

**DESIGN BRIEF  
DORION ROAD HILL RECONSTRUCTION  
PROJECT NO. 20-1046D**

**WORKING DRAFT**

**PREPARED FOR:** TOWN OF MATTAWA  
160 WATER STREET  
MATTAWA, ONTARIO P0H 1V0

**PREPARED BY:** Jp2g CONSULTANTS INC.  
ENGINEERS · PLANNERS · PROJECT MANAGERS

**NOVEMBER 5, 2021**



**Jp2g Consultants Inc.**

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DESIGN BRIEF**

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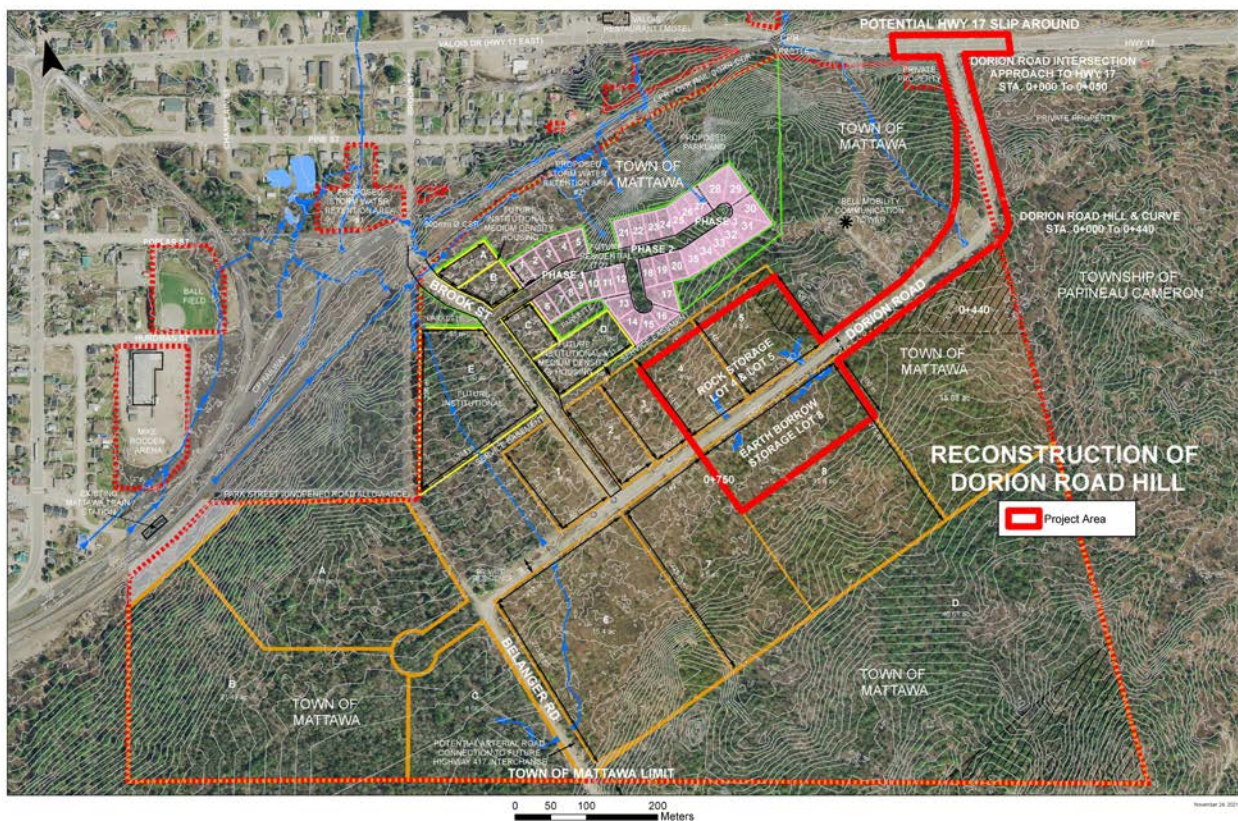
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## 1.0 BACKGROUND/EXISTING CONDITION

Dorion Road Hill is located at the eastern limit of the Town of Mattawa adjacent to the Township of Papineau Cameron connecting Dorion Road (formerly known as Wood Street) to Highway 17, a distance of approximately 450 meters. Total project area including directly related material storage and drainage extends approximately 750 meters.

The Dorion Road Hill Reconstruction project area and project components are shown on Figure 1 hereto.

**Figure 1**  
**Dorion Road Hill Reconstruction**  
**Project Area**



Dorion Road is a low volume rural collector road approximately 200 AADT; but it provides an important connection route for residences and businesses south of Dorion Road to Highway 17, providing access to the Town of Mattawa and the Township of Papineau Cameron.

Dorion Road Hill currently has a 12% to 14% vertical grade, narrow surface width, minimal gravel shoulders and poor drainage. See Figures 2A and 2B.



**Figure 2A**  
**Dorion Road Hill looking South to proposed “new curve”**



**Figure 2B**  
**Dorion Road Hill looking North to Highway 17 Intersection**



### Existing Condition

Existing Surface Width	6.5 meters
Shoulder Width	0 to 1 meter
Surface Condition	Poor
Drainage	None

The top of the Dorion Road Hill is a non-compliant horizontal curve and the bottom of the hill has a non-compliant intersection grade approach to Highway 17.

A significant level of effort is required by Town Public Works forces to maintain the roadway, particularly in the winter and spring.

Level of Service and public perception of safety on Dorion Road Hill is very low.

The Town of Mattawa made an application for funding to reconstruct Dorion Road Hill under the Infrastructure Canada Improvement Program (ICIP) in May 2019 for a total of \$4,784,000 comprised of:

Road Reconstruction	\$3,500,000.00
- Part A Highway 17 Slip Around	
- Part B Dorion Road Intersection Improvements	
- Part C Dorion Road Hill and New Curve	
Utilities	\$75,000.00
Engineering	\$525,000.00
Technical Support Studies	\$60,000.00
Contingencies	<u>\$624,000.00</u>
	\$4,784,000.00

An ICIP application was approved April 23, 2020 for \$4,464,907.20 Federal and Provincial contribution.

This ICIP funding program provides for cost sharing by Canada (60%), the Province (33.33%) and the Municipality (6.67%).

Federal Contribution	\$2,870,400.00
Provincial Contribution	<u>\$1,594,507.20</u>
	\$4,464,907.20
The Municipality's share is	<u>\$319,092.80</u>
	\$4,784,000.00

Updated construction costs 2021 are expected to exceed the ICIP Funding Envelope as detailed in Section 7.0 and Figure 12 hereto.

Project control points are UTM Zone 18  
Intersection Latitude: 46.314570° Longitude: -78.686303°  
Top of Hill: 46.312425° Longitude: -78.686317°

The undertaking is required to be completed by December 31, 2024.

## 2.0 PURPOSE OF THE UNDERTAKING

The proposed project is intended to address public safety and improve level of service and reduce maintenance efforts by incorporating approved engineering design geometrics to improve Highway 17/Dorion Road intersection, reduce the grade on Dorion Road Hill and provide a new horizontal curve alignment at the top of Dorion Road Hill. The proposed project will improve the function of Dorion Road Hill as an important route for the travelling public and support its role as a truck route and service vehicle access to the proposed Town of Mattawa Light Industrial Park currently under development on Dorion Road; as well as providing improved vehicular access to support future development of approximately 97 hectares/240 acres of Town owned land adjacent to both sides of Dorion Road and Bélanger Road.

Dorion Road will also be a potential interchange candidate providing access to any future Highway 417 alignment south of Mattawa.

## 3.0 PROJECT COMPONENTS

The Dorion Road Hill Reconstruction Project Area extends approximately 750 meters southerly from Highway 17 Intersection and includes:

- Part A Highway 17 “Slip-Around” (westbound)
- Part B Dorion Road/Highway 17 Intersection Approach Station 10+000 to Station 10+050
- Part C Dorion Road Hill (including new curve) Station 10+050 to Station 10+450
- Part D Temporary Storage Blast Rock and Excavated Soil Station 10+550 to Station 10+750

Preliminary engineering designs are provided in the 90% Complete Design Drawings which accompany this report.

## 4.0 DESIGN CRITERIA

Jp2g Consultants Inc. engineering design contemplates a Rural Undivided Low Volume Road (approximately 200 AADT) with provision for accommodating local industrial traffic as the Town of Mattawa Light Industrial Park develops. The primary access to the Light Industrial Park will eventually be via Brook Street extension.

### Part A – Highway 17 “Slip-Around” (Westbound)

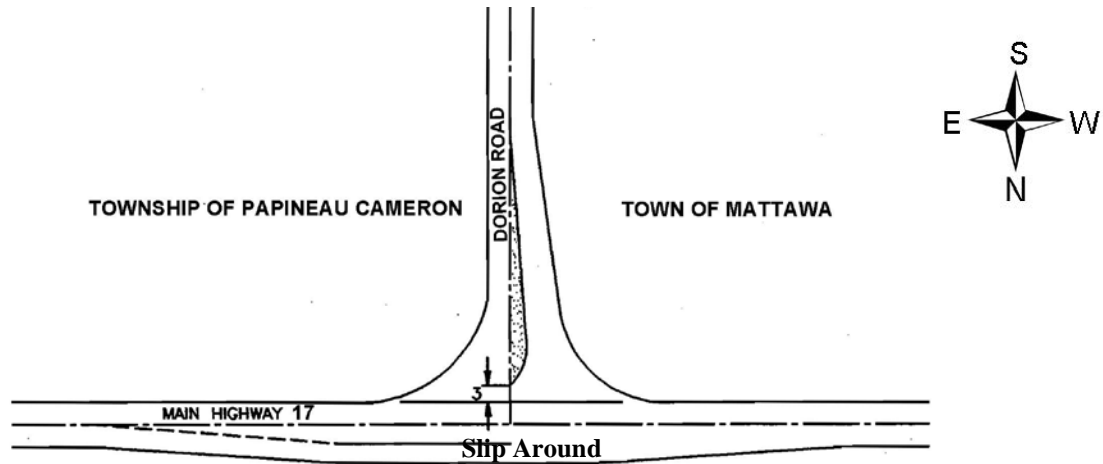
The criteria used for Part A Highway 17 “Slip-Around” is Ministry of Transportation Ontario Geometric Design Standards for Roadway Surface Works and Signage; as well as Ministry of Transportation Guidelines for Drainage Works.

The proposed “slip-around” will include:

- Right turn taper eastbound Highway 17 at Dorion Road 70 meters
- Intersection radius 20 meters to 110 meters to satisfy tractor trailer turning sweep.

Figure 3 shows a Schematic for a proposed westbound “slip-around”.

**Figure 3**  
**MTO Left Turn “Slip-Around” Schematic**



The Ministry has previously indicated a willingness, subject to a formal agreement with the Town of Mattawa, to consider deferring “slip-around” work until the Industrial Park development starts to produce truck traffic and the possibility of a phased approach will be pursued as Phase 2 as outlined in Section 6.0 Strategic Approach.

**Part B – Dorion Road Highway 17 Intersection (Station 10+000 to Station 10+050)**

The existing centerline grade of the Dorion roadway approaching Highway 17 (1.00%) is too steep and will be reconstructed in accordance with MTO Geometric Design Guidelines (0.5%). This work will also include improvements to intersection turning radius and improvements to drainage.

Lane Width on Tangent	3.50 meters
Shoulder Width	1.50 meters paved shoulder
Shoulder Rounding	0.50 meters
Intersection Radius	20-110 meters
Surface Course Asphalt	40 mm
Binder Course Asphalt	60 mm
Granular ‘A’	150 mm
Granular ‘B’	150 mm to 300 mm including grade point backfill
Approach Grade to Hwy.	1% for 14.5 meters (allow for 2 cars or 1 tractor trailer)

**Part C – Dorion Road Hill and New Curve (Station 10+050 to Station 10+450)**

The overall design guideline for this portion of the project is based on Transportation Association of Canada (TAC) Guidelines and AASHTO Guidelines for very low volume roads.

Jp2g is proposing that the Dorion Road Hill be reconstructed to a cross section suitable for local industrial traffic with a 50 km/hr design speed as follows:

Lane Width on Tangent	3.50 meters
Lane Width on Curve	4.50 meters
Shoulder Width	1.50 meters paved shoulder
Shoulder Rounding	0.50 meters
Surface Course Asphalt	40 mm
Binder Course Asphalt	60 mm
Granular 'A'	150 mm
Granular 'B'	150 mm to 300 mm including grade point backfill

The existing vertical grade of 12% to 14% on Dorion Road Hill is considered too steep and it is the major objective of this undertaking to reduce the grade to approximately 8% to maximize utility for accommodating future truck traffic to the Town of Mattawa Light Industrial Park.

A grade of 9% would be “tolerable” for residential traffic only.

The final design of the Dorion Road Hill Reconstruction project undertaking will include management of surface water drainage and rock face maintenance considerations on Part B and Part C.

#### **Part D – Temporary Storage of Blast Rock and Excavated Soil (Station 10+550 to Station 10+750)**

The 90% complete engineering work completed to date indicates there will be approximately 42,646 m<sup>3</sup> of blast rock and approximately 11,446 m<sup>3</sup> of excavated soil produced by the reconstruction of Dorion Road Hill.

Storage of this material in an environmentally acceptable manner and in accordance with Provincial regulations is a fundamental component of the Dorion Road Hill Reconstruction project.

It is proposed that storage be provided on a temporary basis on currently unserviced Town owned lots in the Town of Mattawa Light Industrial Park as follows:

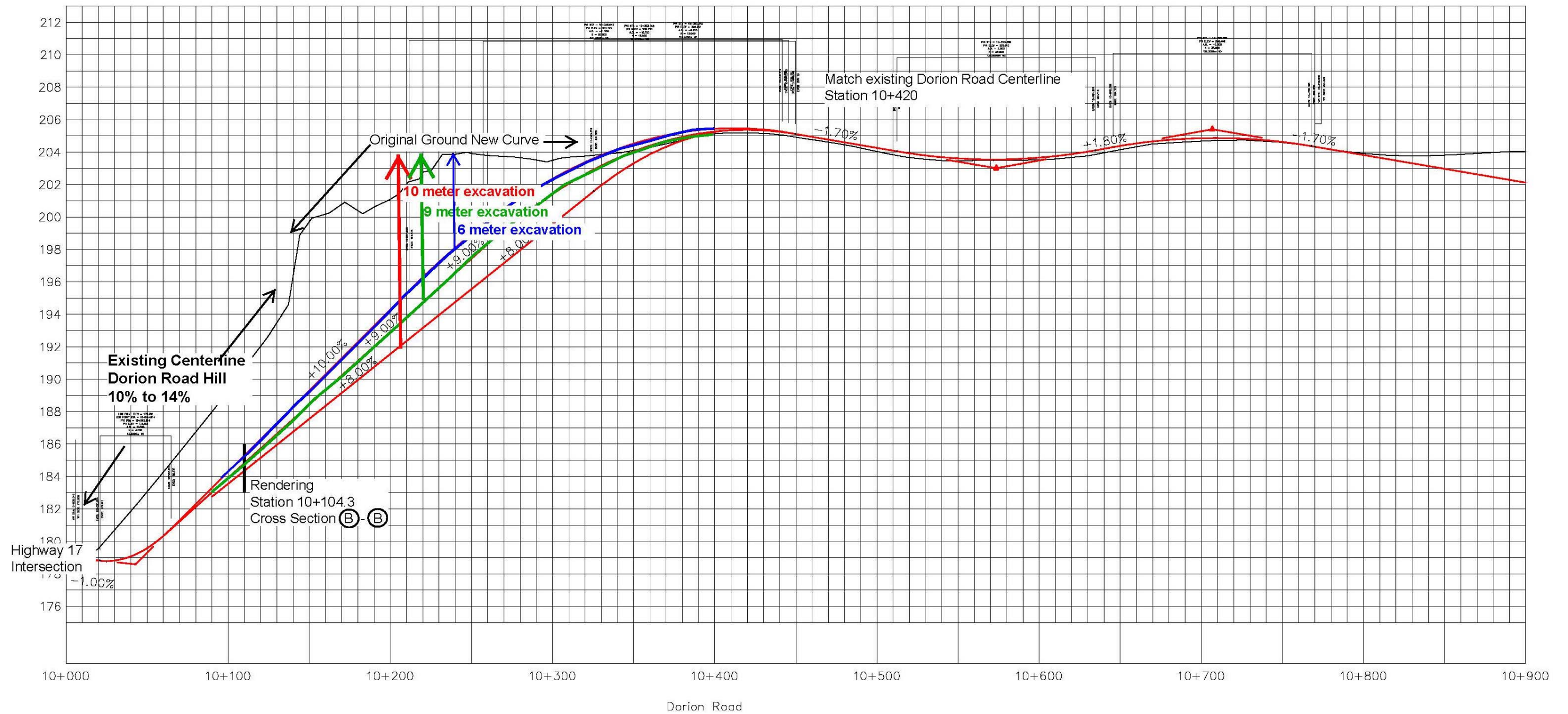
Blast Rock Storage	Lots 4 and 5
Excavated Soil	Lot 8

#### **OLS Property Fabric**

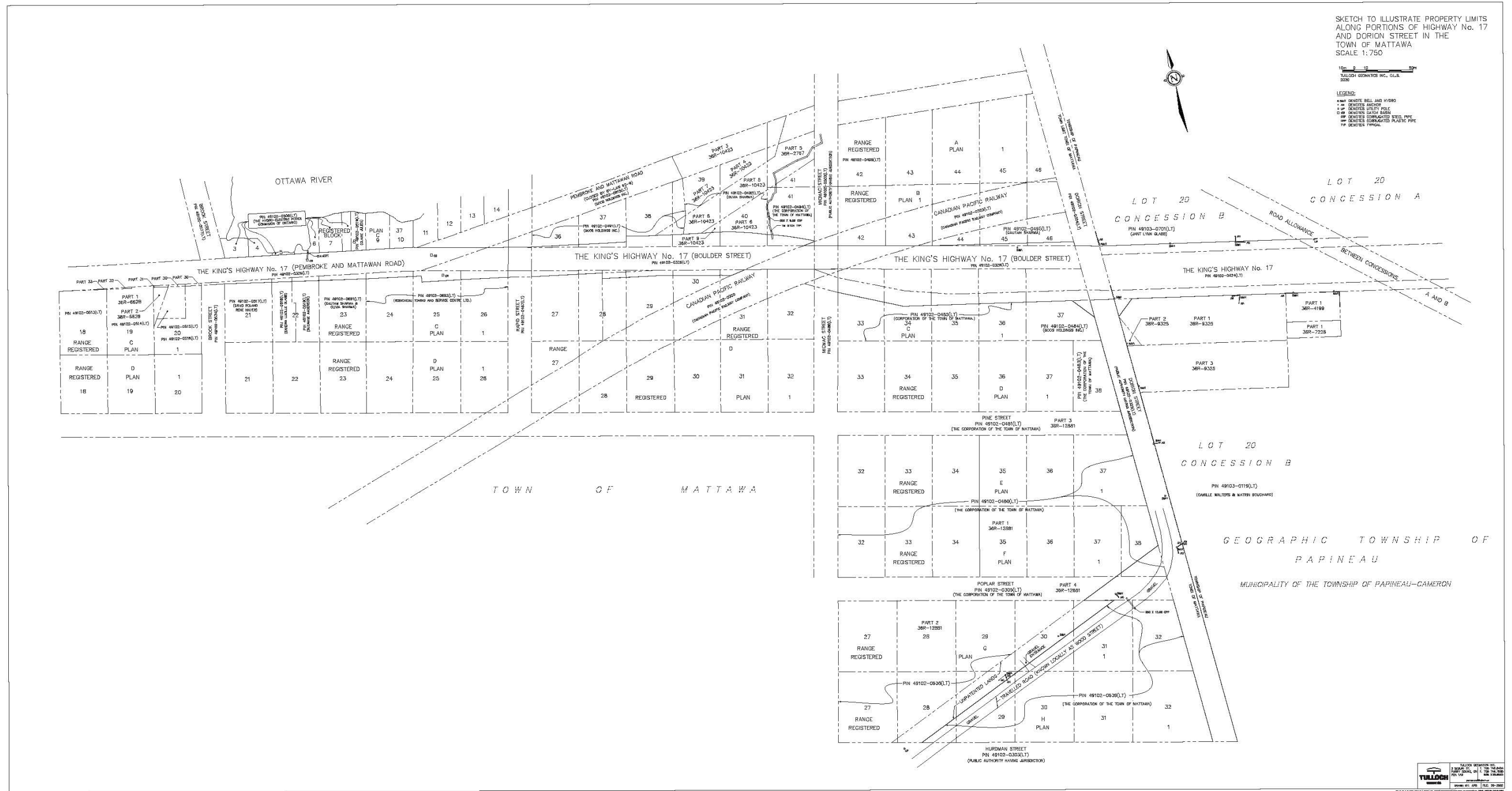
As part of the Dorion Road Hill Reconstruction Project Tulloch Geomatics was commissioned to provide an OLS streetscape property plan for the limits of the proposed undertaking as per Figure 5.



**Figure 4**  
**Dorion Road Hill and New Curve**  
**Design Profile**  
**Alternate Grades 8% to 10%**



**Figure 5**  
**Dorion Road Hill and New Curve**  
**Tulloch OLS “Streetscape”**



### Access to Private Property

The design criteria includes provision for supporting future access to private lands westerly at or near Station 10+025 and easterly at or near Station 10+300; as well as protection of the existing driveway access to the Bell Mobility Communication Tower at Station 10+410. The Dorion Road Hill new curve matches the existing Dorion Road centerline at Station 10+440 adjacent to blast rock and excavated soil storage areas.

### Pavement Markings

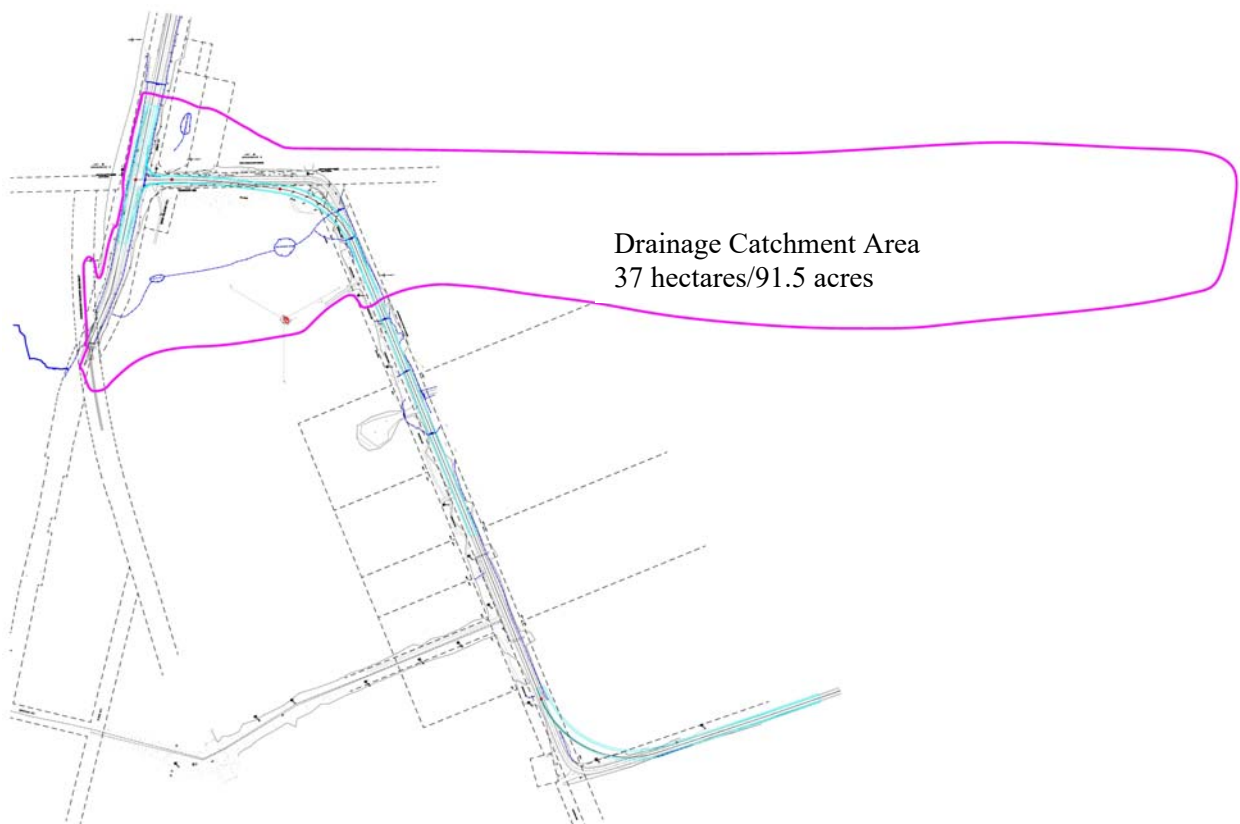
Pavement markings will be in accordance with Ontario Traffic Manual and as per construction specifications.

### Drainage

Surface water drainage will be in accordance with MTO Design Guidelines and will include removal of existing road crossing CSP culverts and replacement with 500 mm dia. polymer laminated culverts and surface water mitigation measures.

The Dorion Road Hill drainage catchment area as shown on Figure 6 has been established by Jp2g Consultants Inc. Senior Design Engineer field visit during spring run-off April 2021.

**Figure 6**  
**Dorion Road Hill**  
**Drainage Catchment Area**



## Required Agency Approvals

Agency approval or letters of support for the Dorion Road Hill Reconstruction Project will include but will not be limited to the following:

<u>AGENCY</u>	<u>ISSUE</u>
Ministry of Transportation Ontario	<ul style="list-style-type: none"><li>• Highway 17 “Slip-Around”</li><li>• Dorion Road Highway 17 Intersection improvements</li><li>• Permit for Works within 300 meters of Highway Right-of-Way</li></ul>
Mattawa North Bay Algonquin First Nation and Algonquins of Ontario	<ul style="list-style-type: none"><li>• Aboriginal Consultation</li></ul>
Ministry of the Environment	<ul style="list-style-type: none"><li>• Schedule B Environmental Assessment</li><li>• Excess Soil Management ). Reg. 406/19</li></ul>
Ministry of Natural Resources	<ul style="list-style-type: none"><li>• Bird Nesting Constraints for Clearing/ Grubbing April 15 to August 15</li></ul>
Bell Canada	<ul style="list-style-type: none"><li>• Agreement for Aerial Fiber Optic Pole Relocation</li></ul>
Bell Mobility	<ul style="list-style-type: none"><li>• Notice of Proposed Blasting Work and coordination of protocols in vicinity of Bell Communication Tower</li></ul>
Hydro One	<ul style="list-style-type: none"><li>• Raising of wires on Dorion Road at “new curve”</li></ul>

## 5.0 ISSUES AND RISKS

Based on 90% completion of engineering design, the following is a summary of Issues and Risks associated with the Dorion Road Hill Reconstruction, Project 20-1046D.

### 1. Risk Vertical Gradient

The existing grade on Dorion Road Hill will be reduced from over 12% to approximately 8%; which is acceptable for “long trucks” under Transportation Association of Canada Design Guidelines. The proposed grade will improve marketability of the proposed Light Industrial Park (eg: for comparison purposes Gravelle Road immediately east of Dorion Road is an 8% gradient). It may be necessary to increase the grade to avoid private property acquisition requirements and reduce capital cost to address ICIP approved budget envelope. In this regard Council may still have to consider 9% grade due to Covid related construction cost increases and ICIP budget constraints. Jp2g Consultants currently recommends 8% as the preferred design grade.

### 2. Risk Rock Excavation

There will be significant height of rock cut on completion of the Dorion Road Hill Reconstruction project (varies between 3 meters/10 ft. and 10 meters/32 ft.). Geotechnical design requirements for “step back” on the rock face and a “catchment area” at the base of the rock face will result in the need to relocate three (3) recently installed Bell poles along the east limit of Dorion Road Hill approaching Highway 17 intersection under any alternative grade.

There may therefore be a need to negotiate permission or an easement to provide rock face “benching” and relocation of Bell poles on private property adjacent to the east or west side of Dorion Road at cross-sections AA, BB and CC (3 poles).

Jp2g recommends focusing proposed Bell pole relocation westerly, thereby locating substantially on existing Town of Mattawa property.

**3. Risk Potential Impact of Construction on Existing Bell Poles**

The recently installed Bell poles along the east limit of Dorion Road Hill (6 poles) will be addressed as part of the final engineering design to confirm pole relocation requirements due to blasting and cost.

Cost increases due to COVID 19 for relocation of poles or raising or lowering of wires represents an additional risk to the approved ICIP budget envelope and overall construction schedule.

**4. Risk Potential Impact of Construction (Rock Blasting) on Bell Mobility Radio Tower**

The final engineering design for the proposed curve at the top of the hill will be coordinated with Bell Mobility to determine any concerns they may have regarding potential impacts of excavation/ blasting on the Bell Mobility Radio Tower.

Legal advice will be required regarding potential constraints on proposed undertaking arising from the conditions of Bell Mobility Radio Tower Lease.

A requirement to accommodate Bell Mobility protocols including provisions for vibration monitoring during blasting will be incorporated into the construction specifications.

**5. Risk Storage of Blast Rock/Excess Soil**

It is suggested that contractor tender cost could be reduced if blast rock can be stored near to the Dorion Road Hill project site. Approximately 42,636 m<sup>3</sup> of rock will be excavated but with an allowance for boulder factor of 1.5 (50%) a storage area to accommodate 60,000 m<sup>3</sup> will be required.

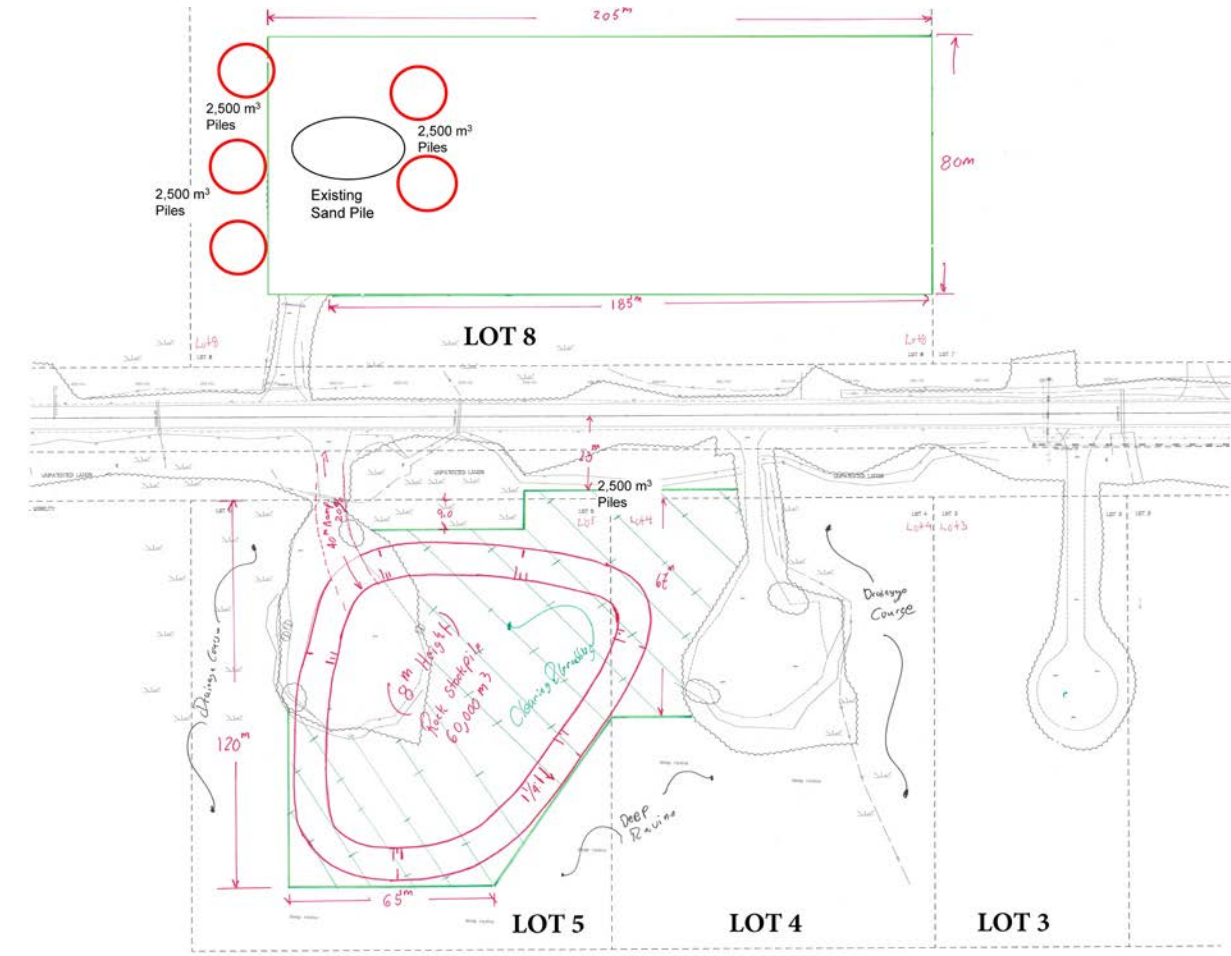
Jp2g Consultants is recommending Lot 4 and Lot 5 in the Light Industrial Park be cleared and grubbed to accept blast rock and to accommodate a future crushing operation.

Lot 8 should be considered for temporary storage of excavated earth of approximately 11,446 m<sup>3</sup> in 2,500 m<sup>3</sup> piles in accordance with O. Reg. 406/19 Excess Soil Management.

All as per Figure 7 hereto.



**Figure 7**  
**Blast Rock/Excavated Soil Temporary Storage Area**



**6. Risk Capital Cost/Funding Budget Envelope**

The original construction cost estimate and subsequently ICIP approved budget envelope for Dorion Road Hill Reconstruction and the Highway 17 “Slip-Around” was prepared in May 2019 as follows

Construction (Parts A, B and C)	\$3,500,000
Engineering, Planning & Project Management	\$525,000
Technical Support Subconsultants	\$60,000
Relocate Utilities	\$75,000
Contingencies	<u>\$624,000</u>
Total Project Cost	\$4,784,000

While we remain confident in the original Engineering, Planning and Project Management budgets; as well as the Technical Support budget (eg: Geotechnical, OLS, Environmental Assessment, Aboriginal Consultation) noted above, we are concerned with the COVID 19 impact on the originally approved construction budgets of \$3,500,000 Part A, B and C (road reconstruction) and \$75,000 (for utility relocates) respectively. See Section 7.0 and Figure 12 hereto.

**7. Risk MTO Highway 17 Westbound “Slip-Around”**

If MTO maintains a requirement for a westbound “slip-around” on Highway 17 in Phase 1 this will trigger a variety of risks in addition to COVID 19 related increases in capital costs. **Firstly**, notwithstanding their correspondence of May 13, 2013 and September 30, 2014, Figure 8 and 9, MTO may eventually require a Transportation Environmental Study Report (TESR). **Secondly**, Highway 17 work related to the “slip around” if required in Phase 1 will incur extra effort and costs associated with engineering surveys, RAQS certified peer review, extra geotechnical survey and potential additional drainage requirements. This will impact the Work Program schedule and budget as advised in the Jp2g Response to Request for Proposal for Engineering and Project Management Services October 9, 2020.

It is recognized that a formal agreement will be required between MTO and the Town of Mattawa if the “slip around” is to be deferred until the Light Industrial Park begins to generate traffic impacts in Phase 2.

Figure 8  
MTO Correspondence May 3, 2013

**Cole, Jeff (MTO)**

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**From:** Cole, Jeff (MTO)  
**Sent:** May 3, 2013 11:47 AM  
**To:** 'Les Ranta'; Wayne.belter@mattawa.ca; Marc Mathon  
**Cc:** Marsh, Sue (MTO); Turcotte, Ron (MTO)  
**Subject:** RE: Mattawa - Dorion Street Improvements at Highway 17  
Les Ranta

Further to our meeting yesterday, May 2, 2013.

MTO supports the project to improve the grade on Dorion Road in order to facilitate trucks and other traffic to and from the new Mattawa Industrial Park. Permits are required from MTO for this work.

However, in conjunction with the Dorion Road and grade improvements, it is our opinion that improvements to the Highway intersection will also be necessary.

Those improvements would involve a westbound slip around and moving the passing lane signage to the east of the intersection. Those improvements would need to be undertaken by the proponent under a legal agreement with MTO and would need to cover all MTO specs and requirements, EA approval etc. In my experience, a slip around project can be expected to cost somewhere in the \$200,000 - \$400,000 range and it takes a few months to work out the agreement and have it executed, and to have contract drawings and supporting documents prepared and approved.

Typically, MTO requires the highway improvements to be completed before the development that made them necessary starts generating traffic.

We discussed the possibility of a phased approach to the actual physical highway improvements since the industrial park will likely develop over a period of time. There may be a way to do this, and we are prepared to entertain further discussions on how to do this. But at the very least, we will still want the agreement in place before we issue permits.

If the Town is prepared to work with the above, then we can get started right away preparing agreements and we can waive the need for a traffic study.

If the Town would prefer to undertake a traffic study to consider alternatives to the above, then we will be pleased to review that. In all honesty though, we are pretty confident that a study will tell us what we already know.

Please coordinate your further correspondence and submissions with Sue Marsh, Corridor Management Officer, in this office.

Sue's telephone number is 705-497-5401.

Jeff Cole

Corridor Management Planner

Ministry of Transportation - Northeastern Region

705-497-5223

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**From:** Les Ranta [mailto:LRanta@jrichards.ca]

Figure 9  
MTO Correspondence September 30, 2014

Ministry of Transportation

Regional Director's Office  
Northeastern Region  
447 McKeown Avenue  
North Bay, ON P1B 9S9  
Tel: (705) 497-5500  
Fax: (705) 497-5409

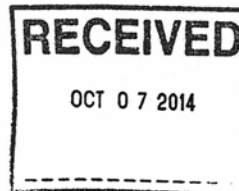
Ministère des Transports

Bureau du directeur régional  
Région du Nord-Est  
447, avenue McKeown  
North Bay (Ontario) P1B 9S9  
Tél : (705) 497-5500  
Télééc : (705) 497-5409



September 30, 2014

Mr. Marc Mathon, P. Eng.  
Public Works Superintendent  
Town of Mattawa  
PO Box 390, 160 Water Street  
Mattawa, ON P0H 1V0



DIV 2014-470

Dear Mr. Mathon:

Thank you for your letter dated August 1, 2014 regarding the proposed road improvements to Dorion Road at Highway 17 in Mattawa.

The Ministry of Transportation supports and encourages economic development along and adjacent to provincial highways. I have asked our Corridor Management staff to work with you to facilitate your project.

The Public Transportation and Highway Improvement Act (PTHIA) states that any work within the ministry's permit control area will require a permit. The ministry's permit process ensures that the new traffic patterns generated by developments are safely integrated with provincial highways.

The proposed work on the municipal road as well as any necessary improvements to its intersection with Highway 17 will require a permit from the ministry.

In order for the ministry to determine the need for improvements, a traffic impact study or a traffic statement prepared by a qualified service provider under the Ministry's Registry, Appraisal and Qualification System (RAQS) will be required. The proposed improvements to Dorion Road must also be professionally detailed to ensure a safe approach to Highway 17 with no adverse effects to its existing drainage system.

Ministry staff will be happy to meet with you and your service providers to avoid any unnecessary delays. I am confident that the town is committed to work within the PTHIA provisions and cooperatively with the ministry.

I understand that we have previously advised that construction of a westbound slip-around and moving the eastbound passing lane signs to the east of the Highway 17 and Dorion Road intersection is an alternative to a full-scale Traffic Impact Study. This option remains open to the town.

You may contact Sylvie Lauzon, Corridor Management Officer, at (705) 497-5401 with respect to the MTO's permit requirements or Marcia Mora, Head Corridor Management at (705) 467-5530 to discuss any other questions that you may have regarding our corridor.

Thank you again for your letter.

Sincerely,

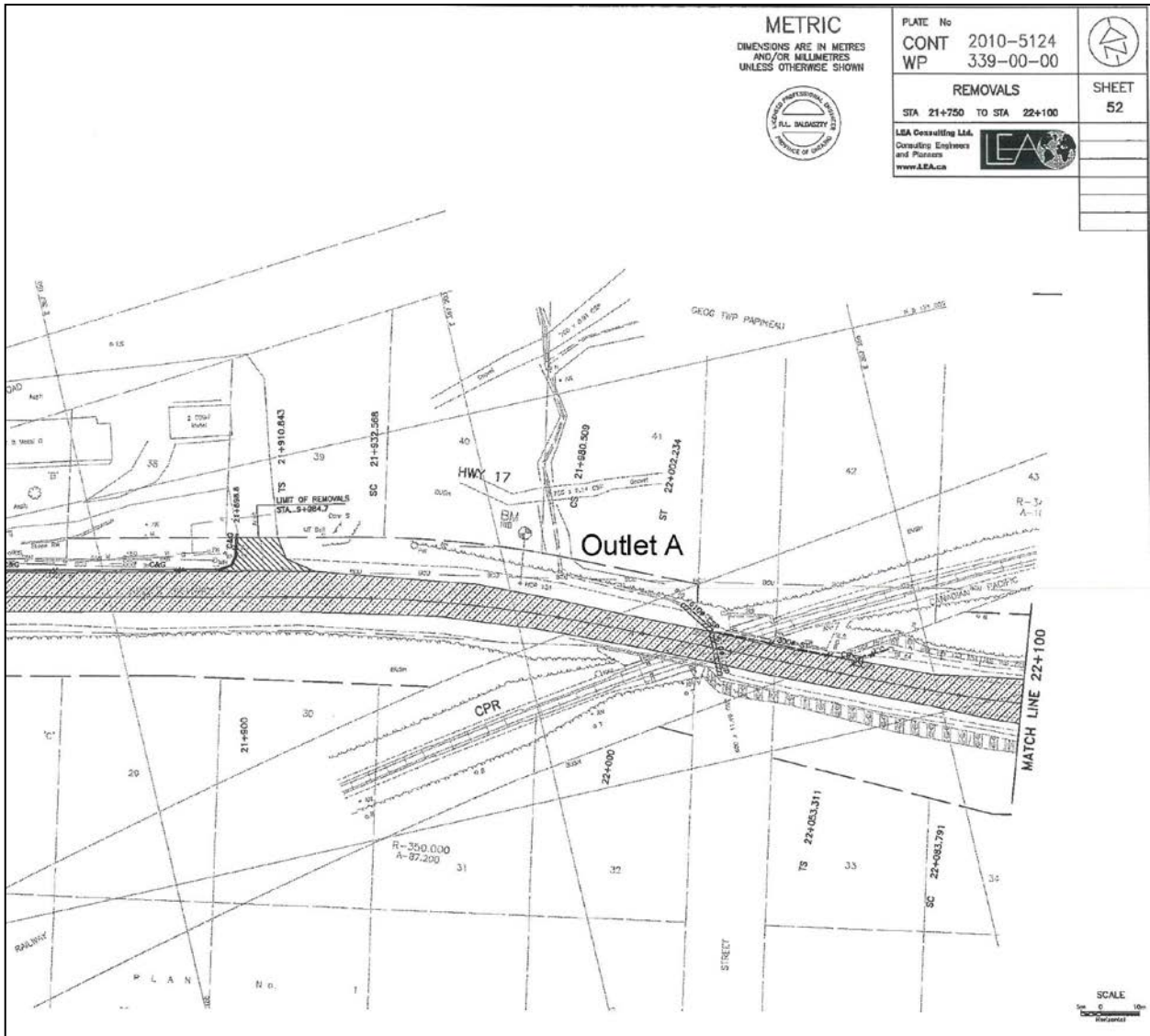
A handwritten signature in black ink, appearing to read "Eric Doidge".

Eric Doidge  
Regional Director

8. Risk Downstream Drainage Highway 17 Outlet

Drainage Outlet A immediately west of CPR trestle at Valois Motel located on Highway 17 provides the drainage outlet from Dorion Road Hill to the Ottawa River. Improvements to Outlet A as well as consolidation and control of watercourses and hillside springs on Dorion Road Hill draining onto Highway 17 will require MTO approval. See Figure 10.

Figure 10  
 Highway 17 Drainage Outlet A





**9. Risk Potential Historic Dump Site**

There is a possibility that an abandoned dump site or portion thereof exists under part of the proposed curve at the top of the Dorion Road Hill.

A unit price will be carried in the construction specifications for disposal of refuse if necessary.

**10. Risk Class Environmental Assessment**

The proposed work plan and budget contemplated a Class A Environmental Assessment; however, given the proposed curve realignment at the top of Dorion Road Hill the Project Team has determined a Class B Environmental Assessment would be appropriate. The MTO slip-around may trigger the need for additional Environmental Assessment.

**11. Clearing and Grubbing Operations**

The close cut clearing of an easement for Bell pole relocation (Contract A) and the clearing and grubbing of the Dorion Road right-of-way (Contract B and C) undertaking and temporary storage areas (Part D) will comply with provincial guidelines which generally preclude tree cutting operations in bird breeding season (between April 15 and August 15) unless a breeding bird survey is conducted by a qualified professional within five (5) days of vegetation removal and the survey identifies no nesting activity in the vicinity of the work area.

Suitable arrangements will also have to be made with the Town of Mattawa for disposal of brush and grubbing material at the Town of Mattawa landfill site.

**12. Risk Emergency Response (Fire, Medical, Police) during Construction**

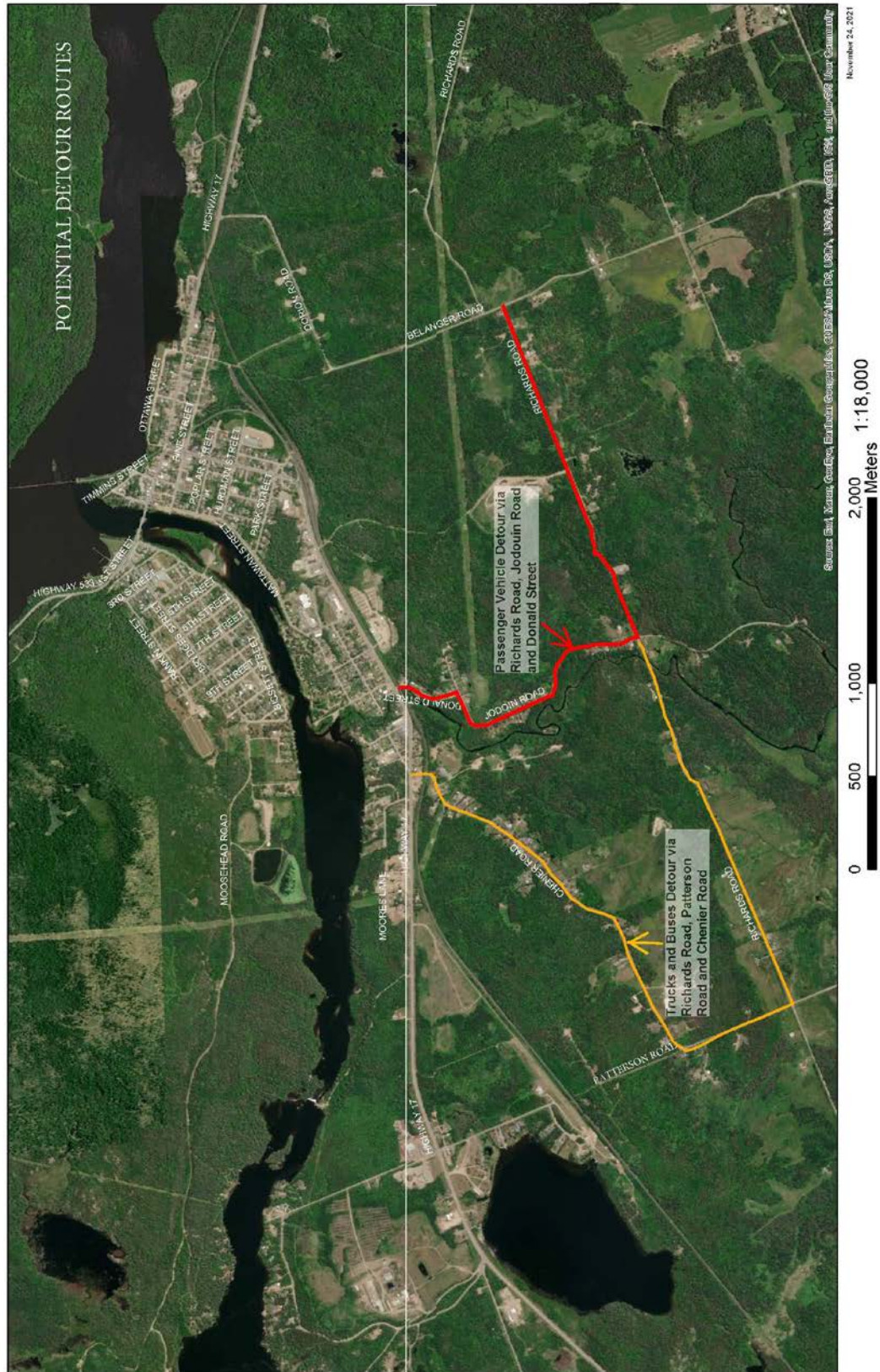
Jp2g Consultants Project Manager will work with Town of Mattawa Public Works Department and Emergency Measures to **firstly** determine a formal detour route(s) and **secondly** provide a protocol for access to Dorion Road and Belanger Road residences on a priority basis during any emergency situation that may arise during construction.

**13. Risk Traffic Disruption during Construction Work**

Jp2g engineering design staff will work with Town of Mattawa to develop a protocol for keeping a lane of traffic open during construction to the maximum extent possible by providing construction specifications that specifically address construction operations. There will, however, be times when detour(s) will have to be in effect (see Figure 11). Subject to contractor's scheduling of blasting work, Dorion Road Hill may be able to remain open for the winter between construction seasons. Based on Preliminary Engineering Site Review a "split detour" route utilizing Richardson Road, Jodouin Road and Donald Street for cars and Richardson Road and Chenier Road for trucks and buses should be considered. See Figure 11.

This approach is to be discussed further with Town of Mattawa.

Figure 11  
Potential Detour Routes



**14. Risk Maintain Access to Adjacent Private Property/Bell Mobility Tower**

Excavation at the top of Dorion Road Hill cannot preclude potential future driveway access to private property in Lot 37 Part C Plan 1, Town of Mattawa or Lot 20, Concession B, geographic Township of Papineau or existing access to Bell Mobility Tower.

**15. Risk Road Maintenance**

The matter of responsibility for maintenance of Dorion Road Hill during construction seasons 2022/2023 including snow removal and surface water control from existing Dorion Road hillside spring and dust control will have to be clearly addressed in the tender call construction specifications.

**6.0 STRATEGIC APPROACH TO MITIGATE RISKS**

The following Action Items are suggested for Council consideration in order to mitigate the Issues and Risks associated with the Dorion Road Hill Reconstruction project as described in Section 5.0.

**1. Vertical Gradient**

Council will have to consider a variety of decision points before providing final instructions to the Design Engineer as to whether the vertical grade should be 8%, 9% or 10%. These considerations will include:

- Capital Costs (including compliance with approved ICIP budget)
- Public perception and value for money post construction
- Aesthetics
- Maintenance effort
- Council's future objectives for Town owned land

Jp2g Consultants Inc. recommends the 8% grade.

**2. Rock Excavation**

The recommended 8% vertical grade requires rock excavation ranging from 3 meters (10 ft) up to 10 meters (32 ft); as well as side slopes to a cross section standard that will minimize; but not necessarily eliminate future rock fall and subsequent Town maintenance efforts.

**3. Potential Impacts of Construction (Rock Blasting) on Existing Bell Poles/Hydro Lines**

Engineering design works including OLS survey completed to date indicate that the 3 northerly poles recently installed by Bell Canada along the east limit of Dorion Road Hill approaching Highway 17 intersection will have to be relocated under any profile alternative due to rock blasting cross section and required setbacks for rock face.

The three (3) poles in question are not on municipal right-of-way and with the possible exception of the most northerly pole within the Highway 17 road allowance there does not appear to be a formal registered easement for two poles located on private property adjacent to the east limit of Dorion Road; however, there may be an unregistered agreement.

The remaining poles are within Dorion Road right-of-way; but they do not require relocation.

Based on our initial contact Bell Canada reaction has been that the Town of Mattawa should be responsible for 100% of the cost of relocating the poles in question.

We suggest **firstly** that Town staff review and share any file information they may have regarding an agreement on the Bell Canada installation on Dorion Road; and **secondly**, the Town and Jp2g Consultants should initiate negotiation with Bell Canada at the earliest opportunity to address this matter.

The need to raise the Hydro line to accommodate standard height above centerline of the new curve at the top of Dorion Road Hill is under review.

We are awaiting responses from both Bell Canada and Hydro as to potential solutions and costs.

#### **4. Potential Impact of Construction (Rock Blasting) on Bell Mobility Radio Tower**

Jp2g Consultants Inc. has given formal notice under the Bell Mobility lease and through the Environmental Assessment process of the Town's intent to reconstruct Dorion Road Hill, including the requirement for a new curve, which includes blasting in the vicinity of the tower and we are awaiting a response.

Bell Mobility input has been requested to ensure coordination of blasting requirements.

A Vibration Monitoring Specialist will be required during blasting as part of the construction specifications.

#### **5. Storage of Blast Rock**

Jp2g Consultants suggests that Part of Lot 4 and Lot 5 in the Light Industrial Park be prepared to accept blast rock and future crushing operations. This will include clearing and grubbing on the front portion of Lot 4 and Lot 5 and use of sand fill from the existing stockpile on Lot 8 for levelling in Summer 2021 as previously shown on Figure 7 hereto.

#### **6. Clearing and Grubbing**

Given the constraints imposed by Ministry of Natural Resources and Ministry of Environment and Climate Change on protection of breeding birds during nesting season (April 15 to August 15) it would be prudent and cost effective to commission clearing and grubbing of the Dorion Road right-of-way including the new curve in conjunction with clearing and grubbing work on Lot 4 and 5 in early Spring 2022.

Brush material for the Bell Canada easement should be temporarily stored on Lot 3 as shown on Figure 7 hereto or chipped in-situ.

Clearing and grubbing for the Dorion Road right-of-way works should be transported to the Town of Mattawa landfill site for chipping and grinding.

## 7. Capital Cost/Funding Budget Envelope

Ontario Ministry of Infrastructure has been approached July 7, 2021 by the Town of Mattawa as per Figure 12 to determine what (if any) accommodation the government is willing to consider with regard to potential capital cost and/or schedule exceedance due to Covid 19 impacts on labour and material.

The ICIP Project Funding Manager as per response August 11, 2021 Figure 13 has indicated resistance to any accommodation to the Town of Mattawa request; but offered some suggestions for accessing alternative funding streams.

**Figure 12**  
**Town of Mattawa Correspondence to ICIP July 7, 2021**



Corporation of the Town of Mattawa

☎ (705) 744-5611 • 📠 (705) 744-0104

160 Water Street — P.O. Box 390  
MATTAWA, ONTARIO P0H 1V0

✉ info@mattawa.ca

July 7, 2021

Julia Danos, Director  
Intergovernmental Policy Branch  
Ministry of Infrastructure  
Intergovernmental Policy branch  
777 Bay Street, 4<sup>th</sup> Floor, Suite 425  
Toronto, Ontario  
M5G 2E5

Carolyn Hamilton, Director  
Rural Programs Branch  
Ministry of Agriculture and Food  
Rural Programs Branch  
1 Stone Road West, 4<sup>th</sup> Floor NW  
Guelph, Ontario  
N1G 4Y2

by e-mail and Canada Post  
[CIPRural@ontario.ca](mailto:CIPRural@ontario.ca)

**RE: INVESTING IN CANADA INFRASTRUCTURE PROGRAM (ICIP)  
RURAL & NORTHERN FUNDING STREAM  
CASE NUMBER 2019-04-1-1320420947**  
**SUBJECT: POTENTIAL BUDGET AND SCHEDULE EXCEEDANCE  
DORION ROAD HILL RECONSTRUCTION, TOWN OF MATTAWA**

Dear Ms. Danos and Ms. Hamilton:

This is firstly to acknowledge and thank you on behalf of the Town of Mattawa for your Notification of Funding Approval dated April 23, 2020 (copy attached).

We are currently advancing Engineering Design and Technical Support Studies including Schedule B Class Environmental Assessment required to call a tender in February 2022 with the objective of completing all construction works and project close-out by the end of December 2024.

As part of the project work plan our Engineers are regularly monitoring and updating construction cost estimates and project schedule. Whilst we are currently on schedule as at 60% design completion, our Engineers are currently projecting a budget overrun in the order of \$825,770 plus HST. This overrun is entirely due to Covid 19 impact on costs.

We are cognizant of the pre-Covid guidelines that all amounts in excess of eligible costs including any budget increases and overruns will be funded by the recipient. The Town is not in a financial position to absorb these costs; which is why we are monitoring the budget so closely.

.../2

Visit our website @ [www.mattawa.ca](http://www.mattawa.ca)

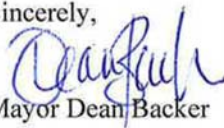


Page 2

This letter is to request your disposition and support for extending the funding envelope in accordance with current contribution levels (60% Federal/33.33% Provincial/6.67% Municipality) in order that the Dorion Road Hill Reconstruction Project can be completed.

Your consideration of this request is appreciated; I await your response.

Sincerely,



Mayor Dean Backer

c.c. - Town Council  
- J. Hunton, MCIP, RPP, Sr. Vice President  
Jp2g Consultants Inc.

Attachment 1 Ontario Notification of Funding Approval April 23, 2020

**Figure 13**  
**ICIP Response August 11, 2021**

**Ministry of Infrastructure**

Infrastructure Program Design and  
Delivery Division

777 Bay Street, 4<sup>th</sup> Floor, Suite 425  
Toronto, Ontario M5G 2E5  
Telephone: 416-473-3807  
Email: [Trevor.Fleck@ontario.ca](mailto:Trevor.Fleck@ontario.ca)

**Ministère de l'Infrastructure**

Division de la conception et de la mise en  
œuvre des programmes d'infrastructure

777, rue Bay, 4 étage, Suite 425  
Toronto (Ontario) M5G 2E5  
Téléphone : 416-473-3807  
Courriel : [Trevor.Fleck@ontario.ca](mailto:Trevor.Fleck@ontario.ca)



Via Email

August 11, 2021

Case #: 2019-04-1-1320420947

Dean Backer, Mayor  
Town of Mattawa  
160 Water Street.  
Mattawa, Ontario P0H 1V0  
Email: [info@mattawa.ca](mailto:info@mattawa.ca)

Dear Mayor Backer:

**RE: Request for Additional Funding; Budget and Schedule Overrun; Reconstruction of Dorion Road Hill Project - Investing in Canada Infrastructure Program (ICIP)**

I am writing in response to your letter of July 7, 2021 regarding the potential budget shortfall for your project (*Reconstruction of Dorion Road Hill*) under the Investing in Canada Infrastructure Program (ICIP).

As you are aware, under the terms and conditions (Section A.4.9(b)) of the Transfer Payment Agreement (TPA), recipients are responsible for all project cost overruns. We have approached the federal government regarding your request and received confirmation that they will not be able to increase their contribution to the project, as recipients are responsible for all cost overruns, in accordance with the program guidelines and executed TPA. Unfortunately, the provincial government also will not be able to provide additional support as the funding for the ICIP Rural and Northern Infrastructure Stream has been fully allocated.

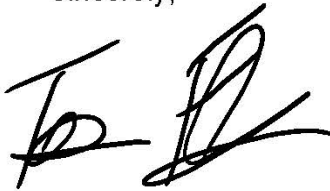
Given that your project is still in the design phase, I recommend that the Town of Mattawa staff promptly begin working with the ministry program area on potential options of addressing the funding shortfall. One possibility may be to reduce the scope of your approved project to a size that is manageable for the municipality, in order to ensure a successful outcome. Please note that a project revision request would need to be formally made and approved by both the provincial and federal governments before the project may proceed with a reduced scope.

Additionally, please keep in mind that the Town of Mattawa's Ontario Community Infrastructure Fund (OCIF) Formula funding allocation can be used to offset cost overruns for the Dorion Road Hill project. Your municipality may also be able to access other financial tools (e.g., Infrastructure Ontario loans) in order to support this local project.

In order to further discuss next steps for this project, Town of Mattawa staff are encouraged to contact Molly Akumu, the Project Analyst for your case at 226-971-3266 or by email at [molly.akumu@ontario.ca](mailto:molly.akumu@ontario.ca).

In the meantime, please accept our best wishes for the successful completion of this important project.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Fleck', with a stylized flourish at the end.

Trevor Fleck, Director  
Infrastructure Program Policy Branch

c.: Raymond Belanger, CAO/Treasurer – Town of Mattawa  
Email: [Raymond.belanger@mattawa.ca](mailto:Raymond.belanger@mattawa.ca)

## **8. Downstream Drainage Highway 17 Outlet A**

The final Engineering Design will include a Storm Water Management Report that will attempt to mitigate surface water discharge from Dorion Road Hill on Highway 17 drainage system in terms of quantity and rate of run-off to avoid the need to replace the existing undercrossing on Highway 17 at the CPR tracks.

## **9. Potential Historic Dump Site**

There was significant anecdotal evidence including an MOE file number establishing an old dump site along the alignment of the proposed new curve.

In November 2020 as part of our 30% design work Jp2g Consultants Inc. arranged to have the Town of Mattawa Public Works Department conduct a series of six (6) backhoe test pits along the proposed curve alignment. Our Jp2g site personnel attended this work and reported that no domestic garbage was encountered.

There is, however, a chance that excavation of the north side slope along the new curve may encounter garbage and the construction specifications will provide for a unit price to dispose of any garbage at the landfill site as part of the contingency allowance.

## **10. Class Environmental Assessment**

The Class Environmental Assessment process is self-regulatory but public or agency objection to the project can result in a Part 2 Order Request for Bump Up. This can result in significant schedule delays.

Notwithstanding the original Jp2g Consultants Inc. proposal contemplated a Class A+ Environmental Assessment under the Municipal Class Environmental Assessment Process 2015; which requires only a notice of proposed work to be undertaken to be provided in local media; given the complexities arising out of the Highway 17 “Slip-Around”, relocation of Bell poles, realignment of curve and MOE record of a dump site within the project limits, we decided to conduct a Class B Environmental Assessment.

A Class B Environmental Assessment requires public input and record keeping.

## **11. Emergency Response (Fire, Medical, Police) during Construction**

Construction is currently scheduled to start June 1, 2022 and be completed approximately December 23, 2023 (eg: 18 months), however, the schedule is subject to change based on reaction time from utilities and agencies regarding project interrogatories; as well as tender results.

Jp2g Design Staff and Construction Administration staff will engage with appropriate Town staff to develop project specific protocols for emergency response during the construction period.

## **12. Traffic Disruption during Construction Work**

Jp2g Project Manager and Construction Administration staff will engage with appropriate Town of Mattawa staff and Council to develop a suitable detour route for cars, buses and trucks.

### 13. Access to Private Property

The 90% complete design drawings have provided for future access to private property east of Dorion Road and preservation of existing access to Bell Mobility Tower.

### 14. Road Maintenance

Provision for maintenance during construction period will be incorporated into the construction specifications.

## 7.0 COST TO CONSTRUCT

The updated cost to construct the recommended alternative, 8% vertical grade, for the Dorion Road Hill Reconstruction project is \$4,174,703 as per Engineer's Class B estimate July 17, 2021 as per Figure 14.

**This post-Covid updated cost represents potential exceedance of \$13,176 on Part B Intersection Works (eg: \$433,806 ICIP Funding Application versus \$446,982 updated July 17, 2021) and a potential exceedance of \$637,900 on Part C Dorion Road Hill at 8% grade and new curve (eg: \$2,689,821 ICIP Application versus \$3,327,721 updated July 17, 2021).**

We will continue to monitor the engineering design to find cost reductions.

**The current ICIP envelope may not allow sufficient funding for the Highway 17 slip-around originally budgeted at \$400,000 in the ICIP application.**

The cost for Part A Highway 17 "Slip-Around" will be addressed once discussions with MTO are more fully engaged.

MTO will be approached to determine whether they would accept a phased approach to construction of the "slip-around" that would coordinate phasing with increase in traffic from/to the proposed Light Industrial Park. This could give the Town the opportunity to obtain additional funding for the Highway 17 "slip-around" at a later date.

The possibility of MTO cost sharing on the Highway 17 "Slip-Around" will also be pursued.

**It should be noted the ICIP application does include an approved \$624,000 "contingency allowance"; which when combined with "deferral" of the Highway 17 slip-around \$400,000 would substantially mitigate any projected construction cost overrun for the proposed Dorion Road Hill Reconstruction Project.**



**Figure 14** **Class B Estimate**  
**Class 'C' Benchmark Construction Costs 2021** **Revised July 17, 2021**  
**FOB Mattawa, Ontario 8% Grade**

ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
<b>1.00 HIGHWAY 17 WEST BOUND SLIP AROUND INCLUDING LEFT TURN LANE - PART A</b>						
1.01	SP	Highway 17 West Bound Slip Around inc. Left Turn Lane to Dorion Road	l.s	1	\$400,000.00	\$400,000.00
<b>1.00 ROAD RECONSTRUCTION SUB-TOTAL</b>						<b>\$400,000.00</b>
<b>2.00 ROAD RECONSTRUCTION HIGHWAY 17 INT+A62ERSECTION SOUTHERLY STA: 0+005.8 to STA:0+050 INCLUDING RIGHT TURN LANE - PART B</b>						
2.01	120 SP	Blast Monitoring Control Specialist	l.s	1	\$20,000.00	\$20,000.00
2.02	SP-GEN	Pre-Condition Survey	l.s	1	\$5,000.00	\$5,000.00
2.03	201 SP	Clearing	l.s	1	\$10,000.00	\$10,000.00
2.04	201 SP	Grubbing	l.s	1	\$5,000.00	\$5,000.00
2.05	206 SP	Earth Excavation Roadway - Grading	m <sup>3</sup> (P)	1,700	\$13.80	\$23,460.00
2.06	206 SP	Rock Excavation - Grading	m <sup>3</sup> (P)	1,800	\$54.50	\$98,100.00
2.07	206 SP	Rock Face	m <sup>2</sup> (P)	250	\$75.00	\$18,750.00
2.08	305 SP	Granular Sealing	m <sup>2</sup> (P)	300	\$20.00	\$6,000.00
2.09	310 SP	Surface Course Asphalt (40 mm Depth) inc. Paved Shoulders \$160.00/tonne	m <sup>2</sup> (P)	1,300	\$15.68	\$20,384.00
2.10	310 SP	Leveling Course Asphalt (60 mm Depth) \$160.00/tonne	m <sup>2</sup> (P)	1,200	\$23.52	\$28,224.00
2.11	310 SP	Binder Course Asphalt (60 mm Depth) \$160.00/tonne	m <sup>2</sup> (P)	1,200	\$23.52	\$28,224.00
2.12	310 SP	Tack Coat	m <sup>2</sup> (P)	2,400	\$1.20	\$2,880.00
2.13	314 SP	Granular 'A' Roadway 150 mm Depth	t	600	\$30.00	\$18,000.00
2.14	314 SP	Granular 'B' Base Roadway 150 - 300 mm Depth inc. Grade Point Backfill	t	700	\$25.00	\$17,500.00
2.15	421 SP	Supply and Install 600 mm Ø Polymer Laminated Roadway Crossing CSP Culverts, 2.0 mm thickness	m(P)	35	\$1,100.00	\$38,500.00
2.16	353 SP	Concrete Curb (OPSD 600.110 OPSD 600.040)	m (P)	103	\$220.00	\$22,660.00
2.17	510 SP	Removal of Asphalt Pavement Full Depth	m <sup>2</sup> (P)	900	\$9.00	\$8,100.00
2.18	510	Removal of Pipe Culverts	m(P)	19	\$50.00	\$950.00
2.19	511 SP	Rip Rap inc. Non-Woven Geotextile	m <sup>2</sup> (P)	50	\$75.00	\$3,750.00
2.20	710 SP	Pavement Markings	l.s	1	\$2,500.00	\$2,500.00
2.21	802 SP	Topsoil (Imported)	m <sup>2</sup> (P)	2,000	\$20.00	\$40,000.00
2.22	804 SP	Seeding and Mulching	m <sup>2</sup> (P)	2,000	\$2.50	\$5,000.00
2.23	706 SP	Traffic Control Plan	l.s	1	\$10,000.00	\$10,000.00
2.24	805 SP	Environmental Protection	l.s	1	\$5,000.00	\$5,000.00
2.25	SP-GEN	Bonding and Insurance	l.s	1	\$9,000.00	\$9,000.00
<b>2.00 ROAD RECONSTRUCTION SUB-TOTAL</b>						<b>\$446,982.00</b>

ITEM NO.	SPEC NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
<b>3.00 ROAD RECONSTRUCTION DORION ROAD HILL AND CURVE 1 STA: 0+050 to STA:0+440 PART C</b>						
3.01	120 SP	Blast Monitoring Control Specialist	l.s	1	\$20,000.00	\$20,000.00
3.02	SP-GEN	Pre-Condition Survey	l.s	1	\$5,000.00	\$5,000.00
3.03	201 SP	Clearing (including rock disposal area)	l.s	1	\$20,000.00	\$20,000.00
3.04	201 SP	Grubbing (including rock disposal area)	l.s	1	\$20,000.00	\$20,000.00
3.05	206 SP	Earth Excavation Roadway - Grading	m <sup>3</sup> (P)	9,746	\$13.80	\$134,494.80
3.06	206 SP	Rock Excavation - Grading	m <sup>3</sup> (P)	40,836	\$54.50	\$2,225,562.00
3.07	206 SP	Rock Face	m <sup>2</sup> (P)	4,556	\$75.00	\$341,700.00
3.08	305 SP	Granular Sealing	m <sup>2</sup> (P)	700	\$20.00	\$14,000.00
3.09	310 SP	Surface Course Asphalt (40 mm Depth) inc. Paved Shoulders \$160.00/tonne	m <sup>2</sup> (P)	3,947	\$15.68	\$61,888.96
3.10	310 SP	Binder Course Asphalt (60 mm Depth) \$160.00/tonne	m <sup>2</sup> (P)	2,890	\$23.52	\$67,972.80
3.11	310 SP	Tack Coat	m <sup>2</sup> (P)	2,890	\$1.20	\$3,468.00
3.12	314 SP	Granular 'A' Roadway 150 mm Depth	t	2,500	\$30.00	\$75,000.00
3.13	314 SP	Granular 'B' Base Roadway 150 - 300 mm Depth inc. Grade Point Backfill & Loss to Rock Subgrade	t	4,500	\$25.00	\$112,500.00
3.14	421 SP	Supply and Install 600 mm Ø Polymer Laminated Roadway Crossing CSP Culverts, 2.0 mm thickness	m(P)	36	\$1,100.00	\$39,600.00
3.15	510 SP	Removal of Asphalt Pavement Full Depth	m <sup>2</sup> (P)	2,715	\$9.00	\$24,435.00
3.16	510	Removal of Pipe Culverts	m(P)	27	\$50.00	\$1,350.00
3.17	511 SP	Rip Rap inc. Non-Woven Geotextile	m <sup>2</sup> (P)	100	\$75.00	\$7,500.00
3.18	710 SP	Pavement Markings	l.s	1	\$5,000.00	\$5,000.00
3.19	802 SP	Topsoil (Imported)	m <sup>2</sup> (P)	2,500	\$20.00	\$50,000.00
3.20	804 SP	Seeding and Mulching	m <sup>2</sup> (P)	2,500	\$2.50	\$6,250.00
3.21	706 SP	Traffic Control Plan	l.s	1	\$20,000.00	\$20,000.00
3.22	805 SP	Environmental Protection	l.s	1	\$8,000.00	\$8,000.00
3.23	SP-GEN	Bonding and Insurance	l.s	1	\$64,000.00	\$64,000.00
<b>3.00 ROAD RECONSTRUCTION SUB-TOTAL</b>						<b>\$3,327,721.56</b>

## 8.0 ACTION ITEMS/NEXT STEPS

The following items require Council consideration and action preparatory to implementing the Dorion Road Hill Reconstruction Project

<b>Action 1</b>	Continue to monitor alternative options for proposed grade 8% versus 9% versus 10% having regard for future use, level of service, aesthetics and cost to construct. Provide the Jp2g Consultants Design Team instructions as to preferred grade for “issued for construction” drawings.
<b>Action 2</b>	Continue to engage with ICIP Funding Agency to determine implications and alternative approach to potential construction cost and/or schedule exceedance.
<b>Action 3</b>	Engage with Bell Canada to negotiate relocation and potential cost sharing of relocation of three (3) Bell poles along east limit of Dorion Road Hill Station 10+000 to Station 10+104.
<b>Action 4</b>	Advise Bell Mobility of need for Bell Canada pole easement on Town owned land as Bell Mobility on Lease lands west side Dorion Road.
<b>Action 5</b>	Provide notice to Bell Canada re: proposed construction including rock blasting in the vicinity of the Bell Mobility Radio Tower.
<b>Action 6</b>	Commission close cut clearing proposed Bell pole easement west side Dorion Road.
<b>Action 7</b>	Engage with Ministry of Transportation to negotiate potential deferral of Highway 17 “Slip-Around” including formal deferral agreement and potential cost sharing
<b>Action 8</b>	Commission clearing and grubbing and grading contract for Light Industrial Park Lots 4 and 5 preparatory to providing a blast rock storage area and future gravel crushing operation.
<b>Action 9</b>	Confirm protocols for temporary storage of blast rock and excess soil.
<b>Action 10</b>	Commission clearing and grubbing of Dorion Road right-of-way including new curve Spring 2022 to mitigate breeding bird nesting constraints April 15 to August 15. To be completed by April 15, 2022.
<b>Action 11</b>	Coordinate review and approvals Traffic Control, Detour Routes and Emergency Measures protocols.
<b>Action 12</b>	Discuss extent of street lighting, if any, as a separate contract subject to budget envelope availability.

## 9.0 CONCLUSION

Jp2g Consultants Inc. will continue the engineering design work and coordination of technical support (Environmental Assessment, Aboriginal Consultation) necessary to be tender ready by January 17, 2022 as per the approved work program

Jp2g Consultants will also provide technical support to Town of Mattawa required to execute the Action Items noted in Section 8.0.

The currently proposed work program schedule is as follows:

Detailed Design complete February 2022  
Tender Call March 2022  
Construction Start June 2022  
Construction Completion December 2023  
ICIP Project Close-out December 2024

The Construction Start Date may be impacted by Covid related issues.

Artist's rendering of the completed Dorion Road Hill Reconstruction project is provided in Figure 15.

**Figure 15**  
**Artist's Rendering Dorion Road Hill Reconstruction**  
**Completed Project**

