

February 22, 2019



New Brunswick Department of Environment and Local Government
Marysville Place
P. O. Box 6000
Fredericton, NB
E3B 5H1

Attention: Ms. Cassandra Colwell
Project Manager, Environmental Impact Assessment Branch

RE: Hammond River Holdings' Response to Technical Review Committee (TRC)
Questions and Comments Round #2 – Proposed Upham East Gypsum Quarry, EIA
Registration Document File No. 4561-3-1508

Hammond River Holdings Limited (Hammond River Holdings) has reviewed and addressed the comments provided by the Technical Review Committee (TRC) in the letter dated January 25, 2019 for the Proposed Upham East Gypsum Quarry Environmental Impact Assessment (EIA) registration document (registered on November 2, 2018). Table 1, attached, summarizes the responses to the latest questions/comments as provided by the TRC, and Hammond River Holdings' responses.

Should you have any questions regarding the attached responses, please do not hesitate to contact the undersigned, at your convenience.

Sincerely,

DILLON CONSULTING LIMITED

A handwritten signature in blue ink, appearing to read "Denis L. Marquis".

Denis L. Marquis, M.Sc.E., P.Eng.
Associate

DLM:acs

1149 Smythe Street
Suite 200
Fredericton
New Brunswick
Canada
E3B 3H4
Telephone
506.444.8820
Fax
506.444.8821

Table 1: Summary of Responses to Round 2 TRC Questions Regarding the Proposed Upham East Gypsum Quarry, Upham, New Brunswick

Comment/ Question No.	Question/Comment from Technical Review Committee (TRC)	Hammond River Holdings' Response
Letter Dated January 25, 2019		
Topic: Responses to TRC questions / comments (Round 1)		
3	<p>Original Round 1 Question/Comment In Figure 2.3.1 Conceptual Site Layout Plan (p. 17), can you please clarify the locations of the Gypsum Storage Area and the Topsoil and Overburden Storage Area?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019) This is a concept that will be refined during the detailed planning stage prior to the quarry becoming operational. To further elaborate on the concept, it is anticipated that the overburden will be used to level an area for the stockpiling of gypsum. Topsoil will be stockpiled separately to preserve it for future reclamation purposes. Surplus overburden materials will be used to progressively slope the final perimeter of the quarry benches to minimize re-handling of materials where appropriate. The goal will be to progressively reclaim areas of the quarry where the resource has been exhausted, while resource extraction is taking place at other areas of the quarry. The final design and management processes for the Project will be provided in the Application for an Approval to Construct for the Project.</p> <p>Response from TRC (Round 2, Jan 25, 2019) The response indicates that the requested details will be provided in the application for the Approval to Operate; however, it is felt that it's important to review this information during the EIA review process. Can you please clarify the locations of the Gypsum Storage Area and the Topsoil and Overburden Storage Area?</p>	<p>Please refer to the updated conceptual site layout plan (updated Figure 2.3.1 attached), as well as a typical cross-section that has been developed to show Project facilities in side view (with elevations).</p> <p>The following refinements to the site layout plan have been made:</p> <ol style="list-style-type: none"> 1. The quarry footprint has been reduced to reflect the current understanding of the resource geometry. Three distinct areas of the quarry (i.e., Areas A, B, and C) have been defined. A berm will be developed surrounding the quarry to provide containment for runoff and to provide some further attenuation of sound levels. 2. The storage pads have been optimized and sized based on the expected volumes of material to be handled. Three storage pads are now planned, in the same area as previously (i.e., the West storage pad storing up to 65,000 m³ of gypsum, the Northeast storage pad storing up to 60,000 m³ of topsoil and possibly other materials [e.g., dredged sediments from the retention ponds], and the Southeast storage pad storing up to 180,000 m³ of overburden). Additionally, a considerable amount of overburden will be used to develop the storage pads themselves.

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		<ol style="list-style-type: none"> 3. In the quarry area, a site access road has been developed on the west side of the Project site to provide improved access to the quarry area. 4. The truck weigh scale has been moved to the north, near the West storage pad. 5. The configuration of the storage pads and stockpiles has been updated based on LiDAR, material storage and standard sloping requirements. 6. In addition to the pit sump at the bottom of the quarry (the location of which will likely change based on the work area being quarried at a given time), two retention (settling) ponds are now planned: the West retention pond (receiving runoff from Areas A and B of the quarry), and the East retention pond (receiving runoff from Area C of the quarry as well as from the access road and the West, Northeast and Southeast storage pads). The retention ponds have been repositioned and subdivided into two sub areas to improve alignment with a topographic low on the property. The West retention pond will discharge into the East retention pond, providing additional retention capacity, with both retention ponds discharging to a common location into watercourse WC3. It is noted that the pit sump will now discharge to the retention ponds instead of being pumped directly into watercourse WC1. 7. The orientation of the retention ponds has been optimized based on runoff calculations for the refined quarry footprint, storage pad areas, and LiDAR data.

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		<p>8. Colour coding was added to illustrate the retention pond capacity assigned for runoff from the major components of site development (i.e., site access road, main quarry areas, and storage pads).</p>
15	<p>Original Round 1 Question/Comment Will baseline potable water supply testing include Bacteriology and turbidity? Can you please provide the baseline tests results? Will post blasting testing be completed on nearby wells? Original Response by Hammond River Holdings (Jan 4, 2019) At present, baseline well samples are proposed to be analyzed for general chemistry (including physical parameters like turbidity), bacteria, and trace metals. The baseline well sampling results will be compiled and provided to NBDELG (anonymously, to protect the privacy of the homeowners), for information purposes. Sampling of wells is currently planned to be conducted annually during operation of the project at residences within approximately 400 m of the perimeter of the Project site, but post-blasting sampling of other wells is not proposed to be conducted unless a specific concern arises with a particular well. Response from TRC (Round 2, Jan 25, 2019) The response provided indicates that the baseline groundwater well sampling results will be submitted to the DELG anonymously in order to protect the privacy of homeowners. However, all groundwater well sampling, survey data, and homeowner information should be submitted to the DELG for the file. DELG will ensure that the</p>	<p>Based on past experience, Dillon has found that some homeowners are reluctant to provide permission to sample their wells unless their information is maintained confidential, due to worries that an unfavourable well result might cause external parties to take action against them (e.g., government prohibiting them from using their well water). We have found that participation in such sampling programs tends to be greater when homeowners are given the option to remain anonymous. As such, the permission letter that Hammond River Holdings has prepared and executed (attached) gives homeowners the option for their personal information to be redacted prior submission to NBDELG. Please see attached letter template that has been prepared for residents within a 1 km radius; distribution of this letter has begun.</p> <p>If a concern arises related to a specific well, residents can either contact Hammond River Holdings or the NBDELG. In cases where the resident requested their identity be redacted, then residents will need to contact Hammond River Holdings directly, who will then notify and consult with the NBDELG. In such cases, well information would then be shared with the NBDELG if the well owner consents to such release.</p>

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	information and data is not redistributed without undergoing a privacy screening.	
21	<p>Original Round 1 Question/Comment</p> <p>The report indicates that a Groundwater Monitoring Plan will be submitted for review. The baseline sampling should be included as part of the groundwater monitoring plan. In addition, the potential locations of the 4 shallow and 4 deep monitoring wells should be included for review before they are constructed. The groundwater monitoring plan should include details on the frequency of groundwater quantity and quality monitoring and parameters.</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019)</p> <p>Understood. Baseline sampling will be included as part of the groundwater monitoring plan, which is currently being developed. Further information on the groundwater monitoring plan (including the location of proposed monitoring wells to be drilled) will be provided as part of the application for an Approval to Operate for the Project.</p> <p>Response from TRC (Round 2, Jan 25, 2019)</p> <p>It is understood that baseline sampling will include analysis for general chemistry, trace metals, and microbiology. For the baseline monitoring and on-going monitoring at the site, you should determine, based on potential and actual site activities, if any additional parameters should be included in the groundwater monitoring (e.g. dissolved petroleum products, nutrients, nitrates, etc.). Can you please confirm that as part of the monitoring plan, you will regularly evaluate any activities on site (e.g. blasting, petroleum</p>	<p>The current plan for baseline water well sampling includes the analysis of general chemistry (including physical parameters as well as chemical parameters such as nitrates and nitrites), trace metals, and microbiology. There is no on-site storage of petroleum incorporated into the Project; therefore, baseline analysis and regular monitoring of BTEX and total petroleum hydrocarbons is not deemed necessary. There are no other additional site activities anticipated to require analysis of water quality within the baseline sampling program, and there are no chemical processing or no chemicals required for the Project operation at this time.</p> <p>Should site activities (such as the storage of petroleum products) change, then the scope of the sampling program will be adjusted to capture the appropriate analysis that corresponds to the nature of the activities on the site, upon consultation with NBDELG.</p>

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	storage, other chemical use, etc.) and determine if any additional parameters should be added to the water quality analysis?	
24	<p>Original Round 1 Question/Comment</p> <p>The report includes functional assessments on each of the unmapped wetlands in the PDA and acknowledges that any loss of wetland function in regulated (mapped) wetlands requires wetland compensation at a 2:1 ratio. Furthermore, the report states that, "The construction and operation phases of the Project may result in the indirect loss of wetland area or function associated with a regulated (mapped) wetland on a neighbouring property within the LAA (on the northeast corner of the PDA), which is connected to WL3 and WC1". Can you please provide a shape file identifying the boundary of the regulated wetland as determined on the ground and information regarding the functions of this wetland? This information is required to understand the baseline information that exists and the potential change to this wetland as a result of the proposed project.</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019)</p> <p>A shapefile of the boundaries of the 13 delineated wetlands on-site has already been provided to the TRC electronically as part of the initial submission of the EIA Registration document. Due to property access issues at the time of the functional assessment, the portion of the regulated wetland (connected to WC1 and WL3) located on the adjacent property to the northeast of the Project site has not been</p>	<p>It is proposed to seek landowner permission to access the portion of wetland 3 (WL3) that is located on the neighbouring property to the northeast of the Project site in spring or summer 2019, and to carry out a wetland delineation and functional evaluation at that time. Should the landowner deny permission to access WL3 for such purposes, a desktop level delineation and the desktop portion of the WESP-AC will be completed for this wetland (as discussed with the NBDELG EIA project manager). No other wetlands located outside the Project site are expected to be evaluated at this time.</p> <p>There is no plan to conduct any further wetland monitoring or assessment for the 11 field-identified wetlands on-site that will be removed as part of project activities (i.e., wetlands WL1, WL2, WL3, WL4, WL5, WL6, WL7, WL10, WL11, WL12, and WL 13). The wetland monitoring plan for wetlands that remain on or adjacent to the Project site (i.e., WL8, WL9, and the portion of WL3 that is located on the neighbouring property to the northeast of the Project site) consists of a further pre-construction wetland delineation and functional assessment (i.e., WESP-AC) prior to beginning construction activity on the site), with such delineations and functional assessments to be repeated at after Year 1, 3, 5, and 7 of the operation phase of the Project. Appropriate adaptive response</p>

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	<p>field delineated or functionally assessed. As a result, there are no field delineated shapefiles or functional assessment results for this portion of the regulated wetland occurring outside the Project site. Assuming that property owner's permission is achieved, it is our intention to field delineate WL3 in Spring 2019.</p> <p>As stated in Section 5.5.3.3 of the EIA Registration document, follow-up and monitoring (with adaptive management as necessary) will be conducted to monitor any changes in wetland function that may occur to WC3 (including the portion that occurs outside the Project site) and to plan adaptive response actions, in consultation with NBDELG.</p> <p>Response from TRC (Round 2, Jan 25, 2019) The response provided states that some wetland area on adjacent properties will be delineated and functionally assessed once landowner permission is obtained for the adjacent properties. How do you propose to proceed with the assessments if landowner permission is denied? The response also states that, "Follow-up and monitoring will determine if, and to what extent, changes in wetland function may occur." Has a monitoring plan been developed yet for these sites?</p>	<p>measures would be developed in response to net losses in wetland function observed through such monitoring efforts, in consultation with NBDELG.</p>
26	<p>Original Round 1 Question/Comment In Section 2.4.1.5 Removal and Stockpiling of Topsoil and Overburden (p.26), it stated that removing 10 to 15 m of overburden will entail large storage requirements for the full footprint of the quarry. What are the volume calculations for overburden storage requirements considering safe angles of the pile, safe setback from the quarry,</p>	<p>Attached is an updated conceptual site layout plan that illustrates the material management areas based on our current understanding of the geology underlying the site. Please refer to the response to question #3 above for a summary of updates to the plan. The figure also outlines the pond orientation, perimeter ditching, and berms as</p>

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	<p>erosion and drainage control berms, etc.? Have those engineering calculations been made?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019) Those details will be developed as part of detailed design of the Project, prior to the Application for Approval to Operate.</p> <p>Response from TRC (Round 2, Jan 25, 2019) The response indicates that the requested details will be provided in the application for the Approval to Operate; however, it is felt that it's important to review this information during the EIA review process. Can you please provide clarification regarding the volume calculations for overburden storage requirements considering safe angles of the pile, safe setback from the quarry, erosion and drainage control berms? Have those engineering calculations been made?</p>	<p>we currently understand them. This plan may be further optimized as site development proceeds.</p> <p>The overall plan was developed based on the following considerations:</p> <ul style="list-style-type: none"> • The current topographic high point on the property is approximately 105 m elevation above sea level based in the same vertical datum employed by GeoNB (CGVD 1928) . For the purposes of material management planning, this elevation was adopted as the maximum elevation for all material stockpiles. • The storage pads will be sloped at 2:1, stockpiles will be sloped at 1.7:1 • Storage pads will be constructed using overburden stripped from quarry areas. • Initially, stripped topsoil and overburden will be used to construct a safety berm at a minimum of 7 m back from the edge of the quarry perimeter. Surplus topsoil left over after berm construction will be stockpiled on the Northeast storage pad. • For the purposes of stockpiling surplus topsoil, the Northeast storage pad will be constructed first, ranging in approximate elevation from 100 to 103 m. • To facilitate the storage of gypsum, it is anticipated that the West storage pad will then be constructed, ranging in approximate elevation from 96 m to 103 m.

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		<ul style="list-style-type: none"> • For stockpiling of surplus overburden, the Southeast storage pad will be constructed last, ranging in elevation from 81 m to 100 m. • Based on the available borehole information, the total approximate volume of overburden and topsoil to be removed from the quarry footprint is 1,200,000 m³. (Note that since the quarry will be developed in stages, not all this material will be removed at once, or require storage at any given time). Of this total approximate volume, 450,000 m³ will be used to construct the storage pads for the entirety of the project. Another 180,000 m³ will be piled on the pads at various times throughout the operation. The remaining 570,000 m³ of stripped overburden and topsoil from the quarry footprint will be used to progressively reclaim the quarry until the gypsum resource is exhausted. • The runoff from the material management areas will be directed to the perimeter ditches and in turn to the retention ponds. Refer to inset on the figure for additional details concerning the retention ponds. • Where appropriate, Hammond River Holdings will adopt standard erosion and sediment control practices as outlined in New Brunswick Department of Transportation and Infrastructure's Standard Specifications for Highway Construction and Environment Management Manual https://www2.Environment Management Manual.ca/content/dam/gnb/Departments/trans/pdf/en/RoadsHighways/EnvironmentalManagementManual.pdf.

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		<p>The NBDTI Environmental Management Manual (2010) recommends 190 m³ of retention capacity per hectare (ha) of disturbed area. The retention ponds, as identified on the updated site layout plan, provide for a retention ratio of 250 m³/ha.</p> <p>The construction of the retention ponds will be sequenced to maintain a retention ratio of 250 m³/ha of exposed area as site development progresses. As the extraction of gypsum progresses there will be additional retention capacity in the quarry that, if necessary, can contribute to a 250 m³/ha retention ratio by means of reducing the pumping rate to the retention ponds from the quarry during extreme weather events.</p>
27	<p>Original Round 1 Question/Comment In Section 2.3.4 Topsoil and Overburden Storage Area (p. 19), based on information available to date, what are the expected dimensions of the topsoil and overburden storage areas and how high are the piles expected to be?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019) Those details will be developed as part of detailed design of the Project, prior to the Application for Approval to Operate.</p> <p>Response from TRC (Round 2, Jan 25, 2019) The response indicates that the requested details will be provided in the application for the Approval to Operate; however, it is felt that it's important to review this information during the EIA review</p>	<p>Refer to the responses to Questions 3 and 26, above. Additional information can be found in the cross-sections.</p>

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	<p>process. Can you please provide clarification regarding the expected dimensions of the topsoil and overburden storage areas and how high the piles are expected to be?</p>	
29	<p>Original Round 1 Question/Comment Can you please provide specific information regarding the hours of operation?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019) Though the EIA Registration commits to conducting excavation and other operations to daylight hours only Monday to Friday (excluding statutory holidays), the proposed operation schedule is from 7:00 am to 7:00 pm on Monday to Friday (excluding statutory holidays). Further, upon consultation with industry experts, blasting activities will be limited to 9:00 am to 4:00 pm on Monday to Friday (excluding statutory holidays).</p> <p>With respect to truck loading and transportation to markets, it is possible that loading of gypsum onto trucks, and transportation to markets, could occur at any time during the day, 24 hours per day, 7 days per week. Trucking equipment and staffing will be planned for the same operation as the quarry (7:00 am-7:00 pm, Monday to Friday). There are times in the year, however, where some extra trucking may be required to meet the wallboard plant's demands (such as prior to spring weight restrictions or prolonged periods of poor weather). It is expected that this will only occur rarely throughout the year. In initial conversations with the public, it is likely that this extra loading would occur from 7:00 am-7:00 pm on a</p>	<p>Acknowledged. Thank you.</p>

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	<p>Saturday and nighttime will be avoided. Nearby residents will continue to be consulted and informed as required.</p> <p>Response from TRC (Round 2, Jan 25, 2019)</p> <p>Please note that the response states that blasting will be restricted to 9am to 4pm Monday to Friday excluding holidays; however, the condition that will be in the Approval to Operate will restrict blasting to be done between 10am and 5pm Monday to Friday excluding holidays.</p>	
77	<p>Original Round 1 Question/Comment</p> <p>Can you please provide the expected footprint of the loss for the watercourse in relation to their existing dimensions?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019)</p> <p>Based on the existing dimensions (average bankfull widths and lengths of the watercourses), the expected footprint of the fish habitat loss within WC1 is approximately 1,000 m². An authorization under Section 35(2) of the Fisheries Act with appropriate offsetting, as well as a WAWA permit, will be obtained for the loss of fish habitat in WC1.</p> <p>WC2 is not fish habitat as there is no defined channel. Regardless, the intention is to maintain the current vegetation buffer surrounding WC2 and thus keeping it unaltered. Authorization under the Fisheries Act or WAWA permitting for WC2 are therefore not required, nor is offsetting.</p> <p>For WC3, although some bank stabilization and erosion protection measures may be put in place for WC3 to prevent erosion of the</p>	Thank you.

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	<p>banks or stream bed arising from the release of water from the settling pond, loss of fish habitat is not expected to WC3 (contrary to what is stated in the EIA Registration) as existing forested buffers surrounding it will be maintained, and as such an authorization under the Fisheries Act or WAWA permit is not expected to be required for WC3. An erratum will be issued to correct this error in the EIA Registration document.</p> <p>Finally, though it is stated in the EIA Registration document that WC4 will not be affected by the Project, this is no longer believed to be correct. The flow direction arrow for WC4 in Figures 5.4.1 and 5.5.1 of the EIA Registration is incorrect, and in fact, water flows onto the Project site <u>from</u> the adjacent property to the east (rather than from the Project site towards that neighbouring property). Where appropriate (i.e., where the elevation of the Project site is lower than that of neighbouring properties), channels will be constructed along the perimeter of the Project site to prevent water from neighbouring properties from entering the Project site, and if this is determined to be required at WC4 (to be confirmed during site design), flow to WC4 will be permanently diverted into the perimeter channel and then to WC3 such that the portion of WC4 located on the Project site will be permanently lost (approximately 136 m²), which will require authorization and offsetting under the Fisheries Act as well as a WAWA permit. Revised Figures 5.4.1 and 5.5.1 are attached, and will be further corrected in the erratum.</p>	

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	<p>An authorization under Section 35(2) of the Fisheries Act with appropriate offsetting, as well as a WAWA permit, will be obtained for alterations to WC1 and WC4.</p> <p>Response from TRC (Round 2, Jan 25, 2019) Based on the responses provided it is understood that the expected footprints of the fish habitat loss within WC1 and WC4 are approximately 1,000 m² and 136 m² respectively. The responses also state that an authorization under Section 35(2) of the Fisheries Act with appropriate offsetting, as well as a WAWA permit, will be obtained for alterations to WC1 and WC4, as required. A formal correspondence from the Department of Fisheries and Oceans will be provided shortly to confirm this regulatory requirement and to inform you on the next steps in this process.</p>	
78	<p>Original Round 1 Question/Comment Can you please provide details on how the watercourses will be impacted by the construction of the open-pit quarry? Will the watercourses be removed/diverted outside of the PDA or altered in terms of excavation or infilling?</p> <p>Original Response by Hammond River Holdings (Jan 4, 2019) Please refer to the response to Question #77 above. As described in the EIA Registration, impacts to WC1 and WC4 are expected to occur, while the other watercourses can be avoided.</p> <p>Only two watercourses (WC1 and WC3) that are considered fish habitat on the Project site have water present year-round. Though identified as a watercourse based on the GeoNB mapping, WC2 was determined to not be fish habitat during the August 2018 field</p>	Thank you.

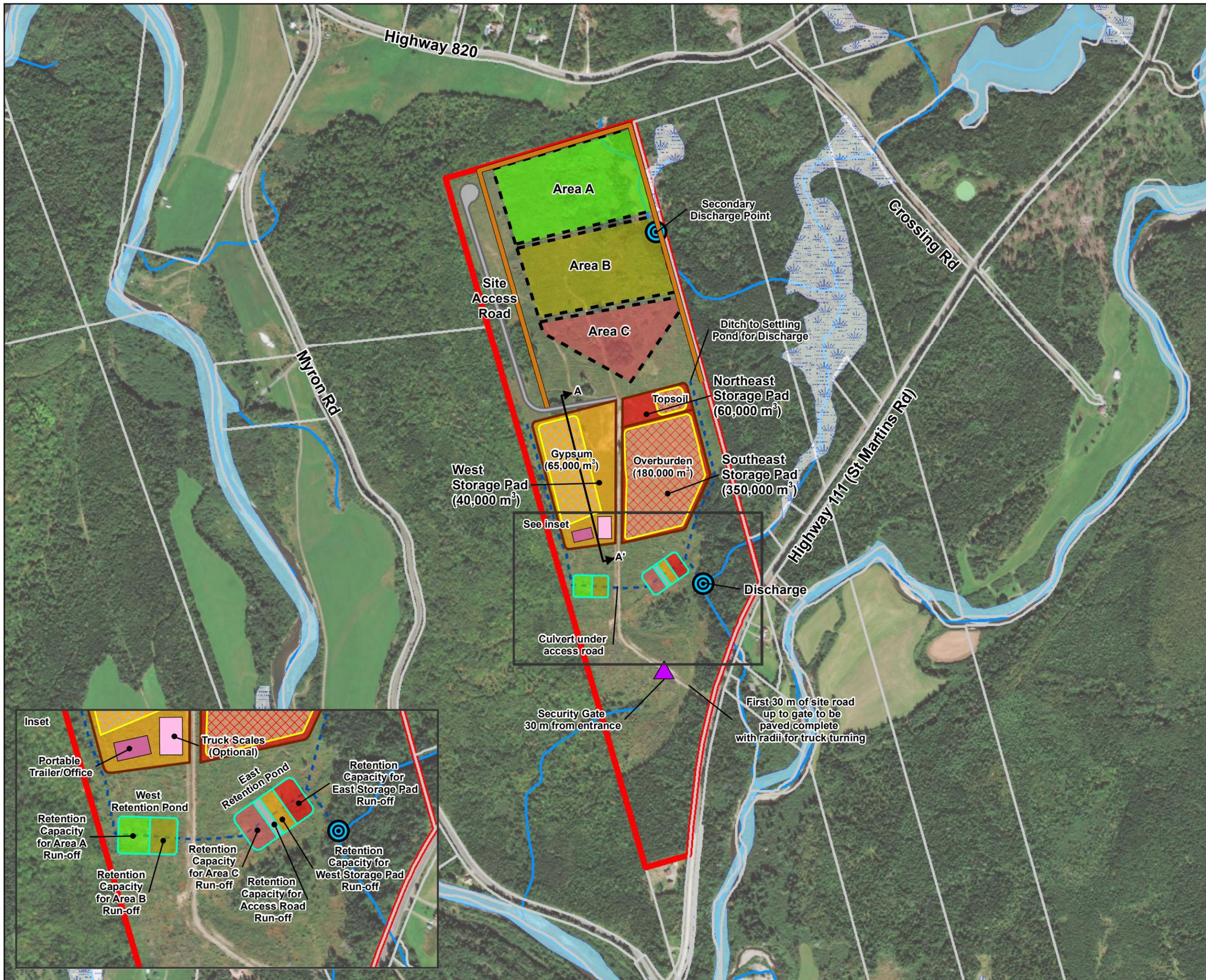
Comment/ Question No.	Question/Comment from Technical Review Committee (TRC)	Hammond River Holdings' Response
	<p>survey as there was no defined channel or water present. WC4 was identified during the field survey as a field-identified ephemeral watercourse, but had no water present during surveys conducted in August 2018. Further information is presented in Section 5.4.2.3 of the EIA Registration.</p> <p>An authorization under Section 35(2) of the Fisheries Act with appropriate offsetting, as well as a WAWA permit, will be obtained for alterations to WC1 and WC4, as required. These approval processes inherently consider the specific details of the alterations to ensure measures are taken to minimize impacts.</p> <p>Response from TRC (Round 2, Jan 25, 2019)</p> <p>Based on the responses provided it is understood that the expected footprints of the fish habitat loss within WC1 and WC4 are approximately 1,000 m² and 136 m² respectively. The responses also state that an authorization under Section 35(2) of the Fisheries Act with appropriate offsetting, as well as a WAWA permit, will be obtained for alterations to WC1 and WC4, as required. A formal correspondence from the Department of Fisheries and Oceans will be provided shortly to confirm this regulatory requirement and to inform you on the next steps in this process.</p>	
89	<p>Original Round 1 Question/Comment</p> <p>As per section 5.4.3.2, it states "Release of surface water from the Project site will target a total suspended sediment (TSS) concentration of less than 25 mg/L above background levels of the receiving watercourse and a pH of between 6.5 and 9.0, as a monthly average of grab samples". Why are TSS and pH the only two parameters of concern?</p>	Acknowledged. Thank you.

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	<p>Original Response by Hammond River Holdings (Jan 4, 2019)</p> <p>The establishment of appropriate monitoring parameters, monitoring frequency, and discharge limits for the Project is at the entire discretion of the NBDELG as part of the Approval to Operate for the Project. In its professional judgment, Dillon has recommended testing for and limiting TSS and pH primarily because of:</p> <ul style="list-style-type: none"> a) the nature of the Project, which is a simple quarry with no process unit operations, no chemical use, no transformation on-site, and thus no contaminating sources of other chemicals that could affect water quality; and b) the nature of the gypsum resource itself, which is an inert, chemically stable, pH neutral, non-reactive material that does not cause acid or alkali generation and thus does not result in metal leaching. <p>In addition, Hammond River Holdings has further committed in responses above to monitor for temperature in the receiving environment and turbidity of the treated effluent.</p> <p>Given the nature of the Project, the simplicity of the operations on-site, and the inert nature of the gypsum resource, the only likely potential effect on surface water quality would be from suspended sediments in water. Hammond River Holdings understands that CCME Protocols Manual for Water Quality Sampling guidelines include in-situ measurement of conductivity, temperature, flow, and dissolved oxygen, but that requirements are determined on a case by case basis. Therefore, we expect that actual requirements will be</p>	

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	<p>defined by NBDELG in the Approval to Operate with consideration made to the above.</p> <p>Response from TRC (Round 2, Jan 25, 2019)</p> <p>It is agreed the appropriate monitoring parameters, monitoring frequency, and discharge limits for the Project will be determined as part of the Approval to Operate for the Project. Please note that gypsum solubility may contribute to increased concentrations of some related parameters to waters within the project area.</p>	
Topic: New TRC Comments / Questions (Round 2)		
90	<p>Please note that the Government of NB has the most recent AR5 projected climate information on different time horizons. For example, projections are available for the 2010-2030 horizon that provides projected precipitation volumes. As this project is expected finish in 10-year's time, it is recommended to use this projected precipitation data (2020 projections at RCP of 8.5) to inform water management decisions involved in infrastructure design and when deciding what the capacity is of a 1:100-year extreme precipitation event. This will help inform size of drainage channels, size of sump pumps, pit dewatering and runoff management decisions, frequency and volume of open pit pumping (prior to and post precipitation event), and size/volume of settling pond. The data and maps can be downloaded from this website: http://acasav2.azurewebsites.net/. Can you please describe how projected climate information will be incorporated into the project design?</p>	<p>Projected climate rainfall statistics have been and will continue to be used to support design of drainage infrastructure. The provincial data set has been reviewed and will be used to support design with respect to seasonal and annual climatic trends.</p> <p>The provincial projections do not appear to include short-duration, high-intensity rainfall statistics (e.g., estimates of potential future 100-year rainfall event). Design for high intensity rainfall will use the RCP 8.5 projections generated using the IDFCC tool developed by the University of Western Ontario and the Canadian Water Network (https://www.idf-cc-uwo.ca).</p> <p>Preliminary evaluation of future rainfall according to the RCP 8.5 projections indicate a 24 hour 100 year rainfall depth of 240 mm. This represents an approximately 30% increase from the current historical 100 year rainfall event (180 mm). For this reason, the NBDTI retention capacity of 190 m³/ha recommended in its Environmental Management Manual was adjusted to 250 m³/ha to</p>

Comment/ Question No.	Question/Comment from Technical Review Committee (TRC)	Hammond River Holdings' Response
		<p>incorporate projected future climate changes into the project planning.</p> <p>This initial assessment does not account for additional attenuation in the quarry, which could reduce the drainage area contributing to the retention pond(s) by as much as 60%.</p>
91	<p>It has been noted that the regulated wetland layer that was used in the EIA document does not match the mapping of regulated wetlands shown on GeoNB. The correct layer for depicting regulated wetlands in New Brunswick is the wetland layer depicted on GeoNB. Based on this clarification, can you please provide the area of regulated wetland that will be permanently lost as a result of the project? Can you please provide the area of the regulated wetland that will be affected or result in the loss of wetland function? Can impacts to regulated wetlands be further minimized? Please note that a valid WAWA permit must be obtained prior to conducting any alteration in or within 30 metres of a regulated wetland and all loss of regulated wetland required wetland compensation at a ratio of 2:1.</p>	<p>We apologize for this inconsistency. It has been identified that there is a discrepancy between the online GeoNB mapping (as viewed on the online tool) and the downloadable shapefile available from GeoNB (as presented on Figure 5.5.1 of the EIA registration). As a result, the portion of WL3 that appears on the Project site was characterized in the EIA registration as being a non-regulated (unmapped) wetland that did not require a WAWA permit or wetland compensation for net loss of wetland function. It is clear that since this wetland is in fact regulated (mapped), the loss of the portion of WL3 that appears on the project site will require a WAWA permit and associated compensation for the direct loss of 1.8 ha of wetland (at a ratio of 2:1).</p> <p>It is unclear if, or to what extent, the portion of WL3 that is outside the Project site (i.e., on the neighbouring property to the northeast of the site) will experience a net loss of wetland function, and as such, any indirect effects to this portion of the wetland outside the Project site that are observed from follow-up and monitoring efforts will be subjected to adaptive management as necessary for any net loss of wetland function occurring to it. As discussed, this offsite portion of the regulated wetland has not yet been delineated and functionally assessed. Hammond River Holdings has committed to</p>

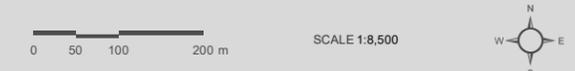
Comment/ Question No.	Question/Comment from Technical Review Committee (TRC)	Hammond River Holdings' Response
		<p>completing this assessment in the spring of 2019, pending landowner permission (refer to the response to Question 24, above).</p> <p>Although this error was carried forward in the effects assessment for the Project, the plan for mitigation and plan of action for the Project remains as stated in Sections 5.5.3.2 and 5.5.3.3 of the EIA Registration. Hammond River Holdings will undertake the steps for authorization (i.e., WAWA permit and associated wetland compensation) for net loss of wetland function of regulated wetlands prior to undertaking construction activities.</p>



HAMMOND RIVER HOLDINGS LIMITED
 PROPOSED UPHAM EAST GYPSUM QUARRY

CONCEPTUAL SITE LAYOUT PLAN
 FIGURE 2.3.1

- PROPERTY BOUNDARY
- PROJECT DEVELOPMENT AREA
- WATERBODY
- WATERCOURSE
- REGULATED WETLAND
- PROPOSED SITE FEATURES**
- DITCH
- TRUCK SCALE (OPTIONAL)
- SITE AREAS
- DISCHARGE POINT
- ▲ SECURITY GATE
- PORTABLE TRAILER/OFFICE
- ACCESS ROAD
- STOCKPILE
- STORAGE PAD
- RETENTION POND
- CROSS SECTION
- QUARRY BERM CONSTRUCTED FROM TOPSOIL AND OVERBURDEN (OFFSET MINIMUM 7m FROM PROPERTY BOUNDARY)
- HATCHING INDICATES MATERIAL STOCKPILE AREA ON TOP OF STORAGE PAD



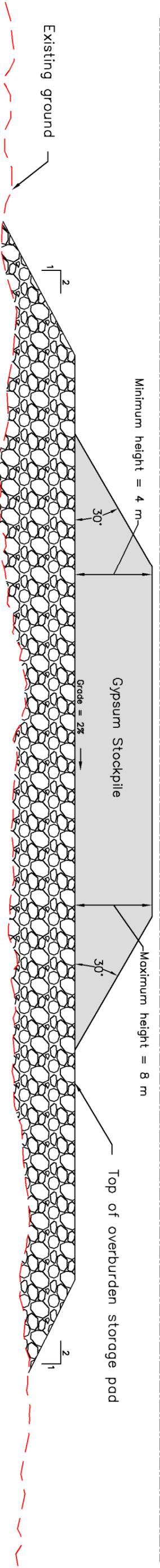
MAP DRAWING INFORMATION:
 DATA PROVIDED BY DILLON CONSULTING LIMITED, CANVEC SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEBCO, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISS TOPO, OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
 MAP CREATED BY: BQS
 MAP REVISED BY: JAB
 MAP CHECKED BY: DM
 MAP PROJECTION: NAD_1983_CSRS_New_Brunswick_Stereographic

FILE LOCATION: \\DILLON.CAD\DILLON_DFS\FREDERICTON\FREDERICTON CAD\CAD\GIS\188346 UPHAM GYPSUM QUARRY\MXD



PROJECT: 18-8346
 STATUS: DRAFT
 DATE: JAN 2019

Current Topographical High Point of Site = 105 m



View A-A'
Typical Cross Section Through Overburden Storage Pad and Gypsum Stockpile

Conditions of Use
Verify elevations and/or dimensions on drawings prior to use.
Report any discrepancies to Dillon Consulting Limited.
Do not scale dimensions from drawings.
Do not modify drawings, reuse, or use for purposes other than those intended without the written permission from Dillon Consulting Limited.



No.	Revis	Description	Date	By	Check	Scale
1		FOR INFORMATION	2019/02/21	MAG	GA	NTS
2			2019/02/21	MAG		

HAMMOND RIVER HOLDINGS LIMITED

PROPOSED UPHAM EAST GYPSUM QUARRY
TYPICAL CROSS SECTION

PROJECT NO.
17-5121

SHEET NO.
C001

