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Mr. Peter Crocker, Secretary  
Manitoba Clean Environment Commission  
305-155 Carlton Street  
Winnipeg MB R3C 3H8

Dear Mr. Crocker:

**Re: Vivian Silica Sand Extraction Project  
Submission of the Manitoba Eco-Network and Our Line in the Sand**

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## Overview

“Water is central to the well-being of our natural environment, our families and our communities.”<sup>1</sup>

Thank you for this opportunity to provide submissions to the Clean Environment Commission (CEC) on behalf of Our Line in the Sand (OLS) and the Manitoba Eco-Network (MBEN) regarding the review of the Vivian Silica Sand Extraction Project (the “project”) under *The Environment Act*.

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<sup>1</sup> Government of Manitoba, “Manitoba’s Water Management Strategy” (November 2022) at 2, online: <https://www.cttam.com/common/Uploaded%20files/General%20Uploads/Manitoba%20Water%20Management%20Strategy.pdf>.



Our clients treasure the communities in which they live. They understand how important water is to their region. They are gravely concerned about the demonstrably “irreversible effects” of the project on their communities as well as fundamental gaps in the information available to the public and to the CEC. They know the information before the CEC is not sufficient for the full risks of the project to be understood.

Given endemic process flaws and material gaps in the record, our clients are of the view that the CEC has been denied the opportunity to conduct an “effective review” process to “adequately assess” the environmental risk of the project as intended by *The Environment Act*.<sup>2</sup>

Taking a precautionary approach and mindful that the proponent’s proposed extraction technique has never been used as a full-scale mining method, our clients are of the view that the CEC should recommend that the project not be licensed.

### **A Poster Child for Impoverished Assessment**

It would be unreasonable to recommend the project be licensed given community concerns, the current evidence before the CEC, the warnings of independent experts and fundamental flaws in the licensing determination process.

Water is Manitoba’s most precious resource.<sup>3</sup> The Winnipeg Sandstone and Red River Carbonate aquifers are critical to the current and future health and well-being of many Manitobans. As the CEC has previously found:

The Carbonate Aquifer, which extends from The Pas to the Interlake and down along the east side of Lake Winnipeg into the United States, is the largest freshwater aquifer in Manitoba and serves as the prime groundwater source for south-eastern Manitoba.<sup>4</sup>

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<sup>2</sup> *The Environment Act*, CCSM c E125 at s 1(1)(c).

<sup>3</sup> See for example, *The Water Protection Act*, CCSM c W65, “an abundant supply of high quality water is essential to sustain all ecological processes, life-support systems and food production, and is paramount to the environmental, economic and social well-being of Manitoba now and in the future”. See also *The Water Resources Conservation Act*, CCSM c W72 “The conservation and protection of Manitoba's water resources, and of the ecosystems associated with and reliant upon those water resources, are essential to the long-term environmental, economic and social well-being of Manitoba.”

<sup>4</sup> Manitoba Clean Environment Commission, “The Pembina Valley Water Cooperative Supplemental Groundwater Supply System” (2007) at 9-10. [emphasis added]



But evidence before the CEC suggests the proponent’s plan presents risks of “irreversible effects” on the Winnipeg Sandstone and Red River Carbonate aquifers.<sup>5</sup> As explained by Matrix Solutions Inc. (Matrix), the independent experts retained by OLS and MBEN:

The effect of the proposed project is expected to systematically enhance the hydraulic connectivity between the Red River Carbonate and Winnipeg Sandstone aquifers due to degradation of the Winnipeg Shale Aquitard and increase in fracture density in the Red River Carbonate Aquifer, which increases both aquifers vulnerability.<sup>6</sup>

The CEC has previously found that “cumulative effects should be considered in future assessments” of developments impacting ecosystems in the region encompassing the Red River Carbonate aquifer.<sup>7</sup>

However, independent evidence before the CEC<sup>8</sup> raises fundamental concerns that the information before the CEC is not sufficient to conduct an “effective review process that adequately addresses environmental issues”.<sup>9</sup>

Put bluntly, the proponent’s filing is a poster child for impoverished environmental assessment. It is a classic case of “project splitting”<sup>10</sup> further compromised by the absence of a cumulative effects assessment.

Independent experts have described the absence of a cumulative effects assessment as “a substantive deficiency in the project proposal”<sup>11</sup> and suggested there is “impetus for requiring a

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<sup>5</sup> Matrix Solutions Inc., “Hydrogeological Review of Sio Silica Corporation proposed Vivian Sand Project, Manitoba” (12 February 2023) at 1.

<sup>6</sup> Matrix Solutions Inc., “Hydrogeological Review of Sio Silica Corporation proposed Vivian Sand Project, Manitoba” (12 February 2023) at 18.

<sup>7</sup> Manitoba Clean Environment Commission, “The Pembina Valley Water Cooperative Supplemental Groundwater Supply System” (2007) at 9-10 and 48.

<sup>8</sup> Arcadis Canada Inc., “Technical Review of Sio Silica Corporation’s Environment Act Project Proposal” (13 September 2022); Dr. Hartmut Holländer and Dr. Allan Woodbury, “Technical Review: Sio Silica Corporation’s Environment Act Project Proposal” (19 September 2022); Matrix Solutions Inc., *supra* note 5.

<sup>9</sup> *The Environment Act*, CCSM c E125 at s 1(1)(c).

<sup>10</sup> Arcadis Canada Inc., *supra* note 8 at ES-1.

<sup>11</sup> *Ibid* at 25.



cumulative assessment of potential effects.”<sup>12</sup> Such a determination would be consistent with prior findings by the CEC and the intent of *The Environment Act*.<sup>13</sup>

Matrix has further highlighted that “at a regional scale, the absence of criteria and indicators in a detailed strategic framework for sand extraction mining of aquifers that are actively and widely used for potable water supply seems to be an important deficiency in the current approval process.”<sup>14</sup>

## **A Precautionary Approach is Necessary**

Just 20 days ago, the proposed extraction plan for the Vivian Sand Extraction Project was materially altered. The number of extraction wells at any particular cluster was reduced, the total number of extraction wells was reduced by over 400 and the geographic footprint of the project was changed.<sup>15</sup>

Fewer wells does not necessarily mean less risk or a smaller impact. What the alterations do emphasize is the immaturity of the proponent’s plans.

A material alternation in the project at this late date only highlights the significant uncertainty and risk associated with the project and its extraction methodology. It underscores the need for precaution. As noted by Matrix:

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<sup>12</sup> Matrix Solutions Inc., *supra* note 5 at 15.

<sup>13</sup> Manitoba Clean Environment Commission (2007), *supra* note 6; Manitoba Clean Environment Commission, “Report on Public Hearing: Bipole III Transmission Project” (June 2013) at 112, citing Duinker, Peter N. and Lorne A. Greig. 2006. The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment. Environmental Management, 37(2): 157; Manitoba Clean Environment Commission, “Regional Cumulative Effects Assessment” (2018) at 7; Manitoba Clean Environment Commission, “An investigation into changes requested to Louisiana-Pacific Environment Act License” (2010) at 83. Manitoba Clean Environment Commission, “Forest Management Plan Approval Process” (2020) at 44, 45, 49, 83 and 91. Manitoba Clean Environment Commission, “Manitoba-Minnesota Transmission Project” (2017) at 120. See also *The Environment Act*, CCSM c E125 at s 1(1), 1(2), 2(1) and 41(1). MBEN and OLS reserve the right to make further submissions, including legal argument, to address this issue as well as to provide the Commission with legal authorities supporting this assertion through the course of the hearing.

<sup>14</sup> Matrix Solutions Inc., *supra* note 5 at 18.

<sup>15</sup> Matrix Solutions Inc., *supra* note 5 at 4-5.



The change in extraction plan at this stage illustrates the degree of uncertainty that exists with regards to potential fracture development and/or collapse of the Red River Carbonate as a result from the sand extraction process.<sup>16</sup>

The independent experts retained by the CEC have described the proposed extraction methodology as a “new and unproven technology”<sup>17</sup> and suggested “there are no examples of the technique being used as a full-scale mining method”.<sup>18</sup> Recognizing the need to “protect local and regional groundwater resources”, it has been suggested that “relative to other proven techniques, this uncertainty justifies adopting a more precautionary approach when developing and implementing project designs.”<sup>19</sup>

To similar effect, Matrix has observed that:

The importance of preserving the hydraulic isolation between aquifers is paramount in a precautionary approach with regards to potential migration of contaminants in the groundwater. The potential alteration of a natural hydraulic barrier such as the Winnipeg Shale Aquitard as an effect of the proposed project is increasing the vulnerability of both aquifers, which is an undesired outcome.<sup>20</sup>

The Precautionary Principle is well-recognized in law, international declarations and modern environmental practice.<sup>21</sup>

The importance of the aquifers coupled with evidence of “irreversible effects”, the relative novelty of the technology as it relates to large scale mining activities and fundamental gaps in the record suggest that it would be unreasonable and imprudent to proceed with project licensure.

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<sup>16</sup> Matrix Solutions Inc., *supra* note 5 at 18.

<sup>17</sup> Holländer and Woodbury, *supra* note 8 at 3.

<sup>18</sup> Arcadis Canada Inc., *supra* note 8 at 7.

<sup>19</sup> Arcadis Canada Inc., *supra* note 8 at 7.

<sup>20</sup> Matrix Solutions Inc., *supra* note 5 at 10.

<sup>21</sup> UNGA, “Rio Declaration on Environment and Development”, UN Doc A/CONF.151/26 (Vol 1) at Principle 15. See also *The Water Resources Conservation Act*, CCSM c W72 at “Preamble”. See also, for example, *114957 Canada Ltée (Spraytech, Société d’arrosage) v Hudson (Town)*, 2001 SCC 40 at para 32, which confirmed that by 2001, “scholars [had] documented the precautionary principle’s inclusion in virtually every recently adopted treaty and policy document related to the protection and preservation of the environment.”



## **Participation does not imply Acquiescence in a Fundamentally Flawed Licensing Process**

Given endemic process flaws and material gaps in the record, our clients are of the view that the CEC has been denied the opportunity to conduct an “effective review” process to “adequately assess” the environmental risk of the project in the manner intended by *The Environment Act*.<sup>22</sup>

This concern was initially raised by OLS and MBEN before the Commission in their October 2022 procedural motion.

Our clients’ good faith participation in this hearing process should not be understood as endorsement or acquiescence in the process underlying the licensing determination. Our clients reserve the right to present legal analysis and authorities in subsequent motions and argument that challenge the material and ongoing flaws in the license determination process.

Finally, MBEN and OLS strongly criticize the lack of funding available to participants which has imposed a significant barrier on public participation in this process.

As required by the CEC *Process Guidelines Respecting Public Hearings*, the following pages identify the interests and position of OLS and MBEN, introduce the independent expert they intend to jointly call to give evidence and provide a list of evidentiary documents they currently intend to rely on during the hearing. These documents are attached.

### The Interests of the Participants

#### *Our Line in the Sand*

Our Line in the Sand (OLS) is a group of concerned citizens organized to advocate for the protection of precious groundwater resources in eastern Manitoba. Many members of OLS rely on the aquifers that stand to be affected by this project for drinking water in their homes.

OLS has been actively engaged in this process since its early stages, motivated by a strong interest in protecting and preserving the integrity of the aquifers. Contact information for OLS is set out in its participant application and in the CEC’s mailing list for this process.

#### *Manitoba Eco-Network*

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<sup>22</sup> *The Environment Act*, CCSM c E125 at s 1(1)(c).



As set out in its Participant Application, the Manitoba Eco-Network (MBEN) has a long history of promoting positive environmental action through policy advocacy, engagement in consultation processes and developing capacity-building tools. Its submissions were heavily relied upon by the CEC in the 2007 Pembina Valley Water Cooperative Supplemental Groundwater Supply System proceeding.<sup>23</sup>

MBEN has been engaged in this process since its earliest stages and advocated for the Minister to refer the proposal to the CEC for a public hearing. MBEN participates in this process to promote sound, evidence-based environmental decision-making and to continue its work to promote the protection of the environment. Contact information for MBEN is set out in its participant application and in the CEC's mailing list for this process.

### The positions to be taken by OLS and MBEN

In addition to the positions articulated earlier in this submission, OLS and MBEN share many of the concerns with the project articulated in independent reviews of the geotechnical and hydrogeology evidence.<sup>24</sup> They view the proposed project as presenting unacceptable risks of irreversible harm to the Winnipeg Sandstone and Red River Carbonate aquifers.

OLS and MBEN are concerned about gaps in the information needed to fully assess the risks of the project, which are compounded by the relatively narrow scope of the technical review undertaken by the CEC experts, which focused solely on hydrogeological and geotechnical issues. MBEN and OLS also are concerned about the relative immaturity of various aspects of the proponent's plans.

OLS and MBEN intend to further explore these and other relevant issues through the hearing process. They recognize the submissions of other participants are still to be filed and that the evidentiary record will continue to evolve up to and through the public hearing. They are concerned about gaps in the information needed to fully assess the risks of the project, which are compounded by the relatively narrow scope of the technical review undertaken by the CEC experts, which focused solely on hydrogeological and geotechnical issues. MBEN and OLS also remain concerned about the relative immaturity of various aspects of the proponent's plans.

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<sup>23</sup> Manitoba Clean Environment Commission (2007), *supra* note 6 at 27-30.

<sup>24</sup> Arcadis Canada Inc., *supra* note 8; Holländer and Woodbury, *supra* note 8; Matrix Solutions Inc., *supra* note 5.





OLS and MBEN reserve the right to further develop their positions in response to the record as it evolves. To assist with its closing argument and recommendations, MBEN and OLS are likely to explore additional matters through cross-examination including but not limited to issues relating to:

- The reinjection of treated water including but not limited to the risk of microbial contamination and adverse effects on groundwater chemistry
- Air quality impacts
- Noise impacts
- Closure Planning
- Impacts of climate change; and
- Follow-up and monitoring.

OLS and MBEN view the environmental impact assessment undertaken on behalf of the proponent and filed as part of its Environment Act Proposal as inadequate and out of step with our contemporary understanding of “existing effective review processes that adequately address environmental issues”.<sup>25</sup>

#### Independent expert evidence

OLS and MBEN have retained the independent expertise of a team from Matrix to support the CEC in assessing the issues before it. Providing evidence for Matrix at the oral portion of the hearing will be Mr. Louis-Charles Boutin.

The Matrix retainer outlines its responsibility to provide evidence that:

- is fair, objective and non-partisan;
- is related only to matters that are within its area of expertise; and
- to provide such additional assistance as the independent tribunal may reasonably require to determine an issue.

Mr. Boutin is Principal Groundwater Engineer and technical lead in numerical modelling of groundwater flow and contaminant transport. He holds a bachelor's degree in Geological Engineering from École Polytechnique de Montréal, and he has significant experience

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<sup>25</sup> *The Environment Act*, CCSM c E125 at s 1(1)(c).





developing and applying a variety of numerical and analytical solutions to a variety of problems related to groundwater flow and contaminant transport.

For over 20 years, he has been involved in projects related to municipal and industrial groundwater supply, environmental site assessments, public consultation sessions, risk management plans, environmental impact assessments and detailed supply well design and construction. His clients have included municipalities, universities, governmental agencies, an industry association and various industrial partners.

As explained in the following section, the independent evidence of Mr. Boutin as well as his curriculum vitae are attached.

### Evidentiary documents to be relied upon by MBEN and OLS

In addition to the materials, including learned literature, already on or to be filed on the record, OLS and MBEN provide the following list of evidentiary documents that may be relied upon in the course of the hearing.

1. Matrix Solutions Inc., “Hydrogeological Review of Sio Silica Corporation proposed Vivian Sand Project” (13 February 2023) with primary author’s statement of qualifications and c.v. attached;
2. Manitoba Clean Environment Commission, “The Pembina Valley Water Cooperative Supplemental Groundwater Supply System” (2007) at pages 33-50;
3. Manitoba Clean Environment Commission, “Report on Public Hearing: Bipole III Transmission Project” (June 2013) at pages 105-111, 123-130;
4. Manitoba Clean Environment Commission, “Manitoba-Minnesota Transmission Project” (2017) at pages 120-125;
5. Manitoba Clean Environment Commission, “A Review of the Regional Cumulative Effects Assessment for Hydroelectric Developments on the Nelson, Burntwood, and Churchill River Systems” (2018) at i-12;
6. Manitoba Clean Environment Commission, “An investigation into changes requested to Louisiana-Pacific Environment Act License” (2010) at page 83;
7. Manitoba Clean Environment Commission, “Forest Management Plan Approval Process (2020) at 44, 45, 49, 83 and 91;
8. Southeast Regional Groundwater Management Plan;
9. Government of Manitoba, “Manitoba’s Water Management Strategy” (November 2022);
10. RM of Springfield, Minutes, Planning Meeting (June 23, 2022) at item 6.11;
11. Screenshot of Sio Silica Corporation website (map of mineral claims);




12. Sio Silica Corporation advertisement (Winnipeg Free Press, 14 January 2023); and
13. Jill Blakley, Peter Duinker, Lorne Grieg, George Hegmann and Bram Noble, “Cumulative Effects Assessment” (International Association for Impact Assessment, FasTips No. 16, October 2017).

Copies of these documents are attached.

OLS and MBEN reserve the right to seek leave of the Commission panel to rely on additional documents in response to further developments in the hearing record. They also reserve the right to cite legislative provisions, case law and learned articles in support of any motions, submissions and closing argument.

Any questions regarding this submission or its attached documents may be directed to Byron Williams ([bywil@legalaid.mb.ca](mailto:bywil@legalaid.mb.ca)) and Chris Klassen ([chkla@legalaid.mb.ca](mailto:chkla@legalaid.mb.ca)), legal counsel to OLS and MBEN.

Thank you,



Byron Williams  
Director  
Public Interest Law Centre



Chris Klassen\*  
Attorney

\*Chris is an independent lawyer retained  
by the Public Interest Law Centre in this matter.

CC: CEC Mailing List

