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BY EMAIL AND RESS

June 15, 2023

Ms. Nancy Marconi
Registrar
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Marconi,

EB-2023-0061 – Hydro One Sault Ste. Marie Limited Partnership Leave to Construct Application – Sault #3 Transmission Line Refurbishment Project – Application and Evidence

Pursuant to s.92 of the *Ontario Energy Board Act, 1998* (the "Act") Hydro One Sault Ste. Marie Limited Partnership ("HOSSM") seeks the Ontario Energy Board's ("OEB") approval for an Order or Orders granting leave to refurbish the existing Sault #3 transmission line ("Sault #3"), as part of the ("**Sault #3 Transmission Line Refurbishment Project**" or the "**Project**") between Third Line Transformer Station ("TS") and Mackay TS connecting the Montreal River area with the Sault Ste. Marie area.

Additionally, pursuant to s.97 of the Ontario Energy Board Act, 1998, HOSSM seeks OEB approval for an Order granting approval of the forms of the agreement offered or to be offered to affected landowners.

An electronic copy of this Application and Evidence has been filed through the OEB's Regulatory Electronic Submission System.

Sincerely,

Joanne Richardson

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MAPPING OEB CHAPTER 4 FILING REQUIREMENTS TO HOSSM S92 EXHIBIT LIST

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4.3.1 – The Index	A-01-01 – Exhibit List A-01-02 – Mapping OEB Chapter 4 Filing Requirements to HOSSM S92 Exhibit List
4.3.2 – The Application	
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4.3.5 – Land Matters	

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ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*;

AND IN THE MATTER OF an Application by Hydro One Sault Ste. Marie Limited Partnership ("HOSSM") pursuant to s. 92 of the *Ontario Energy Board Act, 1998* (the "*Act*")for an Order or Orders granting leave to refurbish the existing Sault #3 transmission line ("Sault #3"), between Third Line Transformer Station ("TS") and Mackay TS (the "Sault #3 Project" or "Project") connecting the Montreal River area with the Sault Ste. Marie area.

And in the matter of an Application by HOSSM pursuant to s. 97 of the Act for an Order granting approval of the forms of the agreements offered or to be offered to affected landowners.

APPLICATION

1. The Applicant, HOSSM, provides electricity transmission in the vicinity of Sault Ste. Marie, Ontario.

2. HOSSM hereby applies to the Ontario Energy Board (the "**Board**" or "**OEB**") pursuant to s. 92 of the Act for an Order or Orders granting leave to refurbish approximately 90.5 kilometers of 115 kilovolt ("kV") single circuit transmission line named Sault #3 line between Third Line TS and Mackay TS. This line refurbishment is required to ensure that the area continues to receive a safe and reliable supply of electricity.

3. An overview map of this area is provided at **Exhibit B, Tab 2, Schedule 1, Attachment 1** and a schematic diagram of the Project can be found at **Exhibit B, Tab 2, Schedule 1, Attachment 2.**

4. The proposed in-service date for the Project is September 2026, assuming a construction commencement date of November 2023. The Project schedule is provided at **Exhibit B, Tab 11, Schedule 1**.

5. The Project will utilize the existing 115 kV transmission corridor. As a result, this Project will not require any new permanent property rights. Should the need arise, temporary rights for access or construction staging areas may be required for the duration of the construction period of the Project. Further information on land related matters is found in **Exhibit E, Tab 1, Schedule 1**.

6. The line is near end of life and requires refurbishment, as confirmed by conductor laboratory testing of two sections of the conductor. Accordingly, this Project has been identified as a mainly discretionary sustainment project in **Exhibit B, Tab 4, Schedule 1**. HOSSM is undertaking the opportunity to increase the conductor, one size beyond the standard minimum conductor size during refurbishment with the intent of reducing line losses. The evidence included in this Application demonstrates that it is economically efficient to increase the conductor size and that the minor incremental conductor cost is more than offset by anticipated line loss reductions.

7. The total cost of the transmission line facilities for which HOSSM is seeking approval is approximately $68.8 million. The details pertaining to these costs are provided at **Exhibit B, Tab 7, Schedule 1, Table 1**. Project economics, as filed in **Exhibit B, Tab 9, Schedule 1**, show that the Project will result in a slight increase ($0.02/kw/month) to the network connection pool rate, resulting in a slight increase (0.02%) on the overall average Ontario consumer's electricity bill.

8. This Application also seeks approval of the forms of the agreement offered or to be offered to affected landowners, pursuant to s. 97 of the Act, if temporary construction rights for access or staging areas are required for the duration of the construction period. The agreements are in the same form as previously

approved in prior Hydro One Networks Inc. ("Hydro One") leave to construct proceedings, notably EB-2021-0107. The agreements can be found as attachments to **Exhibit E, Tab 1, Schedule 1**.

9. The Application is supported by written evidence that includes details of the Applicant's proposal for the transmission line. The written evidence is prefiled and may be amended from time to time prior to the Board's final decision on this Application.

10. Given the information provided in the prefiled evidence, HOSSM submits that the Project is in the public interest. The Project meets the need of the transmission system and improves quality of service and reliability with no material impact on price.

11. The IESO has also provided a final System Impact Assessment ("**SIA**"). The SIA concludes that the Project is expected to have no material adverse impact on the reliability of the integrated power system. The SIA is provided as **Exhibit F, Tab 1, Schedule 1, Attachment 1** of HOSSM's prefiled evidence.

12. As is documented in the Customer Impact Assessment (**"CIA"**), filed at **Exhibit G, Tab 1, Schedule 1, Attachment 1**, no customers are adversely affected by this Project.

13. A Full Class Environmental Assessment ("EA") is currently in progress. The forecast submission and Statement of Completion to the Ministry of the Environment, Conservation and Parks ("MECP") is estimated to be July 2023.

For the above reasons, HOSSM concludes that this Project will not adversely affect customers.

14. This position is further supported by the fact that this Project is, in effect, a sustainment project, and would not trigger the need for leave to construct, i.e., it would be a like-for-like sustainment solution to replace end-of-life facilities. However, leave of the OEB is required because HOSSM is pursuing a technical solution that will minimize transmission line losses by utilizing a larger conductor size. The installation of a larger conductor will incrementally increase the like-for-like alternative cost by approximately $0.8 million. Further information on the cost-benefit analysis of the alternatives considered can be found at **Exhibit B, Tab 5, Schedule 1**.

15. HOSSM requests that a decision be rendered on this Application by the end of November 2023. Such a decision will ensure that the in-service schedule of these facilities, as provided in **Exhibit B, Tab 11, Schedule 1,** is met.

16. HOSSM requests that a copy of all documents filed with the Board be served on the Applicant and the Applicant's counsel, as follows:

a) The Applicant:

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b) The Applicant's Counsel:

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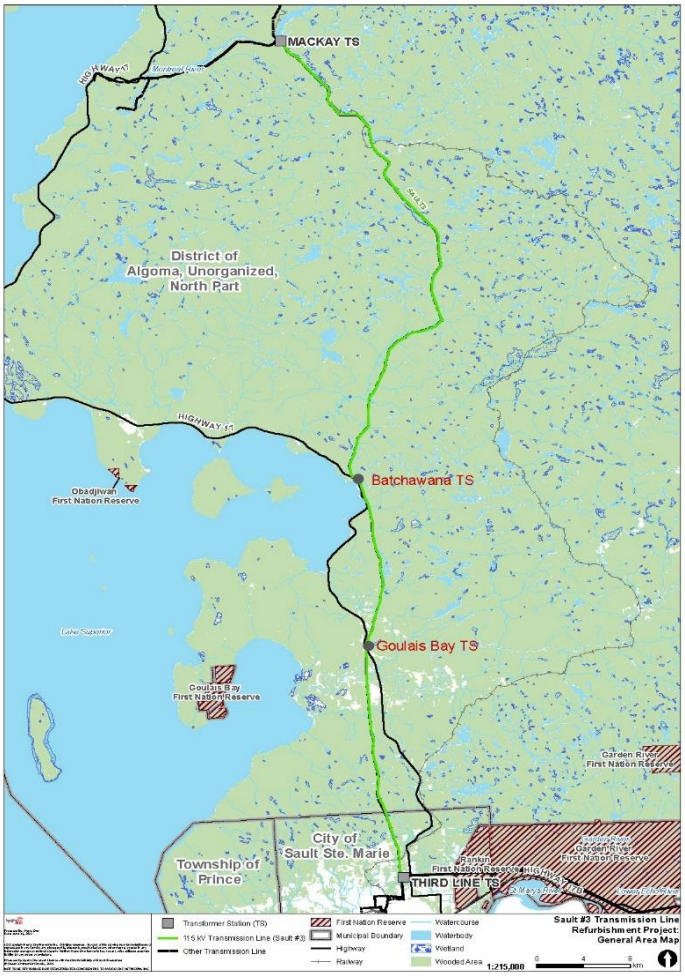
PROJECT OVERVIEW DOCUMENTS

HOSSM[1] owns and operates the Sault #3 transmission line, a 115 kV single circuit that runs between Third Line TS and Mackay TS, connecting the Montreal River area with the Sault Ste. Marie area. Sault #3 is a wood pole line, approximately 90.5 km in length and runs parallel to an existing 230 kV circuit, known as K24G, along its entire route. The Sault #3 line is the only supply source for two stations, Goulais Bay TS and Batchawana TS. See Figure 1 below for the geographic location of the proposed facilities.

Figure 1: Location of the Proposed Facilities



The Sault #3 line, between Third Line TS and Mackay TS, was placed in service in 1929 with a 266.8 kcmil Aluminum Conductor Steel Reinforced ("ACSR") conductor. This conductor is over 90 years old and has reached the expected service life of an ACSR conductor as defined in the asset management transmission lines conductor strategy. The conductor section from Third Line TS to structure 129 was replaced in 1991 with a 336 kcmil ACSR conductor. Sault #3 line between structure 129 to Mackay TS still has the original 266.8 kcmil conductor.

[1] HOSSM has been operationally integrated into Hydro One Networks Inc.

There were three conductor sleeve failures on the 266.8 kcmil conductor between 2013 to 2015. A third-party failure analysis was performed on the splice connection that failed and the findings include burn marks on the outer aluminum wires within the aluminum splice. The steel core wires were also burnt, broken, and heavily rusted near and within the steel splice. The failure analysis also indicated that the 266.8 kcmil ACSR conductor is in poor condition and near to its end of life.

As a result of multiple failed sleeves and poor conductor condition, the Sault #3 circuit has been de-rated to 200 amps from the original design rating of 464 amps. Based on HOSSM line rating, Sault #3 had a summer continuous rating of 464 Amps (with emergency rating of 479 amps) and a winter continuous rating of 541 amps (with emergency rating of 561 amps) prior to being derated. The derating results in the restriction of load flow between Mackay TS and Third Line TS and the conductor is unable to be restored to its original design rating until the refurbishment of the Sault #3 line occurs. This Project was part of the HOSSM portfolio and refurbishment plan prior to Hydro One Network Inc.'s purchasing of HOSSM in 2016 (previously Great Lakes Power Transmission).

HOSSM's proposed Sault #3 115 kV transmission line refurbishment Project will replace the existing 266.8 kcmil ACSR conductor with the larger 477 kcmil ACSR conductor between Mackay TS and Structure 129 (Goulais Bay TS). The existing 336 kcmil ACSR conductor between Third Line TS and structure 129 will not be replaced, however, replacement of all wood pole structures for the entire length between Mackay TS and Third Line TS including the entrance wood pole structure at Mackay TS is proposed. Additionally, HOSSM is proposing the removal of existing All-Dielectric Self-Supporting cable ("ADSS") which is a third party owned telecommunication medium, to be replaced with two shield wires with one standard shield wire and one Optical Ground Wire ("OPGW") to maintain telecommunication channel between Mackay TS and Third line TS. The project will also include minor station works affected by the line refurbishment such as new equipment in Mackay TS, and modification of the Remedial Action Scheme to meet System Impact Assessment requirements performed by the IESO. As committed by Hydro One Networks Inc. (inclusive of HOSSM) to the OEB, the selection of the larger

size conductor supports the reduction in transmission line losses. HOSSM has conducted a study and assessment of line-loss savings using different conductor options and concluded that upgrading the Sault #3 conductor to 477 kcmil ACSR is the most cost-effective and beneficial option to the ratepayer. Refer to **Exhibit B, Tab 5, Schedule 1** for details related to the line loss study.

Please note there is a Full Class EA in progress related to the Project. The forecast submission and Statement of Completion to MECP is estimated to be July 2023.

This application seeks OEB approval to allow HOSSM to refurbish the approximate 90.5 km 115KV transmission facility between Third Line TS and Mackay TS.

A map showing the geographic location of the proposed facilities is provided at **Exhibit B, Tab 2, Schedule 1, Attachment 1**. HOSSM's intention is that this map be used for the purposes of the Notice Map. A schematic operating diagram of the existing facilities is included in **Exhibit B, Tab 2, Schedule 1, Attachment 2**. The schematic diagram of the proposed facilities will not change, and as such there is no 'before' and 'after' diagram scenarios.

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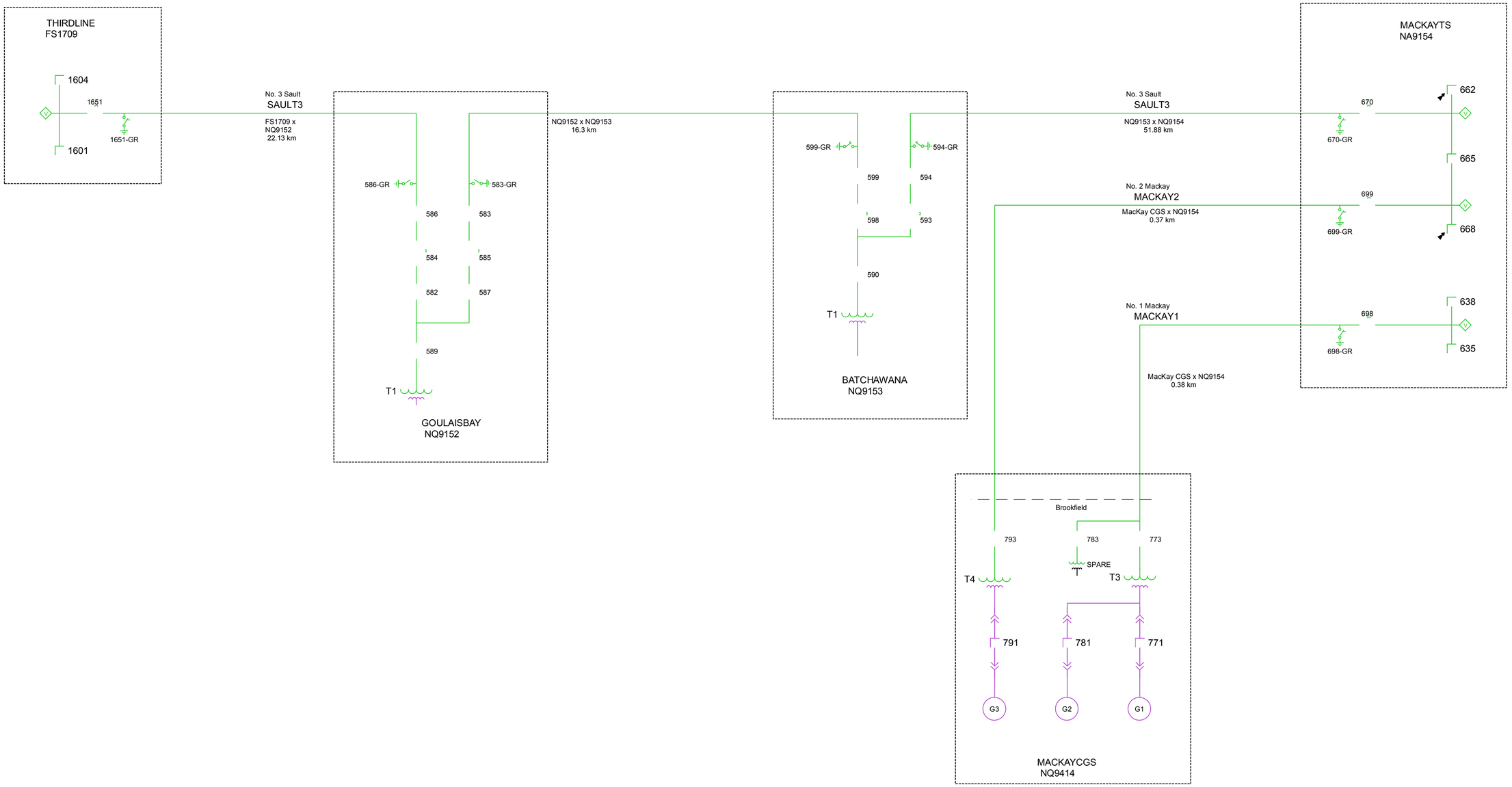
MACKAY TS
HIGHWAY 17
Montreal River
SAULT 3
District of
Algoma, Unorganized,
North Part
HIGHWAY 17
Batchawana TS
Obadjiwan
First Nation Reserve
Lake Superior
Goulais Bay TS
Goulais Bay
First Nation Reserve
Garden River
First Nation Reserve
City of
Sault Ste. Marie
Township of
Prince
Garden River
Garden River
First Nation Reserve
Rankin
First Nation Reserve
HIGHWAY 17B
THIRD LINE TS
St Marys River
Lower Echo River
Transformer Station (TS)
115 kV Transmission Line (Sault #3)
Other Transmission Line
First Nation Reserve
Municipal Boundary
Highway
Railway
Watercourse
Waterbody
Wetland
Wooded Area
Sault #3 Transmission Line
Refurbishment Project:
General Area Map
1:215,000
0
4
8
km



LEGEND
500 KV
345 KV
230 KV
115 KV
69 KV
35 to 44 KV
22 to 28 KV
14 KV
Auxiliary

Rev. No.	Date	Revision	By	Appd
17.0	AUG 12 2021	Removed MUS41T and associated equipment at Batchawana TS.	BR	JH
16.0	JUL 15 2021	Added construction point CP04 at Batchawana TS.	BR	JH
15.0	JUN 24 2021	Removed MUS41T1 and associated equipment at Goulais Bay TS and added MUS41T and associated equipment at Batchawana TS.	BR	JH
14.0	NOV 10 2020	Removed tie line loop at Goulais Bay TS. Updated MUS nomenclature at Goulais Bay TS.	MJ	DS
13.0	OCT 29 2020	Corrected location of MUS41T1 tap at Goulais Bay TS.	MJ	DS
12.0	OCT 22 2020	Added MUS41T1 and associated equipment at Goulais Bay TS.	BR	RK
11.0	SEP 12 2019	Changed 584, 585, 598 & 593 to circuit switchers at Goulais Bay TS & Batchawana TS.	MJ	DS
10.0	AUG 13 2019	Changed grounds to ganged at Third Line TS.	MJ	DS

THIRDLNE_MACKAY

MACKAY1, MACKAY2, SAULT3

OVERVIEW OPERATING DIAGRAM (HIGH TENSION)

Hydro One Networks Inc.
Integrated Transmission Operating Facilities

Date: DD/MM/YYYY
11/14/2017

Drawn:

Checked:

Note:
All revisions to this diagram will require notification of the NMS Prints team, via email to NO Change Control Notification and follow up with a field marked paper copy. Refer to: OD-10-001: Operating Diagram Standard for Transmission NMI-2020: Process for New and Revised Operating Diagrams

Paper Size: 28x22

DWG. NO.
THIRDLNE_MACKAY-2HT

REV. NO.
17.0

This legend is for local plotting purposes only. It serves as a reference for the local print only and may not necessarily match that of the Hydro One Operating Drawing Convention Standard.

EVIDENCE IN SUPPORT OF NEED

HOSSM owns and operates the Sault #3 transmission line, a 115 kV single circuit that runs between Third Line TS and Mackay TS, connecting the areas of Montreal River and Sault Ste. Marie in North-West Ontario. The Sault #3 line consists of a wood pole line circuit, approximately 90.5 km in length, that is over 90 years old.

Between 2013 and 2015, there were three conductor sleeve failures on the Sault #3 line 266.8 kcmil conductor. A third-party failure analysis was performed on the splice connection that failed that revealed:

- burn marks on the outer aluminum wires within the aluminum splice.
- burnt, broken, and heavily rusted steel core wires near and within the steel splice.

The failure analysis also indicated that the 266.8 kcmil ACSR conductor is in poor condition and near to its end of life. As a result of the age and associated poor condition of the conductor, the circuit was de-rated to 200 amps from the original design rating of 464 amps. This results in the restriction of load flow between Mackay TS and Third Line TS that cannot be restored to the original design specification until the refurbishment of the Sault #3 line occurs. Additionally, the associated shield wires on the circuit as well as the pole structures and other associated components of the line are in poor condition and require replacement. HOSSM has considered ratepayer benefits, economical line loss considerations, and reliability when assessing the alternatives to refurbish the Sault #3 line to reinforce the transmission system in the Sault Ste. Marie region.

As indicated in **Exhibit B, Tab 3, Schedule 1, Attachment 1,** the IESO report titled "Relationship Between Hydro One Sault Ste. Marie's Sault No.3 Circuit Refurbishment and Regional and Bulk System Plans", there is no need to upgrade the circuit in terms of either line voltage and/or ampacity. HOSSM's minimum standard transmission line conductor of 411 kcmil ACSR is sufficient to meet the future anticipated ampacity needs of the circuit. However, consistent with OEB direction given to Hydro One regarding

expectations that the transmitter will explore opportunities for economically reducing transmission line losses, HOSSM considered and ultimately chose as its preferred alternative, using the larger 477 kcmil ACSR conductor, one standard size above Hydro One Network Inc.'s minimum standard, for this system's operating voltage of 115 kV facilities. The incremental cost increase of the proposed larger sized conductor will be offset by the line loss saving, compared to the minimum standard (i.e., 411 kcmil). The line losses modeling conducted by HOSSM shows a net present value benefit from using the 477 kcmil conductor.

The Sault #3 circuits contain two 3/8" galvanized steel shield wires installed in 1956. The service life of 67 years is beyond the estimated service life of 50 years for such shield wire. The existing third party owned ADSS will be replaced with OPGW to provide a telecommunication channel between Mackay TS and Third Line TS, the other shield wire will be Hydro One's standard 7#8 Alumoweld shield wire.

Structures on Sault # 3 line are wood pole structures consisting of lower-class poles typically used in a distribution system with timber cross arms (obsolete for many years). They are in poor condition due to woodpeckers, rot, cracks and splits, therefore, a complete replacement is needed to restore their structural integrity and strength in order to withstand the mechanical loads from weather events such as high wind, heavy ice and wind + ice. The replacement also includes insulator strings and hardware (such as U-bolts, strain links, hanger bracket, dampers etc.) which most are of original vintage. The replacement will bring the line to transmission level reliability and meet Hydro One's security class for 115 kV wood pole lines.

This Project will reduce the safety and reliability risks associated with operating poor condition assets on the Sault #3 line between Third Line TS and Mackay TS. Introduction of new conductor, shield wires, and wood pole structures will improve the physical resilience of the transmission line against the increasing weather-related mechanical loads due to climate changes.

Relationship Between Hydro One Sault Ste. Marie's Sault No.3 Circuit Refurbishment and Regional and Bulk System Plans

May 17, 2023

ieso
Connecting Today.
Powering Tomorrow.

1. Introduction

The IESO is providing this report in accordance with the requirements of the Ontario Energy Board's (OEB) Filing Requirements for Electricity Transmission Applications for the IESO to prepare a document that summarizes planned transmission investments that are set out in regional and/or bulk plans that have linkages and/or interdependencies to investments proposed in Leave to Construct applications.

This document sets out the broader context in the East Lake Superior region, addresses links between the Sault No.3 circuit and other planned investments, provides information on why the upgrade of the Sault No.3 circuit would not address identified bulk and regional needs, and explains why the IESO did not recommend upgrading the Sault No.3 circuit beyond the capacity increase afforded by its upgrade to Hydro One Networks Inc. (HONI) minimum standard conductor size. In addition to these elements, the IESO notes that HOSSM has also considered line loss mitigation in its Leave to Construct application for the Sault No.3 circuit project.

Summary

Sault No.3 is a 115 kV circuit, owned and operated by HOSSM, supplying Batchawana TS and Goulais TS and connecting the Montreal River area to Sault Ste. Marie.

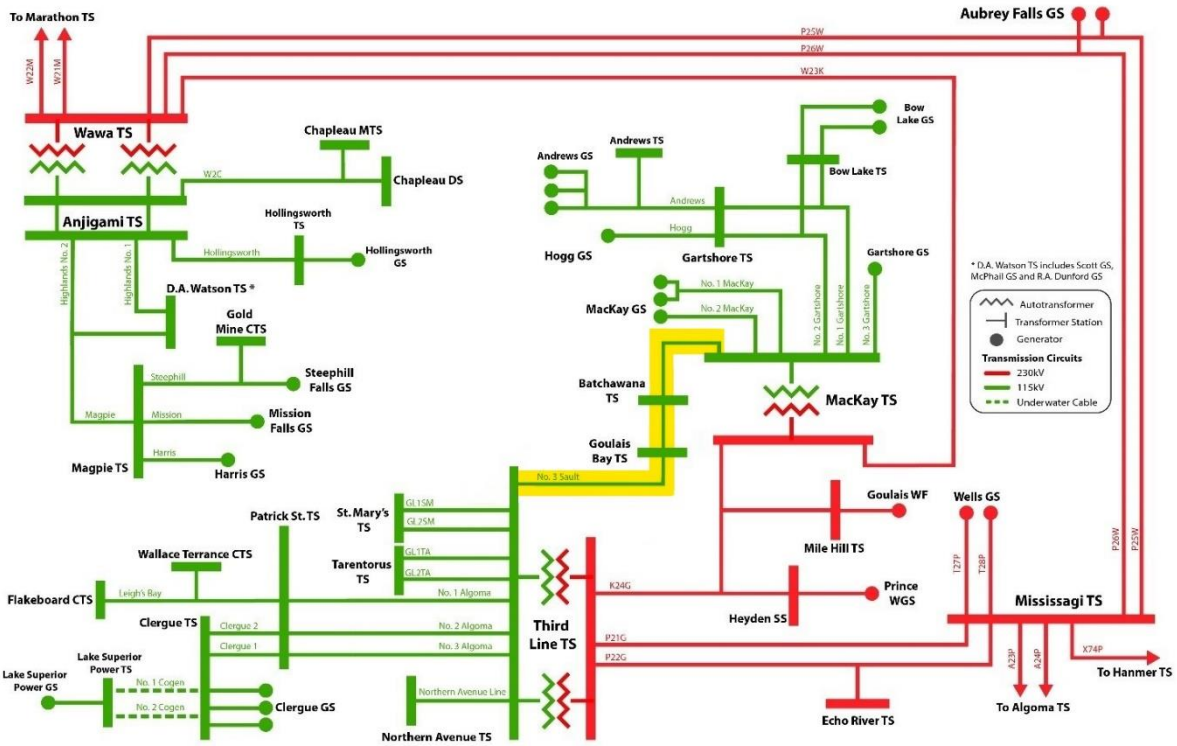
Upgrading the Sault No.3 circuit beyond HONI's minimum standard conductor size to allow it to operate at 230 kV was considered as an option to address bulk and regional needs in the IESO's Northeast Bulk Plan and the IESO's East Lake Superior regional planning activities. As the IESO's regional planning initiatives did not find the upgrade option to be cost-effective for meeting the wider scope of the area's regional needs, and the Northeast Bulk Plan did not find it to be technically capable of meeting bulk system needs relative to other options, the IESO did not recommend upgrading the Sault No. 3 circuit beyond HONI's minimum standard conductor size to allow it to operate 230 kV. HOSSM's identification of an end-of-life replacement is the key driver of the need for refurbishment, while the IESO understands from HOSSM analysis that the mitigation of line losses is the key driver of the proposed project's conductor size.

More information on these findings is available in the sections below.

2. East Lake Superior IRRP

In March 2021, the IESO published an Integrated Regional Resource Plan (IRRP) for the East Lake Superior (ELS) region. The ELS region is supplied by the 230 kV and 115 kV transmission lines and transformation facilities shown in Figure 1 below. Sault No.3 is a 115 kV circuit, owned and operated by HOSSM, supplying Batchawana TS and Goulais TS and connecting the Montreal River area to the Sault Ste. Marie in northwest Ontario. Sault No.3 runs between Mackay TS and Third Line TS in parallel to the 230 kV system, as shown in the yellow highlighting in Figure 1. Sault No.3 supplies local residential and commercial load from the two transformer stations connected to the line. Sault No.3 also serves as an alternate path to incorporate hydroelectric generation connected to Mackay TS, delivering it directly to the Third Line 115 kV system.

Figure 1 | ELS Single Line Diagram



The Sault No.3 circuit is currently de-rated to 200 Amps due to its deteriorated condition and, as a result, has been operated radially for approximately ten years to reduce the loading on the circuit. When the ELS IRRP was initiated in Q1 2019, the Sault No.3 circuit was already scheduled for refurbishment as part of HOSSM's sustainment plan. The IRRP adopted this plan as a basis from which to assess regional needs, thereby assuming that the Sault No.3 circuit would be replaced with

HONI's minimum standard conductor size, affording a modest improvement to its thermal rating allowing it to be operated as a network circuit.

Table 1 below summarizes the regional needs identified in the ELS IRRP that have relevance to HOSSM's sustainment plan for Sault No. 3.

Table 1| Summary of ELS Regional Needs Relevant to Sault No. 3

	Need	Need Date
1.	Loss of one Third Line TS autotransformer causes the companion transformer to be loaded close to its capacity	This is not a need, but flagged for ongoing monitoring
2.	During an outage of one of the Third Line TS autotransformers, a loss of the companion autotransformer results in thermal overload of the Sault No.3 circuit (assuming this circuit is replaced with HONI's minimum standard conductor size at end-of-life and operated in a network configuration)	2023

The IESO's studies showed that if Sault No.3 was connected as a network circuit between Mackay TS and Third Line TS it could back off the flow on the Third Line transformers, deferring the identified Third Line transformer capacity need (Need #1 in Table 1 above). However, operating the Sault No.3 circuit in parallel with the 230 kV bulk system would result in the circuit being overloaded following certain 230 kV contingencies,[1] as well as for the loss of both auto-transformers at Third Line (see Needs #2 in Table 1).

The IRRP recommended that Need #2 and the possibility of upgrading the Sault No.3 circuit to address bulk system needs be carried forward as an input to the then up-coming Northeast Bulk Plan for consideration. While upgrading Sault No. 3 was a potential option to address potential capacity needs of the Third Line auto-transformers (Need #1 in Table 1 above), the IRRP did not make a recommendation, beyond monitoring load growth in the area, on this matter given it was not identified as a firm need.

[1] The SIA for this project also identified this issue and recommended cross-trip requirements to address this concern.

3. Northeast Bulk Planning Study

The IESO's Northeast Bulk Plan considered the upgrade of the Sault No.3 circuit to 230 kV but found that, on its own, this option would not address the identified bulk system needs. The observed system limitations were between Mississagi TS and Third Line TS, not between Third Line TS and

Mackay TS (see Figure 1 above). Reinforcement of the Mississagi TS to Third Line TS path was found to be more technically capable of addressing the identified bulk system needs, and was ultimately recommended as part of the plan, rather than the option to upgrade the Sault No. 3 circuit.

As a result of these outcomes, the Northeast Bulk Plan did not recommend upgrading the Sault No.3 circuit.

4. East Lake Superior IRRP Addendum Study

Since the Northeast Bulk Plan did not recommend upgrading the Sault No.3 circuit, the IESO reconvened the ELS regional planning working group to revisit the IRRP needs, linked to the Sault No.3 circuit, once the outcome of that plan was known. The IESO expects to publish an ELS IRRP Addendum in Q2 2023 summarizing this work.

The primary need that remained unaddressed in the 2021 ELS IRRP is the overloading of the Sault No.3 circuit during an outage of one of the Third Line auto-transformers and the loss of its companion (see Need #2 in Table 1). The IESO is exploring options to meet this unaddressed need with the ELS regional planning working group. While a final recommended solution has not yet been selected, all options currently under consideration are significantly less costly than upgrading the Sault No. 3 circuit beyond HONI's minimum standard conductor size. On this basis the IESO does not recommend proceeding with such an upgrade for the purpose of meeting regional needs.[2] A final recommendation for meeting the regional needs will be provided in the ELS Addendum report.

[2] The IESO is working to complete the IRRP Addendum study, including working with HONI to finalize the costs of the options considered. The IESO will include final costs for the options in the IRRP Addendum study.

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PROJECT CATEGORIZATION

The Board's filing guidelines require that projects be categorized to distinguish between a project that is a "must-do", which is beyond the control of the applicant ("non-discretionary"), from a project that is at the discretion of the applicant ("discretionary"). Discretionary projects may be triggered or determined by the following criteria:

a) reduction of transmission system losses;
b) reduction of congestion;
c) build a new, or enhance an existing, interconnection to increase generation reserve margin within the IESO-controlled grid, beyond the minimum level required;
d) enhance reliability beyond a minimum standard;
e) add flexibility to the operation and maintenance of the transmission system;

Based upon the above criteria, the Project is considered discretionary. The Project is primarily being undertaken to address the end-of-life circuit components of the Sault #3 transmission line to maintain reliable supply and public safety in Montreal River and Sault Ste. Marie areas.

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COST BENEFIT ANALYSIS AND OPTIONS

TRANSMISSION ALTERNATIVES

The Sault #3 line between Third Line TS and Mackay TS was put into service in 1929 with a 266.8 kcmil ACSR conductor. In 1991, conductor on the line section between Third Line TS X Structure 129 (1 km south of Goulais Bay TS), was replaced with a 336 kcmil ACSR conductor. All components of the entire line such as wood pole structures, shield wires, insulators, hardware, conductors etc. are required to be replaced except for the 336 kcmil ACSR conductor which was replaced in 1991.

HOSSM considered five alternatives for the refurbishment of the line between Third Line TS to Mackay TS.

Do Nothing Alternative – The status quo or do-nothing alternative is not recommended as it does not address risks associated with the end-of-life equipment failure. The conductor currently does not perform per its rated condition, meaning that HOSSM cannot utilize the line for its designed capacity until the issue is resolved.

Alternative 1 – Refurbish the Sault #3 line between Third Line TS and Mackay TS. This alternative includes replacement of wood pole structures, shield wires, and associated line hardware along the entire line. The existing 336 kcmil conductor between Third line TS and Structure 129 is retained but the 266.8 kcmil conductor between Structure 129 and Mackay TS is replaced with new 411 kcmil conductor which is the minimum standard size conductor for a 115 kV system. The cost estimate for this alternative is a AACE Class 3 estimate.

Alternative 2 (preferred) – Alternative 2 is similar to Alternative 1 in that the entire line is refurbished. However, the existing 266.8 kcmil ACSR conductor between Structure 129 and Mackay TS is replaced with new 477 kcmil ACSR conductor which is one standard size conductor above Hydro One's minimum standard for this

system's operating voltage of 115kV. The cost of this alternative is slightly higher than Alternative 1; however, the line losses are lower thereby offsetting the higher upfront cost. The cost estimate for this alternative is a AACE Class 3 estimate.

Alternative 3 – This alternative is similar to Alternative 1, with the exception that the 336 kcmil conductor between Third Line TS and Structure 129 is upgraded, such that the entire line between Third Line TS and Mackay TS is replaced with new 411 kcmil conductor. The cost of this alternative is higher than both Alternatives 1 and 2. The line losses are lower compared to Alternative 1, but higher compared to Alternative 2. The cost estimate for this alternative is a AACE Class 3 estimate.

Alternative 4 – This alternative is like Alternative 3, with the exception that the conductor on the entire line is replaced with new 477 kcmil conductor. This alternative has the highest cost than Alternatives 1 to 3 but offers lower line losses. The cost estimate for this alternative is a AACE Class 3 estimate.

Alternative 5 – This alternative is like Alternative 2, with the exception that the 266.8 kcmil conductor on the line is replaced with new 732 kcmil conductor. The cost estimate for this alternative approximates a AACE Class 3 estimate.

ANALYSIS AND RECOMMENDATIONS

All the alternatives listed above would address the need to refurbish the line and provide a reliable supply to area customers and differ only in the conductor size used. Consistent with Hydro One's current Transmission Line Loss Guideline[1], a screening tool was used to determine which Alternative was optimal.

[1] EB-2021-0110 – Exhibit B, Tab 2, Schedule 1, Attachment 4, Appendix A – August 5, 2021

Table 1 - Phase 1 Analysis of Line Losses for Alternative Circuit Conductor sizes

	Alt. #1 ***336+411***	**Alt. #2** ***336+477***	**Alt. #3** ***All 411***	**Alt. #4** ***All 477***	**Alt. #5** ***336+732***
Capital Cost ($M)	68.72	68.81	69.43	69.56	74.57
Losses at Peak Flow (MW)[2]	1.18	1.06	1.14	0.98	0.78
Annual Revenue Costs ($M)	5.20	5.21	5.26	5.27	5.65
Annual Cost of losses[3] ($M)	0.49	0.44	0.47	0.41	0.32
Total Annual Cost ($M)	5.69	5.65	5.73	5.68	5.97

While Alternative 1 is the lowest cost based on capital costs only, transmission losses were deemed to be material since accounting for losses changed the relative ranking of the alternatives – with Alternative 2 becoming the lowest cost as shown in Table 1 above. HOSSM therefore conducted a detailed 50-year Net Present Value (NPV) analysis using a 5.65% discount rate, to evaluate which conductor alternative provided the best NPV result. A NPV sensitivity analysis was also done using varying values for the price of energy.

The results of the NPV energy price sensitivity analysis is provided in Table 2 below.

Table 2 - NPV of Alternatives

	Alt. #1 ***336+411***	**Alt. #2** ***336+477***	**Alt. #3** ***All 411***	**Alt. #4** ***All 477***	**Alt. #5** ***336+732***
Capital cost (SM)	68.72	68.81	69.43	69.56	74.57
Annual Losses (MWHR)	5031.5	4476.4	4848.4	4179	3287.7
Energy Price $/MWHR	Alt 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
$47.30	-63.18	-62.63	-63.58	-62.92	-66.15
$89.00	-68.22	-67.11	-68.43	-67.11	-69.44
$120.00	-71.96	-70.44	-72.04	-70.21	-71.88

[2] Losses based on 2020 flows.
[3] Losses calculated based on 2022 average Hourly Ontario Energy Price ("HOEP") of $47.3/MWH. Hydro One does not have any basis to deviate from the HOEP and it is the only current settlement mechanism to recover transmission line loss costs.

The results show that while Alternative 1 has the lowest NPV based on capital costs alone, Alternative 2 has the lowest NPV if losses are included at an HOEP of $47.30/MWHR.

The results of the NPV energy price sensitivity analysis also show that Alternative 4 is equivalent in capital cost to that of Alternative 2 at an energy price of $89 and becomes the lowest cost alternative at energy prices above this value. Alternative 4 would thus be economically neutral to the rate payer only if the average increase to HOEP is about $42 higher than the $47.30 HOEP for the entire 50 years used in the analysis. Again, even with an HOEP of $120, the incremental NPV for Alternative 4 becomes positive only near the end of the TSC's section 6.5 economic evaluation period.

Based on the analysis, Alternative 2 is selected as the preferred and recommended plan. Alternative 2 replaces only the assets which are in poor condition and improves the overall losses of the Sault #3 115 kV transmission line between Mackay TS and Third Line TS. The existing 336 kcmil conductor, across only a section of the total route, which is in a good condition will be retained. The preferred solution (Alternative 2) addresses planned sustainment activities and benefits ratepayers by minimizing transmission line losses.

QUALITATIVE-QUANTITATIVE BENEFITS OF THE PROJECT

In response to OEB direction to explore opportunities to reduce transmission line losses, HOSSM investigated the use of a larger size conductor to complete this Project. HOSSM investigated options to complete the sustainment work using a larger 477 kcmil ACSR conductor for this project. This is one standard size conductor above Hydro One's minimum standard operating voltage of 115 kV. The incremental cost increase of the proposed larger sized conductor (i.e. 477 kcmil), compared to the minimum standard (i.e. 411 kcmil), will be offset by the decrease in line losses.

The Sault #3 Project will reduce the safety and reliability risks associated with poor condition assets on the Sault #3 line between Third Line TS and Mackay TS. Introduction of transmission standard line design and components such as new conductor, shield wires, and wood pole structures will improve the physical resilience of the transmission line against the increasing weather-related mechanical loads due to climate changes.

Alternative 2 presents the added benefits, in terms of time and cost, by maintaining the 336 kcmil ACSR conductor between Third Line TS and structure 129. In addition to maintaining service life of the existing conductor, this will avoid the unnecessary re-stringing and installation of a new conductor for that segment of the line.

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APPORTIONING PROJECT COSTS AND RISKS

The total cost of the Project is estimated to be $68.8M[1], including overheads, capitalized interest and $5.3M in removals. The Project costs are broken down into line and station work. The estimated capital cost associated with the line work, including overheads and capitalized interest, is shown in Table 1 below.

Table 1 - Line Cost

	Estimated Cost ($000's)
Materials	$11,041
Labour	$37,697
Equipment Rental & Contractor Costs	$2,089
Sundry	$85
Contingencies	$6,463
Overhead	$0
Capitalized Interest [2]	$1,649
Real Estate	$280
Total Line Capital Work	**$59,304[3]**

The cost of the work provided above allows for the schedule of approval, design and construction activities provided in **Exhibit B, Tab 11, Schedule 1**.

[1] For ease of reference, the cost is rounded to $68.8M in all other exhibits of the Application with exception to the Project Economics evidence provided at Exhibit B, Tab 9, Schedule 1.

[2] Capitalized Interest is calculated using the Board's approved interest rate methodology (EB-2016-0160) to the Project's forecast monthly cash flow and carrying forward closing balances from the preceding month.

[3] Line work also includes an additional OM&A expenditure of $4.9M for removals which is not accounted for in the total capital line work in the table above.

The estimated capital cost associated with the station work, including overheads and capitalized interest, is shown in Table 2 below.

Table 2 - Station Cost

	Estimated Cost ($000's)
Materials	$297
Labour	$1,790
Equipment Rental & Contractor Costs	$1,049
Sundry	$118
Contingencies	$534
Overhead	$0
Capitalized Interest	$453
Real Estate	$0
Total Station Work	**$4,241[4]**

The cost of the work provided above allows for the schedule of approval, design and construction activities provided in **Exhibit B, Tab 11, Schedule 1**.

The cost estimates provided in Table 1 and 2 of this Schedule, and similarly the Project Schedule provided at **Exhibit B, Tab 11, Schedule 1,** are based on a project definition equivalent to a Class 3[5] under the AACE International (formerly the Association for the Advancement of Cost Engineering) estimate classification system[6].

[4] Station work also includes an additional OM&A expenditure of $0.33M for removals which is not accounted for in the total capital line work in the table above.
[5] An estimate range of -20%/+30%
[6] As per 96r-18 Cost Estimate Classification System – EPC Power Transmission Line Infrastructure Industries recommended practice document

1.0 RISKS AND CONTINGENCIES

As with most projects, there are risks associated with estimating project costs. HOSSM's cost estimate includes an allowance for contingencies in recognition of such risks.

The most probable project risks are outlined below. These risks are the major contributors to the total contingency recommended for this project.

- **Outage constraints** – there is a risk that securing an outage will not be supported by customers in the area and this may result in schedule delays and additional costs.
- **Adverse Weather** – Although a reasonable amount of adverse weather is expected in the Eastern Lake Superior Area during the construction period, there is a risk that a significant amount of adverse weather (i.e., rain or high winds) could result in schedule delays and increased costs. Trans-Canada Highway 17 is a key road for crew to access this line section. There could be potential weather impact which may cause the highway to shut down, which will impact crew access to site.
- **Scope Additions** – An estimate with AACE Class 3 (-20% / +30%) level of accuracy has been completed at the time of the leave to construct application. Until a detailed line inspection and additional studies and surveys are completed, there is a risk of scope changes, including structural and foundation refurbishment resulting in increased cost and a delayed in-service date.
- **Approvals and Permits** – there is a risk of delays being encountered in obtaining required approvals including Environmental Assessment and Leave to Construct.

Cost contingencies that have not been included, due to the unlikelihood or uncertainty of occurrence, include:

- Labour disputes;
- Safety or environmental incidents;
- Significant changes in costs of materials since the estimate preparation; and

- Any other unforeseen and potentially significant event/occurrence.

2.0 COSTS OF COMPARABLE PROJECTS - LINES

The OEB Filing Requirements for Electricity Transmission and Distribution Applications, Chapter 4, Section 4.3.2.8 requires the Applicant to provide, the cost of similar projects constructed by the Applicant for baseline cost comparisons. Table 3 below compares this project with three other recent single circuit 115 kV wood pole line refurbishment projects in Northern Ontario.

- The D2L Line Refurbishment project refurbished 135.6km of deteriorated transmission line including 43km single circuit 115 kV wood pole line with 477 kcmil conductor.
- The A7L/R1LB/A6P Line Refurbishment project refurbished all deteriorated line sections of double 115 kV circuits A7L/R1LB made up primarily of double steel lattice towers as well as A6P, a single 115kV 411 kcmil circuit made up of wood pole structures. Only the A6P circuit has been used for comparison with the Sault #3 Project. The A6P circuit is 15 km, consisting of a single circuit 115 kV on wood poles.
- The Kapuskasing Area Reinforcement project refurbished approximately 32 km of deteriorated sections of H9K, a single 115 kV circuit on wood poles with 411 kcmil conductor.

Table 3 - Costs of Comparable Line Projects

Project	D2L Line Refurbishment (Dymond TS x Upper Notch Junction)	A6P Refurbishment (Alexander SS x Reserve JCT)	H9K Reinforcement (Carmichael Falls Junction x Spruce Falls Junction)	Sault #3 Refurbishment
Circuit Operating Designation(s)	D2L	A6P	H9K	Sault #3
Voltage	115 kV	115 kV	115 kV	115 kV
Structure Type	Wood Pole	Wood Pole	Wood Pole	Wood Pole
Single or Double Circuit	Single	Single	Single	Single
Approximate Route Length	43 km	15 km	32 km	90.5 km
Conductor	477 kcmil	411 kcmil	411 kcmil	477 kcmil
Project Surroundings	Northern Ontario	Northern Ontario	Northern Ontario	Northern Ontario
In-Service Year	2014	2020	2020	2026
Estimate or Actual	Actual	Actual	Actual	Estimate
OEB-Approved Cost Estimate	N/A[7]	N/A[7]	$15,100K[8]	$59,304k
Actual Total Cost, Before Escalation ($M)	$14,509K	$6,034K	$11,946K	-
Escalation Adjustment[9]	3.11	1.29	2.63	-
Total Comparable Project Costs	$17,619K	$7,324K	$14,576K	-
Unit Cost	$410K/km	$488K/km	$455K/km	$655K/km

[7] This project was encompassed within a previous Hydro One revenue requirement application. The project was not subject to leave to construct approval by the OEB. Therefore, the specific investment does not have a discrete OEB approval to appropriately reference for the purposes of this comparison.
[8] OEB-approved cost referenced in LTC Decision and Order EB-2018-0098.
[9] Inflation adjustment factors used for comparator projects are consistent with the OEB inflation parameters described in EB-2021-0212 and the OEB letter titled '2023 Inflation Parameters' distributed October 2022.

When considering the cost per km ratio for all other transmission line costs in Table 3, the comparable projects demonstrate the estimate for the Sault #3 Project is forecast to be greater than projects completed in years prior to the current higher macro-economic inflationary environment. The above table, as noted in the 'Escalation Adjustment' line, has used inflation values for future years consistent with the inflation parameters provided by the OEB. Please note the OEB inflation parameters are based on historical data and do not reflect true inflation. HOSSM has utilized the OEB inflation as to maintain a conservative escalation adjustment. The inflationary environment which HOSSM is subject to, and operating in, has continued to impact project costs by ever-increasing inflationary trends and global supply chain issues. Additionally, the price of essential commodities has a significant impact on project costs. Equipment purchased to construct transmission lines (e.g., conductors and wood poles) is heavily impacted by certain raw material indices. Essential commodities such as copper, aluminum, wood, and steel have undergone price increases and supply shortages. As such, the difference in the per kilometer costs of the comparable projects to the Sault #3 Project does not reflect the true escalation costs for specific Project elements.

3.0 COSTS OF COMPARABLE PROJECTS – STATIONS

Please note due to the unique scope of work for the station-related component for Sault #3, HOSSM has not provided station comparators in this application. In terms of cost, most of the scope of the station-related work (approximately 88%) affects Mackay TS. The work required at Mackay TS includes a new transmission line entrance structure. This installation will provide sufficient construction clearance to perform in-situ refurbishment in the current structure location. In addition, a limited outage window does not provide sufficient recall time needed for an in-situ replacement. As a result, a new transmission line entrance structure must be installed adjacent to the existing structure, and the limited outage window will be used to tie over the connects to the new infrastructure. The existing infrastructure will then be removed. Mackay TS is located in a remote, unpopulated area approximately 80km North of the city of Sault Ste. Marie. The cost of providing skilled labour and transportation of construction materials and

equipment to this remote area have been taken into consideration for station-related work at Mackay TS.

The remainder of the scope of work for the station-related component for Sault #3 affects Third Line TS, Goulais TS, and Batchawana TS. As a condition of the SIA approval, the IESO has requested Remedial Action Scheme ("RAS") modifications and upgrades at Third Line TS. SCADA communications will be transferred from ADSS fiber to wireless communication at Batchawana TS and Goulais TS as a result of the ADSS fiber removal. This activity is needed to maintain existing communication channels at both Batchawana TS and Goulais.

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CONNECTION PROJECTS REQUIRING NETWORK REINFORCEMENT

This is not a connection project and facilities being refurbished and upgraded as a result of this Project are limited to those discussed in the details of the work being undertaken in **Exhibit C, Tab 1, Schedule 1.**

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TRANSMISSION RATE IMPACT ASSESSMENT

1.0 ECONOMIC FEASIBILITY

The proposed Sault #3 Project costs involve the replacement of conductor, shield wires and wood structures. The cost for the upgrade of the circuits will be included in the Network connection pool for cost classification purposes and not allocated to any individual customer. No customer contribution is required for the Project.

There are no incremental operating and maintenance costs as a result of the proposed Project since activities such as vegetation management and inspection will not be materially impacted by the reconductoring of existing circuits. The Project will also have no impact on provincial peak load resulting in zero incremental Network connection revenue over the 25-year evaluation period.

The discounted cash flow analysis shown in Tables 1 and 2 conclude that based on the estimated initial cost of $68.8[1] million, plus the assumed impact on the future capital cost allowance and HOSSM corporate income tax, the Project will have a negative net present value of $59.7 million.

2.0 COST RESPONSIBILITY

Network Pool and Line connection Pool

The Sault #3 Project is a 115 kV transmission line located north of Sault Ste. Marie in Ontario. The line carries network flows between Third Line TS and Mackay TS and supplies customer loads from Batchawana TS and Goulais TS. Based on the cost allocation methodology as approved by the Board[2] and detailed in Hydro One's most recent transmission rate filing[3], Sault #3 circuit is allocated 100% to the Network Pool.

[1] Initial costs of $68.8 million include $63.5 million of up front capital costs plus $5.3 million cost of removals.
[2] EB-2016-0160
[3] EB-2019-0082, Exhibit I, Tab 10, Schedule 50, Page 2 of 2, Filed August 2, 2019

Sustaining circuits Sault #3 is the responsibility of HOSSM. The need to upgrade the circuit between Structure #129 to Mackay TS is for line loss optimization purposes. Therefore, the cost of the Project is not to be applied to any particular customer.

3.0 RATE IMPACT ASSESSMENT

The analysis of the Network pool rate impacts has been carried out based on transmission revenue requirement for all transmitters for the year 2023, and the 2023 approved Ontario Transmission Rate Schedules. The Network pool revenue requirements would be affected by the Project based on the project cost allocation.

Network Pool

Based on the total Project's initial cost of $68.8 million and the associated network pool incremental cash flows, there will be a change in the network pool revenue requirement once the Project's impacts are reflected in the transmitters rate base at the projected in-service date of September 6, 2026. The 2023 OEB approved rate of $5.60 kW/month increases to $5.62 kW/month over a 25-year time horizon. The maximum revenue shortfall related to the proposed facilities will be $5.0 million in the year 2033. The detailed analysis illustrating the calculation of the incremental network revenue and rate impact is provided in Tables 3 and 4, below.

Impact on Typical Residential Customer

Based on the load forecast, initial capital costs and ongoing maintenance costs, adding the costs of the required facilities to the Network pool will cause a $0.03 per month increase in a typical residential customer's rates under the Regulated Price Plan ("RPP"). The table below shows this result for a typical residential customer who is under the RPP, utilizing the maximum impact by rate pool, regardless of year.

A. Typical monthly bill	$134.52 per month
B. Transmission component of monthly bill	$15.98 per month
C. Line Connection Pool share of Transmission component	$1.55 per month
D. Transformation Connection Pool share of Transmission component	$5.23 per month
E. Network Connection Pool share of Transmission component	$9.20 per month
F. Impact on Line Connection Pool Provincial Uniform Rates	0.00%
G. Impact on Transformation Connection Pool Provincial Uniform Rates	0.00%
H. Impact on Network Connection Pool Provincial Uniform Rates	0.36%
I. Increase in Transmission costs for typical monthly bill (E x H)	$0.03 per month or $0.4 per year
J. Net increase on typical residential customer bill (I / A)	0.02%

Table 1 - Net Present Value, page 1

			In-Service Date	<------- Project year ended - annualized from In-Service Date ------->											
		Month	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6
		Year	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
			0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
Revenue & Expense Forecast															
Load Forecast (MW)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Load adjustments (MW)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tariff Applied ($/kW/Month)				5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Incremental Revenue - $M				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Removal Costs - $M			(5.3)												
On-going OM&A Costs - $M			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Municipal Tax - $M				(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Net Revenue/(Costs) before taxes - $M			(5.3)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Income Taxes			1.4	0.7	1.3	1.2	1.1	1.1	1.0	0.9	0.8	0.8	0.7	0.7	0.6
Operating Cash Flow (after taxes) - $M			(3.9)	0.5	1.1	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.4
		Cumulative PV @ 5.65%													
PV Operating Cash Flow (after taxes) - $M	**(A)**	**3.5**	**(3.9)**	**0.5**	**1.0**	**0.9**	**0.8**	**0.7**	**0.6**	**0.5**	**0.4**	**0.4**	**0.3**	**0.3**	**0.2**
Capital Expenditures - $M															
Upfront - capital cost before overheads & AFUDC			(61.4)												
- Overheads			0.0												
- AFUDC			(2.1)												
Total upfront capital expenditures			**(63.5)**												
On-going capital expenditures				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PV On-going capital expenditures			0.0												
Total capital expenditures - $M			**(63.5)**												
Capital Expenditures - $M															
PV CCA Residual Tax Shield - $M			**0.3**												
PV Working Capital - $M			**0.0**												
PV Capital (after taxes) - $M	**(B)**	**(63.2)**	**(63.2)**												
Cumulative PV Cash Flow (after taxes) - $M	**(A) + (B)**	**(59.7)**	**(67.1)**	**(66.6)**	**(65.5)**	**(64.6)**	**(63.9)**	**(63.2)**	**(62.6)**	**(62.2)**	**(61.7)**	**(61.4)**	**(61.1)**	**(60.8)**	**(60.6)**

Discounted Cash Flow Summary

Economic Study Horizon - Years:		**25**
Discount Rate - %		**5.65%**
		Before Cont
		$M
PV Incremental Revenue		0.0
PV OM&A Costs		(5.3)
PV Municipal Tax		(2.8)
PV Income Taxes		2.1
PV CCA Tax Shield		9.8
PV Capital - Upfront	(63.5)	
Add: PV **Capital Contribution**	**0.0**	(63.5)
PV Capital - On-going		0.0
PV Working Capital		0.0
PV Surplus / (Shortfall)		**(59.7)**
Profitability Index*		**0.1**

Notes:
*PV of total cash flow, excluding net capital expenditure & on-going capital & proceeds on disposal / PV of net capital expenditure & on-going capital & proceeds on disposal

Other Assumptions

In-Service Date:	06-Sep-26
Payback Year:	2051
No. of years required for payback:	25

Table 2 - Net Present Value, page 2

		<------- Project year ended - annualized from In-Service Date -------->												
Month		Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6	Sep-6
Year		**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
		13	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*
Revenue & Expense Forecast														
Load Forecast (MW)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Load adjustments (MW)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tariff Applied ($/kW/Month)		5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Incremental Revenue - $M		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Removal Costs - $M														
On-going OM&A Costs - $M		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Municipal Tax - $M		(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Net Revenue/(Costs) before taxes - $M		(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Income Taxes		0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2
Operating Cash Flow (after taxes) - $M		0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0
PV Operating Cash Flow (after taxes) - $M	**(A)**	**0.2**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Capital Expenditures - $M														
Upfront - capital cost before overheads & AFUDC														
- Overheads														
- AFUDC														
Total upfront capital expenditures														
On-going capital expenditures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PV On-going capital expenditures														
Total capital expenditures - $M														
Capital Expenditures - $M														
PV CCA Residual Tax Shield - $M														
PV Working Capital - $M														
PV Capital (after taxes) - $M	**(B)**													
Cumulative PV Cash Flow (after taxes) - $M	**(A) + (B)**	**(60.4)**	**(60.3)**	**(60.2)**	**(60.1)**	**(60.0)**	**(59.9)**	**(59.8)**	**(59.8)**	**(59.8)**	**(59.7)**	**(59.7)**	**(59.7)**	**(59.7)**

Table 3 - Revenue Requirement and Network Pool Rate Impact, page 1

HOSSM Sault #3 Reburbishment Project		Project YE 06-Sep 2027	06-Sep 2028	06-Sep 2029	06-Sep 2030	06-Sep 2031	06-Sep 2032	06-Sep 2033	06-Sep 2034	06-Sep 2035	06-Sep 2036	06-Sep 2037	06-Sep 2038
Calculation of Incremental Revenue Requirement ($000)		1	2	3	4	5	6	7	8	9	10	11	12
In-service date	06-Sep-26												
Capital Cost	63,545												
Less: Capital Contribution Required	-												
Net Project Capital Cost	63,545												
Average Rate Base		31,140	61,647	60,382	59,116	57,851	56,586	55,321	54,055	52,790	51,525	50,259	48,994
Incremental OM&A Costs		0	0	0	0	0	0	0	0	0	0	0	0
Grants in Lieu of Municipal tax		209	209	209	209	209	209	209	209	209	209	209	209
Depreciation		1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265
Interest and Return on Rate Base		1,975	3,911	3,830	3,750	3,670	3,590	3,509	3,429	3,349	3,269	3,188	3,108
Income Tax Provision		-36	-463	-340	-229	-127	-35	48	124	192	253	308	357
REVENUE REQUIREMENT PRE-TAX		**3,414**	**4,921**	**4,964**	**4,996**	**5,017**	**5,029**	**5,032**	**5,027**	**5,014**	**4,995**	**4,970**	**4,939**
Incremental Revenue		0	0	0	0	0	0	0	0	0	0	0	0
SUFFICIENCY/(DEFICIENCY)		**-3,414**	**-4,921**	**-4,964**	**-4,996**	**-5,017**	**-5,029**	**-5,032**	**-5,027**	**-5,014**	**-4,995**	**-4,970**	**-4,939**
	Base Year												
Network Pool Revenue Requirement including sufficiency/(deficiency)	1,326,965	1,330,378	1,331,886	1,331,929	1,331,960	1,331,981	1,331,993	1,331,996	1,331,991	1,331,979	1,331,960	1,331,934	1,331,903
Network MW	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084
Network Pool Rate ($/kw/month)	5.60	5.61	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62
Increase/(Decrease) in Network Pool Rate ($/kw/month), relative to base year		0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
RATE IMPACT relative to base year		**0.18%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**

Assumptions

Incremental OM&A		
Grants in Lieu of Municipal tax	0.33%	Transmission system average
Depreciation	2.00%	Reflects 50 year average service life for towers, conductors and station equipment, excluding land
Interest and Return on Rate Base	6.34%	Includes OEB-approved ROE of 9.36%, 4.79% on ST debt, and 4.3% on LT debt. 40/4/56 equity/ST debt/ LT debt split
Income Tax Provision	26.50%	2023 federal and provincial corporate income tax rate
Capital Cost Allowance	8.00%	100% Class 47 assets except for Land

Table 4 - Revenue Requirement and Network Pool Rate Impact, page 2

HOSSM Sault #3 Reburbishment Project		**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**	**06-Sep**
		2039	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**
Calculation of Incremental Revenue Requirement ($000)		13	14	15	16	17	18	19	20	21	22	23	24	25
In-service date	06-Sep-26													
Capital Cost	63,545													
Less: Capital Contribution Required	-													
Net Project Capital Cost	63,545													
Average Rate Base		47,729	46,463	45,198	43,933	42,668	41,402	40,137	38,872	37,606	36,341	35,076	33,810	32,545
Incremental OM&A Costs		0	0	0	0	0	0	0	0	0	0	0	0	0
Grants in Lieu of Municipal tax		209	209	209	209	209	209	209	209	209	209	209	209	209
Depreciation		1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265
Interest and Return on Rate Base		3,028	2,947	2,867	2,787	2,707	2,626	2,546	2,466	2,386	2,305	2,225	2,145	2,065
Income Tax Provision		400	439	474	504	531	554	573	590	605	616	626	633	638
REVENUE REQUIREMENT PRE-TAX		**4,902**	**4,861**	**4,815**	**4,765**	**4,711**	**4,654**	**4,594**	**4,530**	**4,464**	**4,396**	**4,325**	**4,252**	**4,177**
Incremental Revenue		0	0	0	0	0	0	0	0	0	0	0	0	0
SUFFICIENCY/(DEFICIENCY)		**-4,902**	**-4,861**	**-4,815**	**-4,765**	**-4,711**	**-4,654**	**-4,594**	**-4,530**	**-4,464**	**-4,396**	**-4,325**	**-4,252**	**-4,177**
	Base Year													
Network Pool Revenue Requirement including sufficiency/(deficiency)	1,326,965	1,331,867	1,331,825	1,331,780	1,331,730	1,331,676	1,331,619	1,331,558	1,331,495	1,331,429	1,331,360	1,331,289	1,331,216	1,331,141
Network MW	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084	237,084
Network Pool Rate ($/kw/month)	5.60	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.61	5.61
Increase/(Decrease) in Network Pool Rate ($/kw/month), relative to base year		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
RATE IMPACT relative to base year		**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.36%**	**0.18%**	**0.18%**

Table 5 - DCF Assumptions

Hydro One Networks -- Transmission Connection Economic Evaluation Model
2023 Parameters and Assumptions

Transmission rates are based on current OEB-approved uniform provincial transmission rates.

	Monthly Rate ($ per kW)
Network	**5.60**
Transformation	**3.10**
Line	**0.92**

Grants in lieu of Municipal tax (% of up-front capital expenditure, a proxy for property value):		**0.33%**	Based on Transmission system average
Income taxes:			
Basic Federal Tax Rate - % of taxable income:	2023	**15.00%**	Current rate
Ontario corporation income tax - % of taxable income:	2023	**11.50%**	Current rate
Capital Cost Allowance Rate:			
Class 47 costs	2023	**8%**	Current rate
Decision Support defined costs (1)	2023	**0%**	
Decision Support defined costs (2)	2023	**0%**	
Decision Support defined costs (3)	2023	**0%**	
After-tax Discount rate:		**5.65%**	Based on OEB-approved ROE of 9.36% on common equity and 4.79% on short-term debt, 4.3% forecast cost of long-term debt and 40/60 equity/debt split, and current enacted income tax rate of 26.5%

REVENUE REQUIREMENT INFORMATION AND DEFERRAL ACCOUNT REQUESTS

Revenue Requirement and Transmission System Plan Information

The need to reconductor the Sault #3 line was identified in the Transmission System Plan ("TSP") included in EB-2018-0218. As part of EB-2018-0218, HOSSM provided a capital forecast of its work program over the 10-year deferral period. The capital forecast for this investment was predicated on a preliminary project scope that anticipated the proposal to reconductor the Sault #3 line with like-for-like reconductoring and pole replacement, as required between Mackay TS and Batchawana TS. As a result of this preliminary project scope definition, the 2018 forecast cost was underpinned by a high-level Planner's estimate of $17.3M (equivalent to a AACE Class 5 estimate) in 2018.

As indicated above, the TSP filed by HOSSM in 2018 planned for a like-for-like conductor replacement and minimal pole replacement. Since that time, the project progressed through the engineering development phase which has expanded the scope to include conductor upgrade between structure 129 to Mackay TS and wood pole replacement of the entire line between Third Line TS and Mackay TS. Specifically, analysis of the existing structures indicated that the structures could not meet transmission loading and strength requirements. As per the terms of Hydro One's settlement[1], HOSSM performed a line loss study using alternative conductor options and concluded that upgrading the Sault #3 conductor to 477 kcmil ACSR from the minimum 411 kcmil ACSR/TW is the most cost-effective, while producing the most benefit to the ratepayers, inclusive of the addressed line loss benefits. The revised work package also includes telecommunications replacement, specifically the removal of the existing ADSS fiber and replacement with OPGW fiber between Third Line TS and Mackay TS. A new transmission line entrance structure will be installed at Mackay TS because there is insufficient construction clearance to perform in-situ refurbishment in the current

[1] EB-2021-0110 - 0110 - Hydro One Networks' 2023-2027 Custom IR Application, Settlement Proposal – Appendix A, October 24, 2022, pp. 110-111.

structure location. As a condition of the SIA approval, the IESO has requested RAS modifications and upgrades at Third Line TS. The circuit's enhanced design developments have expanded the Project's scope from that of an initial conductor-only replacement to a now more extensive project inclusive of a conductor reinforcement (sized increase), complete wood pole replacement, new telecommunication medium, and station modifications at Third Line TS and Mackay TS.

There was a need to further review and analyze the circuit voltages for the line which caused delays in the project and affected overall cost. As mentioned in this Application, the price of the essential project commodities/materials and labour have had a significant impact on project costs since the initial planning estimate back in 2018. Equipment required to construct such a transmission line (e.g., conductors, insulators, hardware and wood poles) is heavily impacted by certain raw material indices, which are set via market-established prices. These types of equipment and materials, which contain such commodities as copper, aluminum, wood, and steel etc., as well as labour rates, have undergone significant price increases and supply shortages in recent years, compared to the environment (i.e. year) in which they were initially estimated in.

Deferral Account Request

There are no new deferral account requests being made as part of this Application.

PROJECT SCHEDULE

TASK	START	FINISH
Submit Section 92		June 2023
Projected Section 92 Approval	June 2023	November 2023
Key Permits and Approvals	April 2022	August 2023
Detailed Engineering	August 2022	June 2023
Major Material Ordered	January 2023	September 2023
Environmental Assessment	June 2022	July 2023
Construction	November 2023	August 2026
Commissioning	July 2024	August 2026
Site Remediation	November 2023	August 2026
IN SERVICE		September 2026

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DESCRIPTIONS OF THE PHYSICAL DESIGN

1.0 LINE FACILITIES

Details of Proposed Line Facilities

HOSSM Sault #3 Project is a 115 kV circuit that runs between Third Line TS and Mackay TS, connecting the Montreal River area with the Sault Ste. Marie area. The line is approximately 90.5 km in length and parallels existing 230 kV circuit K24G along its entire length. The Sault #3 line supplies two stations, Goulais Bay TS and Batchawana TS. HOSSM's proposed Sault #3 Project will replace the existing 266.8 kcmil ACSR conductor with larger 477 kcmil ACSR conductor between Mackay TS and Structure 129 (Goulais TS), replace all wood pole structures including insulators and hardware for the entire length, replace the existing ADSS with OPGW and another galvanized steel shield wire with Alumoweld shield wire. Minor station works affected by the line refurbishment such as a new entrance structure and associated equipment in Mackay TS, and modification of the Remedial Action Scheme to meet System Impact Assessment requirements performed by the IESO will also be covered. The existing 336 kcmil ACSR conductor between structure 129 (Goulais TS) and Third Line TS will not be upgraded. A map indicating the geographic location and route of the Project is provided as **Exhibit B, Tab 2, Schedule 1, Attachment 1**. A schematic diagram of the proposed facilities is included in **Exhibit B, Tab 2, Schedule 1, Attachment 2**. A map indicating the geographic property locations along the route of the Project is provided in **Exhibit C, Tab 2, Schedule 1, Attachment 2.**

HOSSM is seeking OEB leave to construct approval to complete the following refurbishment work on existing transmission facilities:

- Replace approximately 69.3 km of 266.8 kcmil ACSR conductor on the 115 kV Sault #3 transmission line between Mackay TS and Structure 129 (Goulais TS) with new 477 kcmil ACSR which has ampacity of 585A summer continuous.
- Replace all existing wood pole structures along 90.5 km line either in poor condition or not meeting design requirements. The total number of structures to be

replaced is approximately 513. The majority of structures are suspension structure type which is H frame with guy wires as shown below, the rest are semi-strain, 3-pole dead-end and transposition types. The typical H Frame sketch is shown in Figure 1. Typical 3-pole dead-end structure is shown in Figure 2.

- Replace all associated insulators and hardware (such as U-bolts, strain links, hanger bracket, dampers etc.) along 90.5 km line.
- Replace one of two existing shield wires with new 7#8 Alumoweld shield wire including all hardware and dampers on the east side of structures for entire 90.5 km line.
- Remove the existing third party owned ADSS fiber cables and replace it with OPGW including associated hardware, dampers and splice boxes on the west side of structures for entire 90.5 km line.
- In Mackay TS, replace and relocate one (1) entrance structure, three (3) CVT structures, one (1) disconnect switch structure, three (3) surge arrestors structures and one (1) new 115 kV line grounding switch, and other miscellaneous installations.
- Modify the Remedial Action Scheme to meet System Impact Assessment requirements performed by the IESO.

Figure 1: Typical Suspension H Frame Wood Structure

Figure 2: Typical 3-Pole Deadend Wood Structure

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MAPS

This Project will refurbish line sections of HOSSM's Sault #3 115 kV transmission line that runs between Third Line TS and Mackay TS, connecting the Montreal River area with the Sault Ste. Marie area. A map indicating the geographic location of the line is included as Attachment 1 to **Exhibit B, Tab 2, Schedule 1**. HOSSM's intention is that this map will also serve as the Notice Map.

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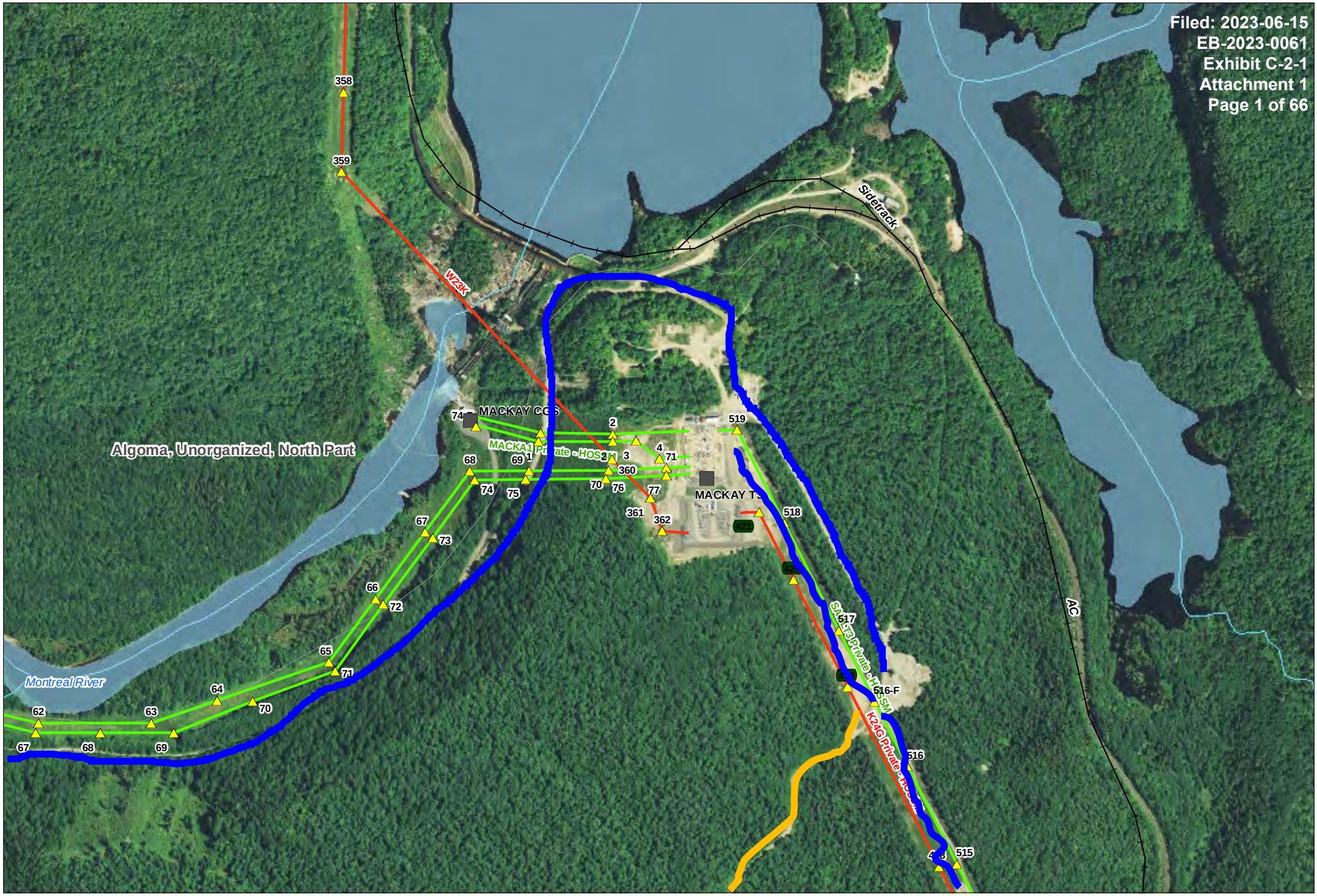

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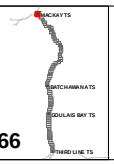


Tile 1 of 66

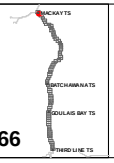
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



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Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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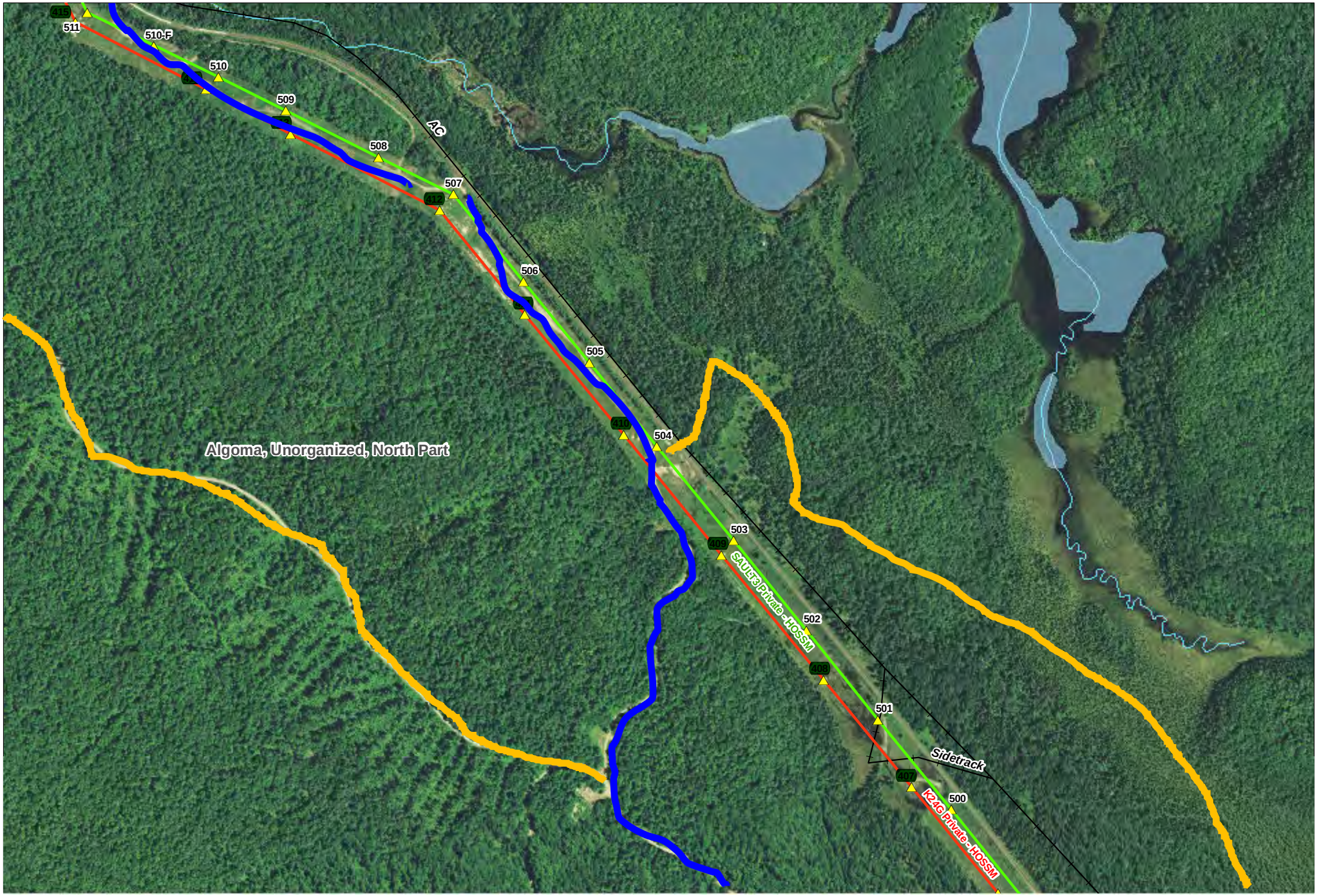
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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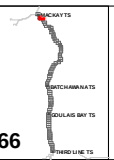

Tile 3 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
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Road
Railway
Trails
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Waterbody
Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000

0 100 200 m

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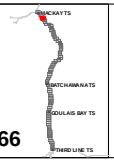
Map20-054_Sault3

Key Map



Tile 4 of 66

- Structure
- Station / Junction
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- Road
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- Municipal Boundary

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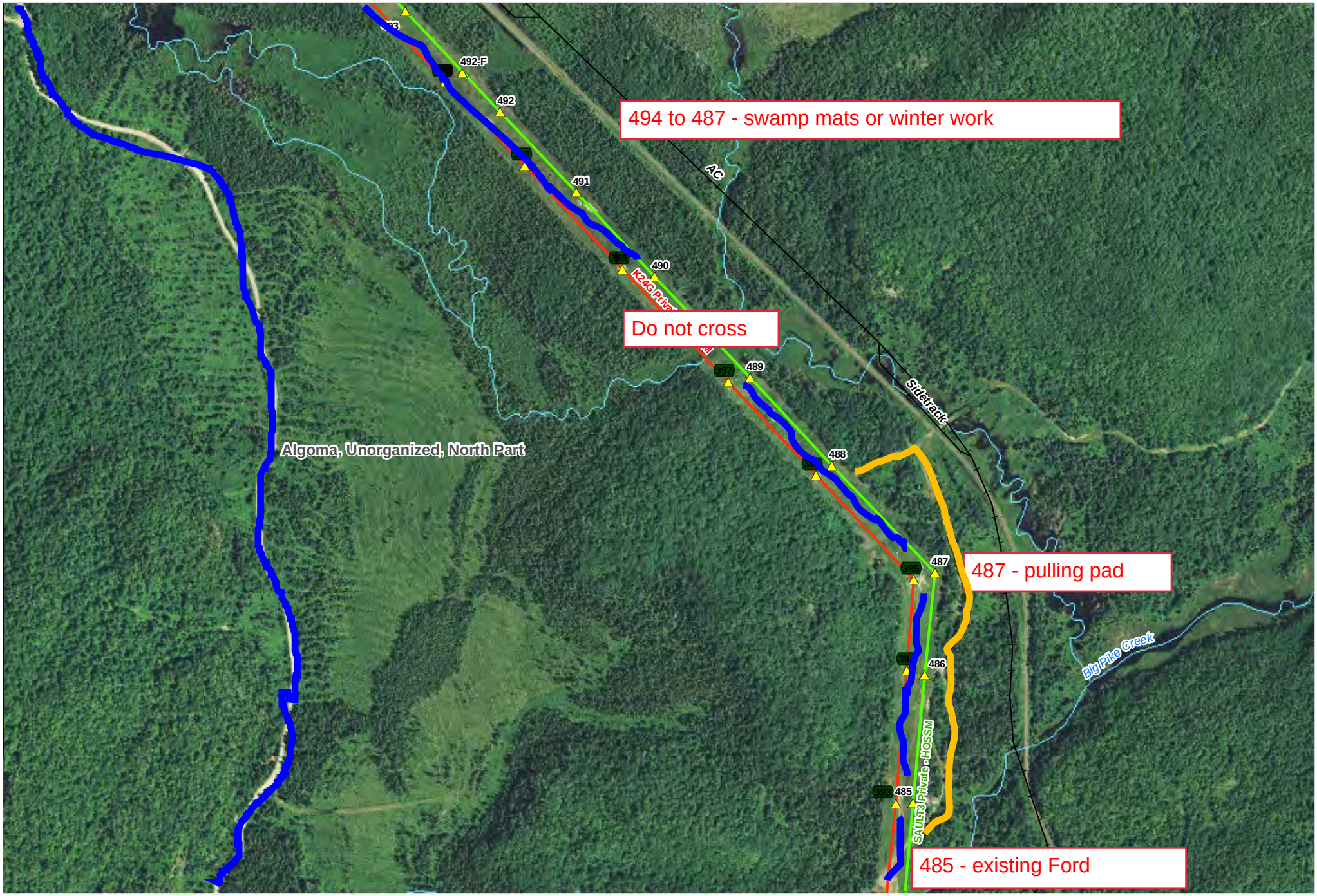
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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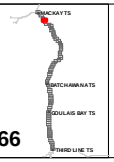

Tile 5 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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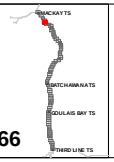
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 6 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
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- Watercourse
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- Municipal Boundary

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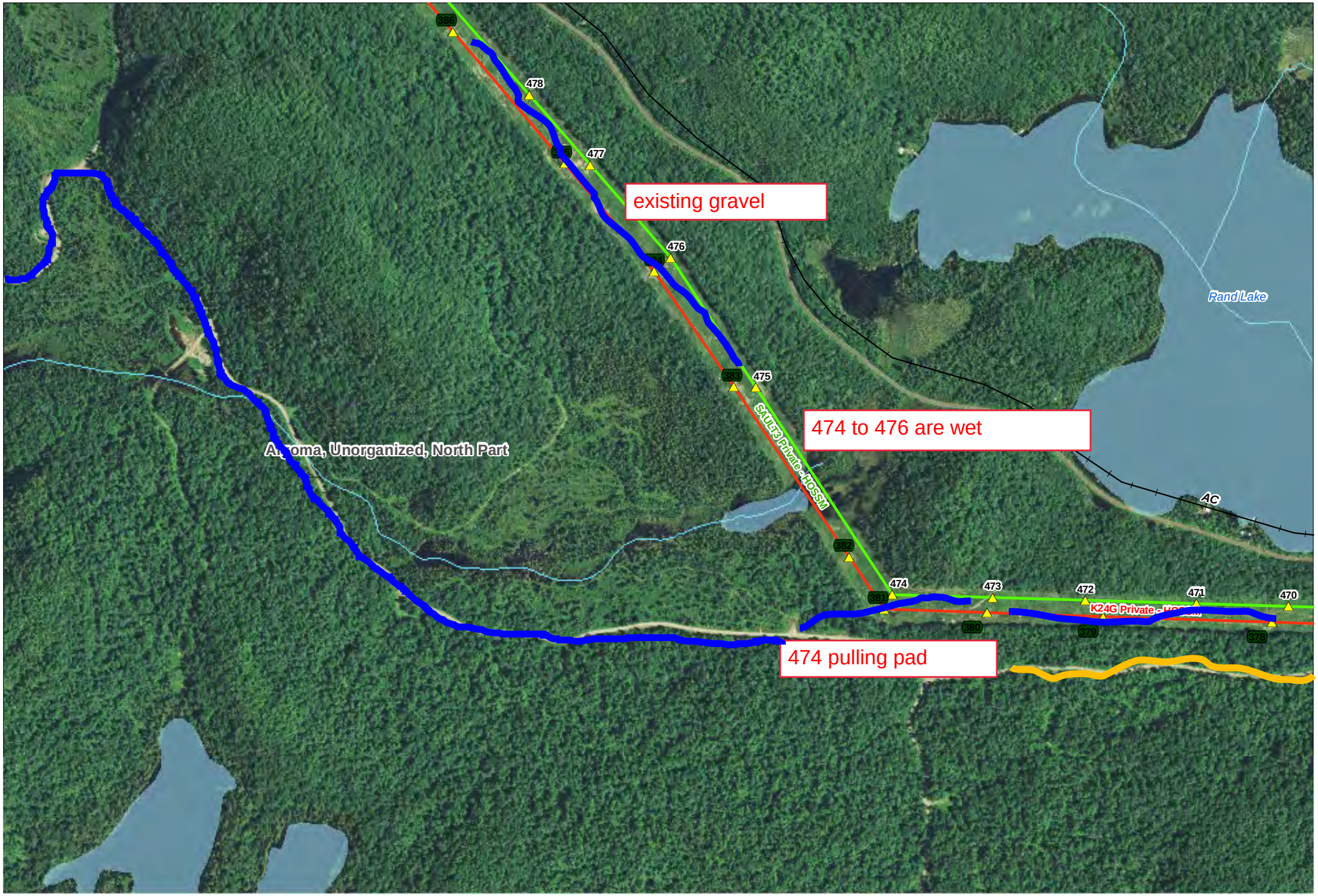
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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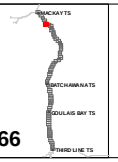
Key Map



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Structure
Station / Junction
115 kV Transmission Line
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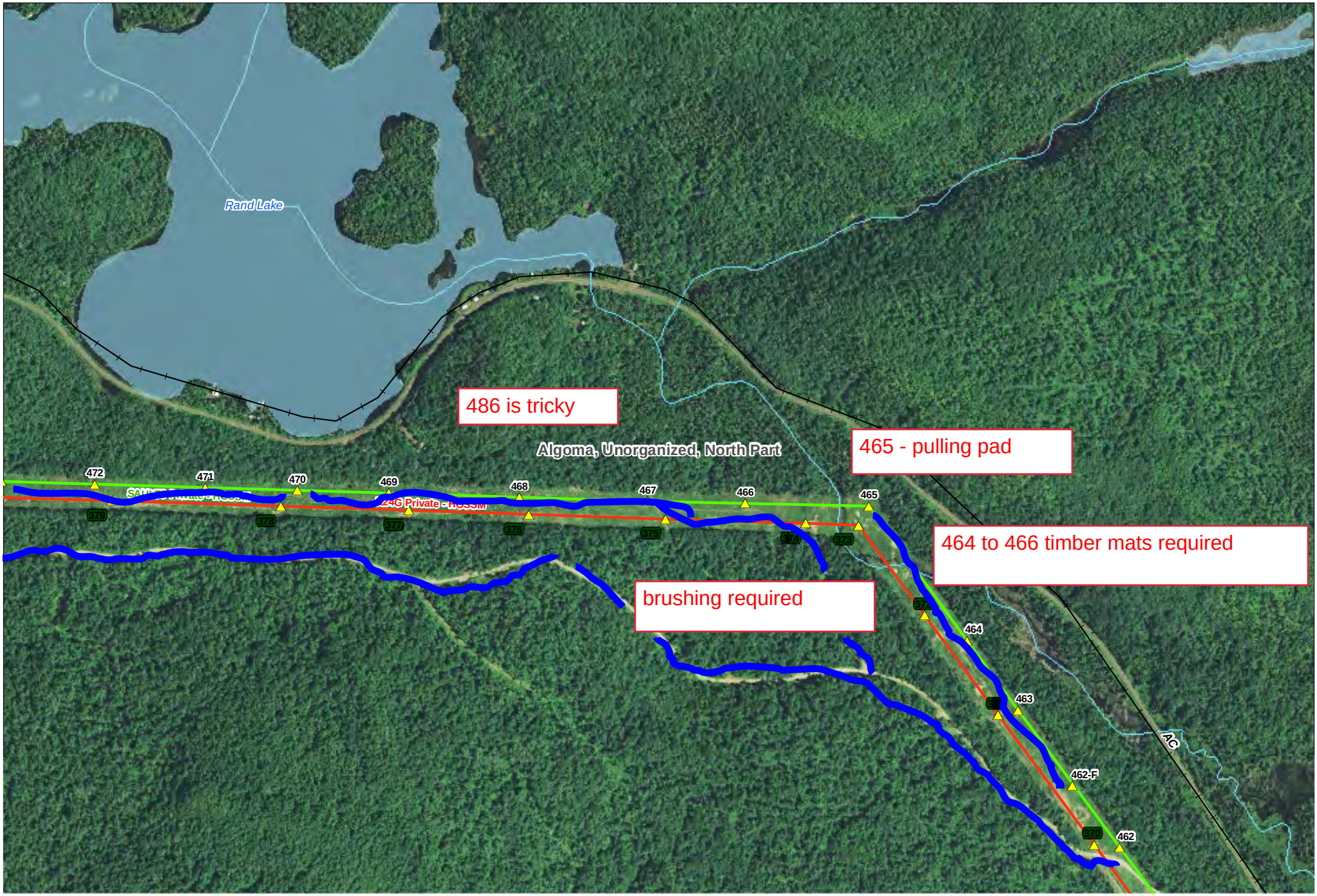
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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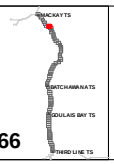
Map20-054_Sault3

Key Map



Tile 8 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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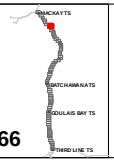
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



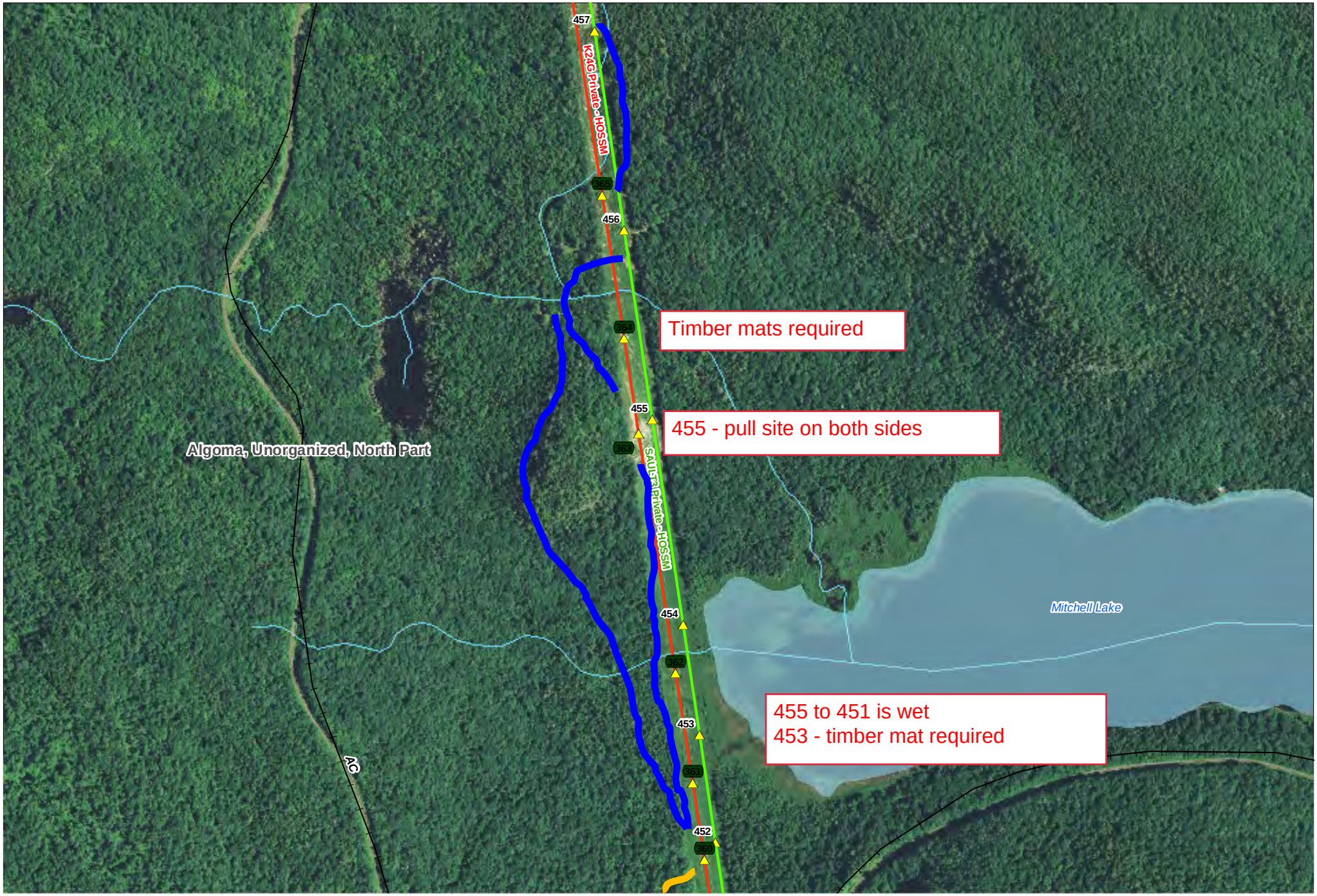
Tile 9 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Page 9 of 66

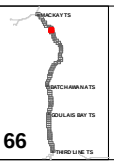
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



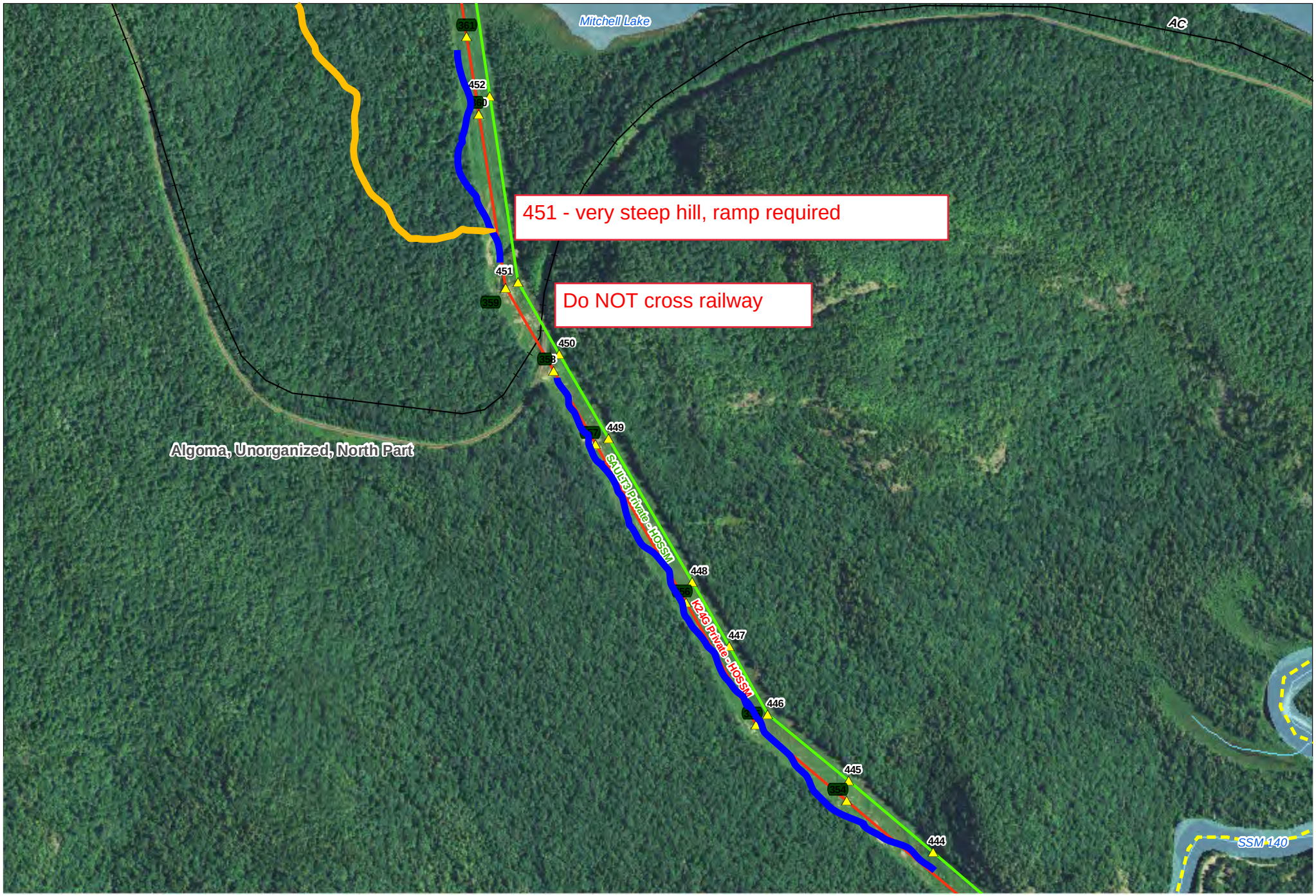
Tile 10 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Page 10 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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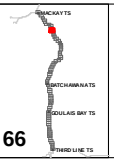

Tile 11 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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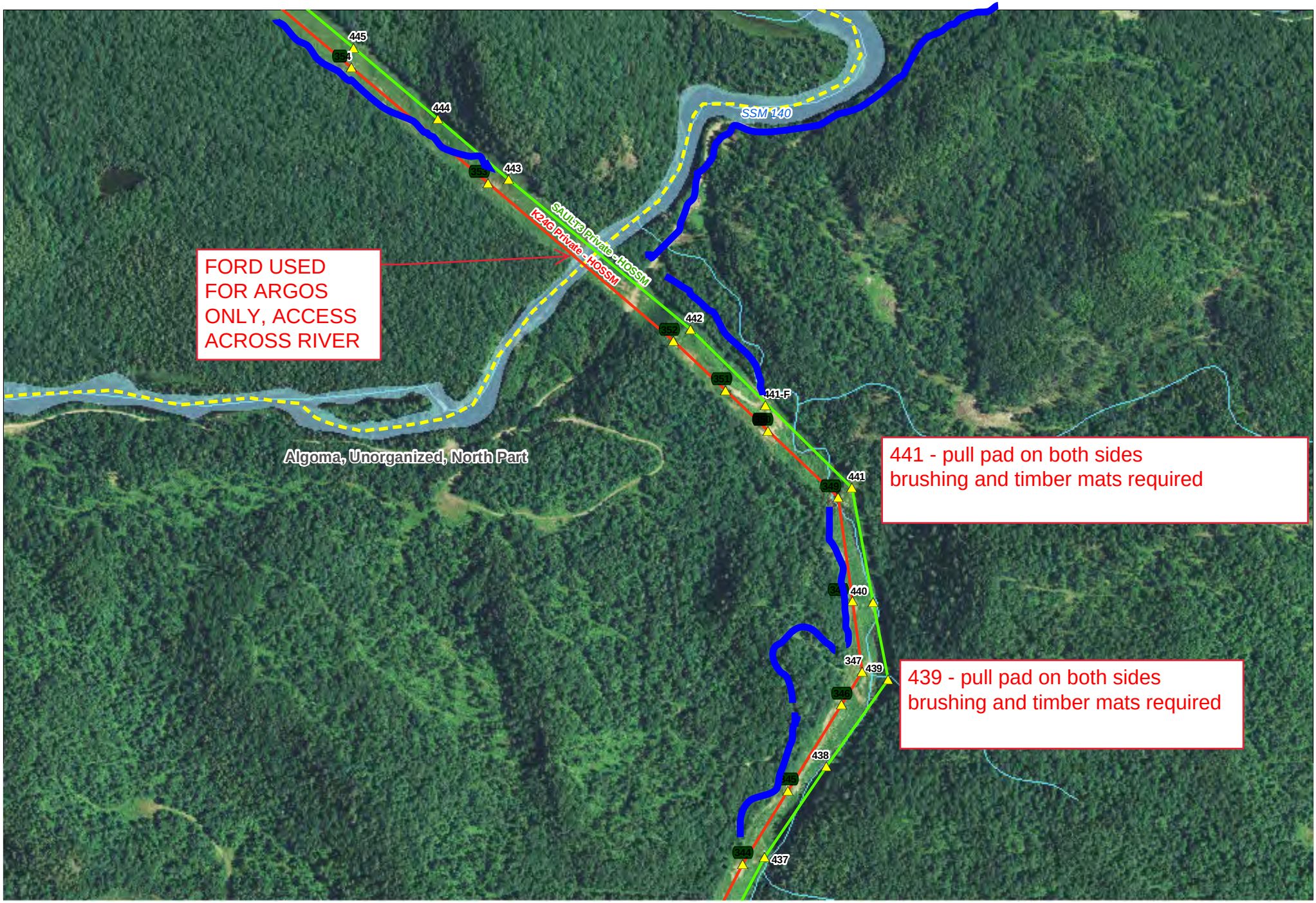
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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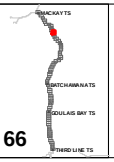

Tile 12 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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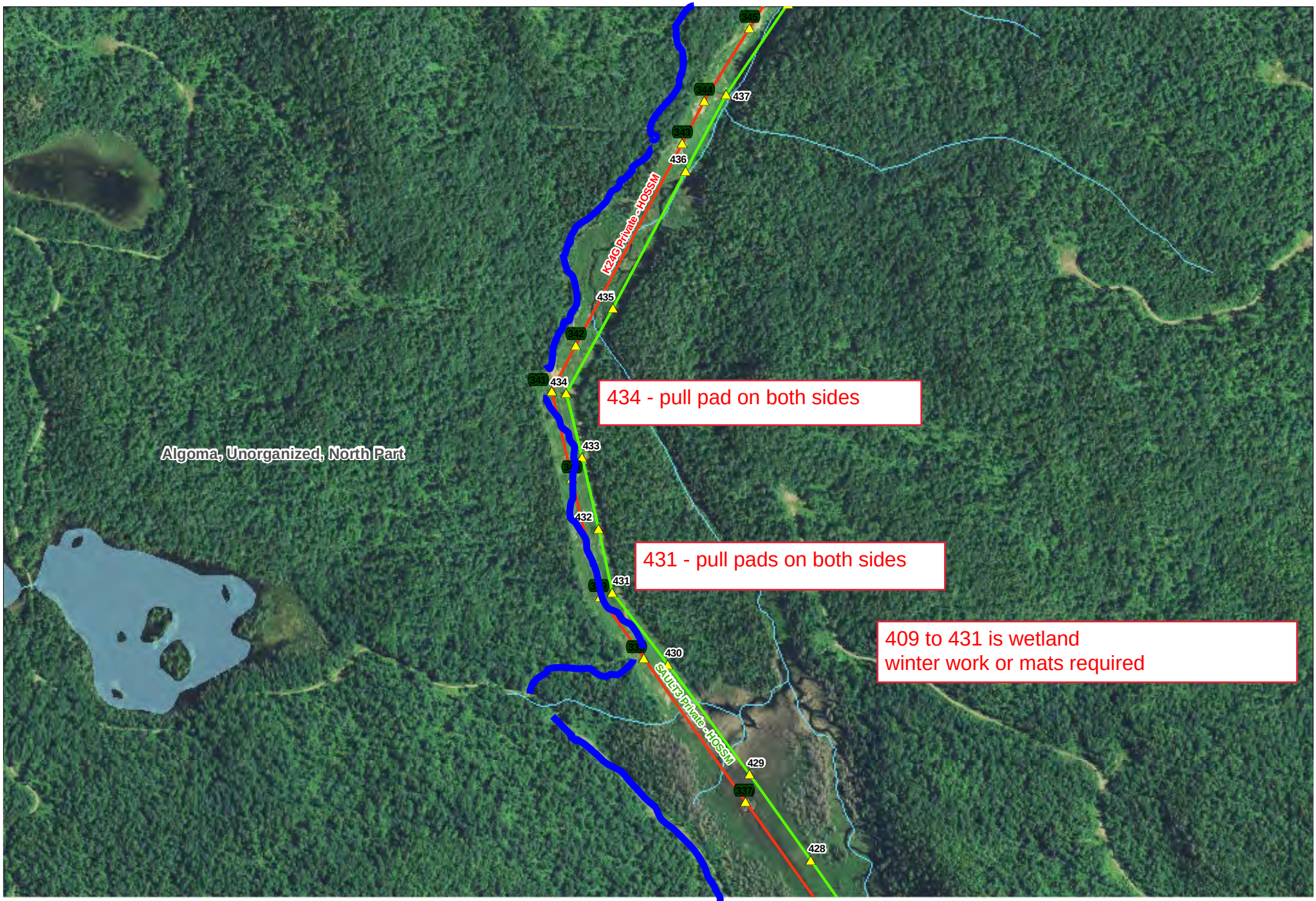
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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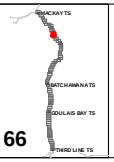

Tile 13 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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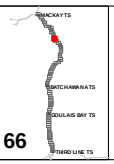
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Tile 14 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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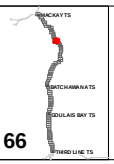
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 15 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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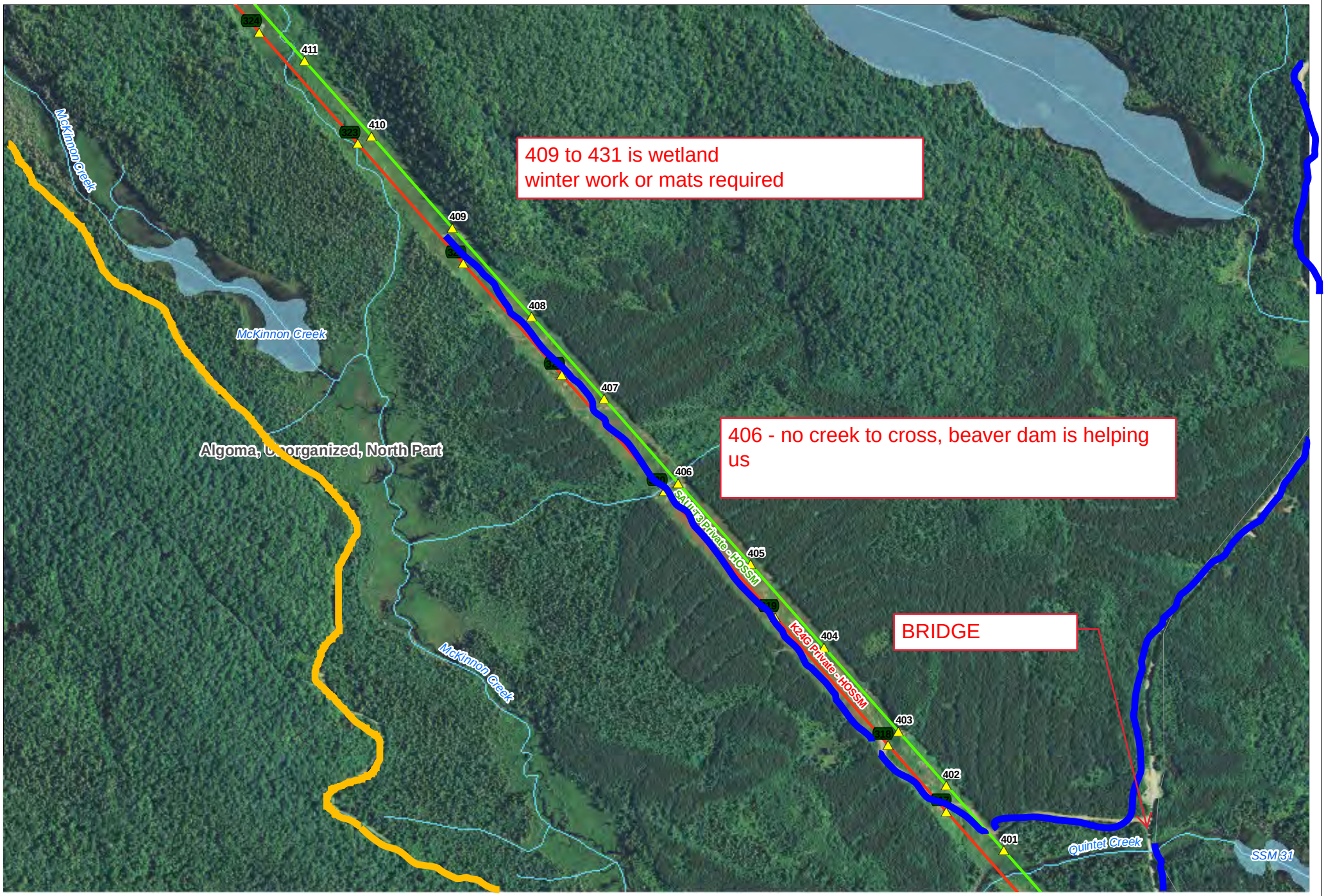
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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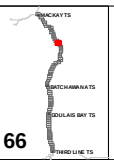

Tile 16 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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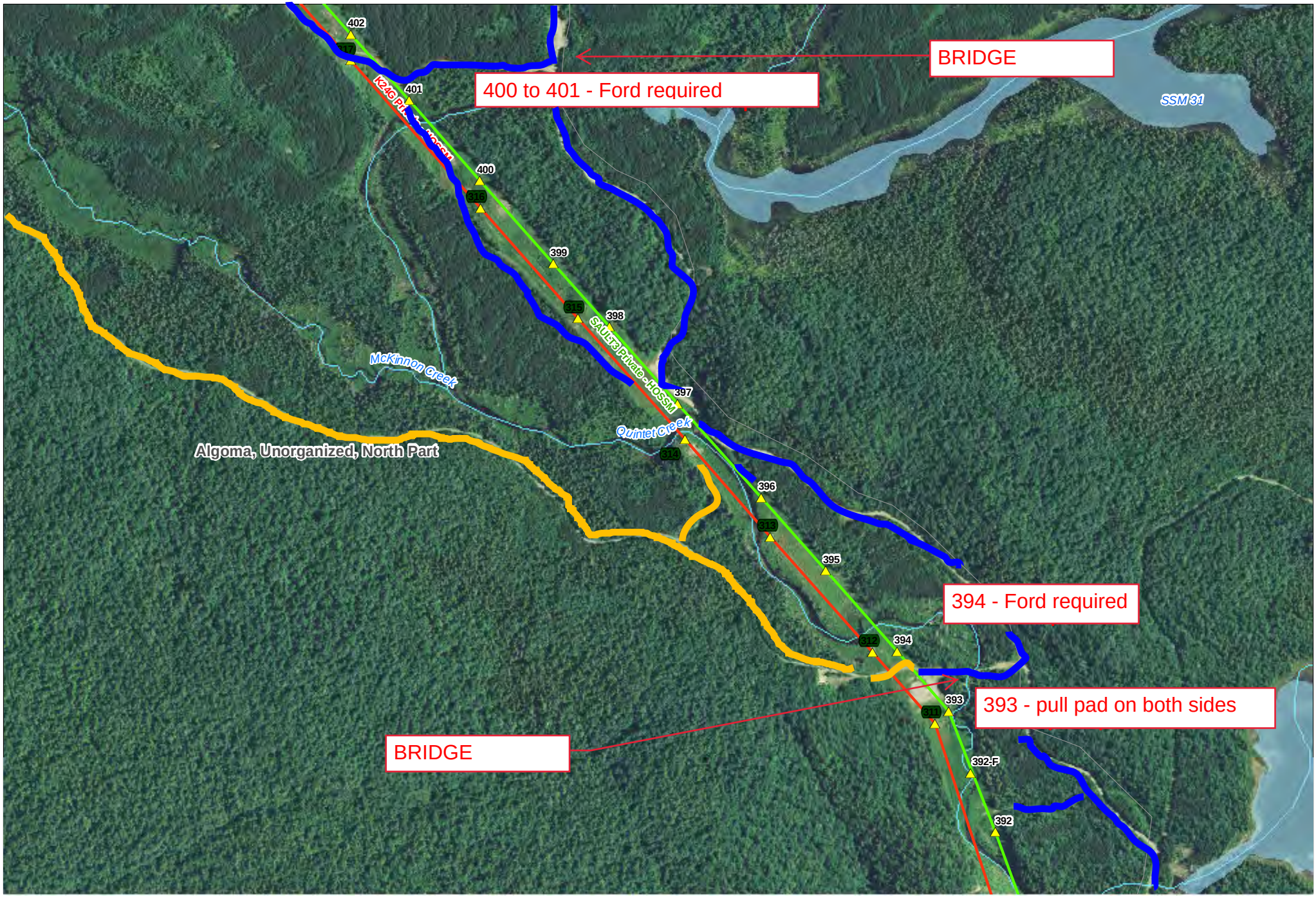
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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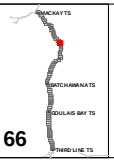

Tile 17 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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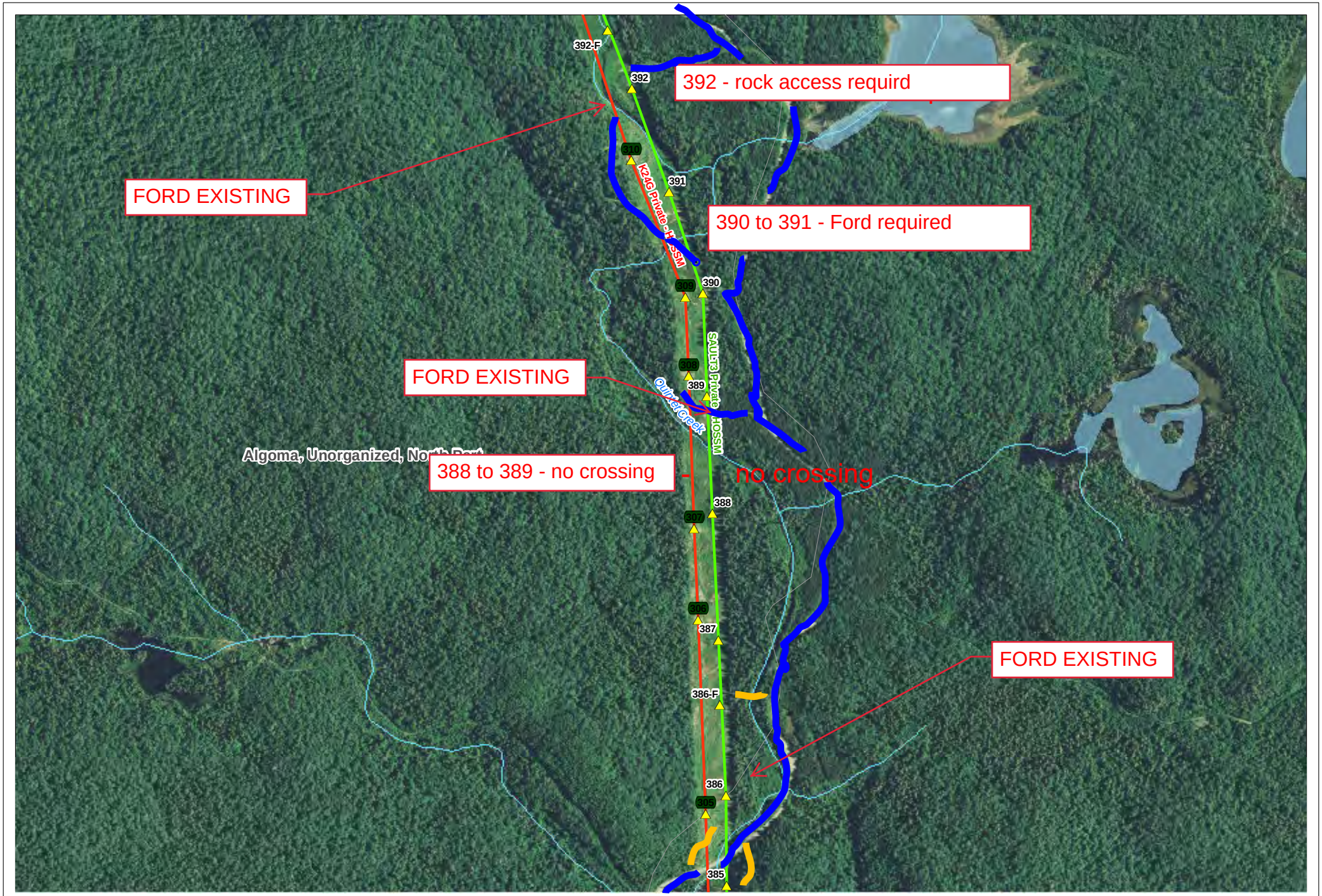
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000

0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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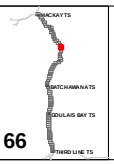

Tile 18 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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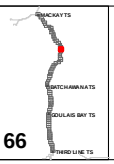
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 19 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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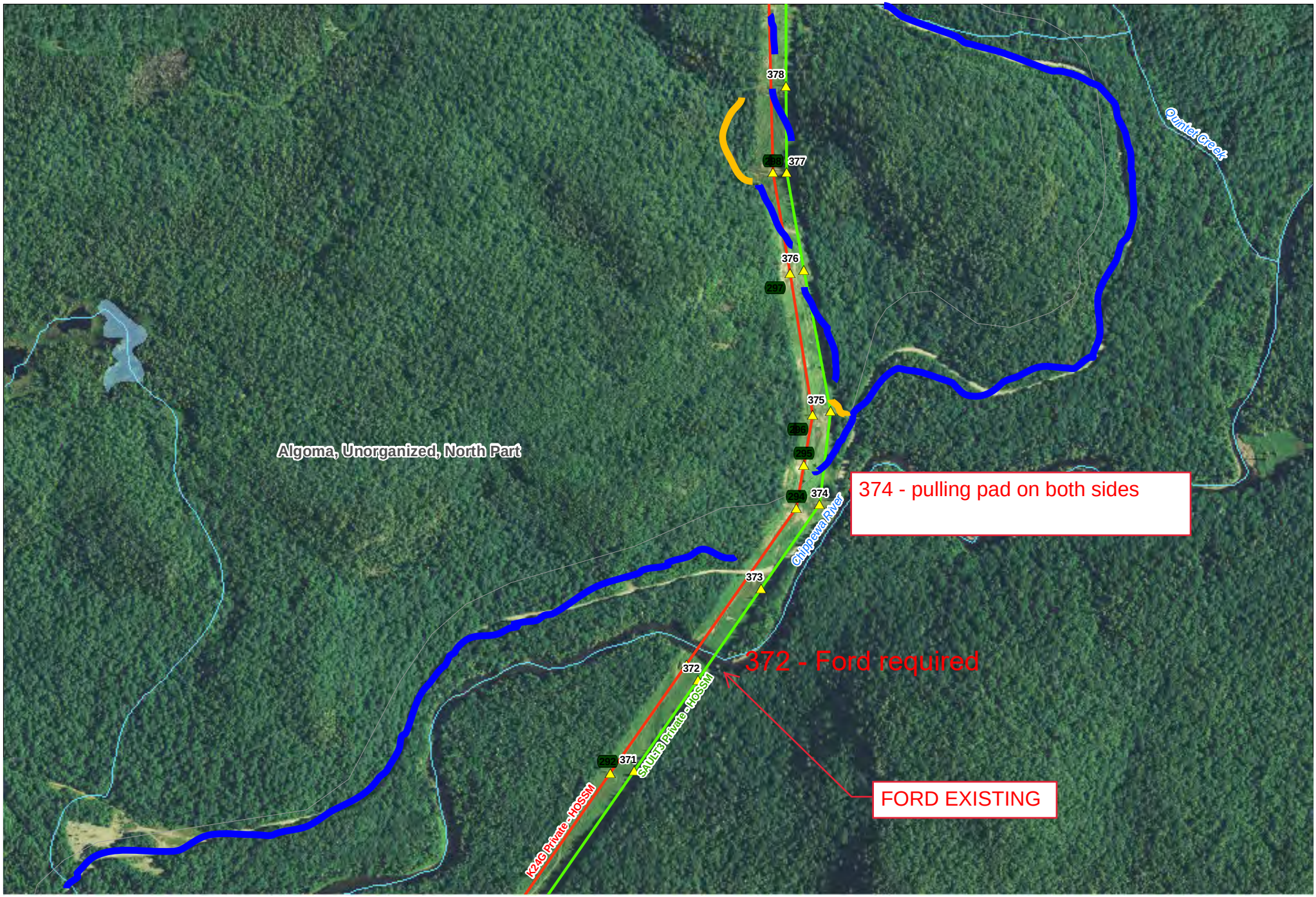
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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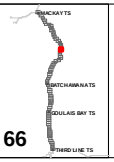

Tile 20 of 66

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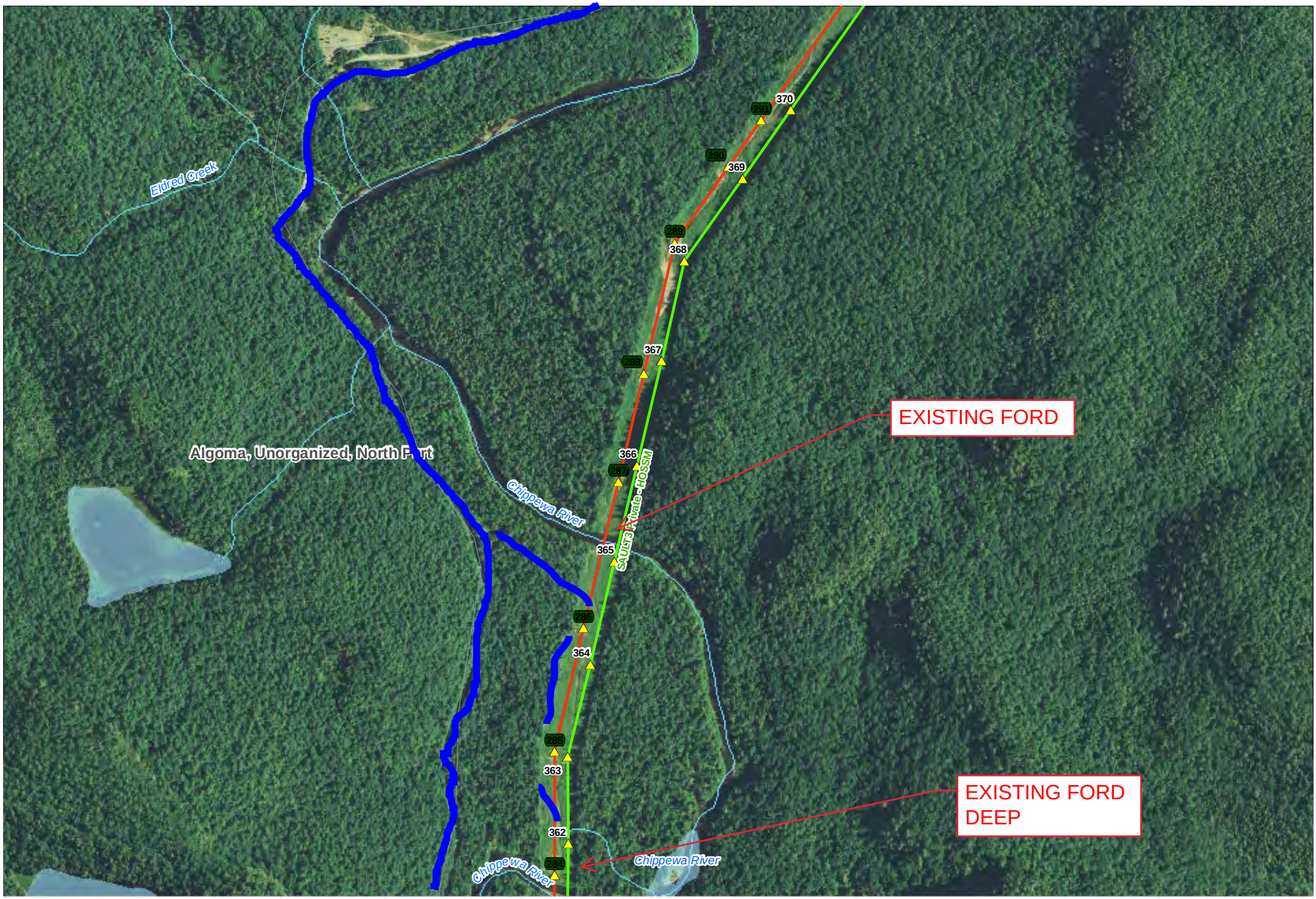
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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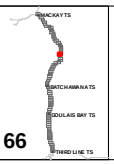


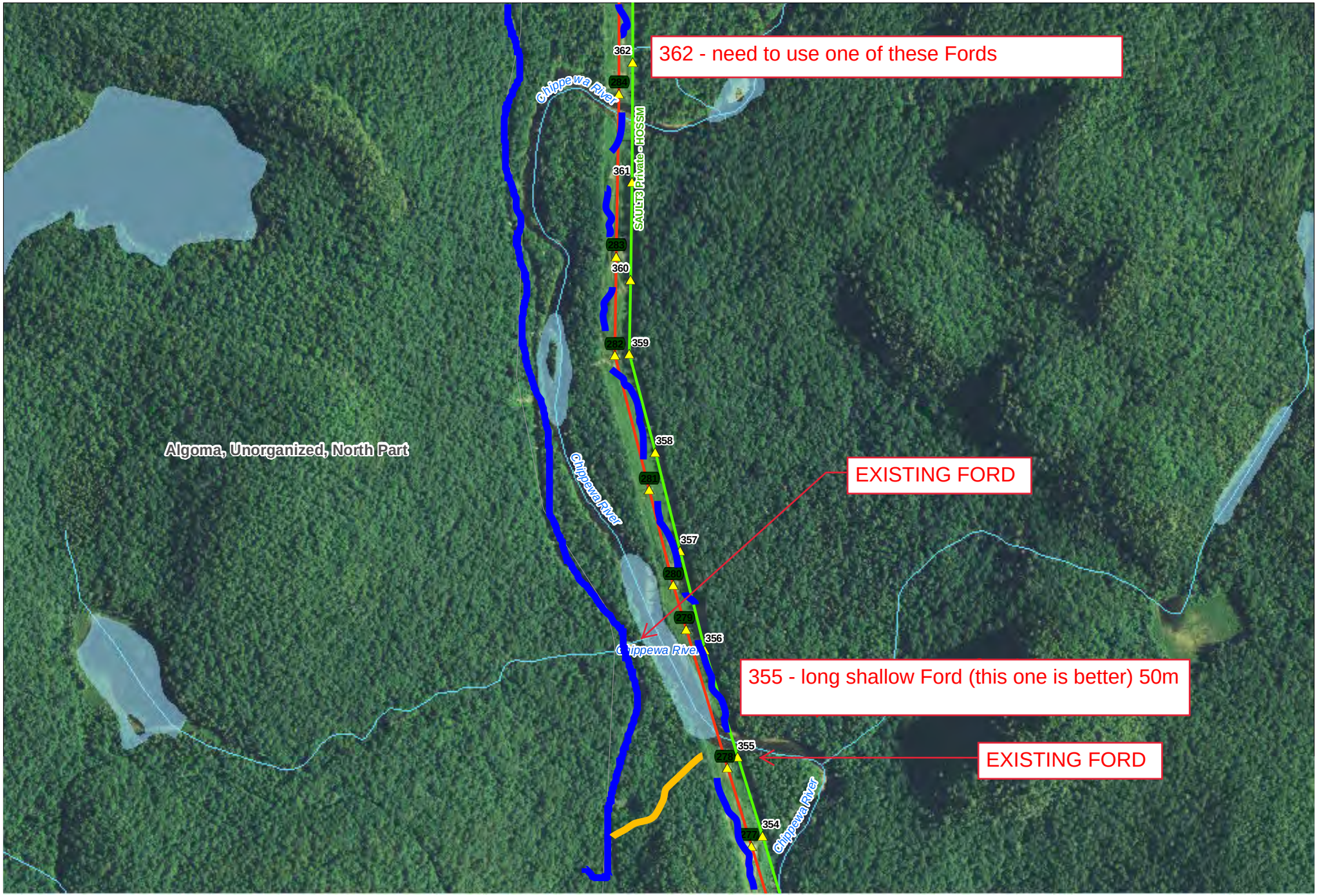
Tile 21 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

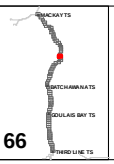
Page 21 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 22 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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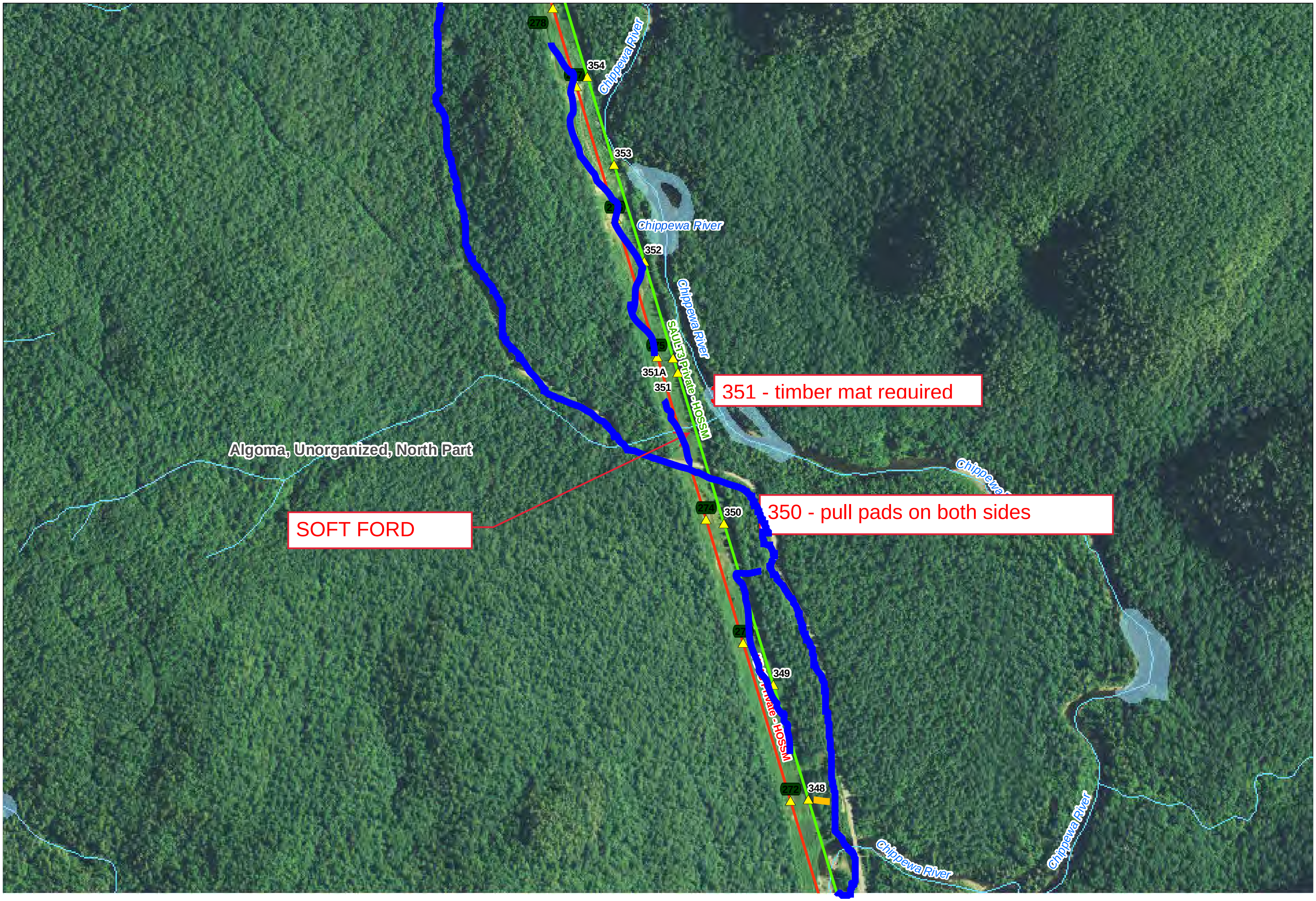
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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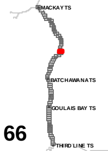
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 23 of 66

Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
		Road
		Railway
Trails	Watercourse	Waterbody
Municipal Boundary		

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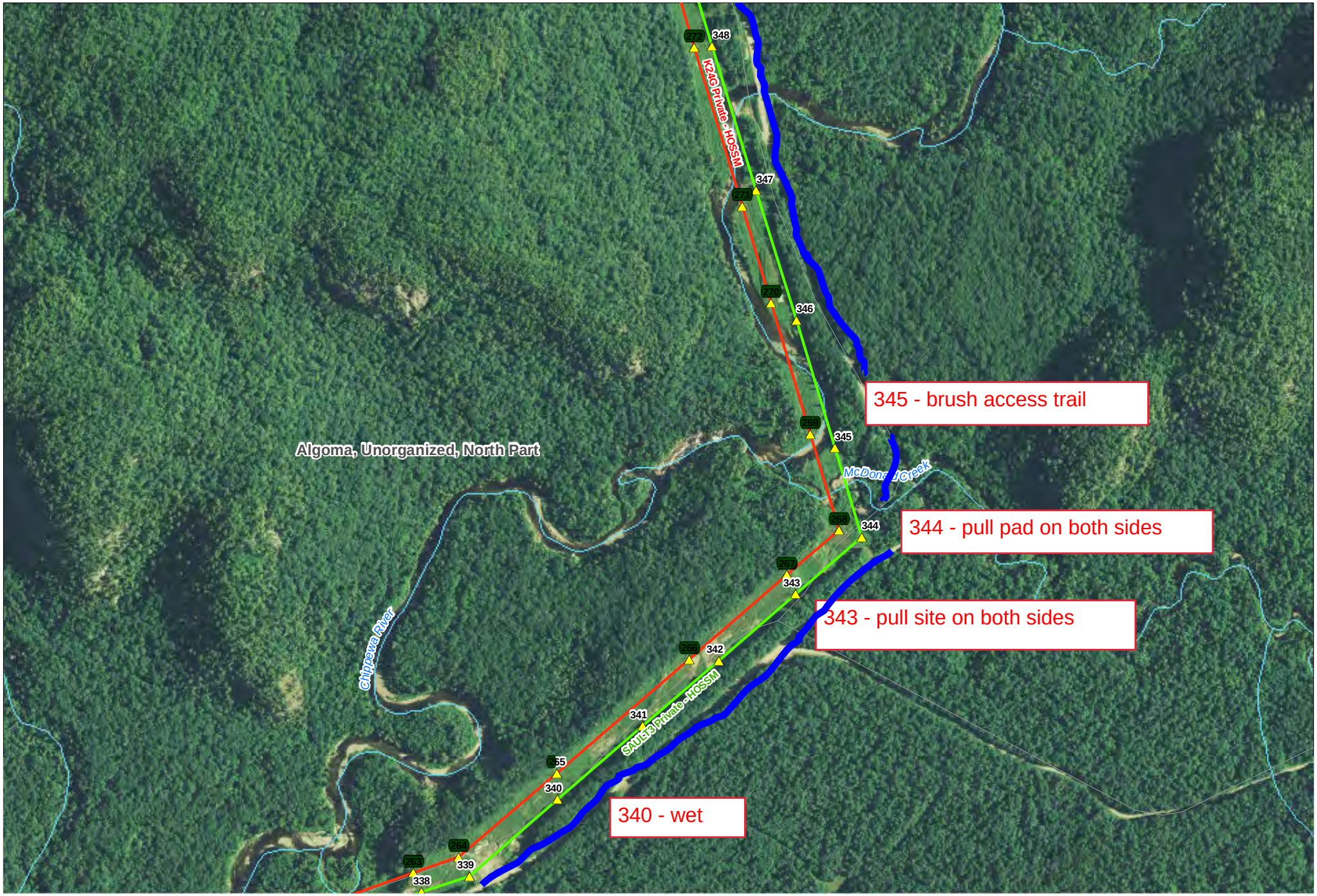
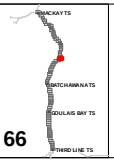
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



Key Map



Tile 24 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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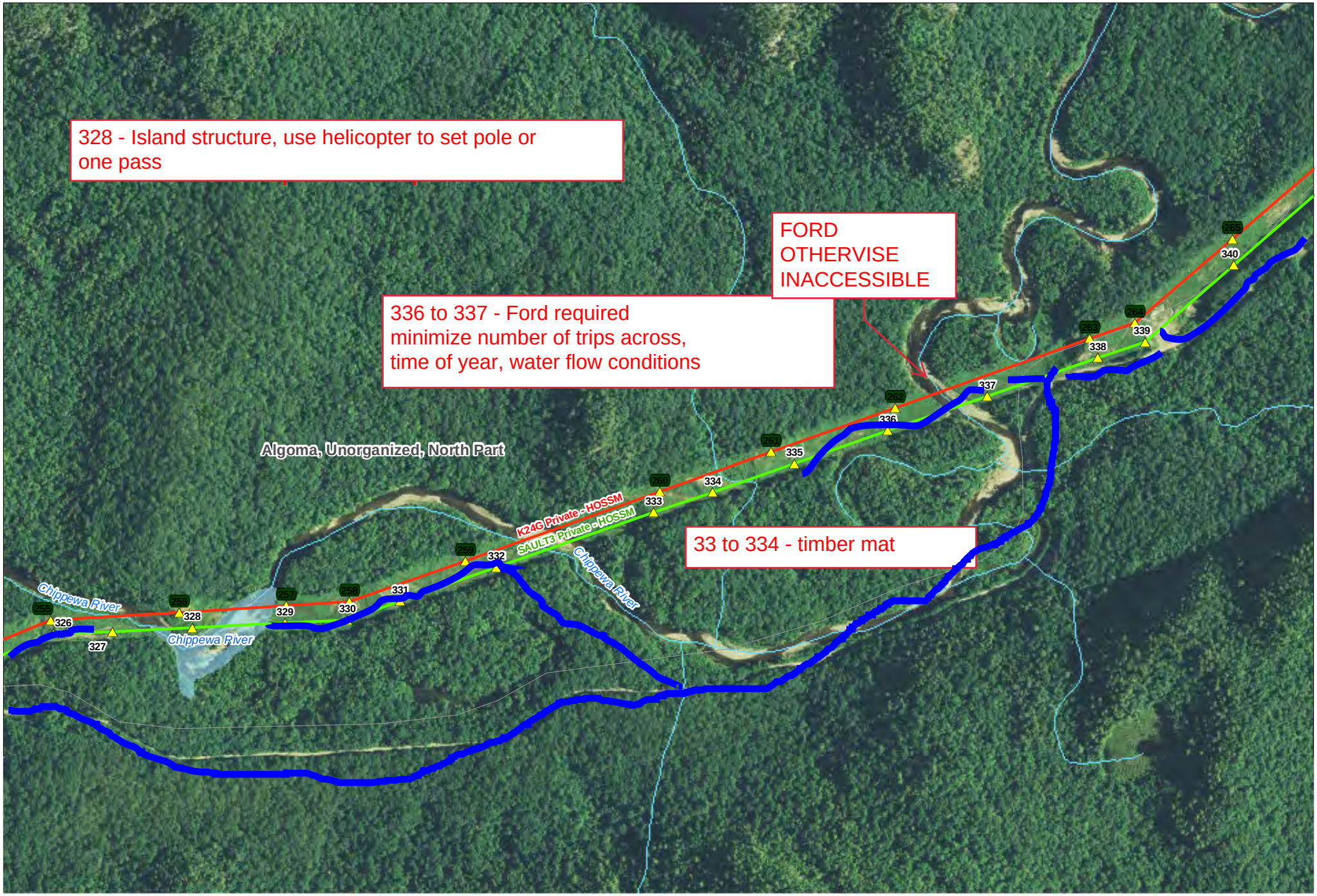
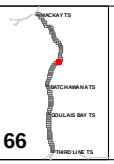
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 25 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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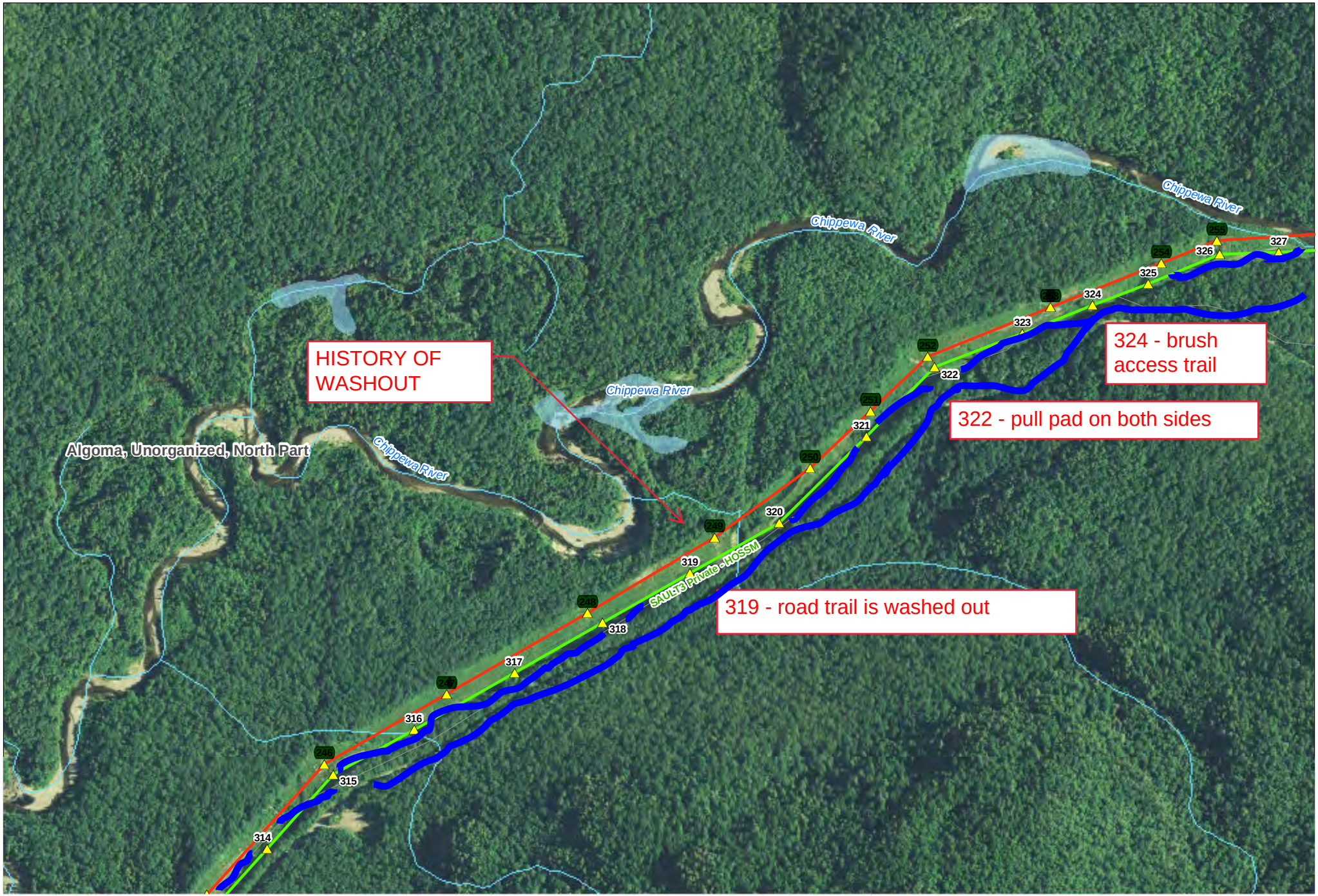
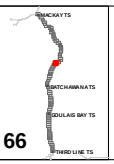
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 26 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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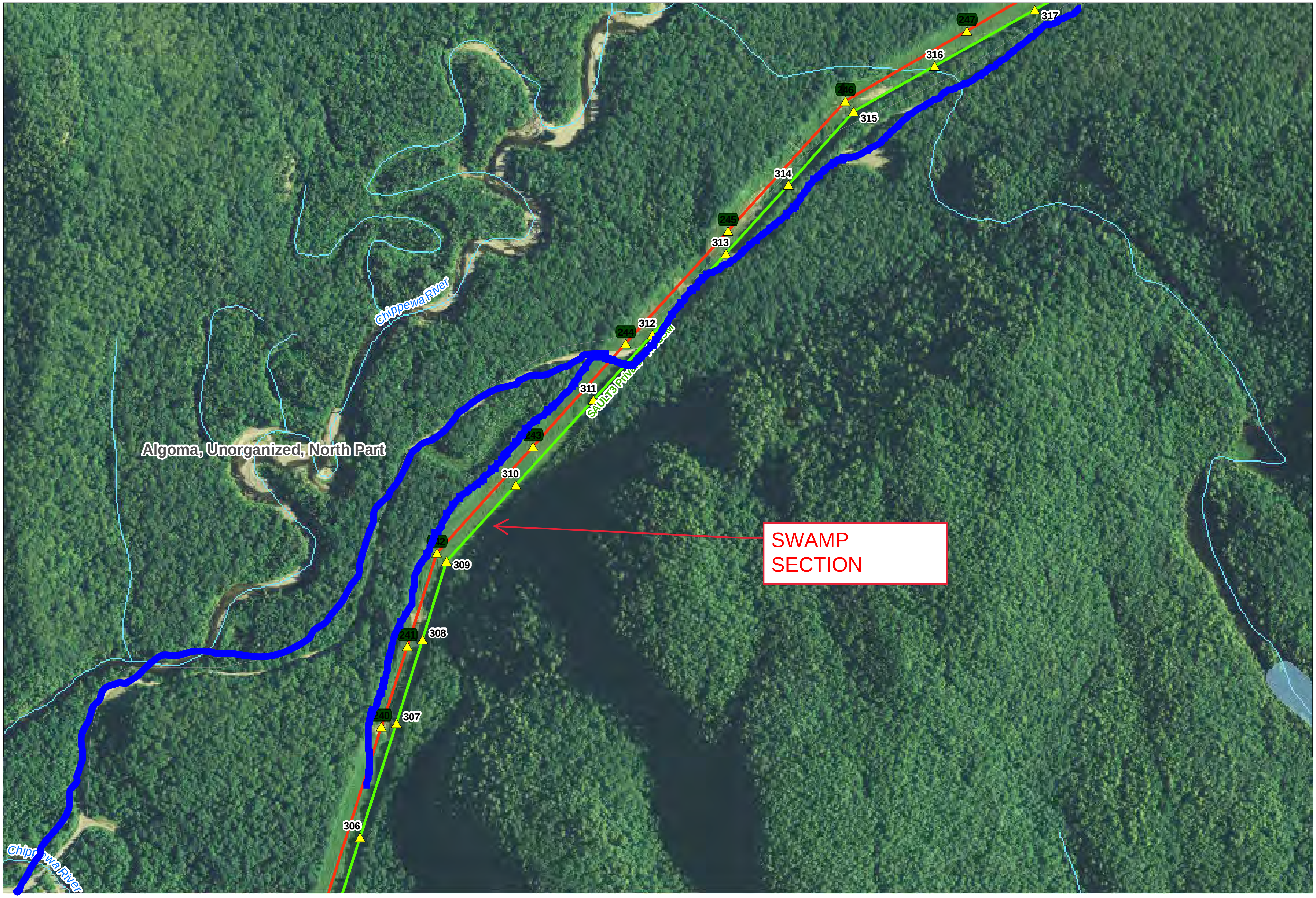
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map

MACKAY TS
BATCHAWANA TS
GOULAIS BAY TS
THIRD LINE TS

Tile 27 of 66

Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

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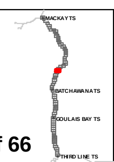
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



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Date: Jun 22, 2020
Map20-054_Sault3

Key Map

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Legend			
Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

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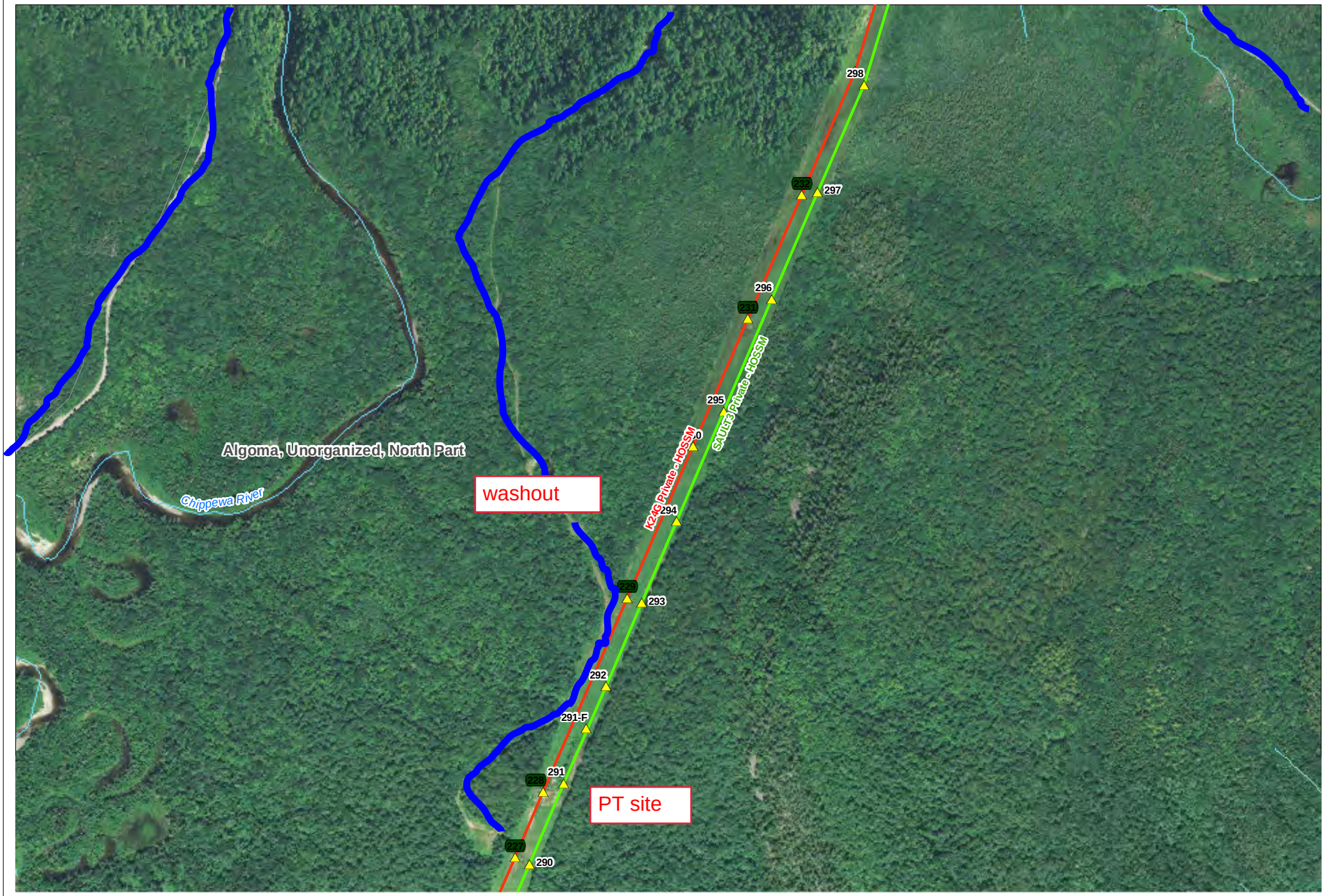
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map

Tile 29 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map

Tile 30 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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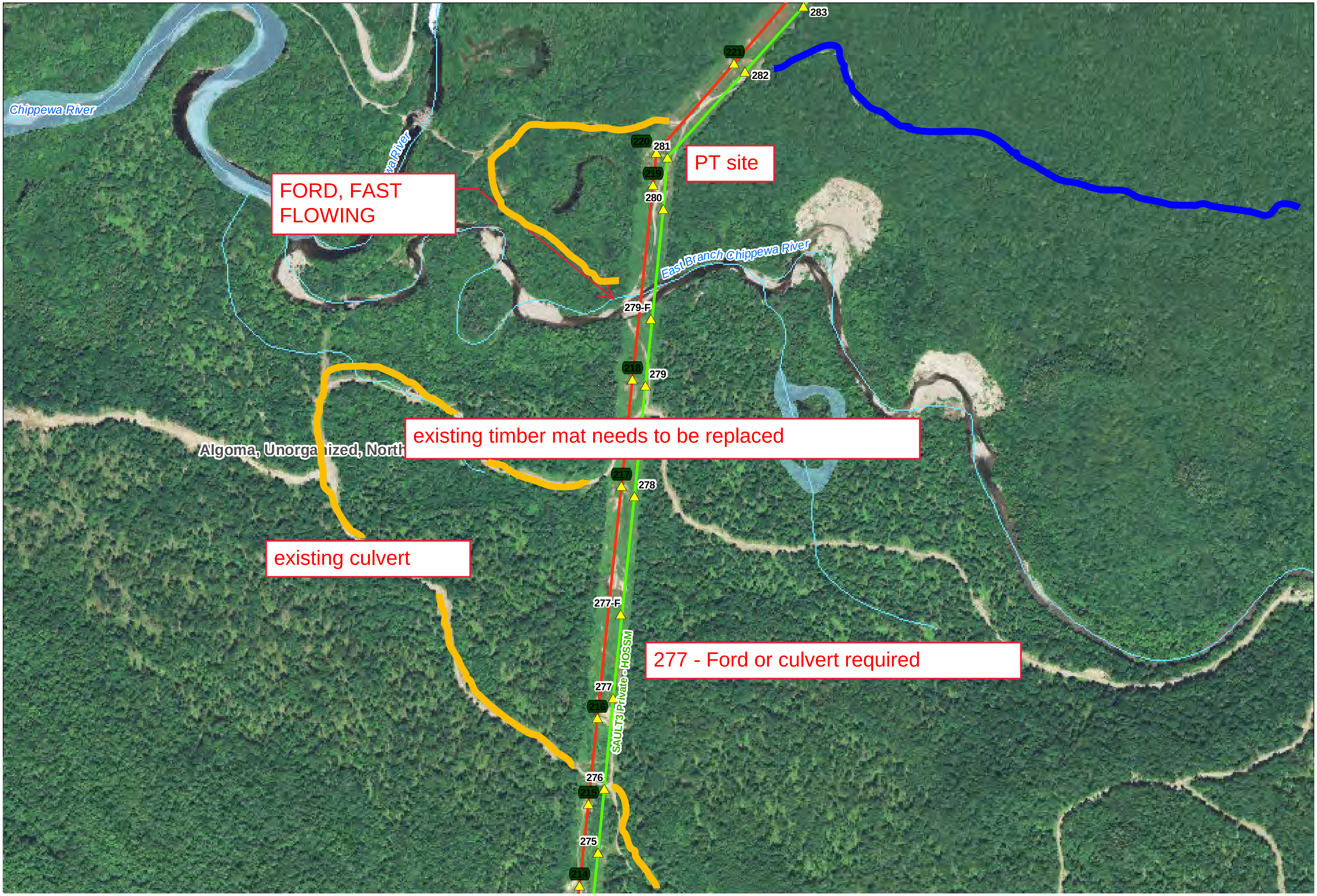
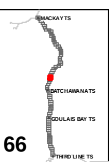
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 31 of 66

Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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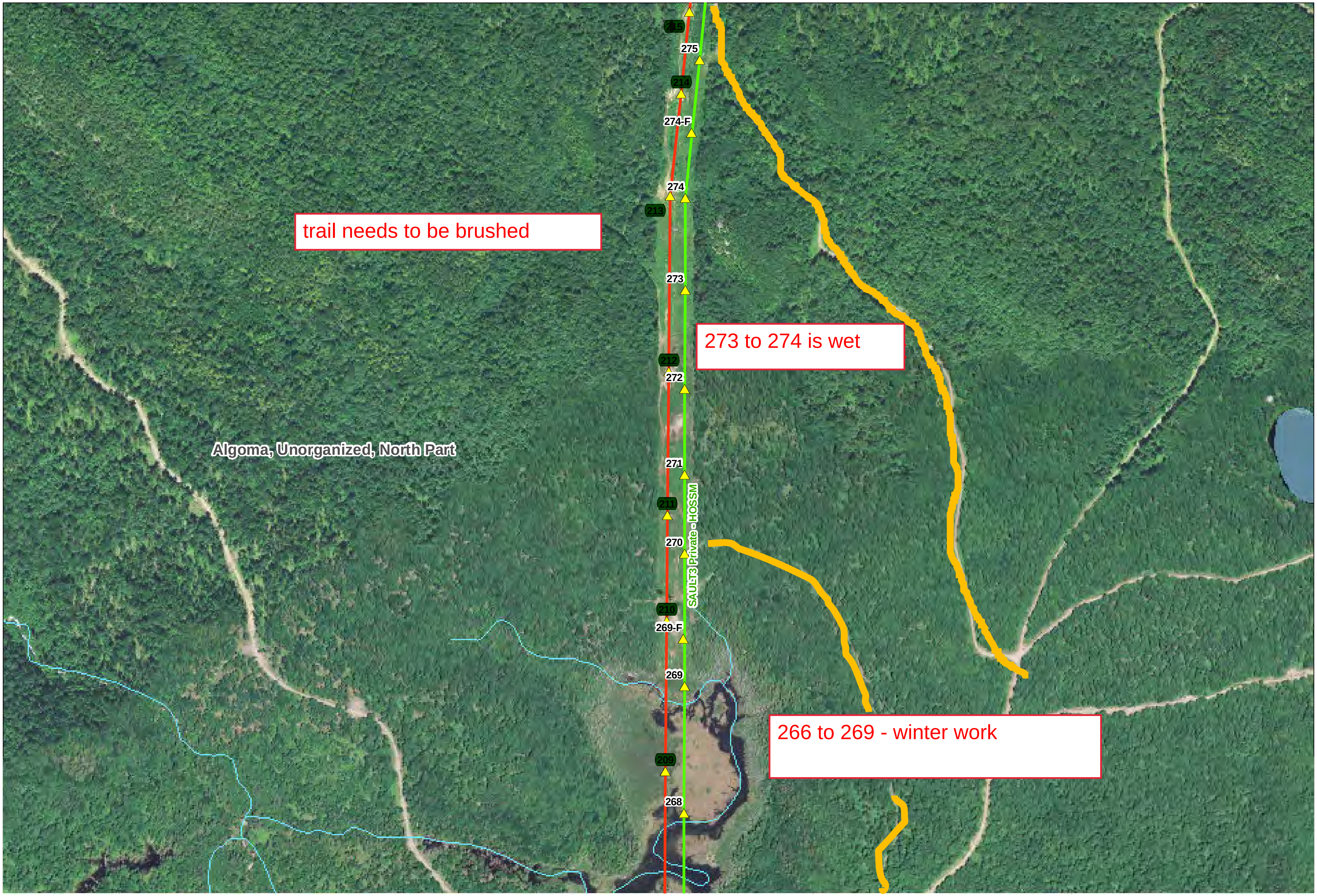

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Date: Jun 22, 2020
Map20-054_Sault3

Key Map

Tile 32 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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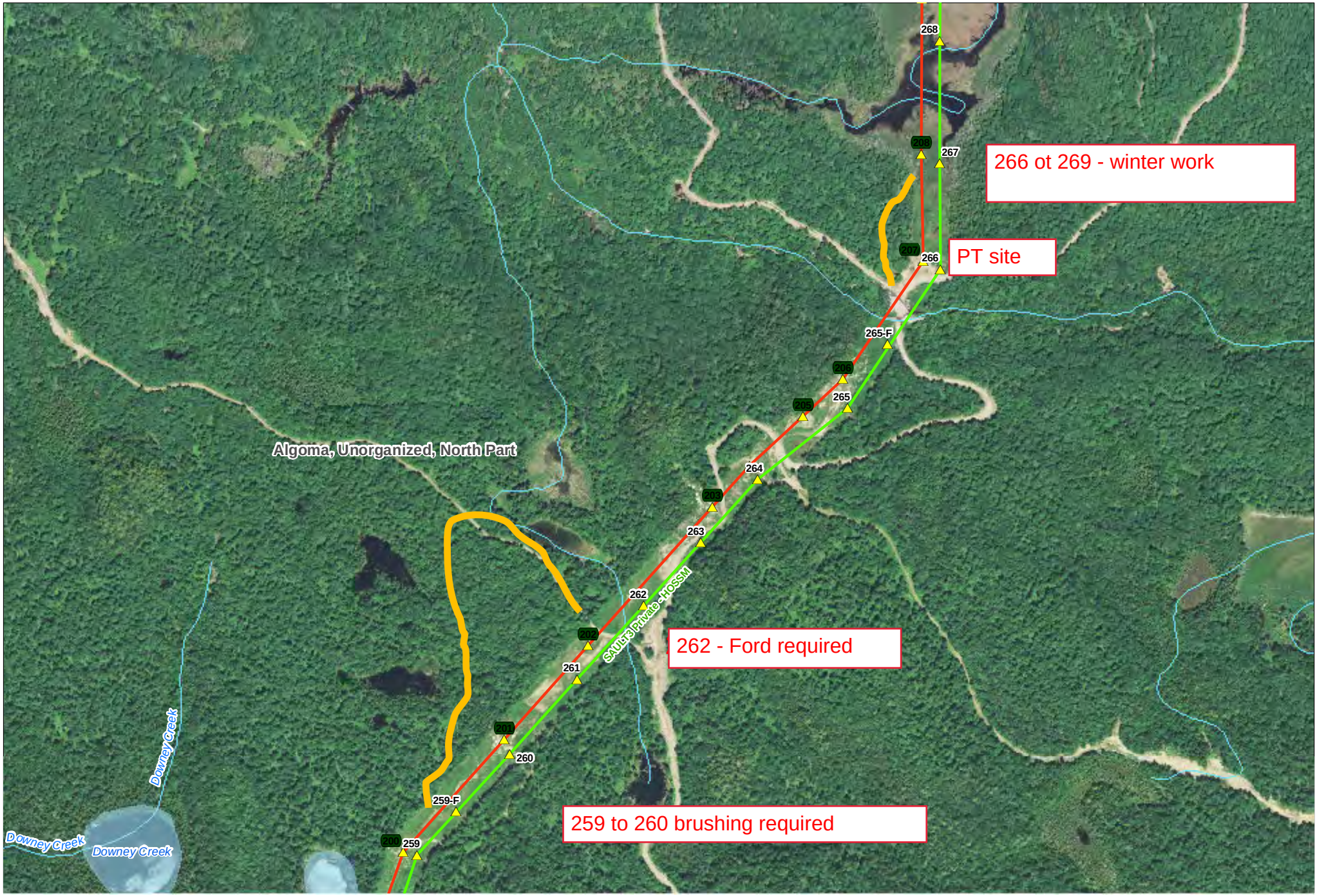
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

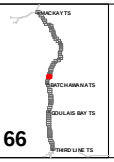
1:8,000 0 100 200 m



hydro one | inergi

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 33 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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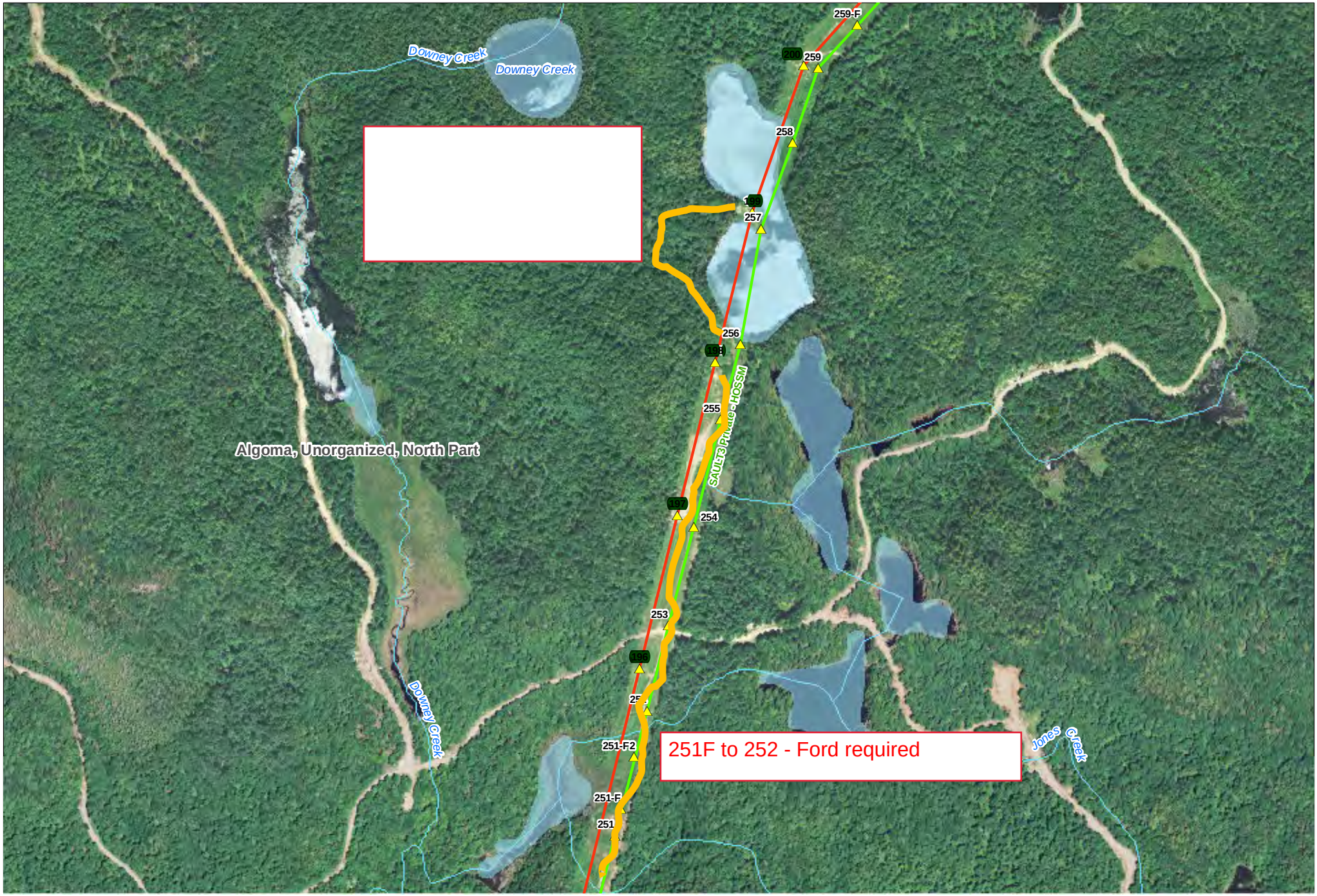
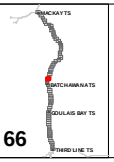
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 34 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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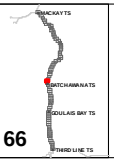
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 35 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

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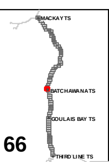
Key Map

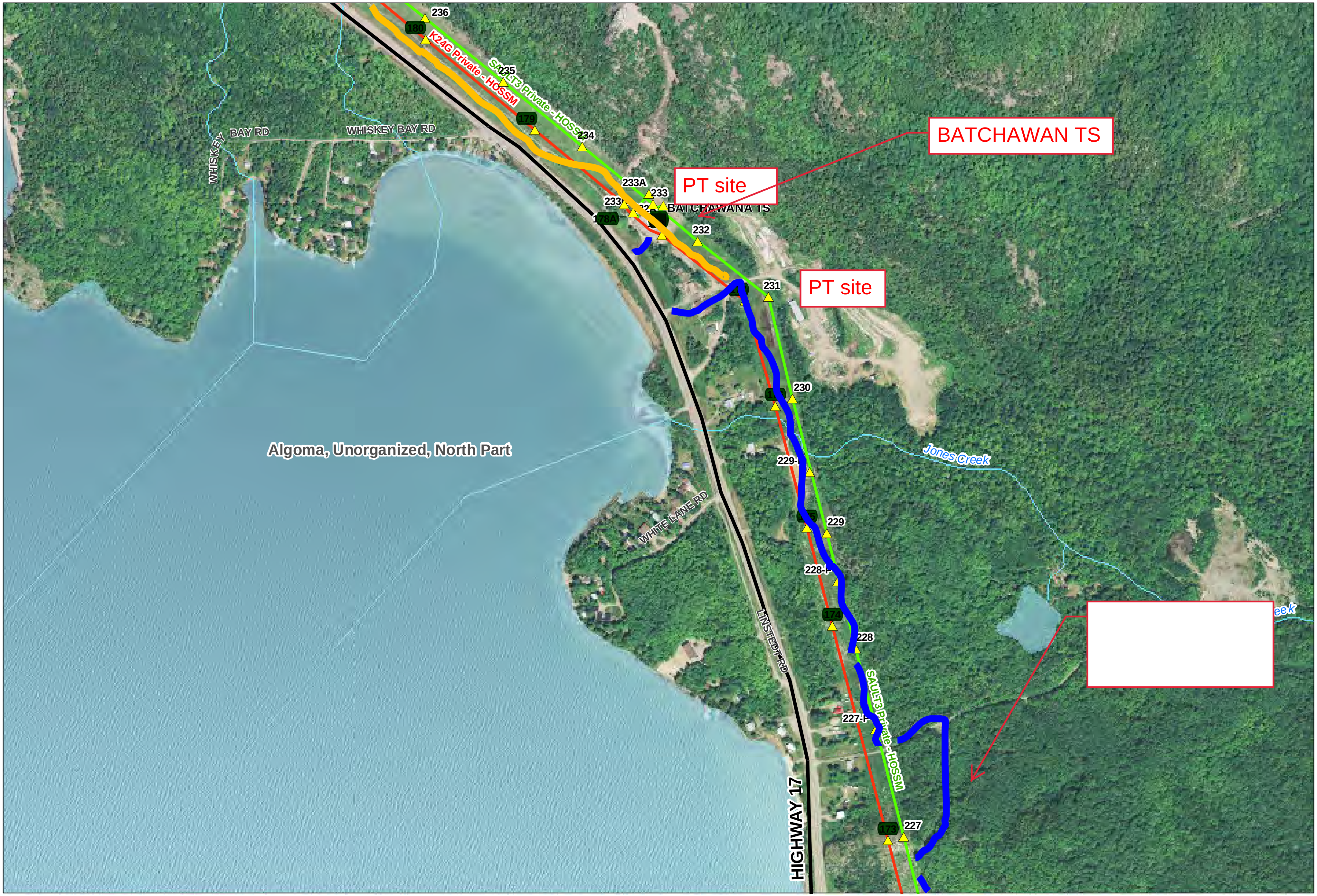


Tile 36 of 66

Structure	Station / Junction
115 kV Transmission Line	230 kV Transmission Line
Highway	Major Road
Road	Railway
Trails	Watercourse
Waterbody	Municipal Boundary

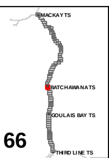
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map

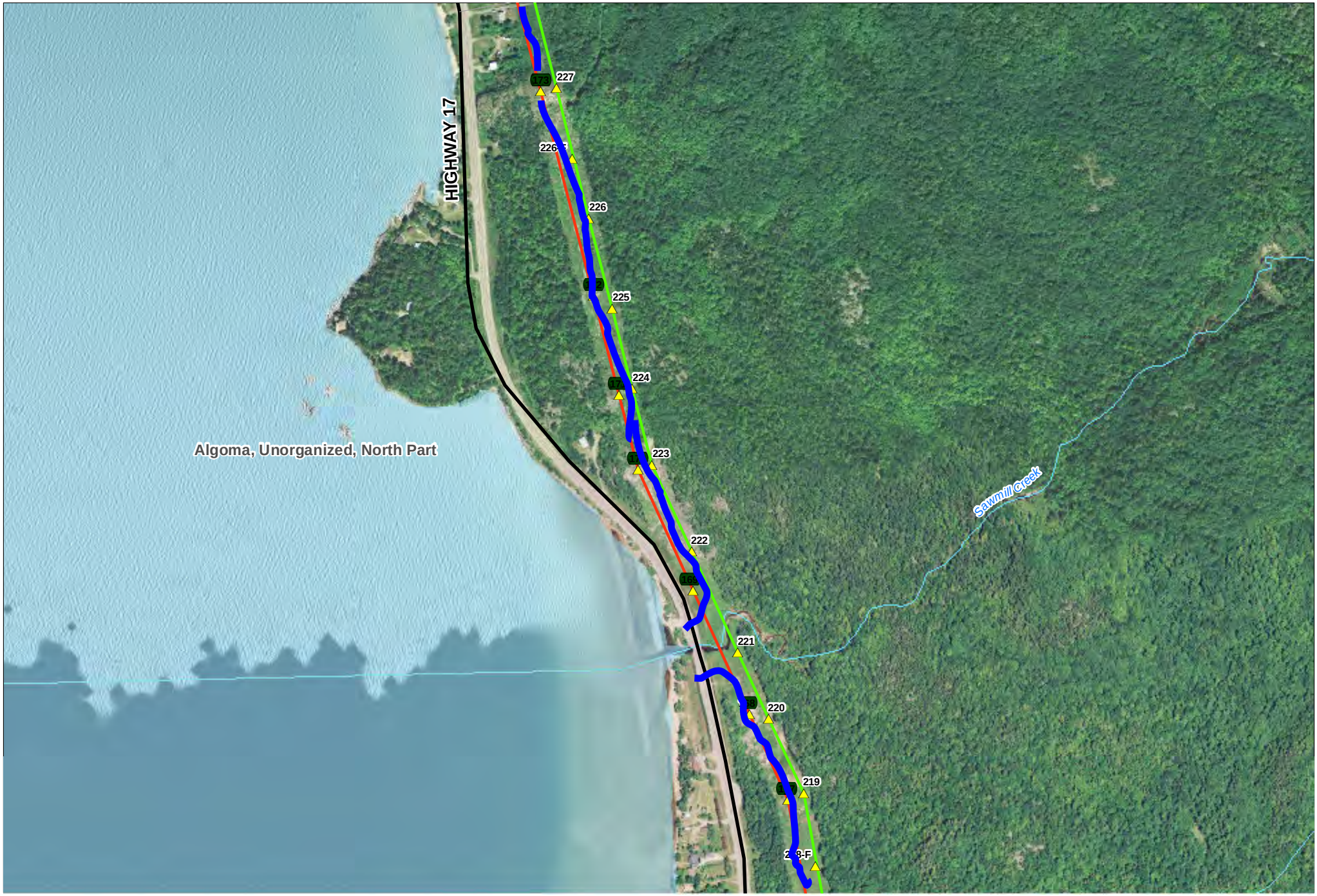


Tile 37 of 66

Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

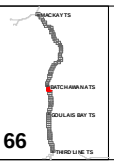
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 38 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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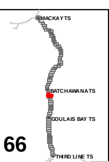
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 39 of 66

Legend			
Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

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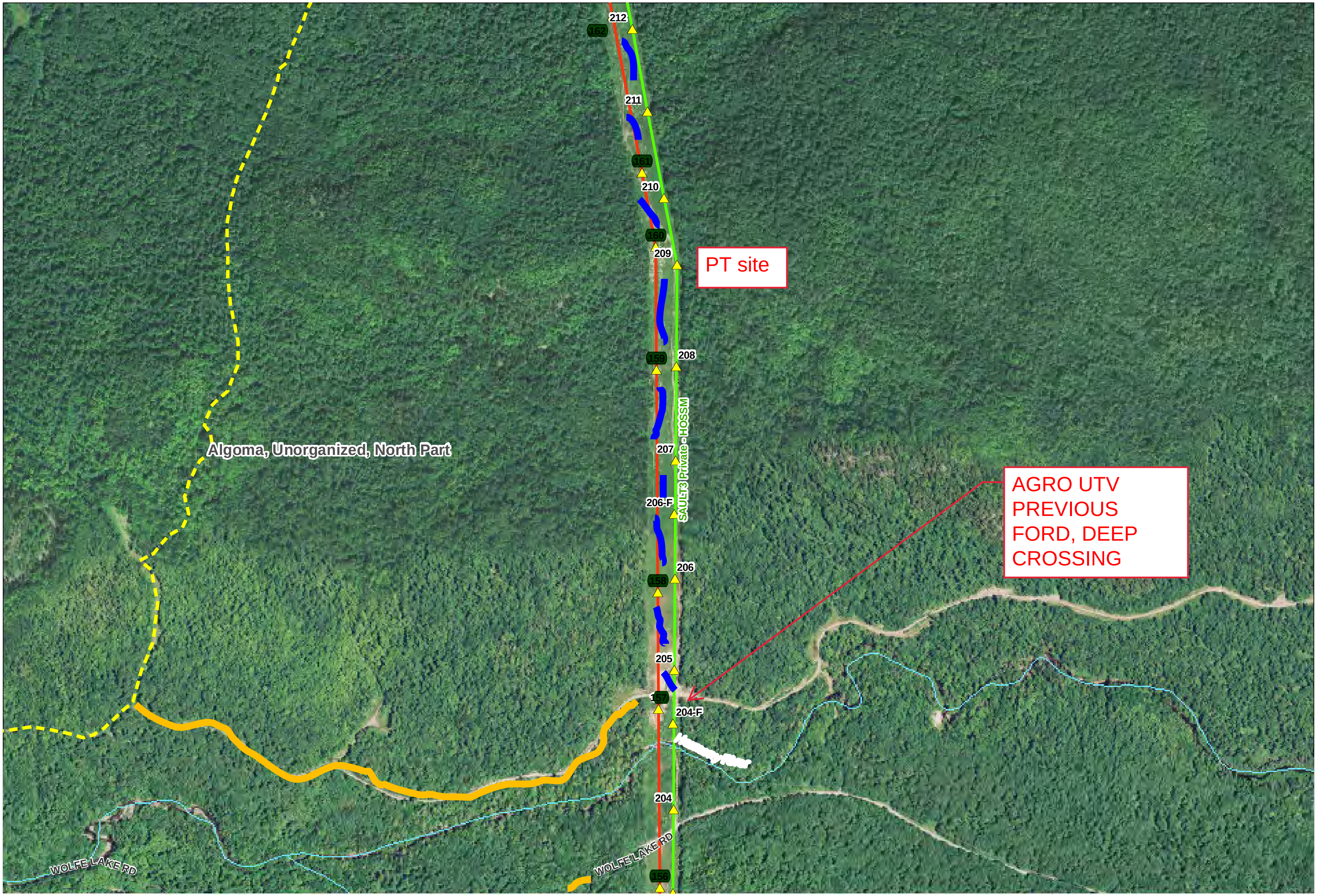
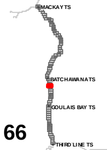
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0, 100, 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 40 of 66

Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

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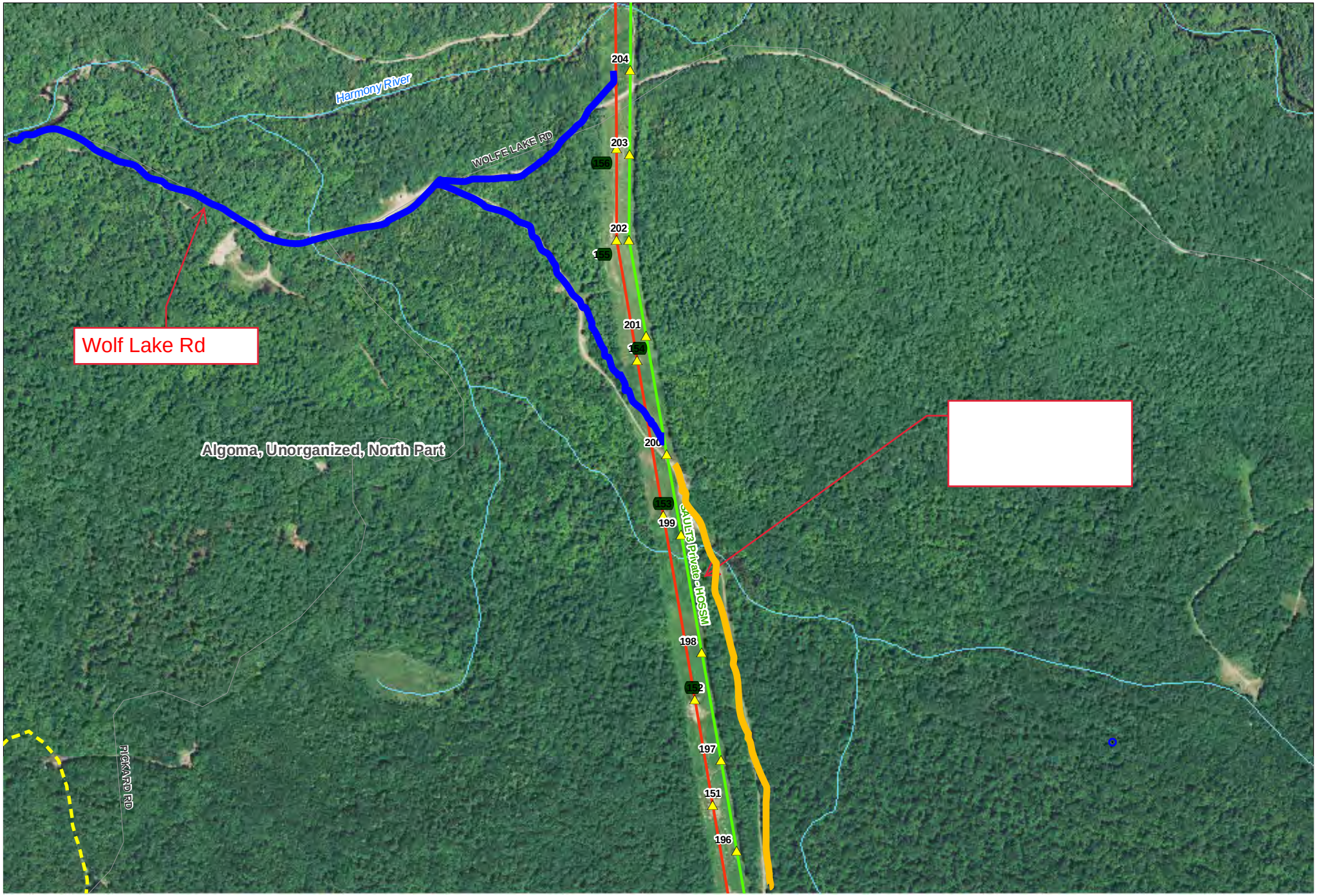
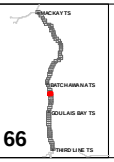
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 41 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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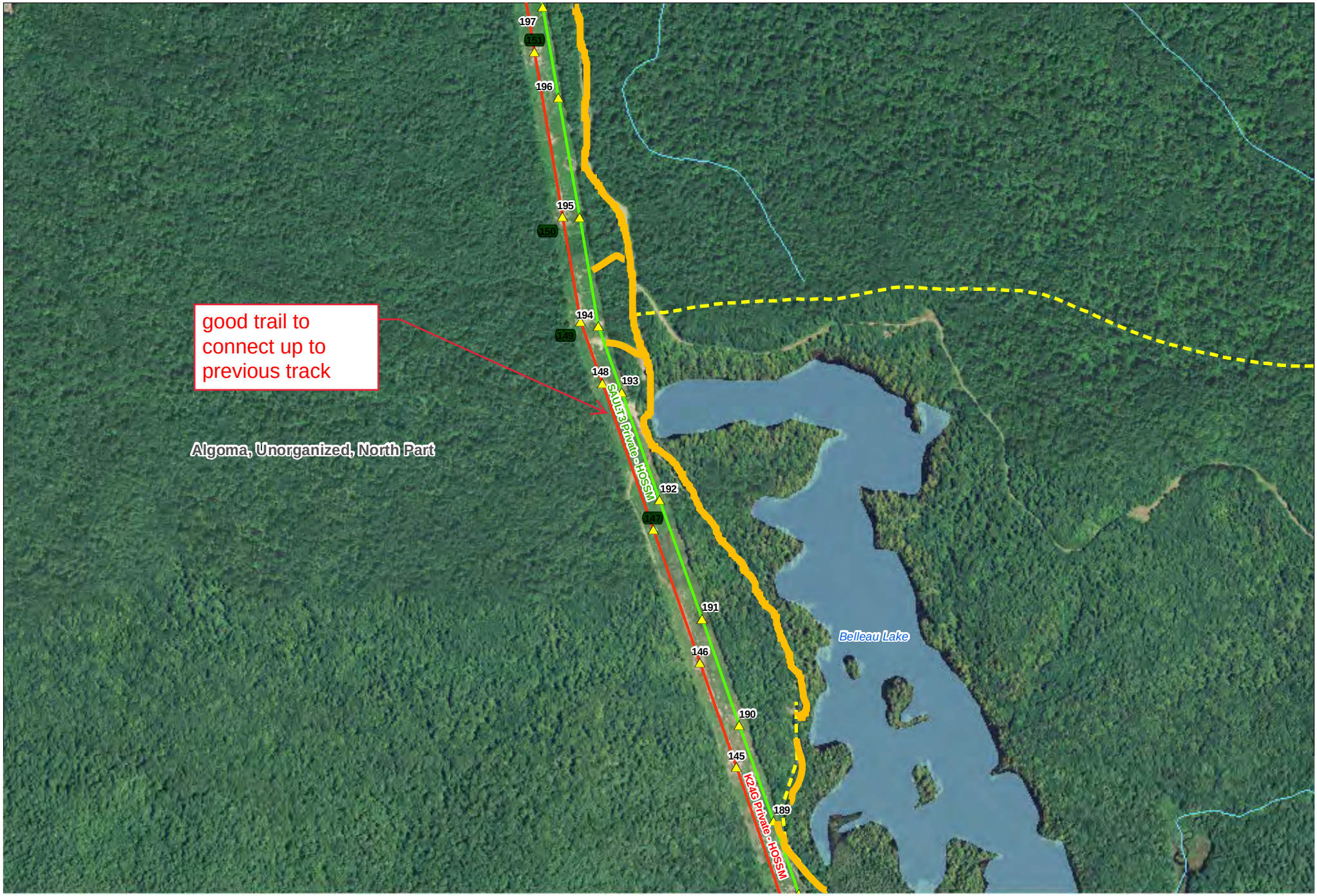
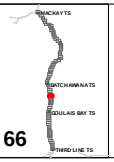
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 42 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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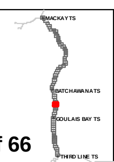
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



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Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
Trails	Watercourse	Road
Waterbody	Municipal Boundary	Railway

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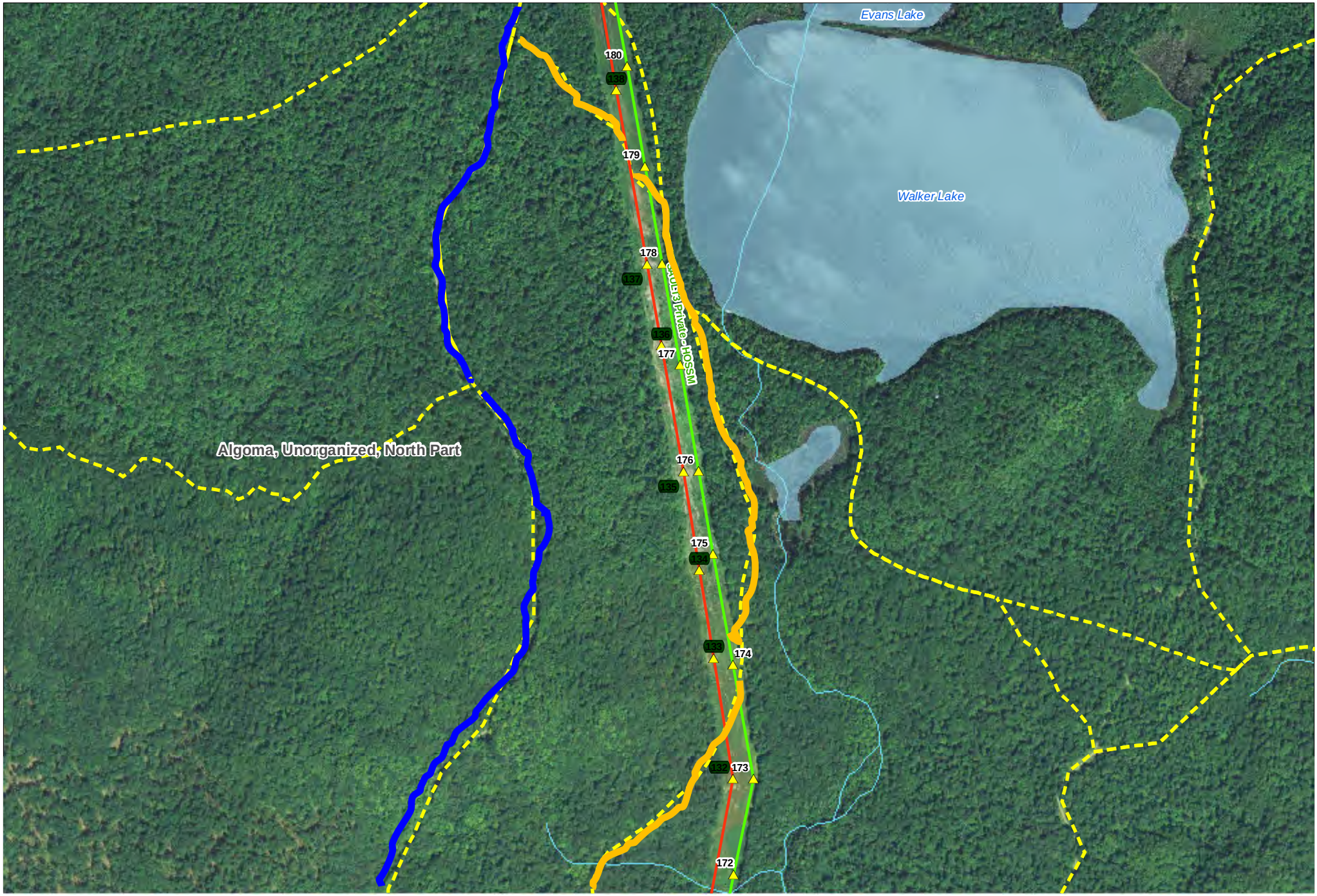
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0, 100, 200 m



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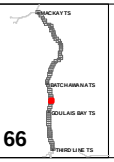

Tile 44 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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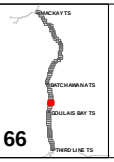
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000

0 100 200 m

Key Map



Tile 45 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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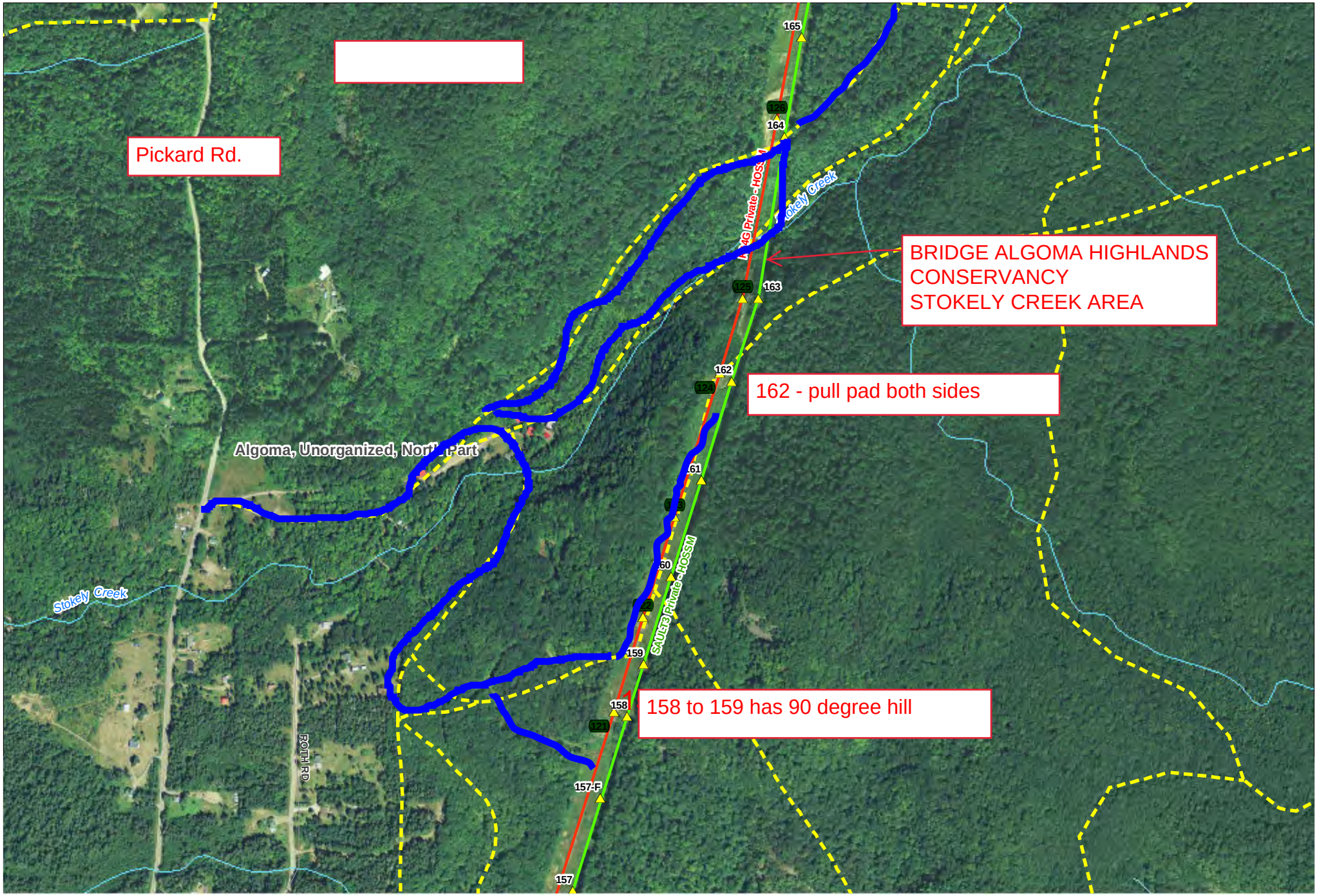
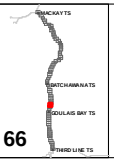
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 46 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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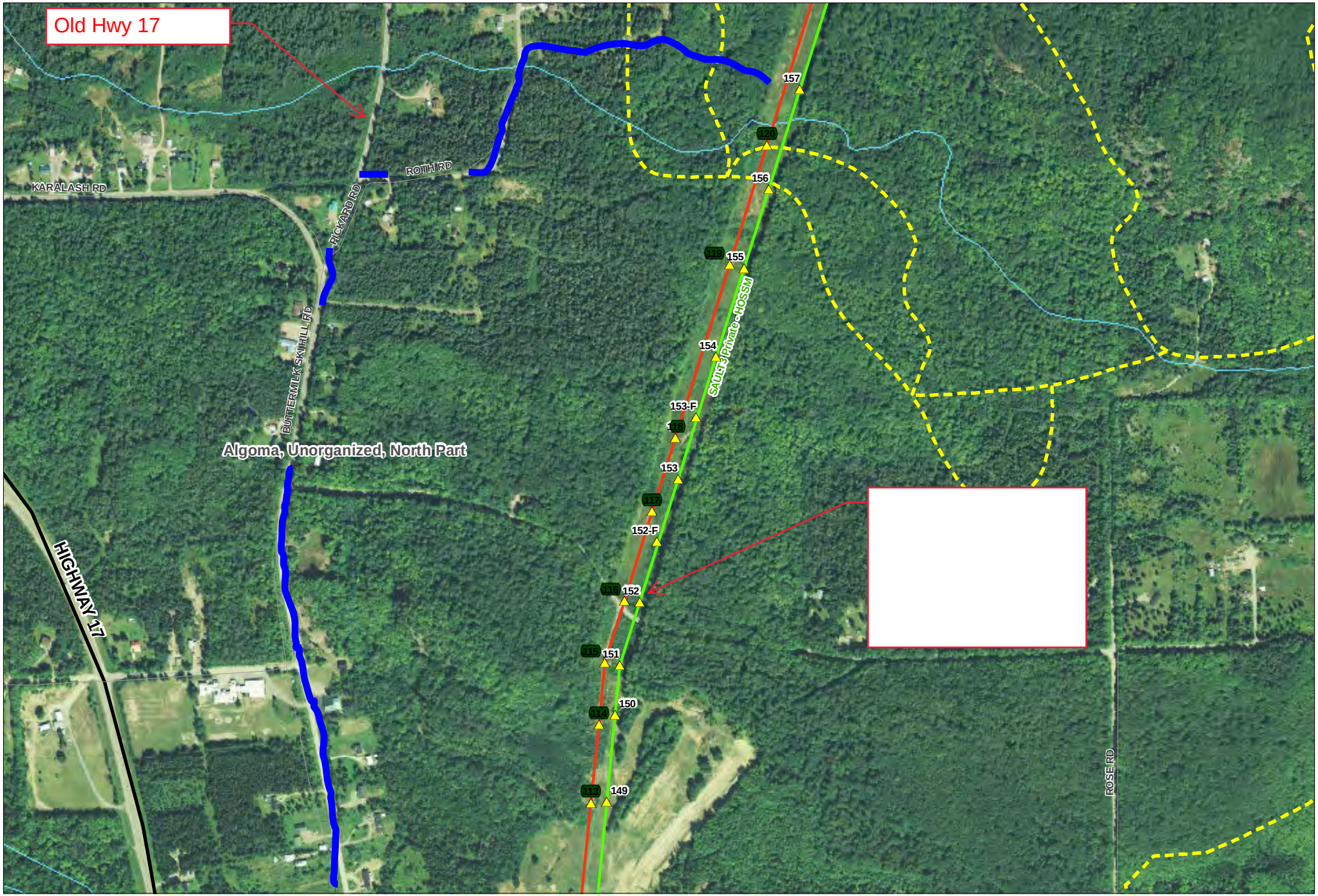
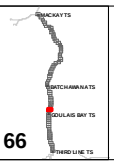
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Tile 47 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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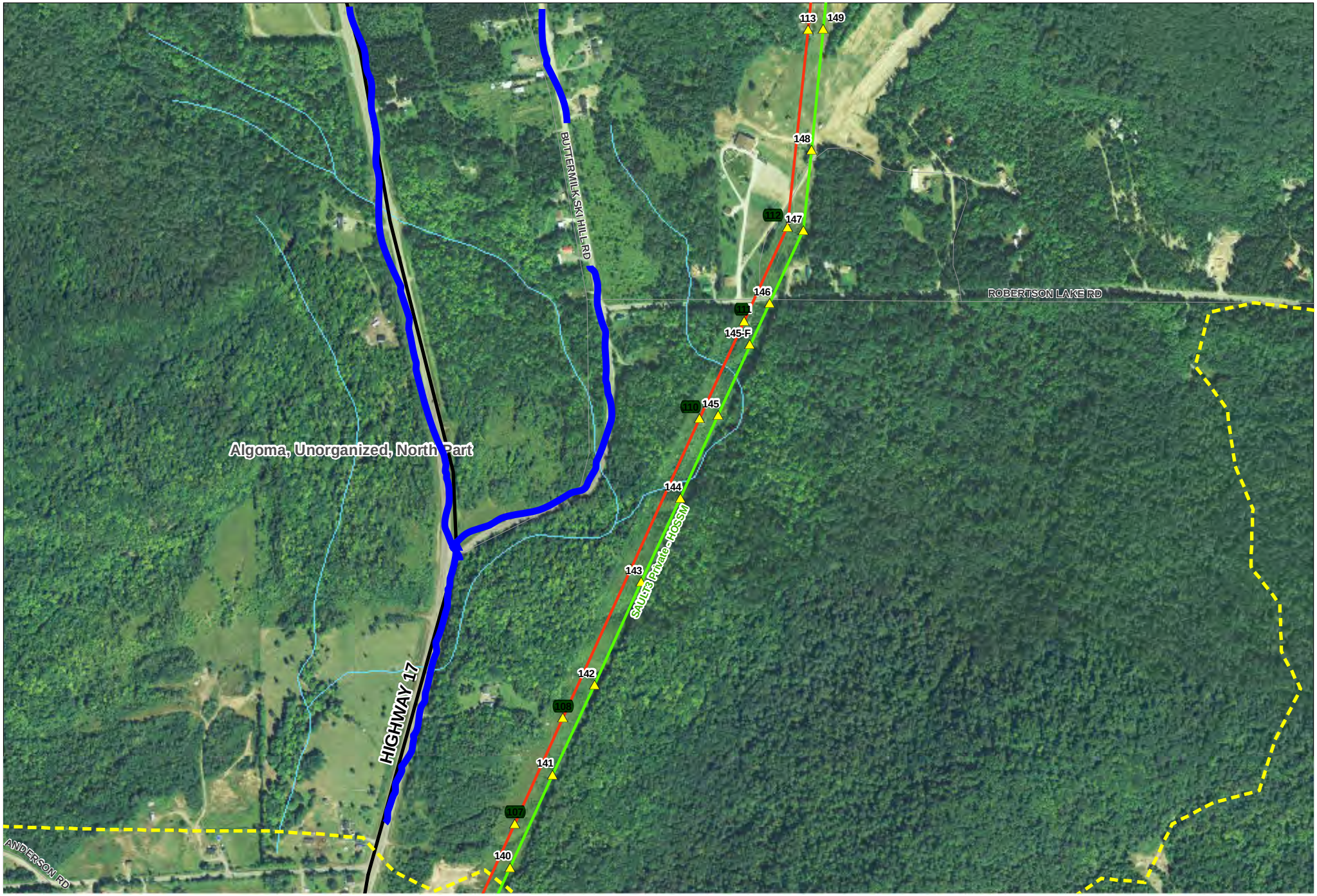
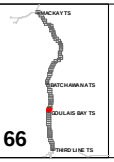
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 48 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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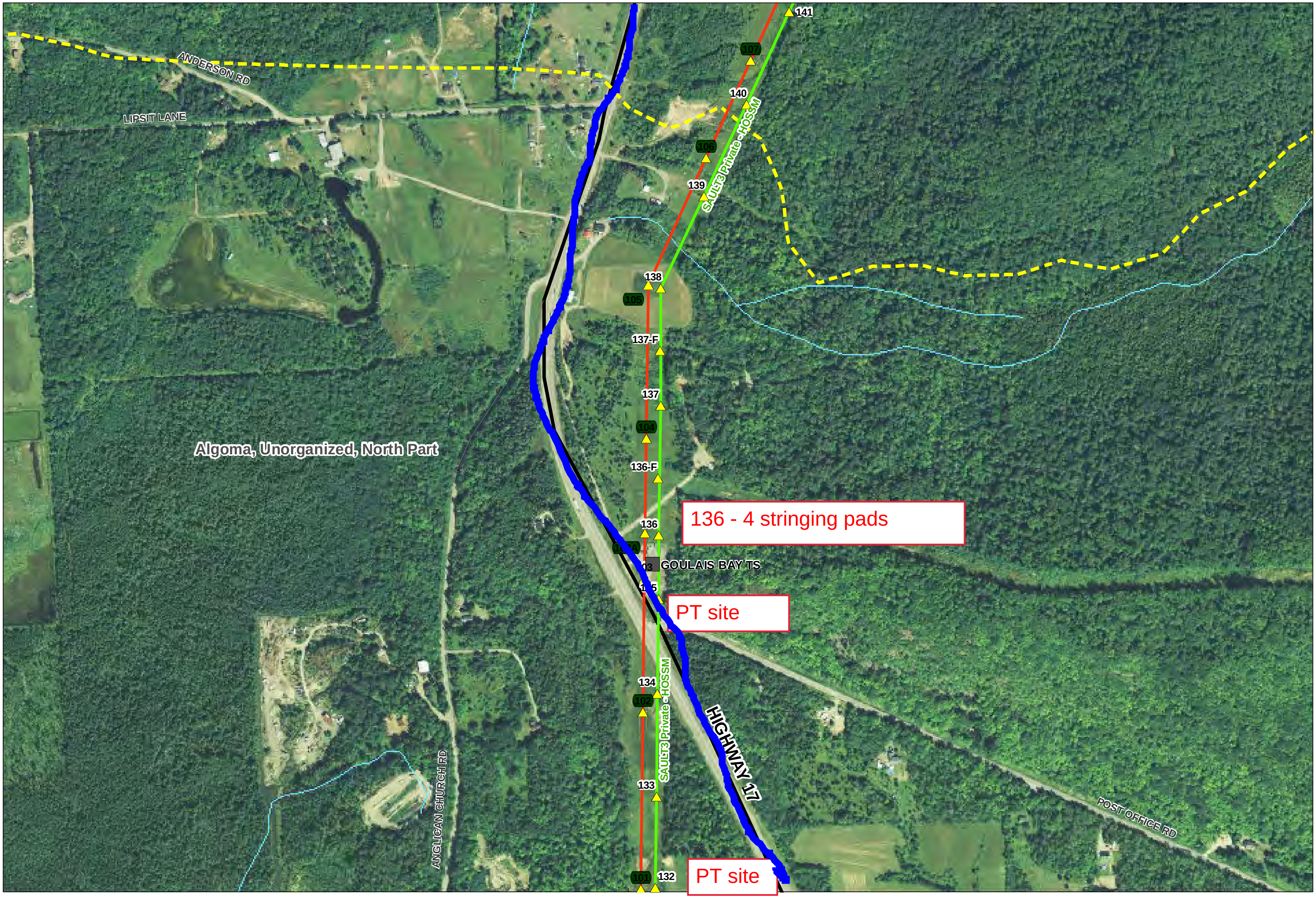
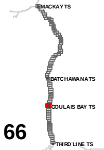
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 49 of 66

Structure	Station / Junction
115 kV Transmission Line	230 kV Transmission Line
Highway	Major Road
Road	Railway
Trails	Watercourse
Waterbody	Municipal Boundary

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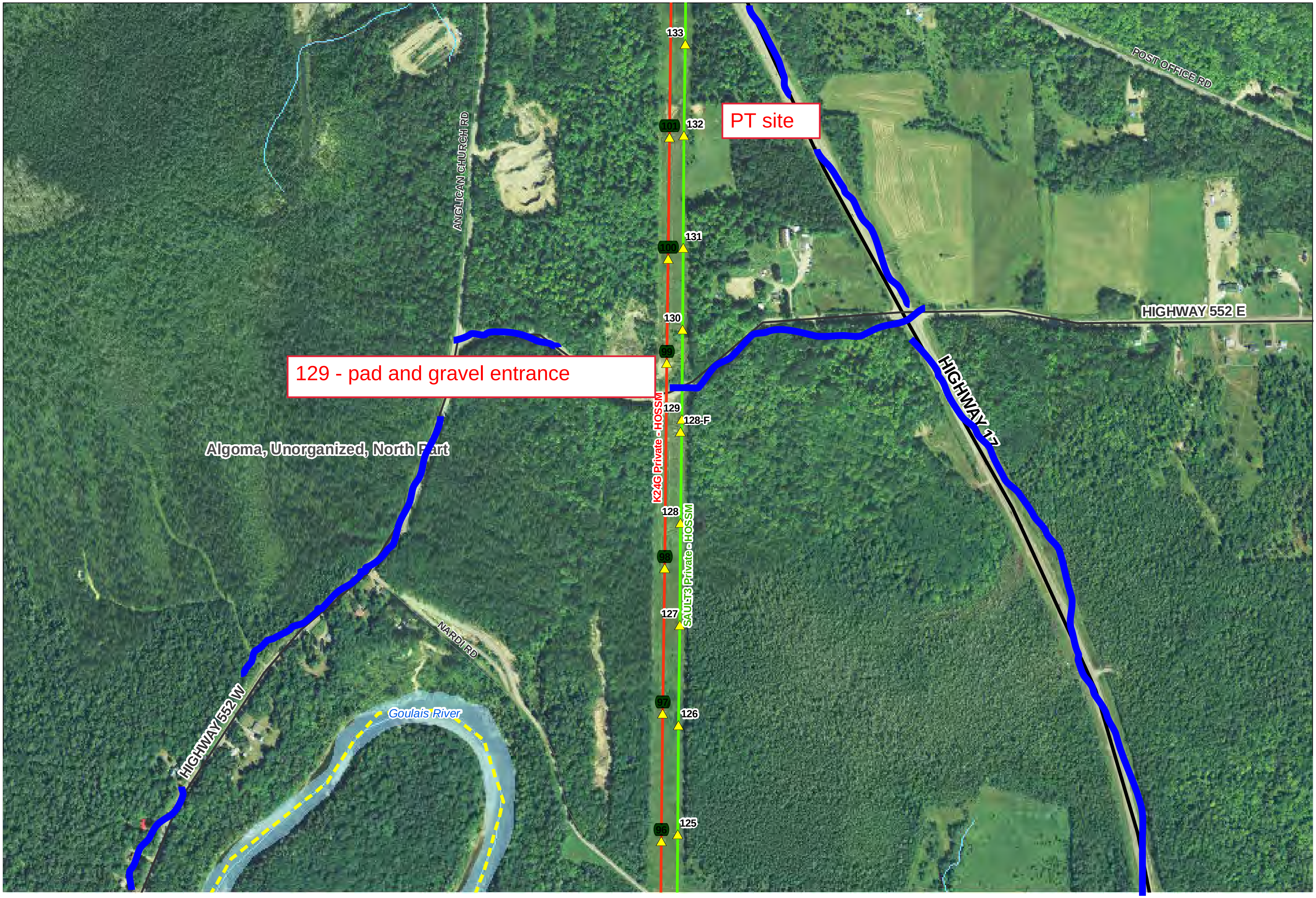
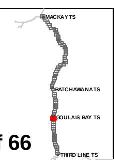
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 50 of 66

Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
		Road
		Railway
Trails	Watercourse	Waterbody
Municipal Boundary		

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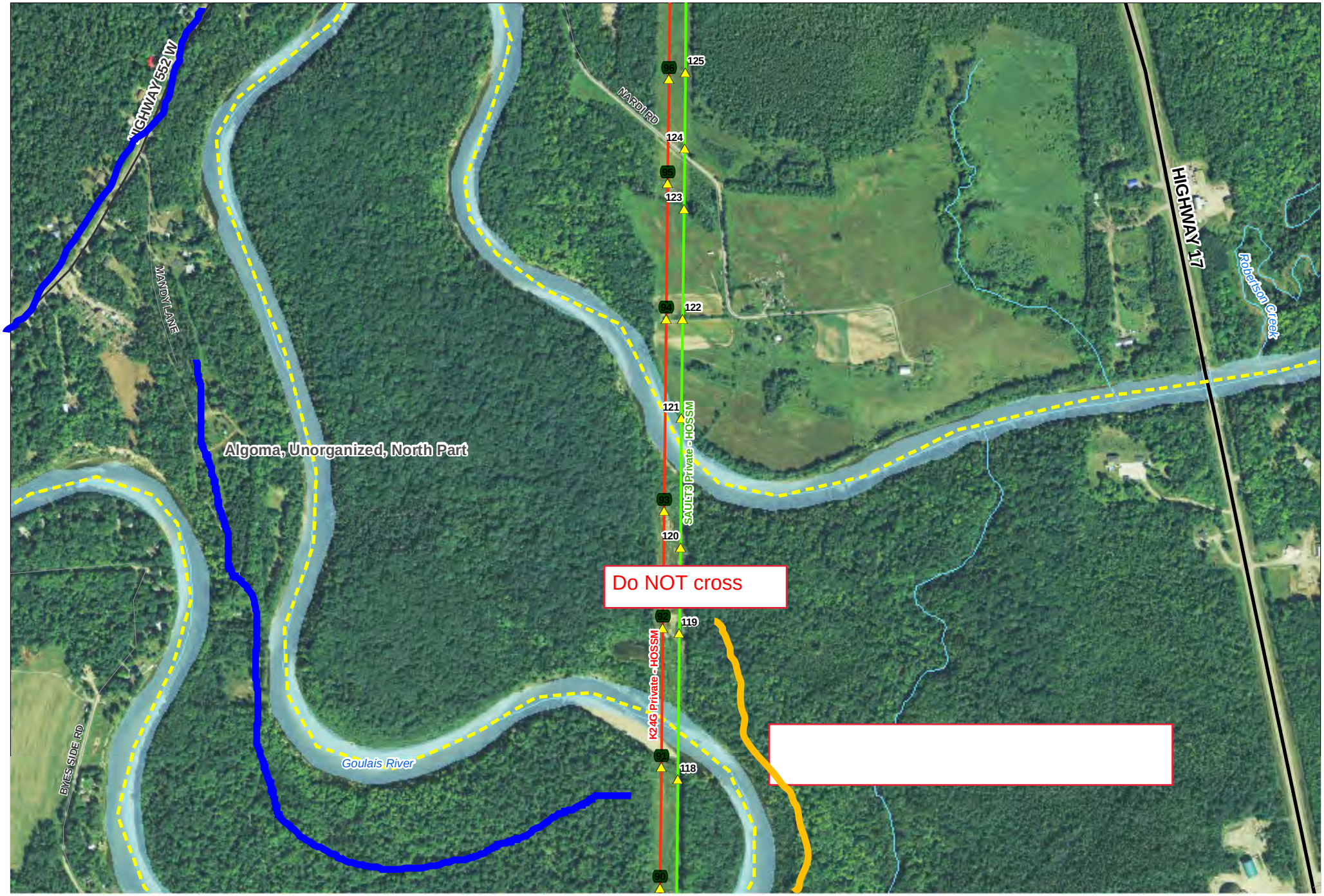
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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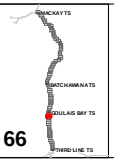
Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 51 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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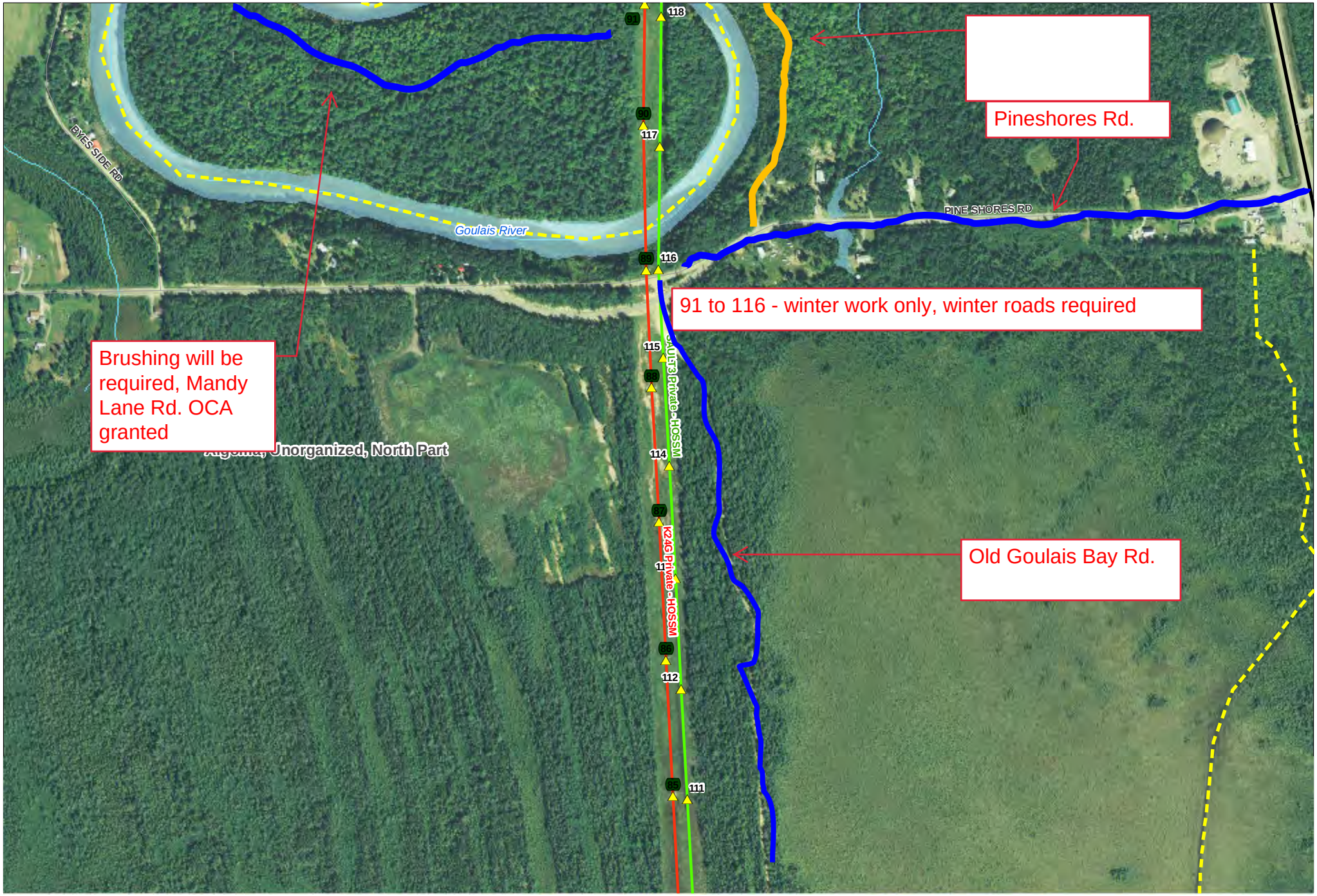
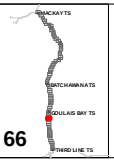
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 52 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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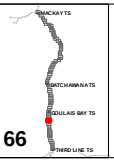
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000

0 100 200 m

Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 53 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

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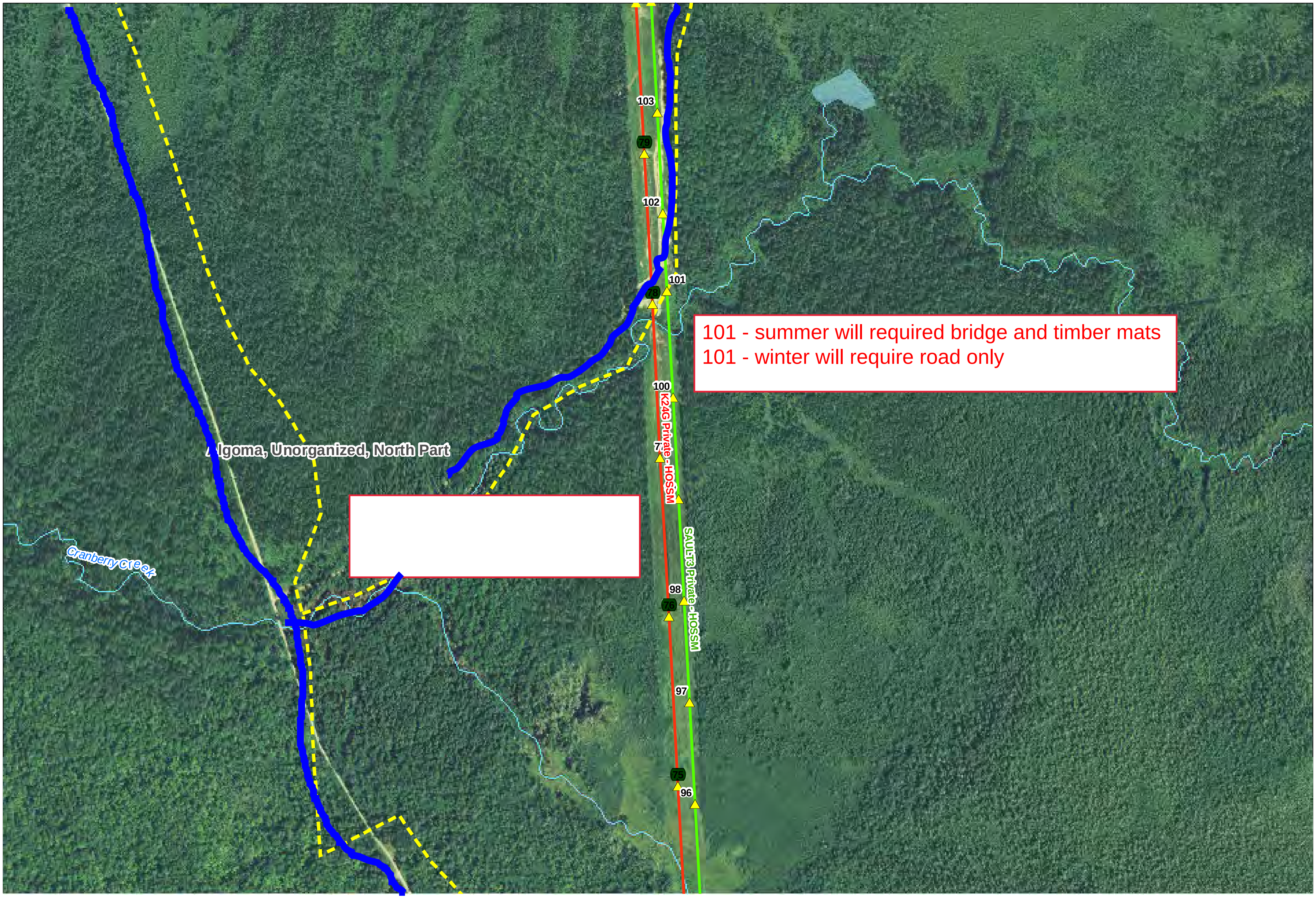
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000

0 100 200 m

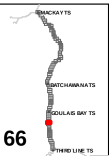


Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0, 100, 200 m

Legend			
Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

Key Map



Tile 54 of 66

Produced By: Inergi LP, GIS Services
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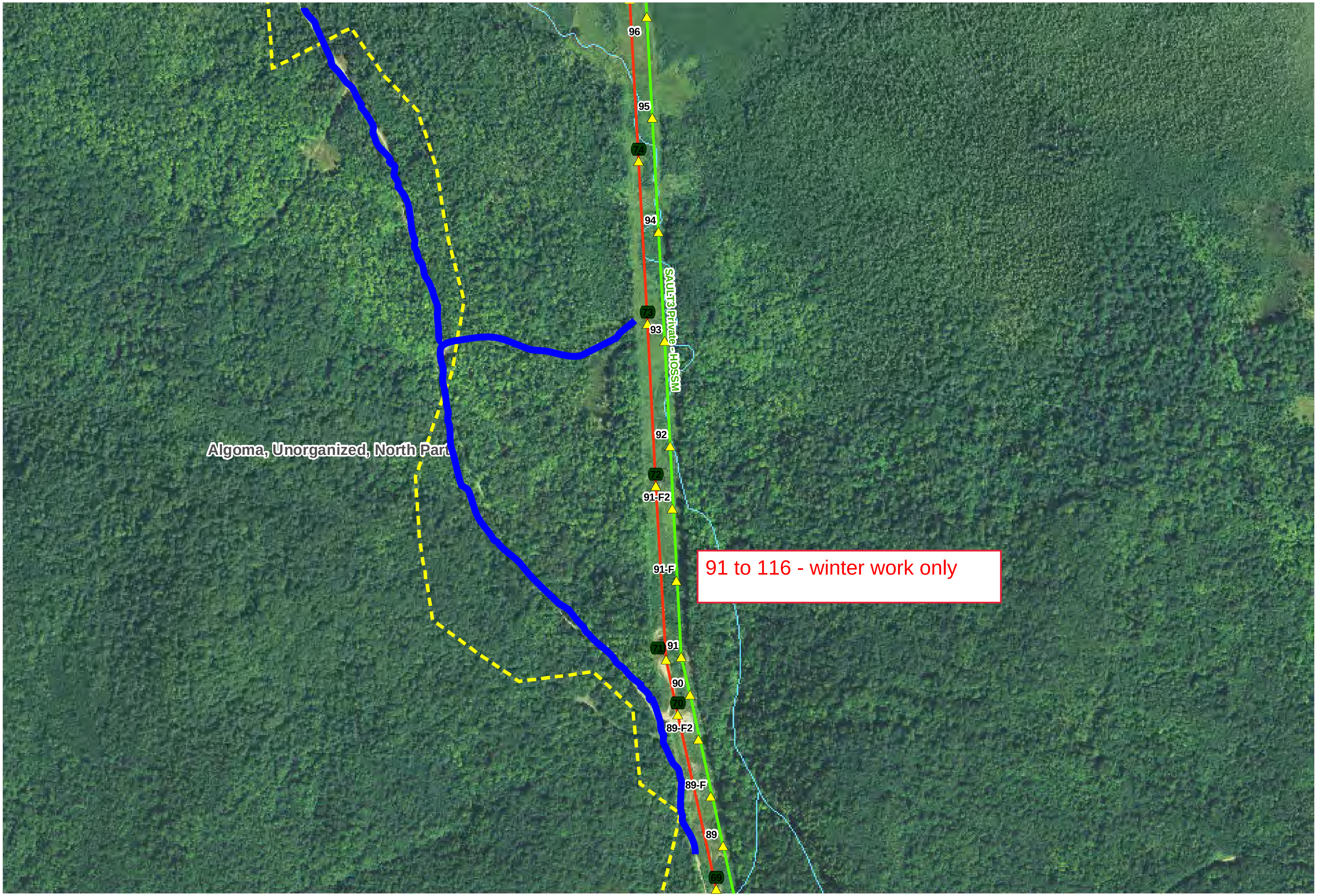

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Key Map

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Produced By: Inergi LP, GIS Services
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Map20-054_Sault3

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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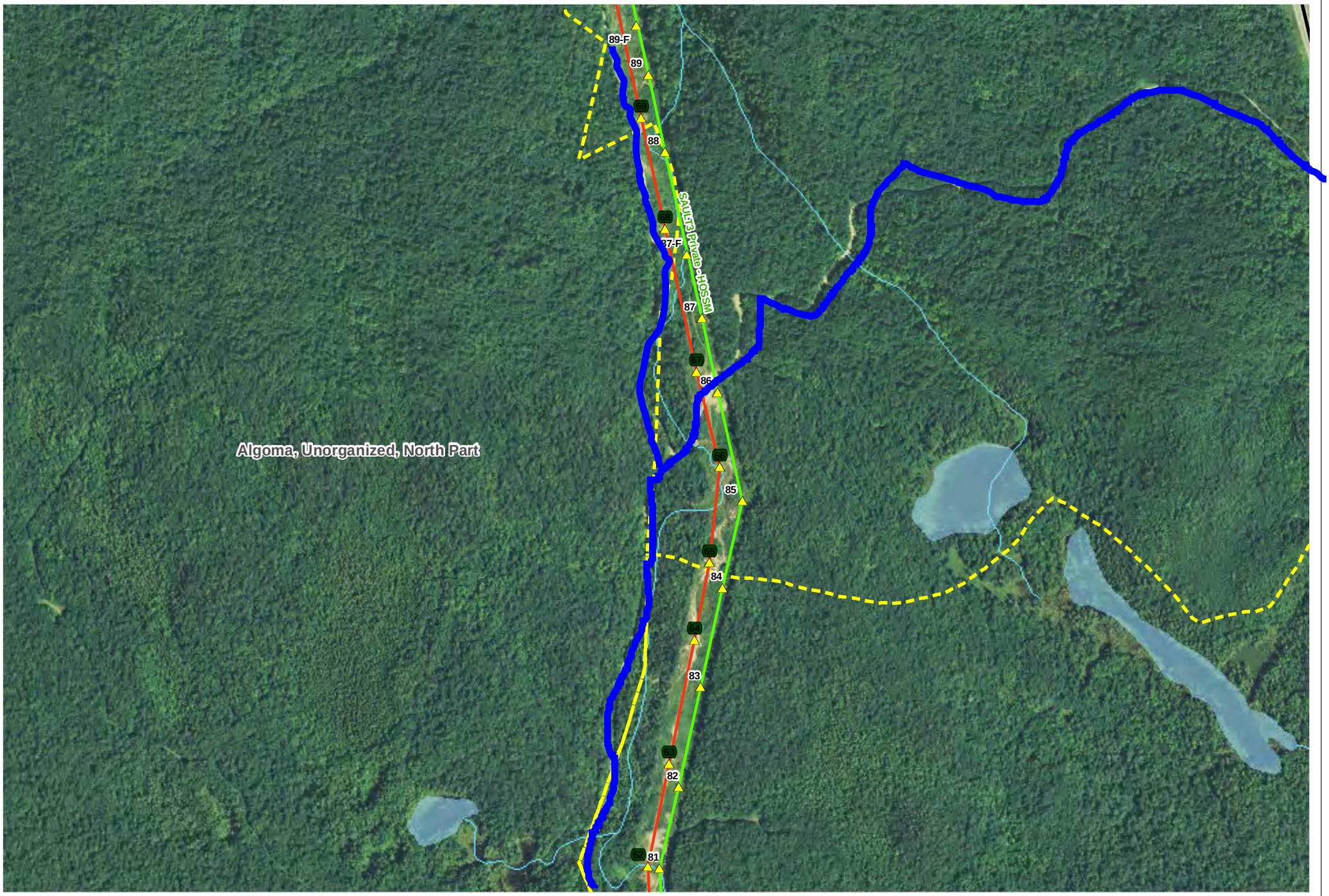
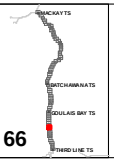


Key Map



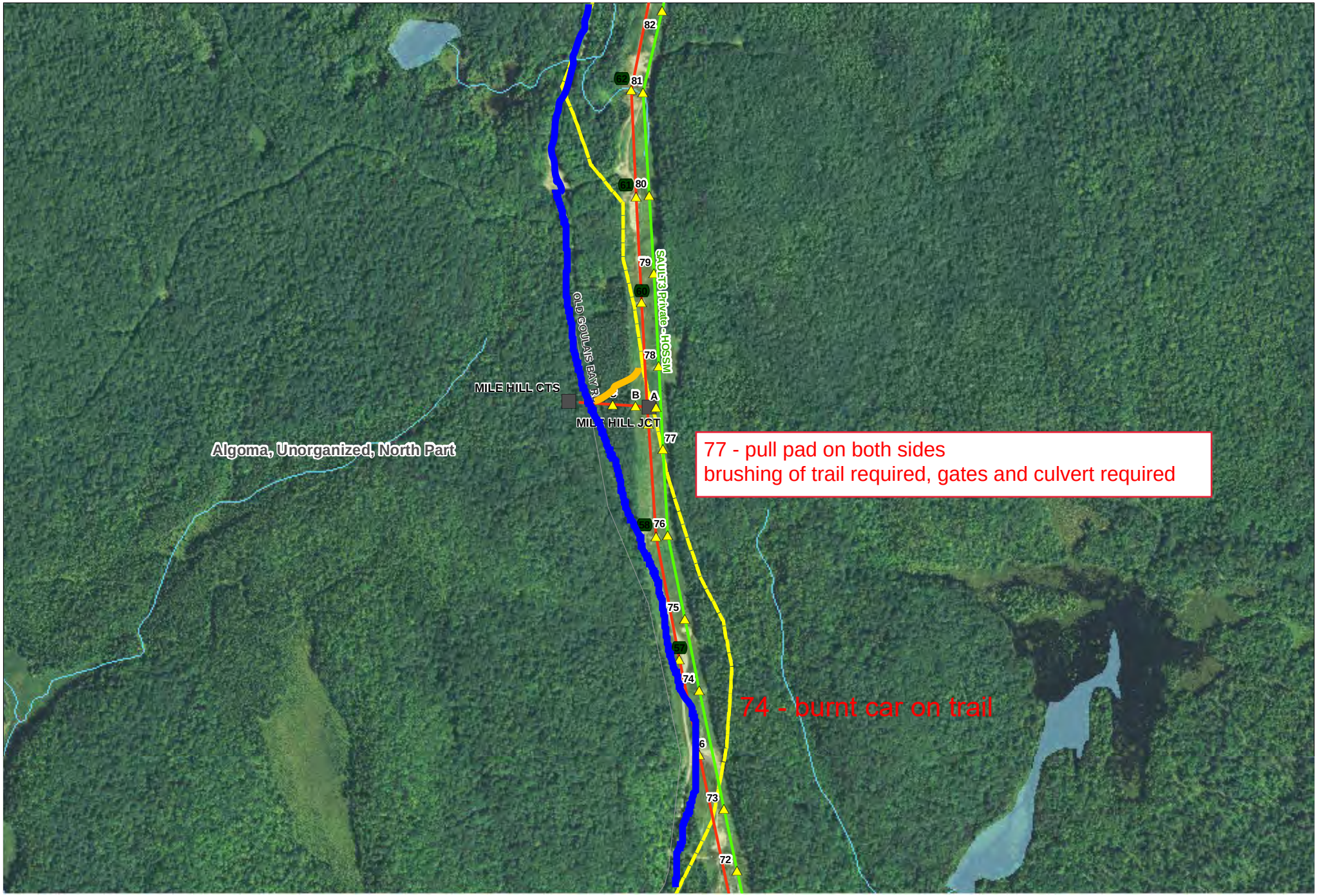
Tile 56 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

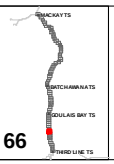
Page 56 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



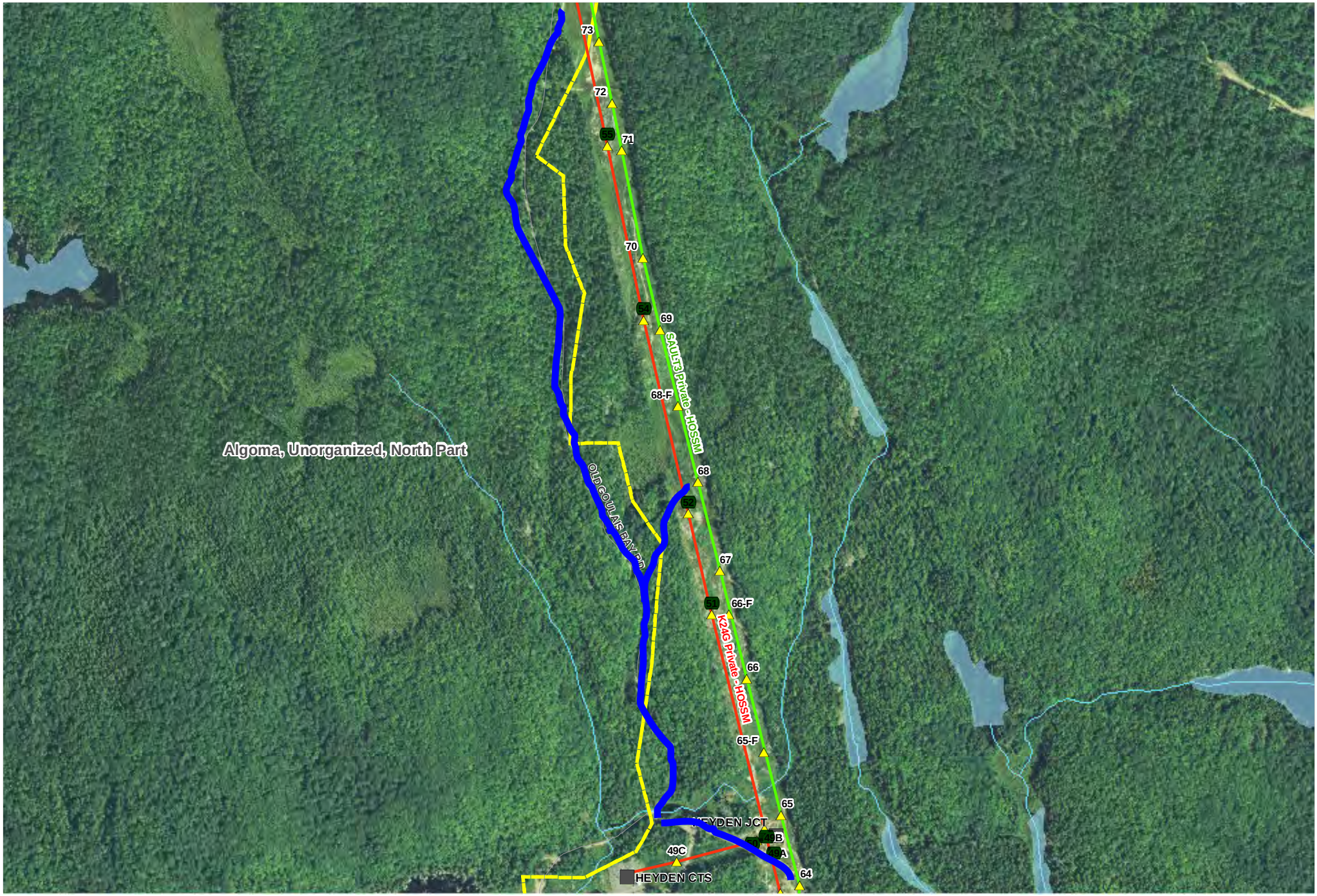
Tile 57 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Page 57 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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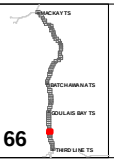


Tile 58 of 66

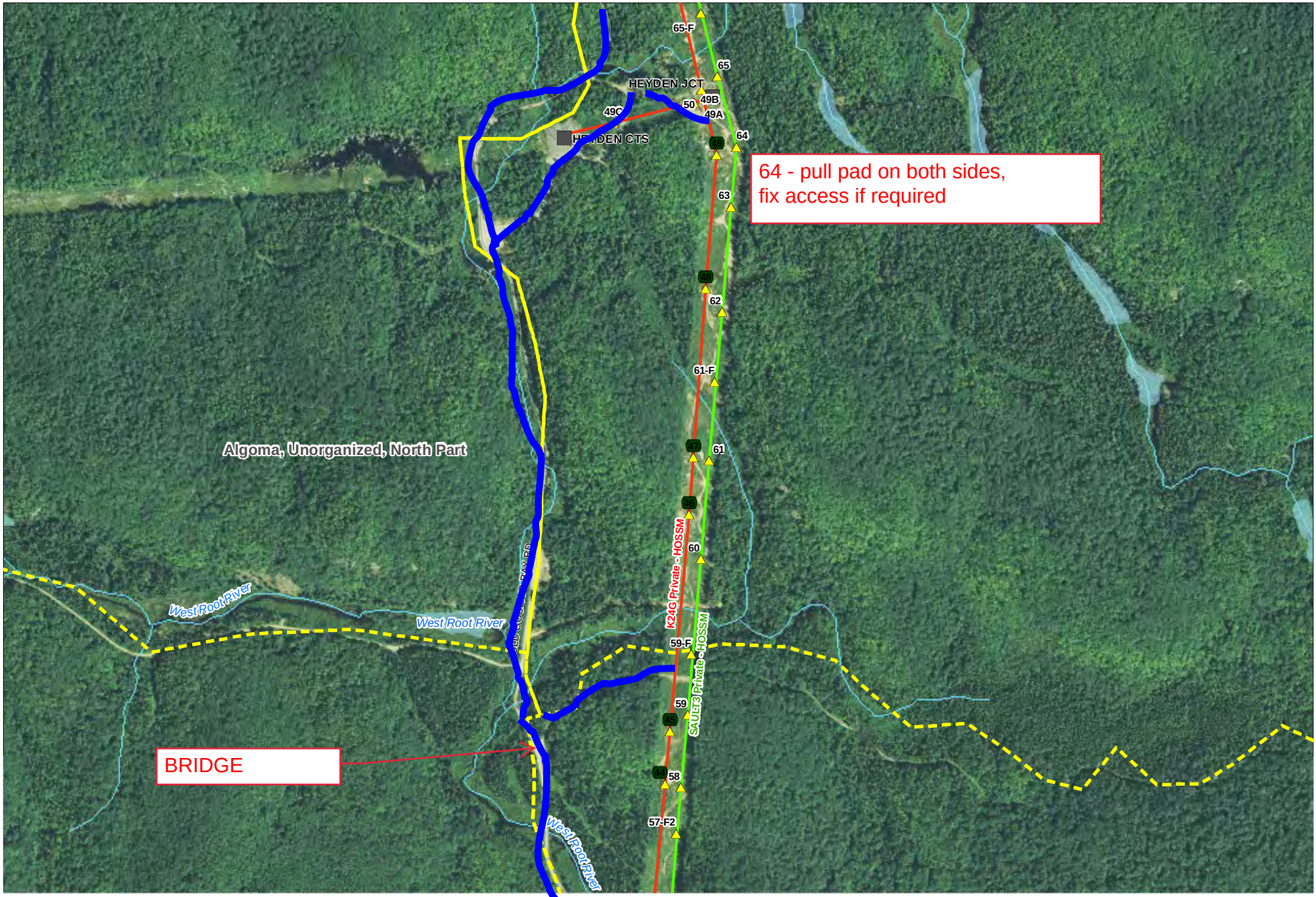
Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Page 58 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

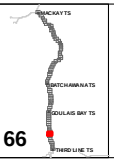
1:8,000

0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



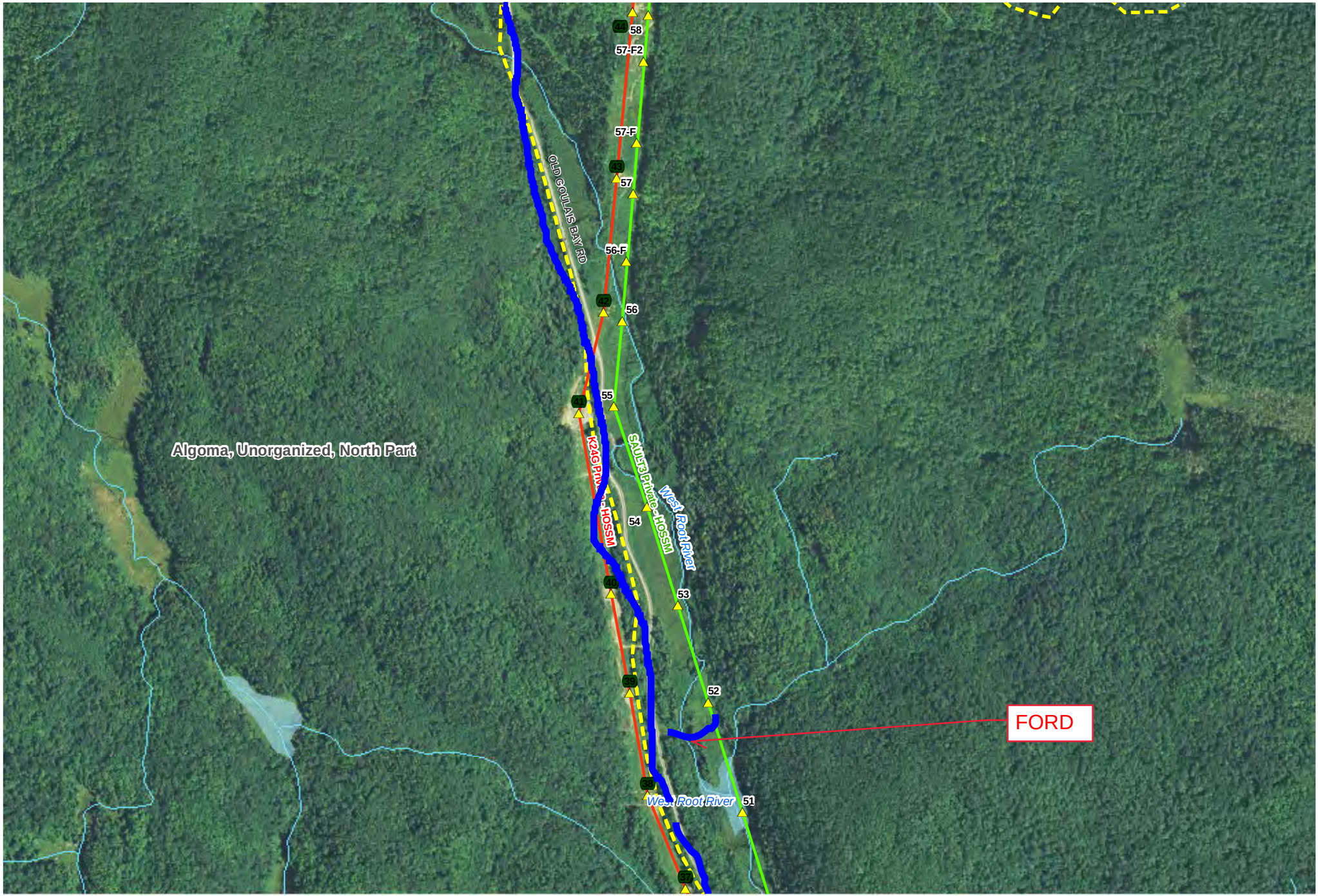
Tile 59 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Page 59 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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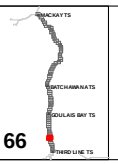


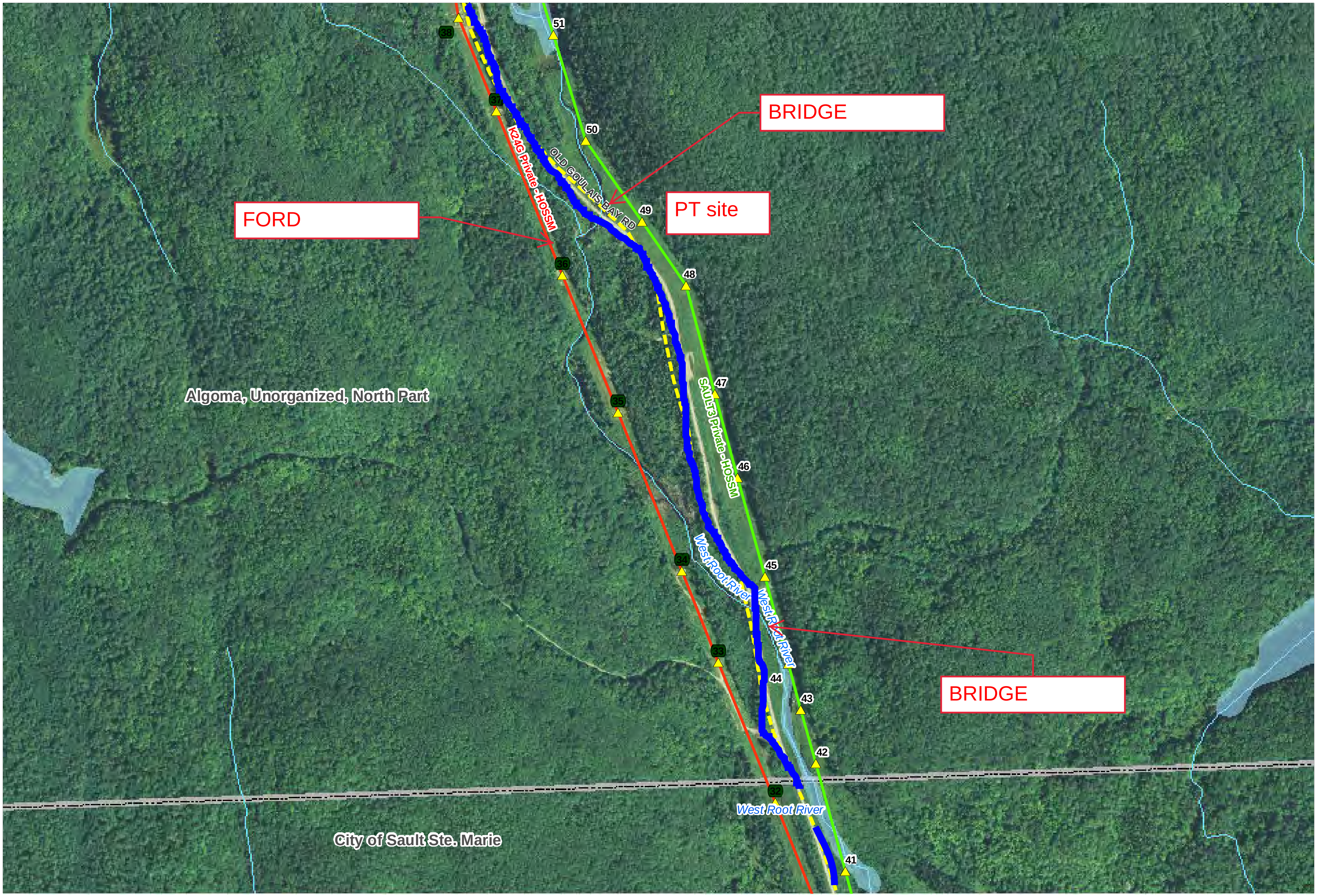
Tile 60 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Page 60 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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Key Map

Tile 61 of 66

Structure	115 kV Transmission Line	Highway	Trails
Station / Junction	230 kV Transmission Line	Major Road	Watercourse
		Road	Waterbody
		Railway	Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m

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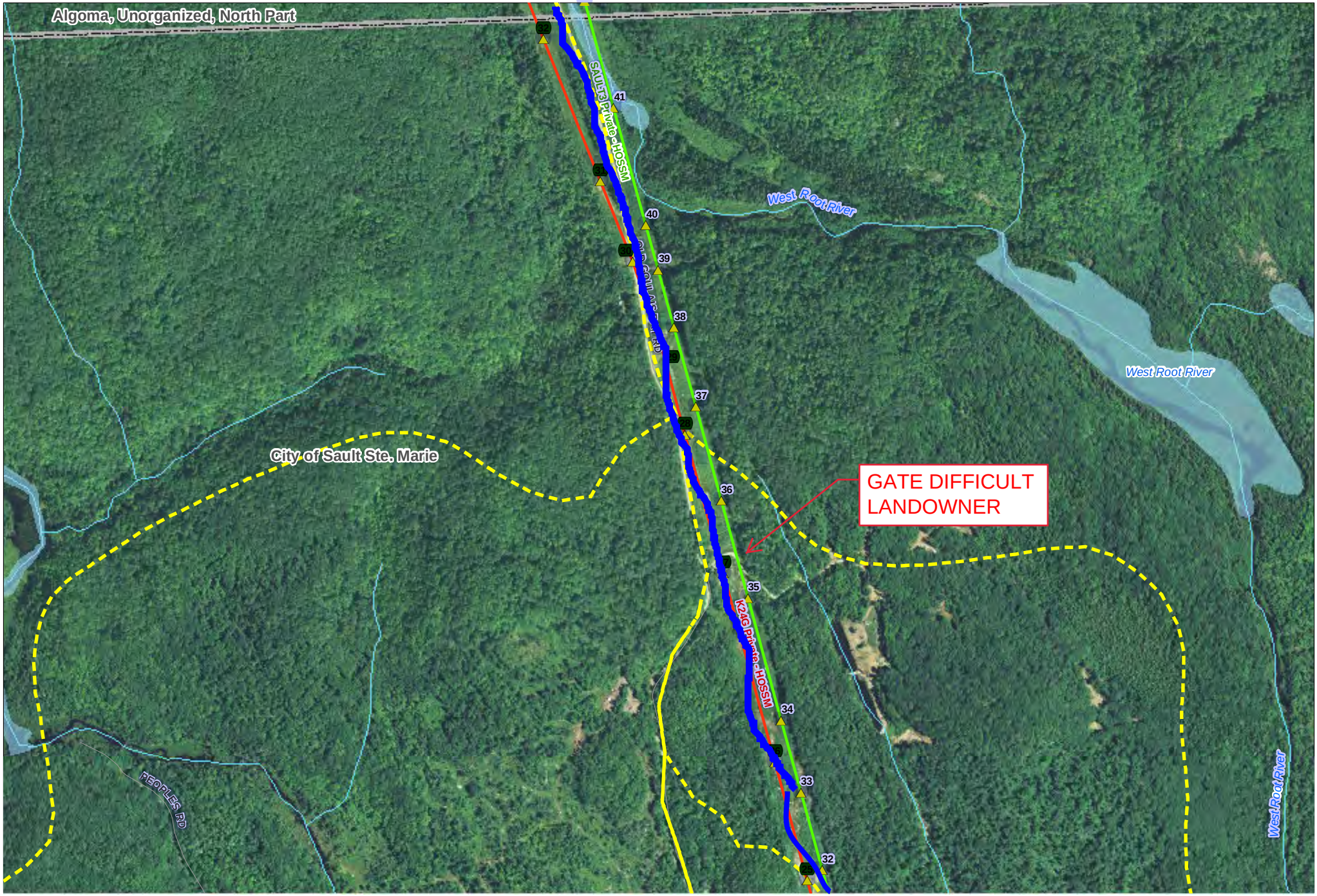

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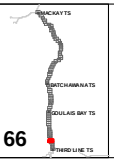


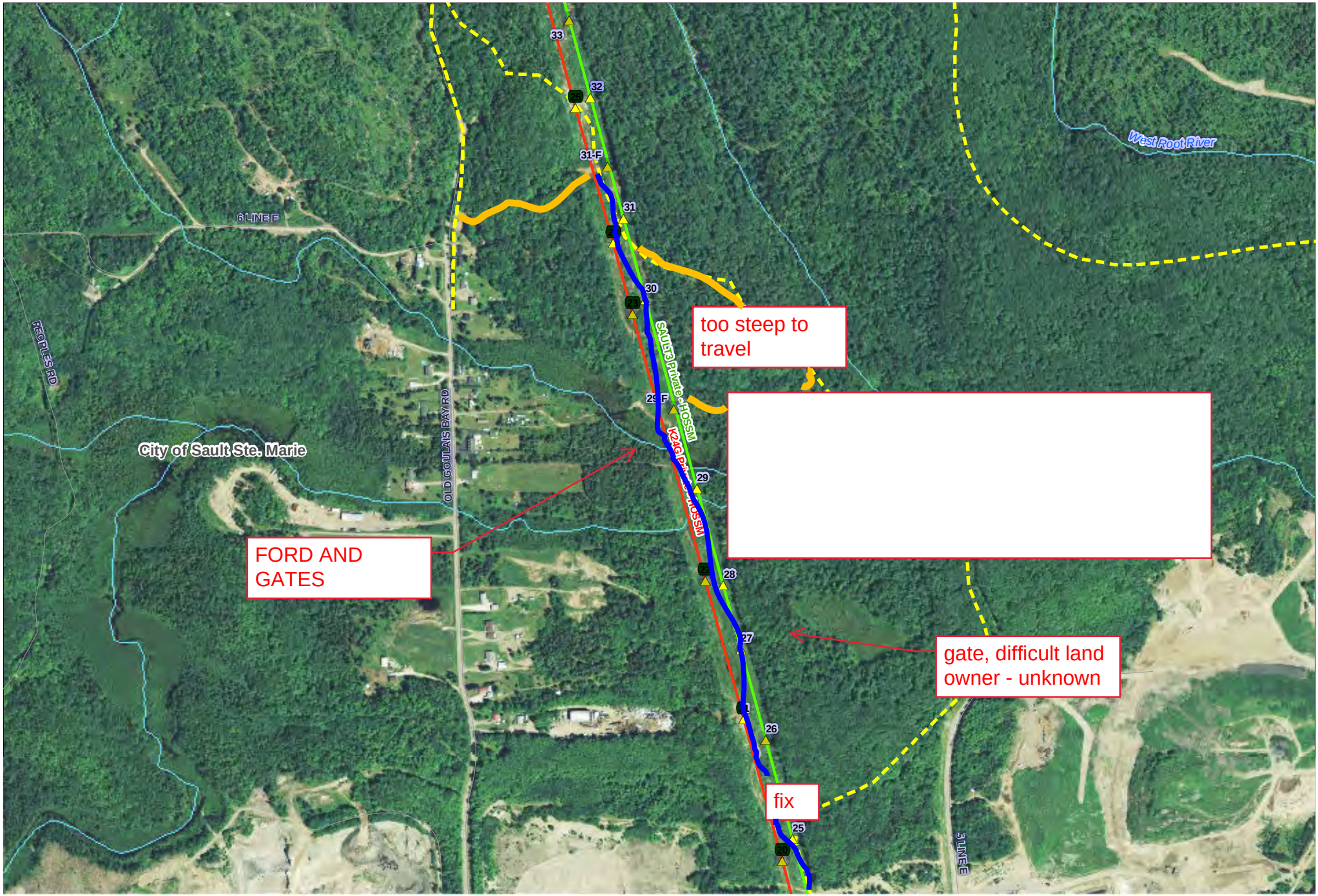
Tile 62 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Page 62 of 66

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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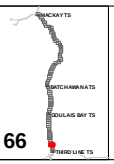
Date: Jun 22, 2020
Map20-054_Sault3

Key Map



Tile 63 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one
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Date: Jun 22, 2020
Map20-054_Sault3

Key Map

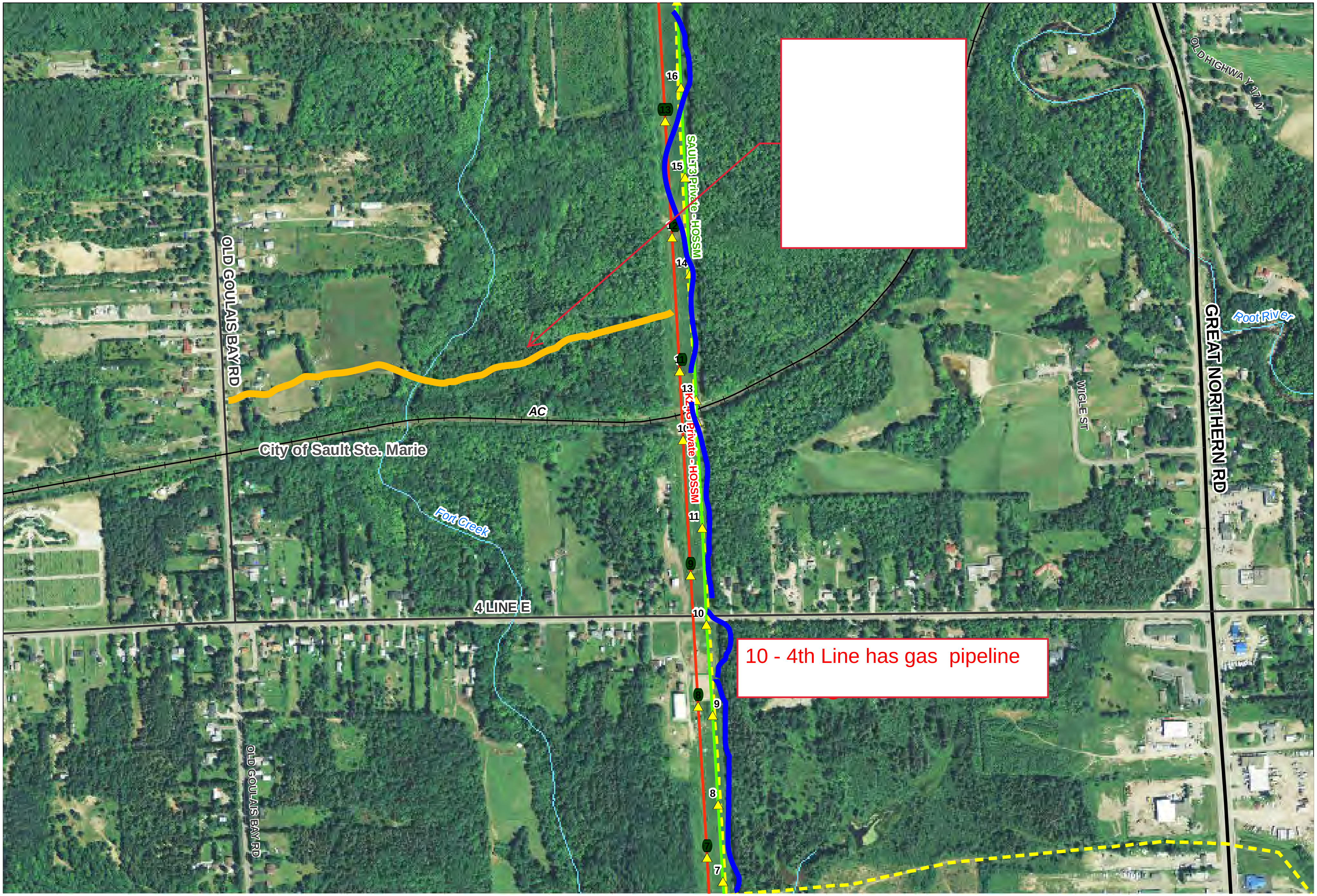
MACKAY TS
BATCHAWANA TS
GOULAIS BAY TS
THIRD LINE TS

Tile 64 of 66

Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
		Road
		Railway
Trails	Watercourse	Waterbody
Municipal Boundary		

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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Date: Jun 22, 2020
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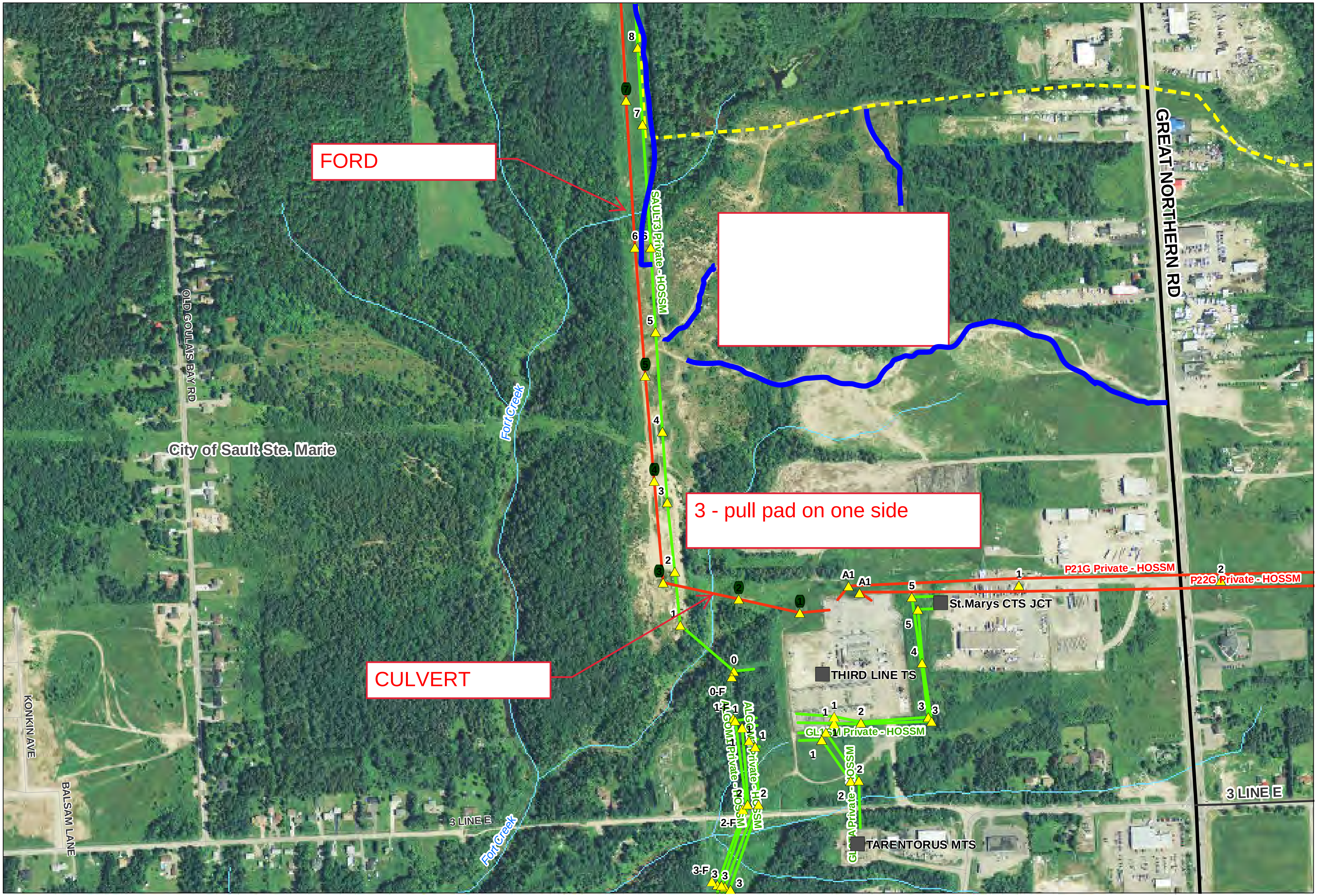
Key Map

Tile 65 of 66

Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
Trails	Road	Watercourse
Railway	Waterbody	Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Produced By: Inergi LP, GIS Services
Date: Jun 22, 2020
Map20-054_Sault3

Key Map

Tile 66 of 66

Legend		
Structure	115 kV Transmission Line	Highway
Station / Junction	230 kV Transmission Line	Major Road
Trails	Watercourse	Road
Waterbody	Municipal Boundary	Railway

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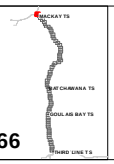
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 — 0 100 200 m

Key Map



Tile 1 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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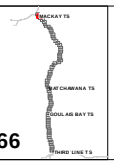
Key Map



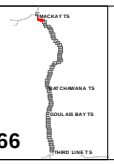
Tile 2 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

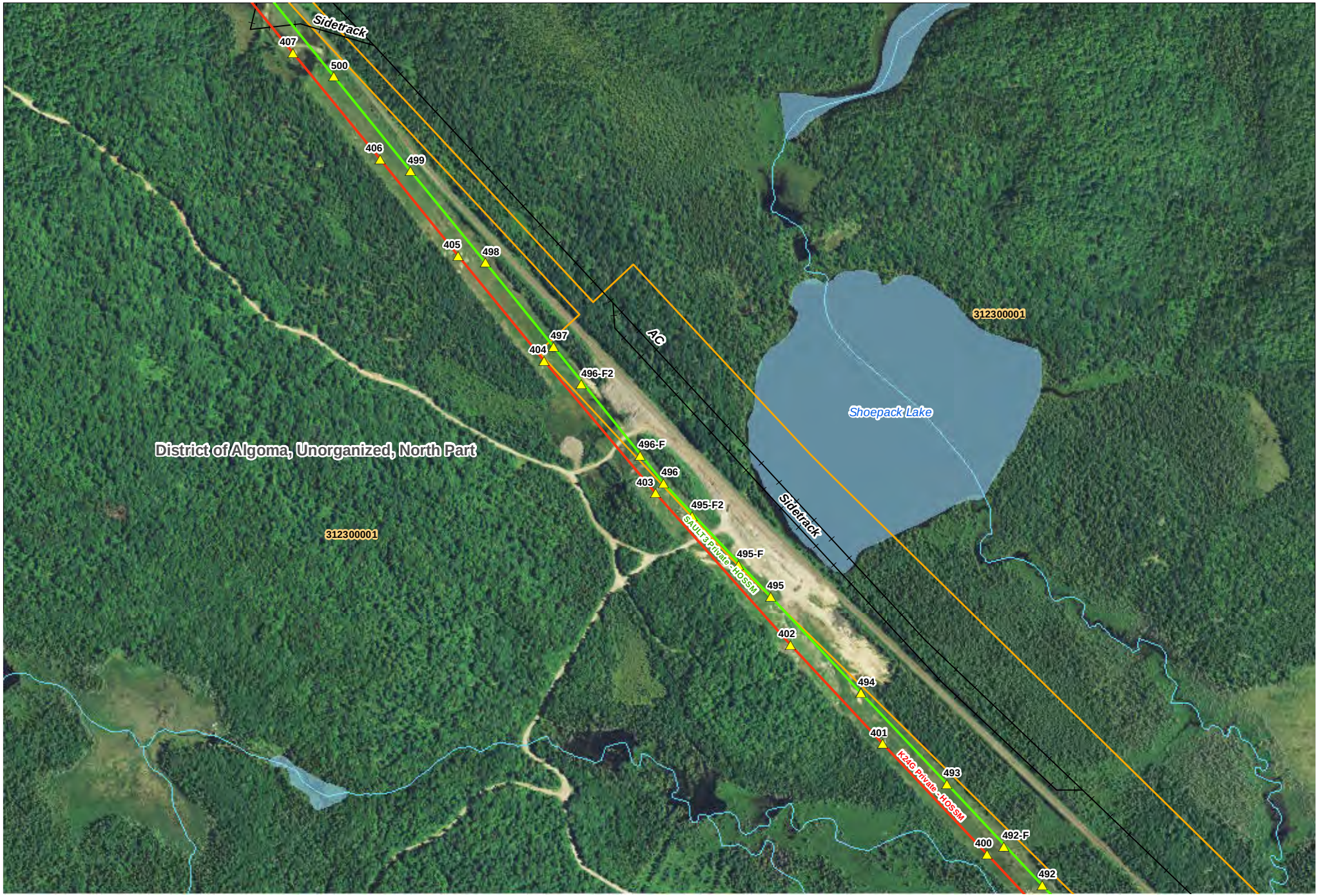
Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



hydro one

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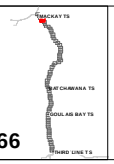
Key Map



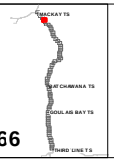
Tile 4 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



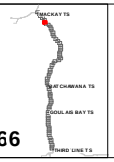
Tile 5 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Tile 6 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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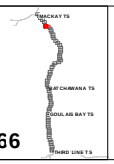
Key Map



Tile 7 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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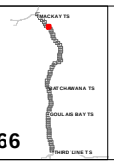
Key Map



Tile 8 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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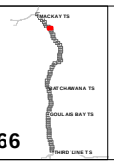
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



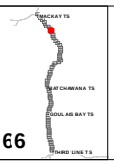
Tile 9 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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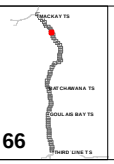
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



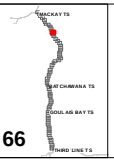
Tile 11 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



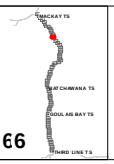
Tile 12 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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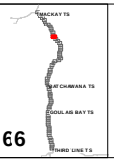
Key Map



Tile 14 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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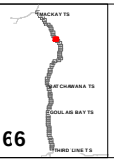
Key Map



Tile 15 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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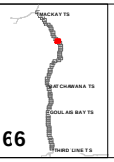
Key Map



Tile 16 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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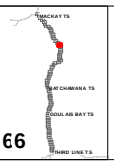
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map

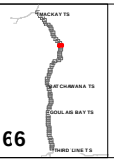


Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map

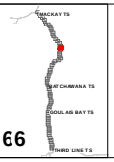


- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



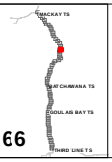
Tile 19 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Tile 20 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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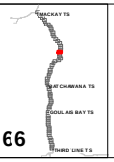
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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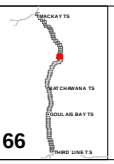
Key Map



Tile 22 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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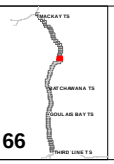
Key Map



Tile 23 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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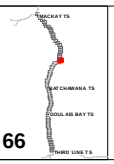
Key Map



Tile 24 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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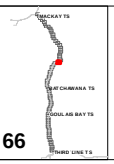
Key Map



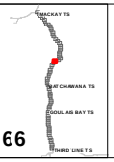
Tile 25 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Tile 26 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

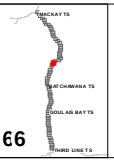
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

Produced By: Hydro One Networks Inc., GIS Services
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map

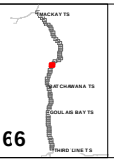


- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map

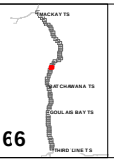


- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Tile 29 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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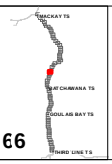
Key Map



Tile 30 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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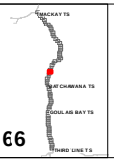
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map

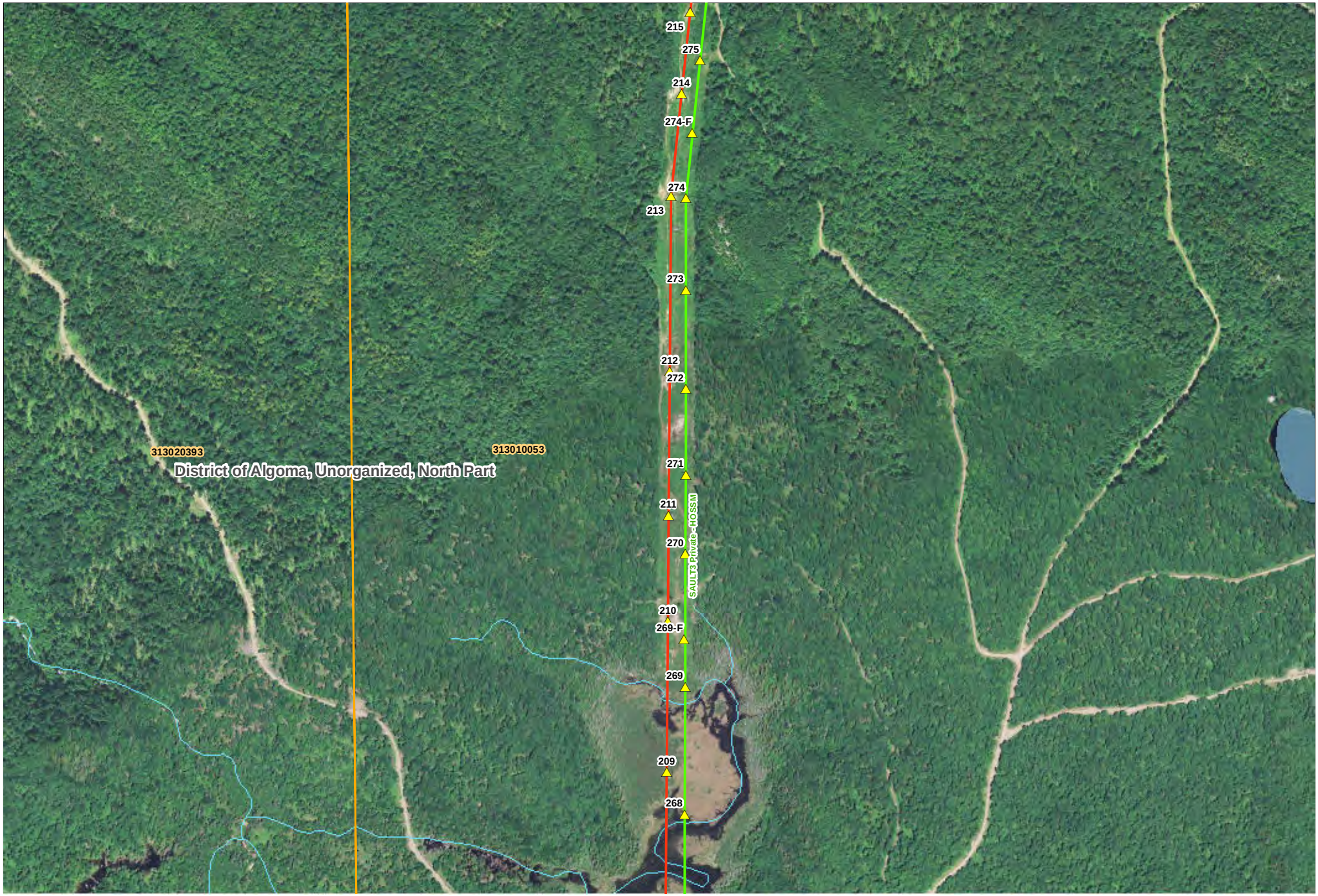


Tile 31 of 66

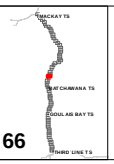
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map

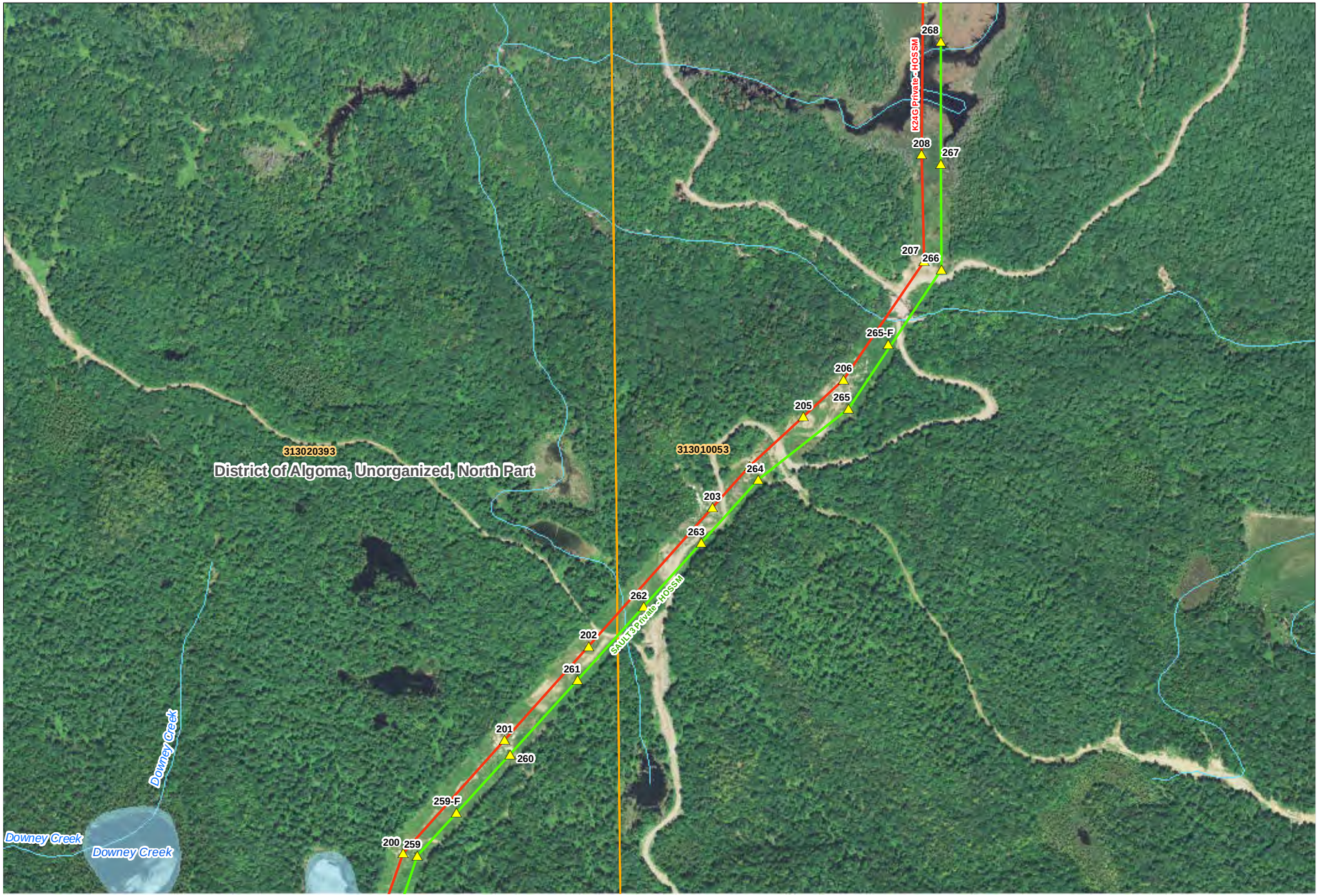


Tile 32 of 66

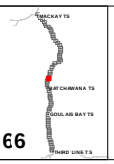
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



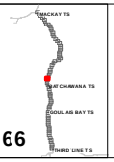
Tile 33 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

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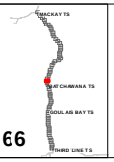
Key Map



Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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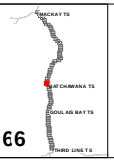
Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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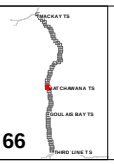
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



Tile 37 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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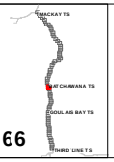
Key Map



- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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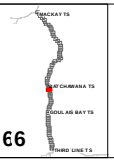
Key Map

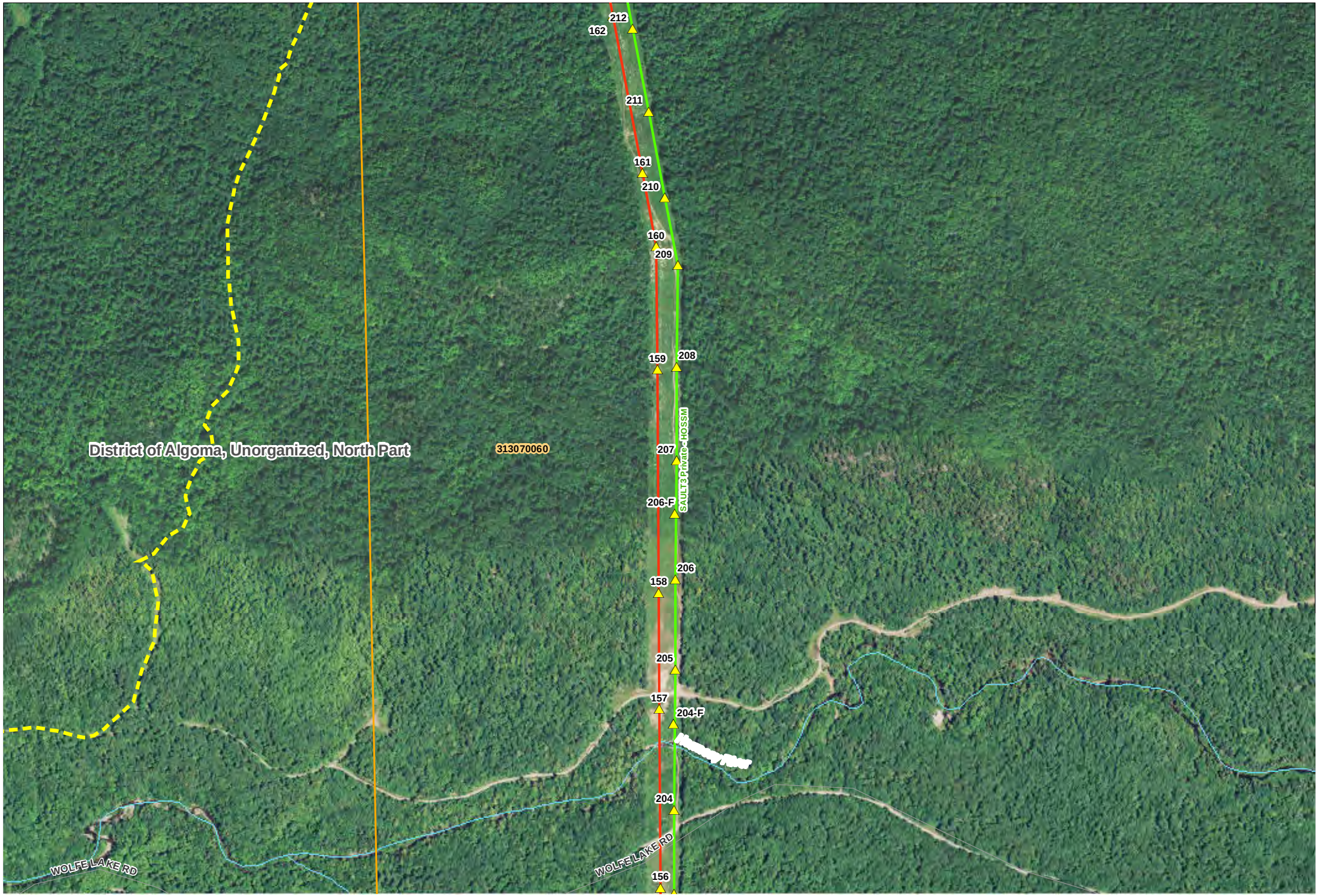


Tile 39 of 66

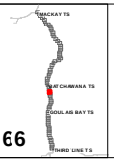
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map



Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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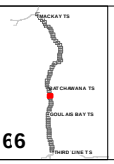
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map

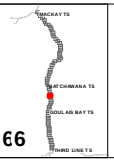


- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map

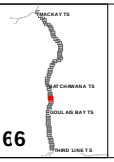


- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

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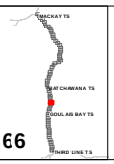
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



Tile 44 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

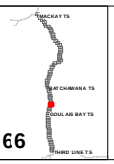
Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

hydro one

Produced By: Hydro One Networks Inc., GIS Services
Date: May 3, 2023 / Map20-054_Sault3_PIN

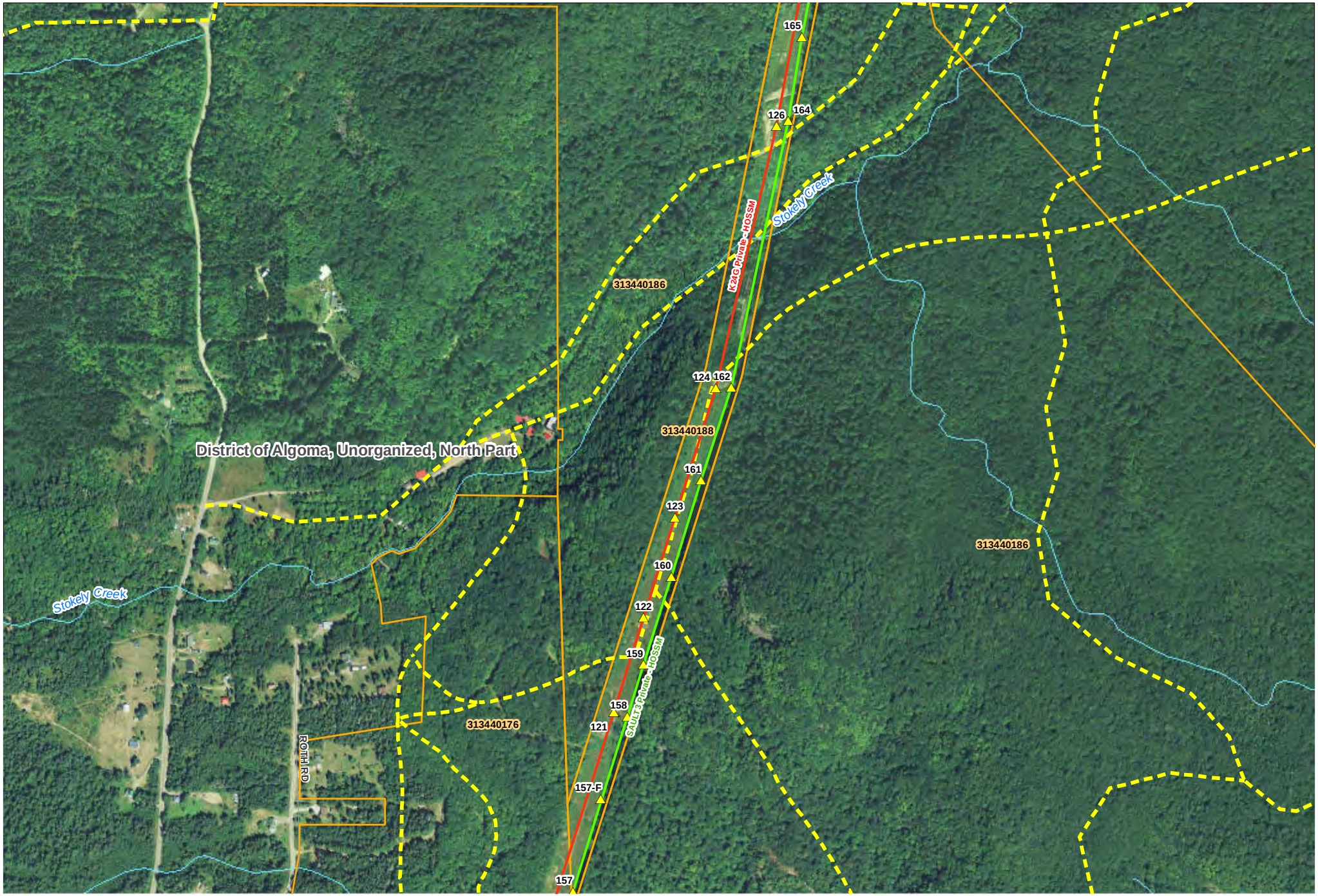
Key Map



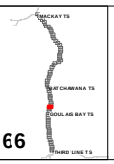
- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



Key Map

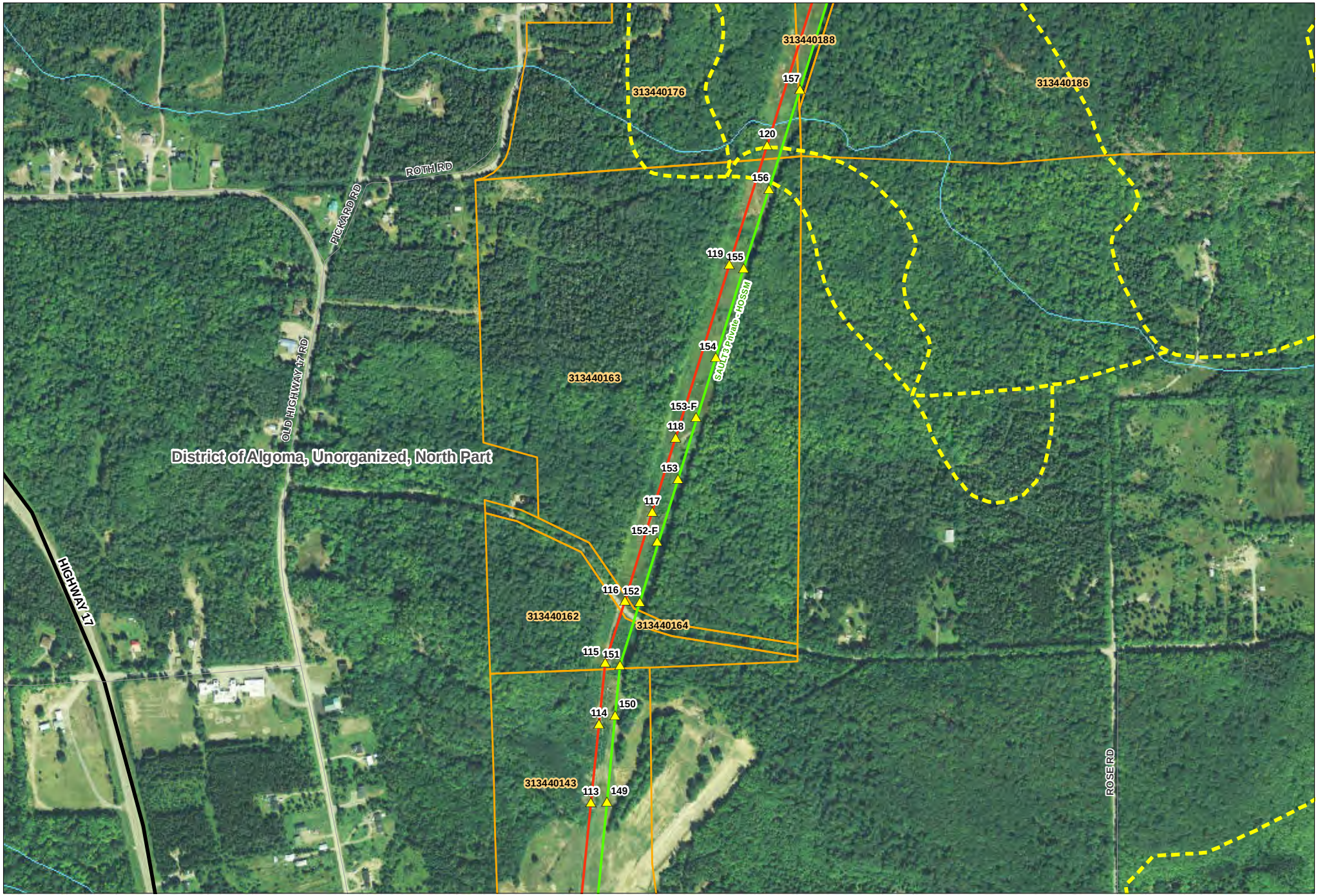


Tile 46 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



hydro one

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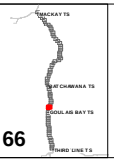
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map

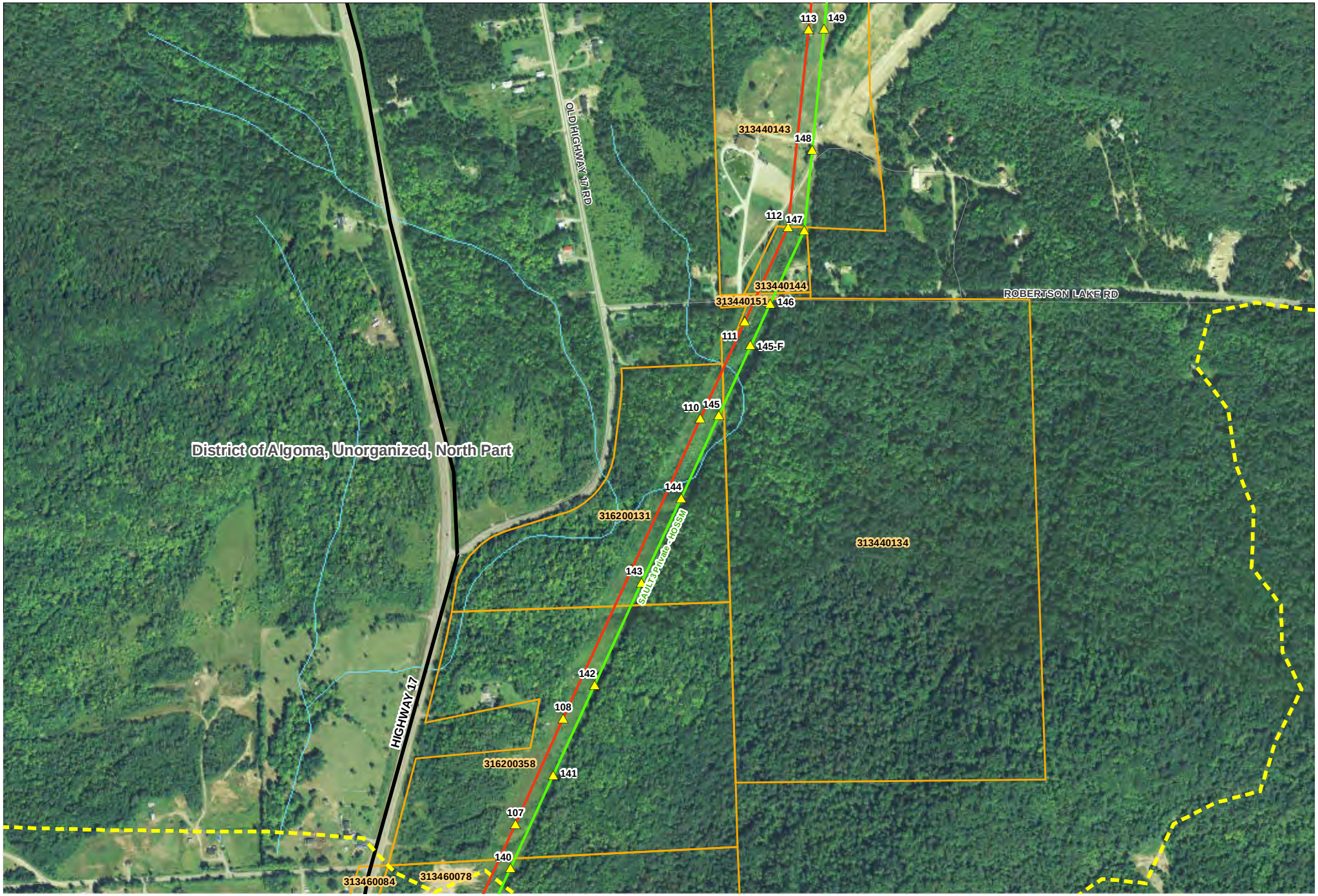


Tile 47 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

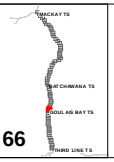
1:8,000 0 100 200 m



hydro one

Produced By: Hydro One Networks Inc., GIS Services
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



Tile 48 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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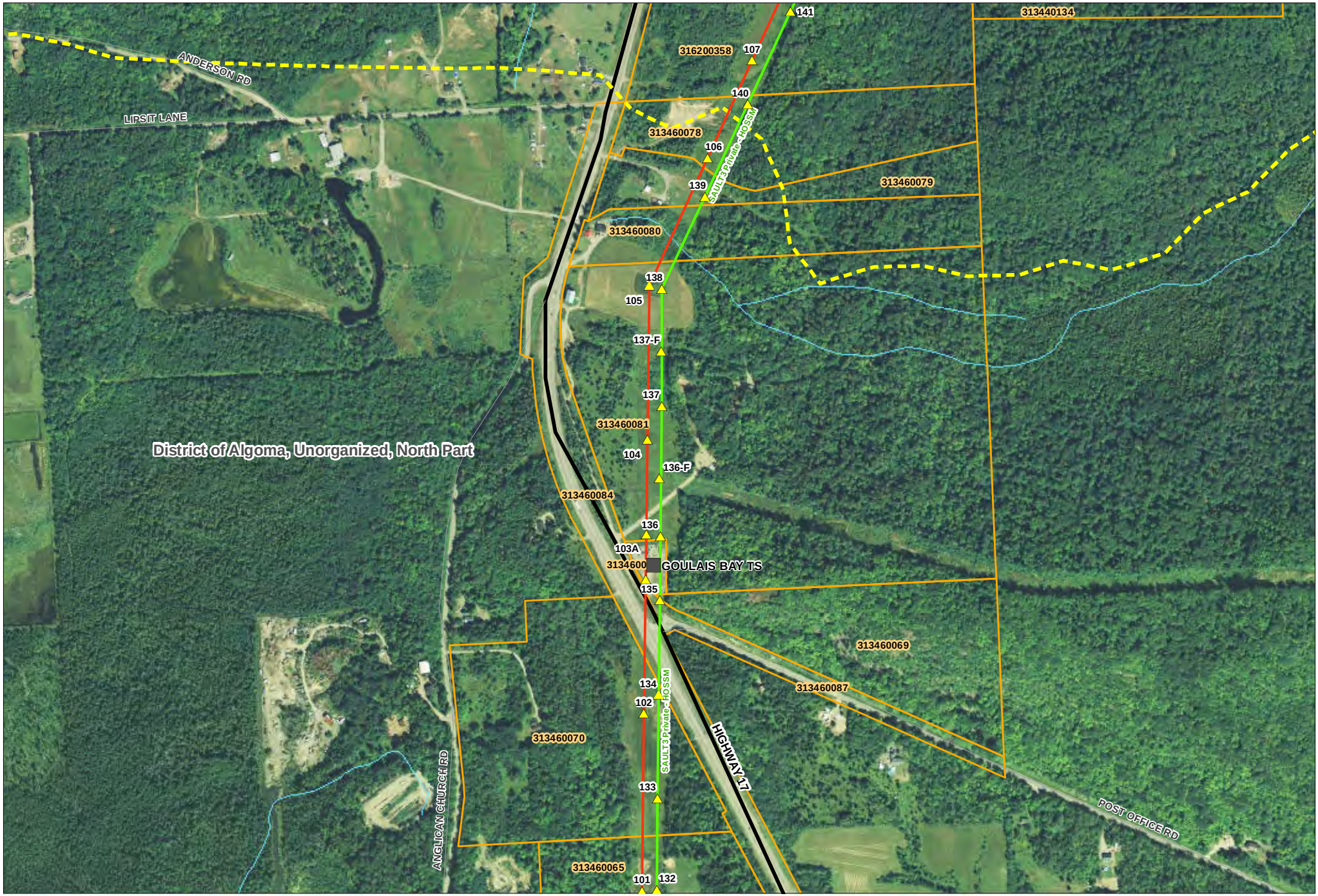

hydro one

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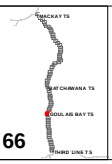
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



Tile 49 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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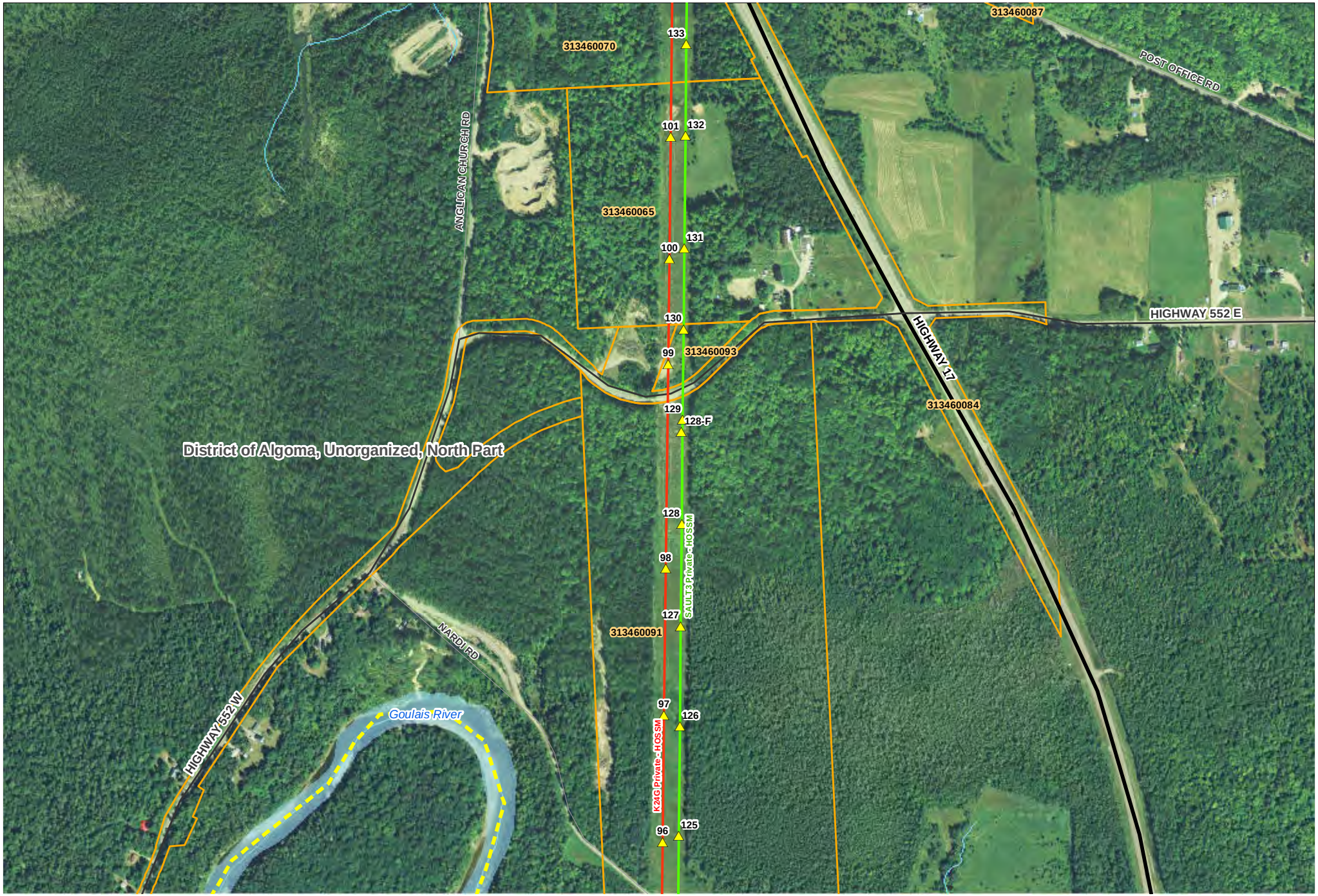

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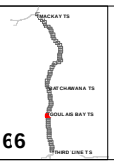

- Structure
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- Highway
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- Waterbody
- Municipal Boundary

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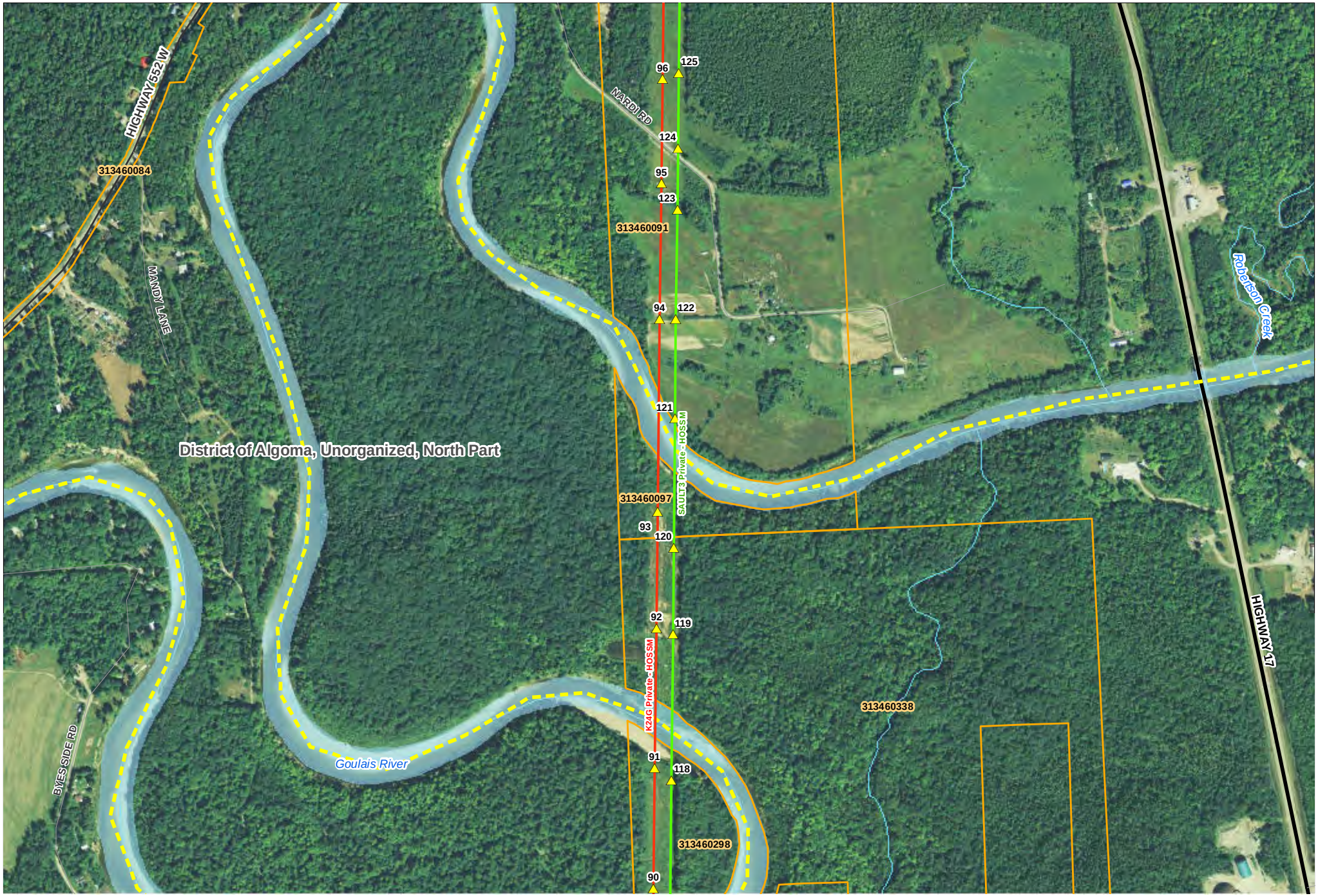

hydro one

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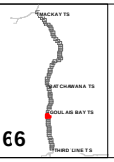
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



- Structure
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Sault 3
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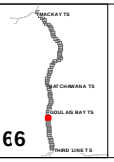

- Structure
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Sault 3
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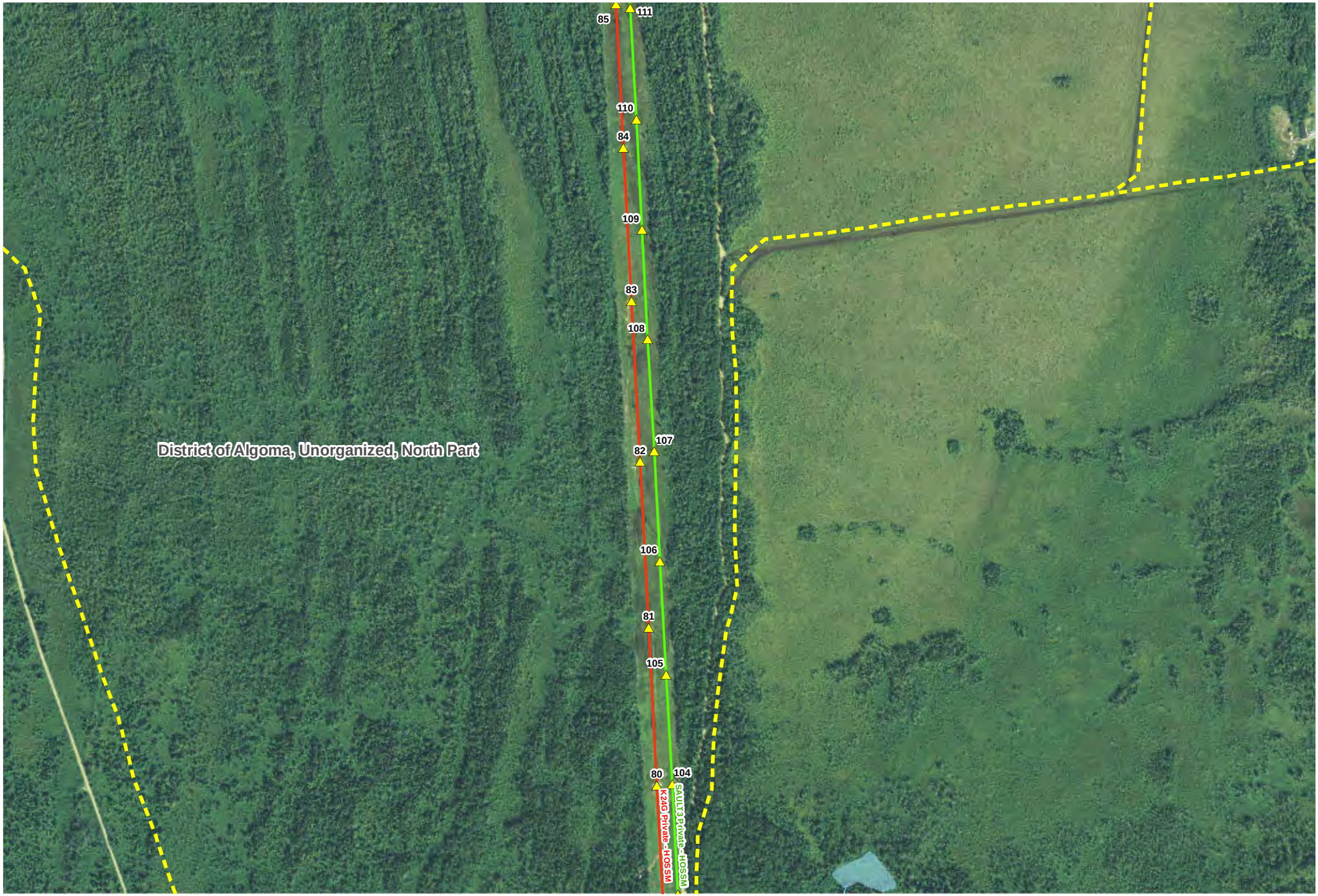
1:8,000 0 100 200 m



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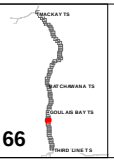


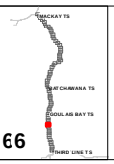
Tile 53 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
Highway
Major Road
Road
Railway
Trails
Watercourse
Waterbody
Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

Key Map



Structure
Station / Junction
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Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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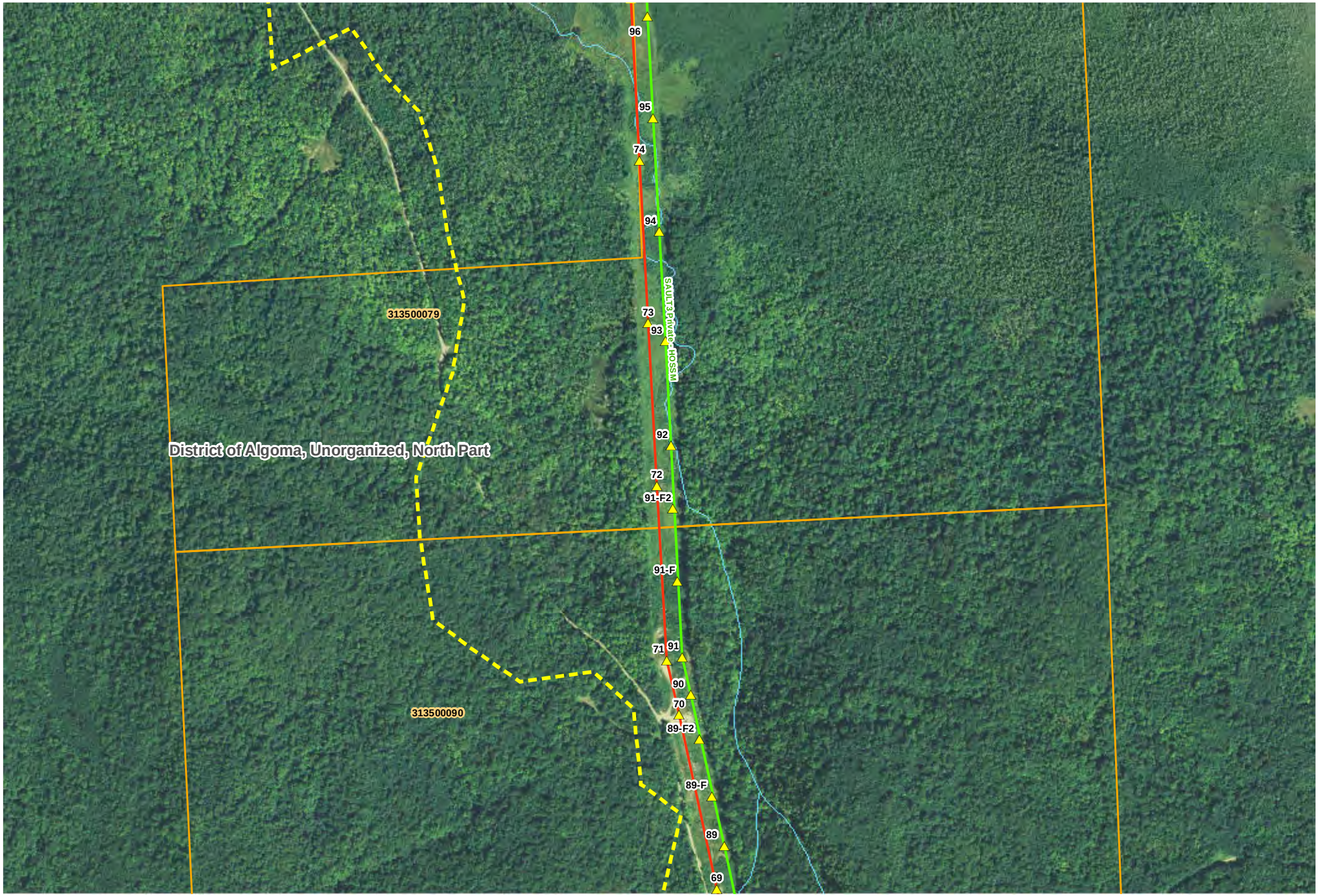

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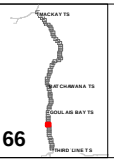

Tile 55 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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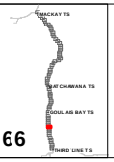
Key Map

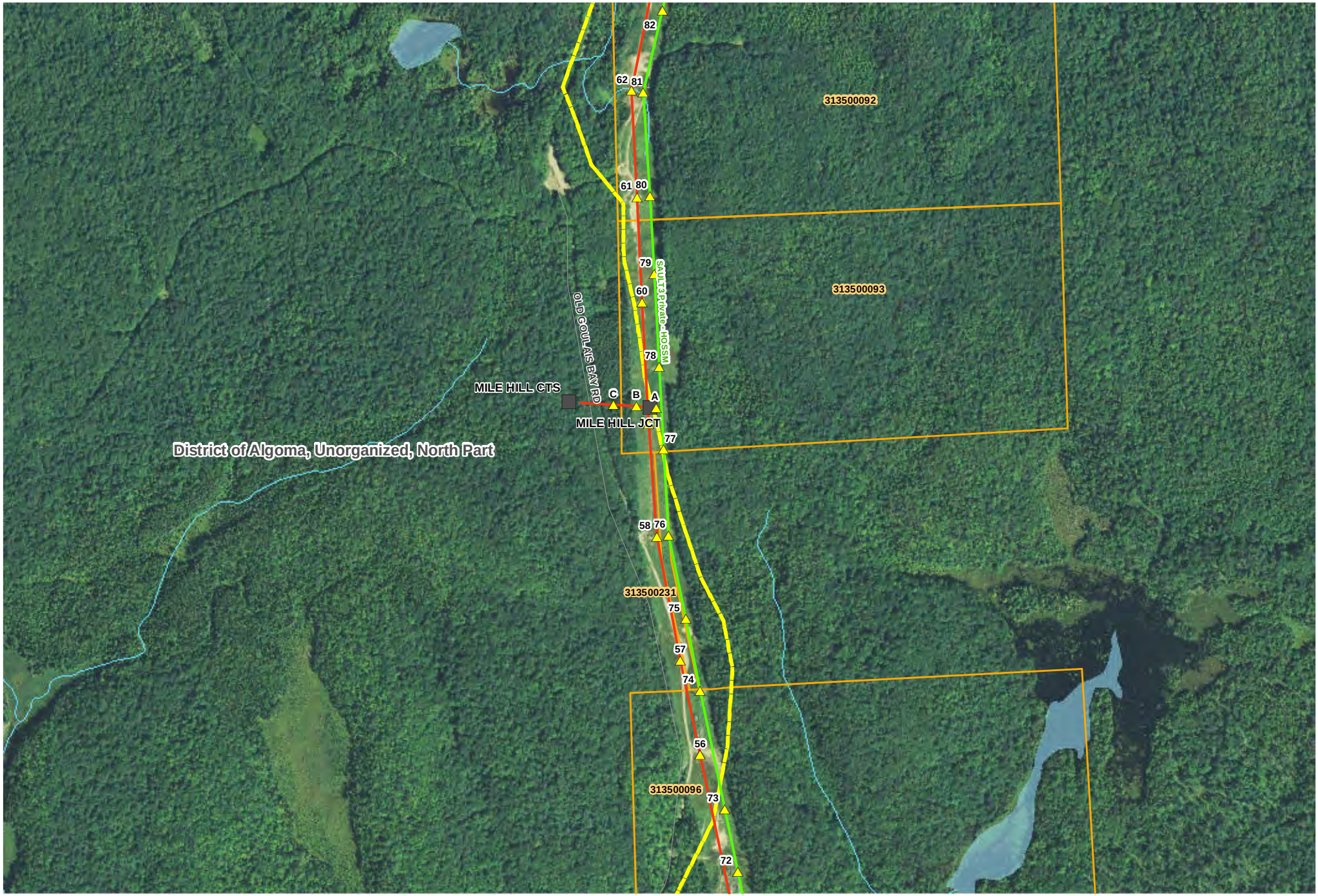


Tile 56 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
- Waterbody
- Municipal Boundary

Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m



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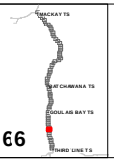

Tile 57 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
- Highway
- Major Road
- Road
- Railway
- Trails
- Watercourse
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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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hydro one

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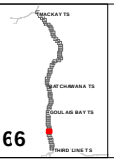
Date: May 3, 2023 / Map20-054_Sault3_PIN

Key Map



Tile 58 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
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Sault 3
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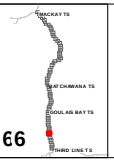
Key Map



Tile 59 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
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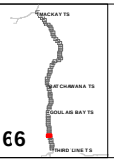

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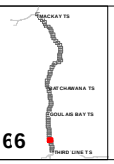

- Structure
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Sault 3
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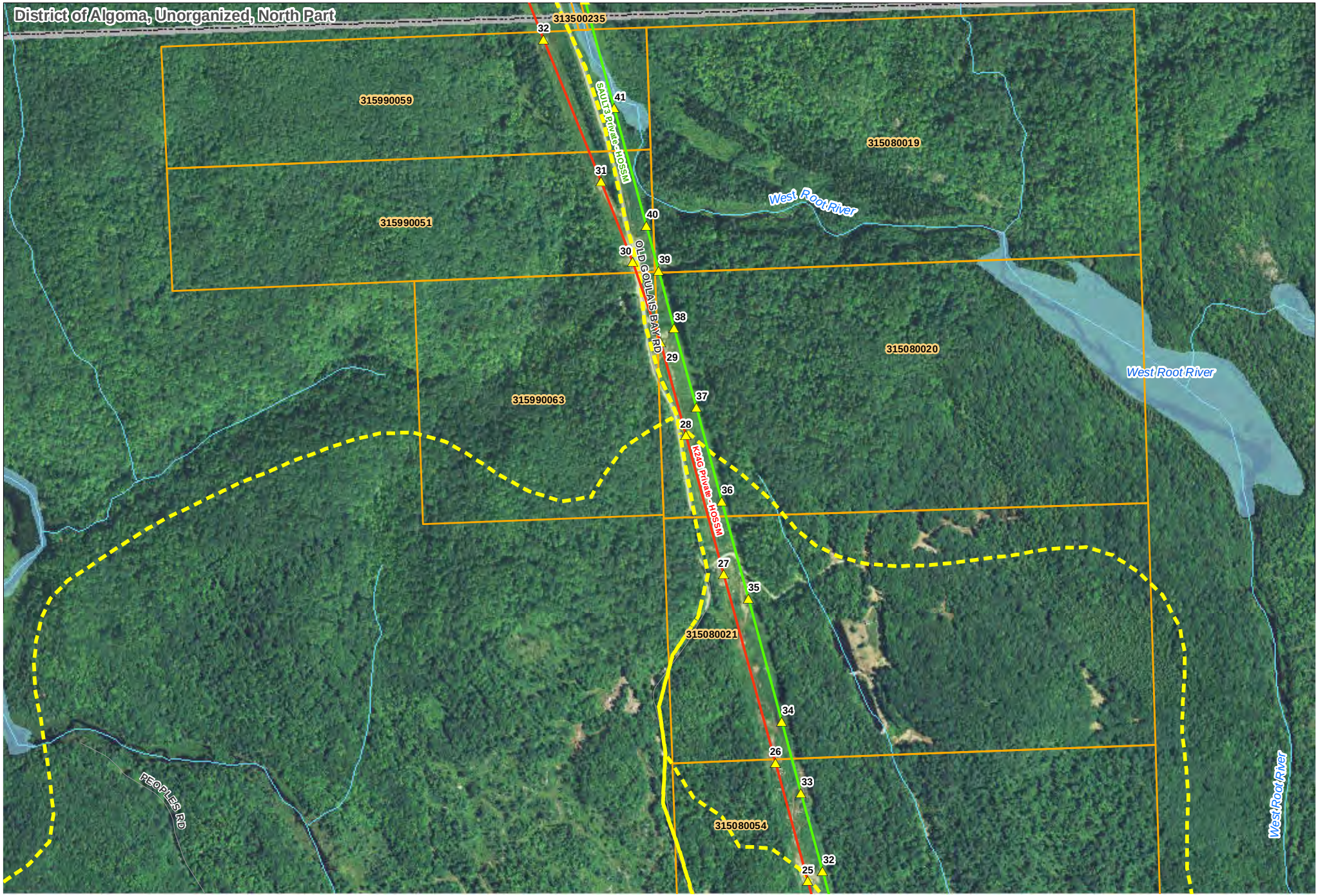

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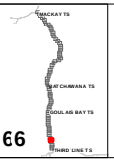

Structure
Station / Junction
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Major Road
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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

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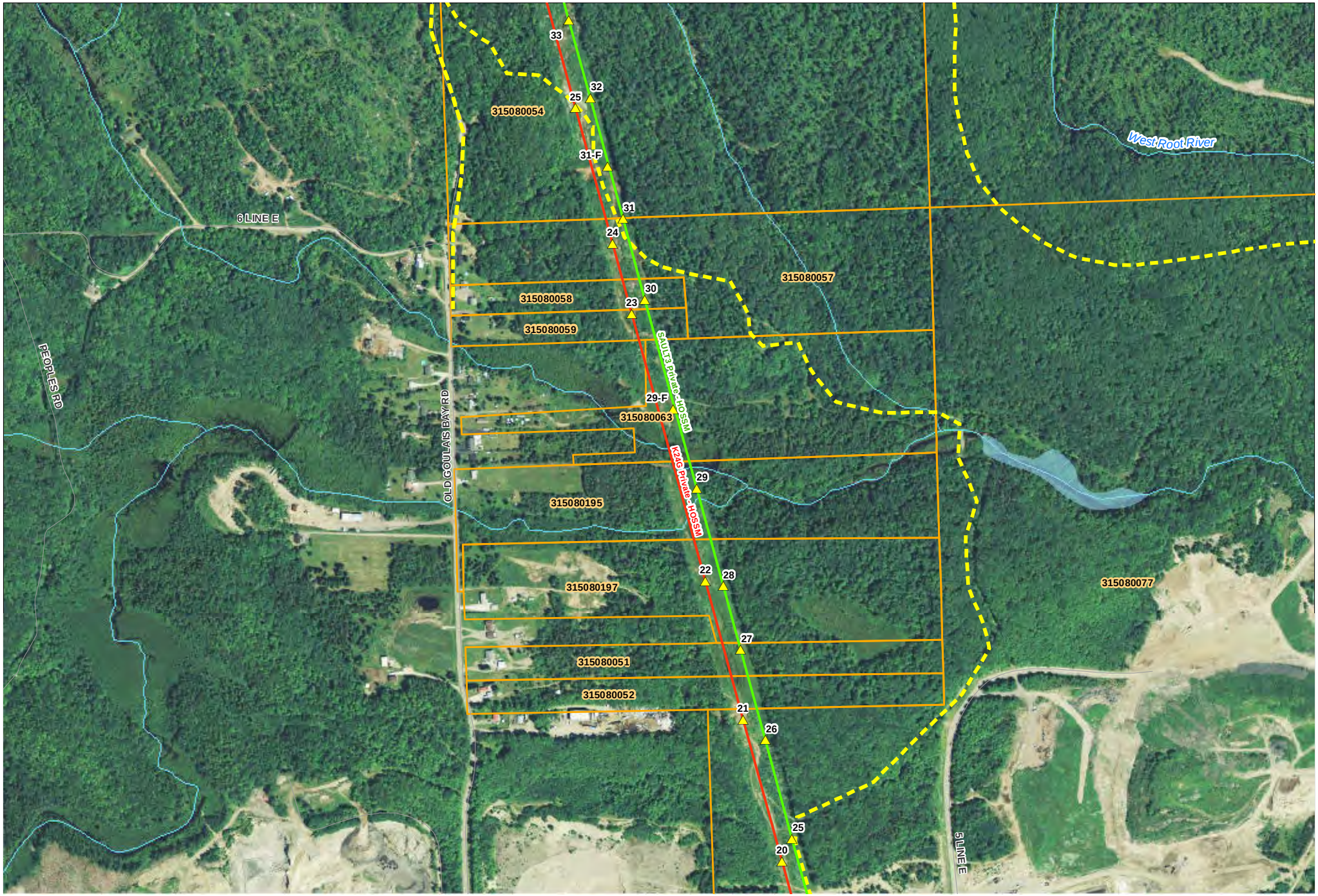

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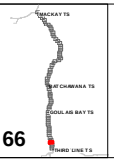
Key Map



Tile 63 of 66

- Structure
- Station / Junction
- 115 kV Transmission Line
- 230 kV Transmission Line
- Property Boundary
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- Major Road
- Road
- Railway
- Trails
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Sault 3
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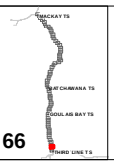
Key Map



Tile 64 of 66

- Structure
- Station / Junction
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- 230 kV Transmission Line
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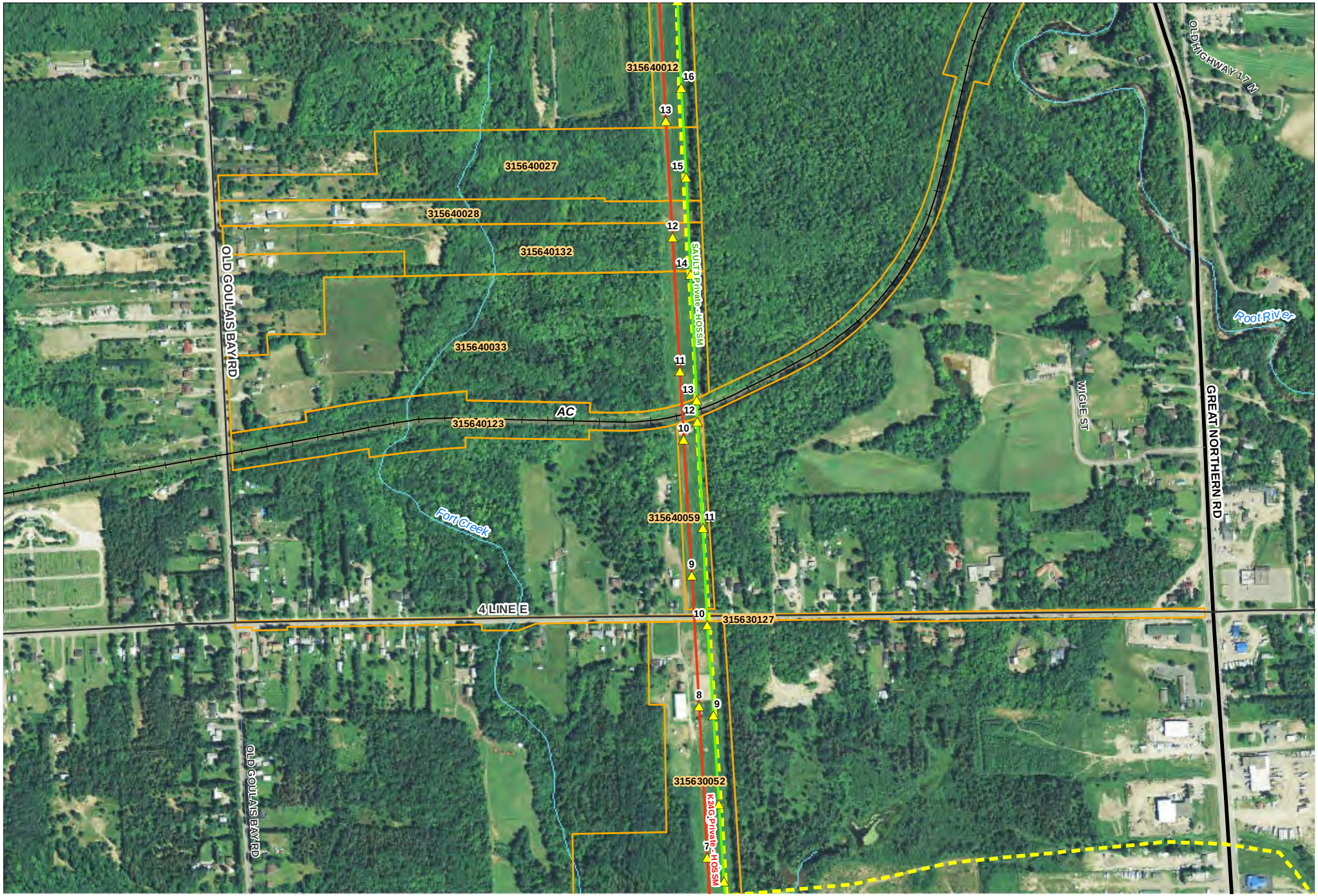

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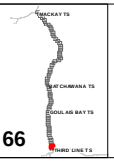
Key Map



Tile 65 of 66

- Structure
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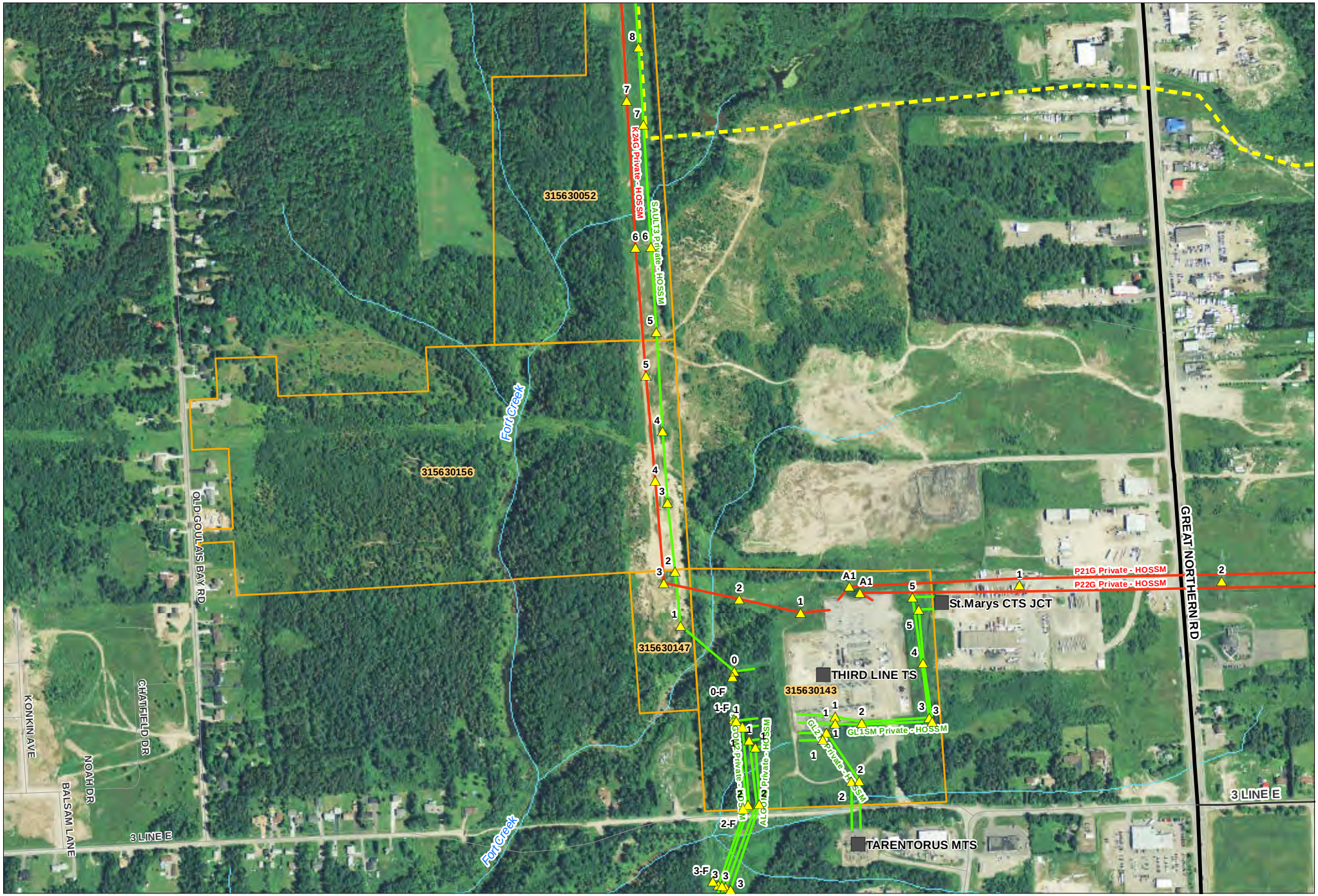

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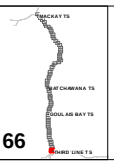

Tile 66 of 66

Structure
Station / Junction
115 kV Transmission Line
230 kV Transmission Line
Property Boundary
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Sault 3
Third Line TS x Str #129 x Goulais Bay TS x Batchawana TS x Mackay TS

1:8,000 0 100 200 m

OPERATIONAL DETAILS

The Sault #3 Project will refurbish all poor condition and sub-standard line sections of circuit Sault #3, while decreasing line losses by optimizing replaced conductors. This entails component replacement work on approximately 90.5 circuit km of 115 kV wood pole transmission line. No portion of the circuits will be relocated or reconfigured except the termination structure at Mackay TS, and as a result, there will be no change to the operation of the circuit. The terminal stations connecting circuit Sault #3 will remain as Third Line TS and Mackay TS.

As part of the IESO's System Impact Study for the Sault #3 Project, the IESO identified a specific scope of work requirement for HOSSM which will mitigate an identified system issue. For the loss of 230 kV Circuit, K24G, the RAS will open Sault # 3 at Mackay TS terminal. As such, this cross-tripping functionality will need to be incorporated into the existing Mackay TS – Saults #3 115kV – Generation Rejection Scheme. HOSSM has included this requirement into this Project's scope of work.

Operation of the proposed facilities will continue to be in accordance with the procedures of Hydro One's Ontario Grid Control Centre as directed by the IESO.

The existing customers connected to circuits Sault #3 will remain connected to the same electrical location after the refurbishment work is completed. These customers include Algoma Power Inc. via Batchawana TS and Goulais TS.

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LAND MATTERS

Description of Land Rights

As referenced in the Application, the Sault #3 Project will involve refurbishment work on the existing 115 kV circuit on the line section between Third Line TS and Mackay TS. The majority of the existing width of the right-of-way ("ROW") is 150 feet with areas varying in total width from 100 feet to 200 feet and provides sufficient width for the proposed refurbishment work.

The existing transmission corridor crosses an estimated 92 parcels of land, and its ownership is categorized as follows:

- 14 Hydro One Sault Ste. Marie fee simple ownership rights;
- 71 Easement corridor rights over privately-owned properties;
- 5 Crossings over Municipal/Provincial road allowances;
- 2 Railway crossings; and
- Unpatented Crown Lands under Ministry of Northern Development, Mines, Natural Resources and Forestry jurisdiction ("MNDMNRF")

The proposed transmission facility work is not expected to have an impact on the rights of adjacent properties. HOSSM will occupy within public road allowances and exercise legislated occupation rights pursuant to section 41 of *Electricity Act*,*1998*.

Land Easements Required

The existing transmission corridor containing the Sault #3 line section from Third Line TS to Mackay TS is predominantly located on privately-owned properties, over which HOSSM through Hydro One Sault Ste. Marie Holding Corp. has existing easement rights. The proposed reinforcement work will be executed within the existing corridor.

Early Access to Land

The line reinforcement work falls under the existing land rights which can be relied upon by HOSSM and it is not expected that additional corridor rights is required. Early access will not be required to complete the reinforcement work.

Acquisition of Land Rights on Public Roads and Highways

As required, HOSSM intends to utilize public roads and highways and occupation rights it can rely on under section 41 of the *Electricity Act*,*1998.* HOSSM does not require consent of the owner or any other person having an interest in a public street or highway to locate its proposed project corridor ROW. HOSSM will engage with representatives from the appropriate municipalities and the Ministry of Transportation of Ontario, as these organizations have jurisdiction over public roads to ensure compliance with section 41 (9) of the *Electricity Act,1998*. If necessary, HOSSM's construction contractor will obtain the requisite encroachment and occupancy permits within roadways under the jurisdiction of the Ministry of Transportation of Ontario.

Land Acquisition Process

HOSSM will be utilizing its existing land rights, as described in the above paragraphs, for the Sault #3 Project. Should any updates of crossing permits be required, HOSSM will work with the authority under the transmission lines to appropriately update the existing crossing permits. The plan is that the reinforcement work will be accommodated within the existing corridor. If necessary, further temporary off-corridor access or construction requirements will be negotiated with any affected landowner. Any encroachment or work permits required at crossings will be obtained by HOSSM's construction contractor. Any additional temporary off-corridor requirements (including, but not limited to construction staging areas, access, flagging and permitting) will be obtained by the construction contractor with affected property owners.

Land-related Forms

The following forms are included at the end of this schedule, in Attachments 1 through 3:

1. Temporary Access and Temporary Access Road (for off-corridor access)
2. Temporary Rights Agreement (for construction staging)
3. Full and Final Release form (used as the basis for construction-related compensation, including crop or property damage)

Though leave is requested for approval of the form of these agreements pursuant to s.97 of the *Act*, HOSSM highlights that all these forms have already been substantively approved in previous Hydro One leave to construct applications which rely on similar forms of agreements[1].

[1] EB-2021-0107

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Temporary Access and Temporary Access Road

THIS AGREEMENT made in duplicate the_____day of _____

20XX

Between:

INSERT NAME OF OWNER

(hereinafter referred to as the "Grantor")

OF THE FIRST PART

--- and ---

HYDRO ONE SAULT STE. MARIE LIMITED

PARTNERSHIP

OF THE SECOND PART

(hereinafter referred to "HOSSM")

WHEREAS the Grantor is the owner in fee simple and in possession of certain lands legally described as, ***INSERT LEGAL DESCRIPTION*** (the "Lands").

WHEREAS HOSSM in connection with its **[Insert Project Name]** Project (the "Project") desires the right to enter onto the Lands in order to construct temporary access roads on, over and upon the Lands in order to access the construction site associated with the "Project.

WHEREAS the Grantor is agreeable in allowing HOSSM to enter onto the Lands for the purpose of constructing temporary access roads on, over and upon the Lands, subject to the terms and conditions contained herein.

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the sum of ***INSERT CONSIDERATION*** to be paid by HOSSM to the Grantor, and the mutual covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. The Grantor hereby grants, conveys and transfers to HOSSM in, over, along and upon that part of the Lands highlighted in yellow as shown in Schedule "A" attached hereto (the "Access Lands"), the rights privileges, and easements as follows:

(a) for the servants, agents, contractors and workmen of HOSSM at all times with all necessary vehicles and equipment to pass and repass over the Access Lands for the purpose of access to the construction site associated with the Project, subject to payment of compensation for damages to any crops caused thereby;

(b) to construct, use and maintain upon the Access Lands, a temporary road to the construction site associated with the Project, together with such gates, bridges and drainage works as may be necessary for HOSSM's purposes (collectively, the "Works"), all of which Works shall be removed by HOSSM upon completion of the construction associated with the Project.; and

(c) to cut and remove all trees, brush and other obstructions made necessary by the exercise of the rights granted hereunder

2. The term of this Agreement and the permission granted herein shall be XXXX from the date written above (the "Term"). HOSSM may, in its sole discretion, and upon 60 days notice to the Grantor, extend the Term for an additional length of time, which shall be negotiated between the parties.

3. Upon the expiry of the Term or any extension thereof, HOSSM shall repair any physical damage to the Access Lands and/or Lands resulting f rom HOSSM's use of the Access Lands and the permission granted herein; and, shall restore the Access Lands to its original condition so far as possible and practicable.

4. All agents, representatives, officers, directors, employees and contractors and property of HOSSM located at any time on the Access Lands shall be at the sole risk of HOSSM and the Grantor shall not be liable for any loss or damage or injury (including loss of life) to them or it however occurring except and to the extent to which such loss, damage or injury is caused by the negligence or willful misconduct of the Grantor.

5. HOSSM agrees that it shall indemnify and save harmless the Grantor from and against all claims, demands, costs, damages, expenses and liabilities (collectively the "Costs") whatsoever arising out of HOSSM's presence on the Access Lands or of its activities on or

in connection with the Access Lands arising out of the permission granted herein except to the extent any of such Costs arise out of or are contributed to by the negligence or willful misconduct by the Grantor.

6. Notices to be given to either party shall be in writing, personally delivered or sent by registered mail (except during a postal disruption or threatened postal disruption), telegram, electronic facsimile or other similar means of prepaid recorded communication to the applicable address set forth below (or to such other address as such party may from time to time designate in such manner):
TO HOSSM:

Hydro One Sault Ste. Marie Limited Partnership
Real Estate Services
5th Floor
483 Bay Street South Tower
Toronto, Ontario M5G 2P5

Attention:
Fax:

TO GRANTOR:

7. Notices personally delivered shall be deemed to have been validly and effectively given on the day of such delivery. Any notice sent by registered mail shall be deemed to have been validly and effectively given on the fifth (5th) business day following the date on which it was sent. Any notice sent by telegram, electronic facsimile or other similar means of prepaid recorded communication shall be deemed to have been validly and effectively given on the Business Day next following the day on which it was sent. "Business Day" shall mean any day which is not a Saturday or Sunday or a statutory holiday in the Province of Ontario. This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable herein. The parties hereto submit themselves to the exclusive jurisdiction of the Courts of the Province of Ontario.

8. Any amendments, modifications or supplements to this Agreement or any part thereof shall not be valid or binding unless set out in writing and executed by the parties with the same degree of formality as the execution of this Agreement.

9. The burden and benefit of this Agreement shall run with the Lands and everything herein contained shall operate to the benefit of, and be binding upon, the respective heirs; successors, permitted assigns and other legal representatives, as the case may be, or each of the Parties hereto.

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

SIGNED, SEALED & DELIVERED In the presence of:	**OWNER:**
Witness	
Witness	

HOSSM HST #

HYDRO ONE SAULT STE. MARIE LIMITED PARTNERSHIP

By: _____

Name:

Title:

I have authority to bind the Corporation

SCHEDULE "A"

PROPERTY SKETCH

File: XXXXXX

THIS AGREEMENT made in duplicate the XXXXX day of XXXXXX 201X.

BETWEEN:

(INSERT NAME)

[NTD – ENSURE FULL LEGAL NAMES OF ALL OWNERS INSERTED]
[NTD – IF MORE THAN 1 OWNER THEN AMEND TO "(collectively the " **Owner**")"

(the **"Owner"**)
OF THE FIRST PART

AND:

HYDRO ONE SAULT STE. MARIE LIMITED PARTNERSHIP

(**"HOSSM"**)
OF THE SECOND PART

WHEREAS:

1. The Owner is the registered owner of lands legally described as ***(INSERT LEGAL DESCRIPTION)*** (the "Lands")

2. The Owner is agreeable in allowing HOSSM to enter onto a portion of the Lands highlighted in yellow as shown on the sketch attached hereto as Schedule "A" (the "Strip"), for the purposes of certain construction activities in conjunction with the XXXXXX (the "Project"), which shall include but are not limited to a temporary material storage yard for the purposes of storage of materials and equipment, including but not limited to construction equipment and machinery, requisite to the construction on the Strip subject to the terms and conditions contained herein (collectively the "Activities").

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of Two Dollars ($2. 00) now paid by HOSSM to the Owner, and the respective covenants and agreements of the parties hereinafter contained and other valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties hereto, the parties hereto agree as follows:

1. The Owner hereby grants to HOSSM and its respective officers, employees, workers, permittees, servants, agents, contractors and subcontractors, with or without vehicles, supplies, machinery, plant, material and equipment, as of the date this Agreement, (i) the right to commence the Activities on the Strip; and (ii) the right to enter upon and exit from, and to pass and repass at any and all times in, over, along, upon, across, and through the Strip and so much of the Lands as may be reasonably necessary.

2. The permission granted herein shall commence as of the date this Agreement (the "Commencement Date") and shall terminate three (3) years from the Commencement Date (the "Initial Term").

3. The Initial Term may be extended upon 60 days prior written notice from HOSSM to the Owner for an additional two (2) years on the same terms and conditions contained herein save for this right to extend (the "Extended Term").

4. All agents, representatives, officers, directors, employees and contractors and property of HOSSM located at any time on the Lands shall be at the sole risk of HOSSM and the Owner shall not be liable for any loss or damage or injury (including loss of life) to them or it however occurring except and to the extent to which such loss, damage or injury is caused by the negligence or willful misconduct of the Owner.

5. Upon execution of this Agreement by all parties, HOSSM shall pay to the Owner the amount of XXXXX Dollars ($XXXX), which is compensation for the permission granted herein.

6. HOSSM shall repair any physical damage to the Lands resulting from the Activities and, shall restore the Lands to its original condition so far as possible and practicable to the satisfaction of the Owner, acting reasonably.

7. HOSSM agrees that it shall indemnify and save harmless the Owner from and against all claims, demands, costs, damages, expenses and liabilities (collectively the "Costs") whatsoever arising out of HOSSM's presence on the Lands or of its activities on or in connection with the Lands arising out of the permission granted herein except to the extent any of such Costs arise out of the negligence or willful misconduct of the Owner.

8. This Agreement does not commit the Owner to enter into any further agreements with HOSSM in conjunction with the Project.

9. This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable herein. The parties hereto submit themselves to the exclusive jurisdiction of the Courts of the Province of Ontario.

IN WITNESS WHEREOF the Parties have hereunto set their respective hands and seals to this Agreement of Purchase and Sale.

SIGNED, SEALED AND DELIVERED
In the presence of)

_____) _____(seal)
Print Name of Witness ***(INSERT NAME)***

_____) _____(seal)
Print Name of Witness ***(INSERT NAME)***

IF OWNER IS CORPORATION – USE THE FOLLOWING

[INSERT FULL LEGAL NAME]

Per:_____
Print Name:
Print Title:

Per:_____
Print Name:
Print Title:

We/I have authority to bind the Corporation

HYDRO ONE SAULT STE. MARIE LIMITED PARTNERSHIP

Per:_____
Print Name:
Title:

I have authority to bind the Corporation

SCHEDULE "A"

Damage Claim

THIS MEMORANDUM OF AGREEMENT dated the day of 20XX

Between:

herein called the "Claimant"

-and-

Hydro One Sault Ste. Marie Limited Partnership

herein called "HOSSM"

Witnesseth:

The Claimant agrees to accept ……($) in full payment and satisfaction of all claims or demands for damages of whatsoever kind, nature or extent which may have been done to date by HOSSM during the construction, completion, operation or maintenance of the works of HOSSM constructed on Lot(s) …….. , Concession(s) ..... or according to Registered Plan No. …… in the..... of …… of which property the Claimant is the .....and which damages may be approximately summarized and itemized as:

WITNESS

Name:

Address:

CLAIMANT

Name:

Address:

HYDRO ONE SAULT STE. MARIE LIMITED PARTNERSHIP

HOSSM
HST#

Per: _____
Name:
Title:

I have authority to bind the Corporation

RELEASE AND WAIVER

FULL AND FINAL RELEASE

IN CONSIDERATION of the payment or of the promise of payment to the undersigned of the aggregate sum of [INSERT SETTLEMENT AMOUNT] ($), the receipt and sufficiency of which is hereby acknowledged, I/We, the undersigned, on behalf of myself/ourselves, my/our heirs, executors, administrators, successors and assigns (hereinafter the "Releasors"), hereby release and forever discharge HYDRO ONE SAULT STE. MARIE LIMITIED PARTNERSHIP and HYDRO ONE SAULT STE. MARIE HOLDING CORP. and its officers, directors, employees, servants and agents and its parent, affiliates, subsidiaries, successors and assigns (hereinafter the "Releasees") from any and all actions, causes of action, claims and demands of every kind including damages, costs, interest and loss or injury of every nature and kind, howsoever arising, which the Releasors now have, may have had or may hereafter have arising from or in any way related to [INSERT DESCRIPTION OF THE DAMAGE CAUSED] on lands owned by [INSERT PROPERTY OWNER
NAME] and specifically including all damages, loss and injury not now known or anticipated but which may arise or develop in the future, including all of the effects and consequences thereof.

AND FOR THE SAID CONSIDERATION, the Releasors further agree not to make any claim or take any proceedings against any other person or corporation who might claim contribution or indemnity under the provisions of the *Negligence Act* and the amendments thereto from the persons or corporations discharged by this release.

AND FOR THE SAID CONSIDERATION, the Releasors further agree not to disclose, publish or communicate by any means, directly or indirectly, the terms, conditions and details of this settlement to or with any persons other than immediate family and legal counsel.

AND THE RELEASORS hereby confirm and acknowledge that the Releasors have sought or declined to seek independent legal advice before signing this Release, that the terms of this Release are fully understood, and that the said amounts and benefits are being accepted voluntarily, and not under duress, and in full and final compromise, adjustment and settlement of all claims against the Releasees.

IT IS UNDERSTOOD AND AGREED that the said payment or promise of payment is deemed to be no admission whatsoever of liability on the part of the Releasees.

AND IT IS UNDERSTOOD AND AGREED that this Release may be executed in separate counterparts (and may be transmitted by e-mail or facsimile) each of which shall be deemed to be an original and that such counterparts shall together constitute one and the same instrument, notwithstanding the date of actual execution.

IN WITNESS WHEREOF, the Releasors have hereunto set their respective hands this ..... day of....., 20XX.

SIGNED, SEALED & DELIVERED In the presence of:	
Witness	Name
SIGNED, SEALED & DELIVERED In the presence of:	
Witness	Name

Initials_____

SYSTEM IMPACT ASSESSMENT

Please refer to **Exhibit F, Tab 1, Schedule 1, Attachment 1** for the final System Impact Assessment ("SIA") prepared by the Independent Electricity System Operator (IESO) (SIA reference # CAA 2020-EX1115).

HOSSM confirms that it will implement the requirements noted by the IESO as set forth in the SIA that are associated with the Project. As articulated in the SIA, the Project is expected to have no material adverse impact on the reliability of the integrated power system.

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Expedited System Impact Assessment Report

Final Report - Public

CAA ID: 2020-EX1115
Project: Sault #3 - Transmission Line Refurbishment
Connection Applicant: Hydro One Sault Ste. Marie LP

December 13, 2022

ieso
Connecting Today.
Powering Tomorrow.

Acknowledgement

The IESO wishes to acknowledge the assistance of Hydro One in completing this assessment.

Disclaimer

This report has been prepared solely for the purpose of assessing whether the connection applicant's proposed connection with the IESO-controlled grid would have an adverse impact on the reliability of the integrated power system and whether the IESO should issue a notice of conditional approval or disapproval of the proposed connection under Chapter 4, section 6 of the Market Rules.

Conditional approval of the project is based on information provided to the IESO by the connection applicant and Hydro One at the time the assessment was carried out. The IESO assumes no responsibility for the accuracy or completeness of such information, including the results of studies carried out by Hydro One at the request of the IESO. Furthermore, the conditional approval is subject to further consideration due to changes to this information, or to additional information that may become available after the conditional approval has been granted.

If the connection applicant has engaged a consultant to perform connection assessment studies, the connection applicant acknowledges that the IESO will be relying on such studies in conducting its assessment and that the IESO assumes no responsibility for the accuracy or completeness of such studies including, without limitation, any changes to IESO base case models made by the consultant. The IESO reserves the right to repeat any or all connection studies performed by the consultant if necessary to meet IESO requirements.

Conditional approval of the proposed connection means that there are no significant reliability issues or concerns that would prevent connection of the proposed project to the IESO-controlled grid. However, the conditional approval does not ensure that a project will meet all connection requirements. In addition, further issues or concerns may be identified by the transmitter(s) during the detailed design phase that may require changes to equipment characteristics and/or configuration to ensure compliance with physical or equipment limitations, or with the Transmission System Code, before connection can be made.

This report has not been prepared for any other purpose and should not be used or relied upon by any person for another purpose. This report has been prepared solely for use by the connection applicant and the IESO in accordance with Chapter 4, section 6 of the Market Rules. This report does not in any way constitute an endorsement of the proposed connection for the purposes of obtaining a contract with the IESO for the procurement of supply, generation, demand response, demand management or ancillary services.

The IESO assumes no responsibility to any third party for any use, which it makes of this report. Any liability which the IESO may have to the connection applicant in respect of this report is governed by Chapter 1, section 13 of the Market Rules. In the event that the IESO provides a draft of this report to the connection applicant, the connection applicant must be aware that the IESO may revise drafts of this report at any time in its sole discretion without notice to the connection applicant. Although the IESO will use its best efforts to advise you of any such changes, it is the responsibility of the connection applicant to ensure that the most recent version of this report is being used.

Project Description

Hydro One Sault Ste. Marie LP. (the "connection applicant" and "transmitter") is proposing to refurbish 115 kV transmission circuit, Sault #3, and reconnect it in parallel with K24G circuit (the "project"). The refurbishment includes conductor, shieldwire and insulator replacement. The ratings of Sault #3 will be significantly improved after the project. Circuit Sault #3 has been operated open at Mackay TS to avoid post-contingency overloading since 2006.

The planned in-service date is Q2 2026.

Notification of Conditional Approval

This assessment concludes that the proposed connection of the project is expected to have no material adverse impact on the reliability of the integrated power system, provided that all requirements in this report are implemented. Therefore, the assessment supports the release of the Notification of Conditional Approval for connection of the project.

Assessment Findings

Despite the thermal rating being increased with this project, with all elements in-service, when the loss or Line End Opening (LEO) of circuit K24G occurs this can result in the flow on the circuit Sault #3 to exceed its Short Term Rating (STE).

IESO Requirements for Connection

Specific Requirements:

To mitigate the overloading issue identified in the finding, the breakers protecting Sault #3 at Mackay TS will need to be opened for the loss or LEO of K24G. As such, this cross-tripping functionality will need to be incoporated into the existing Mackay TS – No #3 Sault 115 kV – Generation Rejection Scheme.

General Requirements:

The connection applicant shall satisfy all applicable requirements specified in the Market Rules, the Transmission System Code (TSC) and reliability standards. Some of the general requirements that are applicable to this project are presented in detail in Appendix A: General Requirements of this report.

Appendix A: General Requirements

The connection applicant shall satisfy all applicable requirements specified in the Market Rules, the Transmission System Code and reliability standards. This section highlights some of the general requirements that are applicable to the project.

1. The connection applicant must notify the IESO at connection.assessments@ieso.ca as soon as they become aware of any changes to the project scope or data used in this assessment. The IESO will determine whether these changes require a re-assessment.
2. The connection applicant shall ensure that the BPS elements are in compliance with the applicable NPCC criteria and the BES elements in compliance with the applicable NERC reliability standards. To determine the standard requirements that are applicable, the IESO provides mapping tools titled "NPCC Criteria Mapping Spreadsheet" for BPS elements and "NERC Reliability Standard Mapping Tool/Spreadsheet" for BES elements at the IESO's website of Applicability Criteria for Compliance with Reliability Requirements.

   Note, the connection applicant may request an exception to the application of the BES definition. The procedure for submitting an application for exemption can be found in Market Manual 11.4: "Ontario Bulk Electric System (BES) Exception" at the IESO's website.

   The IESO's criteria for determining applicability of NERC reliability standards and NPCC Criteria can be found in the Market Manual 11.1: "Applicability Criteria for Compliance with NERC Reliability Standards and NPCC Criteria" at the IESO's website.

   Compliance with these reliability standards will be monitored and assessed as part of the IESO's Ontario Reliability Compliance Program. For more details about compliance with applicable reliability standards reliability standards, the connection applicant is encouraged to contact orcp@ieso.ca and also visit the Ontario Reliability Compliance Program webpage.

   However, like any other system element in Ontario, the BPS and BES classifications of the project will be periodically re-evaluated as the electrical system evolves.
3. The connection applicant shall ensure that the project's equipment meet the voltage requirements specified in section 4.2 and section 4.3 of the Ontario Resource and Transmission Assessment Criteria (ORTAC).
4. According to Section 6.1.2 of the TSC, the connection applicant must ensure the project's transmission connection equipment is designed to withstand the fault levels in the area. According to Section 6.4.4 of the TSC, if any future system changes result in an increased fault level higher than the project's equipment capability, the connection applicant is required to replace that equipment with higher rated equipment capable of withstanding the increased fault level, up to the maximum fault level specified in Appendix 2 of the TSC.

   It is the connection applicant's responsibility to verify that all equipment and circuit breakers within the project are appropriately sized for the local fault levels.
5. The connection applicant shall ensure that the protection systems are designed to satisfy all the requirements of the TSC. New protection systems must be coordinated with existing protection systems. Protection systems within the project shall only trip the appropriate equipment isolating the fault.

   Associated overvoltage protective relaying must be set to ensure that the project's equipment does not automatically trip for voltages up to 5% above the equipment's corresponding maximum continuous voltage as specified in section 4.2 of the ORTAC.

   BPS elements are deemed by the IESO to be essential to system reliability and security and must be protected by redundant protection systems in accordance with Section 8.2 of the TSC.

These redundant protection systems must satisfy all requirements of the TSC, and in particular, they must be physically separated and not use common components, common battery banks, or common instrument transformer secondary windings.

The protection systems for transmission voltage BES elements (whose rated voltage is higher than 100 kV) must be redundant. Redundancy must be present in protective relaying for normal fault clearing and control circuitry associated with protective functions including trip coils of the circuit breakers or other interrupting devices. These redundant protection systems must not use common instrument transformer secondary windings. A single communication system, if used, must be monitored and reported and a single DC supply, if used, must be monitored and reported for both low voltage and open circuit.

As the electrical system evolves, transmission voltage non-BPS or non-BES elements (whose rated voltage is higher than 100 kV) within the project, may be re-classified as BPS elements or BES elements. The connection applicant is recommended to design the protection systems for these elements according to the protection requirements for BPS elements or have adequate provisions for future upgrade to meet those requirements.

6. The connection applicant must initiate the IESO's Market Registration process at least six months prior to the commencement of any project related outages. Once the IESO's Market Registration process has been successfully completed, the IESO will provide the connection applicant with a Registration Approval Notification (RAN) document, confirming that the project is fully authorized to connect to the IESO-controlled grid. For more details about this process, the connection applicant is encouraged to contact IESO's Market Registration at market.registration@ieso.ca

   The connection applicant is required to provide "as-built" equipment data for the project during the IESO Market Registration process. If the "as-built" equipment data differ materially from the ones used in this assessment, then the IESO may decide that further analysis of the project is required.

   During the IESO Market Registration process, a new Facility Description Document (FDD) for MacKay TS – Sault#3 115 kV Generation Rejection (G/R) Scheme must be provided six months prior to in-service. The FDD must contain the finalized RAS matrix as well as expected operating times. The actual operating times must be measured during commissioning, documented as a Performance Validation Record, and posted on Hydro One - IESO secured web portal.

   If the FDD or performance testing as per the Performance Validation Record indicates a change in design or slower than expected operating times, than what was assumed in this assessment, then further analysis of the project will need to be done by the IESO. This may delay the grant of IESO final approval.

7. As per Market Manual 1.4: Connection Assessment and Approval (formerly Market Manual 2.10), the connection applicant will be required to provide a status report of its proposed project with respect to its progress upon request of the IESO using the project status report form on the IESO website. Failure to comply with project status requirements listed in Market Manual 1.4: Connection Assessment and Approval (formerly Market Manual 2.10) will result in the project being withdrawn.

Disclaimer of Confidentiality

Appendices B to D, inclusive, contain confidential information of the IESO, the connection applicant, the transmitter and, potentially, other third parties, including information that, if disclosed, could reasonably be expected to pose a potential security threat to the *integrated power system*, the *IESO-administered markets*, or those of neighbouring jurisdictions.

Appendices B to D are intended only to be disclosed to, and may only be used on a confidential basis by the connection applicant and transmitter. The connection applicant and transmitter may not, except as permitted by Section 5.3 of Chapter 3 of the Market Rules, disclose or use such information, other than for the purpose of carrying out its responsibilities as described in Section 6 of Chapter 4 of the Market Rules, the Transmission System Code and Market Manual 1.4.

Appendix B: Project Data (Confidential)

Appendix C: Study Scope of Work (Confidential)

Appendix D: Technical Assessments (Confidential)

Independent Electricity System Operator
1600 120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900
Toll free: 1.888.448.7777
E mail: customer.relations@ieso.ca

ieso.ca

@IESO_Tweets
facebook.com/OntarioIESO
linkedin.com/company/IESO

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Powering Tomorrow.

CUSTOMER IMPACT ASSESSMENT

Please refer to **Exhibit G, Tab 1, Schedule 1, Attachment 1** for the final Customer Impact Assessment prepared by HOSSM.

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HYDRO ONE SAULT STE. MARIE L.P.
2 Sackville Road, Suite "B"
Sault Ste. Marie, Ontario
P6B 6J6

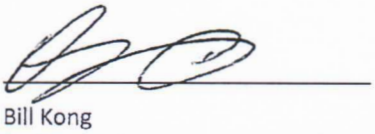
CUSTOMER IMPACT ASSESSMENT

Transmission Line Refurbishment:

Sault #3, Third Line TS x Mackay TS

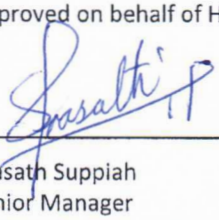
Revision: FINAL
Date: December 21, 2022
Issued by: Transmission Asset Management
Hydro One Networks Inc.

Prepared on behalf of HOSSM by:



Bill Kong
Sr. Network Management Engineer
Transmission Asset Management
Hydro One Networks Inc.

Approved on behalf of HOSSM by:



Prasath Suppiah
Senior Manager
Transmission Asset Management
Hydro One Networks Inc.

Disclaimer

This CIA was prepared based on information available to or provided to HOSSM and/or Hydro One at the time the CIA was performed regarding the: (i) proposed new or modified connection described herein ("**Project**"); and (ii) existing connection of one or more HOSSM transmission customers that HOSSM and/or Hydro One determined prior to conducting the CIA that may be impacted by the Proposed Project. The CIA is intended to highlight impacts of the Project, if any, on existing HOSSM transmission customers early in the project development process and thus allow an opportunity for impacted HOSSM transmission customers to bring forward any concerns that they may have. Subsequent changes to the required modifications or the implementation plan may affect the impacts of the proposed Project. The results of this CIA are also subject to change to accommodate the requirements of the IESO and/or other regulatory requirements.

Neither HOSSM nor Hydro One shall be liable to any person or entity reading or receiving the CIA (including, without limitation, any existing transmission customer that Hydro One and/or HOSSM determined may be impacted by the Project prior to conducting the CIA) under any circumstances whatsoever for any:

- direct damages resulting from or in any way related to the reliance on, acceptance or use of the CIA or its contents unless such liability arises under section 6.4 of the Transmission System Code or the terms of a contract made between HOSSM and that person or entity with respect to the proposed Project; and/or
- any indirect or consequential damages, loss of profit or revenues, business interruption losses, loss of contract or loss of goodwill, special damages, punitive or exemplary damages, whether any of the said liability, loss or damages arises in contract, tort or otherwise.

CUSTOMER IMPACT ASSESSMENT

TRANSMISSION LINE REFURBISHMENT: SAULT #3, THIRD LINE TS X MACKAY TS

1.0 INTRODUCTION

Hydro One Sault Ste. Marie LP (HOSSM) is undertaking the line refurbishment project to refurbish HOSSM's single 115kV Sault # 3 circuit (approx. 90km/cct) to address end of life asset condition (the "Proposed Project"). The refurbished line will reduce line losses as a result of conductor selection. The new conductor will also increase the capacity of the circuit when the Proposed Project is completed in July of 2026.

In accordance with section 6 of the Ontario Energy Board's Transmission System Code ("TSC"), HOSSM is to carry out a Customer Impact Assessment ("CIA") study to assess the impact of this transmission line refurbishment and upgrade on existing HOSSM's existing customers in the affected area ("Area Customers").

This report presents the results of a Customer Impact Assessment (CIA) study to assess the potential impact of this proposed transmission line refurbishment and uprate to HOSSM's existing connected transmission customers in the local vicinity. This study is intended to supplement the System Impact Assessment (SIA) CAA ID: 2020-EX1115. This assessment does not evaluate the overall impact the project on the bulk electricity system. As part of the Connection Assessment and Approval ("CAA") process, impact of the project on the bulk electricity system is the subject of the System Impact Assessment ("SIA"), which was carried out by the Independent Electricity System Operator ("IESO"). The IESO has documented such in the SIA report CAA ID 2020-1115 dated December 05, 2022.

2.0 BACKGROUND

HOSSM's Sault #3 transmission line is a 115 kV line that runs between Third Line TS and Mackay TS that provides a path for generation from Wawa area to Sault St. Marie area. The line parallels a 230 kV line, K24G along its entire length. The line taps into two stations, Goulais TS and Batchawana TS. The line is approximately 90.45 km in total length and consists of three line sections: Third Line TS x Goulais Bay TS, Goulais Bay TS x Batchawana TS and Batchawana TS x Mackay TS; see Figure 1

Sault #3 line was placed into service in 1929 with a 266.8 kcmil "Partridge" ACSR conductor. This conductor is over 90 years old and in poor condition and has reached EoL as defined in the asset management transmission lines conductor strategy. The section from Third Line TS to structure 129 had conductor replaced in 1991 with 336 kcmil "Linnet" ACSR conductor. Sault #3 line between structure 129 to Mackay TS still has the original 266.8 kcmil conductor.

The conductor is in poor condition and due to multiple conductor sleeve failures between 2013-2015, the line has been de-rated to 200A and as a result operated radial from Third Line TS to Mackay GS unit 3. Within this project Hydro One will be replacing the conductors on section Goulais Bay TS x Batchawana TS and Batchawana TS x Mackay TS to address their poor condition. While refurbishing the line, Hydro One will also reduce line losses by using larger conductor. The larger conductor for these two line sections in series with the existing conductor on section 1 will result in a summer continuous line rating of 589 A. This results in an increased capacity in respected line sections.

3.0 CUSTOMER LIST

The focus of this study is on HOSSM 's existing connected transmission customers that may be impacted by the Proposed Project.

The HOSSM stations supplied by this circuit and their corresponding connected customers ("Area Customers") are listed in Table 1 below.

Table 1 - Connected Customers

Station	Customer
Third Line TS	PUC Distribution Inc.
Goulais Bay TS	Algoma Power Inc.
Batchawana TS	Algoma Power Inc.
MacKay TS	Algoma Power Inc.
Mile Hill CTS	Chi-Wikiwedong LP
St.Marys MTS	PUC Distribution Inc.
Tarentorus MTS	PUC Distribution Inc
Northern Ave TS	Algoma Power Inc.

On December 23, 2022, a draft CIA was circulated to the above impacted customers for a 30 days review period. No feedbacks were received from the customers.

4.0 TECHNICAL STUDIES

The following is the assessment of the impact of the Proposed Project on the area customers listed above.

4.1 Short-circuit Assessment

Short circuit results of the Proposed Project are identified in Appendix B. The incorporation of the Proposed Project into the HOSSM transmission system does not have any adverse impact on area short circuit levels. Area 115kV and 44kV values remain within the limits described the Transmission System Code and remain within HOSSM's equipment ratings. See Table 2 below.

Table 2: Transmission System Code: Transmission System Connection Point Performance Standards

Nominal Voltage (kV)	Maximum 3ph Fault (kA)	Maximum SLG Fault (kA)
500	80(usually limited to 63)	80(usually limited to 63)
230	63	80(usually limited to 63)
115	50	50
44	20	19 (usually limited to 8)
27.6(4-Wire)	17	12
27.6(3-Wire)	17	0.45
13.8	21	10

4.2 Voltage Assessment

Voltage performance on HOSSM's customer delivery points remain within the limits specified in Section 4.2 and 4.3 of ORTAC following the implementation of this project.

4.3 Customer Reliability

It is expected that the Proposed Project will increase supply reliability for the area customers by reducing future interruptions caused by component failure on the Sault #3 circuit

As part of project, if the 115KV is normally closed between Third Line TS and MacKay TS, RAS will be installed to mitigate the overloading issue identified in SIA finding, the breakers protecting Sault #3 at Mackay TS will be opened for the loss or LEO of K24G. This cross-tripping functionality will be incorporated into the existing Mackay TS – No #3 Sault 115 kV – Generation Rejection Scheme.

4.4 Preliminary Outage Impact Assessment

To perform this refurbishment, outages on circuits Sault # 3 will be taken in a manner that results in minimal impact to HOSSM's customers supplied by circuit Sault # 3. Outage schedule will be made available during the execution phase of the Proposed Project and will be established in consultation with area customers. The outage duration, if any, will be minimized and risk managed with proper outage planning and co-ordination.

5.0 CONCLUSIONS AND RECOMMENDATIONS

This Customer Impact Assessment (CIA) concludes that the proposed project does not have adverse impact on HOSSM's existing connected transmission customers.

It is recommended that each of the area customers review the impact of the short circuit change on its facilities and take appropriate and timely action to address any safety/technical issues arising out of the changes following incorporation of the Proposed Project.

6.0 APPENDIX A – SAULT # 3 TRANSMISSION LINE ROUTE

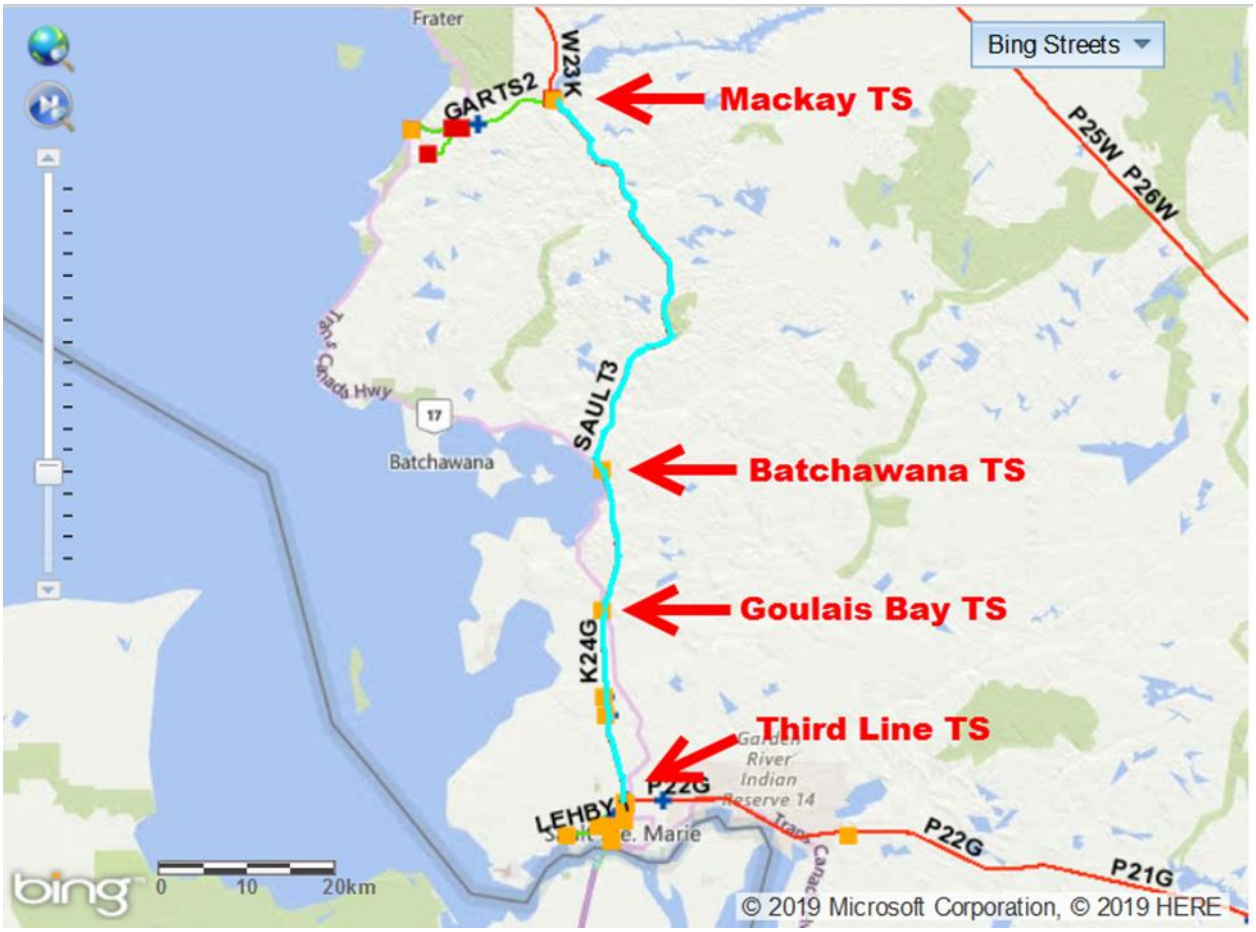


Figure 1– Map of Circuits Sault #3 between THIRD LINE TS X MACKAY TS

APPENDIX B – SHORT CIRCUIT RESULTS

			Existing				Post Sault3 Refurbishment / Upgrade			
			3 ph (kA)		L G (kA)		3 ph (kA)		L G (kA)	
Station Bus	Voltage (kV)	Pre fault Voltage (kV)	Symm	Asymm	Symm	Asymm	Symm	Asymm	Symm	Asymm
Third Line TS	115	127	13.726	16.525	17.743	21.946	14.047	17.44	18.255	23.109
Goulais Bay TS	115	127	4.826	4.85	3.541	3.544	4.891	4.937	4.024	4.027
Batchawana TS	115	127	3.366	3.374	2.466	2.469	3.462	3.514	2.842	2.845
MacKay TS	115	127	1.981	2.095	2.068	2.223	2.015	2.149	2.166	2.336
Mile Hill CTS	27.6	250	7.423	8.778	7.893	8.879	7.548	9.046	8.092	90129
St.Marys MTS	27.6	127	10.176	10.85	7.975	8.518	10.411	11.893	8.099	8.875
Tarentorus MTS	27.6	127	13.597	16.228	17.177	20.823	13.913	17.065	17.657	21.909
Northern Ave TS	27.6	127	11.683	12.806	13.05	13.778	11.917	13.165	13.297	14.071