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October 15, 2021

Impact Assessment Agency of Canada
Prairie and Northern Region/Région des Prairies et du Nord
Canada Place
Suite 1145, 9700 Jasper Avenue
Edmonton, Alberta T5J 4C3

RE: CanWhite Sands Corp response to IAAC letter received September 21, 2021

CanWhite Sands Corporation (CWS) respectfully submits the following response to the letter received from IAAC on September 21st, 2021. This response is broken down into three sections:

1. A general update and overview of the status of the Extraction project.
2. Responses to letters accompanying the IAAC request for designation.
3. A response to IAAC provided questions received September 21, 2021.

CWS has reviewed the submissions received by IAAC from What the Frack Manitoba (WTFM), by Mr. LeNeveu and Mr. LeNeveu's letter titled "Questions for CanWhite Virtual open House for the Vivian Sand Extraction Project and Hydrogeological Report".

CWS rejects many of the statements by WTFM as many claims and comments are written from opinion and not supported by facts or scientific data.

WTFM has a history of publishing self-generated materials on social media and attempting to validate the claims by sharing and resharing the same submission to multiple sites. Reposting and sharing does not increase the credibility of their materials.

WTFM has distributed incorrect materials including digitally altered pictures for affect, altered news articles without author and publisher permission, exaggerated false and misleading facts and statements which cannot be validated. WTFM rely upon the works of Mr. LeNeveu, their resident scientist whom is not a hydrogeologist, nor environmental scientist and lacks professional standing in the areas he comments and reports on.

CWS believes that many of the items stated in the WTFM letter is purposefully exaggerated for effect and we will under this section outline these errors and correct them for the benefit of IAAC review.

CWS rejects many of the statements made by Mr. LeNeveu as scientifically incorrect, untrue, manipulation of data, lack of understanding of our project, and specific intent to mislead readers of his reports. Mr. LeNeveu's works fail for reasons including but not limited to items as outlined below:

- Mr. LeNeveu does not carry any current accreditation or professional membership whereby his actions would be held to a standard of care which would preclude publishing false and egregiously misleading information, being held to professional standards of care and oversite, or disciplinary actions for his inappropriate conduct. In particular, Mr. LeNeveu comes forth in the absence of 'clean hands'.
- Mr. LeNeveu is not a hydrogeologist or environmental scientist.
- Mr. LeNeveu has relied upon, and dissemination digitally altered photographs in his works.
- Mr. LeNeveu has incorrectly published materials using governmental logos upon his work without consent and has been asked to have such works retracted and corrected.
- Mr. LeNeveu has falsely disseminated pictures in reports as material provided by CanWhite.
- Mr. LeNeveu continues to struggle with proper timelines and events, most recently declaring work done with photographic evidence when actual field activity did not take place at that time.
- Mr. LeNeveu is commenting on scientific processes as finite when he clearly lacks access to or knowledge of current science and processes identified within our project which are supplied by internationally recognized, accredited, and registered corporations and employees certified in the fields we retain expertise in.
- Mr. LeNeveu continues to struggle with identification of geological event horizons and differentiating properties.
- Mr. LeNeveu attempts to mislead readers by incorporation of web inspired content which is not affiliated with our project.
- We also believe that many of the items stated in the letter are purposefully exaggerated for effect and we will under this section outline these errors and correct them for the benefit of IAAC review.

<u>Section 1:</u>
General Update and Overview of the Status of the Extraction Project

Since the previous letter response on September 11, 2020, CanWhite has filed its Environment Act Proposal (EAP) application for the Extraction project to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB). This EAP includes the mining (harvesting) and extraction of the sand and an extensive Hydrogeological and Geochemistry Assessment. It is completely separate from the previously filed Facility Project EAP which was the subject of the letter in 2020. Both applications are separate and independent of each other.

The Extraction Project public review period concluded on October 7th, 2021, however it is CanWhite's' understanding that this deadline may have been extended to October 12th, 2021 following a misprint of the deadline in a few public announcements for the review process. Therefore, at this time, CanWhite has not received any feedback or comments from the public review period or the Technical Advisory Committee. As a result, no changes have been made to the Extraction Project proposal. Should changes be warranted upon review of received feedback, CanWhite will provide this documentation.

The Extraction Project is being reviewed by MBCC under The Environment Act as a "mine" which is a Class 2 development in section 3 of the Classes of Development Regulation under group 5 "*Mining*". The Environment Act Licence application for this Project, and scope of this current Environment Act Proposal document, is for extraction years up to and including 2025. Notices of Alteration will be submitted to the Environmental Assessment Branch for each subsequent four-year block of future proposed extraction activities for the 24-year life of the Project. The application information and review process for Notices of Alteration of an Environment Act Licence for the Project will be as required under Section 14 of *The Environment Act*.

Processing of the extracted sand resource at a proposed Processing Facility is currently being reviewed as a separate Environment Act Licence application under *The Environment Act* as a Class 2 development (a 'manufacturing and industrial plant') under the Classes of Development Regulation.

CanWhite has submitted an Environment Act Licence application for the Processing Facility separately and in advance of this extraction Project because:

- The Processing Facility consists of a permanent building and related infrastructure similar to other manufacturing operations located in urban or semi-urban settings;
- By contrast, CanWhite anticipates that special license conditions will have to be contemplated for extraction which will involve changing of extraction sites on a relatively frequent basis, which is not typical for Environment Act Licences and which will not be relevant to the Processing Facility;
- In the future, the Processing Facility could be operated on a commercial basis to process and transfer sand that is not mined by the same owner provided that the sand is of the same nature and quality as the resource to which CanWhite has rights; and
- Construction of the Processing Facility will take time to achieve, whereas extraction involves portable drills and other portable components which will move frequently and for which no permanent structures are required to be constructed.

Additionally, sand extraction activities are proposed to occur within mining claims issued to CanWhite under provisions of *The Mines and Minerals Act* and under borehole licences issued under Part 3 of the Drilling Regulation. The current mining claims that are included within the Project Site in the EAP where Project activities will occur are being converted to mineral leases for production extraction of sand.

A Closure Plan will be developed and submitted to MBCC for this Project in accordance with the Manitoba Mine Closure Regulation 67/99 General Closure Plan Guidelines.

Other approvals that are underway or will be processed following the issuance of the Environment Act Licence are:

- Work permits, as required, in accordance with *The Crown Lands Act* and applicable regulations;
- Water rights license(s) for the extraction of groundwater;
- Injection permit(s) for return of water to the sandstone aquifer; and
- Burning permits to dispose of woody debris will be sought, as required, in accordance with Section 19(1) of *The Wildfires Act*.

CanWhite is in discussions with the RM of Springfield, other local stakeholders and Manitoba Infrastructure to coordinate the development of Project temporary extraction equipment access trail intersections to existing municipality roads and PR 302, and to develop sand and groundwater slurry line and water return line crossings over and/or under existing municipality roads and PR 302.

Section 2:

The following are responses outlining incorrect information within the submitted letters included in the Request for Designation under IAAC relating to the Vivian Sand Extraction Project. The Response Items discuss each item as outlined in What the Frac Manitoba's letter and Mr. LeNeveu's letter titled "Questions for CanWhite Virtual open House for the Vivian Sand Extraction Project and Hydrogeological Report" and refer to the contents and figures within the associated documents.

Response Item #1
Title: Request to Designate the Vivian Sand Extraction Project Based on Missing and Misleading Information in the Vivian Sand Extraction EAP and the Hydrogeology and Geochemistry Assessment Report prepared by AECOM Canada Ltd. (IAAC Document 141442E)
Author: D.M. LeNeveu (WTFM)
Date: September 8, 2021

Introduction Comments

This request is based on WTFM's opinion and references the EAP and Hydrogeological study as prepared by AECOM, and the author is not specific as to what is missing or misleading, nor have any individuals within this organization been identified as qualified or certified to form these opinions.

CanWhite's submissions are based on data collected and scientific analysis and modeling, while it appears the contents of this letter is based on publicly available research using examples that are not related.

WTFM references the letter received from IAAC to CanWhite on November 16, 2020. At this time CanWhite has followed and provided all requests from the IAAC and MB provincial government as were outlined in that letter and other subsequent letters from the Province. As an example, the MBCC requested that CanWhite to host an additional Public Open house, which was hosted December 15th, 2020.

In reference to the questions provided to CanWhite prior to the open house, CanWhite did receive the document referenced. CanWhite responded to questions only and not the various opinions and leading comments in the document. CanWhite received many questions and in fairness to participants not all questions were able to be answered during the open house. CanWhite grouped questions on similar subjects and questions were taken from many individuals to ensure at least some of each participants questions were answered. CanWhite also took live questions, one of which was from Mr. LeNeveu.

WTFM is familiar with the Public Review process for an EAP, and if WTFM filed their extraction related questions during the allocated public review period, they will be responded to in writing and posted on the Public Registry once this information is received by CanWhite.

CanWhite will not be responding to WTFM's comments on what the IAAC should do or not do, because CanWhite believes that the IAAC operates independently in review of all requests for designation.

On the topic of the railway yard referenced, the IAAC through two separate responses has verified the calculation methodology for the railway yard, and CanWhite's area is well under the requirements for a railway yard to trigger a mandatory review as defined by IAAC. It is likely that WTFM have seen these emails from IAAC through their freedom of information act requests and chosen not to disclose these responses.

The ability to research online other papers unrelated to this specific project to discredit the 1000's of professional hours put into the study of the exact effects and area of this project, does not validate the author's opinions.

1. **Re-injection into the aquifers of excess water from sand extraction**
   Response: CanWhite disagrees with the understanding of WTFM's understanding of the UV sterilization process. UV sterilization is used in many applications, including in the Oakband-Dugald water treatment facility and the City of Winnipeg. CanWhite disagrees with the minerology being compared to the Wanipigow sands which are known to have different minerology in a different geological member, which has been clarified and stated many times by CanWhite. We rely upon the AECOM and Stantec, internationally recognized professional companies, and industry accepted methods for samplings of drill cuttings, water samples and core samples. The author of this opinion does not possess any qualifications of this nature nor bound by any governance, professional oversight or professional practice standards.

   It was requested by the public, province, and municipality to conduct a hydrogeological and geochemistry study on the impacts of the project by leading experts. CanWhite has since brought in the leading experts with extensive experience and two additional third-party peer reviewers to conduct and review the Hydrogeological and Geochemistry Study. Now WTFM is questioning and debating the technical merits and work of those highly qualified professionals whom act and work under internationally recognized companies and uphold professional standards of those companies. These standards and regulations are upheld under the governance of Engineers Canada and Geoscientists Canada, which are provincially regulated under these provincial bodies; Engineers and Geoscientist Manitoba (EGM), Association of Professional Engineers and Geoscientists of Alberta (APEGA), Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS), and Engineers and Geoscientists British Columbia (EGBC).

   Figure 1 in this section of the letter states that the extraction took place in Spring 2020. Of which, due to the COVID-19 pandemic, there was no extraction that occurred. The writer has therefore provided untrue facts. This image has also been used in previous documents.

2. **Slurry Line Leakage**
   Response:
   CanWhite adamantly disagrees with the comparison of the slurry line to a coal project containing selenium. The slurry line contains a non-toxic biodegradable flocculant as was described in the Facility project EAP, of which the majority is removed at the facility. Mitigation plans were included in the EAP and will be followed to the provincial defined guidelines and recommendations.

3. **Sinkholes and Subsidence**

Response:

The author of this section appears to confuse the data as it relates to extraction testing vs monitoring wells. The author questions the integrity of Stantec geotechnical engineers while maintain no related professional accreditation himself. He discussed previously drilled wells where sand collapse occurred. These instances were prior to extraction, or in wells where no extraction occurred. The author demonstrates a lack of understand of sand influx into a wellbore vs extraction of sand. It is commonly understood in the water well industry, that the sand will inflow into the wellbore, this is one of the basic components that allows CanWhite to remove sand due to the natural pressure differential.

In reference to the author's comments on the pillars slumping into the cavities. CanWhite, in its intellectual property, has actual sonar images of extracted caverns over time to demonstrate the vertical walls of the caverns.

CanWhite's geotechnical model has a zero-tolerance policy for subsidence and has been developed based on core data, lab testing, knowledge of the area, drill logs (lithology, structure and other properties), photography, sonar imaging, ATV/OTV imaging, SPT and subsidence monitoring before during and after extraction. Completed by Ph. D and professional geotechnical engineers.

The author then provides two images in Figure 2, of a CanWhite altered image with an author developed separate image made to look like it is from CanWhite, designed to mislead the reader.

4. **Waste Disposal**

Response:

The author demonstrates confusion on timing with Figure 3 included where again the date is stating the sand pile was extracted in Spring 2020, when no activities were taking place. More importantly, the sand pile is covered in organics including small branches and twigs as is seen in the picture. Any reference to the mineralogy of the sand is not credible as the location of the sand pile cannot be verified, nor the timing, or the potential of tampering with its contents. It does not represent what the sand looks like when it's extracted.

5. **Unrealistic Groundwater Model Simulations**

Response:

The author has no expertise or credibility to comment on the realism of the groundwater simulations by AECOM. The comments here are an opinion. The author has repeatedly published incorrect water calculations and used these to form an opinion of what he believes AECOM's data should be.

The reference to aerated water and air present is dealt with in the hydrogeological study, is not damaging and is determined to be helpful to the water quality.

6. **Winnipeg Aqueduct**

Response:

CanWhite is aware of the Winnipeg aqueduct and is not producing sand from under the aqueduct, nor will the project ever plan to. There is an engineered offset for the aqueduct as with all other structures.

Additionally, CanWhite is aware that a crossing may be required of the slurry line in the future, however this is out of scope of the current Extraction EAP.

7. **Section 35 Consultations**

Response:

The Project Site is located within Treaty No. 1 area (Indigenous and Northern Affairs Canada, 2017). There are no First Nation reserve lands within the Local or Regional Project Area. The closest First Nation reserve lands to the Project Site is the Brokenhead Ojibway Nation's Na-Sha-Ke-Penais Indian Reserve (3 ha) surrounded by East St. Paul and located approximately 38 km northwest of the Project Site.

The Regional Project Area is within an area recognized by the Manitoba Metis Federation as an area for Metis Natural Resource Harvesting (The Metis Economic Development Organization, 2018) which corresponds with the Manitoba Conservation and Climate Game Hunting Areas (GHAs) numbers 34A, 35 and 35A within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of private land covered under private surface rights and/or land used for municipal and public purposes and is currently designated as 'Aggregate', 'Agriculture Preserve Area' and 'Mixed Rural and Agriculture Area' in the RM of Springfield Development Plan. Therefore, use of the Project Site for the exercise of Indigenous or Treaty rights would be restricted or limited.

The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because:

- The Project Site consists of private land covered under private surface rights that do not have public access unless by permission;
- No fish or fish habitat will be affected by the Project (**Section 6.4.2** of the Extraction Project EAP);
- The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (**Section 6.5.1** of the Extraction Project EAP); and
- The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (**Section 6.5.2** of the Extraction Project EAP).

At the time of this letter, CanWhite has met with several Indigenous groups to discuss the project and will take into account their concerns. These meetings are private and details of these meetings are not for public unless released by groups involved directly.

8. **Greenhouse Gas Emissions**

Response: New users along the new gas line are out of the scope of this project. CanWhite only included data for CanWhite's operations.

The ability for local users to have access to natural gas is far more efficient then electrical of or biofuels such as wood that are currently being used. Natural gas is far more environmentally friendly then wood burning.

9. **Conclusion and Recommendations**
   Response: CanWhite believes that the letter received from Mr. LeNeveu and WTFM are tainted, misleading and directly contradicts accredited scientific data and facts that have been included in the reports. CanWhite does not believe an opinion letter should be the basis for a designation.

Response Item #2
Title: Questions for CanWhite Virtual Open House for the Vivian Sand Extraction Project and Hydrogeological Report (IAAC Document 141442E)
Author: D.M. LeNeveu (WTFM)
Date: August 20, 2021

Introduction Comments
Please note, most of the items in this document are repeated from the previous document in Response Item #1. Only, new items not already covered in the previous response will be added here. Questions asked in this document were responded to during the Open house on August 24th, 2021, as was requested by the author. Opinions of the author were not responded to as these are not questions. Questions from the document are copied here for convenience in italics marked "question".

1. **Subsidence**
   Question: Will CWS move their operations westward into the ALY area where the limestone is thicker and the sandstone aquifer is saline to avoid subsidence?

   Response:
   Please refer to Response Item #1 for comments on subsidence.

   Figure 1 is invalid. There are more columns than actual references/labels in the x-axis. Bars appear to be overstated for effect. The classification used for Limestone minimum stability thickness is applied from an unrelated karst document of which the Carbonate aquifer is not and therefore not applicable. The Stantec applied limit is based on actual lab testing including Point Load Testing, Unconfined Compression Strength Tests (UCS), and Brazilian Split Tensile Tests.

   Figure 2 shows the dissolving of carbonate bedrock showing failure. The Red River formation was deposited in the Late Ordovician and there have been no indications of dissolution, if it was going to dissolve, it is expected to have done so.

   Figure 3 shows incorrect communication between different geological layers which is not fact and an opinion of the writer. None of the figures in this section were developed or provided by CWS.

2. **UV Light Sterilization**

Question: *How will CanWhite disinfect the water re-injected to the sandstone aquifer given that UV radiation cannot be effective?*

Response:

Please refer to Response Item #1 for comments on "Re-injection into the aquifers of excess water from sand extraction".

Additionally, CanWhite as with the engineering work for the facility and the design of the water treatment at the facility, intends to utilize professional experts in the field of UV light sterilization to design the system to fit with the flows and outputs of the extraction operations.

3. **Core log and Winnipeg Formation sand samples are compromised**

Question: *Will CWS have representative sampling redone and resubmitted by independent experts to ensure the samples are properly handled and sealed in air tight containers immediately upon extraction? Will CWS ensure the sand samples are not exposed to air during extraction and immediately sealed in air tight containers?*

Response:

Please refer to Response Item #1 for comments on "Re-injection into the aquifers of excess water from sand extraction".

As previously stated, CWS relies upon the AECOM and Stantec, internationally recognized professional companies, and industry accepted methods for samplings of drill cuttings, water samples and core samples. The author of this opinion does not possess any qualifications of this nature nor bound by any governance, professional oversight or professional practice standards.

4. **Carman sands**

Questions: *Does CWS acknowledge the northern part of the BRU project area is wholly within the Black Island member part of the Winnipeg formation known to contain pyritic shale, marcasite coating the sand, pyritic concretions such as oolite layers and not within the Carman sands area? Does CWS acknowledge that the Black Island member from which sand will be extracted in the northern portion of the Bru area contains pyrite that will be exposed to re-injected aerated water that will from acid and mobilize heavy metals and selenium thereby contaminating the aquifer?*

Response:

Please refer to Response Item #1 for comments on "Re-injection into the aquifers of excess water from sand extraction".

As previously stated, CanWhite disagrees with the minerology being compared to that of the Black Island member which is known to have different minerology. This has been clarified and stated many times by CanWhite.

5. **Geochemical Analysis**

Questions: *Will CWS engage an independent expert to gather core samples and sand samples from representative locations in the Bru area that will be protected against oxidation and have the samples re-analyzed? Will CWS have properly protected samples of lower shale, concretions and oolite nodules analyzed? If the re-testing demonstrates that the samples contain significant amounts of sulphide and heavy metals that will likely contaminate the aquifer when the cavities are filled with re-injected aerate water will CWS abandon their operations in the Vivian area?*

Response:

Please refer to Response Item #1 for comments on "Re-injection into the aquifers of excess water from sand extraction".

As previously stated, CWS relies upon the AECOM and Stantec, independent and internationally recognized professional companies, and industry accepted methods for samplings of drill cuttings, water samples and core samples. The author of this opinion does not possess any qualifications of this nature nor bound by any governance, professional oversight, or professional practice standards.

CWS intends to follow the guidelines and recommendations set forth in the Hydrogeological and Geochemistry Study.

6. **Numerical Groundwater Model**

Questions: *Will CWS determine the total withdrawal of water from the aquifer from all sources including water retained in the sand stockpiles piles and in all waste streams including waste from vibrating screens and drill cuttings at the extraction site? Will CWS determine the affect of these withdrawals on the sustainability of the sandstone aquifer?*

Questions*: Will CWS model the simultaneous re-injection and water plus sand removal to obtain meaningful groundwater flow results for the CWS extraction process? Will CWS model the migration of contaminants formed in the sandstone aquifer through the degraded shale aquitard and through the carbonate aquifer?*

Response:

Please refer to Response Item #1 for comments on "Unrealistic Groundwater Model Simulations".

The author has no expertise or credibility to comment on the realism of the groundwater simulations by AECOM. The comments here are an opinion, and the author does not have the knowledge, experience, or qualifications to comment on the suitability of the groundwater model. The author has repeatedly published incorrect water calculations and used these to form an opinion of what he believes AECOM's data should be.

7. **Mixing of aquifer waters**

Question: *Will CWS respect the regulations of the Groundwater and Water Well Act and terminate plans to extract sand in the Vivian area where mixing of aquifer waters cannot be avoided with the CWS extraction methods.*

Response:
The mixing of water between aquifers has been incorrectly implied by the author with the published diagram created by the author depicting sandstone aquifer water re-injected into the limestone aquifer.

CanWhite does not intend on any mixing of the aquifers. As described in the Hydrogeological and Geochemistry Assessment, it is known that in the area there are many existing wells that have existed well before CanWhite that do intermix the aquifers.

Of note, Mr. LeNeveu refers to a WTFM report from February 2021 which refers to a peer review by Dr. Ingraffea. Dr. Ingraffea has admitted under oath through US court proceedings to presenting expertise he does not posses. Dr. Ingraffea misrepresented expertise in favour of personal biases as admitted under oath. Therefore, based on this information, Dr. Ingraffea is bias and unable to provide an independent peer review as claimed by WTFM.

8. **Well Seals**

Question: *How will CWS prevent well seals from failing due to subsidence that has been demonstrated will assuredly occur?*

Response: This question is an opinion. To the extent a question may exist on this topic, to date there has been no evidence that well seals will fail as no subsidence has occurred. As previously stated, CanWhite has a zero-tolerance policy on subsidence, therefore all geotechnical models are completed with zero allowance for subsidence. CanWhite strictly adheres to the geotechnical guidelines provided by expert professional geotechnical and mining engineers and Ph.D. Guidelines were summarized in the Extraction EAP filing. Additionally, regular subsidence monitoring continues long term of cavern areas to confirm findings.

9. **Accidents and Malfunctions**

Questions: *Will CWS install leak detection on their lines with automated pump shut down? Will CWS use interior wear inspection tools at regular intervals to determine the extent of slurry line wear? Given that contaminants will continually build up in the slurry and recycle water lines, will CWS develop and supply a recycled water treatment and associated contaminant waste generation plan?*

Response:
CanWhite will be monitoring the slurry line and has previously stated that leak detection will be used in slurry lines, in addition to visual inspection and non-destructive testing. The slurry line is made of (high density polyethylene) HDPE and very commonly used in similar industrial applications with higher volumes. HDPE systems are also used locally in Manitoba to move animal manure used as fertilizer on crop fields.

Due to the material used, slurry lines are not prone to leakage. In addition, as stated in the Extraction EAP, there are periodic valves placed throughout the slurry line to allow for isolation in the unlikely event of a leak. It is important to note that the contents of the slurry line are water and sand. The water will have been treated at the facility site with a non-toxic

biodegradable flocculant as stated in the Facility EAP and only trace amounts would remain in the slurry line.

10. **The Winnipeg Aqueduct**

***Questions**: Has CWS informed the City of Winnipeg of the requirement of the slurry lines to cross the Winnipeg Aqueduct and described safeguards that will mitigate the potential for contamination of the aqueduct water? Has CWS obtained a legal agreement with the City of Winnipeg and the Government of Canada to cross the aqueduct considering that the aqueduct crosses provincial boundaries and is therefore federal in scope?*

Response:

Please refer to Response Item #1 for comments on "Winnipeg Aqueduct".

CanWhite is aware of the Winnipeg aqueduct and is not producing sand from under the aqueduct, nor will the project ever plan to. There is an engineered offset for the aqueduct as with all other structures, homes, roadways, and railways.

Additionally, CanWhite is aware that a crossing may be required of the slurry line in the future, however this is out of scope of the current Extraction EAP.

11. **Section 35 Indigenous Consultations**

***Question:** Will CWS immediately ensure that the Crown undertake comprehensive section 35 consultations with the affected First Nations and Métis?*

Response:

Please refer to Response Item #1 for comments on "Section 35 Consultations".

At the time of this letter, CanWhite has met with several Indigenous groups to discuss the project and will take into account their concerns. These meetings are private and details of these meetings are not for public unless released by groups involved directly.

12. **Noise**

***Question:** Will CWS record and report noise levels of such quarry operations and take adequate measures to avoid exposure to silica dust in such operations?*

Response:

CanWhite's operations are not a traditional open pit quarry operation. As part of CanWhite's daily operations noise will be monitored on active sites. As outlined in Section 6.3.3 of the Extraction Project EAP, the following measures will be implemented to reduce noise generated from the Project activities:

- Vegetation clearing will be minimized to the extent feasible.
- Project activities will setback a minimum of 100 m from nearest residences.
- Mobile equipment and vehicles will be kept well maintained and will be fitted with mufflers, and other noise mitigation equipment as required.
- Unnecessary idling and revving of engines will be avoided.
- Additional noise mitigation measures will be applied (e.g. portable noise barriers) as required.

In consideration of the above measures to minimize noise levels due to Project activities, it is anticipated that potential noise levels at the nearest residences will be adequately attenuated.

During extraction tests, sound levels have been measured and discussions have occurred with local residents in the area when noise may be encountered. As previously mentioned, when and where needed, portable noise barriers will be used. Such barriers are very common in many industries, otherwise known as sound blankets. They are extremely effective noise mitigation, portable and temporary.

As previously outlined in the Extraction EAP, there are no stockpiles or silica dust risks during the Extraction process. As can be seen in section 2.2 Silica Sand Extraction Process a slurry line will transport the sand wet. The sand comes out of the ground in water and remains wet and/or in water at all times throughout the process.

The stockpiles that currently exist have been covered and are monitored closely. The sand was deposited on these piles wet and as is outlined in the Facility Project EAP in the Air Quality Report on the topic of sand stockpiles, the results of air dispersion modeling predict no exceedances of air quality guidelines at the nearest residences for any of the parameters that were modeled (e.g. dust, including silica dust). These residences are similar distances of farther from the site referred to in this question.

Please not that this is a private property site and unauthorized individuals should not be on site as this is an active worksite.

13. CWS Vivian Railway Yard

Questions: *Will CWS explain the timeline for the CWS Vivian railway licensing process and the necessary technical and public review process?*

Will the CWS Vivian railway yard and loop and the CN spur line require a certificate of fitness and approval by the CTA? Will CWS follow the CTA guidelines for approval to construct a railway line including the following (Please refer to page 16 of the questions document for the list of items as taken from the guidelines)

Response:

CanWhite cannot comment on CN's operations on lands under CN rail. To the extent the rail loop is on CanWhite lands, the timeline is influence by provincial regulatory approvals and processes.

CanWhite is working directly with CN on rail design and subject to approval from CN.

14. Traffic

Questions:

Will CWS specify the size and number of trucks per day required to transport the screened out waste such as concretions and the drill cuttings from the extraction area to the licensed disposal site? Will CWS identify the licensed disposal site?

Response:
The location and removal of waste material will be further identified and outlined in the Waste Characterization and Management Plan. As stated in **Section 8.1** of the Extraction EAP, the objectives of the Waste Characterization and Management Plan will be to:

- Describe Project activities, with a focus on site preparation, silica sand extraction and the resultant waste streams.
- Summarize characteristics of each type of waste material that will be extracted based on the Hydrogeology and Geochemical Assessment report (Appendix A), literature and laboratory testing.
- Describe protocols for identifying, sampling, characterizing and managing waste materials to minimize the risk of ML/ARD and incremental impacts to the environment by following protocols consistent with industry standards.
- Define appropriate end uses for each type of waste material based on the volume of waste material generated, degree of characterization, geochemical classification (e.g., Potentially Acid Generating [PAG], Uncertain, Non-PAG, Metal Leaching [ML]), understanding of its geochemical behaviour and the intended end use.
- Describe measures that can be implemented to mitigate ML/ARD and incremental impacts to the environment.
- Describe protocols for monitoring surface water and groundwater quality to assess field performance against the design goals and objectives of the management plan.

15. Licensing
Question:
Will CWS in the interest of transparency and proper independent technical review of any future Project alterations apply for a license for the full period of 24 years and include all anticipated future alterations in the current EAP?

Response*:* As stated in **Section 2.1** of the Extraction project EAP, the first four years of sand extraction activities are expected to result in improvements and efficiencies to the proposed new sand extraction method. Therefore, the site layout and ancillary infrastructure for the subsequent four-year blocks of sand extraction areas (after the first four years of Project operation) up to the 24-year life of the Project will be submitted to MBCC as Notices of Alteration to an Environment Act Licence for the Project. Additionally, the exact locations are not yet finalized beyond the first four years as these locations are influenced by timeline, mining claim status, efficiencies of the sand extraction method and its transport to the facility, as well as existing cleared land and previously disturbed land.

16. Missing reports
Question:
Will CWS produce the above follow up plans as part of the EAP?

Response:
It is CanWhite's intention to file each of the follow up plans as listed in the EAP prior to Extraction operations. As stated in the EAP, each plan will be developed in accordance with any and all approvals required, Provincial regulations and will be provided to the MBCC for review. The follow-

up plans and monitoring programs that will be implemented include, but are not necessarily limited to, the following: Waste Characterization and Management Plan, Water Management Plan, Progressive Well Abandonment Plan, Groundwater Monitoring and Impact Mitigation Plan, Erosion and Sediment Control Plan, Emergency Response Plan, Revegetation Monitoring Program, Heritage Resources Protection Plan and Closure Plan.

Section 3

At this time there have been no changes made to the existing application since filing our Environment Act Proposal for the Extraction project. The proposal can be found here on the MBCC Public Registry. https://www.gov.mb.ca/sd/eal/registries/6119/index.html

In response to the questions provided by IAAC, with no changes at this time, CanWhite has provided some comments below for further information.

Questions provided by IAAC:

1. *Information about key project activities, maps and layouts of the location of project components, land tenure, zoning, and estimated timelines for planning, construction, operation, decommissioning and abandonment for the Vivian Sand Project.*

   Response: Please refer to **Section 1** of the EAP document for a full description, maps, land tenure as listed.

2. *A list of all regulatory approvals (federal, provincial, municipal, other) and any federal financial assistance that would be required for the Project and the associated components or activities.*

   Response:
   Please refer to **Section 1.7** for a detailed description in the EAP. A short list is provided below:
   - Environment Act Licence – Vivian Sand Extraction Project (Provincial);
   - Closure Plan Approval - Mines and Minerals (Provincial);
   - Borehole License (s) for extraction wells (Provincial);
   - Water rights license(s) for the extraction of groundwater (Provincial);
   - Injection permit(s) for return of water to the sandstone aquifer (Provincial); and
   - Burning permits to dispose of woody debris will be sought, as required, in accordance with Section 19(1) of *The Wildfires Act* (Provincial).

3. *a) For each regulatory approval that would be required, please provide the following information:*
   i. Name of the licence, permit, authorization or approval, the associated legislative framework, and the responsible jurisdiction.

   Response:
   - Environment Act Licence – Vivian Sand Extraction Project (Provincial, Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) Environment Act);

- Closure Plan Approval - (Provincial, Agriculture and Resource Development, Mines Branch, *Mines and Minerals Act*);
- Borehole License (s) for extraction wells (Provincial, Agriculture and Resource Development, Mines Branch*, Mines and Minerals Ac*t);
- Water rights license(s) for the extraction of groundwater (Provincial, Conservation and Climate, Drainage and water Rights Licensing branch, *The Water Rights Act*);
- Injection permit(s) for return of water to the sandstone aquifer (Provincial, Agriculture and Resource Development, Water Branch, *The Groundwater and Water Well Act*); and
- Burning permits to dispose of woody debris will be sought, as required, in accordance with Section 19(1) of *The Wildfires Act* (Provincial – Conservation and Climate – *Wildfires Act*).

ii. Whether it would involve an assessment of any of the effects outlined in the paragraphs above, and if so, a general description of the assessment that you intend to undertake. Would conditions be set and if yes, what effects would those conditions address?

Response:

- Environment Act Licence Vivian Sand Extraction Project (Provincial)
  - Approval by: Manitoba Conservation and Climate, Environmental Approvals Branch
  - Assessment as a "mine" which is a Class 2 development in section 3 of the Classes of Development Regulation under group 5 "*Mining"* made under *The Environment Act*.
  - Assessment by all impacted departments including but not limited to; Manitoba Health, Manitoba Infrastructure, Forestry, Wildlife and Fisheries Branch, Agriculture and Resource Development, Environmental Compliance and Enforcement, Lands Branch.
  - Assessment evaluates, description of proposed development, description of existing environment within the project area, discerption of environmental and human health effects of proposed development including hydrogeology and geochemistry, mitigation measures and residual environmental effects, and follow-up plans including monitoring and reporting.
  - Further details in **Appendix B –** Environment Act Proposal Report Guidelines.

- Water Rights License(s) (Provincial)
  - Approval by: Manitoba Conservation and Climate - Drainage and Water Rights Licensing Branch
  - Authorization under *The Water Rights Act* to withdraw and divert groundwater for extraction wells. All water will be captured or re-injected into the formation, no water will be discharged on surface.
  - Assessment includes volume to be pumped, rate of pumping, duration, location of wells, size and depth of well, impact on local users.

- Borehole License(s) for extraction wells (Provincial)
  - Approval by: Agriculture and Resource Development, Mines Branch.
  - Authorization under; *The Mines and Minerals* Act for drilling, construction and abandonment (sealing) of extraction wells.
  - Assessment includes, location of wells, planed method of drilling, cementing, casing depth and size, well purpose, and well abandonment (sealing).

- Injection permit(s) for return of water to the sandstone aquifer (Provincial)
    - Approval by: Agriculture and Resource Development, Water Branch.
    - Authorization under: *The Groundwater and Water Well Act* to return water safely without contamination to the same aquifer it came from.
    - Assessment includes, location of wells, borehole license, treatment to ensure no contamination of water prior to reinject, reinjection procedure and abandonment (sealing).

- Burning permits to dispose of woody debris will be sought, as required (Provincial)

    - Approval by: Conservation and Climate.
    - Authorization under; Section 19(1) of *The Wildfires Act*.
    - Assessment includes timing of burning, size, location and methods of safety and mitigation.

iii. Whether public and/or Indigenous consultation would be required and if yes, provide information on the approach you intend to take (if any steps have been taken, please provide a summary, including issues raised as well as your responses).

Response:

The Project Site is located within Treaty No. 1 area (Indigenous and Northern Affairs Canada, 2017). There are no First Nation reserve lands within the Local or Regional Project Area. The closest First Nation reserve lands to the Project Site is the Brokenhead Ojibway Nation's Na-Sha-Ke-Penais Indian Reserve (3 ha) surrounded by East St. Paul and located approximately 38 km northwest of the Project Site.

The Regional Project Area is within an area recognized by the Manitoba Metis Federation as an area for Metis Natural Resource Harvesting (The Metis Economic Development Organization, 2018) which corresponds with the Manitoba Conservation and Climate Game Hunting Areas (GHAs) numbers 34A, 35 and 35A within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of private land covered under private surface rights and/or land used for municipal and public purposes and is currently designated as 'Aggregate', 'Agriculture Preserve Area' and 'Mixed Rural and Agriculture Area' in the RM of Springfield Development Plan. Therefore, use of the Project Site for the exercise of Indigenous or Treaty rights would be restricted or limited.

The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because:

- The Project Site consists of private land covered under private surface rights that do not have public access unless by permission;
- No fish or fish habitat will be affected by the Project (**Section 6.4.2** of the Extraction Project EAP);

- The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (**Section 6.5.1** of the Extraction Project EAP); and
- The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (**Section 6.5.2** of the Extraction Project EAP).

At the time of this letter, CanWhite has met with several Indigenous groups to discuss the project and will take into account their concerns. These meetings are private and details of these meetings are not for public unless released by groups involved directly.

A public open house was held virtually August 24, 2021 from 7pm to 9pm to present an overview of the Extraction Project, as well as key findings from the Hydrogeological and geochemistry study presented by the lead hydrogeologist from AECOM. During this time, one hour was taken for a presentation and one hour for questions. Due to the high number of questions and participation both sent in prior to the meeting and during, CanWhite extended the meeting until 9:15pm to answer additional questions.

Advertisement of the Public Open house occurred several weeks prior to the meeting with ads in the Carilion, Winnipeg Free Press, Springfield Clipper and Steinbach Online. Mailers were sent to all of Springfield and a 20 km radius of the project informing of the open house with option to phone in or log in virtually. Information was and still remains to be available on our website (www.viviansandproject.com) and now also on our YouTube Channel which was launched on Friday October 8th 2021 and features videos responding to the most common questions and concerns.

During the Public Open house participants were able to submit questions before or during the meeting using email, and the live question submission. Some participants chose to speak live to ask their question which was also encouraged.

As CanWhite received many questions and over an hour was spent responding, we have now created a YouTube series to answer the majority of the most popular question topics we receive. Please find those videos here: CanWhite YouTube Channel

CanWhite has also provided **Appendix C,** a digital copy of the Public Open House recording to the IAAC in a sperate file not for public distribution. This copy contains the presentation and question and answer period. (Given the file size, Appendix C will be submitted directly as a sperate submission)

Furthermore, CanWhite will provide IAAC with a copy of the public response table for the questions and answers from the public comment period and TAC review when they are available. Which will also be posted on the MBCC Public Registry.

b) Identify whether any licence, permit, authorization or approval listed above would address any of the following matters:

Response:
This section contains experts from **Appendix B – Section 6.0** Environmental Assessment and Mitigation Measures of the Extraction project EAP.

i. Issues raised by the requester:
a. Impacts due to water withdrawal quantity

Response:
Please refer to **Section 6.2.3** and the Hydrogeology and Geochemistry Assessment in the Extraction project EAP. This is included under the Environment Act Licence Proposal. AECOM's environmental assessment of the Extraction project is as follows from **Section 6.2.3** of the EAP:

Magnitude of Effect: Minor
Direction of Effect: Adverse (quantity); Positive to Adverse (quality)
Duration of Effect: Long term
Frequency: Intermittent (i.e. seasonal)
Scope of Effect: Project Region
Reversibility: Reversible (aquifer will recharge over time)

The potential risks to groundwater are assessed to be minor, seasonal in duration and reversible. Water levels in the Winnipeg Sandstone and Red River Carbonate aquifers are expected to recover 80% in first two days with remaining 20% recovering over a period of 20 to 80 days following the end of extraction activities in the fall of each year.

As indicated in **Section 2.2.1**, the slurry loop system for transporting sand to the facility is designed to not require any additional water which allows for the majority of the water that comes from the extraction well to be returned to the aquifer within a short period of time. Therefore, very little extraction of groundwater from the aquifer is required.

A comprehensive hydrogeological and geochemical assessment was undertaken involving field investigation, data analysis, numerical groundwater modelling and geochemical modelling, with the results described in an extensive, peer-reviewed hydrogeology and geochemistry assessment report (**Appendix A**). Overall, drawdown effects associated with sand extraction were simulated to be localized, with limited to no effects beyond 1,500 m (4,921 ft) from the active extraction wells when the majority of groundwater is reinjected. During a pumping test, little to no decline (0.02 m to 0.77 m) in water levels was observed in the existing domestic wells near the Project site in the Winnipeg Sandstone or Red River Carbonate aquifers and no negative impacts were reported by well owners. Water levels in the observation well network declined by up to 8.5 m (Winnipeg Sandstone) and 1.5 m (Red River Carbonate) at a distance of 89.3 m from the pumping well. Drawdown effects are largely restricted to the Project Site boundary, but minor effects are anticipated to extend beyond it during and immediately following operation of extraction wells close to the boundary.

A draft version of the hydrogeology and geochemistry assessment report (final version in **Appendix A**) underwent peer review by two separate hydrogeologists with extensive knowledge of the subject matter and the regional aquifer. The peer review comments and responses to those comments are provided in **Appendix B**. The hydrogeology and geochemistry assessment report was finalized (**Appendix A**) in consideration of peer review input and additional information was

incorporated to improve the assessment. The following two expert hydrologists conducted a peer review (**Appendix B**) of the draft version of the hydrogeology and geochemistry report:

Jeff Bell, B.Sc. (G.E.), P.Eng. Hydrogeological Engineer, Friesen Drillers Ltd.

Jeff Bell is president of the Manitoba Water Well Association and is the head hydrogeological engineer for Friesen Drillers Ltd., a company that specializes in water well drilling and is based in Steinbach, Manitoba. He has over 20 years' experience in groundwater development and hydrogeological studies. He has extensive experience in the design and supervision of water wells using a direct rotary, air, and reverse rotary drilling equipment and has designed numerous large capacity municipal, industrial and domestic water supply wells using innovative methods and techniques. He also has extensive experience in well rehabilitation and development techniques.

Mr. Bell has undertaken numerous large-scale municipal and industrial groundwater supply projects and resource evaluations. He has completed large scale numerical groundwater models for projects including the Red River Floodway and the City of Winnipeg Sandilands water supply project. He has also undertaken regional groundwater mapping investigations, geochemical studies, and environmental hydrogeology studies. Mr. Bell has also undertaken several major environmental studies relating to possible groundwater supply impacts from municipal and industrial groundwater developments. Most recently, Mr. Bell was a lead hydrogeological engineer for the hydrogeological investigation of a proposed new municipal groundwater supply for the communities of Oakbank and Dugald in the R.M. of Springfield (Friesen Drillers, 2019).

Dr. Grant, B.Sc., Ph.D., P.Geo., Eng.L. University of Saskatchewan, Professor Civil, Geological and Environmental

Grant Ferguson holds a B.Sc. in Honours Geology from the University of Waterloo and a PhD in Civil Engineering from the University of Manitoba. He is a Centennial Enhancement Chair and Professor in the Department of Civil, Environmental and Geological Engineering and School of Environment and Sustainability at the University of Saskatchewan and an Adjunct Professor in the Department of Hydrology and Atmospheric Sciences at the University of Arizona.

His research focuses on hydrogeology and hydrogeochemistry of regional groundwaters systems and the interplay between energy and water resources. He was the 2019 recipient of the Global Institute for Water Security's Research Excellence Award. Dr. Ferguson served as president of the International Association of Hydrogeologists – Canadian National Chapter (IAH CNC) from 2009 to 2015 and was one of the founders of the IAH's Early Career Hydrogeologists Network

Based on a comprehensive geochemical assessment that included geochemical modelling, the overall quality of groundwater within the maximum footprint of the Project will be largely preserved. The activities associated with Project operations and post-closure phases of the Project were determined to have a temporary and minor impact on groundwater quality. For some constituents, the impact was simulated to be positive due to reduction of concentrations of iron and manganese when oxygen (air) is introduced into the aquifer or is allowed to mix with water containing lower concentrations of those elements.

The following measures are expected to mitigate groundwater withdrawal effects and potential for groundwater contamination:

- Process water will be recycled in a loop system for reuse, which reduces the quantity of water required from groundwater;

- When each well is drilled, casing will be installed and grouted in place to isolate the Red River Carbonate and Winnipeg Sandstone aquifers from one another and thereby prevent vertical mixing of waters;
- Extraction wells will be progressively (sequentially) established and sealed (decommissioned) during the ongoing sand and groundwater extraction activities in accordance with applicable guidance documents such as 'Constructing and Sealing Wells in Manitoba' (Province of Manitoba, 2018) and Environment Act Licence requirements;
- Geochemical modelling (**Appendix A**) has indicated that reinjection of groundwater (which will be UV-treated) back to the sandstone aquifer will not adversely affect groundwater quality in either the Winnipeg Sandstone or Red River Carbonate aquifers. A Waste Characterization and Management Plan, Water Management Plan, Groundwater Monitoring and Impact Mitigation Plan and Progressive Well Abandonment Plan (**Section 8**) will be developed and implemented to protect groundwater quality and guide responses to any potential impacts to groundwater quantity and quality. Measures will be developed to avoid and/or mitigate any well interference issues as required by *The Water Rights Act* of Manitoba.

  With the application of the above mitigation measures and utilization of groundwater at sustainable rates as determined by ongoing hydrogeological testing and monitoring, impacts to groundwater are anticipated to be minor, seasonal in duration and reversible. Considering there will not be a continuous and unsustainable drawdown on the regional groundwater aquifer for Project processes and that the majority of the water that comes from the extraction well will be returned to the aquifer within a short period of time, effects on groundwater quantity in the regional aquifer can be managed by adhering to a Water Management Plan and by implementing a Groundwater Monitoring and Impact Mitigation Plan. The aquifer will also continue to be recharged through natural groundwater recharge processes (i.e. rain and snow melt) and lateral groundwater flow. Effects on groundwater quality will be minor and, in some cases, positive. Risks to groundwater quality will be mitigated through application of a Waste Characterization and Management Plan, Progressive Well Abandonment Plan and a Groundwater Monitoring and Impact Mitigation Plan.

b. Impacts on water quality due to releases or accidents

Response:
Please refer to **Section 6.9.2** Spills and Leaks in the Extraction project EAP. This is included under the Environment Act Licence Proposal.

Environmental effects may occur due to fuel and chemical spills from diesel fuel, lubricants, oils and hydraulic fluids. An accidental release of hazardous materials and/or equipment fluids could occur from improper storage and handling procedures. An accidental release of slurry or return water may also occur if a break or crack occurs in the slurry and/or water return line. Accidental releases, depending on the type and quantity of substances released, have the potential to affect air, surface water, groundwater and soils, with consequential effects on vegetation, aquatic resources and possibly human health and safety.

The following standard procedures will be implemented to prevent spills from occurring during Project activities:

- Diesel tanks used on-site will be self-contained aboveground storage tank(s);
- When servicing requires drainage or pumping of lubricating oils or other fuels from equipment, a groundsheet of suitable material and size and drip tray where applicable will be spread on the ground to catch all fluid in the event of a leak or spill. An adequate supply of suitable absorbent material and any other supplies and equipment necessary to immediately clean up spills will also be available;
- Storage and disposal of liquid wastes and filters from equipment maintenance, and residual material from spill clean-up will be contained in an environmentally safe manner and in accordance with existing regulations;
- Waste oils, fuels, and other hazardous wastes will be handled in a safe manner. Staff will be required to transport, store and handle all such substances as recommended by the suppliers and/or manufacturers and in compliance with applicable federal, provincial and municipal regulations. Manitoba Conservation and Climate will be notified immediately if a reportable spill occurs;
- Fuels, oils or other hazardous materials will be stored in designated areas;
- Storage sites will be inspected regularly for compliance;
- Personnel on-site will be trained in how to deal with spills, including knowledge of how to properly deploy site spill kit materials which will be available on-site;
- Spill kits will be stationed and readily available for easy access;
- Service and repairs of equipment will be performed at the Processing Facility whenever possible, and all service and repairs will be done by trained personnel;
- Vehicles and Equipment will have pre-shift inspections and walk arounds to check for fluid leaks, primarily from the fuel system and/or hydraulics. Any detected leak will result in the unit being pulled from service until repaired. All service and repairs will be logged and tracked in the units operating and maintenance logs. A manufacturer defined maintenance and preventative care will be practiced by CanWhite and its employees;
- Slurry and water return line will be inspected on a daily basis, and after extreme weather events, to check for leaks and/or breaks in the line. If leaks or breaks in the line are detected, appropriate spill containment and clean-up measures will be applied as soon as feasible and the line will be repaired or replaced; and
- Fuel and chemical handlers will be trained and qualified, and appropriate emergency response measures will be in place and readily available.

Taking into account application of the above mitigation measures as necessary, and assuming the implementation of safe work practices, the risk of spills and leaks is considered to be appropriately mitigated.

c. Impacts on soil quality

Response:
Please refer to **Section 6.2.2** Soils in the Extraction project EAP. This is included under the Environment Act Licence Proposal. AECOM's environmental assessment of the Extraction project is as follows from **Section 6.2.2** of the EAP:

Magnitude of Effect: Minor
Direction of Effect: Adverse

Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Project Site
Reversibility: Reversible

Construction / operation activities including clearing, levelling, and construction of temporary access trails, well clusters and slurry line and water return line routes, and the progressive annual decommissioning of extraction wells and disturbed areas have the potential to cause soil erosion. Soil erosion can potentially increase during high wind and precipitation events, which are expected to be most frequent during the extraction activities when soils are exposed and not frozen/snow covered (i.e. April through November). Soil erosion may affect other environmental components, such as air quality (e.g. dust from soil disturbance), water quality and vegetation.

To mitigate the effects of soil erosion, the following measures will be incorporated:

- An Erosion and Sediment Control Plan will be implemented for all phases of the Project.
- During the progressive annual decommissioning activities, after Project components have been removed, the landscape will be leveled and graded, and disturbed areas will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.

With the application of the above mitigation measures, the potential for soil erosion and associated adverse impacts to the surrounding environment are anticipated to be minor and restricted to the Project Site.

d. Contamination of fish bearing waters

Response:
Please refer to **Section 6.4.2** Fish and Fish Habitat in the Extraction project EAP. This is included under the Environment Act Licence Proposal. AECOM's environmental assessment of the Extraction project is as follows from **Section 6.2.2** of the EAP:

Project related impacts on fish and fish habitats are not anticipated due to the lack of potential fish habitat within the Project Site (**Section 4.3.2**), no expected impacts on surface water quantity (**Section 6.4.1)** and application of an Erosion and Sediment Control Plan as indicated in **Section 6.2.2** of the Extraction project EAP.

In addition, please note that there is no discharge of water to surface of any kind. Therefore, the risk of contamination due to water discharge is not anticipated. Furthermore, no chemicals are involved in the extraction process, so a leak from the extraction site, would contain water and sand only from the sandstone aquifer. Please see **Section 6.9.2** on Spills and Leaks for mitigation measures for unplanned spills or leaks.

e. Impacts on air quality and atmospheric environment, including noise and light pollution
Response:
Please refer to **Section 6.3** Atmospheric Environment in the Extraction project EAP. This is included under the Environment Act Licence Proposal. AECOM's environmental assessment of the Extraction project is as follows from **Section 6.3** of the EAP:

Air Quality

Magnitude of Effect: Minor to Negligible
Direction of Effect: Adverse
Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Project Regional Area
Reversibility: Reversible

Project activities are expected to affect air quality due to dust generated by movement of drilling rigs and other mobile equipment, and due to exhaust emissions including nitrogen dioxide (NO_2), carbon monoxide (CO) and sulfur dioxide (SO_2). The exhaust emissions and dust generated from mobile equipment can have adverse effects on human health, wildlife and vegetation.

The number of vehicles and equipment used for Project activities listed in **Section 2.8** would not all be operating simultaneously. Therefore, adverse effects on air quality beyond Manitoba's air quality guidelines at nearest residences[1] from vehicles and mobile equipment use are not anticipated.

As indicated in **Section 1.1**, at no time will dry silica sand be left exposed at the Project Site. Sand will be wet and will either be contained within the extraction well lines or the slurry lines, or material that is too large ('overs'), such as concretions (calcified sand), will be stored in appropriate containment prior to removal from site or use in well sealing activities. Therefore, the risk of silica sand dust dispersal is eliminated.

Measures that will be applied to minimize potential Project effects to air quality include the following:

- Idling of motorized equipment will be minimized to the extent feasible;
- Water will be applied on gravel roads to control dust, as required; and
- Equipment and vehicles will be properly maintained.

With the application of the above measures, impacts on air quality are expected minor to negligible, and sufficiently mitigated.

Impact assessment information for greenhouse gas (GHG) emissions is provided in **Section 6.3.2**.

Climate/Greenhouse Gases

Magnitude of Effect: Negligible
Direction of Effect: Adverse
Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Beyond the Project Regional Area
Reversibility: Irreversible

[1] Nearest residence is approximal 133 m west of proposed well cluster areas.

To estimate the annual emissions of greenhouse gases (GHG), emissions of carbon dioxide (CO_2), methane (CH_4) and Nitrous Oxide (N_2O) were estimated from onsite activities associated with the Project operation. Estimated GHG emissions associated with Project equipment are summarized in **Table 6-3.**

Table 6-3: Greenhouse Gas Annual Emissions (CO_2e)

Emission Sources	Total Utilization (hours/year)	CO_2e GHG Emission (kg CO2e/year)
DIRECT EMISSIONS		
EXTRACTION		
10 x Extraction Rigs @ 200,000 each - Off-Road	60,000	2,445,719
Compressor trailer for extraction / OFD1550 Tier 4 Final Oil Free Rotary Screw Air Compressor	12,000	934,060
Excavator per pad	6,000	318,505
Light Plant x 8	24,000	385,998
Flat Deck Truck (2015 F650 XLT Super Duty w/ 17' bed)	6,000	303,487
Zoom Boom / Manitou MT 5519 Telescopic Handler	6,000	239,291
DRILLING		
TH60 for drilling Earth Drilling	6,000	489,898
DR24 for Drilling Earth Drilling	6,000	491,784
2022 Ford F750 Water Truck Heavy Duty	6,000	212,886
Grouting System	700	11,295
SEALING		
DR24 for Abandonment	3,000	250,513
Picker Truck On-Road	1,000	72,915
SUPPORT		
Welding Truck F350 Light Duty	750	46,332
Mechanical Service Truck F350 Light Duty	750	46,332
SLURRY HANDLING		
CAT C18 Diesel Generator Set	6,000	394,712
HDPE Tube Welding Machine	1,000	68,475
Vac Truck	1,000	72,777
INDIRECT EMISSIONS		
POWER CONSUMPTION		
Pump Station	8,784	12,432
	Total (kg CO2e/year)	6,797,411

The following measures to minimize the production of GHG emissions will be applied:

- Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles
- Vehicles and equipment will meet required emission standards.

Overall, the Project is estimated to generate 0.006797411 tonnes (Mt) of CO_2e annually with the application of the above mitigation measures, which is 0.0296% of the reported Manitoba emissions in 2019 which were 23 Mt CO_2e (ECCC, 2021), about 0.000931% of the reported 730 Mt

CO_2e from Canada in 2019 (ECCC, 2021). Therefore, the impact of the Project on Greenhouse Gas contributions to the atmosphere is assessed as negligible.

Noise

Magnitude of Effect: Minor to Moderate
Direction of Effect: Adverse
Duration of Effect: Short-term
Frequency: Intermittent
Scope of Effect: Variable due to changing annual locations of Project activities within the Project Site
Reversibility: Reversible

Noise generated by Project activities (e.g. extraction well drilling; operation of vehicles and machinery such as pumping stations) has the potential to adversely affect wildlife (**Section 6.5.2)** and could result in nuisance noise to people living within the Local Project Area. Project components expected to generate noise that may contribute to noise levels at the nearest points of reception (e.g. nearest residence, i.e.133 m from a well cluster area) are listed in **Section 2.8**. Example noise sources associated with Project activities include mobilization of extraction well drilling equipment, drilling of wells and operation of pump stations.

The following measures will be implemented to reduce noise generated from Project activities:

- Vegetation clearing will be minimized to the extent feasible.
- Project activities will setback a minimum of 100 m from nearest residences.
- Mobile equipment and vehicles will be kept well maintained and will be fitted with mufflers, and other noise mitigation equipment as required.
- Unnecessary idling and revving of engines will be avoided.
- Additional noise mitigation measures will be applied (e.g. portable noise barriers) as required.

In consideration of the above measures to minimize noise levels due to Project activities, it is anticipated that potential noise levels at the nearest residences will be adequately attenuated. Noise disturbances to wildlife are expected to be moderate in the vicinity of Project activities but are not expected to measurably affect wildlife populations within the Interlake Plain Ecoregion within which the Project is located.

f. Impacts to human health, and socioeconomic conditions

Response:
Please refer to **Section 6.6** Socioeconomic Environment in the Extraction project EAP. This is included under the Environment Act Licence Proposal. AECOM's environmental assessment of the Extraction project is as follows from **Section 6.6** of the EAP:

Labour Force and Employment

Magnitude of Effect: Minor
Direction of Effect: Positive

Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Regional Project Area
Reversibility: Reversible

According to the labour force and education/training statistics provided in **Section 4.6.2**, there will be potentially employable people in the Local and Regional Project Areas having the skills, training and experience required for Project employment positions. There may also be other supply and services contracts associated with the operation of the Project that will provide additional long-term economic opportunities.

As indicated in **Section 2.5**, approximately 35 to 45 people will be employed for Project activities such as annual site clearing, extraction well drilling, extraction activities and relocation and assembly of temporary Project components. The need for local suppliers and other business to support Project activities is likely to provide an additional 100 to 120 indirect employment opportunities. Employment opportunities associated with the Project will be advertised as needed within the Regional Project Area and will be a positive, long-term and continuous benefit for the Regional Project Area.

Infrastructure and Services

Emergency Services

Magnitude of Effect: Minor
Direction of Effect: Neutral/Adverse
Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Regional Project Area
Reversibility: Reversible

Emergency services (i.e., fire, policing and ambulance) in the Regional Project Area have the potential to be utilized more often potentially resulting in limitations to the current availability and response times for these regional services. To mitigate potential adverse effects of the Project on Regional Project Area emergency services, CanWhite will incorporate the following measures:

- An Emergency Response Plan will be available on-site during all Project phases that will clearly outline appropriate emergency response protocols.
- CanWhite will notify the RM of Springfield emergency services when annual Project activities will begin.
- Measures to avoid accidents and malfunctions as described in **Section 6.9** will be applied.

With the application of the above measures, the Project impacts on regional emergency services are anticipated to be minor.

Community Services

Magnitude of Effect: Minor (benefit)
Direction of Effect: Neutral to Positive
Duration of Effect: Long term
Frequency: Intermittent

Scope of Effect: Local and Regional Project Area
Reversibility: Reversible

Although Project activities (well drilling) will occur year-round, there will be no permanent structures associated with Project activities. Therefore, the need for community services will be limited, but may include sourcing of some supplies and services locally where available such as machine maintenance services; fuel, oil and grease supply; small tools and equipment supply; garbage removal; health and safety supplies as well as drilling materials such as cement. CanWhite may initiate agreements for local / regional community services that would be beneficial for both the RM of Springfield and the Project.

> Solid waste generated at the temporary annual work areas will be transported by a licensed local contractor to be disposed at a local licenced landfill to an amount that would be sustainable for the local landfill. Otherwise, solid waste will be transported 63 km to the Brady Road Landfill managed by the City of Winnipeg.

Benefits to the Local and Regional Project Area from the opportunities for local business to supply required goods and services are anticipated to result in an overall minor positive impact to community services.

Land and Resource Use

Magnitude of Effect: Minor
Direction of Effect: Adverse
Duration of Effect: Short term
Frequency: Intermittent
Scope of Effect: Project Site
Reversibility: Reversible

Project activities will occur on CanWhite mining claims sequentially from 2021 to 2025 which will result in temporary use of a very limited portion of the Project Site land each year of the Project. Land use for Project activities will occur in accordance with municipal and provincial approvals and legislative requirements.

Use of the land for other purposes will not be available in the locations of annual Project activities. However, due to the progressive annual reclamation of extraction sites and other Project-related disturbed areas, parcels of land used for Project activities during any given year of Project operation will be available for other uses the following year or once the activities are complete. Sand Extraction activities occur over weeks in one area rather then months, with individual wells over days. Therefore, the Project is anticipated to result in an overall minor temporary adverse impact to land use within the Project Site.

Human Health

Magnitude of Effect: Negligible
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Intermittent
Scope of Effect: Local and Regional Project Areas
Reversibility: Reversible

Project activities have the potential to adversely affect human health through:

- Increased traffic due to employees and contractors accessing the Project Site;
    - Emissions from vehicles affecting air quality; and
    - Higher potential for traffic accidents;
- Dust and noise generated by Project activities.

Mitigation measures that will avoid or minimize potential adverse effects on human health are the following:

- Measures to avoid or minimize adverse effects on air quality (**Section 6.3.1)** and effects on climate (**Section 6.3.2**) will be applied.
- Measures to control noise will be applied (**Section 6.3.3**).
- All CanWhite employees will abide by the standards, procedures and training required under *The Workplace Safety and Health Act* as well as CanWhite's internal Health and Safety Program and Emergency Response Plan.
- Employee Orientation and Safety training will be mandated for all new hires in addition to required yearly safety reviews for existing staff.
- Applicable personal protective equipment (PPE) will be provided to employees. Where required, visitor orientation and PPE will be provided when visitors enter employee only areas.

Through the implementation of the measures referenced above, impacts to human health are assessed as negligible.

Indigenous and Treaty Rights

The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because:

- The Project Site consists of private land covered under private surface rights that do not have public access unless by permission;
- No fish or fish habitat will be affected by the Project (**Section 6.4.2**);
- The residual environmental impact of the Project on vegetation beyond the Project Site is assessed to be negligible (**Section 6.5.1**); and
- The residual environmental impact of the Project on regional wildlife populations is assessed to be negligible (**Section 6.5.2**).

Heritage Resources

Magnitude of Effect: Minor
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Intermittent
Scope of Effect: Project Site
Reversibility: Irreversible

Activities related to Project construction and operations that disturb the land may have the potential to disturb or destroy heritage resources (e.g. unknown archaeological sites). Project activities that disturb the land include clearing for temporary access trails, clearing and leveling (as required) to prepare the well pad sites for establishment of extraction wells and drilling of extraction wells.

As indicated in **Section 4.6.5**, the results of an on-site archaeological investigation found the Project Site to have substantial previous disturbances and concluded that there were no heritage concerns regarding development of the Project at the Project Site (**Appendix G**).

If heritage resources are discovered within the Project Site, work will be stopped, Historic Resources Branch will be advised, and the discovered historic resources will be recorded by an archaeologist and adequately protected as required. The heritage resources protection practices outlined in the Heritage Resources Protection Plan for the Facility Project will also be used for this Project (AECOM 2020).

With the application of the above-described mitigation measure and given the opinion of a qualified archaeologist indicating no heritage concerns regarding development of the Project at the Project Site, the impacts on heritage resources are assessed as minor.

ii. If yes, discuss, in general, the benchmarks or standards that you intend to meet (or would be expected to meet).

Response: Please refer to comments listed about in sections a through f.

iii. If the Project is anticipated to result in permanent changes or cumulative effects, how you intend to manage those impacts.
Response: Please refer to comments listed about in sections a through f.

4. *For all federal licences, permits, authorizations, approvals, and/or financial assistance that may be provided for the Project, describe any anticipated adverse direct or incidental effects (including changes to health, social and economic conditions) that may occur as a result.*

   Response:
   No federal licences, permits, authorizations, approvals or financial assistance will be required or sought for the Project. The Project is not anticipated to cause any negative adverse effects to the health, social or economic conditions. Steps are being taken at every stage of the Project to prevent and protect any danger to humans or the environment. Industry standards, provincial regulations and safety precautions are strictly adhered to at all work sites. These include but are not limited to a personnel safety training, driving safety, wildlife awareness, waste characterization and management, water management, erosion and sediment control, environmental emergency response plan, heritage resource monitoring plan, closure plan, revegetation monitoring plan, groundwater monitoring and impact mitigation plan, and progressive well abandonment plan.

   For additional details, please refer to the outlined effects and magnitudes including the mitigation if required in sections above from previous question also in **Section 6** – Environmental Assessment and Mitigation measures in the Extraction EAP.

5. *What steps have you taken to consult with the public? What steps do you plan to undertake during all phases of the Project? Are you aware of any public concerns in relation to the project?*

If yes, provide an overview of the key issues and the way in which (in general terms) you intend to address these matters.

Response:
Please refer to the detailed response in ***Question 2 a) iii*** in questions provided by IAAC in Section 3 of this letter for a detailed outline of public engagement.

6. *What steps have you taken to consult with Indigenous communities? What steps do you plan to undertake during all phases of the Project? Are you aware of any Indigenous community concerns in relation to the project? If yes, provide an overview of the key issues and the way in which (in general terms) you plan to address these matters.*

Response:
Please refer to the detailed response in ***Question 2 a) iii*** in questions provided by IAAC in Section 3 of this letter for a detailed outline of public engagement.

7. *Do you have any other comments in relation to environmental effects or impacts to the public or Indigenous peoples and how you intend to address and manage those?*

Response:
At this time no negative environmental effect or impacts to the public or Indigenous people are expected from the Extraction Project. All potential effects are mitigated as previously mentioned including but not limited to; Waste Characterization and Management Plan, Water Management Plan, Progressive Well Abandonment Plan, Groundwater Monitoring and Impact Mitigation Plan, Erosion and Sediment Control Plan, Emergency Response Plan, Revegetation Monitoring Program, Heritage Resources Protection Plan and Closure Plan.

8. Explain your views on whether the Project should be designated under the IAA.

Response:
Thank you for the opportunity to state our position in this regard. The impacts to be considered in accordance with the *Impact Assessment Act* are those deemed in the Act to be within federal jurisdiction, as described in section 7 of the Act. Based on the information summarized above, there is no credible pathway for any of these effects to occur. The environmental assessment information described in the submission to Manitoba will apply equally to any future extraction project.

In response to the specific matters set out in section 7(1)(b), both the proposed Processing Facility Project and the Extraction Project, will be carried out in Manitoba on land held in fee simple by private owners. There will be no Crown Land usage for any aspect of the Project. We do not anticipate adverse effects outside the very limited geographic scope of the Projects, which are certainly well within Manitoba, either on or immediately adjacent to the land to be used for the processing plant project.

Neither project will require any federal permit, approval or license and there is no federal funding involved.

With respect to section 7(1) (a) (i) and (ii), there is no potential interaction between either Project and any surface water or other area that otherwise could be characterized as fish habitat as previously outlined above.

A public engagement process was initiated for the Extraction project as previously outlined which has included any Indigenous community interested in the Projects. Specifically, with respect to the matters covered in section 7(1)(c), there is no possibility of any such impact, since both projects will be carried out on privately-owned land to which Indigenous communities would not at this time have a right of access.

Similarly, there is no credible pathway for any interaction between either project and the health, social or economic conditions of Indigenous peoples. Any conclusion to the contrary could be based only on misunderstandings, which we have outlined in Section 2 of this response and are taking steps to correct publicly.

Concerning 7(1) (a) (iii), all activities will be carried out respecting regulatory guidelines that apply to migratory birds and no impact of any nature is anticipated to occur on migratory birds.
If you require any additional information or would like further clarity on any aspect of our submission, please do not hesitate to reach out to me.

Best Regards,

<Original signed by>

Brent Bullen, MBA
Chief Operating Officer
CanWhite Sands Corp.

cc:
Jennifer Winsor P. Eng. (Manitoba Conservation and Climate, Environmental Approvals)

Attachments:

- Appendix A – Environment Act Proposal Report Guidelines
- Appendix B – Section 6.0 - Environmental Assessment and Mitigation Measures - of Vivian Sand Extraction Project – Environment Act Proposal (EAP) Application
- Appendix C – Digital copy of Public Open House recording August 24, 2021, not for public distribution.