

Appendix A

Natural Features Technical Memoranda



Appendix A1 – Desktop Natural Features Assessment



Desktop Natural Features Assessment

Project Name: Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment

Attention: LHPWSS

From: Jacobs Ontario Ecology Team

Date: March 21, 2022

Revision: Final

Project Number: CE801200

1. Introduction

The recently completed Lake Huron Primary Water Supply System (LHPWSS) Master Water Plan Update (2020) identified the need to improve disinfection and increase water storage at the Lake Huron Water Treatment Plant (WTP), to meet water demands to the year 2038. The City of London's Regional Water Supply Division, on behalf of the LHPWSS, has therefore initiated a Schedule B Municipal Class Environmental Assessment to confirm and refine the preferred alternative to enhance disinfection at the Water Treatment Plant (WTP) and meet the water storage requirements, while providing the plant with the flexibility to implement energy management and other operational strategies. Potential upgrades would be located on the Project Site, as shown in Figures 1-5.

The study represents an opportunity to develop alternative solutions, assess their technical viability, and conduct a comprehensive evaluation to select a preferred alternative using the Schedule B Municipal Class Environmental Assessment framework. The assessment is being carried out according to the planning and design process for Schedule B projects under the Environmental Assessment Act, 1990 as outlined in the Municipal Engineers Association's Municipal Class Environmental Assessment document (2000, as amended in 2007, 2011, and 2015).

Based on current progress of the Environmental Assessment, a short list of six alternatives (including the "Do Nothing" option) is being developed and will be evaluated to identify a preferred solution (Figures 1-5):

- Alternative 1 - Do Nothing
- Alternative 2 - Clearwell Upgrades and New Reservoir
- Alternative 3 - New Reservoir
- Alternative 4.1 - Ultraviolet Disinfection at Post-clarifiers and New Reservoir
- Alternative 4.2 - Ultraviolet Disinfection at Filter Effluents and New Reservoir
- Alternative 4.3 - Ultraviolet Disinfection at New Reservoir

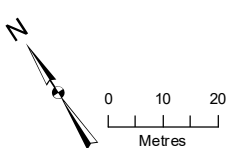
The purpose of this Technical Memorandum (TM) is to identify natural heritage features that may occur within the Local Study Area, based on a preliminary desktop investigation. The Project Site is defined as the WTP and the potential area which could be impacted from the proposed works (Figures 1-5). This desktop, baseline ecological assessment is based on the limits of the Local Study Area, which includes Highlands Drive to the north, Bluewater Highway to the east, Gravelle Street to the south, and the Lake Huron shoreline to the west. This TM also comments on the preferred alternatives and potential impacts from an ecological perspective and will provide recommendations for required field studies.



- | | |
|--|---|
| <ul style="list-style-type: none"> — Proposed Works within Existing Building — Proposed Works — Existing Infrastructure — 3 to 1 Slope Regulation Limit Project Site | <p>Cohesive Bluffs Policy Zones</p> <ul style="list-style-type: none"> Greater landward measurement of 15.0 m from Lakeshore Area 1 or the location of the 60 year erosion line Greater landward measurement of 7.5 m from Lakeshore Area 1 or the location of the 25 year erosion line The area between Lakeshore Area 1 and the minimum distance of 7.5 m |
|--|---|

Note:
1. Aerial Source: VIVID, 2016.

Figure 1
Alternative 2
Baseline Ecological Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario



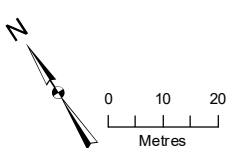


- Proposed Works
- Existing Infrastructure
- 3 to 1 Slope
- Regulation Limit
- Project Site

- Cohesive Bluffs Policy Zones**
- Greater landward measurement of 15.0 m from Lakeshore Area 1 or the location of the 60 year erosion line
 - Greater landward measurement of 7.5 m from Lakeshore Area 1 or the location of the 25 year erosion line
 - The area between Lakeshore Area 1 and the minimum distance of 7.5 m

Note:
1. Aerial Source: VIVID, 2016.

Figure 2
Alternative 3
Baseline Ecological Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario

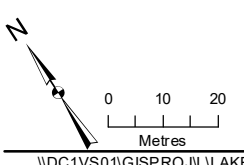




- Proposed Works within Existing Building
 - Proposed Works
 - Existing Infrastructure
 - 3 to 1 Slope
 - Regulation Limit
 - Project Site
- Cohesive Bluffs Policy Zones**
- Greater landward measurement of 15.0 m from Lakeshore Area 1 or the location of the 60 year erosion line
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 - The area between Lakeshore Area 1 and the minimum distance of 7.5 m

Note:
1. Aerial Source: VIVID, 2016.

Figure 3
Alternative 4.1
Baseline Ecological Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario

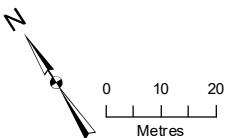


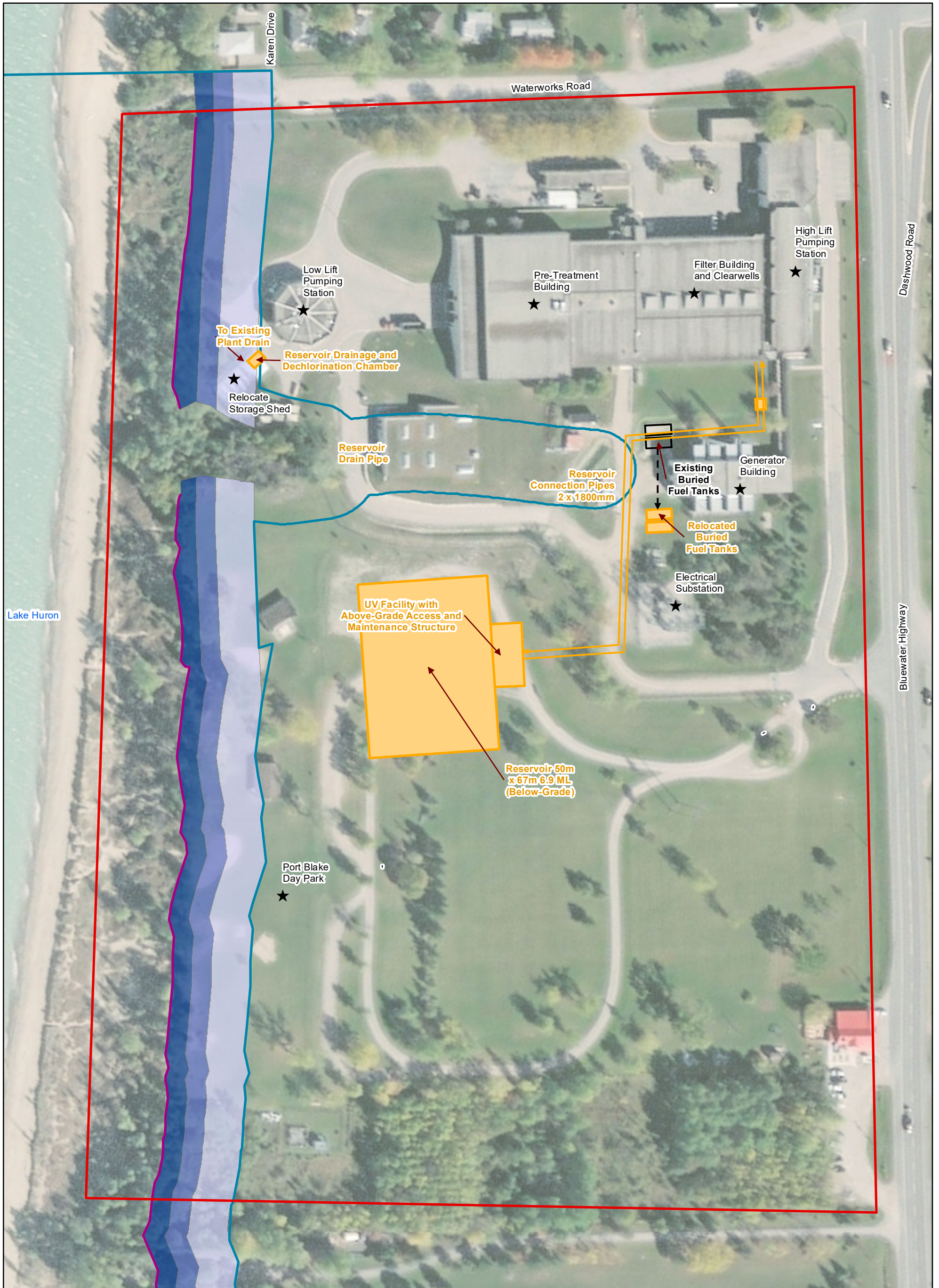


- Proposed Works within Existing Building
 - Proposed Works
 - Existing Infrastructure
 - 3 to 1 Slope
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- Greater landward measurement of 15.0 m from Lakeshore Area 1 or the location of the 60 year erosion line
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Note:
1. Aerial Source: VIVID, 2016.

Figure 4
 Alternative 4.2
 Baseline Ecological Technical Memorandum
 Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
 Lake Huron Primary Water Supply System
 71155 Bluewater Hwy, Grand Bend, Ontario

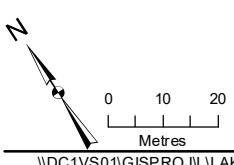




- | | |
|--|---|
| <ul style="list-style-type: none"> — Proposed Works — Existing Infrastructure — 3 to 1 Slope Regulation Limit Project Site | <p>Cohesive Bluffs Policy Zones</p> <ul style="list-style-type: none"> Greater landward measurement of 15.0 m from Lakeshore Area 1 or the location of the 60 year erosion line Greater landward measurement of 7.5 m from Lakeshore Area 1 or the location of the 25 year erosion line The area between Lakeshore Area 1 and the minimum distance of 7.5 m |
|--|---|

Note:
1. Aerial Source: VIVID, 2016.

Figure 5
Alternative 4.3
Baseline Ecological Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario



2. Existing Conditions

2.1 Description of Study Area

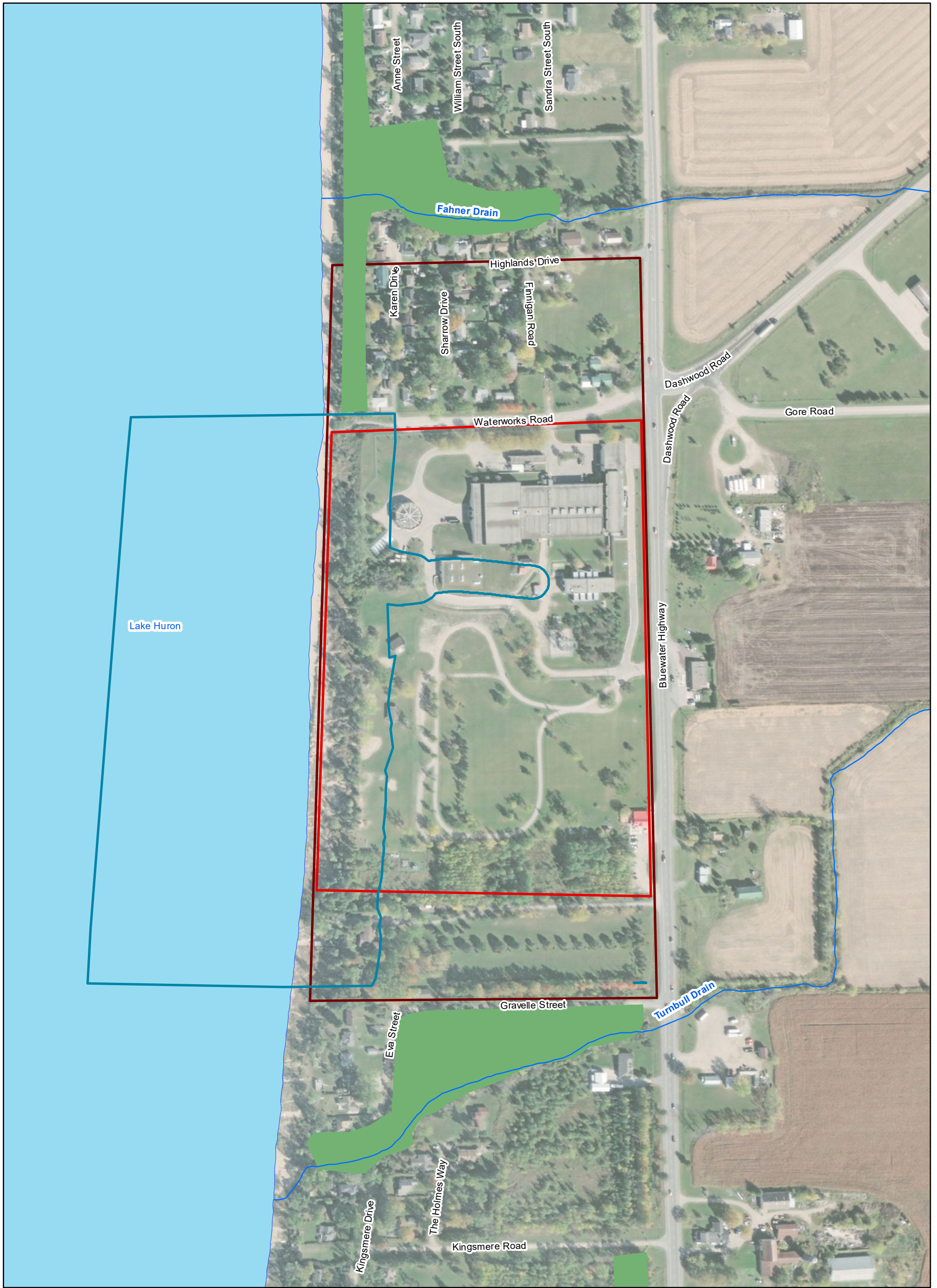
The Project Site includes the Lake Huron WTP property and the Port Blake Park, which is bound on sides by residential and private property to the north, east, and south, and by the Lake Huron shoreline to the west. As mentioned, the Local Study Area extends to include Highlands Drive to the north, Bluewater Highway to the east, Gravelle Street to the south, and the Lake Huron shoreline to the west, as shown in Figure 6. The Project Site includes lands that may be directly disturbed during the preferred alternative's construction; however, much of the proposed work areas are within existing disturbed sections.



Figure 6. Project Site, Local Study Area, and LHPWSS Service Area

2.2 Natural Environment

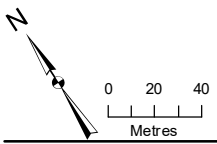
The Local Study Area and the LHPWSS Service Area occurs within a mix of utility, agricultural, residential, and natural areas. Whereas the Project Site is dominated by utility and residential conditions including open grassed areas, road networks and disturbed areas associated with the active, Lake Huron WTP. However, the western portions of the Local Study Area, including a section of the WTP property, occurs within the Ausable Bayfield Conservation Authority (ABCA) Regulated Area (ABCA 2020) as shown in Figure 7. A permit under *O. Reg. 147/04, Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* may therefore be required as the proposed works slightly abut the edge of the Regulated Area (ABCA 2020).



- ▭ Natural Features
- ▭ Regulation Limit
- ▬ Watercourse
- ▭ Waterbody
- ▭ Wooded Area
- ▭ Local Study Area
- ▭ Project Site

Note:
 1. Aerial Source: Vivid, 2016.
 2. Natural Features data is from Land Information Ontario.

Figure 7
 Desktop Background Natural Features
 Baseline Ecological Technical Memorandum
 Lake Huron Water Treatment Plant Disinfection and Storage
 Upgrades EA Lake Huron Primary Water Supply System
 71155 Bluewater Hwy, Grand Bend, Ontario



2.2.1 Physical Environment

Topography at the Project Site is generally level, gently sloping west toward Lake Huron (MNRF 2020). The Project Site is underlain by the sand plain physiographic type which are the result of water-laid alluvial/beach deposits.

2.2.2 Terrestrial Systems

Based on a desktop review, the Project Site is dominated by the Lake Huron WTP, open fields, cultural woodlands, and disturbed areas. Larger swaths of forest and riparian ecotones are noted within the southern and northern extremities of the Local Study Area and are associated with agricultural drains.

2.2.3 Wetlands

Based on review of the Ministry of Natural Resources and Forestry (MNRF)/Natural Heritage Information Centre (NHIC)/, Make A Map: Natural Heritage Areas (MNRF, 2020), no wetlands occur within the Project Site or the 120 m adjacent lands.

2.2.4 Wildlife

The Project Site includes various ecological zones including open and disturbed areas which provide corridors to Lake Huron, forested areas, and agricultural drains which may contain riparian areas. The combination of these features could provide suitable habitat for numerous fauna species. Section 2.2.6 provides information on the background screening and Species at Risk (SAR) wildlife which have been confirmed to occur within or proximal to the Project Site.

2.2.5 Aquatic Habitat

The Project Site fronts onto Lake Huron and includes two agricultural drains within the southern and northern limits of the site. The drains are known as Turnbull Drain and Fahner Drain which are hydrologically connected to Lake Huron (ABCA, 2020) (Figure 7). Based on the desktop review, these agricultural drains are not hydrologically connected to other watercourses within the watershed and occur within areas outside of the proposed works.

2.2.6 Species at Risk

According to the NHIC 1 km² areas mapping, Fisheries and Oceans Canada (DFO), Ontario Breeding Bird Atlas (OBBA) 10 km², and iNaturalist, the SAR as described in Table 2-1 may occur within the vicinity of the Project Site, based on observations made within these databases. It should be noted that at the time of preparing this report, the presence of SAR within the Project Site has not been field-verified.

Table 2-1. SAR from Background Search

Type	Common Name	Scientific Name	Preferred Habitat ^[a]	NHIC ^[b]	SARO ^[c]	SARA ^[d]
Birds	Northern Bobwhite	<i>Colinus virginianus</i>	Grasslands and farm fields, small forests occasionally used in the winter. Found in southwestern Ontario.	S1?B	END	END
	Least Bittern	<i>Ixobrychus exilis</i>	Freshwater marshes with dense emergent vegetation including <i>Typha sp.</i> Nesting occurs on top of bent marsh vegetation.	S5B	THR	-
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Forested areas with tall trees near lakes or rivers. Found throughout Ontario.	S4	SC	-
	Common Nighthawk	<i>Chordeiles minor</i>	Forest openings, rock outcrops, and fields with sparse cover or bare patches. Nesting occurs on bare ground.	S4B	SC	THR
	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Open deciduous woodlands; prefers Oak stands, urban parks, and river edges. Nesting occurs within cavities of a dead tree.	S3	SC	THR
	Acadian Flycatcher	<i>Empidonax virescens</i>	Mature deciduous woodlands, riparian woodlands, and swamp woodlands. Nesting typically occurs within lower branches of a Beech or Maple tree.	S1B	END	END
	Bank Swallow	<i>Riparia riparia</i>	Steep banks, lakeshore bluffs, and open areas. Nesting occurs within steep features such as cliffs and stockpiles, within fine-medium sand.	S4	THR	THR
	Barn Swallow	<i>Hirundo rustica</i>	Open rural and urban areas, where bridges, culverts, and buildings are located proximal to water features. Nesting occurs on erected structures.	S4B	THR	THR
	Cerulean Warbler	<i>Setophaga cerulea</i>	Found in southern Ontario in the summer in deciduous forests with tall trees.	S2B	THR	END
	Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Moist shrubby fields, forest edges, and successional new growth. Nesting occurs on the ground.	S3B	SC	THR
Prothonotary Warbler	<i>Protonotaria citrea</i>	They nest in holes in trunks of dying trees in flooded woodlands and swamps. Found in southwestern Ontario.	S1B	END	END	

Type	Common Name	Scientific Name	Preferred Habitat ^[a]	NHIC ^[b]	SARO ^[c]	SARA ^[d]
	Louisiana Waterthrush	<i>Parkesia motacilla</i>	Forests in steep ravines along streams with cold, fast-flowing water.	S2B	THR	THR
	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Grasslands and grassy meadows with sparse tree and shrub cover.	S4B	SC	-
	Bobolink	<i>Dolichonyx oryzivorus</i>	Tall, grassy meadows, ditches, hayfields, and croplands. Nesting occurs on the ground, typically within hayfields.	S4B	THR	THR
	Eastern Meadowlark	<i>Sturnella magna</i>	Grassy meadows and pastures. Nesting occurs on a scrape or depression on the ground.	S4B, S3N	THR	-
	Wood Thrush	<i>Hylocichla mustelina</i>	Large, mature deciduous and mixed forests. Nesting occurs within the understory on seedlings or saplings. Prefers Maple and Beech species.	S4B	SC	THR
	Yellow-breasted Chat	<i>Icteria virens</i>	Overgrown thickets and shrubs. Found in southwestern Ontario.	S1B	END	-
	Eastern Wood-Pewee	<i>Contopus virens</i>	Mid-canopy forager within deciduous or mixed forests. Prefers forested areas with limited groundcover vegetation. Nesting occurs on the branches of a deciduous tree.	S4B	SC	SC
	Chimney Swift	<i>Chaetura pelagica</i>	Nests are often in rural and urban settlements in chimneys and other structures. Nests are found near water for foraging opportunity.	S3B	THR	-
Fish	Lake Sturgeon (Great Lakes – Upper St. Lawrence River population)	<i>Acipenser fulvescens population 3</i>	Lakes and rivers with beds comprised of mud, gravel, or sand. Spawning occurs in shallow, fast-flowing water with gravel or boulder beds.	S2	THR	-
	Northern Sunfish	<i>Lepomis peltastes population 2</i>	Slow rivers, streams, lakes, and ponds with warm, slow-flowing water. They prefer aquatic vegetation and beds of sand or cobble.	S3	SC	SC

Type	Common Name	Scientific Name	Preferred Habitat ^[a]	NHIC ^[b]	SARO ^[c]	SARA ^[d]
Plants	American Bluehearts	<i>Buchnera americana</i>	Wet meadow communities usually located near sand dunes or along shorelines. This is an uncommon habitat in Ontario.	S1	END	END
Reptiles	Blue Racer	<i>Coluber constrictor foxii</i>	Open areas, including pastures, farmland, prairie, alvars, and open woodlands.	S1	END	END
Insects	Monarch	<i>Danaus plexippus</i>	Meadows and grasslands where milkweed plants are found.	S2N, S4B	SC	SC
	Northern Barrens Tiger Beetle	<i>Cicindela patruela</i>	Open areas in savannahs and sandy oak-pine woodlands, with open understories and sand deposits.	S1	END	END

^[a] (Government of Ontario, 2020) and (Government of Canada, 2021)

^[b] NHIC Subnational Rank

^[c] Species at Risk Ontario

^[d] Species at Risk Act (SARA)

- = Not at Risk

?= more data required.

END = Endangered

S1 = Critically Imperiled (often 5 or fewer occurrences)

S2 = Imperiled (often 20 or fewer occurrences)

S2B = Provincial species of Special Concern, imperiled breeding status rank

S2N = Provincial species of Special Concern, imperiled non-breeding status rank

S3 = Vulnerable (restricted range with relatively few populations - often 80 or fewer)

S3B = Vulnerable breeding population (restricted range with relatively few populations – often 80 or fewer)

S4 = Uncommon but not rare; some cause for long-term concern due to declines or other factors

S4B = Provincial species of Special Concern, apparently secure breeding status rank

S4N = Provincial species of Special Concern, apparently secure non-breeding status rank

S5 = Secure species, common, widespread, and abundant

S5B = Common species, secure breeding status rank

SC = Special Concern

SC = Special concern

THR = Threatened

In addition to the SAR listed within Table 2-1 which could occur within the Project Site, the NHIC search also provided a list of rare and/or sensitive species which could occur (i.e., S1 to S3 ranked species):

Table 2-2. Rare and/or Sensitive Species - NHIC

Type	Common Name	Scientific Name	NHIC ^[b]	SARO ^[c]	SARA ^[d]
Plants	Fogg's Goosefoot	<i>Chenopodium foggii</i>	S2?	-	-
Birds	Great Lakes Sandreed	<i>Sporobolus rigidus var. magnus</i>	S3	-	-

The MECP was contacted on November 23, 2021, to screen the Project for additional SAR information. The Ministry replied on December 7, 2021, and stated that the following species, which did not appear in our original screening could occur within the Project Site (Attachment 1):

Table 2-3. MECP SAR Screening

Type	Common Name	Scientific Name	NHIC ^[b]	SARO ^[c]	SARA ^[d]
Birds	Piping Plover	<i>Charadrius melodus</i>	S1B	END	-
	Horned Grebe	<i>Podiceps auratus</i>	S1B, S3N, S4M	SC	-
	Peregrine Falcon	<i>Falco peregrinus</i>	S4	SC	-
Plants	Pitcher's Thistle	<i>Cirsium pitcheri</i>	S2	THR	SC
	Dwarf Hackberry	<i>Celtis tenuifolia</i>	S2	THR	THR
	Butternut	<i>Juglans cinerea</i>	S2?	END	END
Reptiles	Common Five-lined Skink (Carolinian population)	<i>Plestiodon fasciatus population. 1</i>	S2	END	END
	Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	S3	THR	THR
	Snapping Turtle	<i>Chelydra serpentina</i>	S4	SC	SC
Insects	Rusty-patched Bumble Bee	<i>Bombus affinis</i>	S1	END	END
Mammals	<i>Myotis sp.</i>	-	S3	END	END

2.3 Ecological Review of Alternatives and Potential Impacts

The proposed alternatives are set back from Lake Huron and the Project Team has communicated that the additional treatment works will not impact the current discharge effluent quality or quantity. Consequently, no impacts to fish and fish habitat are predicted at this stage of the Project. In addition, the proposed works include upgrades to existing buildings and the remaining works occur within the footprint of the already disturbed WTP property. However, vegetation and tree removals may be required to accommodate an alternative solution which may impact wildlife. The preferred alternative from an ecological perspective would therefore be the alternative with the least restrictive footprint with regards to the proposed alignment and reservoir/UV building size. The building expansion itself should not impact the natural environment given the disturbed features in those areas. An alternative with a reduced footprint for the new structures would result in less impact to vegetation and potential grassland avifauna nesting and/or herptile movements, for example. Impacts to aquatics are not predicted based on the proposed alternative locations. In order, the preferred alternatives from an ecological perspective based on an approximate proposed construction footprint (omitting the “Do Nothing” approach):

- Alternative 4.1 and 4.2: both approximately 1900 square metres (m²)
- Alternative 4.3: 2300 m²
- Alternative 2 and 3: 5100 m²

3. Discussion and Conclusions

- Each proposed alternative (except for the “Do Nothing” approach), slightly encroaches the ABCA Regulated Area. This occurs at the proposed alignment to the new reservoir for each alternative. An Environmental Impact Study (EIS) may be requested by the ABCA at the detailed design stage. If an EIS is required, a Terms of Reference (ToR) should be developed for the study and submitted to the ABCA. Given the proposed works are set back from Lake Huron, within an existing footprint of an already disturbed WTP site, field studies during the Environmental Assessment stage are likely not required.
- However, per consultation with the MECP (Attachment 1), it is the proponent’s responsibility to ensure no impacts to SAR or their habitat occur due to the Project. Section 2.2.6 and Table 1 provided a list of SAR which could occur within or proximal to the Project Site. As a measure of due diligence, a SAR assessment is therefore recommended, even if an EIS is not requested by ABCA. The SAR investigation should include field surveys during the growing season and analysis of potential SAR occurrences against existing habitat. Impacts to fish and fish habitat should be re-reviewed at the detailed design stage.
- As noted, wildlife can also be impacted from the proposed vegetation and tree removals, particularly from the proposed reservoir and associated alignment. Plans should be developed to avoid the breeding and nesting season for the area, or mitigation should be applied to avoid or reduce impacts to avifauna. A landscape plan and/or tree inventory may also be required for the proposed vegetation removals. Building expansion and construction may also result in impacts to nesting avifauna, these structures should be checked by a biologist at the detailed design phase. Given the disturbed feature at the location of the proposed works, it may be acceptable to carry out the above tasks at the detailed design stage rather than baseline field surveys at the Environmental Assessment stage.

- The results of an EIS or SAR assessment (i.e., field studies) and a comprehensive background review against existing conditions may yield confirmation of additional natural features within the Project Site. The protection/avoidance of these features should be considered as the Environmental Assessment progresses or at the detailed design stage. Natural environment permitting efforts, with ABCA, MECP (*Endangered Species Act*), and DFO (*Fisheries Act*) could then be outlined at that stage of the Project.

4. References

Ausable Bayfield Conservation Authority (ABCA). 2020. [ABCA Mapping Site](https://maps2.camaps.ca/GVH/index.html?viewer=ABCA_Public.ABCA_View). Accessed December 2021. https://maps2.camaps.ca/GVH/index.html?viewer=ABCA_Public.ABCA_View

Fisheries and Oceans Canada. 2019. Aquatic Species at Risk Map. Accessed December 2021. <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html?wbdisable=true>

Government of Canada. 2021. Species at risk public registry. Accessed 2021. <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

Government of Ontario. 2020. *Species at risk in Ontario*. Accessed 2021. <https://www.ontario.ca/page/species-risk-ontario>.

iNaturalist. Available from <https://www.inaturalist.org>. Accessed December 2021.

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Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2020. Make a Topographic Map. Accessed December 2021. https://www.gisapplication.lrc.gov.on.ca/matm/Index.html?site=Make_A_Topographic_Map&viewer=MATM&locale=en-US

Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2020. [Make a Map: Natural Heritage Areas](https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US). Accessed December 2021. https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

Ontario Breeding Bird Atlas. 2021. Ontario Breeding Bird Atlas. Accessed December 2021. <http://www.birdsontario.org/atlas/>

Attachment 1
Agency Communication

From: [Species at Risk \(MECP\)](#)
To: [Chen, Helen](#)
Subject: [EXTERNAL] RE: SAR Screening - Lake Huron WTP
Date: Tuesday, December 7, 2021 11:15:25 AM

Hi Helen,

In addition to the species you have listed below, we also have records for the following in proximity to this site.

END/THR - Common five-lined skink (Carolinian population), rusty-patched bumble bee, Pitcher's thistle, dwarf hackberry, butternut, Eastern hog-nosed snake, myotis sp., piping plover
SC – snapping turtle, horned-grebe, peregrine falcon

It is also important to note that red-headed woodpecker will be uplisted on the SARO list Jan 2022.

Please note it remains the clients responsibility to:

- Carry out preliminary screening for their project,
- Obtain the best available information for all applicable information sources,
- Conduct necessary field studies or inventories to identify and confirm the presence or absence of species at risk or their habitat,
- Consider any potential impacts to species at risk that a proposed activity might cause, and
- Comply with the Endangered Species Act (ESA).

Additionally, while this data represents MECP's best current available information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

Thank you,
Lisa

Lisa McShane | Management Biologist | Permissions and Compliance Section, Species at Risk Branch | Ministry of Environment, Conservation and Parks | lisa.mcshane@ontario.ca | (226) 668-0527

From: Chen, Helen <Helen.Chen@jacobs.com>
Sent: Tuesday, November 23, 2021 1:47 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Stea, Cassie <Cassie.Stea@jacobs.com>; Flesher, Chris/TOR <Chris.Flesher@jacobs.com>; Yu, Ray <Ray.Yu@jacobs.com>; Waller, Monique/KWO <Monique.Waller@jacobs.com>; bbryans@huronelginwater.ca
Subject: SAR Screening - Lake Huron WTP

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Jacobs has screened the Lake Huron WTP project, located near Grand Bend, for SAR utilizing the NHIC, OBBA, DFO and iNaturalist, see below. Could you please let us know if there are any additional SAR to add?

Please see attached figure and site description below:

The recently completed LHPWSS Master Water Plan Update (2020) identified the need to improve disinfection and increase water storage at the LHWTP, to meet water demands to the year 2038. The City of London's Regional Water Supply Division, on behalf of the LHPWSS, has therefore initiated a Schedule B Municipal Class Environmental Assessment to confirm and refine the preferred alternative to enhance disinfection at the water treatment plant and meet the water storage requirements, while providing the plant with flexibility to implement energy management and other operational strategies. Potential upgrades would be located on the LHWTP project site, as

shown in Figure 1.

The study represents an opportunity to develop alternative solutions, assess their technical viability, and conduct a comprehensive evaluation to select a preferred alternative within the framework of the Schedule B Municipal Class Environmental Assessment process. The assessment is being carried out in accordance with the planning and design process for Schedule B projects under the *Environmental Assessment Act, 1990* as outlined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* document (2000, as amended in 2007, 2011, and 2015).

Based on current progress of the EA, a short-list of 5 alternatives (or 6 including "Do Nothing" option) are being developed and will be evaluated to identify a preferred solution:

- Alternative 1 – Do Nothing
- Alternative 2 – Clearwell Upgrades and New Reservoir
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- Alternative 4.1 – UV Disinfection at Post-Clarifiers and New Reservoir
- Alternative 4.2 – UV Disinfection at Filter Effluents and New Reservoir
- Alternative 4.3 – UV Disinfection at New Reservoir

Common Name	Scientific Name	S Rank	SARO	COSEWICK	SARA
Northern Bobwhite	<i>Colinus virginianus</i>	S1?B	END	END	END
Least Bittern	<i>Botaurus lentiginosus</i>	S5B	-	-	-
Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	SC	THR
Eastern Whip-poor-will	<i>Antrastomus vociferus</i>	S4B	THR	THR	THR
Chimney Swift	<i>Chaetura pelagica</i>	S3B	THR	THR	THR
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S3	SC	END	THR
Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	SC	SC	SC
Acadian Flycatcher	<i>Empidonax vireescens</i>	S1B	END	END	END
Bank Swallow	<i>Riparia riparia</i>	S4	THR	THR	THR
Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	THR	THR
Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	THR
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	S3B	SC	THR	THR
Cerulean Warbler	<i>Setophaga cerulea</i>	S2B	THR	END	END
Prothonotary Warbler	<i>Protonotaria citrea</i>	S1B	END	END	END
Louisiana Waterthrush	<i>Parkesia motacilla</i>	S2B	THR	THR	THR
Yellow-breasted Chat	<i>Icteria virens</i>	S1B	END	END	-
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	S4B	SC	SC	-
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	THR
Eastern Meadowlark	<i>Sturnella magna</i>	S4B, S3N	THR	THR	THR
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S4	SC	NAR	THR
Blue Racer	<i>Coluber constrictor foxii</i>	S1	END	END	END
Lilypad Clubtail	<i>Arigomphus furcifer</i>	S4	-	-	-
Monarch	<i>Danaus plexippus</i>	S2N,S4B	SC	END	SC
Northern Barrens Tiger Beetle	<i>Cicindela patruela</i>	S1	END	END	END
Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	<i>Acipenser fulvescens pop. 3</i>	S2	THR	THR	-
Northern Sunfish	<i>Lepomis peltastes pop. 2</i>	S3	SC	SC	SC
Fogg's Goosefoot	<i>Chenopodium foggii</i>	S2?	-	-	-
	<i>Sporobolus rigidus var.</i>				

Great Lakes Sandreed	<i>magnus</i>	S3	-	-	-
American Bluehearts	<i>Buchnera americana</i>	S1	END	END	END

Thank you very much,
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Appendix A2 – Natural Features Field Assessment



Natural Features Field Assessment

Project Name: Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment

Attention: LHPWSS

From: Jacobs Ontario Ecology Team

Date: September 23, 2022

Revision: Final

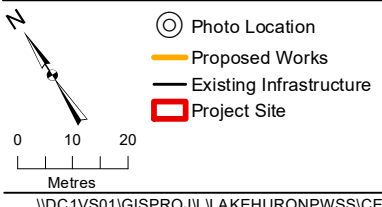
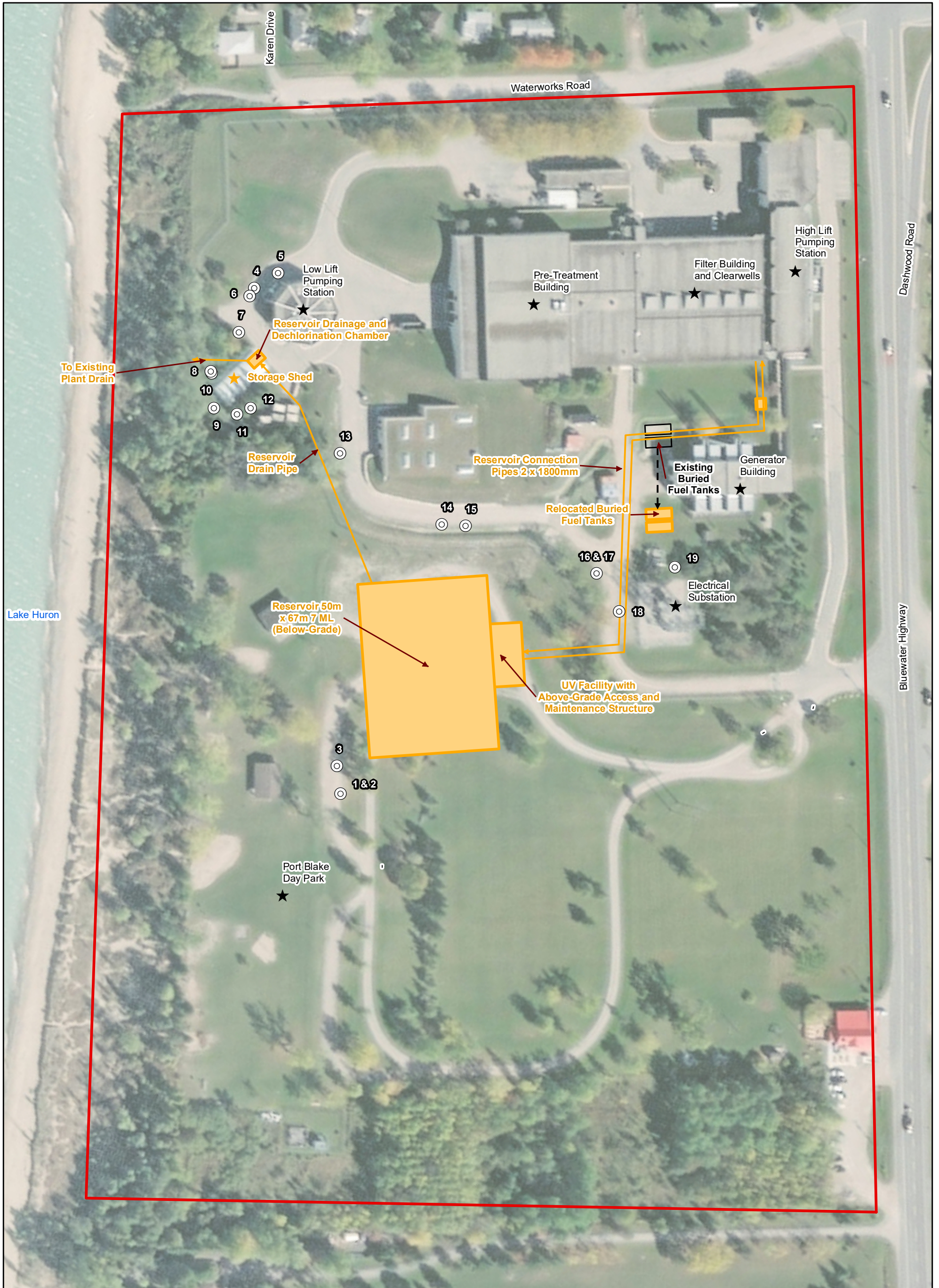
Project Number: CE801200

1. Introduction

The recently completed Lake Huron Primary Water Supply System (LHPWSS) Master Water Plan Update (2020) identified the need to improve disinfection and increase water storage at the Lake Huron WTP, to meet water demands to the year 2038. The City of London's Regional Water Supply Division, on behalf of the LHPWSS, has therefore initiated a Schedule B Municipal Class Environmental Assessment (EA) to confirm and refine the preferred alternative to enhance disinfection at the WTP and meet the water storage requirements, while providing the plant with the flexibility to implement energy management and other operational strategies. Alternative 4.3 – Ultraviolet Disinfection at New Reservoir has been selected as the preferred option through a triple bottom analysis as presented at the Public Information Centre (Figure 1).

The purpose of this Technical Memorandum (TM) is to identify Natural Features that may occur within the proposed work areas for Alternative 4.3 and extending within a 30 m Natural Environment Buffer, based on field investigations. This TM serves as an update to the *Desktop Natural Features Assessment TM* (Jacobs, 2022). This TM provides the baseline field survey results and identifies anticipated natural environment permitting at the design and construction stage for the preferred solution (Alternative 4.3.)

This TM does not include a comprehensive impact assessment or natural environment mitigation. Alternative 4.3 occurs within the Ausable Bayfield Conservation Authority (ABCA) Regulated Area and adjacent to Natural Features, as discussed within the following subsequent sections. However, an Environmental Impact Study (EIS) would only be requested by the ABCA if Species at Risk (SAR) occur or if Alternative 4.3 results in vegetation removals within Natural Features as per consultation with the ABCA. Natural Features and SAR will be discussed in the following sections. The Project Site is defined as the Water Treatment Plant (WTP) property and the potential area which could be impacted by the proposed works (Figure 1).



Note:
1. Aerial Source: Vivid, 2016.

Figure 1
Alternative 4.3
Natural Features Field Assessment Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario

2. Field Surveys

2.1 Field Investigation Methodology

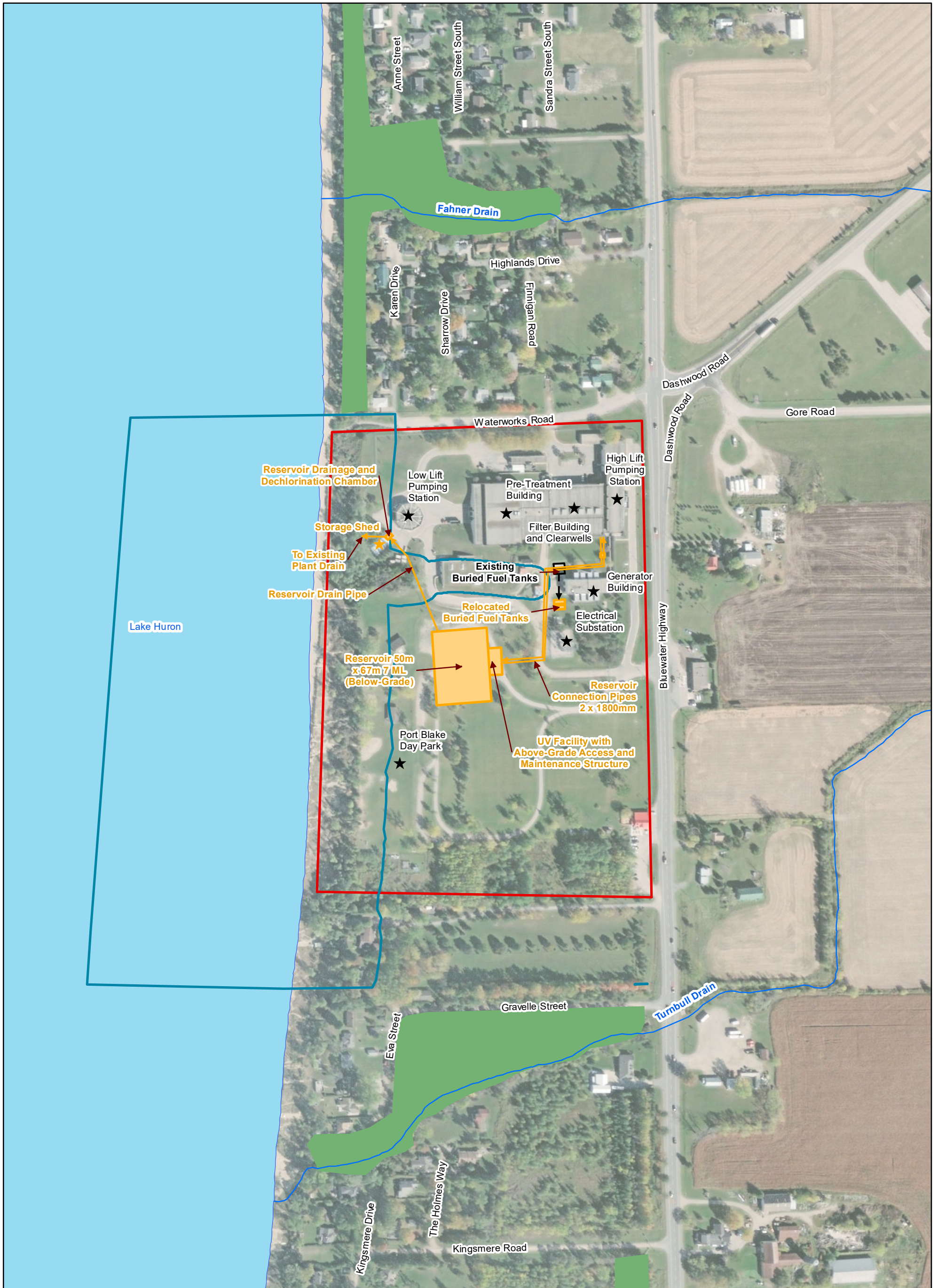
Ecology staff from Jacobs utilized the results of the background review [as described within the *Desktop Natural Features Assessment TM* (Jacobs, 2022) and as illustrated by Figure 2], coupled with air photo interpretation, and agency spatial data accessed, to scope and plan site specific field surveys to retrieve information on terrestrial and aquatic resources and Natural Features.

The field investigations were conducted during the breeding bird season and appropriate seasonal windows for amphibians, other wildlife and for the assessment of early season terrestrial vegetation. The surveys followed relevant protocols and included Ecological Land Classification (ELC), targeted Species at Risk (SAR) surveys based on the background review, a Breeding Bird Survey (BBS) - during the morning chorus hours and an evening nightjar and amphibian investigation.

Table 1 provides the dates, weather conditions and type of surveys conducted.

Table 1. Field Surveys

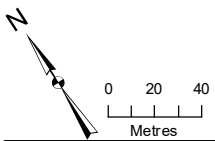
Survey Dates and Times	Weather Conditions	Survey Type(s)	Personnel
June 28, 2022 1000-1400 and 2100- 2150	Sunny. 17°C; moderate breeze, Beaufort Scale (BF) 4	ELC, evening amphibian and nightjar, SAR)	Helen Chen, Mackensie Dodd
June 29, 2022 0900-1000	Cloudy; 16°C; gentle breeze, Beaufort Scale (BF) 1	BBS, ELC, SAR	Helen Chen, Mackensie Dodd



- Proposed Works
- Existing Infrastructure
- Natural Features
- Watercourse
- Waterbody
- Wooded Area
- Regulation Limit
- Project Site

Note:
 1. Aerial Source: VIVID, 2016.
 2. Natural Features data is from Land Information Ontario.

Figure 2
 Desktop Background Natural Features - Alternative 4.3
 Natural Features Field Assessment Technical Memorandum
 Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
 Lake Huron Primary Water Supply System
 71155 Bluewater Hwy, Grand Bend, Ontario



2.2 Results of Field Investigations

Results of the field surveys are presented in the subsequent sections.

2.3 Vegetation Communities

There were seven ecological communities, one Parkland and one Industrial zone identified within the proposed area for Alternative 4.3 and 30-metre Natural Environment Buffer. Figure 3 depicts the ecosites. Attachment A provides a full floral list and Attachment B illustrates photos of individual ELC communities. Refer to Figure 1 for the locations of where the photos in Attachment B were taken on the Project Site.

CUP1-5: Silver Maple Deciduous Plantation Type

The CUP1-5 ecotone was within the southeastern area adjacent to the proposed alternative, slightly west of the existing Electrical Substation. The community abutted the southern fence and was located adjacent to the industrial area.

The canopy of the CUP1-5 ecological community was dominated by planted Silver Maple (*Acer saccharinum*) trees. The groundcover was dominated by Kentucky Bluegrass. The following species were identified within the CUP1-5 community:

- Canopy
 - Silver Maple
- Groundcover
 - Kentucky Bluegrass
 - Common Plantain
 - Common Dandelion
 - White Clover (*Trifolium repens*)

CUP1-8: Red Oak Deciduous Plantation Type

The CUP1-8 ecological community was within the northwest area of the proposed alternative, adjacent to the Storage Shed. The Reservoir Drain Pipe alignment is proposed to run through the CUP1-8 plantation.

The canopy of the CUP1-8 ecotone was dominated by planted Northern Red Oak (*Quercus rubra*) trees. The groundcover was co-dominated by Kentucky Bluegrass and Common Dandelion. The following species were identified in the CUP1-8 community:

- Canopy
 - Northern Red Oak
- Groundcover
 - Kentucky Bluegrass
 - Common Dandelion
 - White Clover

CUP3: Coniferous Plantation

The CUP3 ecological community was within the northwest area adjacent to the proposed alternative and abutted the CUP1-8 ecotone. The community wrapped around a portion of the Industrial community.

The CUP3 canopy was dominated by planted Norway Spruce (*Picea abies*) trees. The groundcover was dominated by Kentucky Bluegrass. The following species were identified within the CUP3 community:

- Canopy
 - Norway Spruce
- Groundcover
 - Kentucky Bluegrass
 - Common Dandelion
 - White Clover

CUP3-1: Red Pine Coniferous Plantation Type

The CUP3-1 ecotone was adjacent to the southeast area of the proposed alternative. The community abutted the eastern fence, northeast of the existing Electrical Substation and within the 30 m Natural Environment Buffer.

The CUP3-1 canopy was dominated by planted Red Pine (*Pinus resinosa*) trees. The groundcover was dominated by Kentucky Bluegrass. The following species were identified within the CUP3-1 community:

- Canopy
 - Red Pine
- Groundcover
 - Kentucky Bluegrass
 - Common Dandelion
 - Common Plantain
 - Large Bird's-foot Trefoil

FOD8-1: Fresh-Moist Poplar Deciduous Forest Type

The FOD8-1 forested community was located within the extremities of the western 30 m Natural Environment Buffer, however, outside of the zone for the proposed alternative. The FOD8-1 community abutted the existing WTP fence.

The FOD8-1 ecotone canopy was dominated by White Poplar (*Populus alba*). The sub-canopy was co-dominated by Crack Willow (*Salix euxina*) and Black Walnut (*Juglans nigra*). The FOD8-1 community groundcover was dominated by Kentucky Bluegrass. The following species were identified within the FOD8-1 community:

- Canopy
 - White Poplar

- Sub-Canopy
 - Crack Willow
 - Black Walnut
 - Common Juniper (*Juniperus communis*)
- Groundcover
 - Kentucky Bluegrass
 - Canada Goldenrod
 - Wild Carrot (*Daucus carota*)
 - Stinging Nettle
 - FOD4: Dry-Fresh Deciduous Forest Ecosite

The FOD4 forest dripline slightly encroached the extremities of the proposed Reservoir Drain Pipe. The community abutted the FOD8-1, Parkland, Industrial communities, and the trees overhung the WTP fence.

The FOD4 community canopy was co-dominated by White Oak (*Quercus alba*). The subcanopy of the community was dominated by White Mulberry (*Morus alba*). The groundcover of the FOD4 forest was co-dominated by Kentucky Bluegrass and Canada Goldenrod (*Solidago canadensis*). The following species were identified within the FOD4 community:

- Canopy
 - White Oak
 - Black Walnut
 - White Ash (*Fraxinus americana*)
- Sub-Canopy
 - White Mulberry
 - Staghorn Sumac (*Rhus typhina*)
 - White Ash
 - White Poplar (*Populus alba*)
- Groundcover
 - Kentucky Bluegrass
 - Canada Goldenrod
 - Riverbank Grape (*Vitis riparia*)
 - Stinging Nettle (*Urtica dioica*)
 - Wood Avens (*Geum urbanum*)
 - Common Milkweed (*Asclepias syriaca*)
 - Thicket Creeper (*Parthenocissus vitacea*)

MAS2-1: Cattail Mineral Shallow Marsh Type

The MAS2-1 wetland community was located north of the proposed alternative, however, within the 30 m Natural Environment Buffer. The community abutted the CUP1-5 ecotone and the Industrial zone. The wetland is likely formed from anthropogenic disturbance and has resulted in a slender drainage swale.

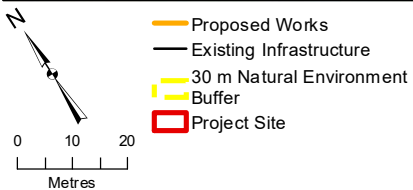
The MAS2-1 was dominated by Narrow-leaved Cattail (*Typha angustifolia*). The following species were identified within the MAS2-1 community:

- Groundcover
 - Narrow-leaved Cattail
 - Kentucky Bluegrass

No SAR, rare or sensitive flora was observed during the single season field survey.



Note:
1. Aerial Source: Vivid, 2016.



- | | |
|--|--|
| <ul style="list-style-type: none"> — Proposed Works — Existing Infrastructure — 30 m Natural Environment Buffer — Project Site | <p>Ecological Land Classification (ELC)</p> <ul style="list-style-type: none"> CUP1-5, Silver Maple Deciduous Plantation Type CUP1-8, Red Oak Deciduous Plantation Type CUP3, Coniferous Plantation CUP3-1, Red Pine Coniferous Plantation Type FOD4, Dry-Fresh Deciduous Forest Ecosite FOD8-1, Fresh-Moist Poplar Deciduous Forest Type Industrial, Industrial MAS2-1, Cattail Mineral Shallow Marsh Type Parkland, Parkland |
|--|--|

Figure 3
Ecological Land Classification (ELC) - Alternative 4.3
Natural Features Field Assessment Technical Memorandum
Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
Lake Huron Primary Water Supply System
71155 Bluewater Hwy, Grand Bend, Ontario

2.4 Wildlife

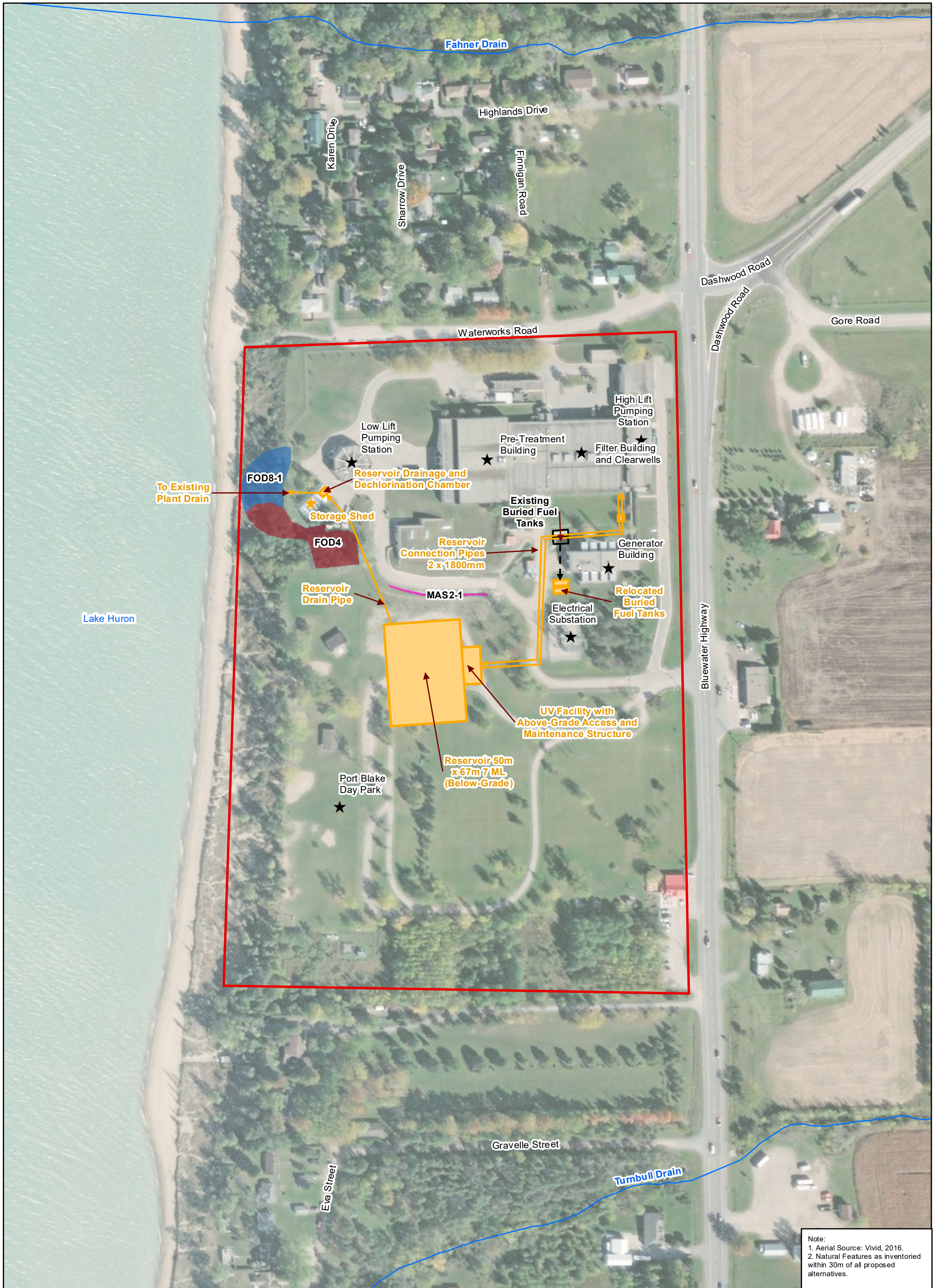
Four amphibian survey stations were set-up within various areas of the proposed alternative and 30-metre Natural Environment Buffer. Amphibians were not overheard or observed. In addition, targeted surveys for SAR avifauna nightjar were conducted, however, nightjar species were not overheard during the evening survey. A pedestrian and stationed BBS was carried out within areas of the proposed alternative and the 30 metre Natural Environment Buffer.

A full list of fauna species overheard or observed is presented within Attachment A. No SAR, rare and/or sensitive fauna were overheard or observed during the single season field surveys.

2.5 Field Results Summary

The field survey results are summarized as follows:

- The surveys were completed during the appropriate timing windows for wildlife and the early growing season for a terrestrial vegetation assessment.
- No SAR, rare and/or sensitive species were overheard or observed.
- The proposed alternative occurs within cultural plantations, Industrial or Parkland features, with the exception of minor encroachment of the FOD4 forested dripline due to the proposed Reservoir Drain Pipe. The FOD4 community is considered a Natural Feature (Figure 4). The proposed alternative does not occur within other Natural Features. Natural Features are considered sensitive and are afforded protection from various environmental regulators.
- The proposed alternative at the closest point, is setback approximately 51 metres east of Lake Huron.



Note:
 1. Aerial Source: Vivid, 2016.
 2. Natural Features as inventoried within 30m of all proposed alternatives.

- Proposed Works
 - Watercourse
 - Existing Infrastructure
 - Project Site
- Ecological Land Classification (ELC)**
- FOD4, Dry-Fresh Deciduous Forest Ecosite
 - FOD8-1, Fresh-Moist Poplar Deciduous Forest Type
 - MAS2-1, Cattail Mineral Shallow Marsh Type

Figure 4
 Natural Features - Alternative 4.3
 Natural Features Field Assessment Technical Memorandum
 Lake Huron Water Treatment Plant Disinfection and Storage Upgrades EA
 Lake Huron Primary Water Supply System
 71155 Bluewater Hwy, Grand Bend, Ontario

3. Ecological Field Review of the Preferred Option - Alternative 4.3

If the proposed Reservoir Drain Pipe alignment was shifted to avoid the minor encroachment of the FOD4 forested community, impacts to Natural Features (Figure 4) is not predicted based on the results of the single season field surveys and with the implementation of environmental mitigation, for example (but not limited to):

- Erosion and Sedimentation Control (ESC) for flood mitigation and avoidance of runoff within adjacent Natural Features (Figure 4)
- Construction timing windows for vegetation removals to protect wildlife
- Site stabilization and restoration immediately following construction
- SAR educational awareness, monitoring and response plans as required
- Setback staging and access areas away from Natural Features (Figure 4)
- Spill response plans
- Further consultation with environmental agencies
- The proposed alternative occurs within areas where trees have been planted (Figure 3). The project should avoid areas with natural vegetation, trees and shrubs where possible. If this cannot be completed an arborist survey and compensation will be required at the detailed design stage
- An impact assessment and a follow-up SAR survey should be completed at the detailed design stage

3.1 Natural Environment Permitting and Recommendations

The Department of Fisheries and Oceans Canada (DFO)

The proposed alternatives are setback approximately 51 metres from Lake Huron and above the 100-year floodline (consequently above the ordinary high-water mark – 2-year floodline). As discussed within the *Desktop Natural Features Assessment TM (Jacobs, 2022)*, the proposed alternative will also not impact the current WTP's discharge effluent quality or quantity. As such, authorization, or review under the *Fisheries Act* as administered by the Department of Fisheries and Oceans Canada (DFO) is not predicted.

Ausable Bayfield Conservation Authority (ABCA)

The proposed alternative occurs within the Ausable Bayfield Conservation Authority (ABCA) Regulated Area. As such, a permit under *O. Reg 147/06* will likely be required.

Ministry of the Environment, Conservation and Parks (MECP)

No SAR were overheard or observed during the field surveys. If the proposed Reservoir Drain Pipe is shifted to avoid the FOD4 forest, impacts to Natural Features is not predicted (with the additional implementation of environmental mitigation). Therefore, the likelihood of impacts to potential SAR habitat is low. As such, authorization under the *Endangered Species Act (ESA)* as

administered by the Ministry of the Environment, Conservation and Parks (MECP) is not predicted at this time. However, SAR can still occur within parkland and industrial sites. Therefore, an updated SAR screening and field surveys are recommended at the detailed design stage.

Recommendations and Closing

The project should consider shifting the proposed Reservoir Drain Pipe alignment to avoid impacts to the FOD4 forested area. Shifting the location of the Reservoir Drain Pipe to avoid vegetation removals within the FOD4 forests would then avoid an EIS request from ABCA. Additional mitigation and recommendations such as Erosion and Sediment Controls (ESC) would also be required to avoid indirect impacts to adjacent Natural Features.

The ABCA has been consulted (Attachment C) to develop preliminary Terms of Reference (ToR). ABCA's response should be included with the future Request for Proposal (RFP).

At this time, impacts to SAR and/or SAR habitat is not predicted with the implementation of environmental mitigation. However, the MECP's SAR Branch (SARB) should be consulted again at the detailed design stage to re-screen the project for SAR. A SAR survey and habitat assessment should be conducted at the detailed design stage as SAR could still utilize the Natural Features and even the industrial or parkland zones. As well, just because no SAR were overheard or observed this year, this does not absolve the project from subsequent years when SAR could occur, particularly wildlife. If SAR occur during follow-up surveys, ABCA will request an EIS is completed.

Follow the preliminary ToR as set-out by the ABCA (Attachment C).

A qualified biologist should review and/or add necessary environmental mitigation at the detailed design stage. The proposed alternative is predominantly setback from Natural Features and impacts to the natural environment could be mitigated, especially if the Reservoir Drain Pipe alignment is relocated. The project poses a low likelihood of potential impacts to the natural environment, however, migratory birds, wildlife and SAR can still utilize areas not classed as Natural Features, such as cultural plantations and parklands, both of which occur within the proposed alternative. As such, environmental mitigation shall be developed and further assessment of for example wildlife/SAR and associated habitat is required at the detailed design stage.

4. References

Jacobs. 2022. *Desktop Natural Features Assessment Technical Memorandum, Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment.*

Attachment A Species List

Attachment A - Species List

Common Name	Scientific Name
American Crow	<i>Corvus brachyrhynchos</i>
American Robin	<i>Turdus migratorius</i>
Black Walnut	<i>Juglans nigra</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Blue Jay	<i>Cyanocitta cristata</i>
Canada Goldenrod	<i>Solidago canadensis</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Chipping Sparrow	<i>Spizella passerina</i>
Common Dandelion	<i>Taraxacum officinale</i>
Common Grackle	<i>Quiscalus quiscula</i>
Common Juniper	<i>Juniperus communis</i>
Common Milkweed	<i>Asclepias syriaca</i>
Common Plantain	<i>Plantago major</i>
Crack Willow	<i>Salix euxina</i>
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>
Herring Gull	<i>Larus argentatus</i>
Honey Locust	<i>Gleditsia triacanthos</i>
House Wren	<i>Troglodytes aedon</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Killdeer	<i>Charadrius vociferus</i>
Mourning Dove	<i>Zenaida macroura</i>
Narrow-leaved Cattail	<i>Typha angustifolia</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Northern Red Oak	<i>Quercus rubra</i>
Norway Spruce	<i>Picea abies</i>
Red Pine	<i>Pinus resinosa</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Riverbank Grape	<i>Vitis riparia</i>
Silver Maple	<i>Acer saccharinum</i>
Song Sparrow	<i>Melospiza melodia</i>
Staghorn Sumac	<i>Rhus typhina</i>
Stinging Nettle	<i>Urtica dioica</i>
Thicket Creeper	<i>Parthenocissus vitacea</i>
White Ash	<i>Fraxinus americana</i>
White Clover	<i>Trifolium repens</i>
White Mulberry	<i>Morus alba</i>
White Oak	<i>Quercus alba</i>
White Poplar	<i>Populus alba</i>
Wild Carrot	<i>Daucus carota</i>
Wild Parsnip	<i>Pastinaca sativa</i>
Wood Avens	<i>Geum urbanum</i>

Attachment B
Photos

Attachment B – Lake Huron WTP Photo Log



Photo 1. Parkland area, taken facing east.

Attachment B – Lake Huron WTP Photo Log



Photo 2. Parkland area, taken facing west.

Attachment B – Lake Huron WTP Photo Log



Photo 3. Parkland area, taken facing southwest.

Attachment B – Lake Huron WTP Photo Log



Photo 4. CUP1-8 Red Oak Deciduous Plantation Type community on the west area of the proposed alternative, facing west.

Attachment B – Lake Huron WTP Photo Log



Photo 5. Breeding Bird Survey location 2, facing northwest.

Attachment B – Lake Huron WTP Photo Log



Photo 6. CUP3 Coniferous Plantation community surrounding an industrial area, facing south.

Attachment B – Lake Huron WTP Photo Log



Photo 7. CUP3 Coniferous Plantation and CUP1-8 Red Oak Deciduous Plantation Type communities, facing southwest.

Attachment B – Lake Huron WTP Photo Log



Photo 8. FOD8-1 Fresh – Moist Poplar Deciduous Forest Type ecotone, facing west.

Attachment B – Lake Huron WTP Photo Log



Photo 9. FOD8-1 Fresh – Moist Poplar Deciduous Forest Type community, facing west.



Photo 10. FOD4 Dry – Fresh Deciduous Forest Ecosite from inside plant fence, facing southeast.

Attachment B – Lake Huron WTP Photo Log



Photo 11. FOD4 Dry – Fresh Deciduous Forest Ecosite community, facing south.

Attachment B – Lake Huron WTP Photo Log



Photo 12. CUP3 Coniferous Plantation community, facing northwest.

Attachment B – Lake Huron WTP Photo Log



Photo 13. FOD4 Dry – Fresh Deciduous Forest Ecosite community, facing southwest.

Attachment B – Lake Huron WTP Photo Log



Photo 14. MAS2-1 Cattail Mineral Shallow Marsh Type drainage swale, facing southeast.

Attachment B – Lake Huron WTP Photo Log



Photo 15. MAS2-1 Cattail Mineral Shallow Marsh Type drainage swale, facing southwest.

Attachment B – Lake Huron WTP Photo Log



Photo 16. CUP1-5 Silver Maple Deciduous Plantation Type community, facing south.

Attachment B – Lake Huron WTP Photo Log



Photo 17. CUP1-5 Silver Maple Deciduous Plantation Type community and the industrial area, facing southeast.

Attachment B – Lake Huron WTP Photo Log

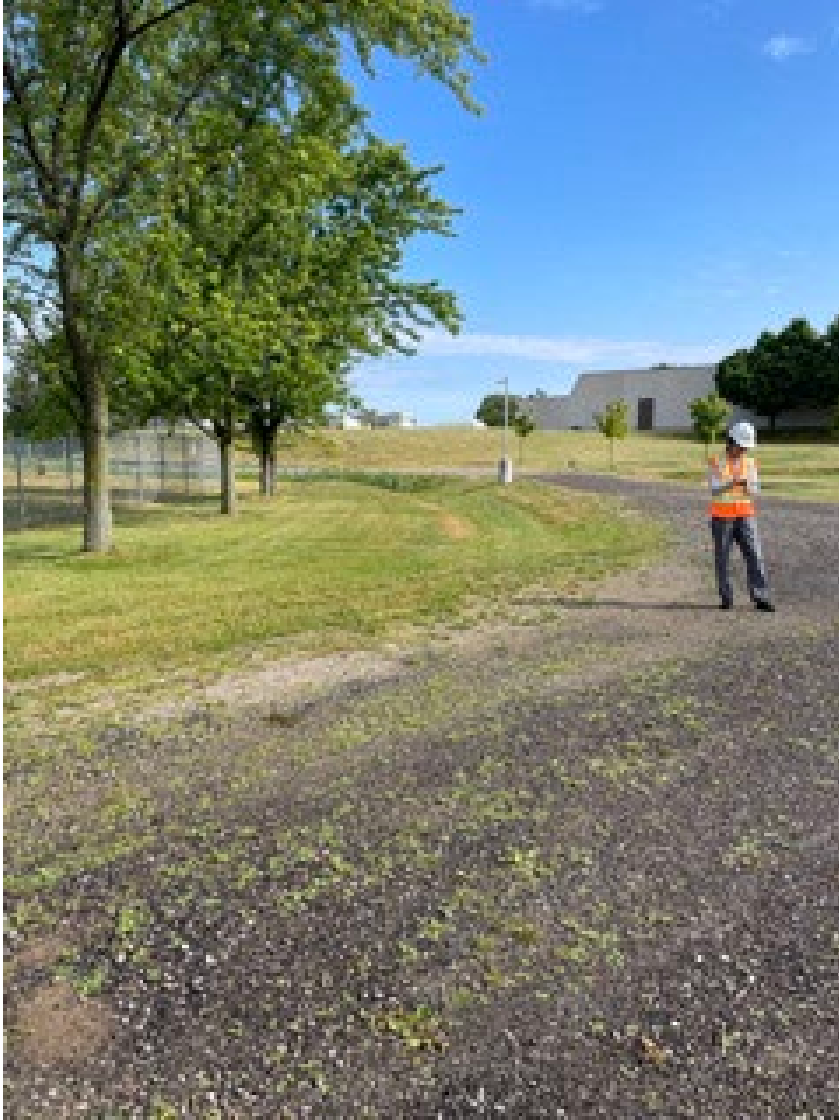


Photo 18. CUP1-5 Silver Maple Deciduous Plantation Type community, facing north.

Attachment B – Lake Huron WTP Photo Log



Photo 19. CUP3-1 Red Pine Coniferous Plantation Type community, facing southeast.

**Attachment C
ABCA
Consultation**

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Subject	Ecological Consultation Meeting - Ausable Bayfield Conservation Authority (ABCA)		
Project	Lake Huron WTP Disinfection and Storage EA		
Project No.	CE801200	File	CE801200_LHWTPEA_EcologicalMtg_A BCA_Summary_2022.09.20.docx
Prepared by	Cassie Stea	Phone No.	N/A
Location	Teams Meeting	Date/Time	September 20, 2022/2:00 pm
Participants	ABCA: Meghan Tydd-Hrynyk LHPWSS: Marcy McKillop Jacobs: Ray Yu, Emma Henderson, Cassie Stea		
Apologies	Jacobs: Chris Flesher		

Discussion	Action By
<hr/>	
1 Introductions, Agenda, and Project Re-Cap	
<hr/>	
<ul style="list-style-type: none"> • Introductions of project team members completed. • Meeting agenda and objectives reviewed. • Problem and opportunity statement, as well as preferred alternative solution and proposed location of associated new infrastructure reviewed. 	
<hr/>	
2 Ecological Assessment Findings	
<hr/>	
<ul style="list-style-type: none"> • A re-cap of key findings from desktop natural features assessment (previously presented at last meeting) presented. • Key findings and recommendations from ecological field survey completed in June 2022 presented. 	
<hr/>	
3 Discussion	
<hr/>	
<ul style="list-style-type: none"> • ABCA acknowledged the work Jacobs/LHPWSS has done so far for the proposed new infrastructure associated with the preferred alternative is good and has already been considered sufficiently at this stage. <ul style="list-style-type: none"> ○ Jacobs noted that during pre-design, the alignment of the reservoir drain pipe (which currently slightly encroaches a Natural Feature (FOD4 forest)) will be revisited and optimized to avoid it completely if possible. 	

Discussion	Action By
<ul style="list-style-type: none">• ABCA re-iterated (from previous consultation meeting) that mitigation methods (i.e. silt fencing, etc.) will be needed to ensure the gully/ravine is not destabilized/disturbed by the construction of the reservoir drain pipe.<ul style="list-style-type: none">○ ABCA noted that the method of installation of the pipe (i.e. open cut vs trenchless) impacts the permitting process (in addition to the actual location/alignment of pipe).○ Jacobs clarified that currently trenchless installation is not being considered as there may be an opportunity to optimize the pipe alignment. However, trenchless installation can be considered as a mitigation measure if needed, at the design phase.• ABCA re-iterated (from previous consultation meeting) that there is no concern with the reservoir transfer pipes encroaching the eastern edge of the regulated area, and that this extension of the regulated area boundary is likely not classified as regulated anymore.• ABCA noted that that the studies (i.e. SAR survey, Ecological Land Classification) done to date would be most of what is needed to go through the ABCA permitting process.<ul style="list-style-type: none">○ A tree replacement plan will be needed as part of the documentation for the permit. ABCA recommends flagging the trees needing to be removed with paint and showing them on a map/figure to include as part of permit application documentation. Also plant additional trees to offset removed trees.<ul style="list-style-type: none">▪ The tree replacement ratio rule of thumb followed by ABCA is 2:1, with only native species allowed to be planted in place of removed trees.○ ABCA also advised that they may impose conditions as part of the permit (such as use of silt fence and other mitigation measures) but otherwise do not see any major issues with proponent obtaining a permit at this time.• ABCA confirmed that an EIS is not requested at this time and would only be triggered if: 1) the presence of SAR is identified (which to date has not been observed) or 2) the installation of the reservoir drain pipe requires clearcutting through the forested area.• ABCA permit is valid for 1 year, with possibility for an additional 1-year extension (i.e. 2 years max). After this, the proponent would need to re-apply. As such, ABCA suggests not applying too early in the design process.	
