REGIONAL MUNICIPALITY OF NIAGARA
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

V3.2 – Archaeological Assessments

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LIST OF APPENDICES

V3.2.3

REGIONAL MUNICIPALITY OF NIAGARA
SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

Archaeological Assessments

Stage 1 & 2 AA – Preferred WWTP Site

Revised Report:
Stage 1 & 2 Archaeological Assessment

South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands
Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now in the City of Niagara Falls, Regional Municipality of Niagara, Ontario

Project # OCUL2001.100

Archaeological Consulting License #P348 (Slim)
PIF # P348-0106-2020 (Stage 1)
PIF # P348-0107-2020 (Stage 2)

July 22, 2022

Prepared for:
Niagara Region Water & Wastewater Engineering
1815 Sir Isaac Brock Way, Thorold, Ontario L2V 4T7

wood.

Stage 1 & 2 Archaeological Assessment

South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands
Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former County of Welland, now in the City of Niagara Falls, Regional Municipality of Niagara, Ontario

Project # OCUL2001.100

PREPARED FOR:
Niagara Region Water & Wastewater Engineering
1815 Sir Isaac Brock Way, Thorold, Ontario L2V 4T7

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July 22, 2022

Executive Summary

Wood Environment & Infrastructure Solutions (“Wood”) was retained by Niagara Region to complete cultural heritage and archaeological consulting services in support of the Schedule “C” Municipal Class Environmental Assessment for the proposed South Niagara Falls Wastewater Treatment Plant (“WWTP”) and associated infrastructure in the City of Niagara Falls and City of Thorold, Niagara Region, Ontario. The project components assessed by Wood archaeology staff are depicted in Appendix A.

This report details the Stage 1 & 2 archaeological assessment for the preferred South Niagara Falls WWTP site in the Phase 2 Lands, located south of Welland River and north of Reixinger Road at 6811 and 7047 Reixinger Road in the City of Niagara Falls (the “Study Area”). The Study Area covers 81.2 hectares (“ha”) land and was historically located on Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, County of Welland (Appendix B: Figure 1-Figure 3). A development plan is provided in Appendix C.

The Stage 1 & 2 archaeological assessment was carried out in accordance with the Ontario Ministry of Tourism, Culture and Sport (“MTCS”) *Standards and Guidelines for Consultant Archaeologists* (2011), under an Ontario Professional License to Conduct Archaeological Fieldwork (P348) held by Barbara Slim, Associate Archaeologist at Wood. The MTCS acknowledged the project information by issuing PIF number P348-0106-2020 (Stage 1) and P348-0107-2020 (Stage 2).

Permission to enter the Study Area was secured by the Client from both landowners on 11 August 2020. As a consultant to the Client this permission extended to all required Stage 1-2 archaeological fieldwork activities, including the recovery and removal of artifacts, as applicable.

In keeping with Niagara Region’s ongoing Indigenous engagement process, Wood provided information sharing letters via email on 18 September 2021 to the following Nations: Mississauga of the Credit First Nation (“MCFN”), the Six Nations of the Grand River First Elected Council (“SNGREC”) and the Haudenosaunee Development Institute (“HDI”). The information sharing letters included project details and an invitation to participate. During the field assessment MCFN, SNCREC, and HDI provided Indigenous Monitors. The Indigenous Engagement process is included in Section 3 of the Supplementary Documentation.

The Stage 1 background study indicated that the Study Area has general archaeological potential and warranted Stage 2 property assessment.

The optional Stage 1 property inspection and Stage 2 property assessment of 6811 Reixinger Road within the Study Area were conducted concurrently and directed by Cara Howell (R180) on 08 December 2020, Chelsea Dickinson (R1194) on 06 July 2021, Jason Seguin (P354) on 23 July 2021 and Krista Lane (R382) on 07 October

2021. The weather, ground, and lighting conditions did not impede the inspection or assessment in any way.

Of the 13 ha assessed at 6811 Reixinger Road as part of the Stage 2 assessment, approximately 7.9 ha (10%) was assessed through Stage 2 pedestrian survey at 5 m intervals and approximately 5.4 ha (7%) was assessed through pedestrian survey completed at 2.5 m intervals. Multiple attempts to plough the southern fields at 6811 Reixinger Road prior to pedestrian survey were made through 2020 but were unsuccessful due to wet conditions; environmental and access issues also prevented completing fieldwork in November 2020 and April, May, July, August, and October 2021.

The Stage 2 property assessment identified Indigenous lithic artifacts in four areas, referred to as Location P1, Location H1, and P2 Location 1 and P2 Location 2. In the north portion of the Study Area, Location P1 was determined to be an eastern extension of the previously documented Indigenous Late Archaic archaeological site AgGs-48, while Location H1 (AgGs-450) was identified as a discrete Euro-Canadian artifact scatter within the wider boundaries of AgGs-48. Both sites are considered to have further cultural heritage value or interest (CHVI). P2 Location 1 and P2 Location 2 were isolated lithic findspots in the southeast portion of the study area; neither retain CHVI.

Based on the results of the Stage 1 & 2 archaeological assessment, recommendations are made as detailed in Section 4.0 and subject to the conditions outlined in Section 5.0. The following nine recommendations are based on the current archaeological assessment:

1. Approximately 24.8 ha (30%) of the Study Area has been previously subject to Stage 2 archaeological assessment by MAC (Appendix B: Figure 11 and Figure 12).
2. Approximately 0.3 (0.5%) of the Study Area was subject to extensive and deep land alterations that would have severely damaged the integrity of any archaeological resources and does not require Stage 2 assessment (Appendix B: Figure 12).
3. Approximately 17.4 ha (21%) of the Study Area is located within maintained lawns and wooded areas that have archaeological potential but cannot be accessed by plough (Appendix B: Figure 12).
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface) impacts are anticipated, a Stage 2 test pit survey is required in advance of ground disturbance. Per, Section 2.1.2, Standard 1.e, MTCS *Standards and*

Guidelines for Consultant Archaeologists (2011), areas recommended for test pit survey should be assessed at 5 m grid intervals with test pits a minimum of 30 centimetres ("cm") in diameter and dug to a minimum of 5 cm into subsoil. Test pitting should be conducted to within 1 m of all disturbances. Soils and sediments should be screened through 6 millimetre ("mm") mesh screens in order to facilitate artifact recovery and the test pit profiles examined for cultural deposits prior to being backfilled. All test pits should be backfilled to level grade, and any sod caps replaced and tamped down by foot.

4. Approximately 8.3 ha (10%) of the Study Area is identified to have archaeological potential but could not be ploughed due to wet conditions and requires Stage 2 pedestrian survey at 5 m intervals (Appendix B: Figure 12).
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface) impacts are anticipated, a Stage 2 pedestrian survey is required in advance of ground disturbance. Per Section 2.1.1 Standard 1 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011), areas recommended for pedestrian survey must be prepared with a mouldboard plough (and disk harrow if necessary), then weathered through one heavy rainfall or several light rains to improve the visibility of any archaeological resources. To meet MTCS standards for field preparation and visibility at least 80% of the ploughed ground surface must be visible after ploughing. The pedestrian survey should be conducted at maximum intervals of 5 m, with survey transects reduced to 1-m intervals in a 20 m radius where archaeological resources are identified. If archaeological resources are identified, diagnostic artifacts should be collected as appropriate to document the site and determine if subsequent Stage 3 archaeological assessment is warranted.
5. Approximately 11.3 ha (14%) of the Study Area is identified to have archaeological potential but could not be ploughed due to wet conditions.
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface)

impacts are anticipated, Stage 2 assessment is required in advance of ground disturbance.

i. It is recommended that if field conditions allow for the furrows to be properly disked to ensure a minimum of 80% visibility Stage 2 pedestrian survey at 5 m intervals be completed, otherwise an alternative strategy of test-pit survey at 5 m intervals is recommended (Appendix B: Figure 12).

6. Stage 3 site specific assessment with avoidance and protection measures should be conducted for Euro-Canadian artifact scatter Location H1 (AgGs-450 Supplementary Documentation: Figure 13):
    a. Stage 3 fieldwork should involve controlled surface collection after the field has been ploughed and allowed to appropriately weather as per Section 3.2.1 of the *Standards and Guidelines for Consultant Archaeologists*. The controlled surface collection should be followed by hand excavation of 1-m square units in a 5-m grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20% of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.1 of the *Standards and Guidelines for Consultant Archaeologists*. If any features are encountered, they should be addressed per Section 3.2.2 Standard 6 of the *Standards and Guidelines for Consultant Archaeologists* where their profile should be recorded and covered in geotextiles and backfilled. Detailed historic background research should follow the requirements outlined in Section 3.1 of the of the *Standards and Guidelines for Consultant Archaeologists*.
    b. Infrastructure proposed for within the known boundaries of AgGs-450 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-450, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).
7. The Indigenous lithic findspot identified as P2 Location 1 has been sufficiently assessed and documented through Stage 2 archaeological assessment and does not meet the criteria for Stage 3 site-specific assessment outlined in Section 2.2 Standard 1 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). Therefore, no additional assessment is recommended for P2 Location 1 (Supplementary Documentation: Figure 13).
8. The Indigenous findspot identified as P2 Location 2 has been sufficiently assessed and documented through Stage 2 archaeological assessment and does not meet the criteria for Stage 3 site-specific assessment outlined in Section 2.2 Standard 1 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011).

Therefore, no additional fieldwork or assessment is recommended for P2 Location 2 (Supplementary Documentation: Figure 13).

9. The Study Area is adjacent to the north, east, and west boundaries of the historically significant Dell Chapel and Cemetery (Appendix B: Figure 11 and Figure 12).
    a. In advance of any invasive archaeological assessment work (Stage 2-4) within 10 m of the west, north and east sides of the Dell Cemetery property, a licensed archaeologist should confirm with the Bereavement Authority of Ontario (BAO) whether a Cemetery Investigation Authorization will be required;
    b. Should portions of the Study Area adjacent to the east boundary of the Dell Cemetery be impacted by the proposed development, a Stage 2 archaeological assessment is required. If the Study Area within 10m of the eastern boundary of the cemetery property has not been deeply and extensively disturbed, the Stage 2 archaeological assessment will recommend a Stage 3 cemetery investigation is required;
    c. Stage 2 archaeological assessment has been completed for portions of the Study Area adjacent to the north and west boundaries of the Dell Cemetery. Should these portions of the Study Area be impacted by the proposed development, a Stage 3 Cemetery Investigation should be conducted to confirm whether human interments extend into the Study Area on the cemetery's north and west boundaries. Since the conditions in the Study Area adjacent to the north and west boundaries are agricultural fields that have been subjected to ploughing for many years, the Stage 3 Cemetery Investigation should begin with mechanical topsoil removal within a minimum 10-metre-wide zone adjacent to the cemetery boundaries, in accordance with Section 4.2.3 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). The mechanical topsoil removal should then be followed by cleaning of all exposed soil surfaces by shovel or trowel to aid in identifying the presence of grave shafts or other cultural features. If grave shafts or any other cultural features are recovered, mechanical topsoil removal must extend to at least 10 metres beyond any uncovered features. Further details of any future methodologies will need to be formulated in consultation with both the MTCS and the BAO if human remains/burials are encountered during this work.
10. An additional four recommendations are made in Section 4.0 of this report based on previous archaeological work conducted in the vicinity of the Study Area (MAC 2015a). These recommendations are provided within this report for convenience as they are still applicable to development activity and remain in effect unless it is determined during detailed design that construction methods will be deeper than 5

m below surface of the site boundaries. Please note that because not all of the recommendations provided in Section 4.0 are repeated here in the Executive Summary, the recommendation numbers provided in Section 4.0 are the official recommendation numbers to be referred to in future reporting.

The above recommendation is subject to approval by the Ministry of Tourism, Culture and Sport. It is an offence to knowingly alter any portion of an archaeological site except by a person holding a professional archaeological license.

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Supplementary Documentation

Project Personnel

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1.0 Section 1 – Project Context

1.1 Development Context

Wood Environment & Infrastructure Solutions ("Wood") was retained by Niagara Region to complete cultural heritage and archaeological consulting services in support of the Schedule "C" Municipal Class Environmental Assessment for the proposed South Niagara Falls Wastewater Treatment Plant (WWTP) and associated infrastructure in the City of Niagara Falls and City of Thorold, Niagara Region, Ontario. The project components assessed by Wood archaeology staff are depicted in Appendix A and summarized in the table below.

Project Component	Work Completed by Wood
Phase 1 Sewer Alignment/Construction Shaft Locations	• Stage 1 Archaeological Assessment (P327-0013-2021; Wood 2021a)
Phase 2 Wastewater Treatment Plant	• Stage 1 and 2 Archaeological Assessment (P348-0106-2020 and P348-0107-2020) (Current Report) • Marine Archaeological Assessment (Marine Archaeological License 2021-22; Wood 2021b)
South Thorold Trunk and Blackhorse Sewage Pumping Station	• Stage 1 Archaeological Assessment (P327-0012-2021; Wood 2021c) • Stage 2 Archaeological Assessment for Blackhorse Sewage Pumping Station (P327-0019-2021; Wood 2021d)

This report details the Stage 1 & 2 archaeological assessment for the preferred South Niagara Falls Wastewater Treatment Plant ("WWTP") site in the Phase 2 Lands, located south of Welland River and north of Reixinger Road at 6811 and 7047 Reixinger Road in the City of Niagara Falls (the "Study Area"). The Study Area covers 81.2 hectares ("ha") land and was historically located on Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, County of Welland (Appendix B: Figure 1-Figure 3). A development plan is provided in Appendix C.

The Stage 1 & 2 archaeological assessment was carried out in accordance with the Ontario Ministry of Tourism, Culture and Sport ("MTCS") *Standards and Guidelines for Consultant Archaeologists* (2011), under an Ontario Professional License to Conduct Archaeological Fieldwork (P348) held by Barbara Slim, Associate Archaeologist at Wood. The MTCS acknowledged the project information by issuing PIF number P348-0106-2020 (Stage 1) and P348-0107-2020 (Stage 2).

Permission to enter the Study Area was secured by the Client from both landowners on 11 August 2020. As a consultant to the Client this permission extended to all required Stage 1-2 archaeological fieldwork activities, including the recovery and removal of artifacts, as applicable.

In keeping with Niagara Region's ongoing Indigenous engagement process, Wood provided information sharing letters via email on 18 September 2021 to the following Nations: Mississaugas of the Credit First Nation ("MCFN"), the Six Nations of the Grand River Elected Council ("SNGREC") and the Haudenosaunee Development Institute ("HDI"). The information sharing letters included project details and an invitation to participate. During the field assessment MCFN, SNCREC, and HDI provided Indigenous Monitors. The Indigenous Engagement process is included in Section 3 of the Supplementary Documentation.

The Stage 1 background study evaluated the archaeological potential for the entire Study Area. Following a review of the proposed work in Appendix C it was determined that the optional Stage 1 property inspection and Stage 2 property assessments be limited to lands that may be impacted by construction of the preferred WWTP. These lands correspond to 44.2 ha of the total 81.2 ha Study Area and are located within the property at 6811 Reixinger Road (Appendix B: Figure 12).

The property assessments at 6811 Reixinger Road were directed and conducted by Cara Howell (R180) on 08 December 2020, Chelsea Dickinson (R1194) on 06 July 2021, Jason Seguin (P354) on 23 July 2021 and Krista Lane (R382) on 07 October 2021. The weather, ground, and lighting conditions did not impede the inspection or assessment in any way. Further attempts to conduct fieldwork were made on 24 November 2020 and 07 October 2021; however, due to field conditions and access issues no further work was completed. Additionally, multiple attempts to plough the southern fields at 6811 Reixinger Road were made throughout the field season with no success. These attempts and the associated weather conditions for each day of archaeological field work are discussed in further detail in Section 3.1.

This report presents the results of the Stage 1 background study and Stage 2 property assessment and makes pertinent recommendations.

1.2 Scope of Work

This Stage 1 & 2 archaeological assessment was carried out in accordance with the Terms of Reference provided in Wood's work agreement dated 17 June 2020.

A Stage 1 archaeological assessment is a systematic qualitative process executed in order to assess the archaeological potential of a Study Area based on its historical use and its potential for early Euro-Canadian (early settler) and pre-contact Indigenous occupation. The objectives of a Stage 1 background study are: 1) to provide information about the Study Area's geography, history, previous archaeological fieldwork and current land condition; 2) to evaluate in detail the Study Area's archaeological potential which will support recommendations for Stage 2 property assessment for all or parts of the Study Area if warranted; and 3) to recommend appropriate strategies for Stage 2 property assessment if warranted.

The scope of work for the Stage 1 background study consisted of the following tasks:

- Contacting the MTCS to determine if recorded archaeological sites exist in the vicinity (1 kilometre [“km’”] radius) of the Study Area, through a search of the *Ontario Archaeological Sites Database* maintained by that Ministry.
- Contacting the MTCS to determine if there are any known reports of previous archaeological field work within the Study Area or within a radius of 50 metres (“m”) around the Study Area, through a search of the *Ontario Public Register of Archaeological Reports* maintained by that Ministry.
- A desktop review of the Study Area’s physical setting to determine its potential for both pre-contact and post-contact period human occupation, including its topography, hydrology, soils, and proximity to important resources and historical transportation routes and settlements.
- A review of the potential for post-contact period human occupation as documented in historical atlases and other archival sources.
- A visual inspection of the Study Area to gather first-hand and current evidence of its physical setting, and to aid in delineating areas where archaeological potential may have been impacted or removed by recent land-use practices.
- Formulating appropriate field testing strategies for areas of general archaeological potential.
- Mapping, photography, and the production of other relevant graphics.

The objective of a Stage 2 property assessment is to survey the Study Area and document archaeological resources present within the Study Area and to decide whether these resources, if present, have CHVI.

The scope of work for the Stage 2 archaeological assessment consisted of the following tasks:

- Organizing public and private underground utility locates
- Conducting a test-pit survey at 5 m to 10 m intervals of unploughable areas of archaeological potential employing strategies that adhere to the technical standards for Stage 2 archaeological assessments as prescribed in the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).
- Conducting a pedestrian survey at 5 m intervals for any ploughable land, employing strategies that adhere to the technical standards for Stage 2 archaeological assessments as prescribed by the MTCS (2011).
- Mapping, photography, and the production of other relevant graphics.
- Artifact processing and analysis; and,
- Preparing a combined Stage 1 & 2 report of findings with recommendations regarding the need for further archaeological work if deemed necessary.

2.0 Stage 1 Background Study

2.1 Archaeological Context

2.1.1 Registered Archaeological Sites

In Ontario, information concerning archaeology sites is stored in the *Ontario Archaeological Sites Database* maintained by the MTCS. This database contains archaeological sites registered within the Borden system (Borden 1952). Under the Borden system, Canada has been divided into grid blocks based on longitude and latitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referred to by a four-letter designation and sites located within the block are numbered sequentially as they are found. The Study Area is located within the *AgGs* Borden block. On the basis of a search of the *Ontario Archaeological Sites Database* on 06 January 2022, there are 27 registered sites located within 1 km of the Study Area. Of these 27 sites, six are located within the Study Area and two are located within 300 m of the Study Area. Table 1 provides a summary of these sites.

Table 1: Registered Archaeological Sites within 1-km Radius

Borden Number	Site Name	Cultural Affiliation	Site Type	Distance from Study Area	Development Review Status
AgGs-4	**Feren**	**Unknown**	**Unknown**	**< 300 m**	Unknown
AgGs-5	Walters	Unknown	Unknown	< 1 km	Unknown
AgGs-15	MIA 8469	Unknown	Unknown	< 1 km	Unknown
AgGs-16	MIA 8470	Unknown	Unknown	< 1 km	Unknown
AgGs-17	MIA 8471	Unknown	Unknown	< 1 km	Unknown
AgGs-18	MIA 8472	Unknown	Unknown	< 1 km	Unknown
AgGs-19	MIA 8473	Late Archaic	Campsite	< 1 km	Unknown
AgGs-20	MIA 8474	Late Archaic	Campsite	< 1 km	Unknown
AgGs-21	MIA 8475	Unknown	Unknown	< 1 km	Unknown
AgGs-27	MIA 8481	Late Archaic	Campsite	< 1 km	Unknown
AgGs-28	MIA 8482	Unknown	Unknown	< 1 km	Unknown
AgGs-33	MIA 8483	Euro-Canadian	House	< 1 km	Unknown
AgGs-34	MIA 8484	Early Woodland	Findspot	< 1 km	Unknown
AgGs-35	MIA 8485	Unknown	Unknown	< 1 km	Unknown

Borden Number	Site Name	Cultural Affiliation	Site Type	Distance from Study Area	Development Review Status
AgGs-47	**Crawford 1**	**Middle Archaic, Late Archaic, Early Woodland, Middle Woodland, Euro-Canadian**	**Campsite**	**Within the Study Area**	Unknown
AgGs-48	**Crawford 2**	**Late Archaic**	**Campsite**	**Within the Study Area**	Unknown
AgGs-49	**Crawford 3**	**Middle Archaic, Early Woodland**	**Hunting Campsite**	**Within the Study Area**	Unknown
AgGs-50	**Feren**	**Aboriginal, Euro-Canadian**	**Campsite**	**< 300 m**	Unknown
AgGs-90	Walter	Late Archaic	Campsite	< 1 km	Unknown
AgGs-93	TCPL 90-13	Unknown	Findspot	< 1 km	Unknown
AgGs-236	Cabeiroi Camp 2	Aboriginal	Lithic Scatter	< 1 km	Unknown
AgGs-238	Welland Drain	Aboriginal	Campsite	< 1 km	Unknown
AgGs-375	---	Euro-Canadian	Farmstead	< 1 km	No Further CHVI
AgGs-379	**---**	**Aboriginal**	**Campsite**	**Within the Study Area**	Unknown
AgGs-380	**---**	**Aboriginal**	**Campsite**	**Within the Study Area**	Unknown

Borden Number	Site Name	Cultural Affiliation	Site Type	Distance from Study Area	Development Review Status
AgGs-381	---	**Aboriginal**	**Campsite**	**Within the Study Area**	Unknown
AgGs-387	Thundering Waters	Euro-Canadian	Homestead	< 1 km	No Further CHVI
AgGs-399	Parkway Site	Aboriginal	Campsite	< 1 km	No Further CHVI

- Archaeological Site AgGs-4 (Feren) is located 50 m northwest of the Study Area. No information is provided for this site other than its location (MTCS 2020a). The current development review status of the site is unknown.
- Archaeological Site AgGs-47 (Crawford 1/Parkins) is located within the Study Area. The site has both Indigenous and Euro-Canadian components, with the Indigenous component dating from the Middle Archaic to the Middle Woodland period (MTCS 2020a). Originally found in 1976, test units were excavated on the site in 1977. The remains of a nineteenth century house as well as Late Archaic to Middle Woodland projectile points, fishing tools, and stone axes were found (MTCS 2020a). The current development review status of the site is unknown.
- Archaeological Site AgGs-48 (Crawford 2/Parkins) is located within the Study Area on the south bank of the Welland River. It was originally identified by William Parkins in 1976 and reinvestigated in 2014 (MTCS 2020a, MHCI 2015). Over 1,500 artifacts covering a 250 m by 130 m area were observed during a Stage 2 pedestrian survey at the site. Temporally diagnostic projectile points indicate a Late Archaic date, and it has been interpreted as a hunting and fishing campsite (MHCI 2015:17). The site retains CHVI.
- Archaeological Site AgGs-49 is located 250 m from the Study Area, situated along the edge and into the bank of the Welland River. It was originally identified by William Parkins in 1976 as a Middle Archaic and Early Woodland hunting campsite. The current development review status of the site is unknown.
- Archaeological Site AgGs-50 is a pre-contact Indigenous site located within the Study Area. It was originally identified by William Parkins in 1970 and re-located during pedestrian survey by Mayer Archaeological Consultants (MAC). The site was described as a plough-disturbed lithic scatter of approximately 300 artifacts within a 100 m by 140 m area (MAC 2015a:17). The site retains CHVI and was recommended for Stage 3 assessment.
- Archaeological Site AgGs-379 is located within the Study Area. It was originally

discovered during pedestrian survey and is an Indigenous lithic scatter consisting of 46 artifacts within a 40 m by 31 m area (MAC 2015a:17-18). The site retains CHVI and was recommended for Stage 3 assessment.

- Archaeological Site AgGs-380 is located within the Study Area. It was originally discovered during pedestrian survey and is an Indigenous lithic scatter consisting of 16 artifacts within a 22 m by 23 m area (MAC 2015a:19). The site retains CHVI and was recommended for Stage 3 assessment.
- Archaeological Site AgGs-381 is located within the Study Area. It was originally discovered during pedestrian survey and is an Indigenous lithic scatter consisting of 13 artifacts within a 5 m by 8 m area (MAC 2015a:19). The site retains CHVI and was recommended for Stage 3 assessment.

2.1.2 History of Archaeological Investigations

Wood completed a search for archaeological reports within 50 m of the Study Area within the *Ontario Public Register of Archaeological Reports* administered by the MTCS on 12 August 2020. Based on this search (by address, lot and concession, and above-mentioned archaeological sites), two archaeological assessments have been conducted within the Study Area (MAC 2015; Golder 2021). No additional assessments were conducted within 50 m of the Study Area. Two additional studies have been conducted in the vicinity of the Study Area through the Project. Appendix B: Figure 4 shows the location of one of the previous studies (Wood 2021b), a marine archaeological assessment that has been reviewed and accepted by MTCS. The second study (Wood 2021a) is still under review by the MTCS and is not presented on Figure 4.

2.1.2.1 Reports Documenting Archaeological Assessments Within the Study Area

Table 2 lists the reports made available from MTCS documenting archaeological assessments conducted within the Study Area as well as the two archaeological reports associated with the current Project.

Table 2: Related Archaeological Assessment Reports Within the Study Area

Year	Title	Author	PIF
2015	Revised Report on Archaeological Assessment (Stages 1 & 2), 7047 Reixinger Road, Part of Lots 8, 9 & 10, Broken Front Concession, Formerly in the Township of Willoughby, Now in the City of Niagara Falls, R.M. of Niagara, Ontario	Mayer Archaeological Consultants	P066-0210-2014
2021	Stage 1 Archaeological Assessment, South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment, Various Lots	Golder Associates Ltd.	P468-0036-2019

Year	Title	Author	PIF
	and Concessions, Geographic Townships of Stamford, Willoughby and Crowland, Former County of Welland, City of Niagara Falls, Regional Municipality of Niagara, Ontario		
2021	Marine Archaeological Assessment	Wood	Marine Archaeological License 2021-22
Ongoing	Stage 1 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 1 Lands Part of Lots 186-187, 198 and 209-210 in the Township of Stamford, Lot 1 Broken Front at Chippewa Creek, Township of Crowland and Lots 7-10 Broken Front at Chippewa Creek, Township of Willoughby, Former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario	Wood	P327-0013-2021

- ***Revised Report on Archaeological Assessment (Stages 1 & 2), 7047 Reixinger Road, Part of Lots 8, 9 & 10, Broken Front Concession, Formerly in the Township of Willoughby, Now in the City of Niagara Falls, R.M. of Niagara, Ontario. Prepared by Mayer Archaeological Consultants, dated 21 September 2015, Reference No. 14-001. PIF P066-0210-2015 (MAC 2015a).***

In 2014, Mayer Archaeological Consultants ("MAC") conducted a Stage 1 and 2 archaeological assessment in advance of a residential and commercial development. The project's 37-ha study area covered a large portion of the preferred WWTP location within the current Study Area (see Appendix B: Figure 4). The Stage 1 background research determined that assessment's study area had archaeological potential due to the proximity of nearby water sources including the Welland River, Grassy Brook Creek, and Lyon's Creek. In addition to a historic farmstead was noted on the property, there was a historic church and cemetery adjacent to the assessment's study area. Additionally, two previously registered archaeological sites were located within the assessment's study area.

Fourteen archaeological locations were documented during MAC's Stage 1 & 2 assessment (MAC 2015a: 15). These included seven Indigenous artifact findspots, five Indigenous sites, one Euro-Canadian findspot, and one multi-component site. Further Stage 3 fieldwork was recommended for five of the 14 sites. The remaining Locations 2, 5, 6, 7, 8, 9, 10, 11, and 12 were determined to have little cultural heritage value and no

additional fieldwork was recommended for these locations (MAC 2015a: 25-28).

The portion of the assessment's Study Area adjacent to Dell Cemetery (on the west and north sides of the cemetery) was also recommended for further investigations to ensure no unmarked grave shafts extended into the assessment's Study Area. The woodlots within MAC's Study Area were not subject to a Stage 2 assessment due to their designation as part of an Environmentally Sensitive Area. However, these areas were determined to still retain archaeological potential and were recommended for further Stage 2 test pit assessment (MAC 2015a: 28).

MTCS concurred that MAC's recommendations were consistent with the conservation, protection, and preservation of the cultural heritage of Ontario and accepted the report into the *Ontario Register of Archaeological Reports* in a letter dated 02 October 2015 (MTCS 2015).

The results of MACs Stage 2 archaeological assessment and areas recommended for further work is located within Section 6 of the Supplementary Documentation.

- ***Stage 1 Archaeological Assessment, South Niagara Falls Wastewater Solutions Schedule C Class Environmental Assessment, Various Lots and Concessions, Geographic Townships of Stamford, Willoughby and Crowland, Former County of Welland, City of Niagara Falls, Regional Municipality of Niagara, Ontario. Prepared by Golder Associates Ltd. ("Golder"), 29 April 2021. PIF P468-0036-2019.***

Golder Associates Ltd. ("Golder") conducted a Stage 1 archaeological assessment of distinct areas labelled Areas 1 to 10 as part of a Class C Environmental Assessment. Area 8 of their report corresponds to the current Study Area (Golder 2021: Map 1). A section of Area 8 was documented as previously assessed (by MAC 2015a, as described above), with five sites in the previously assessed area requiring Stage 3 assessment. The remainder of Area 8 were recommended for Stage 2 assessment at 5 m intervals through either pedestrian survey or test pit survey (Golder 2021: Map 8). Golder also identified Dell Cemetery, as adjacent to Area 8, and that prior to invasive impacts within 20 m of the cemetery a detailed background research of the cemeteries' history and legal boundaries be completed to determine if there is potential for burials to be located within their project area. It should be noted that the Golder 2021 project area included the areas adjacent to the west, north and east sides of the Dell Cemetery and did not include the south side of the cemetery. Furthermore, any recommendations for further assessment, including the need for additional archaeological assessment or Cemetery Investigation Authorization would be identified based on this research. The remaining Areas 1-7, and 9-10 were located more than 50 m from the current Study Area.

- ***Marine Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 2 Lands Welland River along Lots 7 to 9 Broken Front on Chippewa Creek, Geographic Township of Willoughby, Former***

County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario. Marine Archaeological License 2021-22

Impacts related to the Marine Archaeological component of the project have been addressed though a separate Marine Archaeological Assessment (Marine Archaeological License 2021-22). The area assessed as part of the marine component consisted of 930 m of the Welland River, where the watercourse is approximately 100-m wide, up to a distance of 25m from the north shore for a total of 9 ha. The background study determined that while the area had general archaeological potential hit had been disturbed by extensive and intensive dredging activities and no further assessment is required (Appendix B: Figure 4).

- ***Stage 1 Archaeological Assessment South Niagara Falls Wastewater Treatment Plant, Phase 1 Lands Part of Lots 186-187, 198 and 209-210 in the Township of Stamford, Lot 1 Broken Front at Chippewa Creek, Township of Crowland and Lots 7-10 Broken Front at Chippewa Creek, Township of Willoughby, Former County of Welland, now the City of Niagara Falls, Regional Municipality of Niagara, Ontario. Draft Report on File with Wood. PIF P327-0013-2021.***

Impacts related to the Phase 1 component of the project are being addressed under a separate Stage 1 Archaeological Assessment (PIF P327-0013-2021 [Stage 1]) being conducted concurrently Wood. To date, the Stage 1 Archaeological Assessment report has not been entered into the *Ontario Public Register of Archaeological Reports,* therefore the associated project footprint is not included in Appendix B: Figure 4.

2.1.3 Environmental Context

The Study Area (Appendix B: Figure 1-Figure 3) is situated in the Haldimand Clay Plain physiographic region of Ontario (Chapman and Putnam 1984). This region is made up of a series of parallel belts between Lake Erie and the Niagara Escarpment that were once submerged by Glacial Lake Warren. The highest ground adjoins the Niagara Escarpment. The soils of this region are known for their heavy clay texture and are often characterized by poor drainage. For example, several square kilometres of Welland County are covered in peat bogs.

The *Soil Survey of Welland County* (Acton 1935) indicates that the dominant surface soil types within the Study Area is Niagara Clay and Welland Clay. Niagara Clay has fair to good surface drainage while Welland Clay has fair to poor natural drainage. The topography of the Study Area is generally smooth to undulating uplands with some low swales and pond holes.

It is crucial to consider the proximity of water sources in any evaluation of archaeological potential because the availability of water is arguably the single most important determinant of human land use, past and present. The *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011) lists proximity to water as one of the prime indicators of potential for the presence of archaeological sites. Distance from

potable water has been one of the most commonly used variables for predictive modeling of archaeological site location. Water, both potable and non-potable, also facilitated the transportation of people and goods and served to focus animal and plant resources. According to the 2011 *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011), lands within 300 m of an extant or formerly mapped river or creek have potential for the presence of early Indigenous and Euro-Canadian archaeological sites. Primary water sources located within 300 m of the Study Area include the Welland River directly to the north and Grassy Creek directly to the northwest. There are three small marshes, secondary water sources and resource extraction areas, located within the Study Area which were previously identified by MAC in 2015 (MAC 2015a: 10, 15, 39, 47-48; Appendix B: Figure 2-Figure 3).

2.2 Historical Context

2.2.1 A Cultural History for Southern and Eastern Ontario

The majority of interpretations of pre-contact Indigenous adaptations in Ontario derive from the analysis and interpretation of stone tools. Stone tools are made from specific types of rocks that fracture in ways that can be controlled, so that they are easily shaped into useful forms. These rocks include chert, chalcedony, quartzite, petrified wood, and volcanic glass, known as obsidian. Most stone tools found in southern Ontario are formed from types of chert that outcrop in local limestone formations, such as: Onondaga and Haldimand cherts, found near the north shore of Lake Erie; Kettle Point chert, which outcrops near Lake Huron; and Collingwood chert, which outcrops along the Niagara Escarpment near Georgian Bay.

Stone tools used as spear tips and arrowheads are the most commonly studied tool type. These are referred to as projectile points. As projectile point technology changed over time, styles and shapes of points changed also. Studying these changing point types has resulted in the development of a chronological framework for pre-contact times prior to 3,000 years ago, when Indigenous Nations began to make clay pottery. Later periods are defined both by point types and pottery characteristics. Radiocarbon dating of archaeological sites can only be done when organic materials are collected from those sites, so the dating of most sites is done by comparing the artifacts from dated sites to those from undated sites.

The following is an overview of the cultural history of southern and eastern Ontario as understood by archaeologists. It is based upon published syntheses of Indigenous cultural occupations (Wright 1968, Ellis and Ferris 1990, Adams 1994). For additional reference, Ellis and Ferris (1990) provide greater detail of the distinctive characteristics of each time period and cultural group.

The cultural history of southern Ontario began approximately 11,000 years ago when the glaciers had melted, and the land was re-exposed. The land was quickly settled by bands of hunters and gatherers who are thought to have been large game hunters. These people used large spear points that are distinctively shaped with long central

grooves, called “flutes”. Archaeologists have defined a number of point types that date to this time, including Gainey, Barnes, Crowfield, and Hi-Lo types. This period is referred to as the Paleo-Indian Period and it is thought to have lasted until approximately 9,000 years ago.

After 9,500 years ago, there was a long period when the climate was variable and the bare lands left by the glaciers were becoming re-forested, resulting in patchier, more diverse ecozones. During this time, which lasted until 3,000 years ago, people were adapting to diverse environmental settings. There appears to have been more reliance on local stone for making tools and more variable tool manufacturing technologies. The adoption of a spear-throwing board, known as an atlatl, was an important innovation, resulting in the ability to throw smaller darts with more force. Projectile points from this period, called the Archaic Period, are commonly side or corner-notched and are smaller than those of the preceding period. The Archaic adaptation is generally thought to have centered on localized resources, often forest resources, and groups of people are thought to have been less mobile, an adaptation that continued to develop until the arrival of Europeans.

In southern Ontario, the Archaic Period is divided into the Early, Middle and Late Archaic. Early point types include serrated Nettling and Bifurcate Base points. Middle types include Brewerton Corner Notched and Otter Creek, and Late types include Lamoka, Genesee, Crawford Knoll, and Innes. Most of these point types are named after archaeological sites where they were first identified.

The Archaic Period is followed by the Woodland Period. The major technological change in the Early Woodland Period is the introduction of pottery. During this time, people are thought to have developed more community organization and the manufacture of clay pottery is thought to indicate less residential mobility. Burial sites dating to this time often display evidence of ceremonial activities. Projectile points made at this time include much smaller types, probably used as arrow tips. Point types include Meadowood and Kramer and early ceramics were crudely-made vessels with conoidal (pointed) bases. The Early Woodland Period transitioned into the Middle Woodland Period approximately 2,400 years ago.

During the Middle Woodland Period in southern Ontario community and kin identity became more deeply entrenched, and more sedentary communities developed. Point types made at this time include Saugeen, Vanport, and Snyders. Ceramic vessels were conoidal in shape but were decorated with stamped designs in the soft clay. The Middle Woodland Period transitioned into the Late Woodland Period A.D. 500–900 with the earliest direct evidence for agriculture.

The Late Woodland Period saw the development of recognizable Iroquoian and Algonquian cultures in southern Ontario, characterized by the intensification of agriculture and the increased utilization of corn. Greater sedentism led to increasing settlement populations and greater complexity of settlement organization. Sites dating to this time are often found on terraces overlooking the floodplains of large rivers.

Iroquoian villages tended to be small, palisaded compounds with longhouses occupied by families. As the Late Woodland Period progressed, more intercommunity communication and integration became necessary to maintain the sedentary agricultural way of life. Later Iroquoian villages were larger and more heavily palisaded, and longhouses were larger also. Algonquian settlements tended to be less populous and temporary.

When European explorers and missionaries arrived in southern Ontario in the early seventeenth century, they described the local Iroquoian social organization as being under the direction of elected chiefs. Tribal confederacies and allegiances resulted in intertribal warfare, which was only made worse by the European presence. Three Ontario Iroquoian confederacies, the Huron, Petun, and Neutral, were driven from their traditional territories before the middle of the seventeenth century.

Archaeologists tend to describe a period of transition from Late Woodland to post-contact contact times as “proto-historic”. The dating of this period is variable and may be different from site to site within a region as it describes a time when local Indigenous peoples were acquiring European trade goods indirectly through other Indigenous middlemen rather than directly from European traders. This period was generally very short and is often difficult to differentiate archaeologically from later post-contact times, when trade goods were widely available, but it usually is identified by evidence of an intact traditional cultural adaptation with occasional European items used in traditional ways.

Table 3: Simplified Cultural Chronology of Southern and Eastern Ontario

Period	Complexes/Cultures, Some Diagnostic Artifacts
Early Paleo-Indian (9000–8500 B.C.)	Small nomadic hunter-gatherer bands. Early Paleo-Indian (EPI) rarely found in eastern Ontario. Gainey, Barnes, Crowfield fluted points.
Late Paleo-Indian (8500–7500 B.C.)	Small nomadic hunter-gatherer bands. Hi-Lo, Holcombe points, Lanceolate Bifaces.
Early Archaic (7500–6000/4500 B.C.)	Small nomadic hunter-gatherer bands. Nettling, Stanley/Neville points.
Middle Archaic (6000/4500–2500 B.C.)	Transition to territorial settlements. Seasonal round of subsistence introduced. Thebes (6000–5000 B.C.), Otter Creek points (4500–3000 B.C.). Brewerton Complex (3000–2500 B.C.). Brewerton points. Laurentian Complex (6000–2500 B.C.) (Eastern Ontario)
Late Archaic (2500–1000 B.C.)	More numerous territorial hunter- gatherer bands, increasing use of exotic materials and artistic items for grave offerings, regional trade networks. Narrowpoint Complex (2500–1850 B.C.). Lamoka points. Broadpoint Complex (1850–1650 B.C.). Adder Orchard,

Period	Complexes/Cultures, Some Diagnostic Artifacts
	Genesee points. Smallpoint Complex (1650–1000 B.C.). Crawford Knoll, Innes points. Terminal Archaic (1100–1000 B.C.) Glacial Kame Complex. Hind points.
Early Woodland (1000–400 B.C.)	Pottery introduced. Meadowood Notched points, Meadowood Cache Blades, Kramer, Adena points. Meadowood Complex (1000–400 B.C.). Middlesex Complex (650–400 B.C.). Introduction of true cemeteries.
Middle Woodland (400 B.C.–A.D. 500/900)	Saugeen, Snyders, Vanport, Port Maitland points. Point Peninsula Complex (Southcentral and eastern Ontario) Saugeen Complex (Southeast of Lake Huron and the Bruce Peninsula, London area, and possibly as far east as the Grand River) Couture Complex (Lake St. Clair and the western end of Lake Erie). Burial ceremonialism.
Transitional Woodland (A.D. 500–900)	Agriculture introduced. Levanna, Jacks Reef points. Princess Point Complex (Eastern end of Lake Erie and the western end of Lake Ontario). Rivière au Vase Phase of the Younge / Western Basin Tradition (Lake St. Clair and western end of Lake Erie) Sandbanks Complex (Kingston area).
Late Woodland (A.D. 900–1650)	Tribal differentiation. Transition to settled village life. Dewaele, Glen Meyer Tanged, Triangular Nanticoke, Notched Nanticoke, Triangular Daniels/Madison points. Ontario Iroquoian and St. Lawrence Iroquoian Traditions (Southcentral and eastern Ontario, respectively). Algonkian Western Basin Tradition (Lake St. Clair and the western end of Lake Erie).
Early Post-Contact (A.D. 1650–1763)	Iroquoian, Algonkian migrations and resettlement. French exploration and colonization
Late Post-Contact (A.D. 1763–1867)	Iroquoian, Algonkian migrations and resettlement. British and other European immigration increases.

In southern Ontario, significant post-contact archaeological sites are those that have an affiliation with an important historic event, figure, or family, but can also be anything dating to the original European settlement of a region. Often, these archaeological sites date to before A.D. 1830, but archaeologically significant Euro-Canadian sites can date into the twentieth century.

2.2.2 Review of Historical Records

Historically, the Study Area was located within the former Township of Willoughby, County of Welland. The earliest recorded European visitor to the area is Father Louis Hennepin, who explored as a missionary in 1678. He is best known for publishing an account of his travels, which include the first written description of Niagara Falls, published in 1689 (Page 1876). In the last two decades of the 18th century large numbers of United Empire Loyalists (UEL) moved into the Niagara region after receiving land grants for siding with the British during the American Revolutionary War. By 1784, at least 40 families had settled in what would become Welland County (Murphy 1887). The closest historic community to the Study Area is the Village of Chippawa, established in 1792. The first permanent Euro-Canadian settler in Chippawa was Thomas Cummings, who took up land on the south side of the Welland River 1783. Chippawa had a post office and was a centre for ship building and foundry work (Bond 1964; Jackson 1997).

Welland County was formed in 1851 from land severed from the southern section of Lincoln County (Mika and Mika 1983). The county was named after the Welland River, which had been named in 1792 by John Graves Simcoe after the Welland River in Lincolnshire, England (Middleton and Landon 1927; Rayburn 1997:366). The building of the first Welland Canal in the 1820s stimulated settlement growth in the area (Mika and Mika 1983).

Willoughby Township was first surveyed in 1787 and was named for British politician Sir Peregrine Bertie, 19th Baron Willoughby (Armstrong 1930; Rayburn 1997:375). In addition to UEL, groups of pacifist Pennsylvania Dutch families arrived in the 1790s. The 19th century saw increasing settlement by German-speaking farmers from Switzerland, and other German regions attracted by cheap land (Page 1876). Willoughby Township is also the site of the War of 1812 Battle of Chippawa, fought between British and American forces on 5 July 1814 (Page 1876).

Dell Cemetery is located at the intersection of Reixinger Road and Dell Road directly south of the Study Area. Henry Dell Sr. the son of Basnett Dell Jr. and Ann (DeFields) was a UEL soldier who petitioned for land in 1796. He is listed in the 1851 census as being a farmer (Library & Archives Canada 2020). The same year, Henry Dell Sr. deeded one acre of land to the Methodist Episcopal Church to be known as the Dell Chapel and Cemetery. The first known burial was Robert Dell's wife Mary, who was interred on 14 November 1849 (City of Niagara Falls 2013). Several other Dell family members are buried in the cemetery along with members of pioneer families Hexamer, Morley and Reixinger. The City of Niagara Falls acquired the cemetery in 1973 and it is currently inactive (City of Niagara Falls 2019, Bereavement Authority of Ontario 2017). In accordance with the recommendations proposed by Golder (Golder 2021) both the City of Niagara Falls and the Bereavement Authority of Ontario (BAO) were contacted to gather additional information on the cemetery to confirm its western, northern and eastern boundaries, adjacent to the Study Area. Although no legal survey or map of the

cemetery was filed with the BAO (Appendix B: Figure 5-Figure 10; Supplementary Documentation: Sections 7 and 8), information provided from the City (Supplementary Documentation: Section 7) conclusively determined that the boundary of the cemetery is consistent with the historical mapping, present day parcel data, and the chain link fence line observed during field review. In addition, the cemetery mapping provided by the City indicates that the burial plots (Supplementary Documentation: Section 7), are concentrated in the north portion of the cemetery property; the interments were located here since the Dell Chapel, now demolished, was located in the southern portion of the property. The burial plots on the east side of the cemetery are located 10 m from the eastern boundary of the cemetery property and therefore 10 m from the Study Area in that direction.

Historical records and mapping were examined for evidence of early Euro-Canadian use of the Study Area. The Study Area was located within Part of Lots 7 to 10 Broken Front on Chippewa Creek, Willoughby Township, in the County of Welland, Ontario. A summary of these historical records is presented below in Table 4.

Table 4: Review of Historical Records

Figure No.	Year	Map Title	Historical Feature(s)
Figure 5	1795	1795 Augustus Jones Willoughby Township No. 1 Map (Jones 1795)	• A tributary of Welland River is illustrated transecting the parcel • Property owners are listed but due to degradation of the document and file resolutions the names are primarily illegible; names that are legible are: o Lot 7 - Jonas N/A o Lot 8 - John Thomas o Lot 9 – John N/A o Lot 10 – James N/A
Figure 6	1862	1862 Tremaine's Map of Welland County (Tremaine 1862)	• On Lot 7, Broken Front at Chippewa Creek is depicted the Estate of W. Miller and a tributary of the Welland River transecting the parcel • Lot 8, Broken Front at Chippewa Creek lists property owner H. Dell
Figure 7	1876	1876 Illustrated Historical Atlas of Lincoln and	• Listed property owners: o Edward Dell (Lots 8-10) o Henry DeWitt (Lots 7-8) o James Malone (Lots 9-10)

Figure No.	Year	Map Title	Historical Feature(s)
		Welland Counties (Page, H. R. & Co. 1876)	• A roadway is illustrated adjacent to the Study Area • Three buildings are depicted within the Study Area, one located within Lot 8 and the remaining two within Lot 10 • Three orchards are depicted within the Study Area, one within Lot 8, 9 and 10 • Dell Cemetery is located directly south of the Study Area within Lot 8, Broken Front at Chippewa Creek

2.2.3 Historical Plaques

The MTCS's *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011:18) stipulates that areas of early Euro-Canadian settlement, including places of early military pioneer settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries, are considered to have archaeological potential. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site, and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations are also considered to have archaeological potential.

A plaque detailing the history of Dell Cemetery is situated adjacent to the Dell Cemetery,, along Reixinger Road. The plaque, placed by the City of Niagara Falls, reads:

> *History: Henry Dell Sr., a loyalist soldier, received a portion of land in 1797. Henry Sr. deeded one acre of land to the Methodist Episcopal church in 1851 and was known as the Dell Chapel & Cemetery.*
>
> *First Known Burial: Mary, wife of Robert Dell, November 14, 1849.*

2.3 Recent Land Use History

Land use at the beginning of the 20th century remained largely unchanged in the Township of Willoughby as agricultural land use was still predominant and the process of industrialization ongoing. The 20th century saw dramatic changes as the population of the township increased including city expansion, and residential developments.

Historical records and mapping were examined to gain an understanding of 20th century land use in the Study Area. While maps from 1906, 1907, 1908, 1915, 1920, 1925, 1928, 1930, 1938, 1939, and 1942 were examined, it was concluded that historic

maps from the years 1906, 1925 and 1942 best illustrated the prominent changes of the Study Area within the early 20th century and its surrounding areas. A summary of these historical records is presented below in Table 5.

Table 5: Review of 20th Century Historical Mapping

Figure No.	Map Title/Year	Historical Feature (s)
Figure 8	1906 Topographic Map of Ontario, Niagara Sheet (Department of Militia and Defence 1906)	• Three wood residences depicted within the Study Area • One railway depicted 425 m to the northwest of the Study Area • Dell Chapel and Cemetery is located directly to the south of the Study Area • Welland River directly north of the Study Area • Reixinger Road directly south of the Study Area • QEW directly west of the Study Area
Figure 9	1925 Topographic Map of Ontario, Niagara Sheet (Department of Militia and Defence 1925)	• Four wood residences depicted within the Study Area • One railway depicted 425 m to the northwest of the Study Area • Dell Chapel and Cemetery is located directly to the south of the Study Area • Welland River depicted directly north of the Study Area • Reixinger Road directly south of the Study Area • QEW directly west of the Study Area
Figure 10	1942 Department of National Defence Geographical Section, Canada Sheet 30 (Department of National Defence 1942)	• Four wood residences depicted within the Study Area • One railway depicted 425 m to the northwest of the Study Area • Welland River transecting Study Area • Dell Chapel and Cemetery is located directly to the south of the Study Area • Reixinger Road directly south of the Study Area • QEW directly to the west of the Study Area

In conjunction, a review of recent aerial photographs was completed for the Study Area to discern past and present land uses in the Study Area (Appendix D). Table 6 provides

a summary of these findings.

Table 6: Review of 20th century Historical Records

Year	Features
1934 (Appendix D: Plate 1)	The following features are observed. • The Welland River transects the Study Area • The Great Trunk Railway transects the Study Area
1954-55 (Appendix D: Plate 2)	The following features are observed. • The Welland River is located north of the Study Area • The Great Trunk Railway is located north of the Study Area • The QEW is depicted east of the Study Area • Residences are located to north of Reixinger Road
1965 (Appendix D: Plate 3)	The following features are observed. • The Welland River is located north of the Study Area • The Great Trunk Railway is located north of the Study Area • The QEW is depicted east of the Study Area • Additional residences located to the north of Reixinger Road
1968 (Appendix D: Plate 4)	• The configuration of the Study Area is very stable and little change takes place.
1995 (Appendix D: Plate 5)	The following features are observed. • The Welland River transects the Study Area • The Great Trunk Railway transects the Study Area • The QEW is depicted transecting the Study Area • One of the residences to the west of the Study Area has been demolished • The configuration of Dell Road located south of the Study Area has been altered
Various (2000 to 2020 Online Google Earth Aerial Imagery)	• The configuration of the Study Area is very stable and little change takes place. • Imagery taken between 2002 to 2016 shows various drainage ditches and low-lying and wet areas within the southern fields at 6811 Reixinger Road

2.4 Archaeological Master Plans

The Region of Niagara retained Archaeological Services Inc. to prepare a Regional Archaeological Management Plan. The *Niagara Region Archaeological Management Plan* (AMP) represents best practices in municipal archaeological resource management and includes planning and management guidelines and an archaeological potential model consistent with provincial legislation and policies. According to the

Region of Niagara Archaeological Management Plan the land within the Study Area was identified as having archaeological potential and requiring archaeological resource assessment prior to development (ASI 2021).

2.5 Potential for Archaeological Resources

Archaeological potential is defined as the likelihood of finding archaeological sites within a Study Area. For planning purposes, determining archaeological potential provides a preliminary indication that archaeological sites might be found within the Study Area, and consequently, that it may be necessary to allocate time and resources for archaeological survey and mitigation.

The framework for determining the presence of archaeological potential within a Study Area is drawn from provincial standards found in the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011, Sections 1.3.1 and 1.3.2). The following are features or characteristics that can indicate archaeological potential:

- previously identified archaeological sites;
- water sources (it is important to distinguish types of water and shoreline, and to distinguish natural from artificial water sources, as these features affect site locations and types to varying degrees):
  - primary water sources (e.g., lakes, rivers, streams, creeks);
  - secondary water sources (e.g., intermittent streams and creeks, springs, marshes, swamps);
  - features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches); and,
  - accessible or inaccessible shoreline (e.g., high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh).
- elevated topography (e.g., eskers, drumlins, large knolls, plateaus);
- pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground;
- distinctive land formation that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings;
- resource areas, including:
  - food or medicinal plants (e.g., migratory routes, spawning areas, prairie);
  - scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert); and,
  - early Euro-Canadian industry (e.g., fur trade, logging, prospecting, mining).
- areas of early Euro-Canadian settlement. These include places of early military or

pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and cemeteries. There may be commemorative markers of their history, such as local provincial, or federal monuments or heritage parks;

- early transportation routes (e.g., trails, passes, roads, railways, portages); and,
- property listed on a municipal register or designated under the *Ontario Heritage Act* or that is a federal, provincial or municipal historic landmark or property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Archaeological potential can be determined to not be present for either the entire Study Area or parts of it when the area under consideration has been subjected to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as “disturbed” or “disturbance” and may include:

- quarrying;
- major landscaping involving grading below topsoil;
- building footprints;
- sewage and infrastructure development; and,

However, activities such as agricultural cultivation, gardening, minor grading, and landscaping do not necessarily affect archaeological potential.

The Study Area is bounded by Welland River to the north, largely forested lands to the east, Reixinger Road to the south, and Queen Elizabeth Way to the west. Most of the Study Area is actively or formerly cultivated agricultural field separated by tree rows with forested or scrub areas lining the Welland River and Grassy Creek and forested areas in the north-central and southwestern portions of the Study Area. A house, barn and outbuildings surrounded by maintained lawn are located in the southeastern portion of the Study Area along Reixinger Road. Directly south of the Study Area, on the north side of Reixinger Road at Dell Road, is the historically significant Dell Cemetery and its boundaries are delineated by chain link fencing.

Several factors can be used to assess the potential for recovery of Indigenous archaeological resources within a Study Area. First, the Study Area is located within 300 m of several registered archaeological sites: 1) four Indigenous archaeological sites and two multi-component sites are located within the Study Area; and 2) one multi-component site and one with an unknown cultural affiliation are located within 300 m of the Study Area providing evidence that the general area has been intensively utilized by both Indigenous peoples and Euro-Canadians.

Second, the Study Area is largely comprised of well-drained land that is suitable for human habitation. Natural water sources are located within 300 m of the Study Area, including Welland River directly to the north and Grassy Brooks Creek directly to the northwest. Three small marshes, secondary water sources and resource extraction

areas, are located within the Study Area.

As per the MTCS's *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011), any areas within 100 m of early transportation routes and 300 m of early Euro-Canadian settlement have archaeological potential. The Study Area is located adjacent to historical roadways and transportation routes, including Reixinger Road and the Welland River. Buildings and orchards are illustrated within the Study Area and Dell Chapel and Cemetery are shown adjacent to the Study Area on 1862 and 1876 historical mapping (Appendix B: Figure 6-Figure 7). Historical records indicate the cemetery was in use as early as 1849 (City of Niagara Falls, 2019).

Given the above, background archival research supports the conclusion that the Study Area exhibits general archaeological potential for the presence of both Indigenous and Euro-Canadian archaeological resources.

Permanently wet areas, such as marsh or swamp, and/or areas of steeply sloping topography have low potential for the recovery of any archaeological resources. There are three small marshes located within the Study Area in the ploughed fields and woodlots previously identified by MAC as having low to no archaeological potential (MAC 2015a: 10, 15, 39, 47-48).

2.6 Indigenous Engagement

The Study Area is within the treaty and/or traditional territories of numerous Indigenous Nations. This area was used and shared by many Indigenous groups over the millennia, each with their own traditions as to how they arrived, lived, and the major events of their history. One perspective is provided in the MCFN treaties booklet (Appendix G), which details the history of the Mississauga of the Credit First Nation and the 1792 Between the Lakes Treaty, No.3. It should be noted that this booklet does not necessarily reflect the views of other Nations, nor the consultant archaeologist.

A draft of this report was shared with the following three Indigenous Nations:

- Haudenosaunee Development Institute (HDI)
- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River Elected Council (SNGREC)

To date no comments from HDI have been received.

Comments received from MCFN and SNGREC are summarized in the Supplementary Documentation accompanying this report.

3.0 Stage 1 & 2 Property Assessment

3.1 Methods

A Stage 1 visual inspection and Stage 2 property assessment at 6811 Reixinger Road were conducted concurrently on 08 December 2020, 06 July 2021, 23 July 2021 and 07 October 2021 with advance permission-to-enter secured by the Client. The weather, ground and lighting conditions on those days did not impede the inspection or assessment in any way and met Section 2.1 Standard 3 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011) regarding weather and lighting. A daily log of field conditions is provided in Table 7.

Table 7: Weather Conditions for Each Field Day

Date	Weather	Field Director	Activities Conducted
24 November 2020	Overcast, 2°C	Cara Howell (R180)	Arrived on site but survey was cancelled due to poor field conditions and recommended to be rescheduled (weather permitting) no archaeological fieldwork conducted
08 December 2020	Sunny, 0°C	Cara Howell (R180)	Pedestrian survey and controlled surface artifact collection completed on a portion of the Study Area
06 July 2021	Sunny with some overcast, 29°C	Chelsea Dickinson (R1194)	Property assessment of 6811 Reixinger Road completed in conjunction with Cultural Heritage Evaluation Report fieldwork
23 July 2021	Sunny, 23°C	Jason Seguin (P354)	Pedestrian survey and controlled surface artifact collection completed on a portion of the Study Area
07 October 2021	Sunny, 24°C	Krista Lane (R382)	Arrived on site but test-pit survey was cancelled due to site access issues; no archaeological fieldwork conducted

A Stage 1 & 2 property assessment was directed by Cara Howell (R180) on 08 December 2020, Chelsea Dickinson (R1194) on 06 July 2021, Jason Seguin (P354) on 23 July 2021 and Krista Lane (R382) on October 07, 2021. Colleen McNaughton and Tyler Green, Indigenous Nation representatives from SNGREC, joined field staff on 08 December 2020 and 23 July 2021 respectively.

3.1.1 Stage 1 Property Inspection

The Stage 1 property inspection confirmed archaeological site potential and determined the degree to which development and landscape alteration have affected that potential.

It included a walk-through of the property at 6811 Reixinger Road, which measures approximately 44.2 ha of the total 81.2 ha Study Area. The remainder of the Study Area was inaccessible but was within the 37-ha previous assessed by MAC (MAC 2015a). The property inspection was thoroughly photo-documented (Appendix B: Figure 11-Figure 12; and Appendix E: Photographs 1 to 29). Field observations were recorded on aerial maps and field forms. All land conditions were recorded as shown in Appendix B: Figure 11 and Appendix E: Photographs 1 to 18.

The Stage 1 property inspection determined that archaeological potential has been removed within 0.3 ha (0.5%) of the Study Area. These areas, identified as disturbed, have had the integrity of the topsoil compromised by earth moving activities to the point where archaeological potential has been removed. These areas include a farmhouse, barns, outbuildings, a Quonset, two precast stave silos, a concrete pad, and a driveway located within the southeastern portion of the Study Area (Appendix E: Photographs 1 to 3, 13 to 14 and 16 to 18).

Approximately 24.8 ha (30%) of the Study Area was previously assessed by MAC during Stage 2 archaeological assessment (Appendix B: Figure 11-Figure 12). These areas include three small marshes located within the Study Area previously identified by MAC (MAC 2015a: 10, 15, 39, 47-48).

The remainder of the Study Area has general archaeological potential and warrants further assessment, this includes: 1) 5.7 ha (7%) of the Study Area was previously assessed and deemed to have CHVI and recommended for Stage 3 site-specific assessment 2) 50.2 ha (63%) of the Study Area consisting of actively or formerly cultivated agricultural field, woodlots scrub areas and manicured lawn recommended for Stage 2 assessment and 3) 0.1 ha (0.5%) of lands immediately west and north of the Dell Cemetery chain link fencing recommended for Stage 3 cemetery investigation (Appendix B: Figure 11).

3.1.2 Stage 2 Property Assessment

Multiple attempts to plough the southern fields at 6811 Reixinger Road prior to pedestrian survey were made between 2020 and 2021 but were unsuccessful due to wet conditions; environmental and access issues also prevented completing fieldwork in Fall 2020 and April, May, July, August, and October 2021. A summary of these attempts is presented below in Table 8 and email correspondence summarizing these attempts are provided in Section 4 of the Supplementary Documentation. Based on field conditions only 13 ha of the 50.2 ha recommended for Stage 2 assessment at 6811 Reixinger Road was completed.

Table 8: Record of Plough Attempts and Poor Field Conditions

Date	Notes
Fall 2020	Attempts to plough/disc southern fields of 6811 Reixinger Road unsuccessful due to wet conditions
08 April 2021	Attempts to plough/disc southern fields of 6811 Reixinger Road unsuccessful due to wet conditions
14 May 2021	Attempts to plough/disc southern fields of 6811 Reixinger Road unsuccessful due to wet conditions
02 July 2021	Portion of the fields ploughed and disced but results insufficient to complete archaeological assessment; attempts to plough the southeast field at 6811 Reixinger Road unsuccessful due to wet conditions
17 August 2021	Attempts to plough/disc southern fields of 6811 Reixinger Road unsuccessful due to wet conditions

The 13 ha were assessed by means of pedestrian survey. This technique involves walking across the entire field in parallel rows and surveying the ground surface for artifacts. The agricultural land was prepared for the pedestrian survey by disc harrowing/mouldboard ploughing to the depth of previous ploughing. The fields were allowed to weather through one heavy rainfall and several light rains to improve surface visibility. Visibility conditions were excellent, with little to no field debris. At least 80% of the ploughed ground surface was visible after ploughing had been completed, meeting MTCS standards for field preparation and visibility.

Of the 13 ha surveyed approximately 7.6 ha (9%) of the northern fields were assessed using pedestrian survey 5 m intervals. After engaging the Indigenous representatives, the remaining 5.4 ha (7%) of the southern fields were recommended for a pedestrian survey at transects of 2.5 m intervals in order to mitigate for the slight overgrowth of grass and achieve 80% visibility as per Section 2.1.1 Guideline 2 of the *Standards and Guidelines for Consultant Archaeologists* (2011).

Pedestrian Survey identified artifacts in four separate locations. These areas were subject to intensification and the survey transects were decreased to 1-m intervals for a minimum 20-m radius around the find to determine if it was an isolated find, or until the full extent of the scatter had been delineated as per Section 2.1.1 Standard 7 of the *Standards and Guidelines for Consultant Archaeologist*.

Archaeological resources encountered during pedestrian survey were collected and bagged according to provenience. The locations of all surface finds and fixed reference landmarks were recorded by means of Global Positioning System (“GPS”) waypoints using a GarminTM GPSMAP 60Cx GPS / GarminTM GPSMAP 62s GPS set to the North American Datum 83 (“NAD 83”) with an accuracy of ±3 m. There were no conditions that affected the accuracy of the readings. GPS locational information is provided in supplementary documentation accompanying this report.

Test pit survey was not completed as part of this Stage 2 property assessment.

3.2 Record of Finds

Wood identified artifacts in four separate locations, referred to in the field as Location P1, Location H1, P2 Location 1 and P2 Location 2. A summary of these locations is presented in Table 9, and each are discussed in further detail in Section 3.2.1.

All artifacts found during the assessment were mapped, recorded, and removed from the property. A catalogue of all recovered artifacts is provided in Appendix F and select artifacts are shown in Appendix E: Photographs 30 to 33. The Supplementary Documentation accompanying this report provides GPS readings and mapping for each location.

Table 9: Summary of Archaeological Locations found During the Stage 2 Survey

Location	Borden Number	Size	Affiliation	Artifacts	Recommendations
P1	AgGs-48	235 x 75 m	Late Archaic	229	Stage 3 recommended
H1	AgGs-450	50 x 30 m plus two outliers	Euro-Canadian	70	Stage 3 recommended
P2 Findspot #1	---	Findspot	Lithic Secondary Knapping Flake	1	No further work
P2 Findspot #2	---	Findspot	Lithic Secondary Knapping Flake	1	No further work

3.2.1 Archaeological Locations

3.2.1.1 Location P1 (AgGs-48)

Location P1 consists of a total of 229 Indigenous artifacts found within a 230 m by 80 m area during a controlled surface collection. The site boundaries have been defined by the scatter distribution plus a 3 m buffer in order to account for the GPS accuracy. Based on the artifact distribution and previous assessments, it appears that all current finds are related to the previously registered Site AgGs-48, a Late Archaic campsite first documented by William Parkin in 1973. The site was documented again in 2015 in an area to the west of the current Stage 2 Study Area (MAC 2015b: Map 1). The Stage 2 site boundaries of AgGs-48 identified by MAC does not extend into the treed area that separates it from the newly identified Location P1 however it is assumed that the site

continues across the treed area to the area of Location P1 but that due to the low density of the artifact scatter no artifacts were recovered during MAC's Stage 2 test pit survey of the treed area. When combined the portion of archaeological site AgGs-48 documented by MAC and the portion of archaeological site AgGs-48 documented during this Stage 2 archaeological assessment survey and identified as Location P1 covers a 500 m by 130 m area. As indicated in Figure 12 the treed area between the two preliminary Stage 2 site boundaries associated within AgGs-48, determined on the basis of surface artifact distribution, is considered to be part of archaeological site AgGs-48 and is subject to relevant Stage 3 archaeological assessments.

Artifacts recovered include one Onondaga chert biface thinning flake, four non-diagnostic biface fragments, four gravers, one thumbnail scraper, one end scraper and one projectile point. The point is an Ace of Spades projectile point dating to the Late Archaic period, 1850–1650 Before Common Era (Snarey and Ellis 2003: 22-23). Select artifacts from P1 are documented in Appendix E: Photograph 27. A Late Archaic date for Site AgGs-48 is consistent with previous assessments on the site (MTCS 2020a, MAC 2015a).

3.2.1.2 Location H1 (AgGs-450)

Location H1 consists of 70 Euro-Canadian artifacts found during a controlled surface collection within a 50 by 30 m area. The site boundaries have been defined by the scatter distribution plus a 3 m buffer in order to account for the GPS accuracy. Two additional artifacts were recovered outside the scatter (H1 and H2). These artifacts were collected and identified as outliers of the main scatter and have been analyzed in combination with the scatter below. Although within the larger boundaries of AgGs-48, this site was registered as a separate Euro-Canadian archaeological site AgGs-450.

The recovered artifacts include ceramics, glass, and architectural fragments. Using the "Classification System for Historical Collections" (Canadian Park Service 1992) the artifacts were separated into kitchen/food and architectural classes, as shown in Table 10.

Table 10: Euro-Canadian Artifacts Recovered from Location H1 (AgGs-450)

Class	Description	Comments	Frequency	Date Range[1]
Kitchen/ Food	Ceramic	Pearlware, Hand painted - Early Palette	6	1780-1830
		Pearlware, Transfer printed, Blue	3	1820-1830

[1] Kenyon 1980, 1986.

Class	Description	Comments	Frequency	Date Range[1]
		Pearlware, Hand painted, Monochrome Blue	5	1800-1830
		Pearlware, Edgeware - Scalloped	2	1780-1830
		Pearlware, undecorated	4	1780-1850
		Refined White Earthenware (RWE), Edgeware-Scalloped, Blue	4	1820-1840
		RWE, Edgeware – Embossed	1	1820-1830
		RWE, plain	18	1830–present, popular 1830–1875
		Porcelain, Bone China, undecorated	3	1805-present
		Creamware, undecorated	6	1760-1830
		Red Earthenware	8	1790-1910
		Buff earthenware, glazed gray	1	1790-1910
	Glass	Container, unidentifiable, olive	1	18th and 19th liquor bottles
Architectural	Glass	Window Glass	5	
	Brick	Red Brick Fragment	3	
TOTAL			**70**	

18th century pearlware is characterized by a light, cream-white fabric covered in a thin,

soft, blue or blue – green tinged glaze and thinly potted. Whereas the 19th century pearlware tends to be heavier and whiter with a harder, more brilliant glaze that could vary from blue tinges to almost colourless and thicker walled. Pearlware decoration commonly includes molded shell edge pattern with blue or green underglaze or an underglaze transfer print (Sussman 1977) (Appendix E: Photographs 29-30; Cat #H9 and H42).

Refined white earthenware (RWE) has been common in Ontario since 1830, with its peak use during the period between 1830 and 1875 (Kenyon 1986: 3). RWE had several different methods of decoration that included painted, transfer printed, edged, banded, sponged, and stamped. The different type of decorative techniques would not only indicate the age of the site but also the taste and wealth of the occupant (Kenyon 1986) (Appendix E: Photographs 29; Cat #H4, H5, H8).

Blue transfer printing has been common since the 1830s and is still used today, although it was most popular in the mid-to-late nineteenth century. Hand painted blue monochrome decoration was commonly used in the early nineteenth century (Kenyon 1980: 8) (Appendix E: Photographs 30; Cat#H9).

Creamware is characterized for its yellowish or greenish yellow glazed and was common tableware in the 18th century. Creamware in the 19th century is typically plain and consists mainly of tableware that would have been alongside decorated pearlware pieces. The creamware fragments found in southwestern Ontario should be dated to no later than 1830 and are typically plain (Kenyon 1986: 8) (Appendix E: Photographs 30; Cat #H34).

London shape teacups were first introduced in the mid-1810s and had an inverted or carinated cone shape. This style rapidly overtook the earlier hemispherical cup by 1820 and remained the most popular style until the 1840s (Kenyon 1987: 7; Appendix E: Photographs 30 Cat #H7). Overall, the Euro-Canadian artifacts from H1 suggest a period of use between 1800-1850.

3.2.1.3 P2 Location 1 and P2 Location 2

P2 Location 1 and P2 Location 2 were findspots identified during pedestrian survey of the southeast portion of the half of the Study Area. These findspots are approximately 73 m apart and represented by one pre-contact lithic artifact at each location. At P2 Location 1 was one Haldimand chert secondary knapping flake (Appendix E: Photographs 31 Cat #L1), while at P2 Location 2 was one Onondaga chert secondary knapping flake (Appendix E: Photographs 31 Cat #L1).

3.2.2 Documentary Record

Table 11 provides the inventory of documentary records and artifacts compiled as part of this assessment.

Table 11: Inventory

Repository Location	Map and Photo(s)	Artifacts	Field Notes
Wood PLC (Burlington Office) 3450 Harvester Rd, Burlington, ON L7N 3W5	Copies of 3 historical maps and 29 Stage 1 & 2 photographs	2 standard banker boxes containing 301 artifacts from 4 locations	Stage 1 & 2 photo logs, safety paperwork, and field notes

Documentation related to the archaeological assessment of this project will be curated by Wood until such time that arrangements for their ultimate transfer to Her Majesty the Queen in Right of Ontario, or other public institution, can be made to the satisfaction of the project owner, the MTCS and any other legitimate interest groups.

3.3 Stage 1 & 2 Analysis and Conclusions

The Stage 1 background study indicated that the Study Area has general archaeological potential and warranted Stage 2 property assessment for the following reasons: (1) the Study Area is located within 1 km of 27 archaeological sites, this includes four Indigenous archaeological sites and two multi-component sites located within the Study Area, one multi-component site and one site with an unknown cultural affiliation located within 300m of the Study Area; (2) the Study Area is largely comprised of well-drained land that is suitable for human habitation; (3) natural water sources are located within 300 m of the Study Area, including Welland River directly to the north and Grassy Creek directly to the northwest. (4) three small marshes, secondary water sources and resource extraction areas, located centrally within the Study Area; (5) the Study Area is located adjacent to historical roadways and transportation routes, including Reixinger Road and the Welland River; (6) Buildings and orchards are illustrated within the Study Area and Dell Church and Cemetery are shown adjacent to the Study Area on 1862 and 1876 historical mapping (Appendix B: Figure 6-Figure 7); (7) and Dell Church and Cemetery are shown adjacent to the Study Area on a 1876 historical atlas mapping, dating as early as 1849 (Appendix B: Figure 7).

The Stage 1 AA determined that 1) 24.8 ha (30%) of the Study Area was previously assessed by MAC during Stage 2 archaeological assessment; 2) 0.3 ha (0.5%) of the Study Area is disturbed and does not require Stage 2 assessment; and 3) The remainder of the Study Area has general archaeological potential and warrants further assessment. This includes 5.7 ha (7%) recommended for Stage 3 site-specific assessment, 50.2 ha (63%) of the Study Area recommended for Stage 2 assessment, and 0.1 ha (0.5%) of lands immediately west and north of the Dell Cemetery chain link fencing recommended for Stage 3 cemetery investigation (MAC 2015) (Appendix B: Figure 11).

The Stage 1 background study has conclusively determined that the boundary of the Dell Cemetery is consistent with the historical mapping, present day parcel data, and the chain link fence line observed during field review. Because the boundary of the Dell

Cemetery has been securely established through detailed background research and mapping, Golder's recommendation that no invasive impacts can occur within 20 m of the west, north and east sides of the Dell Cemetery is no longer applicable (Golder 2021). Rather, the original recommendation by MAC (2015) that a 10 m wide Stage 3 Cemetery investigation occur on the west and north sides of the cemetery boundary should be applied. A determination for the need for a 10 m wide Stage 3 Cemetery Investigation on the east side of the cemetery boundary will be made at the conclusion of the required Stage 2 archaeological assessment in that area. The necessity for a Cemetery Investigation Authorization in advance of any intrusive archaeological assessment within 10 m of the west, north and east sides of the Dell Cemetery will be determined in advance of any ground disturbance.

In addition, the background research also determined that based on a review of cemetery mapping provided by the City indicates the burial plots (Supplementary Documentation: Section 4), are concentrated in the north portion of the cemetery property. The burial plots are concentrated in the north portion of the cemetery property because the Dell Chapel, now demolished, was located in the south portion the cemetery property and all burial plots were located to the rear (or north) of the chapel. The burial plots on the east side of the cemetery are located 10 m from the eastern boundary of the cemetery property and therefore 10 m from the Study Area in that direction. The Stage 1 property inspection and Stage 2 assessment was limited to areas to be impacted by the WWTP design at 6811 Reixinger Road. As a result of insufficient field conditions and property access issues additional Stage 2 AA is required for approximately 37.4 ha (46%) of the lands at 6811 Reixinger Road.

Of the 13 ha for which Stage 2 AA was completed, approximately 7.6 ha (9%) of the Study Area was assessed using pedestrian survey 5 m intervals and approximately 5.4 ha (7%) was assessed using pedestrian survey completed at 2.5 m intervals. During the Stage 2 assessment, Wood identified artifacts in four separate locations, referred to in the field as Location P1, Location H1 and P2 Locations 1 and 2. An evaluation of the CHVI of each site is provided below.

3.3.1 Archaeological Location P1 (AgGs-48)

Based on the artifact distribution and previous assessments it appears that all finds at Location P1 are related to the previously registered Site AgGs-48, a Late Archaic campsite. Standard 1a.i of the *Standards & Guidelines* states that that artifacts, groups of artifacts, or archaeological sites that are found within a 10-m by 10-m pedestrian survey area must be subjected to Stage 3 site-specific assessment if they meet the following requirements: (1) at least one diagnostic artifact or fire-cracked rock in addition to two or more non-diagnostic artifacts, or (2) in areas east or north of the Niagara Escarpment, at least five non-diagnostic artifacts, or (3) in areas on or west of the Niagara Escarpment, at least 10 non-diagnostic artifacts. Standard 1b details single examples of special interest. A recommendation for Stage 3 assessment is required if any of the following are found: (i) Indigenous ceramics, (ii) exotic or period specific

cherts, and (iii) isolated Paleoindian or Early archaic diagnostic artifacts.

The Indigenous component at AgGs-48 meets criterion (1) listed in Standard 1a.i above. Therefore, it has CHVI and requires Stage 3 site-specific assessment.

3.3.2 Archaeological Location H1 (AgGs-450)

Location H1 (AgGs-450) represents a Euro-Canadian artifact scatter within the boundaries of AgGs-48 and represent a period of use between 1800-1850. Per Section 2.2 Standard 1.c. of the *Standards and Guidelines for Consultant Archaeologists*, Stage 3 site-specific assessment is required for sites with at least 20 post-contact artifacts that date the period of use to before 1900.

3.3.3 P2 Location 1

P2 Location 1 represents an isolated Indigenous findspot where one Haldimand chert secondary knapping flake was recovered during pedestrian survey. The fragment is not temporally or culturally diagnostic. Given the isolated nature of the non-diagnostic lithic flake recovered at P2 Location 1 and given that it is made on Onondaga chert, the CHVI of P2 Location 1 is judged to be sufficiently documented through the Stage 2 archaeological assessment and the site is deemed to be of no further CHVI. P2 Location 1 therefore does not meet the criteria for Stage 3 archaeological assessment and no further archaeological work is required.

3.3.4 P2 Location 2

P2 Location 2 represents an isolated Indigenous findspot where one Onondaga chert secondary knapping flake was recovered during pedestrian survey. The fragment is not temporally or culturally diagnostic. Given the isolated nature of the non-diagnostic lithic flake recovered at P2 Location 2 and given that it is made on Onondaga chert, the CHVI of P2 Location 2 is judged to be sufficiently documented through the Stage 2 archaeological assessment and the site is deemed to be of no further CHVI; therefore, Stage 3 archaeological assessment is not required.

3.3.5 AgGs-47, AgGs-48, AgGs-50, AgGs-379, AgGs-380, and AgGs-381

In addition to the locations noted above, AgGs-47 is situated within a section of the Study Area that has not been subject to Stage 2 assessment; this site was identified in 1976 and tested in 1977 but its development review status is unknown. For Sites AgGs-48, AgGs-50, AgGs-379, AgGs-380, and AgGs-381, MAC's (2015) Stage 1-2 archaeological assessment recommended Stage 3 site-specific assessment.

While these sites are not anticipated to be impacted by construction of the preferred WWTP based on the current development plan instructions must be issued to all on-site construction crews and personnel during construction and these areas depicted to be avoided on all applicable contract drawings with explicit avoidance instructions.

4.0 Recommendations

Based on the results of the Stage 1 & 2 archaeological assessment, the following recommendations are made, subject to the conditions outlined below and in Section 5.0:

1. Approximately 24.8 ha (30%) of the Study Area has been previously subject to Stage 2 archaeological assessment by MAC (Appendix B: Figure 11 and Figure 12).
2. Approximately 0.3 (0.5%) of the Study Area was subject to extensive and deep land alterations that would have severely damaged the integrity of any archaeological resources and does not require Stage 2 assessment (Appendix B: Figure 12).
3. Approximately 17.4 ha (21%) of the Study Area is located within maintained lawns and wooded areas that have archaeological potential but cannot be accessed by plough (Appendix B: Figure 12).
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface) impacts are anticipated, a Stage 2 test pit survey is required in advance of ground disturbance. Per, Section 2.1.2, Standard 1.e, MTCS *Standards and Guidelines for Consultant Archaeologists* (2011), areas recommended for test pit survey should be assessed at 5 m grid intervals with test pits a minimum of 30 centimetres (“cm”) in diameter and dug to a minimum of 5 cm into subsoil. Test pitting should be conducted to within 1 m of all disturbances. Soils and sediments should be screened through 6 millimetre (“mm”) mesh screens in order to facilitate artifact recovery and the test pit profiles examined for cultural deposits prior to being backfilled. All test pits should be backfilled to level grade, and any sod caps replaced and tamped down by foot.
4. Approximately 8.3 ha (10%) of the Study Area is identified to have archaeological potential but could not be ploughed due to wet conditions and requires Stage 2 pedestrian survey at 5 m intervals (Appendix B: Figure 12).
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface) impacts are anticipated, a Stage 2 pedestrian survey is required in advance of ground disturbance. Per Section 2.1.1 Standard 1 of the MTCS *Standards*

and Guidelines for Consultant Archaeologists (2011), areas recommended for pedestrian survey must be prepared with a mouldboard plough (and disk harrow if necessary), then weathered through one heavy rainfall or several light rains to improve the visibility of any archaeological resources. To meet MTCS standards for field preparation and visibility at least 80% of the ploughed ground surface must be visible after ploughing. The pedestrian survey should be conducted at maximum intervals of 5 m, with survey transects reduced to 1-m intervals in a 20 m radius where archaeological resources are identified. If archaeological resources are identified, diagnostic artifacts should be collected as appropriate to document the site and determine if subsequent Stage 3 archaeological assessment is warranted.

5. Approximately 11.3 ha (14%) of the Study Area is identified to have archaeological potential but could not be ploughed due to wet conditions.
    a. For areas where construction methods will be deeper than 5 m below surface, no further archaeological assessment is required (Supplementary Documentation, Section 5). However, this exemption from Stage 2 survey must be confirmed with the MTCS at the detailed design phase of the project with engineering drawings that include the proposed trenchless technology and the path and depth of excavations.
    b. For areas where surface or near surface (i.e., less than 5 m below surface) impacts are anticipated, Stage 2 assessment is required in advance of ground disturbance.
        i. It is recommended that if field conditions allow for the furrows to be properly disked to ensure a minimum of 80% visibility Stage 2 pedestrian survey at 5 m intervals be completed, otherwise an alternative strategy of test-pit survey at 5 m intervals is recommended (Appendix B: Figure 12).
6. The previous recommendations by MAC (2015) for Stage 3 site-specific assessment of AgGs-48 remain in effect and also apply to the eastern extension of AgGs-48 identified as Location P1 (Supplementary Documentation: Figure 13 and Figure 14). These are:
    a. Stage 3 fieldwork will involve a controlled surface collection after the field on which it is located has been ploughed and allowed to appropriately weather as per Section 3.2.1. This will be followed by the placement of multiple grids over areas of artifact concentration (e.g., greater surface densities of artifacts, concentrations of diagnostics, apparent single-component concentrations or defined activity areas). Hand excavation of one-metre square test units should be completed across these grids at five-metre intervals. Once these units are excavated, additional test units, amounting to 20 percent of the initial grid unit total should be excavated between areas of concentration to document areas of lower concentration. Further units, amounting to 10

percent of the initial grid unit total, should be placed on the periphery of the scatter to determine the site extent and sample the site periphery. If any features are encountered, they will be addressed as per Section 3.2.2 Standard 6 where their plan view will be recorded, be covered in geotextiles and backfilled.

b. Infrastructure proposed for within the known boundaries of AgGs-48 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-48, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).

7. The previous recommendations by MAC (2015) for Stage 3 site-specific assessment of Site AgGs-379 remain in effect (Supplementary Documentation: Figure 13). These are:
    a. Stage 3 fieldwork will involve a controlled surface collection after the field on which it is located has been ploughed and allowed to appropriately weather as per Section 3.2.1. This will be followed by the hand-excavation of one-metre square units in a 5-metre grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20 percent of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.2.1 of the *Standards and Guidelines for Consultant Archaeologists*. If any features are encountered, they will be addressed as per Section 3.2.2 Standard 6 where their plan view will be recorded, be covered in geotextiles and backfilled.
    b. Infrastructure proposed for within the known boundaries of AgGs-379 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-379, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).
8. The previous recommendations by MAC (2015) for Stage 3 site-specific assessment of Site AgGs-380 remain in effect (Supplementary Documentation: Figure 13). These are:
    a. Therefore, Stage 3 fieldwork will involve a controlled surface collection after the field on which it is located has been ploughed and allowed to appropriately weather as per Section 3.2.1. This will be followed by the hand-excavation of one-metre square units in a 5-metre grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20 percent of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.2.1 of the *Standards and Guidelines for Consultant Archaeologists*. If any features are encountered, they will be addressed as per Section 3.2.2

Standard 6 where their plan view will be recorded, be covered in geotextiles and backfilled.

b. Infrastructure proposed for within the known boundaries of AgGs-380 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-380, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).

9. The previous recommendations by MAC (2015) for Stage 3 site-specific assessment of Site AgGs-381 remain in effect (Supplementary Documentation: Figure 13). These are:
    a. Stage 3 fieldwork will involve a controlled surface collection after the field on which it is located has been ploughed and allowed to appropriately weather as per Section 3.2.1. This will be followed by the hand-excavation of one-metre square units in a 5-metre grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20 percent of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.2.1 of the *Standards and Guidelines for Consultant Archaeologists*. If any features are encountered, they will be addressed as per Section 3.2.2 Standard 6 where their plan view will be recorded, be covered in geotextiles and backfilled.
    b. Infrastructure proposed for within the known boundaries of AgGs-381 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-381, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).
10. Stage 3 site specific assessment with avoidance and protection measures should be conducted for Euro-Canadian artifact scatter Location H1 (AgGs-450; Supplementary Documentation: Figure 13):
    a. Stage 3 fieldwork should involve controlled surface collection after the field has been ploughed and allowed to appropriately weather as per Section 3.2.1 of the *Standards and Guidelines for Consultant Archaeologists*. The controlled surface collection should be followed by hand excavation of 1-m square units in a 5-m grid across the site. Grid unit excavation should be followed by excavation of additional test units, amounting to 20% of the grid unit total, focusing on areas of interest within the site extent (such as distinct areas of higher concentrations of artifacts or adjacent to high-yield units) as per Section 3.2.2 and Table 3.1 of the *Standards and Guidelines for Consultant Archaeologists*. If any features are encountered, they should be addressed per Section 3.2.2 Standard 6 of the Standards and Guidelines for Consultant Archaeologists where their profile should be recorded and covered

in geotextiles and backfilled. Detailed historic background research should follow the requirements outlined in Section 3.1 of the of the *Standards and Guidelines for Consultant Archaeologists*.

b. Infrastructure proposed for within the known boundaries of AgGs-450 but designed to have no surface or near-surface impacts and constructed using trenchless technology at depths exceeding 5 m below the deepest portion of archaeological site AgGs-450, will not require archaeological assessment prior to construction (Supplementary Documentation, Section 5).

11. The Indigenous lithic findspot identified as P2 Location 1 has been sufficiently assessed and documented through Stage 2 archaeological assessment and does not meet the criteria for Stage 3 site-specific assessment outlined in Section 2.2 Standard 1 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). Therefore, no additional assessment is recommended for P2 Location 1 (Supplementary Documentation: Figure 13).
12. The Indigenous findspot identified as P2 Location 2 has been sufficiently assessed and documented through Stage 2 archaeological assessment and does not meet the criteria for Stage 3 site-specific assessment outlined in Section 2.2 Standard 1 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). Therefore, no additional fieldwork or assessment is recommended for P2 Location 2 (Supplementary Documentation: Figure 13).
13. The Study Area is adjacent to the north, east, and west boundaries of the historically significant Dell Chapel and Cemetery (Appendix B: Figure 11 and Figure 12).
    a. In advance of any invasive archaeological assessment work (Stage 2-4) within 10 m of the west, north and east sides of the Dell Cemetery property, a licensed archaeologist should confirm with the Bereavement Authority of Ontario (BAO) whether a Cemetery Investigation Authorization will be required;
    b. Should portions of the Study Area adjacent to the east boundary of the Dell Cemetery be impacted by the proposed development, a Stage 2 archaeological assessment is required. If the Study Area within 10m of the eastern boundary of the cemetery property has not been deeply and extensively disturbed, the Stage 2 archaeological assessment will recommend a Stage 3 cemetery investigation is required;
    c. Stage 2 archaeological assessment has been completed for portions of the Study Area adjacent to the north and west boundaries of the Dell Cemetery. Should these portions of the Study Area be impacted by the proposed development, a Stage 3 Cemetery Investigation should be conducted to confirm whether human interments extend into the Study Area on the cemetery's north and west boundaries. Since the conditions in the Study Area adjacent to the north and west boundaries are agricultural fields that have

been subjected to ploughing for many years, the Stage 3 Cemetery Investigation should begin with mechanical topsoil removal within a minimum 10-metre-wide zone adjacent to the cemetery boundaries, in accordance with Section 4.2.3 of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011). The mechanical topsoil removal should then be followed by cleaning of all exposed soil surfaces by shovel or trowel to aid in identifying the presence of grave shafts or other cultural features. If grave shafts or any other cultural features are recovered, mechanical topsoil removal must extend to at least 10 metres beyond any uncovered features. Further details of any future methodologies will need to be formulated in consultation with both the MTCS and the BAO if human remains/burials are encountered during this work.

The above recommendation is subject to approval by the Ministry of Tourism, Culture and Sport. It is an offence to knowingly alter any portion of an archaeological site except by a person holding a professional archaeological license.

5.0 Advice on Compliance with Legislation

a) This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part IV of the *Ontario Heritage Act, R.S.O. 1990, c O.18.* The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

b) It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such a time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further CHVI, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

c) Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

d) The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the local police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

e) Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

6.0 Assessor Qualifications

This report was prepared and reviewed by the undersigned, employees of Wood. Wood is one of North America's leading engineering firms, with more than 50 years of experience in the earth and environmental consulting industry. The qualifications of the assessors involved in the preparation of this report are provided in Appendix H.

7.0 Closure

This report was prepared for the exclusive use of Niagara Region and is intended to provide a Stage 1 & 2 archaeological assessment of the Study Area. The property is located at 7041 Reixinger Road, in the City of Niagara Falls, Regional Municipality of Niagara, Ontario. The property is legally described as Part of Lots 7 to 10 Broken Front on Chippewa Creek, Geographic Township of Willoughby, County of Welland, Ontario.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Wood will be required. With respect to third parties, Wood has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The report is based on data and information collected during the Stage 1 background study and Stage 2 property inspection conducted by Wood. It is based solely a review of historical information, a property reconnaissance conducted on 24 November 2020, 08 December 2020, 23 July 2021 and 07 October 2021 and data obtained by Wood as described in this report. Except as otherwise maybe specified, Wood disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Wood after the time during which Wood conducted the archaeological assessment. In evaluating the property, Wood has relied in good faith on information provided by other individuals noted in this report. Wood has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. Wood accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Wood makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This report is also subject to the further Standard Limitations contained in Appendix I.

We trust that the information presented in this report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

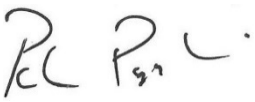
Respectfully Submitted,

Wood Environment & Infrastructure,
a Division of Wood Canada Limited

Prepared By:

Chelsea Dickinson, B.A. (R1194)
Cultural Heritage Specialist | Research Archaeologist
Reviewed By:

Henry Cary, Ph.D., CAHP, RPA (327)
Senior Staff Archaeologist



Peter Popkin Ph.D., CAHP, MCIfA (P362)
Associate Archaeologist

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2021c *Stage 1 Archaeological Assessment South Niagara Wastewater Treatment Plant, South Thorold Trunk and Blackhorse Sewage Pumping Station, located in part of Lots 167-168, 181-184, and 201-208 in the Geographic Township of Stamford, Lincoln County, now City of Niagara Falls, and part of Lots 93-94, 112-117 and 123-140 in the Geographic Township of Thorold, Welland County, now City of Thorold, Regional Municipality of Niagara, Ontario* DRAFT Report on File with Wood. PIF P327-0012-2021
2021d *Stage 2 Archaeological Assessment South Niagara Wastewater Treatment Plant & Blackhorse Sewage Pumping Station, Part of Lot 94, Geographic Township of Thorold, Welland County, Now 701 Allanburg Road, City of Thorold, Regional Municipality of Niagara, Ontario.* DRAFT Report on File with Wood. PIF P327-0019-2021

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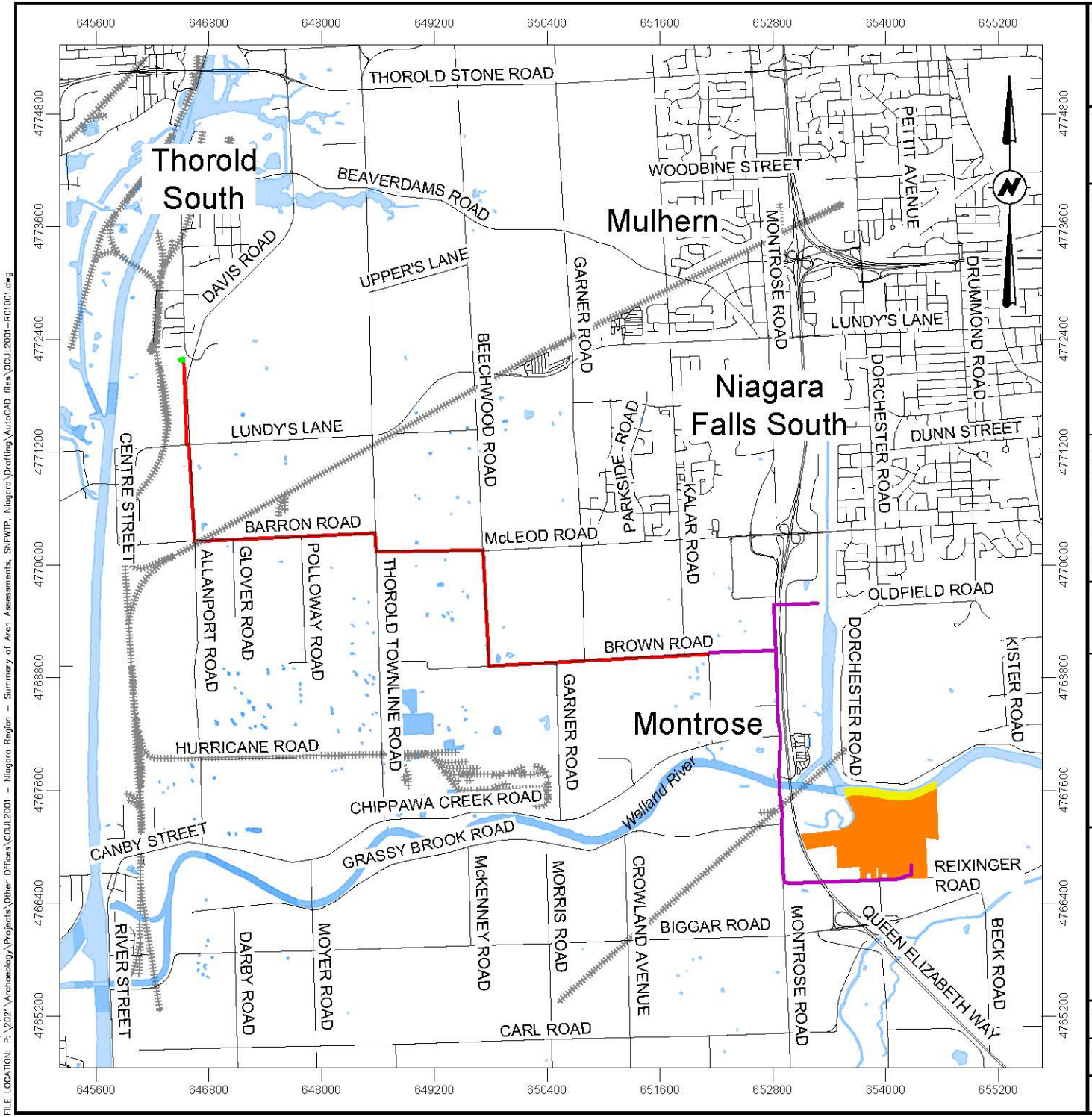
Appendix A: Summary of Archaeological Assessments



PROJECT:
ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT
FORMER COUNTY OF WELLAND
NOW IN THE CITY OF NIAGARA FALLS
REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT
SUMMARY OF ARCHAEOLOGICAL ASSESSMENTS

LEGEND:
- STAGE 1 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0012-2021)
- STAGE 1 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0013-2021)
- STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT (PIF P348-0106-2020 & PIF P348-0107-2020)
- STAGE 2 ARCHAEOLOGICAL ASSESSMENT (PIF P327-0019-2021)
- MARINE ARCHAEOLOGICAL ASSESSMENT (MARINE ARCHAEOLOGICAL LICENSE 2021-22)

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Niagara Region
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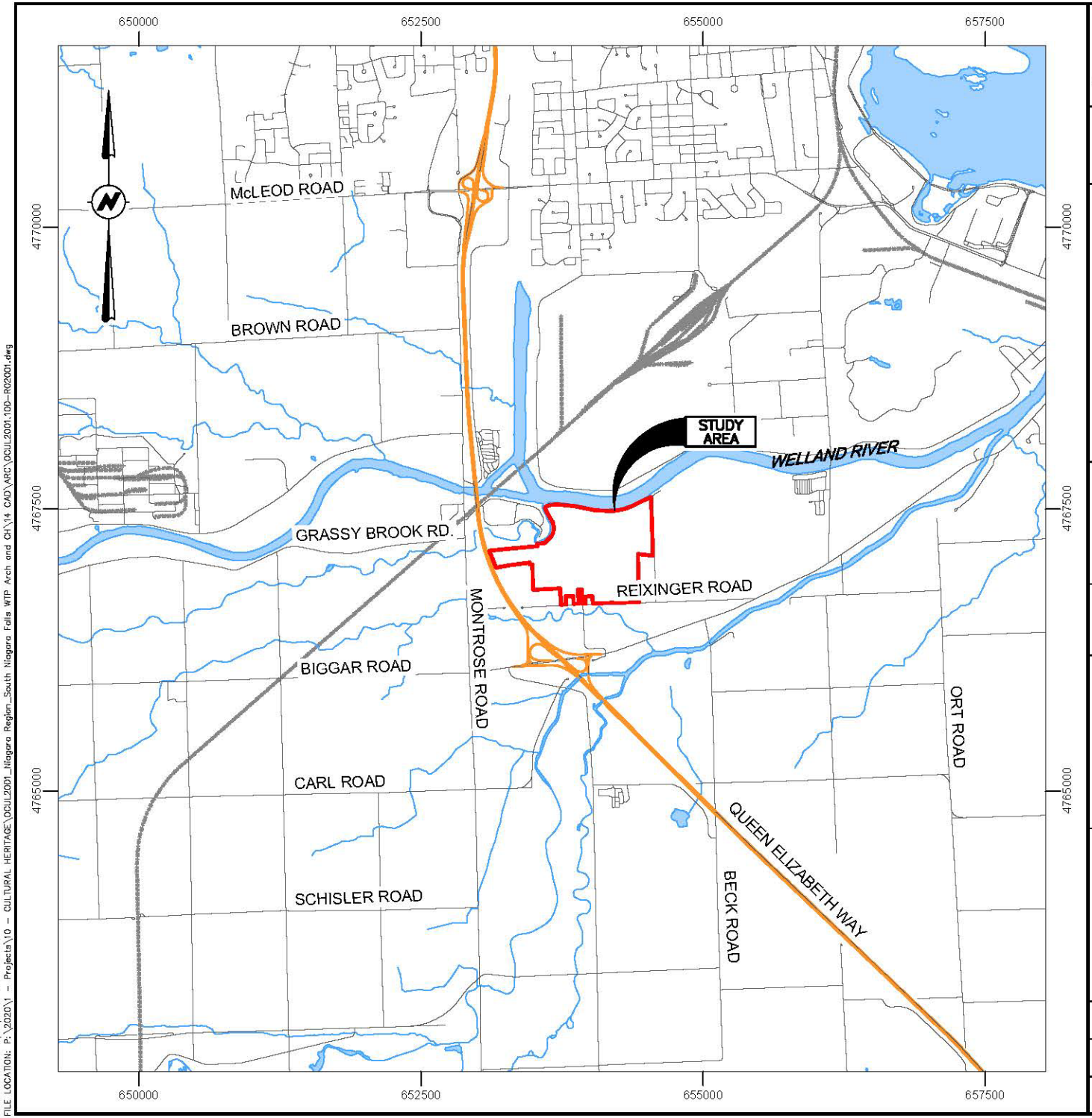
Appendix B: Figures



PROJECT:
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
LOCATION OF THE STUDY AREA

LEGEND:
STUDY AREA

NOTES:
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CLIENT:
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NIAGARA REGION WATER & WASTEWATER ENGINEERING
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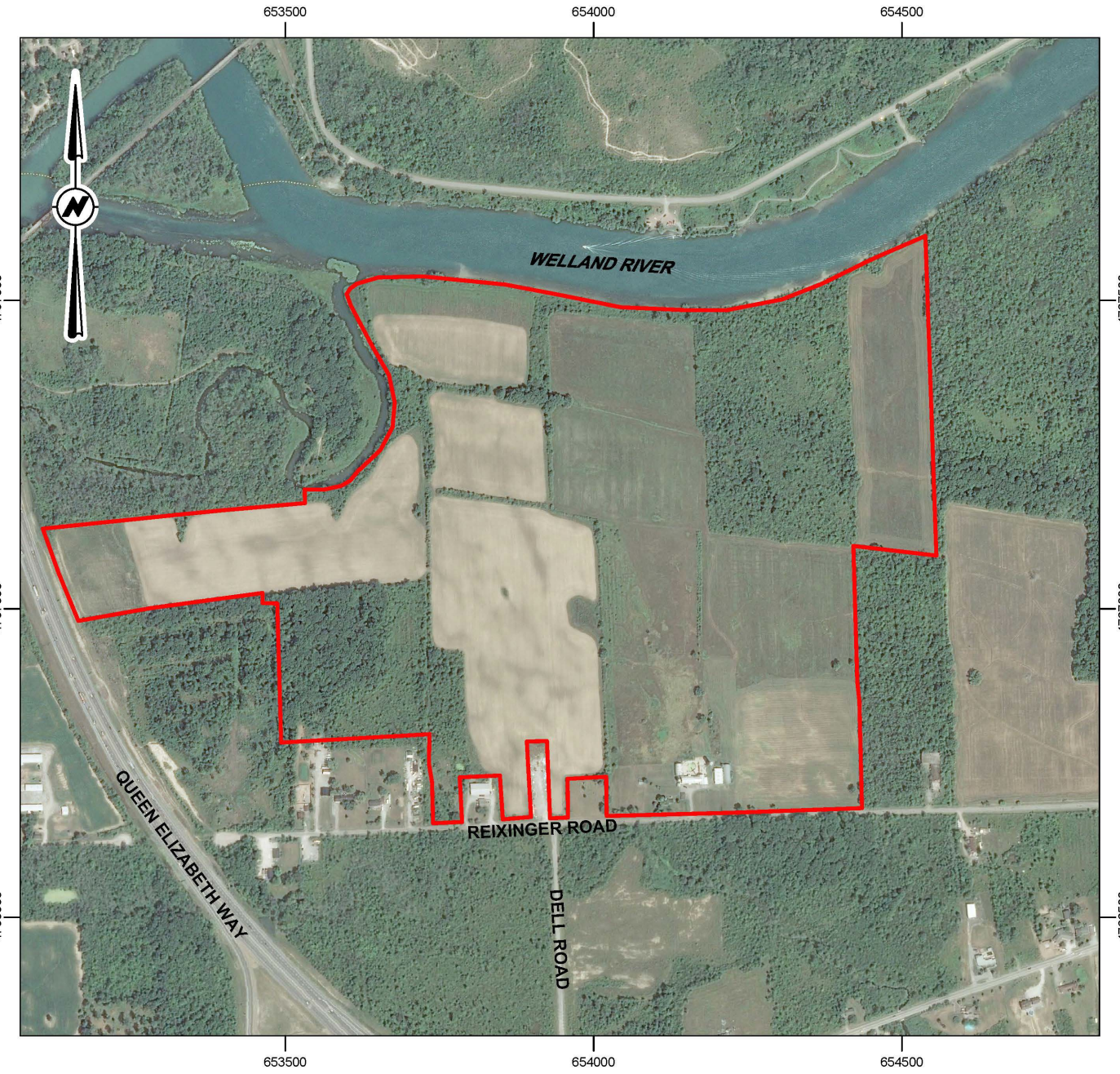

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STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
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GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

AERIAL PHOTOGRAPH SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:

STUDY AREA

NOTES:

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ALL LOCATIONS ARE APPROXIMATE.

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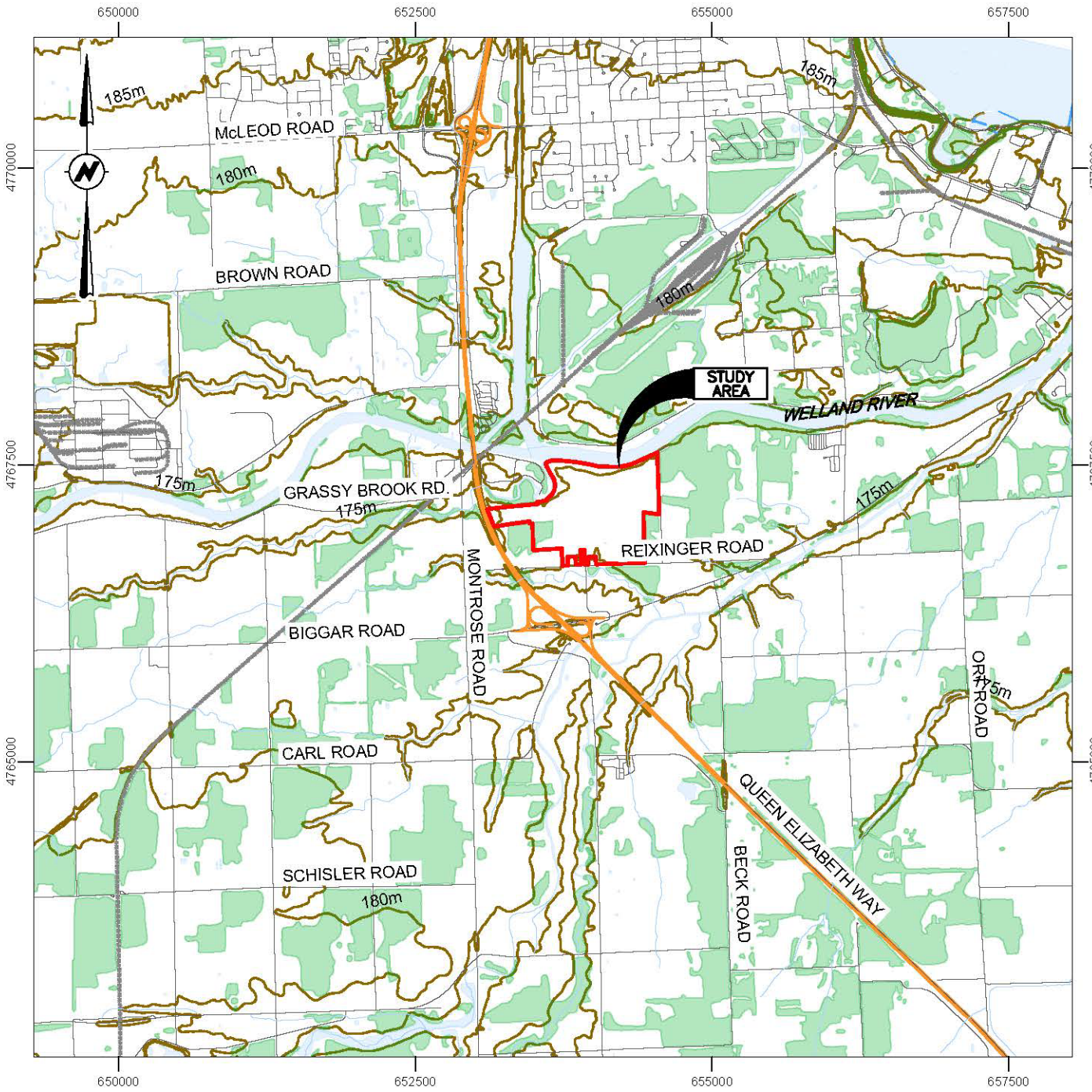

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

TOPOGRAPHIC MAP SHOWING THE LOCATION OF THE STUDY AREA

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

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CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
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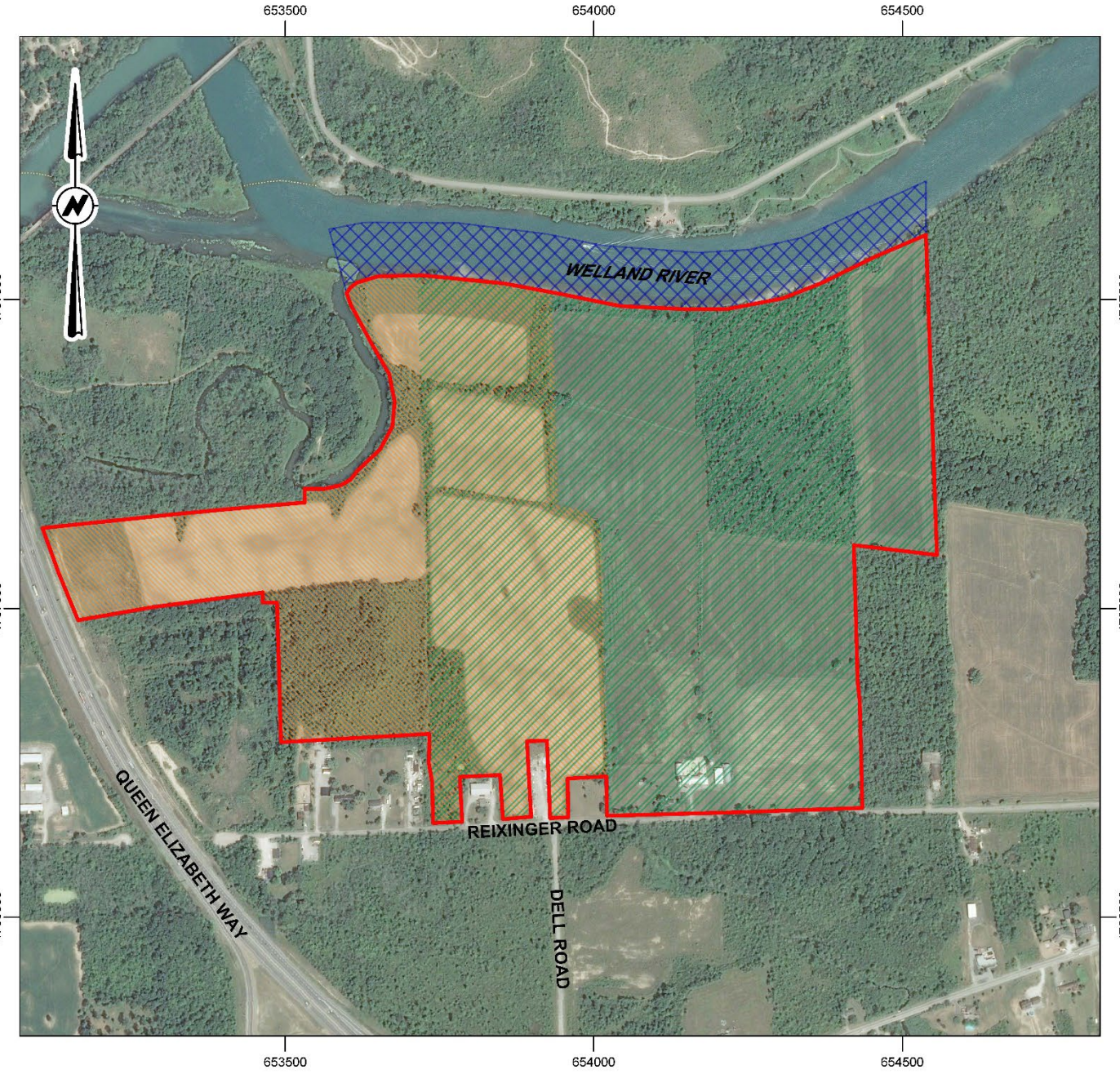

PROJECT:
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS WITHIN THE STUDY AREA AND WITHIN 50 m OF THE STUDY AREA

LEGEND:

- STUDY AREA

FURTHER STAGE 2 FIELDWORK RECOMMENDED:

- STAGE 1 ARCHAEOLOGICAL ASSESSMENT (GOLDER 2019, PIF P468-0036-2019)

FURTHER STAGE 2 AND 3 FIELDWORK RECOMMENDED:

- STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT (MAC 2015, PIF P066-0210-2014)

NO FURTHER FIELDWORK RECOMMENDED:

- MARINE STAGE 1 ARCHAEOLOGICAL ASSESSMENT (WOOD 2021, LICENSE 2021-22)

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ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
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SCALE 1:10,000

CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
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PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1795 AUGUSTUS JONES' MAP OF WILLOUGHBY TOWNSHIP NO 1.

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
AUGUSTUS JONES 1795. WILLOUGHBY TOWNSHIP NO. 1 MAP. COPIED FROM AN ORIGINAL MAP SIGNED BY JOHN FREDERIK HOLLAND, SAMUEL HOLLAND AND D.W. SMITH. SOURCE: ONTARIO HERITAGE PROPERTY INDEX.

0 200 600 1,000m

SCALE 1:20,000

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 1, 2022
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001.100
REV No:		FIGURE No:
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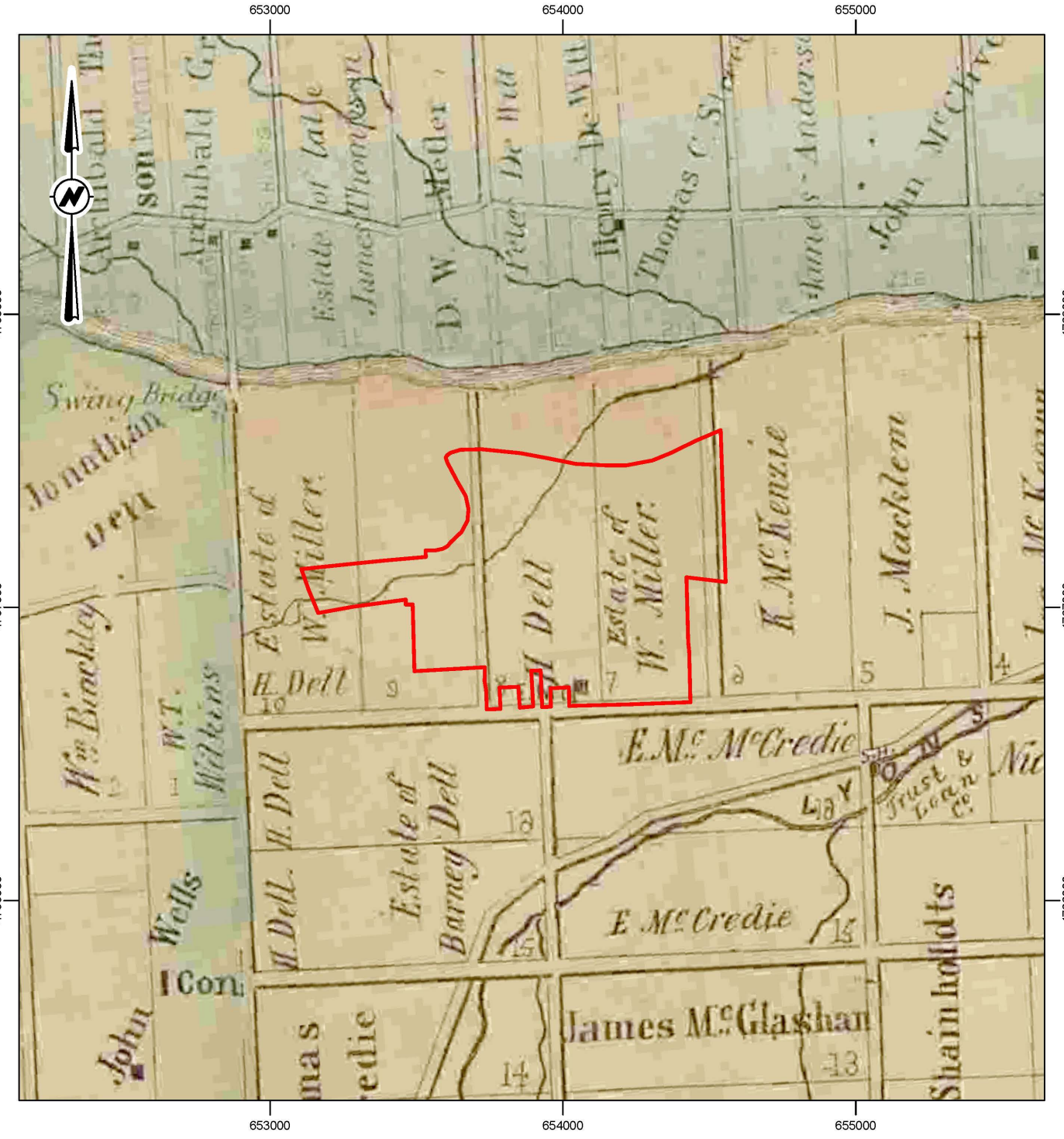

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1862 TREMAINE'S ILLUSTRATED HISTORICAL ATLAS MAP OF WELLAND COUNTY

LEGEND:

STUDY AREA

NOTES:

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:

HISTORICAL COUNTY MAP OF WELLAND COUNTY, PUBLISHED BY TREMAINE, YEAR OF PUBLICATION 1862.

0 200 600 1,000m

SCALE 1:20,000

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING

1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.

Wood Environment & Infrastructure Solutions

201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 1, 2022
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001.100
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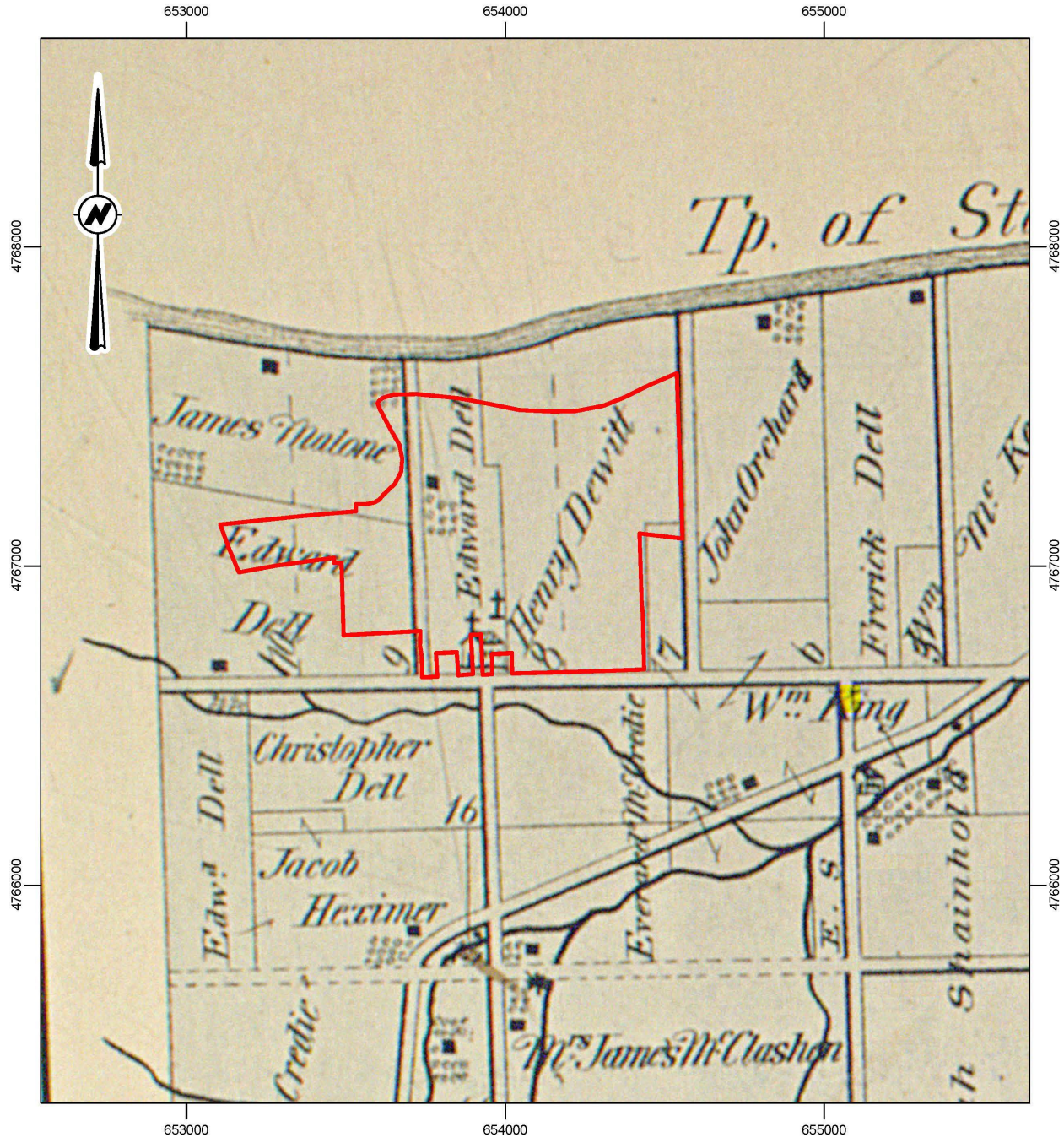

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1876 ILLUSTRATED HISTORICAL ATLAS OF LINCOLN AND WELLAND COUNTIES

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

MAP SHOWN AT BEST AVAILABLE RESOLUTION.

ORIGINAL PAPER SIZE: 8½ x 11

REFERENCES:
ILLUSTRATED HISTORICAL ATLAS OF THE COUNTIES OF LINCOLN AND WELLAND, ONT., TORONTO : H.R. PAGE & CO., 1876.

0 200 600 1,000m

SCALE 1:20,000

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 1, 2022
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001.100
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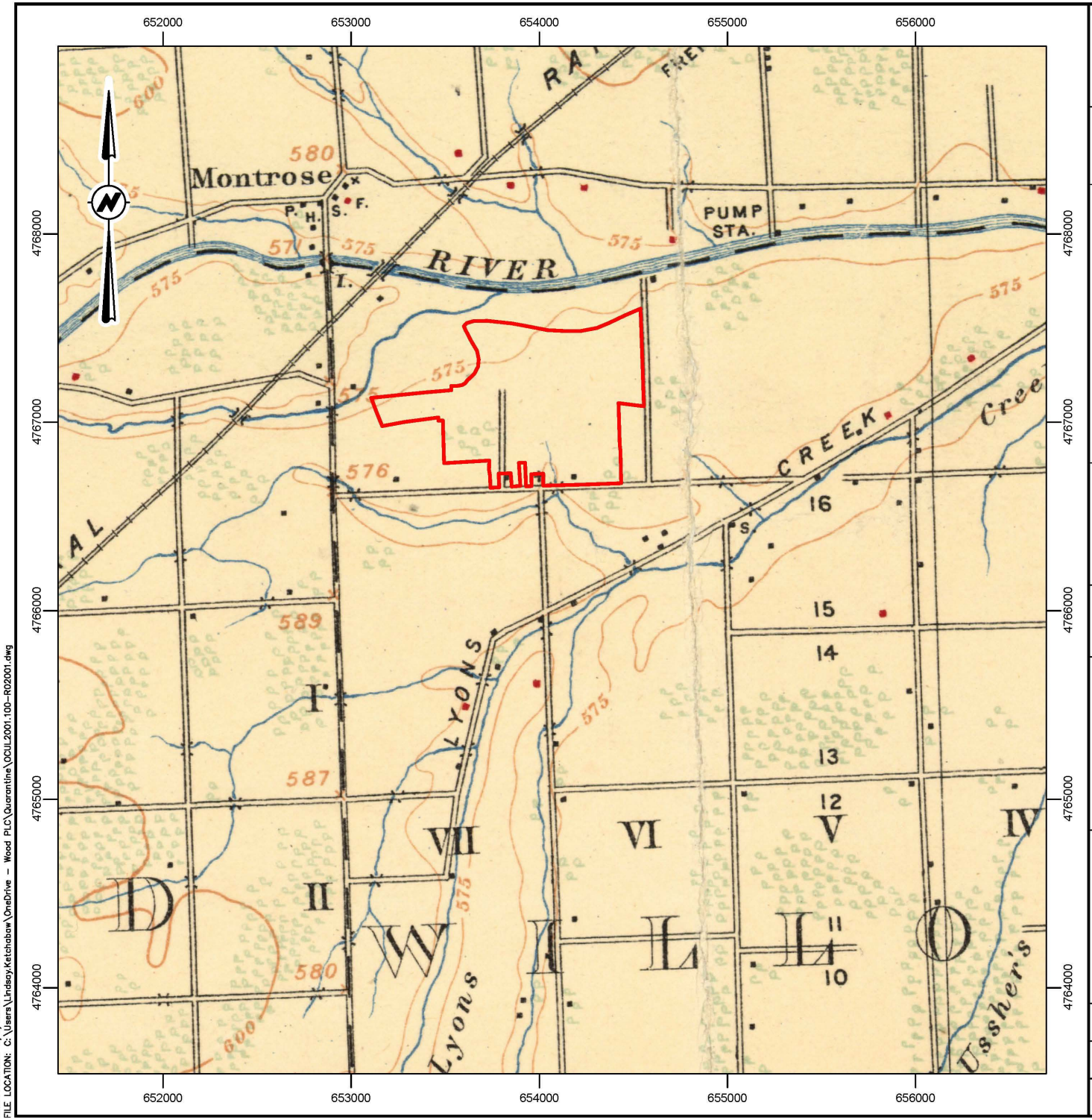

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1906 TOPOGRAPHIC MAP OF ONTARIO, NIAGARA SHEET

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
DEPARTMENT OF MILITIA AND DEFENSE 1906.

0 30 90 150m

SCALE 1:3,000

CLIENT:

Niagara Region

NIAGARA REGION
1815 Sir Isaac Brock Way
Thorold, ON, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 2, 2022
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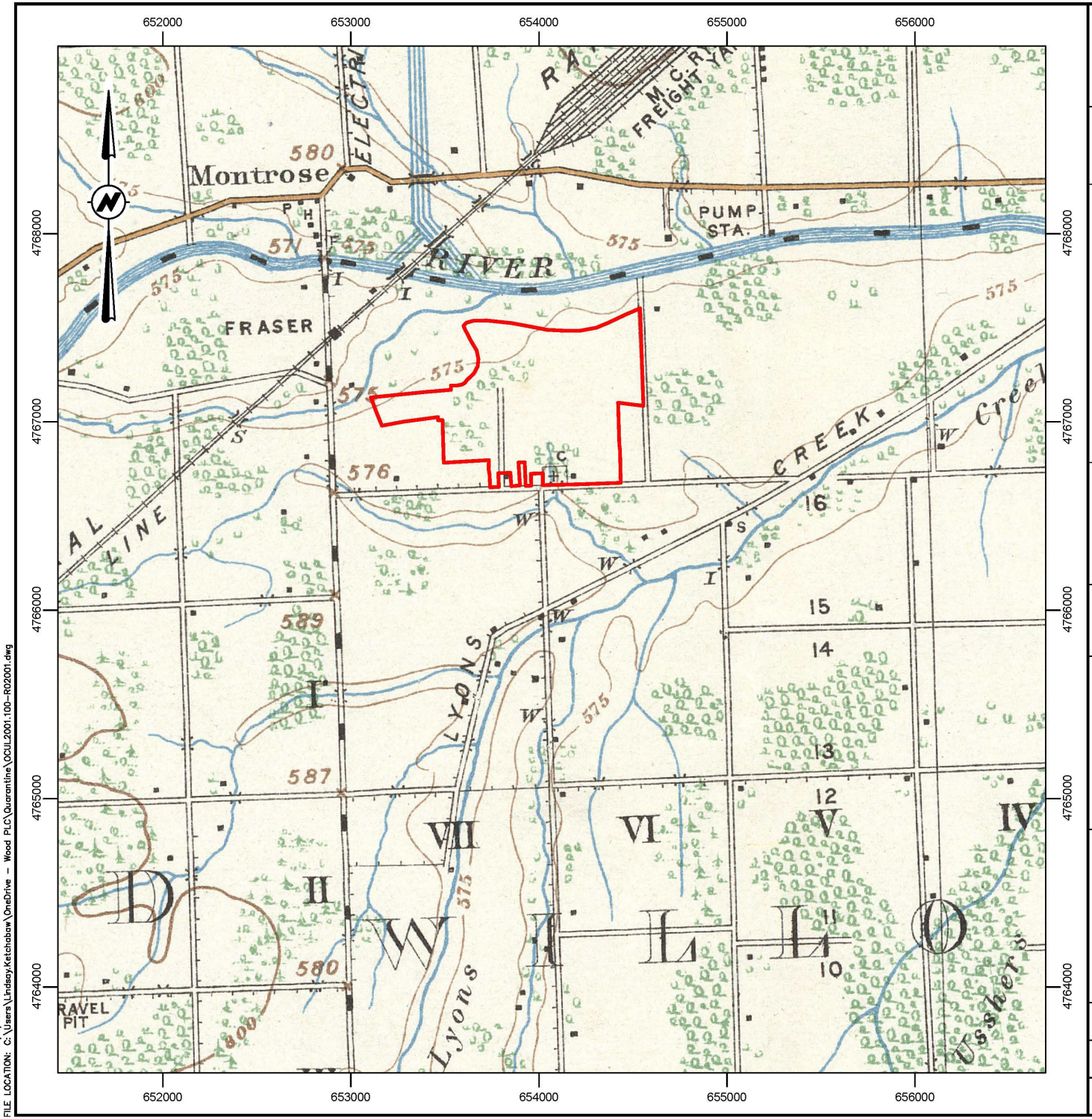

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1925 TOPOGRAPHIC MAP OF ONTARIO, NIAGARA SHEET

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
DEPARTMENT OF MILITIA AND DEFENSE 1925.

0 30 90 150m

SCALE 1:3,000

CLIENT:

Niagara Region

NIAGARA REGION
1815 Sir Isaac Brock Way
Thorold, ON, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 2, 2022
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001.100
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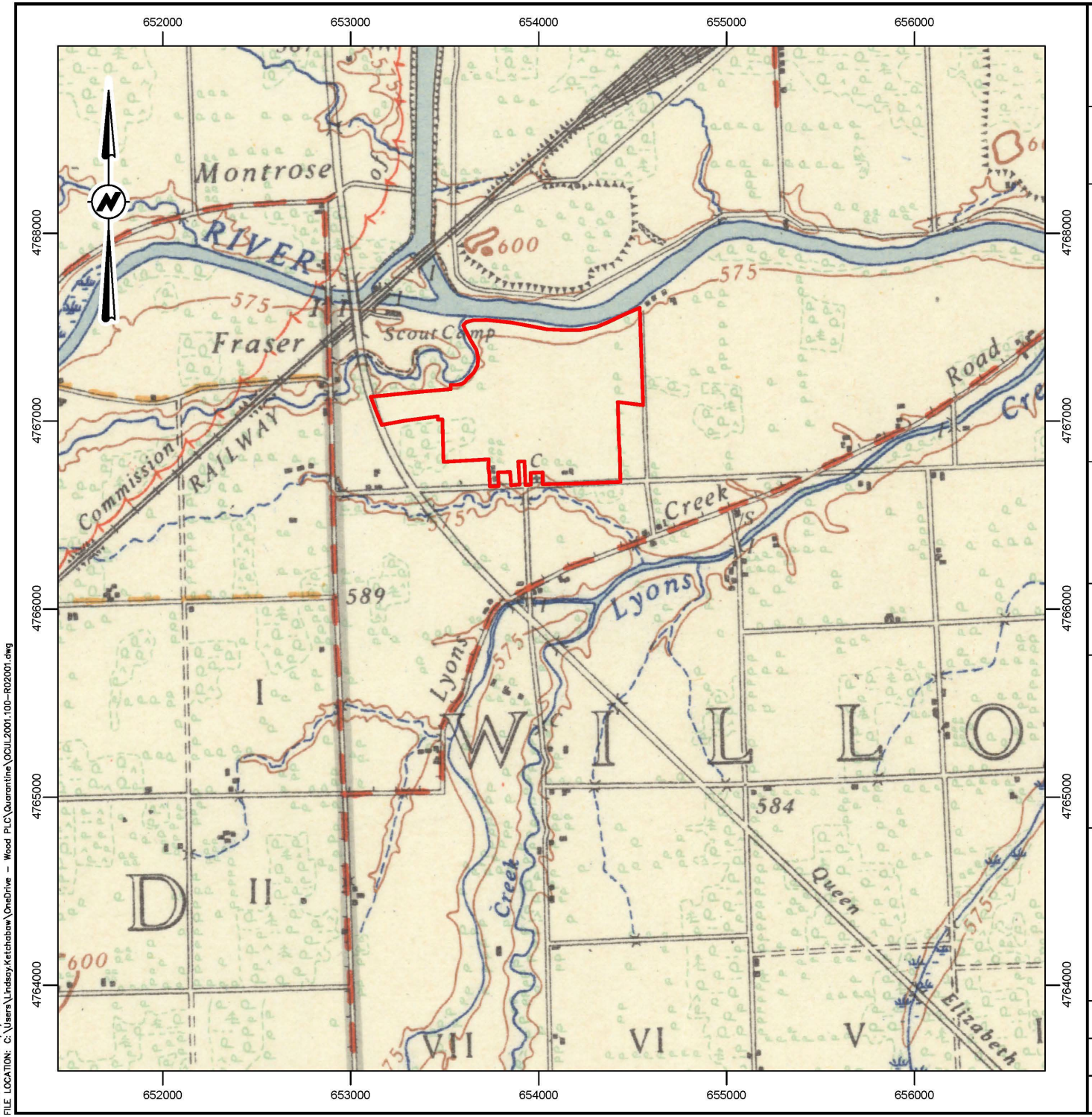

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:

1942 DEPARTMENT OF NATIONAL DEFENCE
GEOGRAPHICAL SECTION, CANADA SHEET 30

LEGEND:

STUDY AREA

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.100.

ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
DEPARTMENT OF NATIONAL DEFENSE 1942.

0 30 90 150m

SCALE 1:3,000

CLIENT:

Niagara Region

NIAGARA REGION
1815 Sir Isaac Brock Way
Thorold, ON, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO
N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK	CD	FEB. 2, 2022
DATUM:	PROJECTION:	PROJECT No:
NAD83	UTM Zone 17	OCUL2001.100
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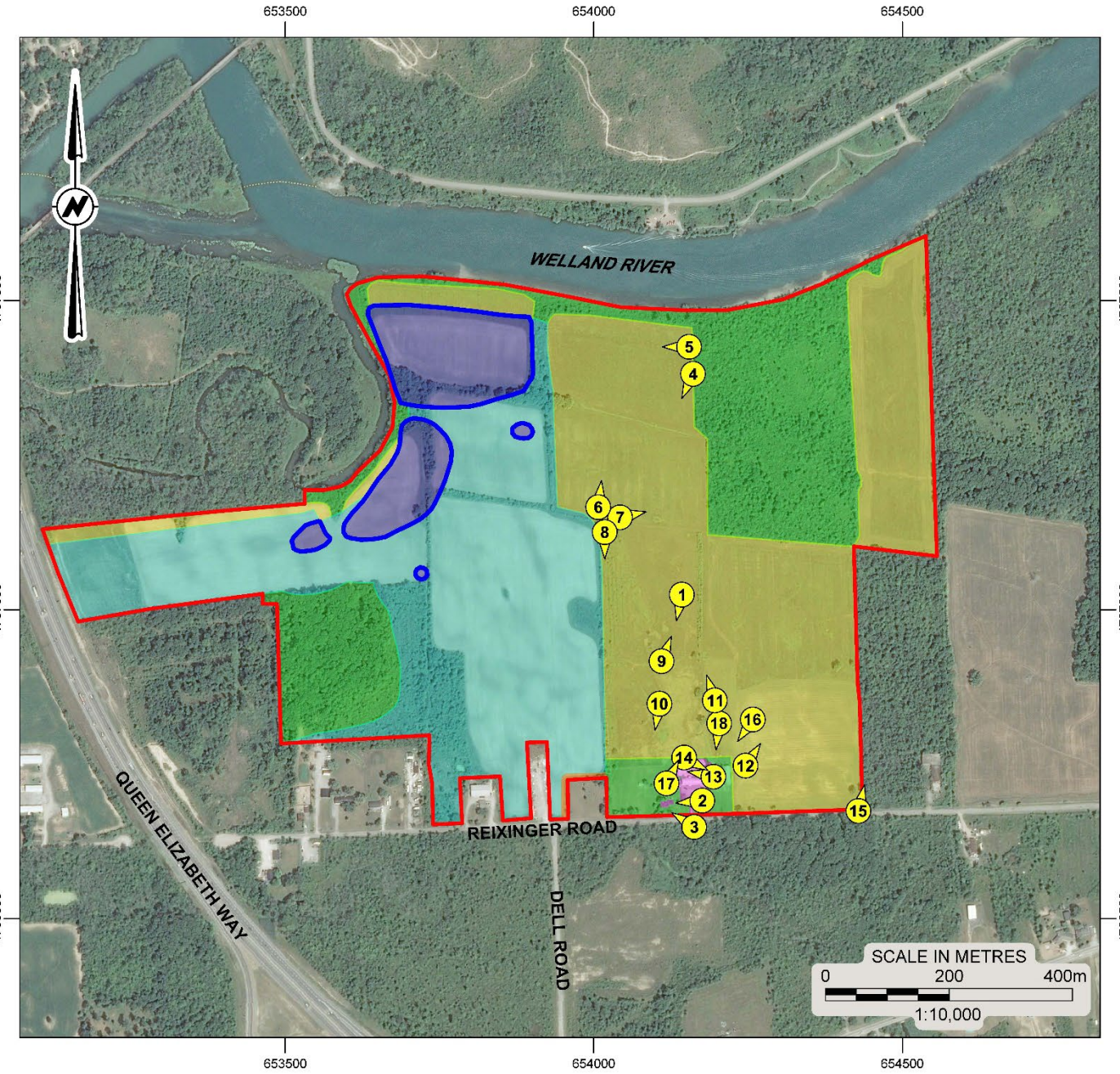

PROJECT:

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND,
NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE: STAGE 1 RESULTS WITH PHOTOGRAPH LOCATIONS AND DIRECTIONS

LEGEND:

- STUDY AREA
- 7 PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER

AREA OF ARCHAEOLOGICAL POTENTIAL

- UNPLOUGHABLE LAND: TO BE TEST PIT SURVEYED AT 5m INTERVALS
- PLOUGHABLE LAND: TO BE PEDESTRIAN SURVEYED AT 5m INTERVALS
- STAGE 3 ARCHAEOLOGICAL ASSESSMENT RECOMMENDED

AREA OF NO OR LOW ARCHAEOLOGICAL POTENTIAL

- DISTURBED: NO FURTHER ASSESSMENT REQUIRED

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

- PREVIOUSLY REGISTERED ARCHAEOLOGICAL SITE BOUNDARIES
- PREVIOUSLY ASSESSED AND SUBJECT TO STAGE 2 ARCHAEOLOGICAL ASSESSMENT (PIF P066-0210-2014; MHCI 2015)
- PREVIOUSLY ASSESSED (PIF P066-0210-2014; MAC 2015): 10m STAGE 3 CEMETERY INVESTIGATION RECOMMENDED

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001.
ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
BING IMAGERY AS OF AUGUST 17, 2020 (IMAGE DATE UNKNOWN); BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

CLIENT:

Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET
LONDON, ONTARIO, N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK/SJL	CD	JULY 20, 2022
DATUM: NAD83	PROJECTION: UTM Zone 17	PROJECT No: OCUL2001.100
REV No: 1		FIGURE No: 11

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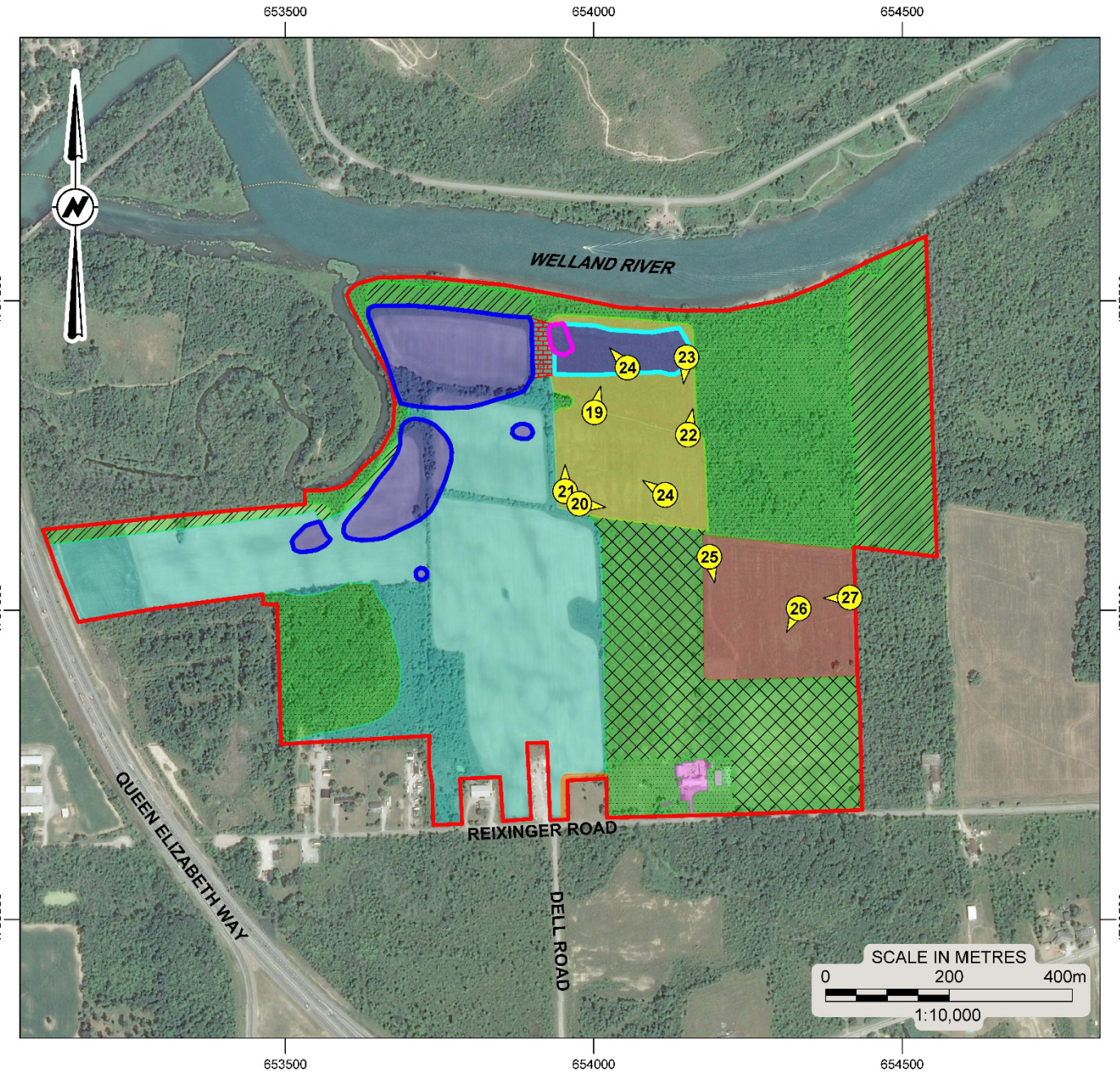

NOTES:
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS REPORT No. OCUL2001. ALL LOCATIONS ARE APPROXIMATE.

REFERENCES:
BING IMAGERY AS OF AUGUST 17, 2020 (IMAGE DATE UNKNOWN); BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

PROJECT:
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
SOUTH NIAGARA FALLS WASTEWATER TREATMENT PLANT, PHASE 2 LANDS
PART OF LOTS 7 TO 10 BROKEN FRONT ON CHIPPEWA CREEK
GEOGRAPHIC TOWNSHIP OF WILLOUGHBY, FORMER COUNTY OF WELLAND, NOW IN THE CITY OF NIAGARA FALLS, REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO

TITLE:
STAGE 2 RESULTS WITH PHOTOGRAPH LOCATIONS AND DIRECTIONS

LEGEND:
- STUDY AREA
- 22 PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND PLATE NUMBER

2020-2021 FIELDWORK RESULTS
- PLOUGHABLE LAND - PEDESTRIAN SURVEYED AT 5m INTERVALS: STAGE 3 ARCHAEOLOGICAL ASSESSMENT RECOMMENDED FOR REGISTERED SITES AS INDICATED
- PLOUGHABLE LAND - PEDESTRIAN SURVEYED AT 2.5m INTERVALS: NO FURTHER ASSESSMENT REQUIRED
- DISTURBED: NO FURTHER ASSESSMENT REQUIRED

AREA OF ARCHAEOLOGICAL POTENTIAL
- UNPLOUGHABLE LAND - FURTHER STAGE 2 ARCHAEOLOGICAL ASSESSMENT REQUIRED: RECOMMENDED FOR TEST PIT SURVEY
- UNPLOUGHABLE LAND - FURTHER STAGE 2 ARCHAEOLOGICAL ASSESSMENT REQUIRED: RECOMMENDED FOR PEDESTRIAN SURVEY
- UNPLOUGHABLE LAND - FURTHER STAGE 2 ARCHAEOLOGICAL ASSESSMENT REQUIRED - RECOMMENDED FOR PEDESTRIAN SURVEY IF CONDITIONS ARE VIABLE
- STAGE 3 ARCHAEOLOGICAL ASSESSMENT RECOMMENDED
- AgGs-48: LOCATION P1 - STAGE 3 ARCHAEOLOGICAL ASSESSMENT RECOMMENDED
- AgGs-450: LOCATION H1 - STAGE 3 ARCHAEOLOGICAL ASSESSMENT RECOMMENDED
- PRELIMINARY SITE BOUNDARY - TO BE CONFIRMED THROUGH STAGE 3 ARCHAEOLOGICAL ASSESSMENT

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS
- PREVIOUSLY REGISTERED ARCHAEOLOGICAL SITE BOUNDARIES
- PREVIOUSLY ASSESSED AND SUBJECT TO STAGE 2 ARCHAEOLOGICAL ASSESSMENT (PIF P066-0210-2014; MHCI 2015)
- PREVIOUSLY ASSESSED (PIF P066-0210-2014; MAC 2015): 10m STAGE 3 CEMETERY INVESTIGATION RECOMMENDED

CLIENT:
Niagara Region

NIAGARA REGION WATER & WASTEWATER ENGINEERING
1815 SIR ISAAC BROCK WAY
THOROLD, ONTARIO, L2V 4T7

wood.
Wood Environment & Infrastructure Solutions
201 KING STREET, LONDON, ONTARIO, N6A 1C3
519-681-2400

DWN BY:	CHK'D BY:	DATE:
LMK/SJL	CD	JULY 20, 2022
DATUM:	PROJECTION:	PROJECT No:
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Appendix C: Development Plan

wood.

No.	Date	Description	By

STAMPS:

0 25 m 50 m 100 m

SCALE BAR

ARCHITECT:
C2 Architecture
C2 Architecture Inc.
415 Baseline Road West
Bowmanville, ON L1C 5M2
☎ 905.697.4464

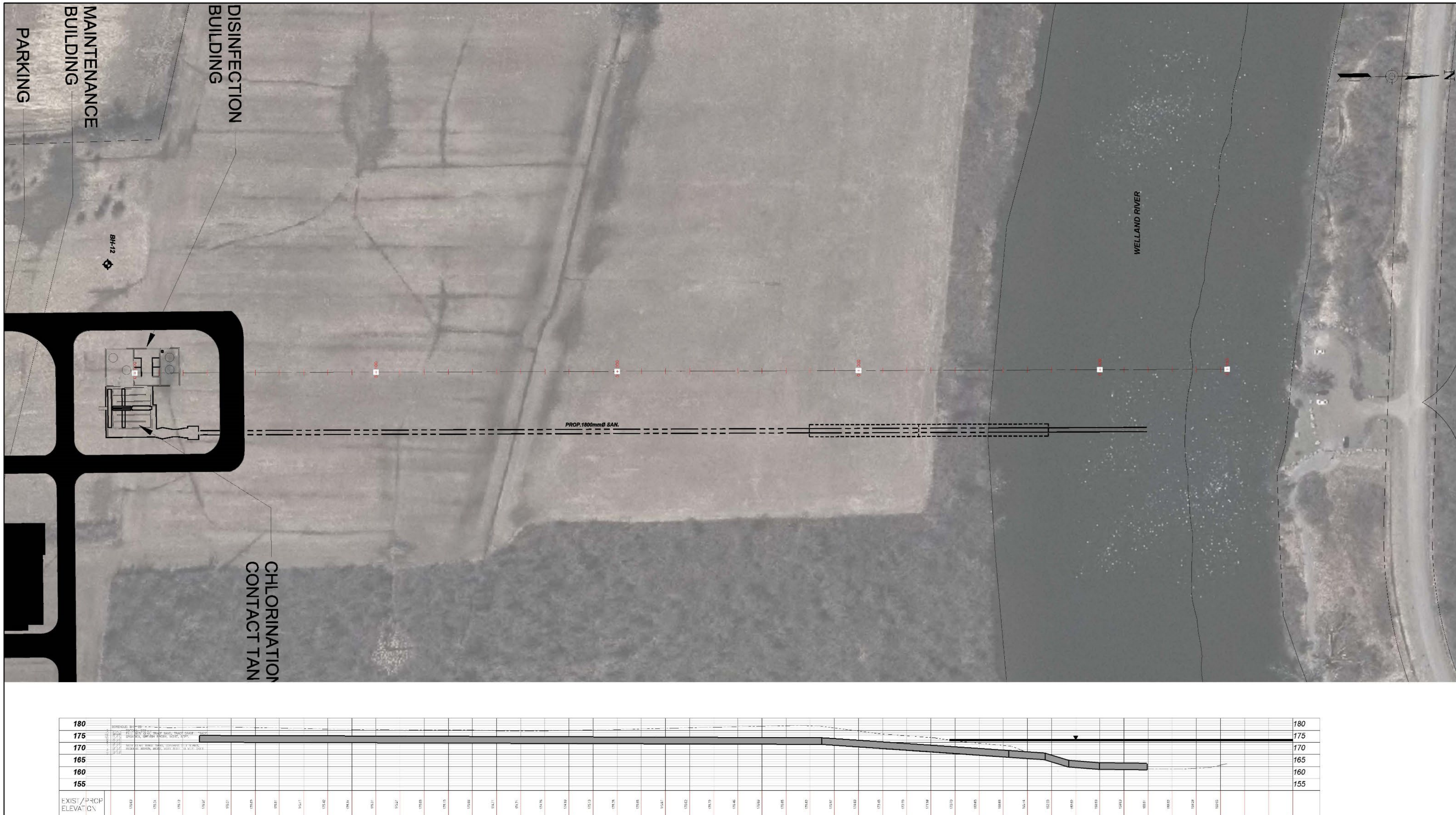
CLIENT:

PROJECT NAME:
SOUTH NIAGARA FALLS WWTP CLASS EA AND CONCEPTUAL DESIGN

SHEET TITLE:
PHASE 1 SITE PLAN

DISCIPLINE:
GENERAL

DRAFTER: Author	SCALE: AS NOTED
DESIGNER: Designer	DATE:
APPROVER: Approver	CHECKER: Checker
PROJECT No: T001140A	DRAWING No: G-05-104
SHEET No: of	



NOTES/LEGEND

1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.

NO.	REVISION	DATE	INIT.
0	CONCEPTUAL DESIGN ISSUED FOR REPORTS	2021-11-08	MF

DRAFTING: DR
DESIGN: MF
CHECKED BY: --
APPROVED BY: --

Niagara Region PUBLIC WORKS

SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS
TRUNK SANITARY SEWER
CONCEPTUAL DESIGN
OUTFALL
NIAGARA REGION
PLAN & PROFILE

CONSULTANT FILE No. 718002
DATE: 2021-11-08
SCALE: Hor : 1:1500 m; Ver : 1:375 m
REF. No. #
DWG No. OUTFALL
REV. 0

DRAWING FILE: W:\GTA\718000\718002 Niagara Region SNFWWTP\5 Work in Progress\Drafting\718002-210924-DWG-Pr. Montrose Sewer P&P-e01.dwg PLOTTED: Nov 08, 2021 - 8:14pm PLOTTED BY: baydin

Appendix D: Historic Aerials

Aerial Photograph
Dated: 1934
Stage 1&2 AA SNFWWTP: Site Location (Phase II)
Plate: B1

Aerial Photograph
Dated: 1954/55
Stage 1&2 AA SNFWWTP: Site Location (Phase II)
Plate: B2

Aerial Photograph
Dated: 1965
Stage 1&2 AA SNFWWTP: Site Location (Phase II)
Plate: B3

Aerial Photograph
Dated: 1968
Stage 1&2 AA SNFWWTP: Site Location (Phase II)
Plate: B4

Aerial Photograph
Dated: 1995
Stage 1&2 AA SNFWWTP: Site Location (Phase II)
Plate: B5

Appendix E: Photographs

	PHOTOGRAPH 1 View facing south-southwest toward 6811 Reixinger Road from rear field.
	PHOTOGRAPH 2 View facing southwest toward 6811 Reixinger Road. Also visible is narrow concrete pathway toward rear concrete pad.

	PHOTOGRAPH 3 View facing northwest towards 6811 Reixinger Road from rear field.
	PHOTOGRAPH 4 View facing southwest towards 6811 Reixinger Road from rear agricultural field.

	PHOTOGRAPH 5 View facing northwest from rear agricultural field at 6811 Reixinger Road. Welland River located on the northern side of the Study Area.
	PHOTOGRAPH 6 View facing north northeast from rear agricultural field at 6811 Reixinger Road towards Welland River.

	PHOTOGRAPH 7 View facing northeast from rear agricultural field towards woodlot.
	PHOTOGRAPH 8 View facing south-southeast from rear agricultural field toward 6811 Reixinger Road.

	PHOTOGRAPH 9 View facing northwest from rear agricultural field toward rear woodlot at 6811 Reixinger Road.
	PHOTOGRAPH 10 View facing south-southeast from rear agricultural field toward 6811 Reixinger Road.

	PHOTOGRAPH 11 View facing north-northwest from rear agricultural field at 6811 Reixinger Road.
	PHOTOGRAPH 12 View facing north-northwest from rear agricultural field at 6811 Reixinger Road.

PHOTOGRAPH 13

View facing northwest towards concrete padding and farm equipment from behind the barn at 6811 Reixinger Road.

PHOTOGRAPH 14

View facing southeast towards concrete padding and farm equipment from behind the barn at 6811 Reixinger Road.

PHOTOGRAPH 15

View facing northwest toward along treeline at eastern edge of 6811 Reixinger Road.

PHOTOGRAPH 16

View facing southwest toward barn, Quonset and outbuilding at 6811 Reixinger Road.

	PHOTOGRAPH 17 View facing northeast toward 6811 Reixinger Road outbuilding towards rear agricultural fields.
	PHOTOGRAPH 18 View facing south-southwest towards toward Quonset and outbuilding at 6811 Reixinger Road.

	PHOTOGRAPH 19 View facing south-southeast towards Welland River from rear agricultural fields at 6811 Reixinger Road.
	PHOTOGRAPH 20 View facing southeast towards rear agricultural fields at 6811 Reixinger Road.

	PHOTOGRAPH 21 View facing north-northeast towards rear agricultural fields at 6811 Reixinger Road.
	PHOTOGRAPH 22 Crew at work, pedestrian survey of rear agricultural field facing north-northeast.

	PHOTOGRAPH 23 Crew at work, pedestrian survey of rear agricultural field facing south-southwest.
	PHOTOGRAPH 24 Crew at work, pedestrian survey and controlled surface collection at rear agricultural field facing northwest.

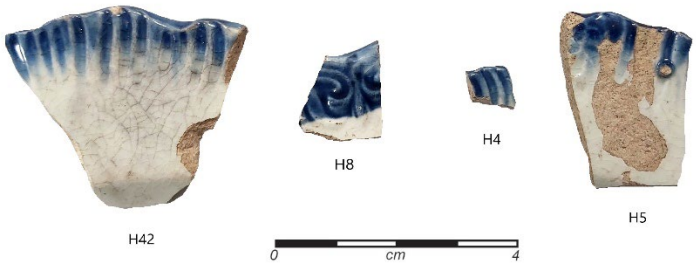
	PHOTOGRAPH 25 Crew at work, pedestrian survey of rear agricultural field facing south-southeast.
	PHOTOGRAPH 26 Crew at work, pedestrian survey at 2.5 m intervals of rear agricultural field facing south-southwest.

PHOTOGRAPH 27

Crew at work, pedestrian survey at 2.5 m intervals of rear agricultural field facing southwest.

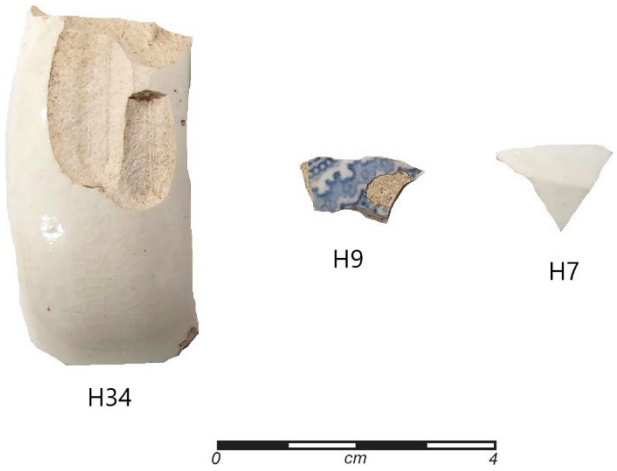
PHOTOGRAPH 28

Select artifacts recovered from Location P1 from L to R, Onondaga Thumbnail Scraper, Haldimand Ace of Spades Projectile Point, Onondaga non-diagnostic biface, and Onondaga Projectile Point midsection.



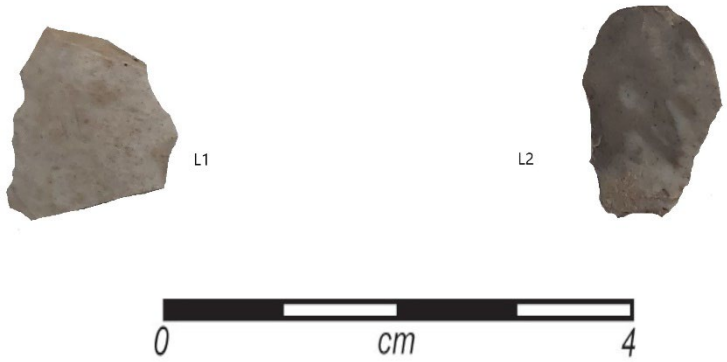
PHOTOGRAPH 29

Select artifacts recovered from Location H1 from L to R, pearlware rim sherd with scalloped rim and RWE embossed rim sherds (H8, H4 and H5).



PHOTOGRAPH 30

Select artifacts recovered from Location H1 from L to R, creamware body sherd, pearlware with blue transfer print body sherd and porcelain body sherd.



PHOTOGRAPH 31

Select artifacts recovered from Location P2 from L to R, Haldimand secondary knapping flake and Onondaga knapping flake.

Appendix F: Artifact Catalogue

Appendix G: Excerpts from the MCFN Treaties Booklet

Mississaugas of the Credit Treaties

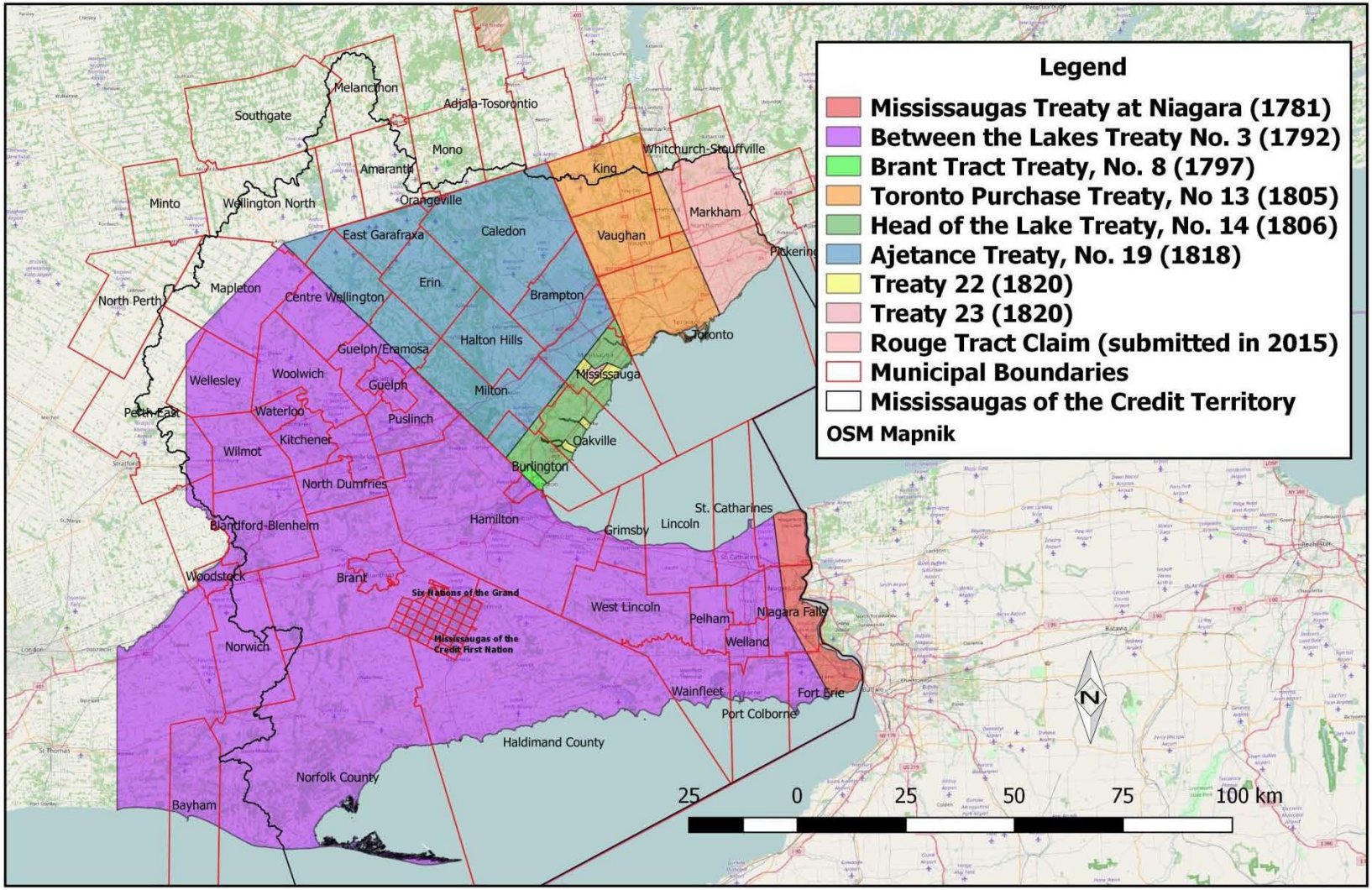
Prior to European contact, the ancestors of the Mississaugas of the New Credit First Nation occupied the lands north of Lake Superior and the area around Georgian Bay. The Mississaugas lived lightly on the lands they occupied and purposefully moved about the landscape harvesting resources as they became available.

Mississauga Territory

The ancestors of the Mississaugas of the Credit migrated into Southern Ontario by means of military conquest. After the Iroquois had expelled the Huron from Southern Ontario in 1649-50, they continued their attacks northward into the territories occupied by the Mississaugas and their allies. By the end of the 17th century, the Mississaugas and their allies had succeeded in driving the Iroquois back into their homelands south of Lake Ontario. At the conclusion of the conflict, many Mississaugas settled at the eastern end of Lake Ontario; other Mississaugas settled at the western end of the lake with their primary location at the mouth of the Credit River.

The Mississaugas of the Credit occupied, controlled and exercised stewardship over approximately 3.9 million acres of lands, waters, and resources in Southern Ontario. Their territory extended from the Rouge River Valley westward across to the headwaters of the Thames River, down to Long Point on Lake Erie and then followed the shoreline of Lake Erie, the Niagara River, and Lake Ontario until arriving back at the Rouge River Valley.

From the time of the conquest of New France in 1760, the British Crown recognized the inherent rights of First Nations and their ownership of the lands they occupied. The Royal Proclamation of 1763 confirmed First Nations' sovereignty over their lands and prevented anyone, other than the Crown, from purchasing that land. The Crown, needing First Nations' land for military purposes or for settlement, would first have to purchase it from its Indigenous occupants.



Municipal Boundaries Related to the Between the Lakes Treaty, No. 3 (1792)

Between the Lakes Treaty, No.3 (1792)

The arrival of Loyalists during and after the American Revolutionary War placed pressure on the British Crown to find lands on which to settle the newcomers. Among the Loyalists were approximately 2000 members of the Six Nations who had lost their homes fighting on behalf of the Crown.

Seeking to reward his First Nation allies for their loyalty during the war, Governor Haldimand offered homes to the Six Nations refugees in the remaining British colonies. One group of the Six Nations Loyalists settled at the eastern end of Lake Ontario, while another group, under the leadership of Mohawk Chief Joseph Brant, selected the Grand River Valley as an area for settlement.

Recognizing that under the terms of the Royal Proclamation of 1763 the land needed to be purchased from its owners before the resettlement of the Grand River Valley could begin, Col. John Butler was sent to negotiate with the Mississaugas at the western end of Lake Ontario. On May 22, 1784, for the sum of £1180 worth of trade goods, the Mississaugas of the Credit ceded to the Crown approximately 3 000 000 acres of land located between Lakes Huron, Ontario, and Erie. Of those lands, some 550 000 acres were granted to the Six Nations in the Haldimand Proclamation of October 25, 1784, with the remainder to be utilized for the settlement of other Loyalists. The land grant to the Six Nations was to extend six miles on both sides of the Grand River from its mouth to its source. When it was later discovered that the upper limits of the Between the Lakes Treaty were in error due to faulty geographical assumptions, actual boundaries were defined and a confirming document signed by the Mississaugas and the Crown in 1792.

Major population centres found within the boundaries of the Between the Lakes Treaty include Hamilton, Cambridge, Waterloo, Guelph, Brantford, and St. Catharines. The present location of the Mississaugas of the New Credit First Nation Reserve is located on Between the Lakes Treaty lands.

Appendix H: Assessor Qualifications

Assessor Qualifications

Peter Popkin, Ph.D., CAHP, MCIfA, Associate Archaeologist (P362) – Dr. Popkin is an Associate Archaeologist at Wood. Peter has over 20 years of professional experience in both consulting and academic archaeology within Canada and internationally. In Ontario he has successfully undertaken consultant archaeology projects triggered by: the Planning Act (subdivisions, site plans, re-zoning, official plan amendments, consent), the Environmental Assessment Act (individual and Class EAs, provincial and federal EAs), the Environmental Protection Act (Renewable Energy Approvals O.Reg 359/09), as well as the Aggregates Resources Act (aggregate pit extensions), and has managed projects under the National Energy Board Act (now the Canadian Energy Regulator Act). Dr. Popkin has lectured in archaeology at York University, the University of Toronto and Wilfrid Laurier University in Ontario, as well as University College London, King's College London, and Birkbeck College, in the UK. Dr. Popkin holds a Professional Archaeological License (P362) from the Ontario MTCS, is a Professional Member of the Canadian Association of Heritage Professionals (CAHP) and is a full Member of the Chartered Institute for Archaeologists (MCIfA). Dr. Popkin received his Ph.D. from the Institute of Archaeology, University College London, London, UK (2009).

Henry Cary, Ph.D., CAHP, RPA – Senior Staff Archaeologist –Dr. Henry Cary has over 20 years of public and private-sector experience directing archaeological and cultural heritage projects in urban, rural, Arctic and Sub-Arctic environments in Canada as well as the Republic of South Africa, Italy, and France. His career has included positions as project archaeologist and cultural resource management specialist for Parks Canada's Fort Henry National Historic Site Conservation Program and Western Arctic Field Unit, Heritage Manager for the Town of Lunenburg UNESCO World Heritage Site, and senior-level archaeologist and cultural heritage specialist for CH2M and Golder Associates. He currently holds a **Professional Archaeology Licence (P327)** issued by the Ontario MTCS, is MTO RAQs certified in Archaeology/Heritage and is a member of the Canadian Association of Heritage Professionals (CAHP) and Register of Professional Archaeologists (RPA). His education includes a B.A. in Prehistoric Archaeology and Anthropology from Wilfrid Laurier University, a MA in Historical Archaeology from Memorial University, and a Ph.D. in War Studies from the Royal Military College of Canada. Currently, Henry also holds academic positions as Adjunct Professor of Anthropology at Saint Mary's University and lecturer in Visual & Material Culture at Mount Allison University.

Barbara Slim, M.A., Associate Archaeologist, Ontario Archaeology Discipline Lead (P348) – Ms. Slim is a professionally licensed archaeologist with over 16 years of experience in the archaeology and environmental consulting industry. Ms. Slim has conducted all aspects of Stage 1 to 4 archaeological assessments for provincial agencies, municipalities, and land developers in support of infrastructure developments, financial real estate transactions, environmental remediation and private developments. As a founding member of the Wood Ontario archaeology team, Ms. Slim has performed every aspect of project execution, from client relations, project design to MTCS

clearance. Through her project experience, Ms. Slim has gained an in-depth understanding of the Heritage Act and legislations & standards associated with cultural heritage management. Ms. Slim holds a Master's Degree in Anthropology from Trent University and an Honours Bachelor's Degree in Environmental Studies and Anthropology from Trent University. Ms. Slim currently holds a Professional Archaeology License (P348) issued by the Ontario MTCS, is RAQs Certified in Archaeology/Heritage and is a member of the Ontario Association of Professional Archaeologists.

Cara Howell B.A., Senior Archaeologist (R180) - Ms. Howell holds a B.A. Degree in Anthropology and Classical Archaeology from McMaster University and has been working in the field of archaeological consulting since 1999. She holds an Applied Research License (R180) in archaeology from the Ontario MTCS and possesses a full range of archaeological skills. As a result of her specialized interest in the early post-contact period, she has become an authority on early Euro-Canadian artifacts and background research. As the archaeology Laboratory Director for Wood's Cultural Heritage Resources Group, she developed and implements a computerized cataloguing system for artifacts and other resources. Ms. Howell also serves as lead liaison with Indigenous communities.

Jason Seguin, M.A., Senior Archaeologist (P354) - Mr. Seguin has worked as an archaeologist since 2004 and has conducted numerous Stage 1 to 4 archaeological assessments including background searches, field surveys, archaeological excavations, analysis of archaeological resources, laboratory work and reporting. Mr. Seguin is involved in project management and supervision as well as being an archaeological laboratory director. Mr. Seguin has developed research and communication skills through producing and editing field reports, teaching university level students in both lecture and seminar environments, as well as preparing and presenting presentations at academic conferences. Mr. Seguin's education and work experience have provided him with an extensive knowledge base, consisting of theoretical and practical experience in cultural resource management in Canada and Central America, as well as curatorial, archival and museum management experience. Mr. Seguin holds a Master's Degree in Anthropology from Trent University, and a Post-Graduate Certificate in Museum Management and Curatorship from Sir Sandford Fleming College. Mr. Seguin currently holds a Professional Archaeology License (P354) issued by the Ontario MTCS and is a member of the Association of Professional Archaeologists.

Chelsea Dickinson B.A. Hons., Cultural Heritage Specialist | Research Archaeologist (R1194) - Ms. Dickinson holds an Honours B.A. Degree in Near Eastern and Classical Archaeology from Wilfrid Laurier University, and a Post-Graduate Certificate in Geographical Information Systems from Fanshawe College, she has been working in the field of archaeological consulting since 2015. Ms. Dickinson holds an Applied Research license (License R1194) in Archaeology from the Ontario Ministry of Tourism, Culture and Sport. Ms. Dickinson has conducted all aspects of Stage 1 to 4 archaeological assessments (AAs) throughout Ontario, including environmental assessments (EA) conducted for the development of wind and solar farms, hydro line

corridors and municipal roadway improvements. Ms. Dickinson has been the co-author on a multitude of archaeological assessment reports and has experience working on cultural heritage assessment reports, heritage impact assessments, and documentation reports specializing in historical background research spanning across Southern Ontario. Ms. Dickinson has had the privilege of working alongside a multitude of First Nation community members while conducting archaeological assessments in both Northern and Southern Ontario. Ms. Dickinson has experience using high precision GPS technologies, specifically Top Con Hi SR and FC5000 positioning systems, used to map in architectural features, diagnostic artifacts, as well as topographical anomalies and site boundaries. Ms. Dickinson has experience using ArcGIS in addition to Collector for ArcGIS while conducting archaeological assessments.

Appendix I: Limitations

Limitations

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
    a. The Standard Terms and Conditions which form a part of our Professional Services Contract;
    b. The Scope of Services;
    c. Time and Budgetary limitations as described in our Contract; and,
    d. The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the Study Area. Our conclusions cannot and are not extended to include those portions of the Study Area which were not reasonably available, in Wood Environment & Infrastructure's opinion, for direct observation.
4. The potential for archaeological resources, and any actual archaeological resources encountered, at the Study Area were assessed, within the limitations set out above, having due regard for applicable heritage regulations as of the date of the inspection.
5. Services including a background study and fieldwork were performed. Wood Environment & Infrastructure's work, including archival studies and fieldwork, were completed in a professional manner and in accordance with the Ministry of Tourism, Culture and Sport' guidelines. It is possible that unforeseen and undiscovered archaeological resources may be present at the Study Area.
6. The utilization of Wood Environment & Infrastructure's services during the implementation of any further archaeological work recommended will allow Wood Environment & Infrastructure to observe compliance with the conclusions and recommendations contained in the report. Wood Environment & Infrastructure's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
7. This report is for the sole use of the parties to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or in part, or any reliance thereon, or decisions made based on any information of conclusions in the report, is the sole responsibility of such third party. Wood Environment & Infrastructure accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
8. This report is not to be given over to any third-party other than a governmental entity, for any purpose whatsoever without the written permission of Wood Environment & Infrastructure, which shall not be unreasonably withheld.