

November 2, 2022

**VIA EMAIL**

Paul Jordan  
Provincial Planning Director  
New Brunswick Department of Local Government  
Marysville Place  
P. O. Box 6000  
Fredericton, NB E3B 5H1

**Re: Westmorland-Albert Rural Plan Regulation 21-WAP-069-00 - Rezoning Request from Hammond River Holdings Ltd. to permit a gypsum quarry**

Dear Mr. Jordan,

Our office has received an application from Hammond River Holdings Ltd. to rezone the properties bearing PIDs 00814160, 70076948 and 70654058, located between Baseline Road and Route 890, also known as Hillgrove Road, in the Salisbury LSD, from the Agricultural (A) Zone to the Intensive Resource Development (IRD) Zone in order to operate a gypsum quarry.

This proposal has proceeded through the preliminary rezoning stages and provincial departments as well as the Village of Petitcodiac have been asked to provide comments. The next stage of the process is a public hearing of objections held subject to Section 111 of the *Community Planning Act*. This hearing has been scheduled for November 15, 2022, at the Maritime Motorsports Hall of Fame in Petitcodiac.

Attached to this report are:

- Current property zoning map
- Aerial imagery, supporting maps, and Google Street View imagery
- Site plan
- Project description (provided by proponent)
- DNRED Industrial Minerals Summary Data for Hillgrove Gypsum deposit
- Correspondence from the Village of Petitcodiac

***Summary description of the subject lot and location context***

The properties proposed for rezoning have a combined area of 215 acres. The subject area is located between Baseline Road and Route 890, less than a kilometer from the Village of Petitcodiac. Following local governance reform in January 2023, the properties will be part of the Community of Three Rivers.

This gypsum deposit appears to be an approximately 3km long, steep and narrow deposit that crosses multiple properties. The deposit was first identified more than one hundred years ago and was mined at various points in the early 20<sup>th</sup> century, most recently by Lafarge for a sustained period between 1951 and 1987.



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The site has numerous watercourses crossing the property, which all feed into the North River in the northern portion of the Petitcodiac River watershed. The surrounding area is identified as prime agricultural land in the Westmorland-Albert Rural Plan (WARP), and most neighbouring properties are registered in the Farm Land Identification Program (FLIP). A map indicating registered farmland properties is attached. The subject property is not registered in FLIP but was zoned as Agricultural per WARP Proposal 13.1b because it is assessed by Service NB as cultivated farmland. There is also a property zoned for an existing gravel pit located to the east of the proposed quarry site.

The area is primarily rural and is characterized by wooded lots and open fields. However, based on satellite imagery and Service NB data, there is a cluster of approximately 10 houses located at the proposed location of the access road to the quarry. The proposed trucking route is sparsely populated, but there are several houses located along the route, with residential clusters at the southern portion of Route 885 just outside of Petitcodiac, as well as the portion of road in Intervale near the Trans Canada onramp. A map indicating residential properties is attached to this report.

### ***Relevant Policies and Regulations in the Westmorland-Albert Rural Plan:***

#### **Natural Resources**

*Forestry, pits, quarries, and agriculture are key economic drivers of the Westmorland-Albert planning area. The widely undeveloped natural areas also become key tourism and recreation areas for both local residents and visitors, in conservation areas, and for trails (active living and motorized), hunting, and birding. The challenge is that natural resources are the foundation of the rural economy, but that is being impacted by unplanned residential development in predominantly rural areas. Rural land uses tend to create nuisances such as noise, dust, and other disturbances that are incompatible with residential development. The goal is to ensure that the rural economy continues to function by recognizing that resource uses are the predominant use of rural southeast New Brunswick.*

#### **8.1 Policies**

b) It is a policy to recognize resource-related uses as the intended primary use of land throughout the planning area.

c) It is a policy to require resource-related developments to employ best management practices to minimize environmental degradation in the Planning Area

d) It is a policy that pits and associated uses shall be considered Intensive Resource Developments and shall be zoned as such.

f) It is a policy to recognize that quarries that employ blasting, permanent asphalt plants, and landfills are intensive land uses with respect to heavy truck traffic, noise, and air and water quality, and are not compatible with residential and conservation uses. As such, these uses shall be considered on a case-by-case basis through a specific proposal rezoning to the Intensive Resource Development zone.



g) It is a policy that quarries that employ blasting are subject to Department of Environment approval to operate.

### **Conservation of the Physical Environment**

*In a planning area that is more than 315,000 hectares in area, approximately half the land base is managed either provincially or federally for conservation or protection... The challenge is that rural Westmorland-Albert counties are experiencing the threat of climate change in the form of coastal erosion, sea level rise, and increased storm events (ice, rain, snowfall, and high winds) and storm surges. There are also land uses that can have a detrimental effect on the immediate and broader land base. The goal is to create policies that help to reduce the long-term impacts (natural or human-made) to ensure the long-term health of the physical environment.*

#### **11.1 Policies**

b) It is a policy to impose setbacks from watercourses and wetlands based on the most recent and accurate mapping available at the time of application

c) It is a policy, where no alternatives are available, to consider variances to setbacks identified in 11.1(b) in consultation with provincial agencies provided that the application is deemed reasonable and demonstrates how the environmental impact of the proposed development will be mitigated.

e) It is a policy that where discrepancies are identified between the mapping and site level analysis and in consultation with the Department of Environment and Local Government, the Development Officer may waive the setback requirements for the proposed development.

### **Agriculture and Food Security**

*Food security is a key issue for New Brunswick. The challenge is that local agricultural activities are often hampered by encroaching development which permanently removes farmland from production. The goal is to encourage the development of new agricultural activities, permit continuance of existing farming uses, and protect scarce agricultural lands from future development and land use conflicts.*

#### **13.1 Policies**

a) It is a policy to identify agricultural land through the establishment of an Agriculture (A) zone.



b) It is a policy to recognize areas with concentrated agricultural development, as demonstrated on the zoning map, including the areas near Salisbury, Petitscodiac, and Elgin, as key generators of local food production.

c) It is a policy to develop provisions to deter use of Agriculturally-zoned land for non-agricultural development;

### Proposals

a) It is proposed that the Southeast Regional Service Commission work with stakeholders to encourage local food security.

b) It is proposed that lands registered under the Farm Land Identification Program (FLIP) and those assessed by Service New Brunswick as agricultural land be zoned as Agriculture.

c) It is proposed that the Southeast Regional Service Commission monitor development trends in prime agricultural areas and study best practices to limit the loss of productive agricultural lands in the region.

## **ZONING PROVISIONS**

### **4.5 Intensive Resource Development (IRD) Zone**

4.5.1. In an Intensive Resource Development Zone, any land, building, or structure may be used for the purpose of:

a) One or more of the following main uses:

i. Resource-related uses;

ii. Resource extraction subject to Section 4.4.2;

**iii. A quarry;**

iv. Recreation uses;

v. Agricultural uses subject to Subsection 3.12;

vi. Aquaculture uses;

vii. Wind turbines subject to Section 3.13;

viii. A camp subject to Section 3.14;

ix. A salvage yard subject to Section 3.18;

x. Light and intensive commercial uses subject to Section 3.19;

xi. Light industrial uses;

xii. A water bottling operation;

xiii. An asphalt plant;

xiv. An abattoir

xv. A landfill

b) One or more buildings, structures or accessory uses related to the main use of the land, building or structure.



*“quarry” means a resource extraction operation that uses explosives to extract consolidated rock (carrière);*

## ***Discussion***

The project proponent has submitted a project description of the quarry operation outlining various aspects of the project. An Environmental Impact Assessment will be required prior to operations beginning, but that process has not yet begun. The project description is subject to change based on the EIA review, and some site-specific environmental studies have not yet been conducted.

The project description is primarily based on the studies conducted as part of a similar gypsum quarry project that was approved in the Upham East area. A preliminary site plan has been provided but is also subject to change as part of the EIA review. It is staff's understanding that gypsum quarries are subject to the *Mining Act* and the setbacks established in DELG's Rock Quarry Siting Standards, but these setbacks will be reviewed during the EIA process.

The full project description is attached to the report, but some key points are:

### Project Components

The anticipated lifespan of the quarry is approximately 10 years based on the amount of material on site. There will be no permanent buildings, but equipment and structures will include a portable trailer to be used as an office, a portable toilet, a crusher, conveyors, and stackers.

No well will be drilled; water needs for sanitary purposes and drinking water will be addressed by bottled water. The office trailer will require electrical power and will be hooked to the existing electrical grid and no upgrades to the electrical system are required.

Tree buffers are proposed to be maintained where possible. The site will not be entirely fenced, but a security gate will be installed at the site entrance and warning signs will be installed at various locations on the property.

Based on the site plan provided, it appears that some elements including excavation and crushing are proposed within watercourse buffers and may be subject to the *Clean Water Act*.

### Blasting

Blasting is anticipated to occur up to 25 times a year on average. Blasting will take place between 10am and 5pm on weekdays, and no blasting will occur on weekends or holidays. Extraction operations will occur up to 200 days a year, up to 12 hours a day on weekdays only. The crusher will operate approximately 2,000 hours a year during the day on weekdays. Following blasting and extraction, up to 50,000 tons of gypsum could be stored on site while awaiting transport to customers.



## Trucking

It is anticipated that approximately 300,000 tons of gypsum will leave the site annually, requiring an average of 35-40 trucks per day. While blasting, extraction, and crushing will only occur on weekdays, trucking will occur year-round as required. Trucks will carry approximately 30 tons of material at a time.

Trucks are proposed to avoid passing through the centre of the Village of Petitcodiac due to weight restrictions on the bridge crossing the Petitcodiac River in the village. The preferred trucking route will follow Route 890 east, Route 885 north to Intervale, and Route 885 west to the Trans Canada Highway. The route is approximately 9km between the site entrance and the highway onramp. A portion of the route falls within the current municipal borders of Petitcodiac, but this boundary will cease to exist following local government reform. The trucking route will be subject to Department of Transportation approval.

## Water Management

The site-specific water management plan is proposed to be developed as part of the future EIA process. However, a general concept has been provided based on similar operations elsewhere. As this will be an open pit, it is anticipated that it will fill with water following rain events and snow melts. Standing water (with low levels of sediment) will be pumped as needed into drainage channels and ultimately into surrounding watercourses. Pumping is proposed to occur at a rate that will not overburden the natural environment.

## Reclamation and Closure

At the end of the ~10-year period of operation, the site will be rehabilitated as required by the *Mining Act*. All equipment will be removed from the site, the open pit will be sloped, and the site will be re-vegetated to the extent possible. Over time, it is expected that the pit will fill with water.

## Emissions and Wastes

Air emissions will generally relate to dust from unpaved roads and earth moving, blasting, and gas emissions from construction equipment. It is proposed to pave the first 30m of the access road to mitigate dust creation that would negatively impact Route 890 and the nearby residences. Water spraying on unpaved roads within the site will be employed to mitigate dust during dry months. Given the size of pieces of gypsum being stored on site (15-20cm in diameter), it is not anticipated that stockpiled gypsum will generate any dust.

Equipment such as crushers and blasting operations will inevitably create noise and vibrations in the general vicinity. Mufflers will be used on equipment to reduce noise and crushing will primarily take place within the pit to reduce impact on surrounding properties. Periodic pre-blast surveys will be conducted at nearby residences, and blasts will be periodically monitored using seismographs to determine impact on drinking wells and residential dwellings.



Few liquid and solid wastes are anticipated, with the exception of sediment in the water being pumped from the pit, and garbage that will be stored on site in a dumpster and hauled away as needed.

### Land Use and Livestock

The property is currently zoned as agricultural land since it is assessed as cultivated farmland by Service NB, but is not actively being used for farming according to the proponent. There are many open fields near the subject property registered under FLIP, but mainly appear to be used for hay. There is also some cattle farming in the vicinity, but the impact of blasting on farm animals has not been studied in depth. Agricultural operations near the Upham site do not appear to have been negatively impacted over the past two years based on the project description.

### ***Provincial Consultation***

This report and supporting documents were distributed widely to various provincial departments based on the consultation list prepared by the Provincial and Community Planning Branch. Some follow-up comments were received following the original two-week comment period. The following comments were received:

### Natural Resources and Energy Development

The gypsum quarry will require a Mining lease application as gypsum is defined as a mineral and falls under the Mining Act. The proponent is aware of that. This is very similar to the Upham East Gypsum project and has similar sensitivities that will get dealt with in the EIA process. NRED's part should be pretty straightforward.

The mineral claims holder, Hammond River Holdings, had applied for a bulk sample and submitted a reclamation plan November 2020. I assume they took the sample in 2021 and everything went well so they are moving the project forward.

The key sensitivities here are the proximity to rural residences, blasting, residential wells, and truck traffic – all very common issues with quarries. There are some watercourse and wetland issues to deal with as well. I understand the planning commissions concern with the public consultation process as there will be immediate concerns and questions but this mostly involves them talking to ELG and the EIA folks to sort out an understanding to perhaps coordinate their information and processes.

### Agriculture, Aquaculture, and Fisheries

The report provided for this rezoning request states that although the subject property is not registered in FLIP, it is assessed by SNB as cultivated farmland. Due to vacations, I have not yet been able to confirm this, but I see that PID 00814160 was originally registered in FLIP, since the infant PID 70645957, also described as “farmland – cultivated”, **is** registered in FLIP. It is understood that gypsum deposits are located where they are located. Land ownership has already been transferred to Hammond



River Holdings Ltd, a company involved with mining, not agriculture. Thus, it is logical for the proponent to state that they are not actively using it for farming.

With regards to this rezoning request, from Agricultural (A) Zone to Intensive Resource Development (IRD) Zone:

- Is it necessary to rezone the entire area?
- Can the footprint of the gypsum quarry be reduced?
- If any or all of the project area is to be rezoned to IRD, DAAF – Agriculture requests that approval be limited exclusively to (i.e. conditional to) the development of the proposed gypsum quarry. Should the quarry development not proceed, then the zoning would revert to Agricultural (A).
- The rezoning to IRD would also be conditional to a successful completion of the EIA process.

DAAF – Agriculture will provide additional comments when this project is submitted for an EIA.

*(Additional comments received October 6)*

- General opinion seems to be that dust from the gypsum quarry should not cause an issue with forage crops. Concern with blasting would be for agricultural structures (livestock barns, silos, manure storages etc) such that these structures should be monitored like residences would be. Also any wells related to agricultural operations, whether drilled for potable, residential use, or purely for livestock.
- We don't have [buffer] recommendations at this time. However if the wooded area identified as the "open quarry area" has not yet been fully cleared, (staff says it may have been) it would be prudent to leave a wooded buffer around this area, at the very least along the sides of the prevailing winds.
- Regarding the initial quarry development, the topsoil layer should remain on-site so that it may be spread back over the area at the end of the 10-year period, if not sooner.
- The third map with the "Staff report to DELG (22-1586)" identifies many parcels in the FLIP program to the north and west of the 3 PIDs to be developed.
- None of the three PIDs identified for this development (00814160, 70076948 and 70654058) are currently registered in the FLIP program (according to PLANET), although all 3 are described in PLANET as "farmland – cultivated". Adjacent PID 70645957 is in FLIP. Since 70645957 is an infant of 00814160, it is to be expected that the entire parent PID was originally in FLIP. The fact that the current proponent is not using these PIDs for agriculture does not mean that they are not longer suitable for agricultural production, only that the proponent apparently has other plans for them (ie. gypsum quarry development).
- Additional PIDs immediately adjacent include (as per PLANET):
  - 70307376 – 4.29 ha, land, not in FLIP
  - 70089537 – 3.37 ha, timberland, not in FLIP
  - 70535935 – 3.2 ha, residential improved, not in FLIP
  - 70321153 – 13.26 ha, residential improved, not in FLIP
  - 02016887- 1.62 ha, residential improved, not in FLIP



- 70077060 – 3.24 ha, residential improved, not in FLIP
- 70513502 – 2 ha, residential lots – serviced, not in FLIP
- 70654041 – 3.9 ha, residential improved, not in FLIP
- 70077011 – 35.13 ha, dairy farm, yes in FLIP
- Plus 3 very small lots
- Permitted uses in the Intensive Resource Development (IRD) Zone do include in 4.5.1 a)v. Agricultural uses subject to subsection 3.12. However many other uses are also permitted, that would not be permitted in an Agricultural (A) Zone.
- If required to rezone all 3 entire PIDS from A to IRD, then this should be conditional to an EIA approval for the gypsum quarry. I.e. EIA first, rezoning second. The gypsum quarry should also be the only new use being approved for those PIDs, although an abattoir could be considered too. If the quarry is not approved, then there would be no rezoning, it would stay as A for all three.
- I.e. approval of rezoning to IRD for the gypsum quarry would not automatically allow for an asphalt plant, water bottling operation or a salvage yard, etc.
- Also the rezoning to IRD should only be for as long as the quarry is operating. At the end of the 10 year productive period (more or less), and decommissioning, the PIDs should revert to A Zone.

## Transportation and Infrastructure

### *Comments received as part of initial consultation:*

We have reviewed the proposal. The only concern the District has is both Rte 890 and Rte 885 are chip sealed roads. They will be negatively impacted by the increased trucking from this mining operation. Negatively impacted implies that the roadway structure of these chip sealed roads is not designed to support all the trucking that will occur when the mine is in operation.

The District is not against regional economic development and the opening of this mine however there will be increased cost to maintenance on these roads when the mine operates. This will be more of an internal issue within the Department but the District will seek extra funding for maintenance and recommend these roads be asphalted to better withstand the increase trucking.

My biggest concern is that 30-40 trucks a day in both directions will be too much for the existing road surface (chip seal). Most of the road surface on the proposed route they would like to use is chip seal. I don't think the chip seal would hold very long.

Baseline Road is a 43,500kg highway and the section of Route 890 in question is a 43,500kg highway, Route 885 is partly a 56,500kg highway and partly a 62,500kg highway. According to BRDG, the three structures in question have a max GVW rating of 43,500kg.



I am assuming that proper permits and upratings will be required (or are already in place).

- S099 – 12 metre long 1982 wood stringer bridge on Baseline Road
- N505 – 45 metres long 1977 prestressed concrete beam (2 spans) on Route 890
- N510 – 44 metres long 1971 prestressed concrete beam (2 spans) on Route 885
- Culvert WT08
- Culvert W534
- Culvert WT09

It is possible that the incremental truck traffic will shorten the lifespan of the structures above. I am not aware of the condition of each structure, but Design could most likely provide that if required.

*Additional comments received following official department consultation phase:*

- Previous DTI comments notwithstanding, the department is not opposed to this zoning request, with the understanding that any movement of trucks out of the quarry will be accommodated by issuance of special permits for legal vehicles configurations above 43,500 kg up to 62,500 kg to get loads from quarry site to Route 1.

The routing of the loads will take into consideration road surfacing conditions, as well as bridge and culvert infrastructure.

DTI retains the authority to reroute loads, change conditions of movement, up to and including canceling of the special permits for any load above 43,500 kg, this authority does not require the department to provide any advance notice of the change, and any such change in permit must be immediately adhered to upon reissuance of such permit.

In addition the department retains the right to close or restrict any roadway as needed to maintain safety for the travelling public.

The risk of any changes to the trucking patterns as noted above, and any impact to the proponents operation due to such a change rests solely with the proponent and not DTI or GNB.

- I can confirm that Hammond River Holdings' request for a highway uprating permit has been reviewed and approved for 2001-67 vehicle configurations not exceeding 62,500kg GVW on the following routes:

890 (HILLGROVE) FROM 3477 HILLGROVE (890) TO JUNCTION OF KING STREET  
KING STREET - FROM ROUTE 890 TO ROUTE 885

ROUTE 885 - FROM KING STREET TO ROUTE 2 (AT EXIT 414)

ROUTE 2 - FROM EXIT 414 (ROUTE 885) TO ROUTE 1

ROUTE 1 – FROM ROUTE 2 WEST TO EXIT 125 SEELEY

BAYSIDE DRIVE ( B219) STRUCTURE



This approval is marked valid until October 2024. It should be noted that going forward, this permit will be re-evaluated every 2 years, and the Department is not able to provide longer duration permits at this time. Any risk that in the future the permit is denied, or that a lower configuration weight be required, rests with the proponent and not NBDTI.

The Department of Transportation and Infrastructure manages the Highway Upgrading Program under the Capital Planning Trucking Initiative with a focus to assist Industry in optimizing the transportation of goods from our rural roads to a primary arterial highway.

Industry may apply directly to DTI to assess a specific corridor to determine if the route would be acceptable for a temporary upgrading. The majority of upgrading applications are relative to the seasonal transportation of goods, however, the program is equally accessible to developing industries assessing the current status of routes and potential road blocks, which they may need to address. You can access further details on The DTI Highway upgrading program at the following website

<https://www2.gnb.ca/content/gnb/en/departments/dti/trucking/content/hup.html>

DTI completed an upgrading assessment of the structures between Glenvale and Route 2, and found these bridges and culverts to be currently suitable to sustain a temporary increased operating weight to 2024 (2 years), at which time a re-evaluation of the infrastructure would be required. All upgraded highways are constantly monitored by the local DTI District offices and the District Engineer retains the authority to limit the time of operations, or suspend the highway upgrading should it be determined that increased road damage is occurring or is likely to occur.

The Department does not make upgrade commitments relative to Industry requests for upgrading route assessments, however the applicant does have the option to provide material, equipment and funding for future requests in the event the upgrading is originally denied or later suspended.

## Authorizations

(August 22) Below are comments from the Authorizations Branch of the Department of Environment and Local Government (DELG):

- In addition to any siting setbacks as required by the Mining Act, gypsum quarries operating in New Brunswick must also follow any siting and setback requirements as prescribed by DELG's quarry siting standards. A copy of the siting standard is attached.
- All blasts shall be monitored.
- Applications for Approvals to Construct and/or Operate must be submitted to DELG's Authorizations Branch prior to beginning construction of the quarry. In order to allow sufficient time for DELG to review, applications should be submitted *at least 90 days* before a new quarry project is intended to break ground. A copy of the application forms (Part I and II) are attached.



- Written permission from all domestic well owners will be required for anyone within 600 meters of the Final Operational Perimeter of the quarry.

(August 31) Following up on our comments provided last week, we would like to provide some additional clarification regarding DELG's quarry siting standards.

Where this project is a proposed gypsum quarry, it will be required to go through an environmental impact assessment (EIA) as gypsum is a mineral.

The proponent shall make every effort to adhere to the quarry siting standards, however, if any requirements cannot be met, the potential for adjusting them will be assessed during the EIA process in conjunction with mitigation and monitoring plans submitted by the proponent.

(September 27) In order to obtain an Approval to Construct and/or Operate a quarry in New Brunswick, DELG requires that the operational perimeter (where blasting, excavating, crushing, truck loading, stockpiling takes place) of the quarry meet the setbacks stipulated in the Rock Quarry Siting Standards (linked here: [Document Header \(gnb.ca\)](http://gnb.ca)). The proposed site plan for this gypsum quarry does not meet all of the setbacks in the siting standards. For example, there are private drinking water wells located within 600 metres of the proposed quarry operation. In this case and in accordance with siting standards, we would require the applicant to obtain written permission from well-owners within 600 metres. If obtaining written permission is not possible and if the applicant wishes to reduce the setbacks, the applicant would have to assess the potential impacts of the proposed quarry operation at the reduced setback distances and submit that information to DELG for review.

There are Terms and Conditions in the Approvals to Operate for quarries that are related to blasting. Blasting can only be conducted between 10:00 am and 5:00 pm on weekdays. Blasting is prohibited on Saturdays, Sundays and holidays. Sound and vibration monitoring must be conducted at nearby residences/buildings during each blast. Blasting limits require that sound levels do not exceed 128 decibels and that ground vibration does not exceed 1.25 centimetres per second. Quarry operators must set/adjust their blasts accordingly to make sure they meet these limits. The applicant is responsible for getting written approval from well-owners within 600 metres of the proposed quarry operation.

## Environment and Local Government

### Climate Change

Please consult the following climate change adaptation resources to best inform the design, build and maintenance of the project:



1. [Future Climate Scenarios for the Province of New Brunswick \(Roy, P. and Huard D. 2016\)](#) - Projected climate scenarios for 29 climate indices for the 2020s, 2050s, and 2080s-time horizons for New Brunswick. Projected climate datasets are locally analysed to help inform and understand the impacts of climate change on the specific project area. The climate datasets and maps can be found at [Adapt-Action \(csrno.ca\)](#)
2. [Flooding in New Brunswick \(GNB\)](#)- Information on flooding in New Brunswick, i.e. 2022 New Flood Hazard Mapping, etc.
3. For full list of adaptation resources, please see the new climate change website here: [Resources \(gnb.ca\)](#)

### Environmental Impact Assessment

As referenced in the information that was attached to your message below, gypsum is defined as a mineral under the *Mining Act*, therefore the proposed gypsum quarry must be registered for an Environmental Impact Assessment (EIA) review and obtain a *Certificate of Determination* before it can proceed. Additional information on the EIA review process is available on the following website:

[https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental\\_impactassessment.html](https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment.html).

*(Additional comments received September 27)* To answer your first question, the project definitely needs to be registered for an Environmental Impact Assessment (EIA) review under item (a) of *Schedule A* of the *EIA Regulation*, which includes “all commercial extraction or processing of a mineral as defined in the *Mining Act*,” because gypsum is defined as a mineral under that legislation. However, it is unclear at this point whether it would have also required registration under item (v) of *Schedule A* (“all enterprises, activities, projects, structures, works or programs affecting two hectares or more of bog, marsh, swamp or other wetland”), because it is not known for certain whether or not there are wetlands greater than two hectares that would be affected by the project. In the RSC’s planning report, it includes DELG’s Source and Surface Water Management Branch’s comments that a wetland delineation would be required. Given the fact that it is already known that the project requires EIA registration under item (a) of *Schedule A*, there is no need for the wetland delineation to take place before the project is registered to determine whether or not item (v) also applies. Any issues related to wetlands will have to be identified and appropriately addressed during the course of the EIA review.

The EIA Branch is not really in a position to offer any specific project-related comments at this time, because as mentioned above regarding wetlands, the potential environmental impacts of the project will only get properly identified and appropriately addressed during the course of the EIA review. With regards to First Nations engagement, the Department of Aboriginal Affairs will be part of the Technical Review Committee for the EIA review, and they will assess whether or not the project triggers the Crown’s Duty to Consult First Nations. However, regardless of that assessment, it is very likely that there would be an expectation that the proponent would at least conduct



some First Nations engagement as part of the EIA review process, especially given that it is known that First Nations had concerns with a similar project from the same proponent in another location (Upham East gypsum quarry).

### Source and Surface Water Management (Wetlands)

The Source and Surface Water Management (SSWM) Branch has reviewed the Hammond River Holdings Limited Proposed Glenvale Gypsum Quarry plan dated July 2022. During the review, the [Watercourse and Wetland Alteration \(WAWA\) Reference Map](#), aerial imagery and other available desktop tools were utilized in assessing the presence of wetlands and watercourses in or near the proposed subdivision.

1. The WAWA Reference Map indicates that watercourses and the respective 30 metre buffers are present in the proposed project area. However, this map is a reference tool only and it is possible that there is another watercourse or wetland that is not depicted on the WAWA Reference Map on or within 30 metres of the project area. Any alterations that are in/within 30 metres of a watercourse or wetland based on [definitions](#) as per the *Clean Water Act* **will require a WAWA permit**.
2. A wetland delineation as per the DELG [wetland delineation protocol](#) must be completed by a qualified wetland delineator to accurately identify and delineate wetland constraints.
3. Wetlands fulfill important functions for the environment that must be conserved. In the case where it is not possible to avoid wetland impacts and provided that the alteration is approved through the WAWA and/or Environmental Impact Assessment (EIA) processes, the loss of wetland habitat will require compensation at a 2:1 ratio.

Alterations that affect a wetland larger than 2 hectares in area may be subject to an Environmental Impact Assessment Registration as per Trigger 'V' of Schedule A of the *Environmental Impact Assessment Regulation* (Reg 87-83) of the *Clean Environment Act*. A consultation with the Environmental Impact Assessment Branch should be conducted prior to any alterations within 30 metres of the wetland to determine regulatory requirements for the project.

*(Additional comments received October 7)* As discussed, and further to our previous comments, SSWMB can confirm the following in regards to the property in question:

- Parts of the proposed project would likely significantly impact sections of the mapped watercourses as depicted on the submitted site plan.
- Based on our desktop assessment, it is possible that riparian wetlands are present along the mapped watercourses. Wetlands may also be present in other parts of the property however this would need to be confirmed on the ground.
- There are no mapped wetlands or Provincially Significant Wetlands on the property.



As indicated previously, an assessment of watercourses and wetlands on the ground would be required in order to provide more detailed feedback regarding the proposed project's impact to these regulated features. If a more detailed review is required at this time, would it be possible to request that these assessments be conducted prior to a decision being made on the zoning application?

- Any alterations that are in/within 30 metres of a watercourse or wetland based on definitions as per the Clean Water Act will require a WAWA permit.
- It is the SSWM Branch's understanding that this project will also be registered for an Environmental Impact Assessment (EIA) review.
- During the review of WAWA permit applications, DELG applies a three-step wetland mitigation process to reduce potential negative impacts to wetlands. These steps include, in sequential order:
  - Avoid impacts to the wetland;
  - Minimize impacts (e.g. require applicable environmental protection measures during permitted alteration, reduce project footprint in the wetland, etc.); and
  - Compensate for permanent wetland impacts that cannot be avoided or minimized.
- In the case where it is not possible to avoid wetland impacts and provided that the alteration is approved through the WAWA and/or Environmental Impact Assessment (EIA) processes, the loss of wetland habitat will require compensation at a 2:1 ratio.
- The construction of any access roads in a wetland requires culverts to allow for hydrological connectivity between the remaining wetland. Wetland compensation for the footprint of the new road within the wetland is still required, regardless of hydrological connectivity.
- The SSWM Branch has no active WAWA permit applications for PIDs 00814160, 70076948 and 70654058, at this time.
- The SSWM Branch is not aware of any wetland delineations having been completed or are currently planned for these properties, at this time.
- [Questions related to discharging pit water into watercourses] falls under the Water Quality Regulation – Clean Environment Act. The Approvals Branch may be better suited to provide a response.
- Through the EIA process, baseline sampling of private water wells within at least 200-500 m of the proposed project site would likely be required. The EIA Branch may be better suited to provide a response.
- [Questions related to living species and species at risk] would fall under DAAF, DNRED, and DFO's mandate.

Source and Surface Water Management (Wetlands)

PIDs located outside of any watershed protected area. No comment.



## Air Sciences

The submission indicates that the proposal will trigger review under the Environmental Impact Assessment (EIA) Regulation. Presuming this is correct, the Air Sciences Section will have opportunity for more detailed assessment at a later date. Nevertheless, in the interests of informing the planning process, please be aware that this type of facility can cause nuisance dust and noise issues for nearby residential properties. These issues may not be fully addressed through reasonable operational/regulatory controls (such as may be imposed through the EIA process).

## Village of Petitcodiac

As this project proposes to use part of the Village's road network, and will form part of the Community of Three Rivers following local government reform, the Village was asked for comment. A written submission is attached to this report, and addresses concerns related to transportation, groundwater, wastewater, and blasting activity.

## Department of Fisheries and Oceans Canada

The Department of Fisheries and Oceans (DFO)'s Fish and Fish Habitat Protection Program (DFO-FFHPP) is responsible for conducting *Fisheries Act* reviews for works, undertakings and/or activities that may result in impacts to fish and fish habitat. During our review, we'll determine:

- whether your project will impact an aquatic species at risk;
- if your activity can also result in the death of fish and the harmful alteration, disruption or destruction of fish habitat;
- if your project will need authorization under the *Fisheries Act*.

From the information provided, we can confirm that the watercourse in the rezoning request for PIDs 00814160, 70076948 and 70654058 have the potential to have Atlantic Salmon (*Salmo Solar*) from the Inner Bay of Fundy Population that is considered endangered under the *Species at risk act* (<https://species-registry.canada.ca/index-en.html#/species/672-264>).

With the limited information provided at this moment, DFO-FFHPP cannot determine if the proposed Glenvyle gypsum quarry will need a will need an authorization under the *Fisheries Act*.

For more information on the process please consult our website at: <https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-005-eng.html>.

## **Conclusion**

Integrating a new quarry into an area can be challenging for multiple reasons. The Westmorland-Albert Rural plan provides certain policy direction related to this project. The Plan recognizes that resource uses are an integral part of the rural area and are inherently based on the location of the resources. However, the Plan also recognizes that quarries are an intensive resource use that are incompatible with residential and conservation uses and environmentally sensitive areas. One



intent of these policies is to discourage new housing near existing quarry operations; however, approval of a new quarry will depend on the specifics of the project as they relate to the environment, roads, and impact on neighbouring properties.

The impact of truck traffic on rural roads is of significant concern. Initial consultation with the Department of Transportation (DTI) indicated that the trucking route is primarily chip seal that is not capable of withstanding the proposed volume and weight class of trucks associated with this project. Additionally, there are bridges and culverts along the route that may be negatively impacted. However, subsequent comments from the Department suggest that the appropriate permits have been issued to Hammond River Holding to proceed with an upgrading of the trucking route to allow the proposed truck traffic to proceed. Though questions remain with respect to the long-term impact on the road network, Planning staff recognizes that DTI is the provincial authority that regulates highway usage and maintenance, and that the department has indicated its support for the proposal.

Other elements of the project such as water management and blast surveys remain unclear as they will form part of a future Environmental Impact Assessment, including an in-depth review by the Technical Review Committee, which is comprised of all provincial departments. Going through a rezoning process prior to EIA registration and determination allows for a preliminary review of the project to determine if the location of the proposed use is appropriate, with the understanding that the finer details and additional conditions to approval will be worked out during the EIA.

Staff understands that bringing the project forward to a public consultation and deciding on the rezoning without firm answers to questions related to environmental protection and impact on roads has the potential to cause concern and frustration for area residents. However, the Environmental Impact Assessment can only proceed once it is determined that the proposed use is permitted on the property. Based on preliminary comments received from provincial departments to date, staff is of the opinion that the rezoning should be accepted with certain conditions to permit it to proceed to the EIA stage of approval.

As required by the *Community Planning Act*, a draft regulation with potential conditions to address concerns raised during preliminary consultation is included with this report, to be presented at the public hearing.

Your assistance with the review of this project is greatly appreciated. If you have any questions or concerns, please do not hesitate to contact me at 506-382-3574.

Sincerely,

---

Kirk Brewer, RPP, MCIP  
Planner, Plan360



**MINISTERIAL REGULATION AMENDING  
THE MINISTERIAL REGULATION FOR  
THE WESTMORLAND-ALBERT  
PLANNING AREA**

**under the  
COMMUNITY PLANNING ACT**

**(22-WAP-069-01)**

Under section 52 of the *Community Planning Act, 2017 c.19*, the Minister of Local Government and Local Governance Reform makes the following regulation:

1 Ministerial Regulation 21-WAP-069-00 being the Westmorland-Albert Planning Area Rural Plan Regulation under the *Community Planning Act*, is hereby amended.

2 Those lands having PIDs 00814160, 70076948, and 70654058, located in the vicinity of Glenvale in the parish of Salisbury and the county of Westmorland, being within the area designation of the Westmorland-Albert Planning Area Rural Plan Regulation – Community Planning Act, and as shown on attached Schedule A-1 is hereby re-zoned from Agricultural Zone – A to Intensive Resource Development Zone – IRD, subject to terms and conditions as contained within attached Schedule A.

**RÈGLEMENT MINISTÉRIEL MODIFIANT  
LE RÈGLEMENT MINISTÉRIEL DU  
SECTEUR D'AMÉNAGEMENT DE  
WESTMORLAND-ALBERT**

**établi en vertu de la  
LOI SUR L'URBANISME**

**(22-WAP-069-01)**

En vertu de l'article 52 de la *Loi sur l'urbanisme, 2017 c19*, le ministre de Gouvernements locaux et de la Réforme de la gouvernance locale établit le règlement suivant:

1 Le Règlement ministériel 21-WAP-069-00 soit le Règlement du plan rural du secteur d'aménagement de Westmorland-Albert établi en vertu de la *Loi sur l'urbanisme*, est par les présentes modifié.

2 Le terrain portant les NID 00814160, 70076948, et 70654058, situés près de Glenvale, dans la paroisse de Salisbury et le comté de Westmorland, se trouvant dans le secteur désigné du Règlement du plan rural du secteur d'aménagement de Westmorland-Albert – Loi sur l'urbanisme et figurant à l'annexe A-1 ci-jointe, est par les présentes rezonez de Zone A - Agriculture à Zone DIR – Développement intensif de ressources, sous réserve des modalités et conditions énoncées à l'annexe A ci-jointe.

---

Hon./ L'hon. Daniel Allain, Minister  
of Local Government and Local Governance Reform /  
Ministre des Gouvernements locaux et de la Réforme de  
la gouvernance locale

---

Date

## Schedule A

### Terms and Conditions Regarding the Re-zoning of Lands by Ministerial Regulation 22-WAP-069-01

Whereas the applicant, Hammond River Holdings, proposes to operate a gypsum quarry on those lands having PIDs 00814160, 70076948, and 70654058, the said lands being located on Route 890 in the vicinity of Glenvale, in the Local Service District of Salisbury, and the county of Westmorland, further described on attached Schedule A-1 and being within the area designation of the Westmorland-Albert Rural Plan Regulation – Community Planning Act has applied to the Minister of Local Government and Local Governance Reform to rezone the said lands from Agricultural Zone – A to Intensive Resource Development Zone – IRD, all zones being of the Westmorland-Albert Rural Plan Regulation – Community Planning Act and any amendments made thereto, and the said re-zoning being carried out by this Regulation, namely Ministerial Regulation 22-WAP-069-01, subject to the following terms and conditions:

1. That the permitted main uses be limited to:
  - a. A gypsum quarry;
  - b. Resource-related uses;
  - c. Agricultural uses; and
  - d. Recreation uses
2. That prior to the issuance of a development permit for the purpose of a quarry, the project be registered for an Environmental Impact Assessment and receive a certificate of determination;
3. That the final site plan, including location of equipment and access roads, shall be determined via the Environmental Impact Assessment process;
4. That a Wetland and Watercourse Alteration permit be obtained, or exemption granted, for any development

## Annexe A

### Modalités et conditions relatives au rezonage des terrains en vertu du Règlement ministériel 22-WAP-069-01

Attendu que le requérant, Hammond River Holdings, a l'intention d'exploiter une carrière de gypse sur les terrains portant les NID 00814160, 70076948, et 70654058, situés sur la route 890 près de Glenvale, dans le district de services locaux de Salisbury et le comté de Westmorland, plus précisément décrits à l'annexe A-1 attaché ci-joint et situés dans le secteur désigné du Règlement du plan rural du secteur d'aménagement de Westmorland-Albert – Loi sur l'urbanisme, et qu'il a, à cet égard, présenté au ministre de Gouvernements locaux de de la Réforme de la gouvernance locale une demande de rezonage desdits terrains de Zone Agriculture – A à la Zone développement intensif des ressources – DIR, toutes ces zones étant établies par le Règlement du plan rural du secteur d'aménagement de Westmorland-Albert – Loi sur l'urbanisme et les modifications qui pourraient y être apportées, ledit rezonage est établi par le Règlement ministériel 22-WAP-069-01, sous réserve des modalités et conditions suivantes :

1. Que les usages permis seront limités à :
  - a. Une carrière de gypse;
  - b. Usages liées aux ressources;
  - c. Usages agricoles; et
  - d. Usages récréatifs
2. Qu'avant l'émission d'un permis d'aménagement pour l'usage d'une carrière, le projet soit enregistré pour une étude d'impact sur l'environnement, et reçoive un certificat de détermination;
3. Que le plan de site final, y compris le localisation des équipements et chemins d'accès sera déterminé lors du processus d'étude d'impact sur l'environnement.
4. Qu'un permis de modification d'un cours d'eau et d'une terre humide soit obtenu, ou exempté, pour tout aménagement sur une

on any part of the property that is subject to the *Clean Water Act*

portion de la propriété qui est sujet à la *Loi sur l'assainissement de l'eau*

5. That prior to the issuance of a development permit, the proponent must receive an Approval to Construct from the Department of Environment and Local Government;
  6. That prior to the issuance of a development permit, the proponent must obtain an Approval to Operate from the Department of Environment and Local Government;
  7. That prior to the issuance of a development permit, the proponent must obtain approval for the trucking route as well as an access permit from the Department of Transportation and Infrastructure;
  8. That the entrance to the site shall have a barrier to control access to the site;
  9. That signs shall be placed at any entrance, tracks and/or trails, etc., bearing the word "Danger," "No Trespassing," and the nature of the operation
  10. That a development permit for the gypsum quarry use be issued within five (5) years of the coming into effect of this regulation; failure to receive a development permit within this timeline will result in the zoning reverting to the Agricultural zone.
5. Qu'avant l'émission d'un permis d'aménagement, le promoteur reçoive une autorisation de construire du ministère de l'Environnement et Gouvernements locaux;
  6. Qu'avant l'émission d'un permis d'aménagement, le promoteur reçoive une autorisation d'exploitation du ministère de l'Environnement et Gouvernements locaux;
  7. Qu'avant l'émission d'un permis d'aménagement, le promoteur reçoive l'approbation pour la route de camionnage ainsi qu'un permis d'accès du ministère des Transports et de l'Infrastructures;
  8. Qu'une barrière soit installée à l'entrée du site afin de limiter accès;
  9. Que des panneaux portant les mentions « Danger » et « Entrée interdite » et indiquant la nature des activités doivent être posés à toute entrée (entrée principale, entrée secondaire, pistes, sentiers, etc.);
  10. Qu'un permis d'aménagement pour l'usage d'une carrière de gypse soit délivré dans un délai de cinq (5) ans à compter de la date d'entrée en vigueur de ce règlement; si un permis d'aménagement n'est pas délivré conformément à cette date limite, le zonage retombera à la zone Agriculture.

In the event of any breach of these terms and conditions, or any amendments made to them, or of the applicable provisions of the Westmorland-Albert Rural Plan Regulation – Community Planning Act, or any amendments made thereto, by Hammond River Holdings, an heir, assign or successor, or any other owner or operator of the lands herein identified, the said parties, an heir, assign or successor, or any other owner or operator of the said lands, may lose the right to use said land as specified within this Ministerial

En cas de violation des présentes conditions, ou de toute modification apportée à celles-ci, ou des dispositions applicables du Règlement établissant un plan rural du secteur d'aménagement de Westmorland-Albert – Loi sur l'urbanisme, ou de toute modification apportée à celui-ci, par Hammond River Holdings, un héritier, un cessionnaire ou un successeur, ou tout autre propriétaire ou exploitant des terres identifiées aux présentes, lesdites parties, un héritier, un cessionnaire ou un successeur, ou tout autre

Regulation and use of said land may revert to those of the previous zone, namely the Agricultural zone of the Westmorland-Albert Planning Area Rural Plan Regulation – Community Planning Act.

propriétaire ou exploitant desdites terres, peuvent perdre le droit d'utiliser lesdites terres comme le précise le présent règlement ministériel et l'utilisation desdites terres peut redevenir celle de la zone précédente, à savoir la zone Agriculture du Règlement établissant un plan rural du secteur d'aménagement de Westmorland-Albert – *Loi sur l'urbanisme*

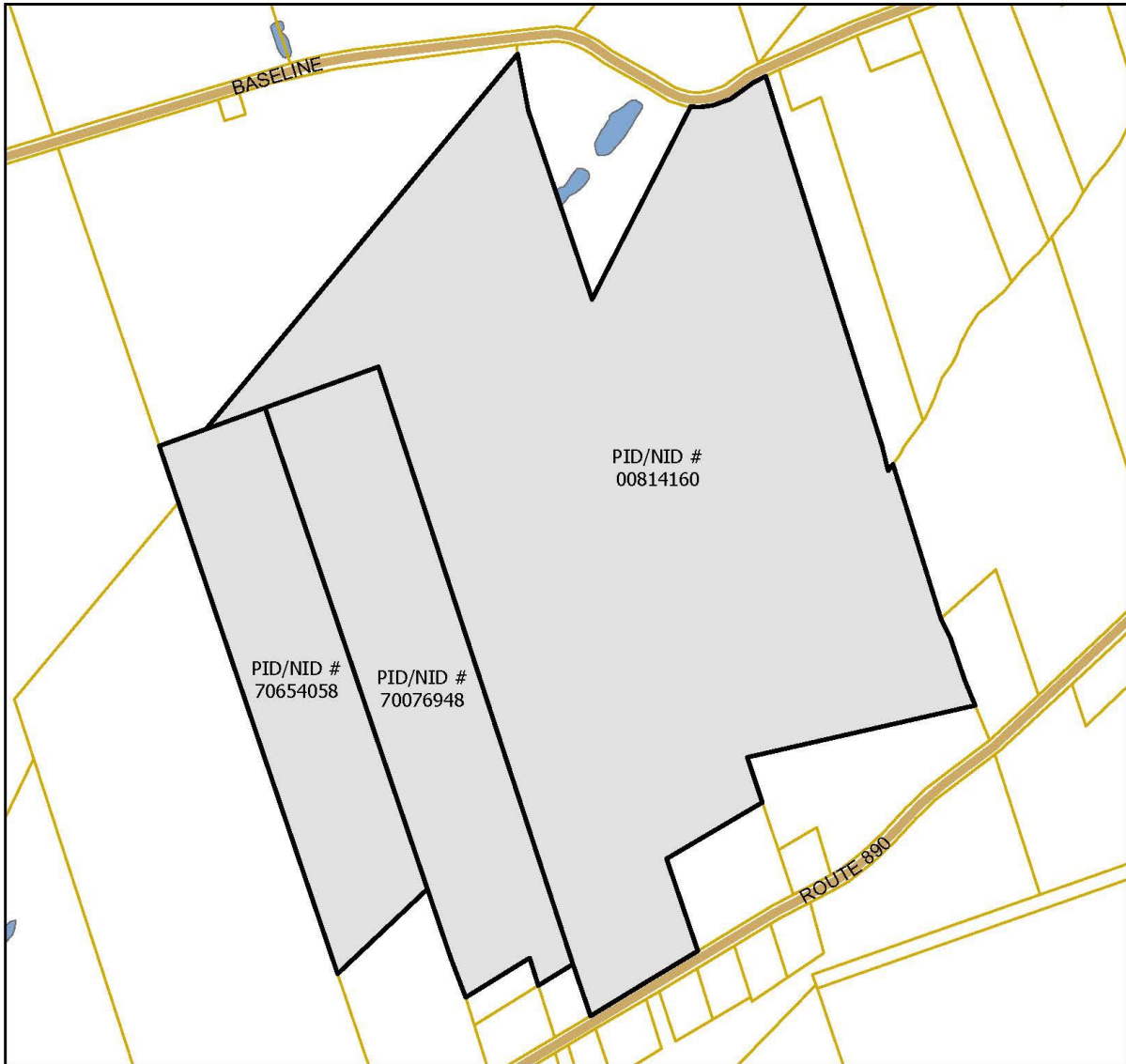
DRAFT

# Schedule A-1 / Annexe A-1


Westmorland-Albert

ZONING MAP / CARTE DE ZONAGE

Date: 7/28/2022



## Legend

 Rezone from A – Agricultural to IRD – Intensive Resource Development  
Rezoner de la zone A – Agricole à DIR – Développement intensif des ressources



0 100 200 m



# Village of Petitcodiac

63 Main Street, PO Box 2507, Petitcodiac, NB E4Z 6H4

Phone (506) 756-3140 Fax (506) 756-3142

vop@nbnet.nb.ca

September 6, 2022

This letter is in response to a letter received from Plan360 asking for Council's concerns and comments regarding Westmorland-Albert Rural Plan Regulation 21-WAP-069-00 – Rezoning Request from Hammond River Holdings Ltd. to permit a gypsum quarry to be located between the Baseline Road and Route 890 (PIDs 00814160, 70076948 and 70654058). Council had several concerns that they feel need to be addressed before proceeding with this project.

**Transportation:** The proposed trucking route would see a significant increase in truck traffic on Route 890, a secondary chip sealed road owned by the province that runs through our municipality. An agreement with the province has the village doing regular annual maintenance and upkeep at a significant cost to the tax payers of Petitcodiac. We feel this road, as is, is not suited to handle the extra demand and we are not prepared to take on any extra financial burden for additional maintenance due to the extra traffic the quarry would create. It was suggested perhaps using an alternate route on the Baseline Road and the Manhurst Cross Road would be a better option. In keeping with transportation concerns we would also request that it be verified that any bridges along the proposed transportation route(s) are able to withstand the increase in truck traffic and weight.

**Groundwater:** We would ask that sufficient studies and testing be done to ensure that residents in the area can be assured that the quality and flow of their existing wells is not affected by blasting or excavating activity.

**Wastewater:** There are several watercourses that cross the property which eventually feeds into the Petitcodiac River. It is our understanding that the quarry will create wastewater that will be emptied into the existing watershed. We would request that full Environment Impact Assessment be done prior to operations commencing.

**Blasting Activity:** We understand that blasting is scheduled to occur up to 25 times a year. We would ask that the blasting schedule be made public and that residents who live in the area have a public forum where schedules are announced.

We are concerned with the long-term effects on the environment and the quality of life for our residents. We understand the value of natural resources, however we ask that if you move forward with this project, you adhere to the highest level of environmental responsibility.

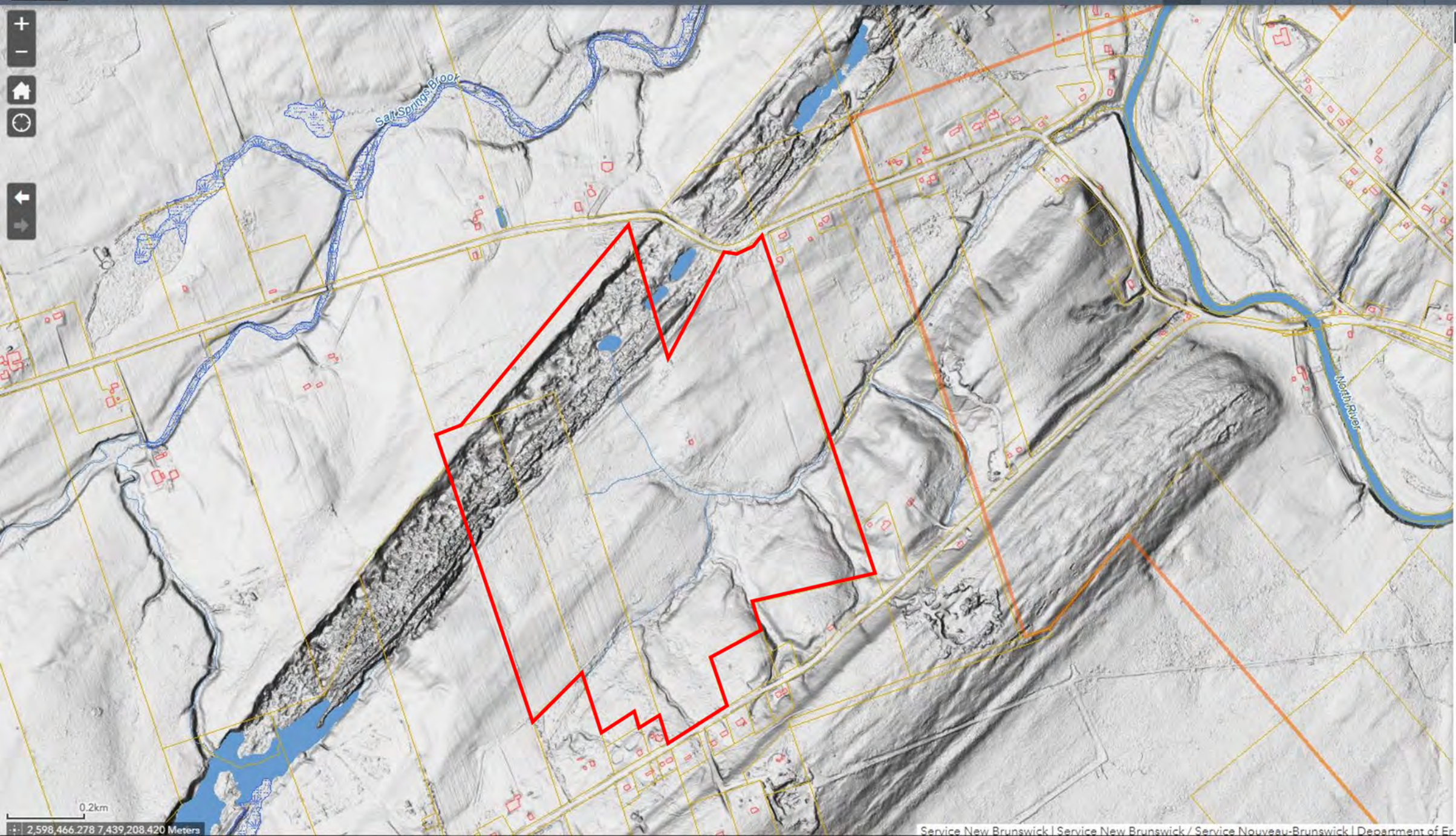
Mayor Dan Pollock  
Village of Petitcodiac

Route 890 (PID/NID 00814160, 70076948, 70654058)

Westmorland-Albert

Date: 7/28/2022

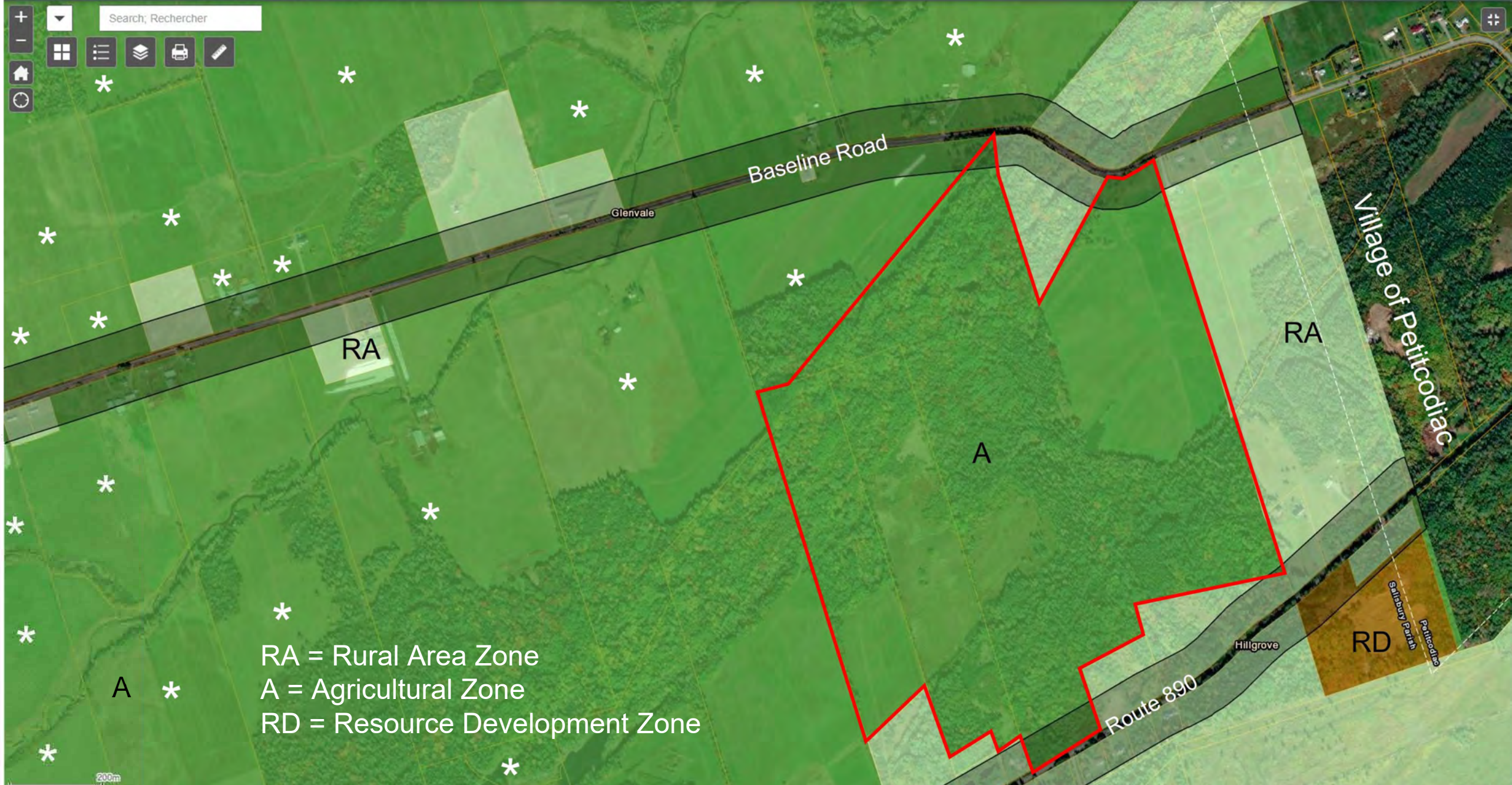




0.2km

2,598,466.278 7,439,208.420 Meters

Search; Rechercher



RA = Rural Area Zone  
 A = Agricultural Zone  
 RD = Resource Development Zone

Farm Land Identification Program = \*

200m  
600ft  
45.9364 -65.2326 Degrees

Search; Rechercher



Open quarry area

Proposed access

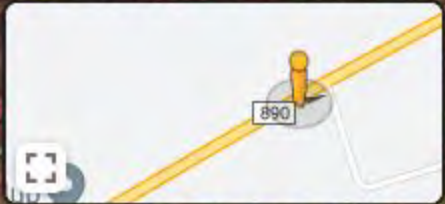
92m 80m

To Pettitcodiac and Trans Canada Highway

Properties with residence = \*

200m  
600ft  
45.9417 -65.2439 Degrees

3463 NB-890  
New Brunswick  
Google  
Street View - Oct 2021



Facing east from proposed access

Google



3477 Hillgrove Rd

Petitcodiac, New Brunswick

Google

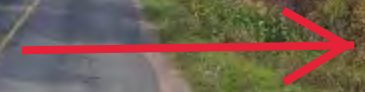
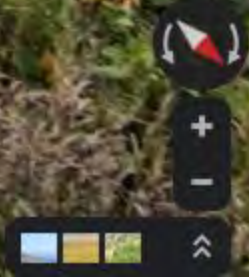
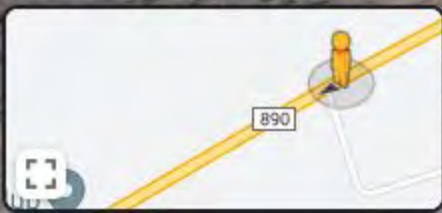
Street View - Oct 2021

3477

Hillgrove Rd

Facing west from proposed access

Google

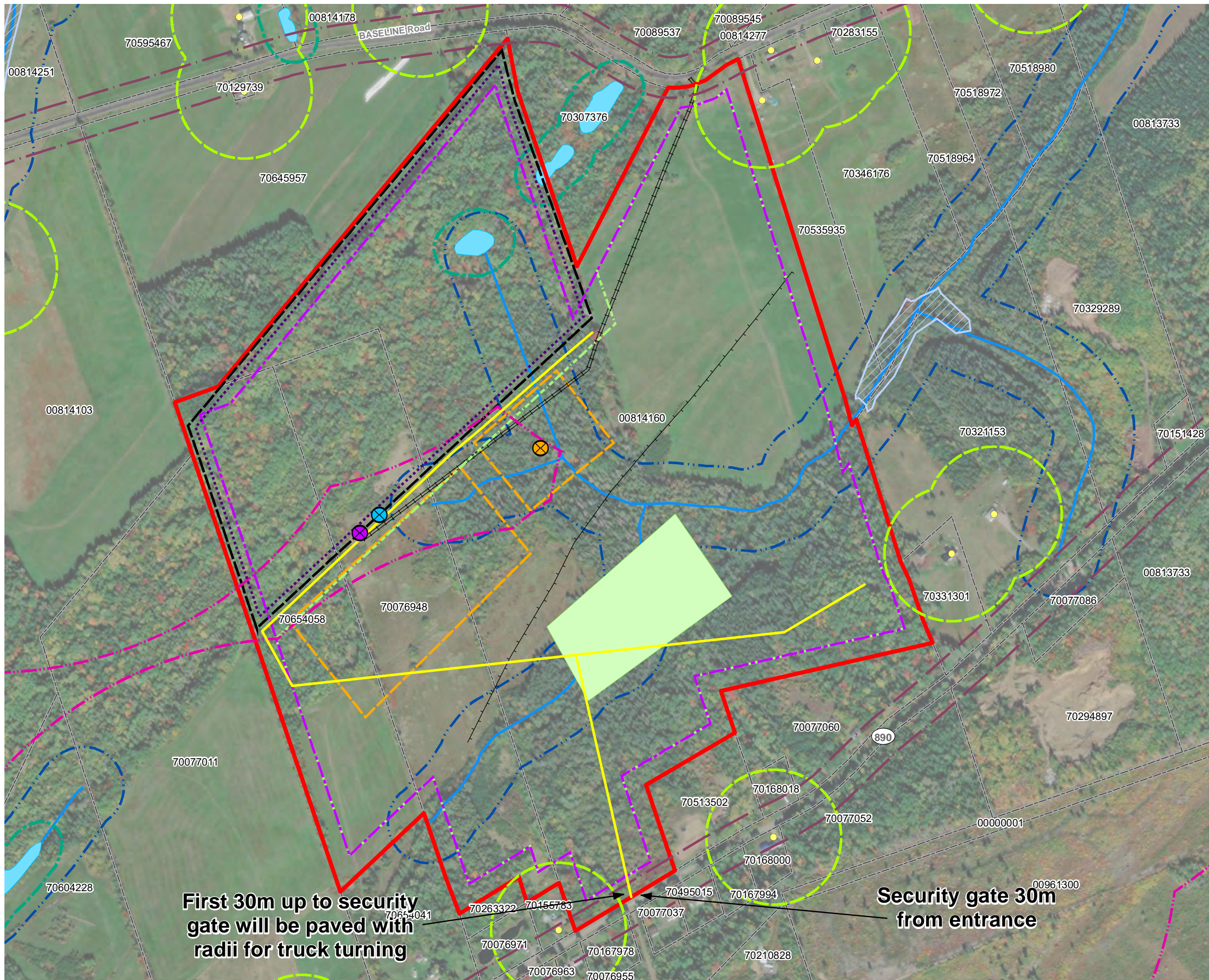




Preferred trucking Route – Route 890 to 885 to TCH

Layers

Google



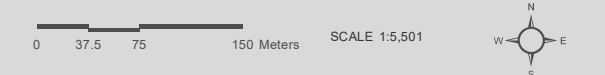
**First 30m up to security gate will be paved with radii for truck turning**

**Security gate 30m from entrance**

**HAMMOND RIVER HOLDINGS LIMITED**  
**PROPOSED GLENVALE GYPSUM QUARRY**

**Conceptual Site Layout Plan**  
**FIGURE 2.3.1**

- Project Area
- Quarry Foot Print (Open Pit)
- Potable Well
- Crusher
- Truck Scale
- Site Trailer
- Access Road
- Approximate position of Bell Aliant Cable Line
- Transmission Line
- Watercourse
- Gypsum Stock Piling and Material Management
- Settling Pond
- Property Boundary
- Waterbodies
- Wetland (NBDELG 2021)
- Drinking water supply well 600 m offset
- Setback from the foundation of residential or commercial structure 100 m offset
- Forest 30 m offset
- Setback residential or commercial property boundary 30 m offset
- Property and quarry 10 m offset
- Setback from a public highway 30 m
- Watercourse/wetland buffer 60 m Offset
- Waterbodies Offset 30 m



MAP DRAWING INFORMATION:  
 DATA PROVIDED BY DILLON CONSULTING LIMITED, CANVEC  
 SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISS TOPO, OPENTREEMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

NOTE: THE ILLUSTRATED OFFSETS ARE ESTIMATES ONLY AND VARY DEPENDING ON THE PLANNED ACTIVITIES FOR THE PROPERTY

MAP CREATED BY: RP/MEC  
 MAP CHECKED BY: JO  
 MAP PROJECTION: NAD\_1983\_CSRS\_NEW\_BRUNSWICK\_STEREOGRAPHIC



PROJECT: 22-4280  
 STATUS: DRAFT  
 DATE: 2022-07-25

# Memo



**To:** Kirk Brewer  
**From:** Daniel Guest  
**cc:** Matt Hopps; Jon Oliver  
**Date:** August 3, 2022  
**Subject:** Glenvale Gypsum Quarry Project Description for Rezoning Application  
**Our File:** File #22-4280

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The following provides a brief project description of the Glenvale Gypsum Quarry for the rezoning application required for the Glenvale Gypsum Quarry Project. Details of the project description are subject to change as the projects proceeds through the Environmental Impact Assessment (EIA) review process. It is expected changes will be minimal as the information is based on the approved Upham East Gypsum Quarry. The EIA registration document will provide descriptions on how the project will interact and potentially impact valued components, including the atmospheric environment, water resources, fish and fish habitat, vegetation and wetlands, wildlife and wildlife habitat, socioeconomic, agriculture land-use, heritage, and traditional land and resource use.

The Glenvale Gypsum Project is expected to have similar conditions to the Upham East Gypsum Quarry outlined in the Approval to Operate (I-10936) and Certificate of Determination (4561-3-1508); additionally, it is expected the Glenvale Gypsum Quarry Project will require an Environmental Management Plan, as was required for the Upham East Gypsum Quarry. These three documents are provided as supplemental information to this letter.

## **Project Components**

The Glenvale Gypsum Quarry Project is expected to last approximately 10 years, consisting of extracting gypsum from an open pit configuration. The exact layout of the open pit has not been fully realized and will develop through the EIA process. The overburden material will be removed from the open pit footprint prior to gypsum extraction begins. Efforts will be undertaken to maintain treed buffers along property lines to the extent possible. The open pit will be developed in benches, with associated internal haul roads. A bench is a term used for each ledge that forms a single level of operation within the pit, above which mineral is quarried back to the bench face. Following blasting and/or rock breaking, the mineral is excavated in successive layers, each of which is a bench. Several benches may be in operation simultaneously in different parts of, and at different elevations in, the open pit.

A portable trailer will serve as a site office and lunch room at the Project site. Sanitary needs will be met by using bottled water and a portable toilet (managed and periodically serviced by a third-party company).

The electrical power needs for the Project are relatively modest, and electrical service is required only for the portable trailer/office. Electrical power will be supplied by constructing a short power line to connect the portable trailer to the existing electrical grid. The power line will consist of conventional wooden poles, conductors, and insulators, and will be similar to that required for residential service,

providing single-phase alternating current at a voltage of 220 V. No upgrades to existing transmission lines or distribution lines currently on the New Brunswick electrical grid are required for the Project.

Though the entire Project site will not be fenced, a security gate with appropriate fencing at and near the entry point to the site will be established to control access to the site. The security gate will remain locked to prevent unauthorized entry after hours, or during periods when the site is inactive. The security gate will be located on the access road to the site, approximately 30 m from Route 890.

A number of warning signs will be installed throughout the perimeter of the site to prevent unauthorized or accidental entry to the site by would-be trespassers and to warn individuals about the dangers that maybe present within the perimeter of the site (i.e., blasting, presence of moving heavy vehicles, large excavations, etc.).

### **Blasting**

Blasting is anticipated to occur up to 25 times per year as an annual average (between the hours of 10:00 and 17:00, excluding weekends and statutory holidays) using emulsion explosives managed by a licensed explosives contractor. Extraction in the open pit will occur up to 5 days a week (excluding weekends), for up to 12 hours a day during daytime, for approximately 200 days per year. The pit will be excavated by drilling and blasting successive benches, and removing the broken rock with a wheeled loader or excavator.

On average, the crusher is expected to operate approximately 2,000 hours per year during site operations, and its operation will occur only during daytime on weekdays.

Portable conveyors or stackers will be used to reduce on-site haulage of materials, where practical, to reduce dust emissions. Following crushing, the crushed rock will be directed to the gypsum storage area, either using a stacker or loaded onto articulated rock trucks.

Following primary crushing, the gypsum rock will be stored in the gypsum storage area while awaiting transportation to customers. It is anticipated that up to 50,000 tonnes of gypsum rock could be stored in the storage area at any given time. The gypsum storage pile(s) will remain open to the air, uncovered, as fugitive dust from 15-20 cm diameter materials is not expected.

### **Trucking**

Following crushing, the operations on the site are limited to the on-site hauling, storage, loading, and transportation of gypsum to customers. These activities will be as follows.

- Crushed gypsum will be loaded onto articulated rock trucks using a wheeled loader and trucked to the storage area.
- Gypsum will be stored in the storage area for a short period of time (up to a few months), pending transportation.
- A wheeled loader will load crushed gypsum from the storage area onto transport trucks in preparation for transportation.
- Gypsum will be transported to customers using the preferred transportation route.

Approximately 300,000 tonnes per year of gypsum will be transported to customers. Assuming the use of trucks carrying approximately 30 tonnes of material at a time, and assuming 300 days of year of potential trucking, approximately 35-40 trucks per day on average would be required to carry the annual production of natural gypsum to markets.

While open pit operations (i.e., excavation, crushing) will be limited to up to five days a week during weekdays (up to 12 hours a day during daytime) for up to 200 days a year, loading of trucks and transportation of gypsum to customers could occur throughout the day, year-round, as highway restrictions permit.

The preferred transportation route will use a site access road to enter Route 890; the trucks will travel in an easterly direction until the road intersects Route 885. Trucks will take Route 885 north until Intervale is reached; the trucks will continue on Route 885 in a west, northwest direction to the on ramp for the Trans-Canada Highway. Travel will occur in an easterly direction, transferring to the provincial highway Route 1 where trucks will then follow the provincial highway system to deliver the product to customers. This route is preferred since it enables the transportation of larger payloads for most of its length (i.e., 55,500 kg gross vehicle mass [GVM]) compared to other trucking routes and avoids the community of Petitcodiac. An application has been submitted to the New Brunswick Department of Transportation and Infrastructure (NB DTI) for approval to use this route.

### **Water Management**

The water management plan for the Project has not yet been fully developed and will evolve as site planning and design is conducted. The conceptual plans for pit dewatering and runoff management, as currently conceived at this early planning stage, are described below. These will be confirmed as part of the water management plan, as it is finalized.

Since the open pit will be located at depth below the surrounding ground elevation, it is expected that surface water (from precipitation and spring snow melt) as well as groundwater seepage will collect at the bottom of the open pit, thereby requiring periodic dewatering of the open pit so as to manage water volumes and minimize interference with operations occurring within it. To this end, the open pit will be developed in such a manner that the active bench being worked on to extract gypsum rock will be located at a higher elevation than the bottom of the open pit, so that the deepest portion of the open pit serves as a sump to store water infiltrating into the open pit until such time as it is removed by pumping. It is expected that most of the storage will be provided by the pit sump, which will require active pumping to control water levels.

Water contained in the deep portion of the open pit will be periodically pumped using one or more suitably sized portable pumps and flexible hoses directly to receiving drainage channels and ultimately released to the natural environment when the suspended solids content is suitable for direct discharge. Pumping will occur at a rate such that discharged water does not overwhelm the capacity of the receiving watercourse. Pumping will occur prior to (and following, as necessary) major precipitation events as well as at times when water levels may begin interfere with operations in the active working

area. Water levels within the open pit will also be closely monitored and managed during the spring freshet and fall recharge period, with more frequent pumping as required.

A series of drainage channels will be constructed on-site to direct site runoff from active working areas of the site, and from storage areas, to the settling pond for further settling of suspended sediments. Perimeter channels constructed around the perimeter of the site will prevent water from neighbouring properties from entering the site, so as to minimize the amount of water needing management on-site.

The specific location of the settling pond will be determined as part of the development of the water management plan for the Project, in parallel to the EIA review. The settling pond will not be lined with a compacted clay or geo-synthetic liner, since the only potential contaminant of concern in the stored water is suspended solids which will remain in the settling pond; this will allow some stored water (free of suspended sediments) to naturally infiltrate to groundwater through the bottom of the pond. Water will not be discharged when downgradient infrastructure is already at capacity as a result of a major precipitation event.

The pond will discharge via an overflow weir or similar device, and with overflow water directed to a drainage channel to the natural environment. To maintain safe operation of the pond, water levels will be actively monitored and managed so as to prevent overtopping of the pond or an uncontrolled release of sediment-laden water, with excess water pumped, as necessary, to the natural environment, if water quality is suitable, or back to the open pit sump if suspended sediment concentrations are unsuitable for discharge. Collected sediments at the bottom of the settling pond will be removed at least once per year (or more frequently as required) by drawing down the settling pond to near dry conditions when weather conditions are suitable (e.g., during the dry summer months) and removing the collected sediments using an excavator.

Water released to the natural receiving environment will have a target concentration of total suspended sediments (TSS) of less than 25 mg/L above background levels in the receiving environment (measured as a monthly average of grab samples). Water will be released at a rate that does not overwhelm the capacity of the receiving structures or watercourse.

The Upham East Gypsum Quarry has followed the same approach to managing water, as described above. Water from the on-site settling pond is discharged to a nearby watercourse. Since operations began, weekly monitoring of the watercourse has been conducted with additional monitoring during periods of heavy precipitation. Exceedances of TSS above the 25 mg/L background threshold at the discharge point have not been observed since the start of the weekly monitoring.

### **Reclamation and Closure Phase**

The New Brunswick *Mining Act* requires that a Reclamation and Closure Plan be developed for the Project as part of its obtaining a mining lease under that Act.

The conceptual approach to completing reclamation and closure of the Project as currently conceived at this early stage of Project development includes:

- removal of all materials and surface facilities on the site;

- re-contouring and reshaping the site;
- re-vegetating the site as much as possible with native species as appropriate; and,
- allowing the open pit to fill with water from natural precipitation (over time).

Prior to allowing the open pit to fill with water, its edges will be reshaped to an appropriate slope to allow for safe entry and egress of the pit lake by animals or humans. Additionally, appropriate signage and other safety measures will be put in place to warn individuals about the potential safety hazards arising from the presence of the pit lake.

This conceptual plan will be updated as part of the process to obtain a mining lease for the Project under the *Mining Act*, which requires a reclamation and closure plan to be developed as a pre-requisite to obtaining a mining lease.

### **Emissions and Wastes**

Hammond River Holdings, through the conditions of the various permits and approvals it will receive to enable construction and operation of the Project, will meet or exceed the compliance standards outlined in applicable regulations and guidelines with respect to waste, emissions and discharges from the Project. Where no such standards exist, industry best practices will be adopted, where applicable. Emissions and wastes will be reduced through best management practices, following applicable legislation, and mitigation planning including the development of an Environmental Management Plan (EMP).

### **Air Contaminant Emissions**

The potential air contaminant emissions of concern include primarily particulate matter (PM, including its common size fractions PM<sub>10</sub> and PM<sub>2.5</sub>) from fugitive sources (e.g., unpaved roads, crushing, material handling, storage piles) as well as combustion gas emissions such as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), and sulphur dioxide (SO<sub>2</sub>) from the combustion of fossil fuel by site equipment. Given the relatively straightforward nature of the Project, measurable emissions of other air contaminants (other than greenhouse gases, discussed below) are not expected.

Emissions will be generally related to the generation of dust from earth moving activities and unpaved roads, routine combustion gas emissions from construction equipment, and some minor blasting residues during blasting events. Equipment used will generally consist of dump trucks, excavators, wheeled loaders, bulldozers, primary crusher, and other mobile equipment, similar to what may be seen on many other commercial or industrial construction sites. Control measures, such as use of water sprays on roads during dry periods or other dust suppression techniques, will be used as required to reduce the fugitive dust, and routine inspection and maintenance of construction equipment as well as the implementation of a no-idling policy will reduce exhaust fumes. Water for spraying roads will be sourced from the pit sump and/or settling pond. Though the gypsum storage pile(s) will be an active area that may generate some limited dust during material handling, dust emissions from stored gypsum (with a diameter of 15-20 cm) are not expected to be substantive.

The burning of waste brush/slash material or grubbings will not be permitted.

Dust emissions from the topsoil and overburden storage piles are not expected since these will become naturally vegetated over time, thereby minimizing soil erosion and dust from wind entrainment. The Project site is isolated from, and relatively distant from nearby residences, and the presence of a significant tree buffer will reduce the potential for off-site transport of dust. As well, dust-producing site activities will be limited to daytime during weekdays only so that the Project does not cause undue nuisance to off-site receptors. There may be nominal combustion gas emissions from delivery of supplies and equipment to the site, which in general should not be measurable above background levels.

### **Greenhouse Gas (GHG) Emissions**

Greenhouse gas (GHG) emissions from the Project will mostly consist of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), as carbon dioxide equivalents (CO<sub>2</sub>e), from fossil fuel combustion in trucks and mobile equipment. Given the relatively straightforward nature of the Project, these emissions are not expected to be substantive. An assessment of the environmental effect of the Project on the atmospheric environment due to Project-related GHG emissions will be provided in the EIA registration document.

### **Noise and Vibration Emissions**

Noise and vibration emissions from the Project will be generally associated with the operation of mobile equipment, the primary crusher, material handling operations, and blasting activities.

Noise and vibration will be intermittent, as equipment is operated on an as-needed basis while site operations are taking place. Noise sources will be mitigated through the use of mufflers on all equipment, carrying out routine maintenance of equipment to maintain it in good working order, and limiting noise producing operations to daytime during weekdays only. The Project site is isolated from, and relatively distant from, nearby residences, and the existing presence of a significant tree buffer will reduce the potential off-site effects of noise and vibration emissions such that the Project does not cause undue nuisance to off-site receptors.

Further noise and vibration emissions could result during operation due to blasting, crushing, and material handling activities within the open pit. Crushing operations will be conducted mostly within the open pit to minimize noise levels. Given that blasting, crushing, and material handling operations within the open pit will be conducted at depth (i.e., on benches within the pit and below the surrounding ground surface, rather than at ground surface), topography and the presence of the pit walls will further reduce the off-site transport of noise emissions. Periodic pre-blast surveys will be conducted at the nearest residences, and blasts will be periodically monitored using seismographs, to ensure that concussion noise levels do not exceed a peak pressure level limit of 128 decibels (dBL) and that peak particle velocities (PPV) remain within 12.5 mm/s, as a best industry practice for quarry operations.

### **Liquid Wastes**

Given the relatively simple nature of the Project, liquid wastes (except for site runoff) are not expected to be generated during the Project. There are no transformation processes associated with the Project, and the Project is not a consumer or generator of water or liquid wastes. There will be no permanent buildings, permanent fuel storage, or equipment maintenance on-site; as such, the generation of liquid wastes (including liquid hazardous wastes) from the Project is not expected.

### **Solid Wastes**

Given the relatively simple nature of the Project as a quarry with no transformation processes on site, few solid wastes are expected to be generated from the Project.

Topsoil and overburden will be removed from the open pit area and stored for later use in site reclamation. Materials from earth moving activities on the remainder of the site during grading and levelling will be reused in shaping and contouring the site. Grubbings and non-merchantable timber from clearing will be stored for future use as fill during site reclamation (e.g., partial filling of the open pit at closure). There will be no waste rock expected from the Project.

Material excavated from the open pit as gypsum will be trucked to customers for production of wallboard. Any excavated rock that does not meet product specifications would be stored on-site for other uses and/or reused in site reclamation (with possible disposal in the open pit at closure). There is no physical or chemical transformation occurring on-site that would result in the generation of solid wastes.

Any garbage and other refuse would be managed by storage in an on-site dumpster and periodically trucked away by a waste disposal contractor for disposal.

### **Land-use and Livestock**

The Glenvale Gypsum Quarry Project is currently zoned as agriculture land-use. There are a number of open fields surrounding the Glenvale property, the main crop being hay. The closest cattle farm appears to be approximately 300 m to the north of the Glenvale property. Although nothing specific is available in the literature regarding potential effects of noise and vibration on wildlife and domestic animals, the activities at the Upham East Gypsum Quarry do not appear to be impacting the local agricultural animals. There are several horses located within 400 m of the Upham East property boundary; after two years of blasting there have been no reported complaints of the horses being impacted by the blasts.

## Industrial Minerals Summary Data

(Today: 7/22/2022)

<b>Name:</b> Hillgrove (Glenvale, Intervale) Gypsum	<b>Reference #:</b> 230
<b>Commodity:</b> Gypsum	<b>Additional Commodity Info:</b> Anhydrite
<b>Status:</b> Past production	
<b>NTS:</b> 21H/14	
<b>Latitude:</b> 45°56'37"	<b>Coordinate System:</b> Datum NAD 83(CSRS)
<b>Longitude:</b> -65°12'49"	
<b>County:</b> Westmorland	<b>Location Precision:</b> High (precise location, measured using GPS)
<b>Group/Pluton:</b> Windsor	<b>Formation:</b> Upperton, Clover Hill
<b>Lithology/Member:</b>	
<p><b>Description:</b> Near-surface deposits of gypsum (CaSO<sub>4</sub> 2H<sub>2</sub>O) occur in a narrow, steeply dipping, northeast-trending belt, a few kilometres north and northwest of the Village of Petitcodiac, Westmorland County, in southeastern New Brunswick. The deposit is traceable over a distance of 7.5 km between the rural communities of Hillgrove and Intervale. The sulfate rocks belong to the Early Carboniferous Upperton and Clover Hill formations, part of a sequence of continental clastics and marine carbonates, sulfates and related chlorides, collectively referred to as the Windsor Group. Gypsum deposits of the region consist of a 30 to 50 m thick unit of orange brown to white, schistose, alabastrine gypsum (Clover Hill Formation) collapsed on an underlying 150 m thick unit of white massive gypsum and anhydrite (Upperton Formation). This sequence is traceable over a northeast-southwest strike length of 7.5 km. The regions gypsum resource is generally of high quality, commonly exceeding 90% CaSO<sub>4</sub>*2H<sub>2</sub>O.</p> <p>In 1907 it was reported that the deposit was under the control of the Albert Manufacturing Company, a major supplier of crude gypsum and related manufactured plaster products from the Hillsborough area in Albert County (Webb 2001). It was not until the later part of 1931 that F.M. Thompson, a former manager of the Albert Manufacturing Companies Hillsborough gypsum operations, established a quarry near Intervale (probably the present Glenvale quarry site). Production was sustained over a three-year period with annual rail shipments of 1100 to 1500 tons of good white gypsum to the Montreal area. Unfortunately the Intervale product was soon to find itself at a competitive disadvantage with cheaper material moved into its primary market area by shipments from other regional sources. This situation eventually forced the enterprise to cease operations by 1935. Interest in the property was not revived until the early 1950's when the Maritime Cement Company, a subsidiary of Canada Cement Company Limited commenced construction of a cement plant on extensive limestone deposits near the village of Havelock, about 10 km north of the Intervale quarry. The property was obtained by the company as a local source of suitable gypsum, a key ingredient in the cement manufacturing process. Beginning in 1951, Canada Cement, (now called Lafarge Canada Inc.) operated the quarry for 36 years, producing 5,000 to 25,000 tons annually. Operations were curtailed in 1987 following the downsizing and eventual closure the Havelock operation. A reclamation plan involving slope stabilization and revegetation around a pond established in the axial part of the quarry was soon implemented (Assessment File: 475080).</p> <p>By 1996, Lafarge's mineral holdings in the area were reduced thirty-two hectares (two mineral claims) encompassing part of the former quarry and adjacent area to the west. These are reported to be in good standing until the summer of 2001(Assessment File: 475554). Beginning in the early 1990's several parts of the Intervale-Hillgrove gypsum deposit, peripheral to Lafarge's property, were staked and held for a short period of time by Gordel Investments Ltd. of Saint John (Assessment File: 474667). These claims have subsequently expired and have not been renewed. Between 1951 and 1987, about 250,000 tonnes of gypsum had been extracted from Lafarge's Glenvale quarry. Total gypsum reserves on the present Lafarge property are reported near 1,300,000 tonnes. Other attempts to quantify the Intervale-Hillgrove gypsum resource have been offered by Hamilton and Barnett (1970). Their estimate of 4,000,000 million tons of 97% gypsum was from the Intervale area (most probably an area roughly equivalent to the former Glenvale quarry and immediately adjacent parts of the deposit). With the exception of the two Lafarge Canada Inc. claims much of the Intervale-Hillgrove gypsum/anhydrite deposit remains open for prospecting and staking (as of March 2001).</p> <p>Despite its long history of sporadic development, the magnitude of accumulated geotechnical data on the Intervale deposit is surprisingly limited. Jennison (1912), Cole (1913), and Hamilton and Barnett (1970) report typical analysis of a few gypsum samples from the area (Appendix A) however, few details are provided as to their exact location. In the vicinity of the former quarry near Glenvale, five holes were drilled by Canada Cement in 1957 and one hole, 300 meters to southwest, was completed in 1998. Considering the Intervale-Hillgrove region's geology and perceived social and physical impediments affecting the establishment of a suitable quarry site(s), there remain at least three areas that appear to have unqualified exploration and development potential for gypsum (Webb 2001). These include These areas are speculated to have the capabilities of supporting a small tonnage gypsum operation, similar to that undertaken at a former quarry site near Glenvale.</p> <p>Exploration alternatives and development potential of the Intervale-Hillgrove gypsum resource appears somewhat limited, reflected in 1) : the narrow width and generally steep dipping nature of the gypsum deposit, 2) high ground water levels in parts of the area between Hillgrove and Glenvale and in parts of the Intervale area (i.e. areas of water-filled sink holes) and 3) several anticipated restrictions of a social nature (i.e. proximity to housing, recreational and active agricultural areas). Despite these concerns three areas, although unqualified, are considered reasonable alternative for exploration and potential development for a small tonnage operation(s) (Webb 2001). One thirty-six hectare area extends 1200 m southwest of where the Glenvale-Baseline Road crosses the deposit to an area of several water-filled sinkholes near Hillgrove (45°55'58"; -65°13'40"). This area features a wet and dry karst landscape, consisting of pillars of gypsum several meters high with intervening cracks and open crevices (generally dry). A rather peculiar landscape feature is one consisting of a interconnected series vertical, perfectly circular holes seen near the south-western limit of the proposed area. These circular structures have a diameter of 1 to 2 m, with vertical walls extending down to depths of several meters. They are quite different than ordinary sinkholes. The sides of sinkholes are generally quite irregular and battered, typically occurring in areas of lower relief, and never in the same shape or form. These peculiar structures are too numerous, too close together (i.e. arranged in a honey-comb pattern that makes it difficult to walk between them) and too perfectly circular to be considered as simple sink or kettle holes. Nor does it seem likely they have been formed by hydraulic processes (i.e. hard rock debris rotated a torrent of water, thus boring a hole in softer gypsiferous material). One possible explanation, supported by apparent mild tectonic and volcanic activity in the region is that these structures are vents or blow holes for escaping gas or related hydrothermal fluids emitted sometime after sulfate deposition. Even though the walls of these proposed vents are comprised of fibrous gypsum, the fact that they form a honey-comb structure over a considerable area would suggest the harder, more resistant form of sulfate, anhydrite and anhydritic gypsum, may in fact support their characteristic shape and therefore be more prevalent in the area than surface exposures of gypsum would suggest. Therefore, it is probably prudent to core into the sides of these structures to determine the extent of the gypsification process.</p> <p>Gypsum sugar rock of the Clover Hill Formation is similar to that exposed in the Glenvale quarry are also well exposed near these structures and are considered to offer high quality gypsiferous material. Although not seen in outcrop the more massive Upperton gypsum deposits are also expected to occur to the north, structurally below the sugar-rock material. Attempts to quantify the resource in this prospective area are highly speculative. Assuming no limitations by excessive thickness of overburden, a strike length of 1000 m, an average width of 250 m and a recoverable gypsum thickness of 6 m, an inferred mineral resource base of 645,000 tonnes of gypsum is suggested (Webb 2001). For the most part, the area occupies wooded terrain and is generally remote from established housing and related human activities.</p> <p>There remain two other parts of the Intervale-Hillgrove sulfate deposit where potential exploration and development might be considered a possibility (Webb 2001). Faulting in this area has resulted in the structural separation of the gypsum resource into two separate bands. The northernmost area (45°58'18"; -65°10'06"), comprised of steeply dipping, schistose to massive gypsum, extend over 20 hectares of active farmland. The gypsum band is less than 125 m wide and is traceable via a series of sinkholes and scattered outcrops along a northeast strike for about 1.5 km northeast of the Chapman Road where the gypsum is overlain (unconformably) by Pictou Group clastics. To the south it is overlain by a narrow band of fine-grained Mabou Group clastics. sulfate deposits of this area are strikingly similar to those exposed in the old quarry near Glenvale where, schistose, selenitic sugar-rock is found overlying a massive anhydrite-gypsum unit. Taking an average recoverable gypsum depth of 6 m, this area may account for an inferred gypsum resource of 580,000 tonnes (Webb 2001).</p> <p>The other gypsum and anhydrite prospect (45°58'01"; -65°10'41") in the Intervale area is less than half a kilometer south of the one to the north. Although not exposed its distribution is inferred on the basis of the area's structural features, (i.e. thrust and related fault structures) it's characteristic landscape (i.e. numerous sinkholes) and vegetation (i.e. abundance of cedar trees) common to other areas in the region underlain by sulfate and associated carbonate deposits. Estimated to underlie an area exceeding 30 hectares, the inferred sulfate resource here appears to be more extensive than that to the north. The deposit has an unconfirmed width of 200 m and is traceable via a line of sink holes for up to 1700 m east of the Chapman Road where it is unconformably overlain sedimentary clastic cover rocks of the Pictou Group. It is fault-bounded to the north and west by the Berry Mills Fault and a northwest-southeast trending secondary fault structure respectively. To the south it is overlain by fine-grained clastics of the Mabou Group. Given an average gypsum thickness of 6 m, a resource base over 880 000 tonnes is inferred for this area where land use can be classified into active agricultural (80%) and a light forest cover (20%) (Webb, 2001).</p> <p>In general, the lack of adequate gypsum exposure throughout much of the Intervale-Hillgrove region exploration drilling and related geotechnical work would be required to confirm the presence and true nature of the gypsum resource in any of the areas considered here as exploration alternatives.</p> <p>From 1932 to 1934, F. M. Thompson quarried 38,000 tons of gypsum and shipped it to Montreal for processing. Canada Cement Company Limited removes from 5, 000 to 25, 000 tons annually. According to Hamilton (1970, p. 33): "The area is underlain by grey and red clastic sedimentary rocks, limestone, anhydrite and gypsum. The rocks are relatively fresh and unaltered, and range from Mississippian to Pennsylvanian in age. The older rocks form the northwest limb of the Dunsinane syncline. They generally strike northeast and dip steeply to the southeast. Small lenses and pods of clear selenite up to 6 inches wide are present locally. The gypsum is white, soft, finely crystalline, relatively pure and devoid of anhydrite nodules and lenses". Hamilton estimated that a quarry face up to 15 feet in height could be developed and over 4,000,000 tons of gypsum could be removed.</p>	

The sulfate resources extending between Intervale and Hillgrove are characterized by irregular masses of gypsum in association with anhydrite, varying in thickness from a metre to 30 m in places. Parts of the resource area appear well situated for the development of a small quarry operation pending appropriate environment considerations.

#### Analytical Data

Analyte	Percentage	ppm
No Analytical Data Available		

#### References

SUND, J.O. 1958. Origin of New Brunswick gypsum deposits. Unpublished M.Sc. thesis, University of New Brunswick, Fredericton, New Brunswick, 122 p.
COLE, L.H. 1913. Gypsum in Canada. Canada Department of Mines, Mines Branch Publication 245, p. 46–56.
GESNER, A. 1841. Third report on the geological survey of the Province of New Brunswick. Henry Chubb, Saint John, New Brunswick, 88 p.
JENNISON, W.F. 1911. Report on the gypsum deposits of the Maritime Provinces, Canada. Canada Department of Lands and Mines, Mines Branch, Ottawa, Ontario.

#### Geoscience Publications

Author	Publication Date	Publication Number	Title
	1970	<a href="#">RI 10</a>	Gypsum in New Brunswick.
	1978	<a href="#">TR 77-6</a>	Gypsum and related deposits of New Brunswick - a review of occurrences and economic potential.
	2002	<a href="#">OF 2001-7</a>	Geology, development history and exploration alternatives for gypsum and anhydrite resources near the Intervale-Hillgrove (part of NTS 21 H/14), Westmorland County, southeastern New Brunswick.
	2005	<a href="#">MP 2005-47</a>	Bedrock geology of the Petitcodiac area (NTS 21 H/14), Kings, Westmorland, and Queens Counties, New Brunswick

#### Minerals Reports of Work

Report Number	Claim Holder	Property Name	NTS	Year Submitted
<a href="#">475554</a>	LAFARGE CANADA INC	Glenvale Gypsum Cl Gp	21H/14E	2000
<a href="#">475224</a>	NORANDA INC	Fly Tent Brook Cl Gp	21O/08W	1999
<a href="#">475080</a>	LAFARGE CANADA INC	Glenvale Cl Gp	21H/14E	1998
<a href="#">474667</a>	GORDEL INVESTMENTS LTD	Glendale	21H/14E	1995
<a href="#">476420</a>	LAFARGE CANADA INC	Glenvale Gypsum	21H/14E	2007

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