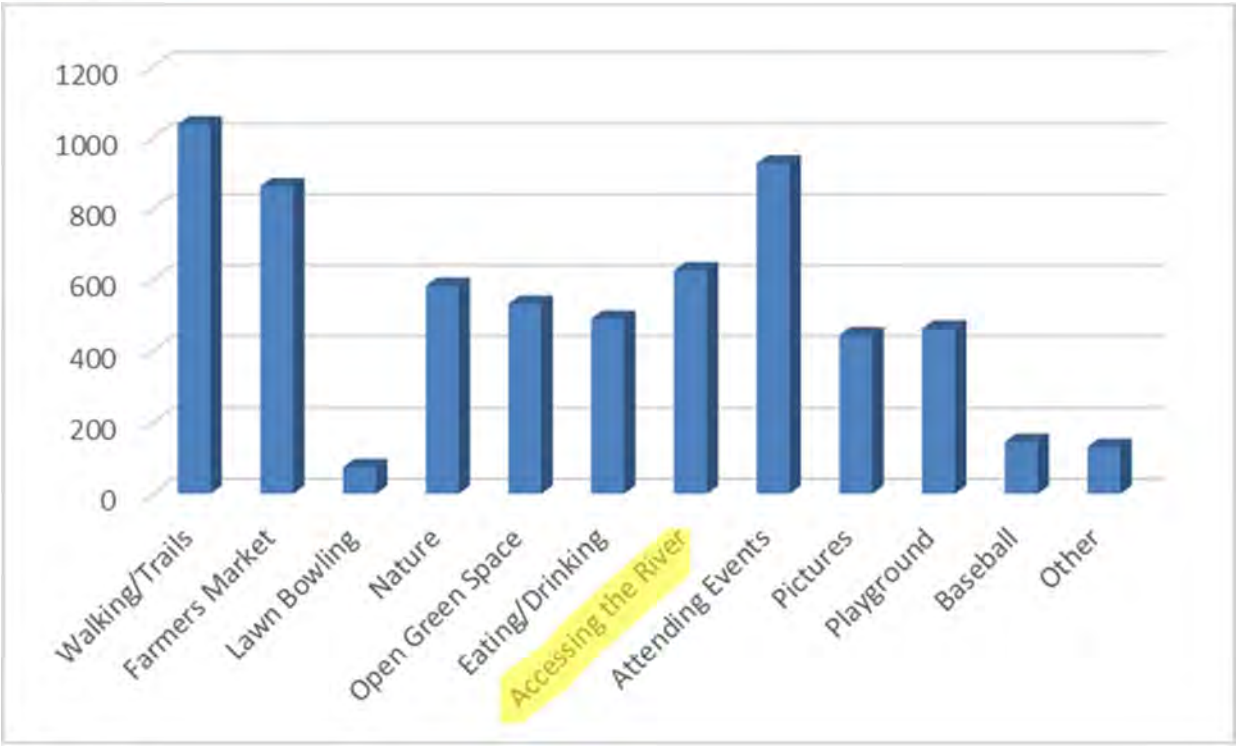


Figure 1 – Town of St. Marys Milt Dunnell Field survey results

When asked "which amenities are important to you", the majority of respondents identified an Accessible Dock was "Very Important" or "Important" (see Figure 2).

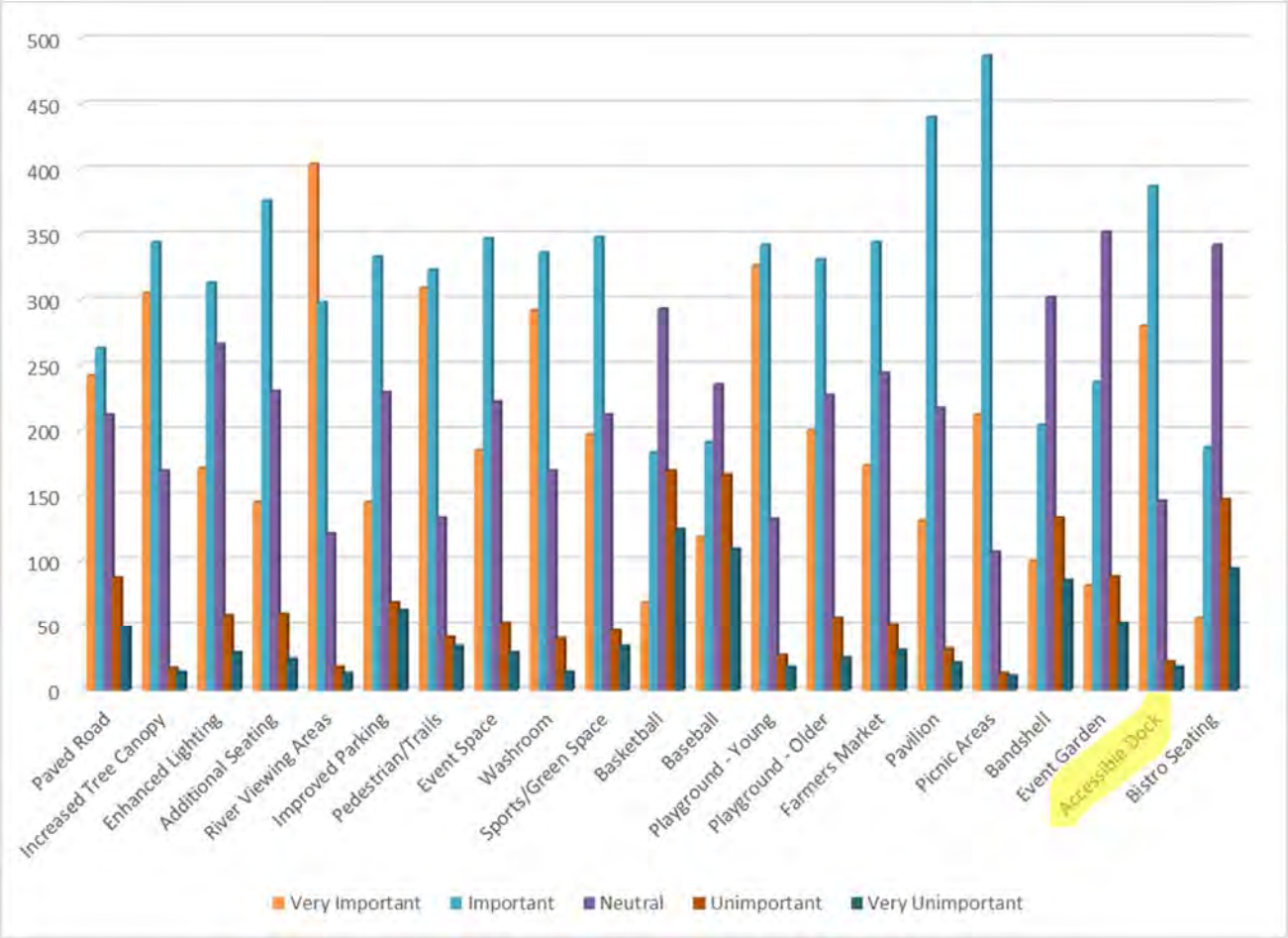


Figure 2 - *Town of St. Marys Milt Dunnell Field survey results*

Following the engagement process, Town Council identified the accessible dock as the top priority for the Milt Dunnell Field project. Early in the process of discussing enhancements to the area, the Town was approached by a member of our community with accessibility requirements challenging us to consider accessibility and recommended an accessible dock feature as a "need" in the area. The town sought input from various organizations, one of which is St. Marys & Area Community Living whom have been very supportive and an excellent resource on the issue of accessibility. They have also confirmed their recommendation of an accessible dock with a generous pledge of $35,000 towards the project. (see *attachment #6)*

The Solution:

The Town has held several onsite meetings with internal staff, external experts, dock manufacturers and UTRCA staff to discuss and brainstorm the best solutions that:

- Meet the accessibility and health and safety needs.
- Are financially prudent for the Town.
- Do not create any environmental or liability challenges.
- Improve environmental education and conservation.

The best solution that meets the above four objectives would be a seasonal accessible dock structure that would not remain in the river during the typical flooding periods. The dock structure that has been deemed to be the best solution is from EZ Dock *(attachments #7 and #8).* EZ Docks systems are used by several private and public entities within Ontario - including many conservation authorities along the Grand River - with a high level of success; UTRCA also has an EZ Dock system at Wildwood Conservation Area.

The third and fourth objectives are relevant to UTRCA and align with the UTRCA's strategic plan, specifically Target 4 to instill conservation values by supporting outreach through public access. The Town also proposes that the area is currently heavily used by the public and creates an opportunity to better control the utilization of the area and take advantage public education in the areas of safety, accessibility, inclusivity, and conservation.

The Town acknowledges that Milt Dunnell Field is located within the floodplain and is highly susceptible to flooding and high flow velocities The following steps are included in the Town's proposal to mitigate these challenges:

1. Installing the dock in May of each year and removing the dock in early September of each year
    - The Town has not found evidence of any extreme flooding in the area between May and September (with a couple exceptions in September) since the Wildwood Dam was commissioned in 1965.
    - Having the dock only installed during this period will greatly reduce the risk of the dock being detached during a flood event.
2. Implementing a flood event response plan *(attachment #9)* relating to the dock. The Town consistently monitors the weather and alerts from varying sources as part of its emergency management plan. In the case of where inclement weather is imminent, Town staff take several precautionary measures to mitigate any damages caused by the weather, including but not limited to cleaning catch basins and clearing debris from municipal drains, moving and storing picnic tables, garbage receptacles, etc., and closing any roadways, trails, or facilities to the public. Furthermore, staff and equipment resources are operational and ready for duty if necessary. In relation to the proposed dock structure, if the risk of flooding is deemed probable, the Town will remove the dock structure from the river.

- The Town has the proper human resources and equipment to quickly respond to emergent issues.
- The Town Public Works Department maintains a minimum of one on-call operator available to respond to any emergent needs within 30 minutes.

3. Adding a "dead weight tether" (*see attachment #10*) to ensure that if flooding occurs the dock structure will not dislodge and damage and/or obstruct any properties down stream. This measure is fail-safe in case of the unlikely event that an extreme flooding event unexpectedly occurs, and the Town's first two risk mitigation measures are not successful.

Furthermore, the Town has provided UTRCA preliminary information in relation to this application on July 17, 2023. UTRCA staff provided a detailed response on September 19, 2023. Town staff have attached (attachment #11) our responses addressing the comments provided within that letter.

The Town appreciates the collaboration and assistance provided by UTRCA staff during this process. We believe this is a partnership and the Town plans to continue to partner with UTRCA as part of our Milt Dunnell project to provide further conservation and education efforts to our community members and visitors. The Town is happy to discuss and implement any further recommendations from UTRCA as part of our ongoing efforts on this project.

Sincerely,

Andre Morin, Director of Corporate Services/Treasurer
519.284.2340. 217
amorin@town.stmarys.on.ca

EROSION AND SEDIMENT CONTROL STAGING

MEASURE	INSTALLATION TIMING	INSPECTION/MAINTENANCE REQUIREMENTS	REMOVAL TIMING
PHASE 1 – TOPSOIL STRIPPING AND AREA GRADING			
• SILT FENCE • TOPSOIL STOCKPILE • OTHERS AS REQUIRED	• PRIOR TO TOPSOIL STRIPPING	• CONTRACTOR TO ARRANGE INSPECTION WITH MUNICIPALITY STAFF/ CONSULTANT AFTER INSTALLATION. • CONTRACTOR TO UNDERTAKE WEEKLY INSPECTIONS AND AFTER EACH SIGNIFICANT RAINFALL EVENT. REGULAR MAINTENANCE TO REMOVE SEDIMENT AND REPAIR ESC MEASURES	• ONCE VEGETATIVE COVER IS ESTABLISHED ON SITE POST BUILDING CONSTRUCTION.
PHASE 2 – BUILDING CONSTRUCTION			
• RESTORATION HYDROSEEDING OR SODDING • MAINTENANCE AND REPAIRS TO ALL REMAINING ESC MEASURES AS PER DETAILED INSPECTION WITH MUNICIPALITY STAFF / CONSULTANT. • REMOVAL OF IDENTIFIED PHASE 1 OR 2 MEASURES.	• PRIOR TO BUILDING CONSTRUCTION, ESC MEASURES TO BE REPAIRED AS PER MUNICIPALITY / CONSULTANT DEFICIENCY LIST.	• DETAILED INSPECTION OF ALL REMAINING ESC MEASURES WITH MUNICIPALITY STAFF / CONSULTANT. CONTRACTOR TO UNDERTAKE MONTHLY INSPECTIONS AND ARRANGE FOR ANY REPAIRS.	• JUST PRIOR TO FINAL TOPSOIL AND SODDING

1. GENERAL NOTES

1.1 GRIT ENGINEERING INC. IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION (EXISTING TOPOGRAPHY, BENCHMARKS, PROPERTY BOUNDARY, BUILDING DIMENSIONS, ETC.) PROVIDED BY OTHERS.

1.2 CAUTION THIS IS NOT A PLAN OF SURVEY. EXISTING INFORMATION ILLUSTRATED WAS DERIVED FROM A TOPOGRAPHIC SURVEY COMPLETED BY GRIT ENGINEERING INC. ON JANUARY 20, 2023.

1.3 THE EXISTING DRAINAGE OF ABUTTING LANDS IS NOT TO BE DISTURBED WITHOUT PRIOR WRITTEN PERMISSION FROM THE ADJACENT LANDOWNER AND APPROVED BY THE APPROVAL AUTHORITY.

1.4 THE CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO ANY EXCAVATION.

1.6 A GEOTECHNICAL INVESTIGATION/REVIEW IS REQUIRED PRIOR TO ANY FOOTING BEING PLACED ON ENGINEERED FILL.

1.7 SEALED FOR GRADING ONLY ON SUBJECT LOT.

2. EROSION AND SEDIMENT CONTROL

2.1. PRIOR TO THE START OF ANY CONSTRUCTION THE CONTRACTOR IS TO INSTALL THE EROSION AND SEDIMENT CONTROLS IN ACCORDANCE TO THE APPROVED PLAN.

2.2. NO ALTERNATE EROSION AND SEDIMENT CONTROLS ARE PERMITTED WITHOUT APPROVAL FROM THE ENGINEER AND APPROVING AUTHORITY.

2.3. ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED AS THE CONSTRUCTION PROGRESSES. THE CONTRACTOR TO INSTALL ADDITIONAL MEASURES AS REQUIRED BY THE ENGINEER AND APPROVING AUTHORITY.

2.4. THE CONTRACTOR IS TO PERFORM REGULAR MAINTENANCE, REPAIRS AND REPLACEMENT ON ALL CONTROLS TO ENSURE PROPER FUNCTIONING UNTIL PROJECT IS COMPLETE.

2.5. EROSION CONTROL FENCING TO BE INSTALLED AROUND BASE OF ALL STOCKPILES. ALL STOCKPILES TO BE KEPT 2.5m MINIMUM FROM PROPERTY LINE.

2.6. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. CONTRACTOR TO PROVIDE ALL ADDITIONAL EROSION CONTROL STRUCTURES.

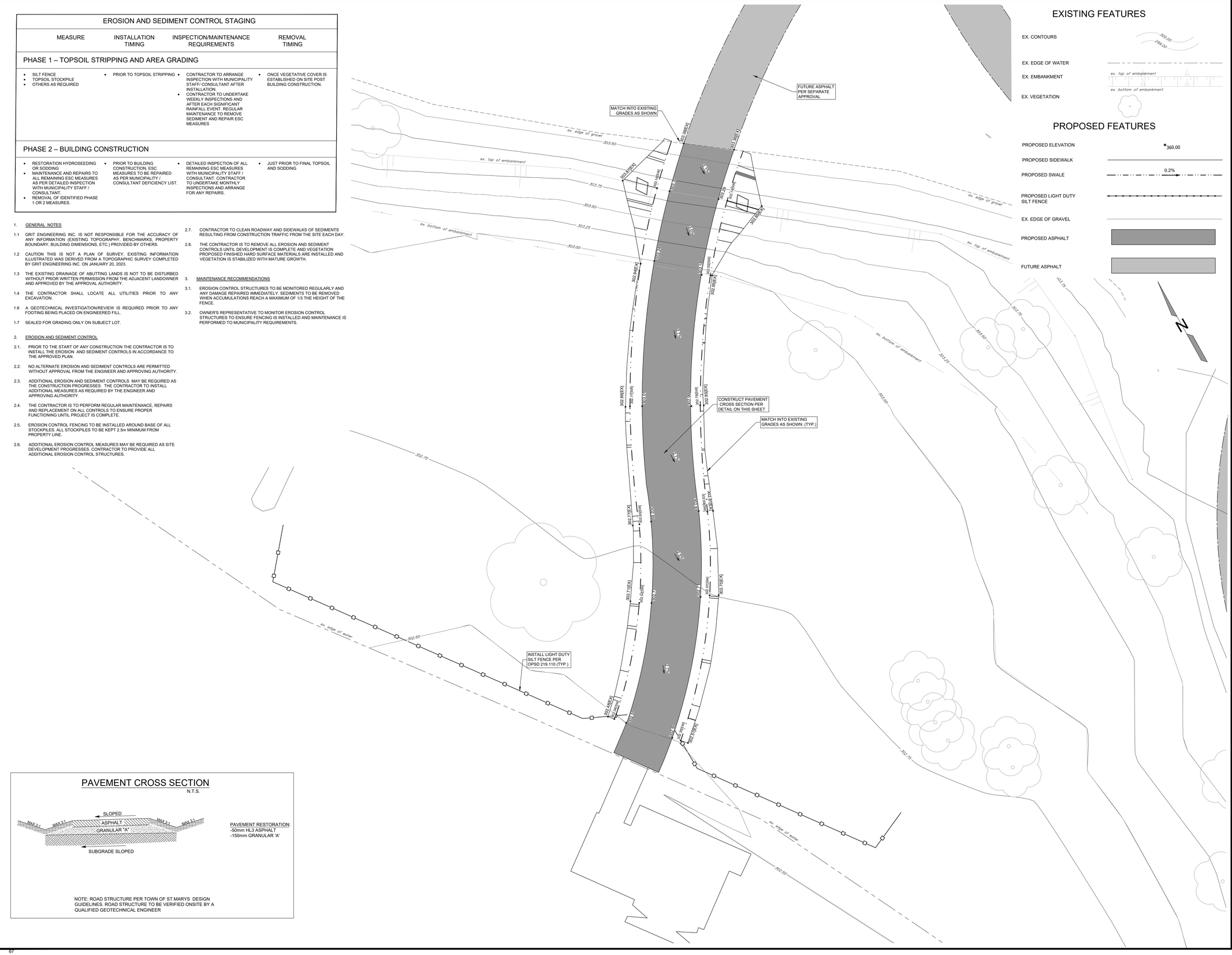
2.7. CONTRACTOR TO CLEAN ROADWAY AND SIDEWALKS OF SEDIMENTS RESULTING FROM CONSTRUCTION TRAFFIC FROM THE SITE EACH DAY.

2.8. THE CONTRACTOR IS TO REMOVE ALL EROSION AND SEDIMENT CONTROLS UNTIL DEVELOPMENT IS COMPLETE AND VEGETATION PROPOSED FINISHED HARD SURFACE MATERIALS ARE INSTALLED AND VEGETATION IS STABILIZED WITH MATURE GROWTH.

3. MAINTENANCE RECOMMENDATIONS

3.1. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF 1/3 THE HEIGHT OF THE FENCE.

3.2. OWNER'S REPRESENTATIVE TO MONITOR EROSION CONTROL STRUCTURES TO ENSURE FENCING IS INSTALLED AND MAINTENANCE IS PERFORMED TO MUNICIPALITY REQUIREMENTS.



PAVEMENT CROSS SECTION

N.T.S.

PAVEMENT RESTORATION:
-50mm HL3 ASPHALT
-150mm GRANULAR 'A'

NOTE: ROAD STRUCTURE PER TOWN OF ST.MARYS DESIGN GUIDELINES. ROAD STRUCTURE TO BE VERIFIED ONSITE BY A QUALIFIED GEOTECHNICAL ENGINEER

EXISTING FEATURES

EX. CONTOURS 300.00 299.00

EX. EDGE OF WATER

EX. EMBANKMENT ex. top of embankment / ex. bottom of embankment

EX. VEGETATION

PROPOSED FEATURES

PROPOSED ELEVATION 360.00

PROPOSED SIDEWALK

PROPOSED SWALE 0.2%

PROPOSED LIGHT DUTY SILT FENCE

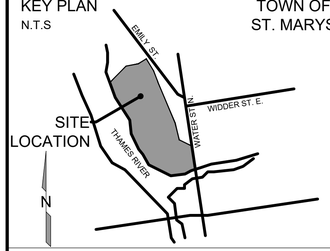
EX. EDGE OF GRAVEL

PROPOSED ASPHALT

FUTURE ASPHALT

KEY PLAN
N.T.S

TOWN OF ST. MARYS



CONTRACTOR NOTES:

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY ERRORS TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

ALL DRAWINGS SHALL REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

DRAWING SHOULD NOT BE SCALED FOR DIMENSIONS PURPOSES.

BENCHMARK

ELEVATIONS ARE GEODETIC, DERIVED FROM THE CANSEL CAN-NET NETWORK, NAD83 CSRS (2010). LOCAL BM IS TOP SPINDLE OF FH ON EAST SIDE OF WATER ST. N. ELEVATION: 305.32

No.	ISSUED DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2023-07-06
2	ISSUED FOR APPROVAL	2023-07-17
3		
4		
5		

GRIT ENGINEERING INC

'THE FLATS'

PROJECT INFORMATION: 80 WATER STREET NORTH, ST MARYS

TOWN OF ST MARYS

CLIENT INFORMATION: 175 QUEEN STREET EAST, ST MARYS ON N4X 1B6

DRAWING NAME:

MILT DUNNEL FIELD/ THE FLATS PATH GRADING

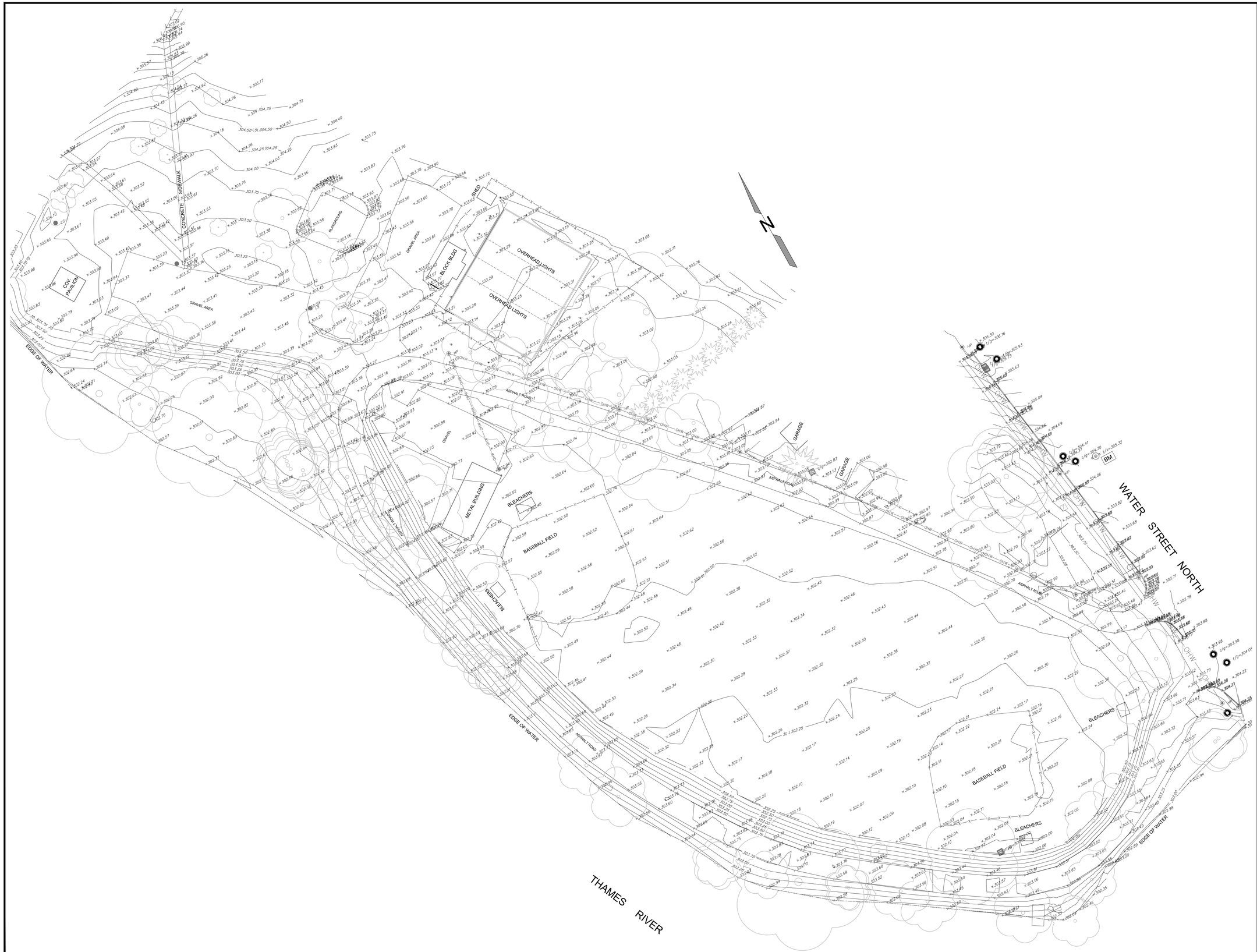
PROJECT No: GE22-0154-1

DRAWING No: C300

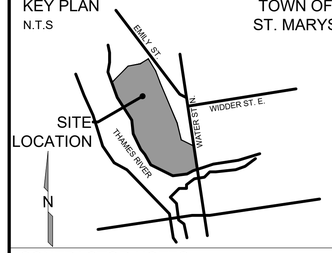
SCALE: 1 : 100 METRIC

0 2 4 6

SHEET SET No: 1 OF 1



KEY PLAN
N.T.S



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ALL DRAWINGS SHALL REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

DRAWING SHOULD NOT BE SCALED FOR DIMENSIONS PURPOSES.

BENCHMARK

ELEVATIONS ARE GEODETIC, DERIVED FROM THE CANSEL CAN-NET NETWORK, NAD83 CSRS (2010). LOCAL BM IS TOP SPINDLE OF FH ON EAST SIDE OF WATER ST. N.
ELEVATION: 305.32

No.	ISSUED DESCRIPTION	DATE
1		
2	ISSUED FOR CLIENT REVIEW	2022JUN 20
3		
4		
5		

GRIT ENGINEERING INC

'THE FLATS'
TOPOGRAPHIC SURVEY

PROJECT INFORMATION: 80 WATER STREET NORTH, ST MARYS

TOWN OF
ST MARYS

CLIENT INFORMATION: 175 QUEEN STREET EAST, ST MARYS ON N4X 1B6

DRAWING NAME:

MILT DUNNEL FIELD/
THE FLATS
EX. CONDITIONS

PROJECT No: GE22-0154-1

DRAWING No: C100

SCALE: 1 : 500

SHEET SET No: 1 OF 1

Free Water Safety Demo

Wednesday, Aug. 4 | 6 p.m.
On the Thames River | Boat Launch

New to paddling or need a refresher?
Come to this free session to learn:
what to bring
basic safety
paddling strokes and turns
conditions on the Thames

Come via your canoe, kayak or SUP
or listen from the land!
Rain date: Thursday, Aug. 5

ONTARIO CANADA
ST. MARYS

events@town.stmarys.on.ca
226-261-0098

'Yak FAQ

Is kayaking for me?

- Please know that our kayaks have a maximum weight of 275 lbs. and a member of your party must be able to lift 50 lbs. to get the kayaks down from the storage unit.
- Be honest about your physical capabilities: while kayaking is a relaxing endeavour, it is a challenging physical activity. Be mindful of the effects of hot and humid weather. This program is use at your own risk.

How do I stay safe while kayaking?

- Wear comfortable clothing that dries quickly, and water shoes or athletic sandals.
- Adjust your lifejacket straps as required so it fits snugly, and keep it on at all times while using your kayak. We have lifejackets available on a first-come, first-serve basis in sizes child to XL.
- Your kayak comes with a marine safety kit that includes: 15m heaving line with float, a whistle to signal distress, a watertight flashlight and a watertight container that doubles as a bailing device. Keep the kit near to you at all times and use if needed.
- Do not kayak in inclement weather; if you see lightning and hear thunder, please return to shore immediately.
- Stay close to other members of your party if kayaking as a group.
- Stay at least four metres away from the falls. Not only are the falls a danger, there is also a drain on the west bank close to the falls that has a powerful pull.
- Strong winds can make kayaking challenging. Consider shortening your route on a windy day.
- If you're new to kayaking, try the Trout Creek route first as it is shorter and gentler.
- do not consume alcohol or recreational drugs before or during your kayaking experience. If you are taking prescription medication, please heed its warnings and cautions for operating machinery and physical exertion.
- Do not engage in horseplay while kayaking.

What do I do after receiving my key?

- Kayaks are stored at the northwest end of Milt Dunnell Field, just west of the parking lot of Lions Park. Each kayak is named; your key will only unlock the kayak with the same name.
- Before launching, check over your kayak to ensure all parts are intact. If any part of your kayak appears to be broken or missing, immediately contact the library (519-284-3346).
- While still on land, position the interior foot pedals so when you're sitting inside, your knees are bent at a comfortable angle while seated with your back against the backrest. Store any carry-on in the hatch.
- Put on your lifejacket, fully zipping it and adjusting buckles as required to ensure a comfortable fit. Connect your paddle by sliding the ends together and clicking the nub into the hole.

How do I get into the water?

- There are two grassy areas, one north and one south, of the 'Yak Shack. Carry the kayak over to either area and place it in the water parallel to the riverbank. Lock the paddle in the stabilizer mechanism if desired.
- Stand at the cockpit, crouch down, grab the cockpit on either side and slowly hop in, shuffling your legs down into the hull until your feet reach the pedals. Take your time and make no sudden moves to keep your balance! Slide your rear back against the backrest, unlock the paddle and push off from the riverbank using your paddle.

How do I paddle?

- Grasp your paddle with both hands and centre your paddle shaft on top of your head. You hands will be in the proper starting position when your elbows are bent at 90 degrees.
- Lower your arms so the paddle rests across the deck. Confirm that the scooped side of the paddles are facing you and that the blades are in-line with each other.
- Turn your torso slightly and dip one blade fully into the water near your feet. Follow the blade with your eyes as you push it through the water. When your hand nears your hip, lift the blade out of the water. Then repeat on your other side to move forward. Make the opposite movement to move backward. Repeat the same motion on desired side to turn.
- Some of our kayaks are sit-on kayaks. You may get wet.

Where can I go?

- The river is yours to explore! Please stay at least four metres away from the falls and be mindful of others using the river.
- Head south from the launch to travel down Trout Creek; this gentle route will take you under the Water, Wellington and Church street bridges. Turn around at the small green foot bridge for a round trip of approximately two kilometres. Ideal for those new to paddling.
- Head north from the launch to take in the Grand Trunk Trestle and a round-trip route of approximately four kilometres. The water gets progressively shallow as you head north, so keep an eye out for rocks once the riverbanks change from residential lawns to farmland and forest. The river flows from north to south but there is often a southern headwind. Be sure to save some energy for your return!

What will I see?

- The Trout Creek route takes you under three very different bridges, and offers a unique view of downtown. After the Church Street Bridge, you'll see Kin Park and Rotary Park, as well as the impressive London trestle bridge. Expect to see ducks and geese.
- If you head north, you'll enjoy a new perspective of the Grand Trunk Trestle. Look for turtles and beavers near the trestle, and north of the trestle, look for bald eagles, osprey and other birds of prey hunting fish.
- No matter which direction you go in, you'll likely encounter other paddlers! Please be respectful but know that a friendly hello is always appreciated!

How do I end my journey?

- Return to where you "put in" your kayak. Park parallel to the river bank and place your paddle on dry land. Put a hand on the land and slowly hoist yourself out. Keep a hand on your kayak as much as possible so it doesn't drift away.
- Hoist your kayak out of the water, remove personal belongings, and flip the kayak to drain if necessary. Place back in storage unit as you found it and lock. Return key, paddle(s), lifejacket and safety kit to the library within the three-hour window. Report any issues to the library.

That was fun! How do I show my appreciation?

- Feel free to tag us in any social media posts:
  Instagram: @stmaryspl and @townofstmarys
  Facebook: @stmaryspubliclibrary and @stmarysontario
  #StMarysON
- Tell others about the program!

ONTARIO CANADA
ST. MARYS

July 17, 2023

Attention: Upper Thames River Conservation Authority

I am writing this letter of support for the Town of St. Marys accessible dock project. On behalf of the Community Living St. Marys and Area Board of Directors, I would encourage the UTRCA to approve the plan and allow this important project to move forward!

The vision statement of Community Living St. Marys and Area is "a community where everyone belongs". That vision has fueled a long history of advocating for environmental and attitudinal accessibility for all citizens. Access to nature and recreation opportunities is a right and leads to better health and acceptance of diversity. Our organization supports people with developmental disabilities to live, work and play in their community and we recognize there are many people who experience similar barriers. As part of the commitment to collaborate with other groups to increase accessibility in St. Marys, the CLSMA Board decided to pledge $35,000.00 from recent fundraising to assist with the accessible dock project at the Milt Dunnell field. We were hoping that it could be in place for this summer but recognize that there are many considerations involved. Currently there is very limited access to the water so I would urge the UTRCA to work quickly to find resolutions and allow the Town to proceed.

CLSMA is pleased to partner with the UTRCA and Town of St. Marys! Please let me know if you have any questions or if there are other ways we can support the project.

Sincerely

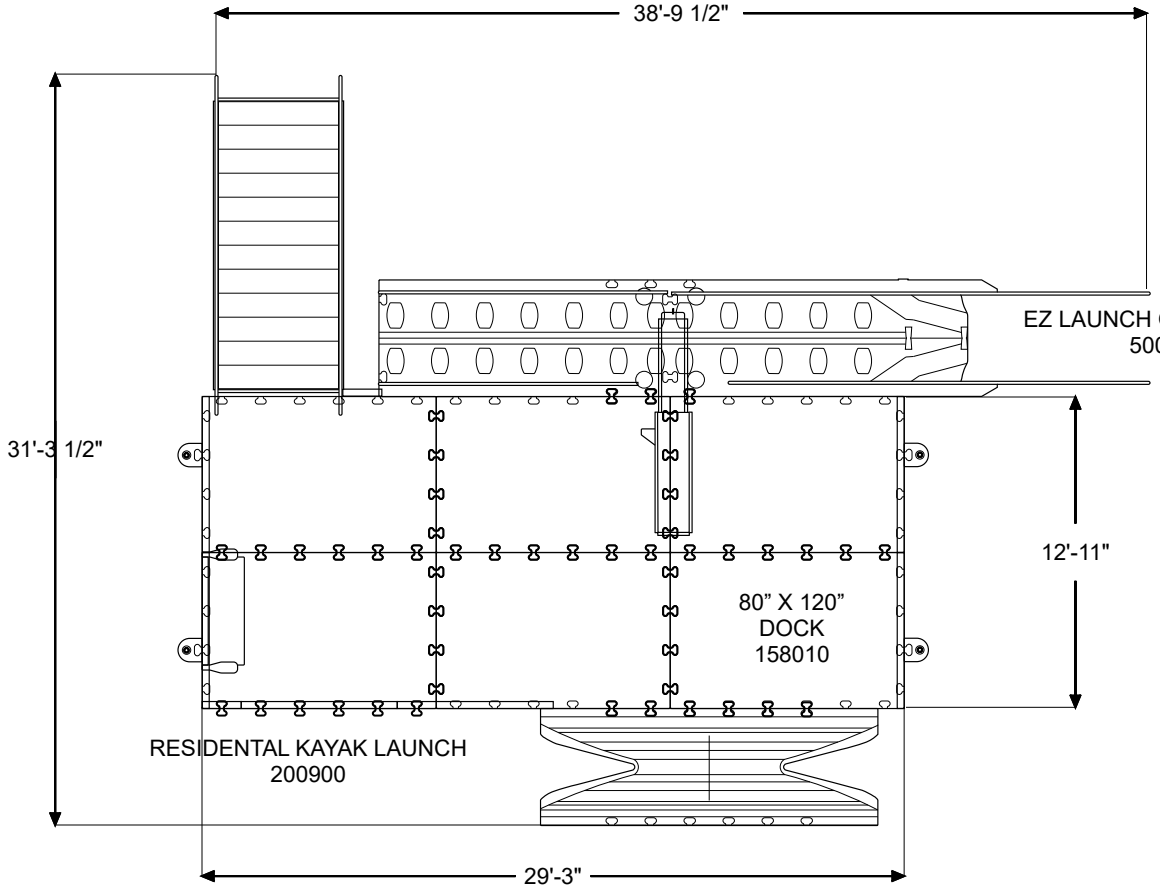
Jennifer Leslie

Jennifer Leslie

Executive Director
Community Living St. Marys and Area
jleslie@clstmarys.ca
(519)284-1400 ext. 228

Dock Live Load of 62.5 lbs/sqft
Low Profile Dock Live Load 30 lbs/sqft

MADE IN USA



Project Name:

, ON

Distributor Name:
Jillian Dailey

Drawn by: Jillian Dailey
Date: 2022-12-07
DWG Name: EZ8422_44902583144

EZ Dock, Inc
878 East Highway 60
Monett, Missouri 65708
Phone: 1 (800) 654-8168
Fax: (417) 235-2232

General Notes:

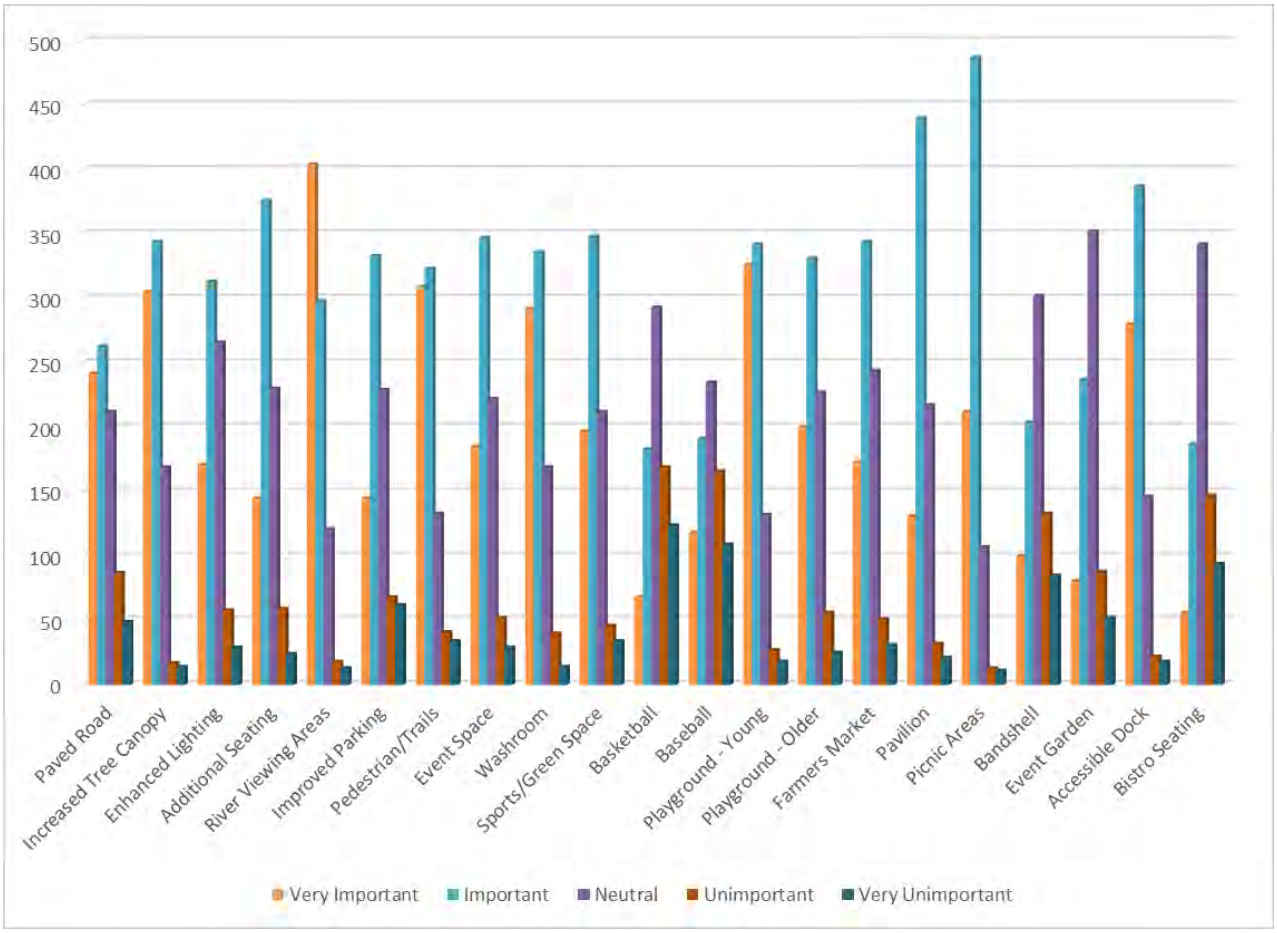
1. This drawing does not reflect anchoring. Once sufficient information & completed Proposal Request Form concerning water and bottom conditions is received, anchoring may be detailed.

2. Note: It is the dock owner/operator's responsibility to ascertain and comply with all applicable Federal, State, and local laws, ordinances and regulations, as well as all inspection, permitting and licensing requirements pertaining to the installation, application and use of EZ Dock products on the owner/operator's premises. EZ Dock, Inc. assumes no duty or responsibility with respect to the legality or compliancy of the owner/operator's chosen installation, application or use of EZ Dock products.

3. Reference EZ Dock Owner Manual for additional details.

Milt Dunnell Field
Accessible Dock – Public Consultation

The Town received over 1,300 responses to an engagement survey in rela o the Milt Dunnell Field revitaliza oject. One ques as "what ameni e important to you?"



In rela to an accessible dock, as shown above, below are the details:

Accessible Dock

Very Important	280
Important	387
Neutral	146
Unimportant	22
Very Unimportant	18

As shown in these results, the public deems an accessible dock at the site an important amenity to consider.

EZ Dock General Specifications *(Revision 04-07-16)*

1. Float and Deck Design Standard

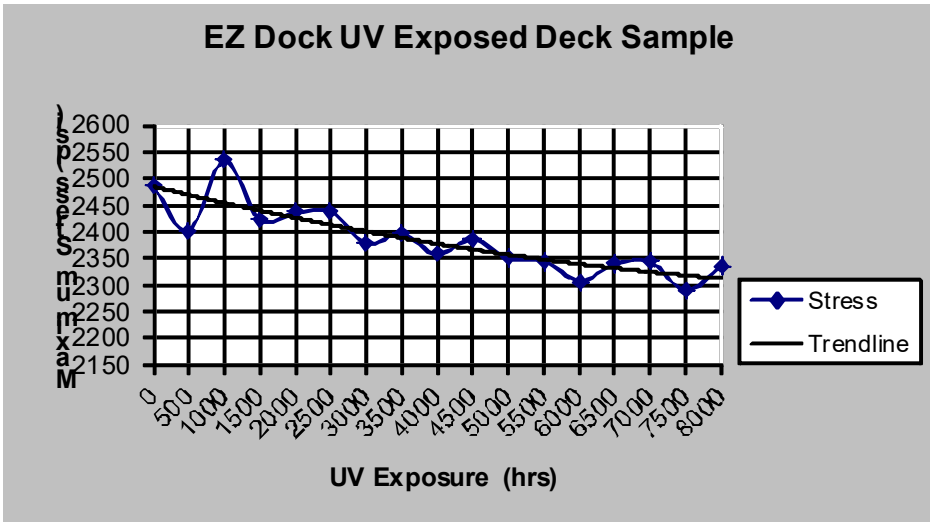
1.0 The individual dock section shall consist of decking surface and the float structure, which are to be constructed as a single, integrated component. Each section shall provide for the support of the dead load plus a specified live load of **62.5 pounds per square foot** (lb/ft^2). This shall be accomplished without the use of foam for either structural integrity or floatation. The dock sections shall be manufactured by a rotational molding process and each dock section shall be subject to the specific parameters of the particular model.

1.1 The individual dock section shall consist of a specified number of interior, air filler pylons. These pylons shall provide for flotation in the event of a breach of an exterior wall of the dock section; as well as the structural support for the deck portion of the float. Each pylon shall support the dead load plus a live load of 55 pounds (lb). The volume of each pylon shall be no less that 1540 cubic inches (in^3).

1.2 The individual dock sections shall be constructed of the following materials with the following general properties:

a. Virgin Polymer, Thermoplastic, Rotational Molding Grade **Compounded Linear Low Density Polyethylene-**(LLDPE)

b. An ultraviolet inhibitor system (UV-16) or better spectrometer specification. Laboratory testing conducted for 8000 hours yielded a 6.5% decrease in mechanical properties. The chart to the right shows the UV degradation trend line in relationship to mechanical property decrease over time. After the first 8000 hours the rate of decay is reduced significantly. Theoretical data indicated that the period of time between 8000 and 16000 hours yields an additional 0.7% decrease in mechanical properties.



(Real life scenario- 8000 hours of UV exposure can be related to approximately 9 years and 16000 hours related to 18 years of outdoor usage in southern Florida. These results show that a life expectancy in excess of 30-40 years is attainable.

c. A standard color of beige (or optional other) colorant in accordance with rotomolding standards.

d. The **density** of the section shall be approximately .932 grams per cubic centimeter (g/cm^3) or .0338 pounds per cubic inch (lbs/in^3) , per ASTM 792-00.

e. The dock section shall have a cold **brittleness** temperature equal to, or less than, -130° Fahrenheit (F), per ASTM D-746.

1.3 The properties of the exterior **wall thickness** of the dock sections shall be as follows:

a. The mean exterior material thickness shall be no less that .30 inches (in).

b. The corners shall be no less than .60 inches (in).

c. The exterior edge thickness shall be no less than 0.50 inches (in) at any particular point.

d. The walls of the dock sections shall resist a **shear** of no less that 1900 pounds per square inch (lb/in^2), per ASTM D-732, as well as having the capability of resisting a mean minimum **impact** of no less than 207 foot pounds (ft-lb), per ASTM D5420.

e. The **tensile strength** at average failure shall be no less than 2550 pounds per square inch (lb/in^2) with 14% **elongation** at yield, per ASTM D-638-03.

1.4 The decking surface shall be composed of a textured or "orange peel" surface with a grid pattern for added adhesion during dry conditions. Drainage of the decking surface shall be accomplished through the use of troughs, which shall have a width of no more than 0.5 inches (in) and a depth of no more than 0.5 inches (in). The drainage troughs shall extend over the width of the dock and shall be positioned at intervals of no less that 4.5 inches (in) and no greater than 6.5 inches (in) over the entire length of the deck

a. The deck shall have an approximate **coefficient of friction** equal to 0.35 during dry conditions and 0.61 during wet conditions. Simply put, the decking surface is 37% less slick when wet than when dry per ASTM D2394.

b. The properties of the decking surface shall be as follows:

c. The mean deck thickness shall be no less that 0.3 inches (in).

d. The deck thickness shall be no less than 0.290 inches (in) at any particular point.

e. The deck shall resist a punching shear which is no less that 1900 pounds per square inch (lb/in^2), per ASTM D-732.

f. The deck shall resist a minimum impact of no less that 120 foot pounds (ft-lb) near the center, or at the point where the deck is thinnest, per ASTM D-3029.

g. The deck shall resist a minimum impact of no less that 150 foot pounds (ft-lb) within 16 inches (in) of the outside of the dock, per ASTM D-3029.

2. Floating Dock Structure

2.0 The dock structure, as a whole, shall consist of the individual sections, which are to be coupled together in the specific configuration desired by the purchaser. Any material used in the dock structure shall provide for resistance to rust, corrosion, and the effects of any fuel or gasoline. All material designed and selected for marine environment and the conditions there of.

2.1 A 2-D or 3-D layout drawing of the final configuration, including any accessories, shall be supplied for the purchaser if desired. Recommendations for anchorage can also be provided.

2.2 The dock structure shall act as one unit when assembled, so that wave and/or wind action shall produce a minimum amount of motion. The structure shall be secured with either piles, spuds, bottom anchors, or stiff arms. The securing shall allow the structure to rise and fall freely with any water level changes and allow the structure to span waves from crest to crest, while providing a stable walking surface.

3. Connections of Dock Sections

3.0 Each dock section shall have molded-in female-type pockets spaced symmetrically along the top and bottom edges, around the entire perimeter of the dock section. These pockets shall be spaced at 19.5 inch (in) intervals, center line to center line, from each other. *All un-used pockets are to be filled with supplied EZ Dock pocket filler (PN # 201030).*

3.1 The molded-in female-type pockets shall accept a male-type coupler which shall be secured into the female pocket with the use of a 0.5 inch (in) X 13 inch (in) coupler bolt and nut.

3.2 The purpose of such connections is to provide for simple assembly and disassembly, as well as providing for the securing of one section to another. The connection will also provide for the ability to attach EZ Dock accessories to the dock sections.

3.3 Each connection point shall allow for some slippage in the event that an extreme stress is applied. This slippage will allow for disconnection without causing damage either to the male-type couplers or the female-type pockets.

3.4 The dock sections shall be connected at increments of 19.5 inches (in), in relation to each other. These connections may be made from any one side of any dock section to any other side of another dock section. These connections may also be used to connect dock sections of differing dimensions and shall provide for ease of assembly, whether the sections are to be assembled on land or in the water.

3.5 The male-type coupler shall be constructed of recycled post/pre-consumer recycled tire rubber.

3.6 Each male-type coupler shall withstand a pullout force of no less than 2500 pounds (lb) before failure of coupler occurs.

3.7 Each of the molded in female connection pockets shall provide for a pullout strength of no less than 3500 pounds (lb), before damage is caused to the dock section.

3.8 The accessories shall be connected to the dock system through the use of molded in coupler pockets around the perimeter of the dock sections by the use of either male or female type half-couplers. The male-type half-coupler (hardware connector, PN # S21140SS) shall have a 3.625 inch "T"–bolt embedded within it. The female type half-coupler (hardware connector, PN # S21141SS) shall have a 3.625 inch "T"–nut embedded within it Both types of half-coupler shall withstand a pullout force of no less that 2600 pounds (lb) before failure occurs.

4. Cleats

4.0 The tie up cleats shall be constructed of nylon 6,6 and shall have a length of 8-1/16 inches (in) and a height of 1-1/2 inches (in). The cleats shall be connected to the dock sections by two 5/16 inch (in) stainless steel bolts that are threaded into two stainless steel "T" nuts which are molded directly into the dock section. Each of the "T" nuts shall provide for a pull out force of no less that 2000 pounds (lb), so that the cleat may withstand a force of no less that 4000 pounds (lb).

4.1 T-nuts shall be molded in the dock sections in sets of two, with the distance between the two "T" nuts being 2-1/4 inches (in).

4.2 There shall be three sets of "T" nuts placed along the length of each side of the dock section. The sets of "T" nuts shall be placed at equal distances between the first and second pockets, between the third and fourth pockets, and between the fifth and sixth pockets, along both sides of the dock section.

4.3 There shall be one set of "T" nuts at one end of the 40 inch (in) wide dock section placed at equal distances between the two pockets.

4.4 There shall be two sets of "T" nuts at one end of the 60 inch (in) wide dock section placed at equal distances between the three pockets.

4.5 There shall be two sets of "T" nuts at both ends of the 80 inch (in) wide dock section. These "T" nuts shall be places at equal distance between the first and second pockets, and between the third and fourth pockets.

5. Anchorage

5.0 The dock system shall be designed to allow for the use of piling of various sizes, spud pipes, cables, or chains attached to a bottom anchor, or stiff-arm attachments for anchorage. Calculations can be supplied at purchaser's request to support designed anchorage with the assumption that all collected data is accurate. Calculations, permitting, and licensed engineering design available at customers expense.

6. Hand Railing Attachment

6.0 The dock structure shall have the ability to accept railing which is constructed to meet the standards established by the Americans with Disabilities Act (ADA), States Organization for Boating Access (SOBA) and the National Uniform Building Code (NUBC). The railing shall be constructed of 1.5 inch (in) O. D., 14 gauge steel tubing. The steel tubing shall be finished either by a 0.003 inch (in) Hot-Dip Galvanizing or by powder coating painting process.

7. Gangways and Access

7.0 All construction is to be accordance with the minimum provisions of States Organizations for Boating Access (SOBA) and the guidelines stated by, "Marinas and Small Craft Harbors". Gangways will be offered in several different material options but the offerings for loads, handrails, guardrails, transition plates, float mounts, shore mounts, and general designs will remain constant. Environmental conditions will influence the accessibility. Design layouts and advice can be supplied at request.

7.1 Gangways and Access Ramps shall be designed to support 90 pounds per linear foot (lbs/ftln). The deck and structural components shall be designed to support a concentrated load of 400 applied to any 12 inch X 12inch square. Lateral designed wind loads shall not exceed 77MPH.

7.2 Handrails shall be continuous along both sides of the of the walking surface and shall extend 12 inch past the walking surface on both ends. The top rail portion shall not be less than 34 inches nor more than 38 inches above the walking surface. The ends of the handrails shall be returned into the handrail body or terminate with no sharp or catching edges. The mounting and components of the handrails shall be capable of withstanding a lateral load of 50 pounds per linear foot.

7.3 Decking shall be per project specification and be skid resistant and made from marine grade appropriate materials.

8. Main Docks

8.0 The main docks are the walkways which are subjected to the most amount of traffic. These should be designed to provide for comfortable and easy walking widths. Design of the dock system for such things as pumps, power supplies, storage boxes, etc. to be attached to them, the overall width of the dock sections should have a minimum width of 60 inch (in) wide This will provide ample width for pedestrian traffic.

9. Finger Docks

9.0 The finger widths should be designed to allow for safe and comfortable walking widths. For boat or vessel mooring, a 40 inch (in) wide dock is sufficient to provide for finger stability as well as pedestrian an safety for finger lengths up to 20 feet (ft) long. If the length of the finger exceeds 20 feet (ft) long, the 60 inch (in) or 80 inch (in) wide docks should be strongly considered.

10. Wind Exposure

10.0 Boat Profile Height – According to the American Society of Civil Engineers (ASCE) manual published in 1969, for the average height profile compared to the length of the boat, the following will apply.

- For a 10 foot (ft) long boat:
  ASCE average height is 3 feet (ft).
  For future considerations, will assume average heights up to 6 feet (ft).
- For a 20 foot (ft) long boat:
  ASCE average height is 3.5 feet (ft).
  For future considerations, will assume average heights up to 7 feet (ft).
- For a 25 foot (ft) long boat:
  ASCE average height is 3.6 feet (ft).
  For future considerations: will assume average heights up to 7.2 feet (ft).
- For all calculations done using the average boat profile heights, it will be considered that 100% of the boats using the dock will be twice the ASCE average profile.

10.1 Maximum Wind Exposure – From studies it has shown that forces caused by the maximum wind exposure comes from an angle to the boat, instead of directly to the side or to the front of the boat. Due to the non-feasibility of designing a dock system to handle a maximum tornado wind gust, it is suggested that a reasonable wind speed should be chosen. According to the design standards set up by the Army Corps of Engineers, the dock system should be designed to withstand wind speeds of up to 77 miles per hour (mph) or 15 pounds per square foot (lb/ft^2).

10.2 Hidden Boats – It is a common practice to use load factors of 10% to 15% for each hidden boat affected by wind force. That is, every boat that is shielded by another boat, either in front of, or on the side of, will have a decrease in the amount of force which is applied to that boat due to the affect of the shielding boat. The use of a force factor of 15% per hidden boat shall be used in any calculations.

10.3 Load From Various Directions – In the designing of the boat dock system, if piles are to be used as the means of support, it is necessary to take into account the force being applied in the direction of the maximum wind exposure only. However; if chains, cables, or deadweights are to be used as the means of support, it would be necessary to take into account the wind exposure from all directions, when designing the dock system.

11. Load Design

11.0 **Dead Load**

a. The dead load shall consist of the entire dock system plus any additional attachments to the dock system.
b. Each dock section, without additional attachments, shall provide a **freeboard** of approximately 12.75” inches (in).
c. The surfaces of adjacent deck surfaces shall have an elevation difference of no more

than 0.125 inches (in).

d. The ends of the fingers shall have an elevation of no more that 1 inch (in) above that of the main dock.

e. The deck surface of each dock section shall not slope more than 0.5 inches (in) over the 10 foot (ft) length of the dock section.

f. The deck surface of each 80 inch (in) X 10 foot (ft) dock section shall not slope more that 0.35 inches (in) over the width of the dock section.

g. The deck surface of each 60 inch (in) X 10 foot (ft) dock section shall not slope more than 0.25 inches (in) over the width of the dock.

h. The deck surface of each 40 inch (in) X 10 foot (ft) dock section shall not slope more than 0.15 inches (in) over the width of the dock section.

11.1 Live Load Due To Vertical Loads

a. Under dead load conditions plus an additional 30 pounds per square foot (lb/ft^2) of uniform live load, flotation shall provide for a minimum of 7 inches (in) of freeboard.

b. The dock structure shall support a concentrated vertical load of up to 400 pounds (lb) at any particular point on the surface of the deck. The structure shall accomplish this while maintaining flotation.

11.2 Live Load Due To Horizontal Loads

a. The dock system shall sustain the stated design loads applied by normal current and/or debris which are normal to a particular location. (In extreme conditions other procedures such as additional anchorage, anchorage release, and/or dock system removal may be necessary.)

b. The dock system shall be capable of sustaining continuous wave action of up to 1 foot and occasional wave action not in excess of 3 feet during storm conditions.

c. The dock sections shall sustain any loads applied by non-moving ice without damage.

d. The dock system shall be compatible for the use of any boat or vessel size with a properly designed anchorage/mooring system. Boats or vessels over 35ft should be moored directly to the anchorage system.

e. The dock system and anchorage shall be capable of withstanding sustained wind loads of 77 miles per hour (mph), or 15 pounds per square foot (lb/ft^2), at 100% boat occupancy, unless otherwise specified.

f. The dock system shall be capable of withstanding the impact force caused by a 35 foot boat striking the end of a finger at a speed of 2 miles per hour (mph) and at an angle of 10^O off center.

12. Designing for Layout

The dock system, anchorage, and connections shall be designed according to the recommendations of the American Society of Civil Engineers Manual and Report on Engineering Practice Number 50, “Planning and Design Guidelines for Small Craft Harbors”, the revised edition.

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Works Cited:

Cambridge Materials Testing Limited: Laboratory #: 476905-08, June 5, 2008, Cambridge, Ontario

Toboasspm, P.E, Bruce O, and Kollmeyer, Ph.D., Ronald C. *Marinas and Small Craft Harbors*. New York: Van Nostrand Reinhold, 1991. Print.

Terry Boyd, John McPherson, Jill Murphey, Tim Bazley, Bobby Edwards, Mike Hough, Kent Skarr. *Design Handbook for Recreational Boating and Fishing Facilities:* Second Edition, 2006. Print

Revised 09-03-09

File: 23-069-Rev4

February 27, 2024

Town of St. Marys
408 James St. S.
St. Marys, Ontario

Attention: Andre Morin, CPA, CGA. – Director of Corporate Services / Treasurer

Re: Floating Dock Anchorage – St Marys, Ontario

Artas Engineering & Design Inc (AE&D) was retained by GRIT Engineering to review the proposed EZ Dock installation at the Milt Dunnell Field in St. Marys, Ontario. The scope of the work was to establish measures to be taken to provide adequate anchorage and establish flood proof measures using the regulated flood elevation of 306.2 m geodetic (based on the 1928 Vertical Datum).

The following documentation was provided to complete the scope of work:

- Final Concepts A – 05122023
- Town of St Marys – 2D drawings Estimate 1233
- EZ Dock Specks 040716
- 80 Water St. N Over Lay – May 15, 2023
- Based on Dock Manufactures component resistance
    - Grade 30 – 3/8” galvanized mooring chains 2650 lbs working load.
    - Stud rail support 2500 lbs each
    - Mooring chain attachment point embedded in the dock material 2600 lbs each.

The proposed dock size is 8.9m (29’-3”) x 3.9m (12’-11”) and the height of the dock is 0.38m (15”).

Assumptions

Based on the overlay information it is estimated the edge of water geodetic elevation to be 302.37 in the general location of the proposed dock. We have also assumed that the bottom of lake in the general area of the dock is 1.2 m (4’-0”) below the surface.

The dock is to be removed during the months of high probability of flooding events. It was noted by the client that the dock will be removed in the fall season (September), stored and reinstalled in late May.

Calculation Inputs

- Max instantaneous Discharge July 2000., Q = 572 m^3/s (Station 02DG005)
- Maximum water height based on similar water discharge (2004 flow) = 5.219 m
- Drag Coefficient Cd = 2.05 (based on long rectangular member)
- Friction Factor “see attached calculation.”
- Factor of safety minimum 1.5
- Channel width @ Station 02GD005 estimated to be 61 m.

Calculation Considerations (actual calculations attached to this report)

- Water flows acting along the long side of the dock.
- Water flows acting along a 45-degree angle at the corner, exposing portions of both short and long sides.
- Water flows along 50% of dock height (face).
- Water flows along full dock height (face).
- Water flows along 115% of dock height (face). If debris are piled up against the dock during a flood event.

Recommendation

Based on the attached calculation, the governing case is a water flood, as determined by the maximum instantaneous discharge observed in July 2000. When the dock is exposed to a 45-degree angle to the waterflow, with debris piling along the dock increasing the water surface area by 15% over the total dock height, the dock is subjected to a lateral force of approximately 13 kN (2,950 lbs). To resist this lateral load, we recommend using four concrete blocks weighing 2600 lbs each. The required size of each block is 24” x 24” x 48” long, providing sufficient weight to prevent sliding along the river floor. The 3/8” diameter, grade 30 galvanized mooring chains are suitable for resisting 2600 lbs, as per the manufacturer’s information, with a maximum load of 745 lbs when fully engaged. We suggest connecting the mooring chains to the concrete block using either a minimum 1/2” diameter (Galvanized) embedded bar or wrapping the chain along all four sides and shackling the ends together.

Our understanding is that the vertical stud pipes are solely used to maintain the dock's position during normal operating conditions and do not provide lateral support due to the shallow soil condition above the riverbed. If during the first season it is found that the stud does not have sufficient soil to provide support, pipe supports may be bolted to the side of the concrete block, allowing the stud pipe to be inserted and locking the dock in a fixed position. The attachment must be a round pipe larger than the stud pipes and welded to a 1/2” thick steel plate, which will be bolted to the side of the concrete block using four 1/2” Hilti Kwik Bolt 3 mechanical fasteners. All components must be galvanized.

Due to the high flood elevation of 306.2m, we recommend using a combination of stud pipes and mooring chains to secure the dock during normal water level usage. The pipes provide a stable dock, while the chains act as a safeguard during unforeseen floods. However, the dock should be removed during the offseason when the risk of flooding is highest.

The stud pipe should extend 3'-4' above the dock during normal water level and be secured to the lakebed based on the manufacturer's recommendation to provide users with a stable dock. Mooring chains, consisting of four 85' long x 3/8" chains, should be connected to 2600 lbs weights at each corner below the dock as a last resort to maintain its location during a flood event. Deadweight brackets connecting the mooring chains to the dock itself are provided by the dock supplier and are rated for 2600 lbs each. The combined use of studs and chains allows the dock to float over the stud pipe during an unforeseen water event, while the mooring chains prevent the dock from being dislodged.

Lastly, as previously outlined, the dock is to be removed during September and reinstalled in late May. This serves as the primary floodproofing method for the dock, with mooring chains and weights serving as a secondary means to ensure the dock remains in place if staff cannot be safely removed during an unforeseen event.

We trust that this information is adequate. If you have any questions or concerns, please feel free to contact me at the office.

Regards,

ARTAS ENGINEERING & DESIGN INC.

Alex Letsos, P.Eng.

General Information

$l_{short} := 12\ ft + 11\ in = 3.937\ m$ Short Length of Dock (As per Manufactures.)

$l_{long} := 29\ ft + 3\ in = 8.915\ m$ Long Length of Dock (As per Manufactures.)

$l_{Dia} := 29\ ft + 10\ in = 9.093\ m$ length of exposed dock @ 45 degree flow.

$h_{dock} := 15\ in = 0.381\ m$ Height of Dock (As per Manufactures.)

$h_{50} := h_{dock} \cdot .5 = 0.191\ m$ Exposed height @ 50% below waterline

$h_{100} := h_{dock} \cdot 1 = 0.381\ m$ Exposed height @ 100% below waterline

$h_{115} := h_{dock} \cdot 1.15 = 0.438\ m$ Exposed height @ 115% below waterline as a result of piling debris

$A_1 := h_{50} \cdot l_{Dia} = 1.732\ m^2$

$A_2 := h_{100} \cdot l_{Dia} = 3.465\ m^2$

$A_3 := h_{115} \cdot l_{long} = 3.906\ m^2$

$\rho_{water} := 1000 \cdot \frac{kg}{m^3}$ Mass density of water @ 4 $°C$

Buoyancy Load

$V := l_{short} \cdot l_{long} \cdot h_{dock} = 13.373\ m^3$

$g := 9.81\ \frac{m}{s^2}$

$F_B := \rho_{water} \cdot V \cdot g = 131.19\ (kN)$

Not practical to resist 131.19 kN = 29,500 lbs. therefor approximately 12 (2,600 lbs) blocks are required

Lateral Load Wind

$W := 15\ psf = 0.718\ kPa$ Army Corps of Engineers

$F_{wind} := W \cdot l_{Dia} \cdot h_{dock} = 2.488\ kN$ < Force of water flow, therefor water flow governs

Lateral Load Water Flow

$Q_1 := 572 \cdot \frac{m^3}{s}$ Max Instantaneous Discharge m^3/s(July 2000)

$h_1 := 5.219\ m$ Estimated heights based on similar flow, 2004 = 588 m^3/s

$w_1 := 61\ m$ Channel width @ Station 02GD005 (Park Bridge estimate)

$V_1 := \left(\frac{Q_1}{(h_1 \cdot w_1)} \right) = 1.797\ \frac{m}{s}$ Velocity formula

$l := \max\left(l_{short}, l_{long}, l_{Dia}\right) = 9.093\ m$ Max exposed dock length

$A := \max\left(A_1, A_2, A_3\right) = 3.906\ m^2$ Max Exposed surface area

$C_d := 2.05$ Drag Coefficient Baker, et, al., 1983

Table 2-2 Drag coefficient for various object shapes (Baker, et al., 1983).

SHAPE	SKETCH	C_D
Right Circular Cylinder (long rod), side-on	Flow	1.20
Sphere		0.47
Rod, end-on	Flow	0.82
Disc, face-on	Flow	1.17
Cube, face-on	Flow	1.05
Cube, edge-on	Flow	0.80
Long Rectangular Member, face-on	Flow	2.05
Long Rectangular Member, edge-on	Flow	1.55
Narrow Strip, face-on	Flow	1.98

$F_{water} := \frac{\left(A \cdot C_d \cdot \rho_{water} \cdot V_1^{\,2}\right)}{2} = 12.925\ kN$ Drag Formulate rearranged for drag force

$Block_{length} := 48\ in = 1.219\ m$

$Block_{width} := 24\ in = 0.61\ m$

$Block_{height} := 24\ in = 0.61\ m$

$\varphi_{block} := 24\ \frac{kN}{m^3}$

$Mass_{block} := Block_{length} \cdot Block_{width} \cdot Block_{height} \cdot \varphi_{block} = 10.874\ (kN)$

$n := 4$ Number of Blocks

$N := n \cdot Mass_{block} = 43.495\ kN$ Total mass of all blocks

$\mu := 0.5$ Friction Factor *

There are no set standards to determine friction factors for underwater application as these are typical empirical values determine at each specific site, we have used a value based on on mass concrete on clean fine to medium sand, silty medium to coarse sand, silty of clayey gravel ranges between 0.45-0.55 (NAVFAC Standard)

We used a mid range and included a higher factor of safety to accommodate uncertainties. Typical FOS for slide is 1.5

In addition it is estimated there is approximately 12"-16" of soil over the river bedrock (block will sink into) which was have not included as a passive pressure resisting sliding effects.

$f := \mu \cdot N = 21.747\ kN$

$FOS := \frac{f}{F_{water}} = 1.683$ OK Greater then 1.5

Load on Chain

$h_1 = 5.219\ m$ Max water Height

$Chain_{length} := 85\ ft = 25.908\ m$ Moring chain length

$$\theta := \operatorname{asin}\left(\frac{h_1}{Chain_{length}}\right) = 11.621\ deg$$

$$\frac{F_{water}}{4} = 3.231\ kN$$

$$Chain_{force} := \frac{F_{water}}{4} \cdot \frac{1}{\cos(\theta)} = 3.299\ kN$$

$Chain_{capacity} := 2650\ lbf = 11.788\ kN$ Working Load based on Manufacture 3/8" Grade 30 Galvanized

$$FOS_{chain} := \frac{Chain_{capacity}}{Chain_{force}} = 3.573$$

Stud Pipe support

$h_{stud} := 2.0\ m$ Maximum height of total stud

$$Moment := h_{stud} \cdot \frac{F_{water}}{4} = 6.463\ kN \cdot m$$

Plate and Tube connected to concrete block with 4 anchors spaced at 12" vertical and 12" horizontal.

$s_v := 12\ in = 0.305\ m$

$$Tension := \frac{Moment}{s_v} = 21.203\ kN$$

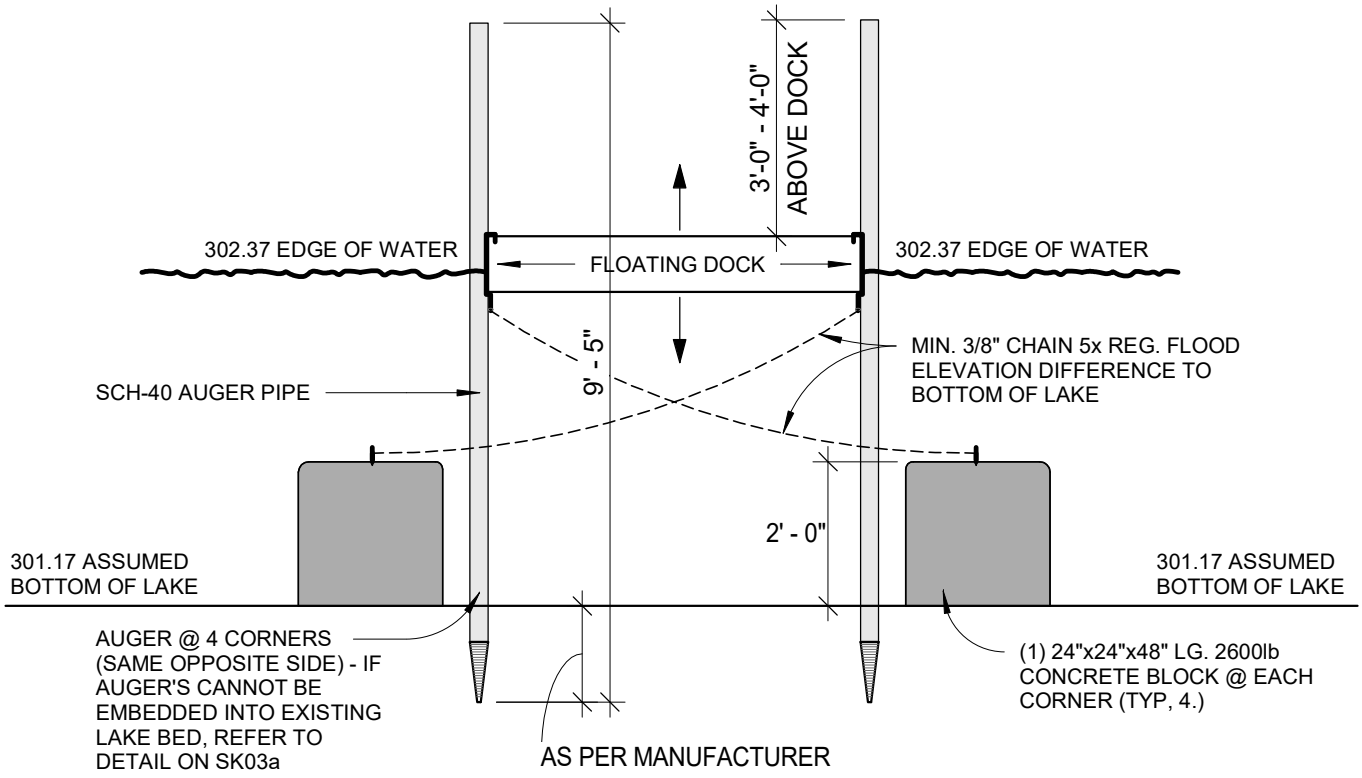
Top 2 anchors take tension load therefore divide by 2

$$B_{reaction} := \frac{Tension}{2} = 10.602\ kN$$

$B_{capacity} := 20.7\ kN$ 1/2 Hilti Kwik Bolt 3. Galvanized minimum embedment 3 1/2" with 20 MPa concrete

$FOS_{anchor} := \frac{B_{capacity}}{B_{reaction}} = 1.953$ OK

* REGULATORY FLOOD ELEVATION = 306.20m



1 / SK03 FLOATING DOCK SECTION

3/8" = 1'-0"

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413 Hibernia Street, Unit 3, Stratford Ontario, N5A 5W2
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project name & address
DOCK ANCHORAGE DESIGN
ST. MARY'S, ONTARIO.

sheet title
FLOATING DOCK SECTION

date 2024FEB26 | drawn CH | checked AL

sheet no. SK03

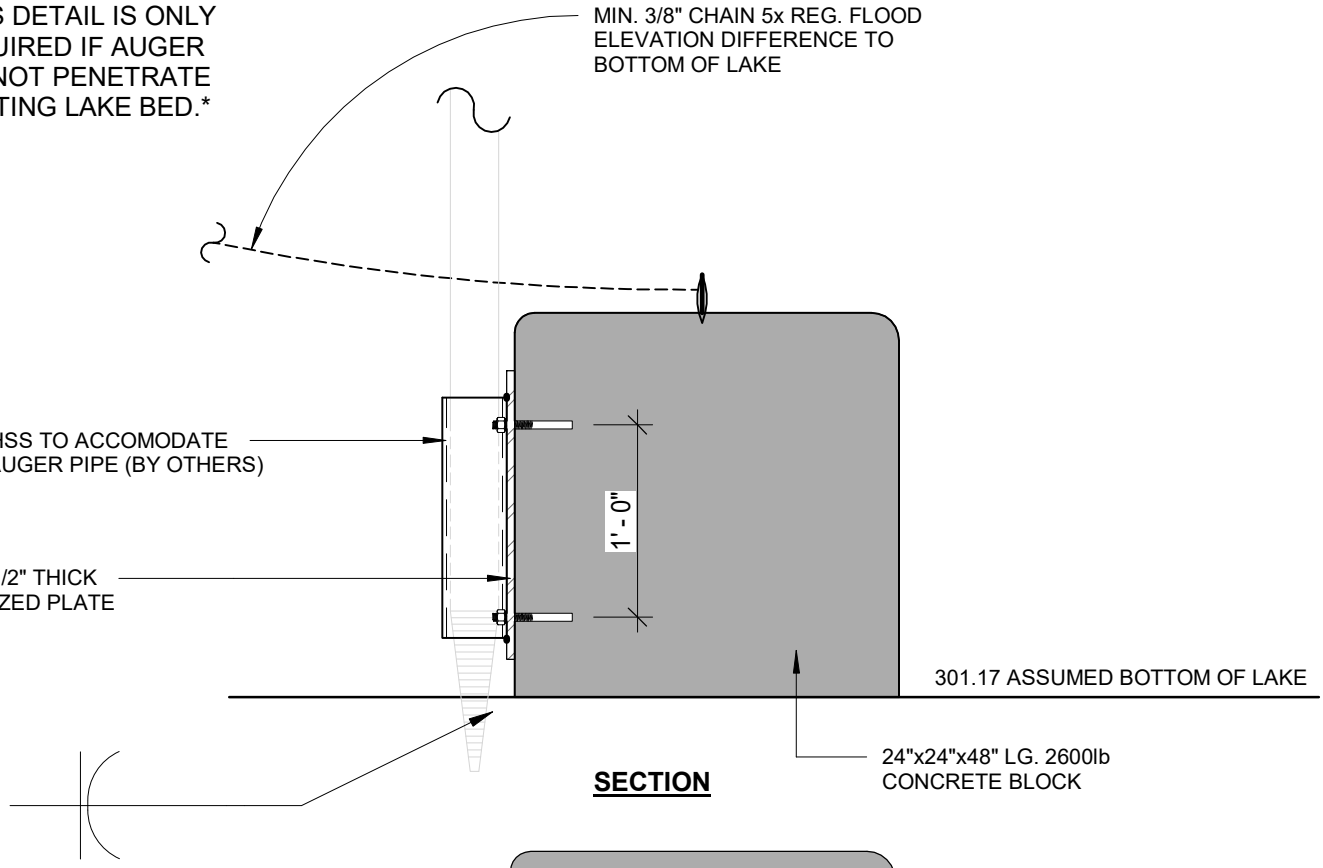
scale 3/8" = 1'-0"

sheet size 8.5x11

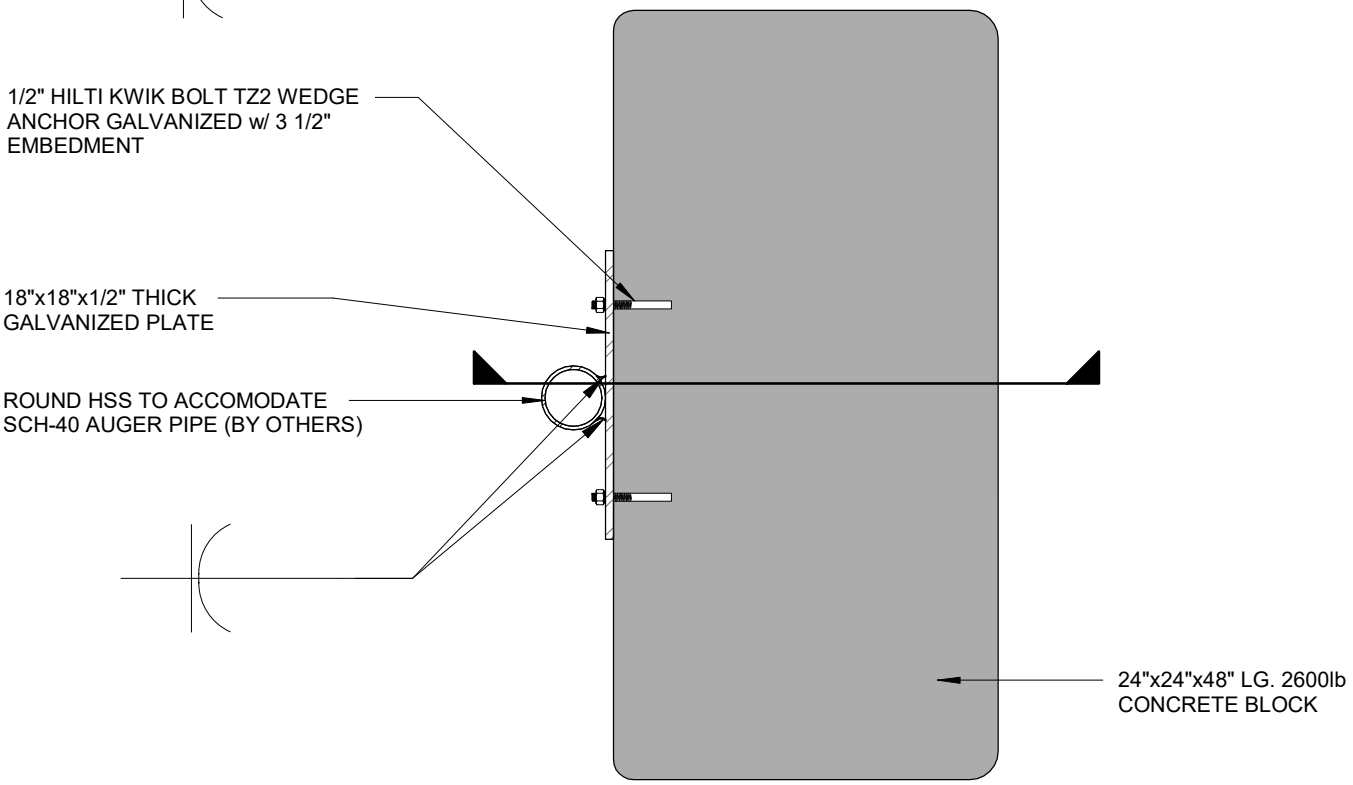
project number 23-069

rev. 1

THIS DETAIL IS ONLY REQUIRED IF AUGER CANNOT PENETRATE EXISTING LAKE BED.



SECTION



PLAN VIEW

ARTAS ENGINEERING & DESIGN INC.
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project name & address
DOCK ANCHORAGE DESIGN
ST. MARY'S, ONTARIO.

sheet title
AUGER ATTACHMENT DETAIL

date 2024FEB26 | drawn CH | checked AL

sheet no. SK03a

scale 1" = 1'-0"

sheet size 8.5x11

project number 23-069

rev. 0

Public Works Flood Event Response

SOP-PW-3101

1.0 Purpose

To establish a process regarding how the Public Works Department will respond to a flooding event.

2.0 Scope of Procedure

This Standard Operating Procedure details the processes and requirements for Public Works Staff and does not extend to activities that may be undertaken by other departments during a flooding event.

3.0 Safety Requirements

Any staff working near floodwaters during the flood response activities shall wear a personal floatation device.

4.0 Procedure

The following assumptions are made when designing a response plan for a flooding event:

- The Director of Emergency Services has been designated as the Town of St. Marys Flood Coordinator
- The Public Works Department always maintains a minimum of one On-Call Public Works Operator who can respond to an emergency within thirty (30) minutes.
- All equipment is stored within the Town of St. Marys boundaries is kept in a service ready state. If the Town equipment is unavailable, the Town has contracts with various contractors for the rental of like-equipment.

4.1 Watershed Conditions Statement Response

The Upper Thames River Conservation Authority (UTRCA) issues a weather conditions statement during periods of minor flooding to report on general watershed conditions to flood coordinators, and to remind the general public of general river safety issues.

In response to the statement, the Flood Coordinator shall forward all relevant communication to the Director of Public Works and the Public Works On-Call Operator. The Director of Public Works and On-Call Operator shall:

- Continue to monitor weather conditions using local weather stations and weather reports and review

the weather reports that are issued by the Ontario Good Roads Association Weather Tracker Add-On. The weather reports are delivered thrice daily.

- Ensure that all Public Works Personnel are available to respond to any future flood watch or flood warning activities.
- Ensure that all necessary equipment needed to respond to floods is in service and available for use. Such equipment may include, vehicle fleet, trailers, backhoe, barricades, etc.

4.2 Flood Watch Response

The Upper Thames River Conservation Authority issues a flood watch when the potential for flooding exists within specific watercourses and municipalities to provide early notice of the potential for flooding based on weather forecasts calling for heavy rain, snow melt, high winds or other conditions that could result in high runoff.

The St. Marys Director of Public Works shall direct the Public Works On-Call Operator to regularly monitor areas that are susceptible to flooding to determine if there is cresting, special consideration should be given to:

- Emily Street at the Grand Trunk Trail
- Parkview Drive
- 80 Water Street North, Milt Dunnell Park “The Flats”
- Water Street North, Millrace and Riverview Walkway
- Thomas Street
- Water Street South at the quarries
- St. Andrew Street North, south of Widder Street East
- Huron Street North, south of Widder Street East

While monitoring areas susceptible to flooding, the Public Works On-Call Operator shall ensure all storm water management infrastructure is in a ready state. For example, all catch basins are clear from debris, and municipal drains are free from brush.

The St. Marys Director of Public Works shall, in coordination with the Public Works staff, continuously monitor flood conditions and determine when to direct the Public Works and Parks Operators to undertake the following tasks at 80 Water Street North, Milt Dunnell Park “The Flats” in order to protect Town assets:

- Removal of any unsecured amenities such as the picnic tables and garbage and recycling receptacles
- Contact vendor of record for the disconnection of hydro
- Monitor river water height in relation to the dock and respond as per section 4.4 of this response plan

The St. Marys Director of Public Works shall advise the Public Works and Building Assistant that all rental bookings or municipal programming at 80 Water Street North shall be cancelled. The Public Works and Building Assistant shall notify and Tourism and Economic Development Manager or designate and all rentals and municipal programming of the cancellation. Signage and communication to the public will be posted.

4.3 Flood Warning Response

The Upper Thames River Conservation Authority issues a Flood Warning when flooding is imminent or already occurring in specific watercourses and municipalities.

The St. Marys Flood Coordinator will forward all flood related communication to the Director of Public Works, The St. Marys Flood Coordinator shall:

- Provide notification to Town Council, Emergency Management Team, Senior Management Team, Senior Leadership Team, and Communications Department, advising that a Flood Warning is in effect and specific areas of concern.

The Director of Public Works shall:

- Direct Public Works and Parks Operators to close roads and Town-owned lands, as required. Any closure shall be uploaded to the Town's Municipal511 Account.
- Deployment of sandbags in areas that may experience minimal flooding in residential areas (i.e. St. Andrew Street North, south of Widder Street East and Huron Street North, south of Widder Street East).
- Coordinate the delivery of rental pumps in anticipate of a post-flood event response.

4.4 Special Considerations for Dock located at Milt Dunnell Park:

- The dock is to be installed along the bank of the Thames River at Milt Dunnell Park from the Victoria Day Weekend in May until the Labour Day Weekend in September.
- If a weather event is taking place during the season when the dock is installed and where water levels in the Thames River are anticipated to rise, Public Works staff will continuously monitor the height of the Thames River. A staff gauge shall be installed to allow operators to easily measure the depth of the rising water at the dock and once the river reaches a geodetic elevation of 302.70 msl, commence the following procedure to remove the dock from the river.
  in place, removal of floating dock
  - Wrapping the dock with large straps, secure the dock with the Public Works backhoe
  - Unbolt the screw pier supports from the dock and unscrew the anchor piers from the riverbed
  - Unbolt the mooring dock chain from the dock
  - Float the dock towards the shore. Once close to the shore, unbolt the gangway from the dock
  - Remove all dock components from the area and place on trailer and remove from site.
- If prior to the water levels reaching the defined elevation, public works staff observe high quantities of debris floating down the river during the flood event that in the opinion of staff could damage the dock, commence the above procedure.

4.5 Post Flood Event Response

When the flood event has dissipated, the following actions shall be undertaken:

- Rental pumps and generators shall be installed in flooded areas
- Assess level of damages
- Re-open roads and town-owned lands as required

5.0 Related Documents

Not Applicable.

6.0 Document History

The following table depicts the document history related to this Standard Operating Procedure:

Version History					
Rev. #	**Date**	**Reason**	**Initiated By**	**Review By**	**Approved By**
1.0	07.11.2023	Creation / Inception	MD	JW	JW
1.1	10.17.2023	Minor Updates Related to Flood Watch Response section and dock removal decision making	JW	MD	JW
1.2	11.03.2023	Added section 4.4 and modified document to accommodate current Flood Coordinator designation being Director of Emergency Response	JW		
1.3	2.12.2024	Clarified wording around conditions statement, flood watch and flood warning based on feedback from Jan 8, 2024 call with UTRCA	JW		

Memorandum

UPPER THAMES RIVER CONSERVATION AUTHORITY

The Thames A Canadian Heritage River

DRAFT

To: Tracy Annett, Jessica Schnaithmann, Brent Verscheure

From: Karen Winfield

CC: Cari Ramsey, Spencer McDonald

Date: June 23, 2020

Re: Proposed Interim UTRCA s28 Dock Guidelines

Following recent Regs discussions on our policies (there aren't any…) for the approval of docks (and "dock" like structures) in our watershed, and following review of recent policies from the CO Regs group and our sister SW CAs (ERCA, LTVCA), the following interim dock guidelines are proposed in reviewing and/or issuing approval for docks in our watershed:

[These guidelines are not only in our "regulatory interest" but also to "keep the peace" between neighbours as suggested by other CAs.]

New/replacement docks will <u>not</u> be permitted:

- For a replacement dock/structure, when the previous dock became detached in a previous flood event or was detached or displaced as a result of erosion;
- In the Main Branch and/or the North Branch of the Thames River downstream of the Fanshawe Dam where the risk of riverine flooding and subsequent detachment is high;
- In the North Branch of the Thames River or in Trout Creek downstream of the Wildwood Dam where the risk of riverine flooding and subsequent detachment is high;
- In the South Branch of the Thames River downstream of the Pittock Dam where the risk of riverine flooding and subsequent detachment is high;
- In any riverine flood hazard where the risk of flooding and subsequent detachment is high;
- Upstream of any flood control structure, erosion control structure or any infrastructure (municipal or otherwise) where the risk of detachment is high;
- When access to the dock is through a PSW, wetland, ANSI, ESA or other environmentally sensitive area in the absence of a favourable EIS or site visit with qualified UTRCA staff (to determine appropriate siting of the dock and access path).
- When the materials used for the construction contain non-environmentally friendly pressure treated wood or other materials that may leach chemicals or pollutants into the water;

[Dock/structures are intended (and will be reviewed/permitted) solely for the purpose of vessel access.

Any other ancillary structures (houseboats, gazebos, sheds, storage areas, party platforms, etc.), floating or otherwise, are to be treated as any other form of "development" and hence our standard flood/erosion/shoreline/watercourse/wetland setbacks would apply.]

New/replacement dock/structures <u>may</u> be permitted when:

- All landowner permissions have been attained for both the dock and any associated access routes to the dock;
- Maximum tread width of 1.8 metres;
- Maximum length not to exceed 18.2 metres (unless longer is deemed necessary to gain access to a vessel) and not projecting any further than existing structures updrift or downdrift from neighbouring projections;
- Trajectory not to block vessel access to neighbouring structures;
- Minimum setback off the property/lot line standard of 4.5 metres;
- If necessary, a sidelift or cradlelift to one side of the dock;
- If necessary, a Personal Water Craft (PWC) bunk to the opposite side of the dock that includes davits and blocking to store PWC craft. (The bunk should be .2 meters lower to attempt to eliminate "party platform usage");
- Depending on the project location, the risk for flooding and/or detachment, proximity of downstream infrastructure, the requirements for filling/excavation or construction of a retaining wall, access ramp or mechanical anchoring, UTRCA staff may require that a qualified professional stamp the design drawings confirming that the structure will be anchored properly and will not detach in any flood event up to and including the Regulatory.
- Depending on the project location, UTRCA staff may require that the dock/structure is seasonal in nature and will be designed with the ability and intent to be removed over the winter and spring freshet.

Specific to Special Event Docks

- Dock/structure may be approved in areas higher risk for flooding where the structure is only to be installed for a short duration for a special event (i.e. The St. Marys Heritage Festival Regatta)and has the ability/intent to be installed immediately prior to and removed immediately following the event or in case of expected flooding.

Specific to Lake Sunova [Somewhat <u>protected</u> from Ice and Flow Movement]

- Dock/structure may be approved via a Letter of Clearance where the dock/structure meets all the above requirements AND requires no filling/excavation or site grading/alteration to install AND it is a low impact floating dock and/or post dock constructed of environmentally friendly materials.**Specific to**