Table 2: Responses to Public Review Comments

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
PHYSICAL ENVIRONMENT					
Geology/Topography	Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1	1	General - concern about collapse of underground voids from sand slurry extraction activities.	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	2	"*The carbonate (limestone) will likely collapse into the cavities in the Winnipeg formation left by the sand extraction* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1	3	General - concern about collapse of underground voids from sand slurry extraction activities.	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Heather Erickson, Sher Stoddard and Family, in comment_5.pdf file; Samantha Braun, in comment_9.pdf file; received from the Manitoba Conservation and Climate (MBCC) Environmental Assessment Branch (EAB) Sept. 14, 2020	4	General - concern about collapse of underground voids from sand slurry extraction activities.	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	5	Concern about: "*Subsidence of the surface lands* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3, and Rick and Susanne Wastle and family, in comment_3.pdf file received from the EAB Sept. 14, 2020	6	General - concern about damage to the environment (underground structure).	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.

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	Janine Gibson, in comment_6.pdf file received from the EAB Sept. 14, 2020	7	"*Collapsing the sandstone aquifer shale that separates the carbonate and sandstone aquifers, would result in the mixing and contamination of both aquifers with acids and heavy metals* ." "*The yearly amount of sand to be harvested as described in the EAP, equals 5.5 CFL football fields square by 26 stories high. This volume of removal would impact far more than just the site, with sink holes forming from the voids, slumping and widespread degradation of both aquifers' water quality* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	8	"*Subsidence due to sand and water withdrawal will damage extraction borehole seals and cause the boreholes to be depressed drain holes for surface fecal matter to enter both the carbonate and sandstone aquifers* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	9	General - concern about damage to the environment (entirety - including geology/topography).	Regarding the Vivian Sand Facility Project, while measurable disturbances will be imposed on topographic features, disturbances will be limited to the Project Site. With the application of the mitigation measures described in Section 6.2.1 (Geology/Topography) in the EAP, impacts on topography have been assessed as being minor.	EAP, Section 6.2.1, Geology/Topography
	Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	10	General - concern about threat to the environment (entirety - including geology/topography).	Refer to the responses #1 and #9 above.	Refer to mitigation measures proposed for responses to #1 and #9.
Soils	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	11	Concern regarding potential contamination of soil/land: "*Pollution of the surface lands and waters and ground waters due to accidents involving organic fluids such as lubricants and fuels, as well as degreasers, cleaning agents, desliming agents and other chemicals, including chemicals with long high lives, used in operations, as well as with human effluent.. .* "	No chemicals will be used in the processing of the sand. The water that is separated from the sand will be treated with a biodegradable food-grade flocculant as an aid for fines settling, which is the same as what is used at typical water treatment facility. Processing water will be recycled in a loop system and will not be discharged to the surface/land. Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will include a septic tank and drain field/leach field. The septic system will be installed, and regularly maintained and monitored for correct functioning, in accordance with the Onsite Wastewater Management Systems Regulation under *The Environment Act.* Groundwater will be protected from accidental spills (e.g. fuel, oil) through the use of industry standard spill containment devices. Limited volumes of hazardous waste will be stored on-site and will consist of those commonly found in maintenance shops (e.g. engine oil; lubricants; adhesives; paint) and associated with routine building and equipment maintenance (e.g. loaders; pick-up truck). These wastes will be stored in a designated location on site and handled, transported and disposed of in accordance with applicable legislation and associated regulations and guidelines, including *The Dangerous Goods Handling and Transportation Act* of Manitoba and applicable regulations. Also refer to the responses below for #16 regarding groundwater and #71 regarding surface water quality.	EAP, Section 6.2.2. Soils; EAP, Section 6.9.2 Spills and Leaks; Also refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.

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	Cynthia Foreman, and Tara Starr in comment_3.pdf file; Sarah Boeckler and Darcy Armitt in comment_4.pdf file; Sky Jaques in comment_6.pdf file; Lindy Clubb in comment_9.pdf file; received from the EAB Sept. 14, 2020	12	General - concern about potential effects on "land" (including soils).	Refer to the response for #11.	Refer to mitigation measures proposed for response to #11.
	Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3, and Rick and Susanne Wastle and family, and Shian Rocan in comment_3.pdf file received from the EAB Sept. 14, 2020	13	General - concern about potential effects on soils.	Refer to the response for #11.	Refer to mitigation measures proposed for response to #11.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4, and Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	14	General - concern about damage to the environment (entirety - including soils).	Refer to the response for #11.	Refer to mitigation measures proposed for response to #11.
	Cynthia Foreman, and Tara Starr in comment_3.pdf file; Sarah Boeckler and Darcy Armitt in comment_4.pdf file; Sky Jaques in comment_6.pdf file; Lindy Clubb in comment_9.pdf file; received from the EAB Sept. 14, 2020	15	General - concern about potential effects on "land" (including soils).	Refer to the response for #11.	Refer to mitigation measures proposed for response to #11.
Groundwater	Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1; Email from Kathy Hughes, July 23, 2020, Public Comments Batch #1; Lynne Strome, Gary Stuve, Ralph and Bonnie Christianson, Kathleen Bell, Jamie Godfredsen, Loretta, Bev and Morley Jacobs, in comment_1.pdf file; received from the EAB Sept. 14, 2020	16	General - concern about potential effects on groundwater/aquifer.	The Facility Project will require two groundwater wells; one dedicated to emergency fire suppression (on demand short-term use) and the other for water used by employees for sinks, showers and toilets in the Processing Facility. The quantity of groundwater needed for the above-described Processing Facility uses is 200- 300 US gallons (757 to 1136 litres) per day with no additional water required from on-site groundwater wells needed for the Wet Plant or Dry Plant processes. The daily total volume of water required for the Processing Facility is equivalent to a 4-6 person household in the local area. Each well will be installed the same as any domestic or industrial water well in accordance with *The Groundwater and Water Well Act* and will be capped to prevent surface water and debris from entering the wells. There is no risk of contamination or saline intrusion with the facility wells as they are designed and designated as domestic wells, as seen at other local facilities and homes and will drilled by a licenced water well driller. The wells will be capped and sealed to prevent the potential for contamination.	EAP, Section 6.2.3, Groundwater; EAP, Section 6.9.2, Spills and Leaks

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				No chemicals will be used in the processing of the sand. Water that will be recirculated into the sand washing process will be treated first with a biodegradable food-grade flocculant as an aid for fines settling. The water treatment system closely resembles that of a typical water treatment facility. Due to the recirculation of sand processing water in a loop system, there will be no discharge of sand processing wastewater. Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will include a septic tank and drain field/leach field. The septic system will be installed, and regularly maintained and monitored for correct functioning, in accordance with the Onsite Wastewater Management Systems Regulation under *The Environment Act* . Groundwater will be protected from accidental spills (e.g. fuel, oil) through the use of standard spill containment devices. Limited volumes of hazardous waste will be stored on-site and will consist of those commonly found in maintenance shops (e.g. engine oil; lubricants; adhesives; paint) and associated with routine building and equipment maintenance (e.g. loaders; pick-up truck). These wastes will be stored in a designated location on site and handled, transported and disposed of in accordance with applicable legislation and associated regulations and guidelines, including *The Dangerous Goods Handling and Transportation Act* of Manitoba and applicable regulations. Additional response information is provided in **Attachment A**: CanWhite Response to Impact Assessment Agency of Canada (IAAC).	
				Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Shaun Rempel and Tannis Zimmer, in comment_2.pdf file; James Bennett, Paul and Cathleen Jensson, Kyle Buck, Gérard and Louise Perrin, Bea Gunn and Huge Arklie in comment_3.pdf file; received from the EAB Sept. 14, 2020	17	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Meghan Bunio in comment_5.pdf file received from the EAB Sept. 14, 2020; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file; Yao Wi, Jen and Alex Korotkov, Carolyn and James Lintott, and Ken Taylor, in comment_8.pdf file; Michael Bagamery, Sarah Ans Tomiak, Darlene Ans, Peggy and Nancy Kasuba, Matthew Wiens, Chelsey and Anthony Domienik, Charlene Currie and Diane Kunec, in comment_9.pdf file; received from the EAB Sept. 14, 2020	18	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Louise Perrin, Aug. 14, 2020; Email from Cam Livingstone, Aug. 14, 2020; Public Comments Batch #3; Email from Shymko Homes, Aug. 13, 2020, Public Comments Batch #3; Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3, and Rick and Susanne Wastle and family, in comment_3.pdf file received from the EAB Sept. 14, 2020	19	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Kelly Shymko, Ross Brownlee, Natalie Leonard, Sam Posnick, Joe Dudych, Shar Lynn, Laurie Marcella, El Plotkin, Kyle Sierens, Maureen Ferley, Natalie Normandeau, Kati Nagy, Samantha Machado, Douglas Takacs, Stephanie Robinson, Monica Novotny and Leanne Landriault in comment_2.pdf file; Gerald Dufault, and Tara Star in comment_3.pdf file; received from the EAB Sept. 14, 2020	20	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Matthew Cline, Shian Rocan, Kyra Silman, Michelle Curry, Robert Régnier, Ben Linnick, Brad Derksen, Nancy Rybak, Jennifer Engbrecht, Maja Crawley, Danielle Sicotte, Kathryn May Wady, Akos Knowles, Jo-Anne Irving, Brian Bear, Linda Hazelwood, Anne-Sophie Régnie, Christina Sawatzky, Talia Bogaski, Jade Raizenne and Neil Cameron in comment_4.pdf file received from the EAB Sept. 14, 2020	21	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Halle Rempel, Danielle Jones, Irene Hudek, John Hasenack, Aurora Dekker, Malina Tillberg, Eric Schiffmann, Kayla Sinclair, Meagan Morfoot, Monique Lapointe and A. Stutski, Darin Morash, Lynsay Perkins, Annette Gargol, Véronique Reynolds, Natalie Normandeau in comment_5.pdf file; Brad Derksen, Linda Fearn, Andrew Hogue, Mark Taylor, Natalie Mulaire, Thomas Steur, Amélie Tétrault, Sky Jaques, Matt Gilbert, Mike Wakely and Camille Chartier in comment_6.pdf file; Kelly MacDonald, Marjorie Page and Don Jodoin in comment_8.pdf file; Linda Dawson, Fred Bowley, Don Ans, Janice Gray and Lindy Clubb in comment_9.pdf file; received from the EAB Sept. 14, 2020	22	General - concern about potential effects on groundwater/aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	23	"*Both aquifers will be compromised by the extraction. This will affect the entire population of southeast Manitoba who depend on this water for drinking and industrial use* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Marie Mozil, in comment_1.pdf file received from the EAB Sept. 14, 2020	24	"*Our concerns fall with literature and information circulating regarding the high-volume use of water this corporation is going to be using. There has been talk of contamination to the aquifer and/or decreased water supply to the surrounding area* ."	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	25	Concern about sustainable aquifer water use: "*The huge amount of water withdrawn will be beyond the sustainable yield of the aquifer according to a 2005 report from Woodbury and Kennedy - hydrogeologists from the U of M. https://www.tandfonline.com/doi/pdf/10.4296/cwrj3004281* "	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1; Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1	26	General - concern about sustainable aquifer water use.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Brent Bjorklund, in comment_1.pdf file; Karen McDonald, Heather Erickson and Kevin Miller, Linda and Frank Hickling, in comment_5.pdf file; Janine Gibson, in comment_6.pdf file; Aidan O-Hara, Tangi Bell, Lindell Page and Keith Sharp, in comment_8.pdf file; Matthew Tomiak in comment_9.pdf file; received from the EAB Sept. 14, 2020	27	General - concern about sustainable aquifer water use.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf and Chris Martens in comment_4.pdf files received from the EAB Sept. 14, 2020	28	"*Removing the amount of water that 64,000 people would use every year for 24 years, is beyond the sustainable limit of the Winnipeg Formation* .	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Michael Bailey, Kim Bjornson and Fred Goods, in comment_1.pdf file; Erin Dolinski and Shaun Rempel in comment_2.pdf file; and Ricky Koswin, Andrew Lindsay and Sharon Peters in comment_4.pdf file; Carolyn Bryan, Chris and Marianne Bowker, Michael Plischke in comment_5.pdf file; Evan Woelk Balzer and Wendy Sinclair in comment 6.pdf file; Tamara Towes-Lopéz and Jocelyne Wilson in comment_9.pdf file; received from the EAB Sept. 14, 2020	29	General - concern about sustainable aquifer water use and potential contamination of the aquifers and potential for transboundary impacts of aquifers extending into Minnesota.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	30	Concern regarding potential for groundwater contamination through sand slurry extraction boreholes: "*Pollution descending boreholes during the operation of the project or after the conclusion of the operation of the project, including due to heavy rains, snow melt, flooding, accidental release fluids, the release of organic fluids such as petroleum or its refined products* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	31	Concern regarding potential for groundwater contamination by foreign organisms via sand slurry extraction boreholes: "*Organisms foreign to one environment migrating to another environment, whether from surface to subsurface or vice versa* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	32	Concern regarding potential contamination of groundwater: "*Pollution of the surface lands and waters and ground waters due to accidents involving organic fluids such as lubricants and fuels, as well as degreasers, cleaning agents, desliming agents and other chemicals, including chemicals with long high lives, used in operations, as well as with human effluent.. .* "	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1; Stephen Berg, in comment_2.pdf file; Brokenhead Ojibway Nation 'BON' (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC), in comment_6.pdf file; Mike Karakas, William Dyck and Family, and Tami Reynolds, in comment_8.pdf file; Herman and Marilyn Bouw, in comment_9.pdf file; received from the EAB Sept. 14, 2020	33	General - concern about potential effects on the aquifer and drinking water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Robin Hyszka, Aug. 10, 2020, Public Comments Batch #2	34	General - concern about effects on the aquifer and wells in the RM of Springfield.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Dustin (Dusty) Molinski, Aug. 6, 2020, Public Comments Batch #2	35	General - concern about the potential for contamination of the aquifer (e.g. acid; heavy metals).	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	36	General - concern about the potential for contamination of the aquifer (e.g. saline intrusion).	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Email from Ernie and Gail Hartje, Aug. 10, 2020, Public Comments Batch #2; Michael Simpson, in comment_1.pdf file received from the EAB Sept. 14, 2020	37	General - concern about the potential for contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Eileen and John Wazny, July 27, 2020, Public Comments Batch #2	38	"*The aquifer is at the surface; will the water quality be destroyed or changed in any way?*"	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Emails: Sarah Coss, Aug. 10, 2020, and Meradith Anderson, Aug. 10, Public Comments Batch #3; Jo-Anne Gibson, in comment_1.pdf file; Michale Lavich and Darryl Speer, in comment_9.pdf file; received from the EAB Sept. 14, 2020	39	General - concern about potential effects on the aquifer, drinking water, and potential for contamination.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Lawrence Michalchuk, Aug. 11, 2020, Public Comments Batch #3; Email from Janice Bettens, Aug. 14, 2020, Public Comments Batch #3; Jack Kowalchuk and Jackie, in comment_1.pdf file; Cynthia Kowal, in comment_2.pdf file; received from the EAB Sept. 14, 2020	40	General - concern about the potential for contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Emily MacMaster, Kassandre Maharajh, Irene Raabe, Kyla Enns, Emma Carey, Lisa Thomas, Jesse Rodgers, Jaye Donohoe, Nicole Marie, Stenice Taylor, Darcy Armitt, Kayla Say, Marco Gruwel, Maureen Cooper, Laureen Say, Harry Holmes, Ginette Paillé and Marc Greene in comment_4.pdf file received from the EAB Sept. 14, 2020	41	General - concern about the potential for contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

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	Kathryn Ayers, Sher Stoddard and Family, Lori Bohn and Wayne Janz, Janice Brolly, Robert Wood, Eddie and Pearl Domienik, Linda and Frank Hickling, and Steven in comment_5.pdf file; Janine Gibson and Betty Belyk in comment_6.pdf file; Keith Sharp and Sharon Harman in comment_8.pdf file; Samantha Braun, Mark Waldner and Glen Koroluk in comment_9.pdf file; received from the EAB Sept. 14, 2020	42	General - concern about the potential for contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Carolyn Sherlock, Aug. 14, 2020, Public Comments Batch #3	43	General - concern about potential contamination of groundwater and private wells in the RM of Springfield.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from D. Krentz, Aug. 14, 2020, Public Comments Batch #3	44	General - concern about effects on the aquifer and wells in the RM of Springfield.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Katie Hartle and Lynne Sinclair in comment_4.pdf file received from the EAB Sept. 14, 2020	45	General - concern about effects on well water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Michael Zurek, Aug. 14, 2020, Public Comments Batch #4	46	General - concern about potential effects on the aquifer, drinking water, and including potential for toxicity (acidity) effects.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	47	General - concern about potential effects on drinking water including potential for toxicity effects / contamination.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Linda Whitford, Aug. 14, 2020, Public Comments Batch #4	48	General - concern about potential effects on the aquifer and drinking water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Bruce Hobson, Aug. 14, 2020, Public Comments Batch #4; Margaret Waldner, in comment_1.pdf file; Heather Erickson, in comment_5.pdf file; Rosie Jodoin, in comment_6.pdf file; Tory Warkentin, Mary Ann Haddad and Ken Siwak, in comment_9.pdf file; received from the EAB Sept. 14, 2020	49	General - concern about potential effects on the aquifer and drinking water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Email from Otto Lang, Aug. 14, 2020, Public Comments Batch #4	50	General - concern about potential effects on the aquifer and uses.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf and Chris Martens, in comment_4.pdf files received from the EAB Sept. 14, 2020	51	*"The Facility is located in an area of sandy, porous soil. Some acid, acrylamide and heavy metals will seep into the aquifer just as occurred with a small surface spill of trichlorethylene in the 90's, contaminating all wells within 24 square kms, now called the Rockwood Sensitive area* ."	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Anne Wowchuk, in comment_2.pdf file received from the EAB Sept. 14, 2020	52	"*I would like to see an impartial study completed as to the aquifer and the potential harm contaminants that are being introduced by the mining process as well as the sand drying process. An impartial assessment will provide the residents who use this aquifer to be more accepting of the data presented* ."	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Mickayla Ziolkoski, in comment_4.pdf file received from the EAB Sept. 14, 2020	53	"*We should not be mining our groundwater aquifers!* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	54	Cross-contamination of aquifers through disturbance of the shale layer: "*The shale layer contains pyrite so not only will the flocculent be an issue but air introduced to pyrite will form acid, changing PH levels and heavy metals, such as arsenic, will leach out of the shale. This shale is a natural barrier that separates the two aquifers from cross contamination* ."	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	55	"*The Winnipeg Formation extends outside of the Sandilands Aquifer. It is "an extensive geological unit which is found throughout southern and central Manitoba and eastern and central Saskatchewan and extends southward into North and South Dakota, Montana and Wyoming" (1). The Proposal fails to address Section 13.1(1) of The Environment Act, "Agreements with other jurisdictions". The Proposal needs to acknowledge this.* "	The two wells for the Processing Facility are planned for the limestone aquifer, and will not cross the shale or into the sandstone aquifer. There is no risk of contamination or saline intrusion with the facility wells as they are designed and designated as domestic wells, as seen at other local facilities and homes and will drilled by a licenced water well driller. The wells will be capped and sealed to prevent the potential for contamination. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Refer to mitigation measures proposed for response to #16 regarding groundwater Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
ATMOSPHERIC ENVIRONMENT					
Air Quality	Email from Kathy Hughes, July 23, 2020, Public Comments Batch #1	56	General - concern about potential effects on air quality.	CanWhite will be utilizing the latest industry technology in the Project design to control any potential silica sand dust and other air contaminants. To control dust, the entire Dry Plant will be enclosed. The dryer is equipped with a baghouse to capture dust generated from the drying process. All conveyors after the dryer are enclosed, with all transfer points under negative pressure to control dust along the conveyance system.	EAP, Section 6.3.1, Air Quality EAP, Section 6.3.1.2, Dust Management and Monitoring EAP, Section 8, Follow-up Plans **Additional Proposed Mitigation:** CanWhite will enclose the sand reject pile containing fines (dry plant sand reject pile) and will cover the discharge points onto the hopper and conveyors to further mitigate the potential for dust generation.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
				Wet sand stockpiles will be too wet to be a source of dust to the surrounding environment. During the winter months, the wet sand stockpiles will freeze a few inches on the outer layer, which will contain the sand further should there be any remaining dust particles in the stockpiles. The sand in the wet sand stockpiles is still wet when picked up by a loader and placed into a hopper which feeds scalping screens prior to entering the Dry Plant (which is completely enclosed). Therefore, the wet sand will not create dust when moved by the loader. The overs sand reject pile associated with the Wet Plant and the overs sand reject pile associated with the Dry Plant will be misted with water to mitigate the potential for fugitive dust generation, as needed (e.g. during hot, dry and windy weather). During the winter months, the Wet Plant sand reject pile will be covered with a mesh system (similar to a fishing net) that will allow snow and ice to accumulate on the wet sand pile to act as a natural containment to control dust. Additionally, the sand rejects from the Dry Plant will be enclosed in a building and the discharge points onto the hopper and conveyors will be covered to further mitigate the potential for dust generation. Refer to the response to #125 for Human Health - Silica Dust for a description of how the sand wash process removes fines from the sand slurry entering the facility. The oversize sand and overs/fines sand reject piles will be regularly depleted as those materials can be sold to alternate markets and used in other applications. Regarding the waste sand collected in the Dry Plant baghouse air filter system, the handling of fine silica dust collected will be conducted by trained personnel in accordance with *The Workplace Safety and Health Act* which includes provisions for safely working with potential airborne contaminants. Appropriate personal protective equipment will be supplied to employees and workers. An Air Quality Impact Assessment report prepared by an independent consulting company is available as part of the Environment Act Licence application (Environment Act Proposal document) which was prepared by technical experts and provides an assessment of the potential effects of the Project on air quality, including the potential for exceedances in pollutants including dust. The results of the Air Quality Impact Assessment report have indicated that modelled concentrations of air quality parameters (including dust) at nearest residents to the Processing Facility during Project operations were well below the provincial guidelines. CanWhite has committed to developing a Dust Management Plan, including dust/particulate matter monitoring, that will be in place during all phases of the Project to confirm that mitigation measures that have been put in place are effective and to allow for the implementation of additional engineering and/or operational controls to further control dust if required. As indicated in Section 6.3.1.2 (Dust Management and Monitoring) of the EAP, CanWhite will consult with MBCC prior to initiation of construction to determine an acceptable monitoring frequency for both the general (total) dust and silica dust monitoring programs. These details will be included in the monitoring plan.	

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
				Additional response information is provided in **Attachment A**: CanWhite Response to Impact Assessment Agency of Canada (IAAC) and **Attachment B**: Memorandum: Response to the Technical Advisory Committee Questions and Comments related to Air Quality .	
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	57	Concern about effects on air quality: "*Atmospheric pollution from sand drying using propane or another fossil fuel* "	The contributions of the Project to greenhouse gas emissions was calculated and information was provided in Section 6.3.2 (Climate/Greenhouse Gases) in the EAP. In summary, the project is estimated to generate approximately 34,324 tonnes of CO_2e annually during dryer operations with natural gas which is 0.00016% of the reported emissions in 2018 which were 21.8 Mt CO_2e from Manitoba, and 0.000005% of the reported 729 Mt CO_2e from Canada in 2018. Therefore, the impact of the Project on GHG contributions to the atmosphere is assessed as negligible.	EAP, Section 6.3.2, Climate/Greenhouse Gases
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	58	Concern about effects on air quality: "*Atmospheric pollution from all other sources, including, without limitation, dust, smoke or evaporations from chemicals used in operations* "	Refer to the responses above for #56 and #57.	Refer to mitigation measures proposed for response to #56 and #57.
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	59	Concern about effects on air quality: "*Atmospheric pollution for all internal combustion engines, including all vehicles used to hall sand to its final destination. This topic includes, without limitation, climate change gases, ozone depleting substances, particulates less than 10 microns in size, chemicals capable of producing acid rain and toxic substances* "	Refer to the responses above for #56 and #57.	Refer to mitigation measures proposed for response to #56 and #57.
	Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3; Rick and Susanne Wastle and family, in comment_3.pdf file; Shian Rocan in comment_4.pdf file; Meghan Bunio in comment_5.pdf file; Ken Siwak and Mary Ann Haddad in comment_9.pdf file; received from the EAB Sept. 14, 2020	60	General - concern about potential effects on air quality.	Refer to the response for #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Jamie Godfredsen, in comment_1.pdf file received from the EAB Sept. 14, 2020; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	61	General - concern about potential effects on air quality (dust).	Refer to the response for #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4; Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	62	General - concern about damage to the environment (entirety - including air quality).	Refer to the response for #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
Climate/Greenhouse Gases	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	63	Concern about "*The climate change impacts of all atmospheric emissions including: drying sand, transporting sand, assisting fracking, transporting oil and continuing to burn oil based products* "	The contributions of the Project to green-house gas emissions was calculated and information was provided in Section 6.3.2 (Climate/Greenhouse Gases) in the EAP. In summary, the project is estimated to generate approximately 34,324 tonnes of CO_2e annually during dryer operations with natural gas which is 0.00016% of the reported emissions in 2018 which were 21.8 Mt CO_2e from Manitoba, and 0.000005% of the reported 729 Mt CO_2e from Canada in 2018. Therefore, the impact of the Project on GHG contributions to the atmosphere is assessed as negligible.	EAP, Section 6.3.2, Climate/Greenhouse Gases
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	64	"*The EAP states "Overall, the Project is estimated to generate approximately 34,324 tonnes of CO_2e annually during dryer operations…" Omitted is the GHG associated with pumping 1.36 million tonnes of sand to the plant by slurry as well as the GHG associated with drilling and sealing of the required boreholes and pumping the sand slurry from the aquifer.* "	Refer to the response above for #63 regarding greenhouse gas emissions. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Refer to mitigation measures proposed above for response to #63 regarding greenhouse gas emissions. Mitigation measures associated with the Vivian Sand Extraction Project will be fully described in the upcoming Vivian Sand Extraction Project Environment Act Proposal.
	Matthew Wiens in comment_9.pdf file; received from the EAB Sept. 14, 2020	65	"While the natural gas consumed for drying the sand appears to have a small impact on global warming when compared to Manitoba's total greenhouse gas (GHG) emissions, it is nonetheless an increase in GHG emissions at a time when the Manitoba government is struggling to achieve its legislated Carbon Savings Account target. In addition to the GHG emissions from the drying of the sand there will be additional emissions from motorized vehicles on site and from the transportation of the sand by rail."	Refer to the response above for #63 regarding greenhouse gas emissions.	Refer to mitigation measures proposed above for response to #63 regarding greenhouse gas emissions.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	66	General - concern about 'damage' to the environment (entirety - including climate/greenhouse gases).	Refer to the response above for #63 regarding greenhouse gas emissions.	Refer to mitigation measures proposed above for response to #63 regarding greenhouse gas emissions.
	Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	67	General - concern about 'threat' to the environment (entirety - including climate/greenhouse gases).	Refer to the response above for #63 regarding greenhouse gas emissions.	Refer to mitigation measures proposed above for response to #63 regarding greenhouse gas emissions.
	Monica Novotny, in comment_2.pdf file received from the EAB Sept. 14, 2020	68	General - concern about climate change.	Refer to the response above for #63 regarding greenhouse gas emissions.	Refer to mitigation measures proposed above for response to #63 regarding greenhouse gas emissions.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
Noise	Jamie Godfredsen, in comment_1.pdf file received from the EAB Sept. 14, 2020; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	69	General - concern about noise.	The current land area is largely forested, including around the perimeter of the Project site area. It is CanWhite's intention to leave in place as many trees and vegetation as possible to act as a natural buffer to mitigate noise. The Dry Plant will be an enclosed building which will minimize dry sand processing noise. We do not expect local residents to be impacted by the noise generated by the Project. A Noise Impact Assessment report prepared by an independent consulting company is available as part of the Environment Act Licence application (Environment Act Proposal document) which was prepared by technical experts and provides an assessment of the potential noise generated by the Project, including the potential for exceedances in noise guideline levels. The results of the Noise Impact Assessment report concluded that Project activities during the construction and operation phases are predicted to not exceed the limits set in the Manitoba Guidelines for Sound Pollution.	EAP, Section 6.3.3, Noise **<u>Clarification regarding Rail Loop design to Mitigate Noise:</u>** Refer to a clarification letter to the Environmental Assessment Branch (**Attachment C**)
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Chris Martens in comment_4.pdf file; Sher Stoddard and Family in comment_5.pdf file; Janie Gibson, in comment_6.pdf file; received from the EAB Sept. 14, 2020	70	General - concern about noise.	Refer to the response above for #69 regarding noise.	Refer to mitigation measures proposed for response to #69 regarding noise.
AQUATIC ENVIRONMENT					
Surface Water Quality	Email from Kathy Hughes, July 23, 2020, Public Comments Batch #1	71	General - concern about potential effects on water.	No chemicals will be used in the processing of the sand. The water that is separated from the sand will be treated with a biodegradable food-grade flocculant as an aid for fines settling, which is the same as what is used at typical water treatment facility. Processing water will be recycled in a loop system and will not be discharged to the surface. Water that drains off the wet sand stockpiles will be captured using a drain system and recycled for the sand processing. Therefore, water draining off sand stockpiles will not be drained to the surface as runoff to waterbodies. As indicated in the response #16 regarding groundwater, surface water will be protected from accidental spills (e.g. fuel, oil) through the use of standard spill containment devices. Limited volumes of hazardous waste will be stored on-site and will consist of those commonly found in maintenance shops (e.g. engine oil; lubricants; adhesives; paint) and associated with routine building and equipment maintenance (e.g. loaders; pick-up truck). These wastes will be stored in a designated location on site and handled, transported and disposed of in accordance with applicable legislation and associated regulations and guidelines, including *The Dangerous Goods Handling and Transportation Act* of Manitoba and applicable regulations. Additional response information is provided in **Attachment A**: CanWhite Response to Impact Assessment Agency of Canada (IAAC). Also refer to the response for #16 regarding groundwater.	EAP, Section 6.4.1, Surface Water Quality; EAP, Section 6.9.2, Spills and Leaks Also refer to mitigation measures proposed for response to #16 regarding groundwater.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	72	Concern regarding potential contamination of surface water: "*Pollution of the surface lands and waters and ground waters due to accidents involving organic fluids such as lubricants and fuels, as well as degreasers, cleaning agents, desliming agents and other chemicals, including chemicals with long high lives, used in operations, as well as with human effluent.. .* "	Refer to the responses for #71 regarding surface water quality and #16 regarding groundwater.	Refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.
	Article submission titled "CanWhite Sands Corp Proposed Silica Sand Processing Facility and Impacts to the Brokenhead River" by Dennis LeNeveu (July 28, 2020), Public Comments Batch #1	73	General - concern about effects (including contamination) on the Brokenhead River and Lake Winnipeg.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Jackie, James Culleton in comment_1.pdf file; Stephen Berg, in comment_2.pdf file; James Bennett and Debra Kelly in comment_3.pdf file; Katheryn Ayers in comment_5.pdf file; Janine Gibson, in comment_6.pdf file; Janice Gray, in comment_9.pdf file; received from the EAB Sept. 14, 2020	74	General - concern about effects on the Brokenhead River and Lake Winnipeg.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Dustin (Dusty) Molinski, Aug. 6, 2020, Public Comments Batch #2	75	"*I want to see that mitigation of contaminated waters possibly leaving the facility site and entering the watershed is undertaken* . "	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Ernie and Gail Hartje, Aug. 10, 2020, and Email from Robin Hyszka, Aug. 10, 2020, Public Comments Batch #2; Gary Stuve and Jamie Godfredsen, in comment_1.pdf file; Monica Novotny, in comment_2.pdf file; received from the EAB Sept. 14, 2020	76	General - concern about potential effects on water.	Refer to the responses for #71 regarding surface water quality and #16 regarding groundwater.	Refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.
	Email from Tracey Demers, Aug. 10, 2020, Public Comments Batch #2; Tara Starr, in comment_3.pdf file; Sandra Kowalyk in comment_8.pdf file; Samantha Braun in comment_9.pdf file; received from the EAB Sept. 14, 2020	77	General - concern about potential contamination of the Brokenhead River and connecting waterways.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3; Email from Louise Perrin, and Email from Janice Bettens, Aug. 14, 2020 in Public Comments Batch #3; Email from Bruce Hobson, Aug. 14, 2020, Public Comments Batch #4; Rick and Susanne Wastle and family, in comment_3.pdf file; Natalie Leonard, in comment_2.pdf file; Cynthia Foreman, Gérard and Louise Perrin, Bea Gunn and Kyle Buck in comment_3.pdf file; Matthew Cline, Kyra Silman, Ben Linnick, Nicole Marie, Darcy Armitt, Laureen Say, Brad Derksen, Nancy Rybak and Shian Rocan in comment_4.pdf file; received from the EAB Sept. 14, 2020	78	General - concern about potential effects on water.	Refer to the responses for #71 regarding surface water quality and #16 regarding groundwater.	Refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.
	Sky Jaques in comment_6.pdf file; received from the EAB Sept. 14, 2020; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file; Ken Taylor, Lindell Page and Tangi Bell, in comment_8.pdf file; Lindy Clubb, Janice Gray, Matthew Wiens and Fred Bowley in comment_9.pdf file; received from the EAB Sept. 14, 2020	79	General - concern about potential effects on water.	Refer to the responses for #71 regarding surface water quality and #16 regarding groundwater.	Refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.
	Email from Sarah Coss, and email from Meradith Anderson, Aug. 10, 2020, Public Comments Batch #3	80	*"Implications of the area where its going to Drain on the Brokenhead River..."*	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Otto Lang, Aug. 14, 2020, Public Comments Batch #4	81	General - concern about potential effects on water bodies and uses.	Refer to the responses for #71 regarding surface water quality and #16 regarding groundwater.	Refer to mitigation measures proposed for response to #71 regarding surface water quality and #16 regarding groundwater.
	Email from Michael Zurek, Aug. 14, 2020, Public Comments Batch #4; Lori Bohn, in comment_5.pdf file; Brokenhead Ojibway Nation 'BON' (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC), in comment_6.pdf file; and Kelly MacDonald in comment_8.pdf file; received from the EAB Sept. 14, 2020	82	General - concern about effects (including contamination) on the Brokenhead River and Lake Winnipeg.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Gerald Dufault, in comment_3.pdf file; Rosie Jodoin in comment 6.pdf file; received from the EAB Sept. 14, 2020	83	General - concern about effects (including contamination) on Lake Winnipeg.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Jack Kowalchuk, in comment_1.pdf file; Neil Cameron, in comment_4.pdf file; Karen McDonald, Janice Brolly, Robert Wood in comment_5.pdf file; Sharon Harman, in comment_8.pdf file; received from the EAB Sept. 14, 2020	84	General - concern about effects (including contamination) on the Brokenhead River.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	85	"*Toxic excess water will follow the natural drainage pathway into the Brokenhead River and seep into the carbonate aquifer as it migrates* "	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	86	*The EAP states that "The Project site contains no surface water apart from roadside ditches" and that "these surface waters are not directly connected with permanent natural waterways". If local ditches don't drain into local waterways, where does the water go?*	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	87	General - concern about potential for chemical by-products being discharged to rivers: "*Discharge water from a mine will contain harmful chemical by-products that do not belong in our rivers* ."	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4; Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	88	General - concern about damage to the environment (entirety - including surface water quality).	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
Fish and Fish Habitat	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	89	"*Some acid and its heavy metal load will eventually be discharged into the BrokenHead River. This will have unknown detrimental effects of water quality and fish populations* ."	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	90	Concern regarding: "*Injury to fish in the groundwater (fish in the groundwater are common in the greater interlake watershed area of Manitoba: see the environmental assessment documents in file 3665.00, respecting Bristol Aerospace Limited* ."	During CanWhite's exploration and pump testing activities in the vicinity of the Project, there has been no evidence of fish being extruded from the groundwater. A recent hydrogeological study for a proposed new municipal groundwater supply in the RM of Springfield made no mention of fish observed within groundwater from aquifer tests (Friesen Drillers 2019).	N/A
	Email from Robin Hyszka, Aug. 10, 2020, Public Comments Batch #2; Samantha Braun in comment_9.pdf file received from the EAB Sept. 14, 2020	91	General - concern about effects on water, including fish in the Brokenhead River.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Gerald Dufault, in comment_3.pdf file received from the EAB Sept. 14, 2020	92	General - concern about effects on water, including fish in Lake Winnipeg.	Refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	93	Cynthia Foreman, in comment_3.pdf file received from the EAB Sept. 14, 2020	Project related impacts on fish and fish habitat are not anticipated due to the lack of fish habitat within the Project Site and Local Project Area, and application of an Erosion and Sediment Control Plan. Also refer to the response for #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4; Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	94	General - concern about damage to the environment (entirety - including fish and fish habitat).	Refer to the response for #93, and also #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Cynthia Foreman, in comment_3.pdf file received from the EAB Sept. 14, 2020	95	General - concern about impacts to fisheries.	Refer to the response for #93, and also #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
	Brokenhead Ojibway Nation 'BON' (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC) in comment_6.pdf file; received from the EAB Sept. 14, 2020	96	Concern about impacts to fish, including aquatic species at risk, in the Brokenhead River.	Refer to the response for #93, and also #71 regarding surface water quality.	Refer to mitigation measures proposed for response to #71 regarding surface water quality.
TERRESTRIAL ENVIRONMENT					
Vegetation	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	97	General - concern about damage to the environment (entirety - including vegetation).	Due to the minimal amount of naturally vegetated land requiring clearing to accommodate the Project footprint and application of mitigation measures to avoid or minimize adverse effects to vegetation, effects on vegetation were assessed as 'minor' within Section 6.5.1 of the EAP. The Project site land is currently zoned as industrial extractive holding zone which is primarily aggregate operations. The Facility Project will preserve most of the naturally vegetated area within the Project site. The impact assessment for vegetation as reported in Section 6.5.1 of the EAP was done in consideration of an original preliminary rail loop design (as shown in Figure 1-2 in the main body of the EAP). A revised and smaller rail loop design was considered and assessed in the Noise Impact Assessment (Appendix C from the EAP) and in the impact assessment text in Section 6.3.3 'Noise' in the main body of the EAP. However, other sections of the EAP inadvertently considered impacts of the original larger rail loop design (i.e. the worst-case scenario) in error. CanWhite revised the placement, shape, width and length of the original rail loop to address potential noise issues and identify a design that would best fit the physical, environmental and operational constraints of the Project Site component of the Project. The smaller proposed rail loop design will further minimize the amount of naturally vegetated land required to be cleared to accommodate the Project footprint (see **Attachment C** for clarification).	EAP, Section 6.5.1, Vegetation **Naturally Vegetated Area to be Cleared Clarification:** With the smaller rail loop design that was assessed in the Noise Impact Assessment (Appendix C from the EAP), the area of natural vegetation needing to be cleared for the Project footprint is reduced from 17.0 ha (as reported in the EAP Table 6-4) to 13.9 ha. The 17.0 ha had considered an earlier and larger rail loop design. Refer to **Attachment C** for additional clarification on the rail loop design.
	Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	98	General - concern about threat to the environment (entirety - including vegetation).	Refer to the response for #97 regarding vegetation and response for #11 regarding soils.	Refer to mitigation measures proposed for response to #97 regarding vegetation and #11 regarding soils.

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	Cynthia Foreman, and Tara Starr in comment_3.pdf file; Sarah Boeckler, Ginette Paillé and Darcy Armitt in comment_4.pdf file; Sky Jaques in comment_6.pdf file; received from the EAB Sept. 14, 2020	99	General - concern about the impacts to "land" (including vegetation)	Refer to the response for #97 regarding vegetation and response for #11 regarding soils.	Refer to mitigation measures proposed for response to #97 regarding vegetation and #11 regarding soils.
	Debbie Wall, in comment_8.pdf file; received from the EAB Sept. 14, 2020	100	General - concern about the impacts to "wilderness" (including vegetation)	Refer to the response for #97 regarding vegetation and response for #103 regarding wildlife.	Refer to mitigation measures proposed for response to #97 regarding vegetation and #103 regarding wildlife.
	Dianna Larkin-Seepish, in comment_9.pdf file; received from the EAB Sept. 14, 2020	101	General - concern about the impacts to vegetation	Refer to the response for #97 regarding vegetation.	Refer to mitigation measures proposed for response to #97 regarding vegetation.
Wildlife	Email from Eileen and John Wazny, July 27, 2020, Public Comments Batch #2	102	"*Will silica sand harm the respiratory system in humans or animals?* "	Refer to the response for #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	103	General - concern about damage to wildlife.	Project activities that disrupt the natural environment (e.g. vegetation clearing, noise) are the primary contributors to potential effects on wildlife. Mitigation measures described in the response to #97 regarding vegetation, will contribute to reducing adverse effects on wildlife. Other mitigation measures explained in the EAP in Section 6.5.2 (Wildlife) will also be applied. Therefore, the EAP has concluded that the Project is not anticipated to have a measurable effect on wildlife populations within the Interlake Plain Ecoregion.	Refer to mitigation measures proposed for response to #97 regarding vegetation; #56 regarding air quality; and #69 regarding noise.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	104	General - concern about damage to the environment (entirety - including wildlife).	Refer to the response above for #103 regarding wildlife.	Refer to mitigation measures proposed above for response to #103.
	Ginette Paillé and Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; Debbie Wall, in comment_8.pdf file; received from the EAB Sept. 14, 2020	105	General - concern about damage / threat to wildlife.	Refer to the response above for #103 regarding wildlife.	Refer to mitigation measures proposed above for response to #103.
Species of Conservation Concern	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4	106	General - concern about damage to the environment (entirety - including species of conservation concern).	Due to the limited amount of cleared vegetation/habitat that will be required for the Project, prevalence of similar cover types within the Regional Project Area, and application of mitigation measures as described in Section 6.5.1 (vegetation) and Section 6.5.2 (wildlife) in the EAP, impacts to regional populations of species of conservation concerns are assessed as minor to negligible, depending on the species of conservation concern and their habitat preferences. The Project site land is currently zoned as industrial extractive holding zone which is primarily aggregate operations. The Facility Project will preserve most of the naturally vegetated area within the Project site.	Refer to mitigation measures proposed for responses to #97 regarding vegetation and #103 regarding wildlife.
	Jennifer Engbrecht in comment_4.pdf file; Brad Derksen in comment_6.pdf file; received from the EAB Sept. 14, 2020	107	General - concern about threat to the environment (entirety - including species of conservation concern).	Refer to the response above for #106.	Refer to mitigation measures proposed above for response to #106

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	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	108	Concern regarding species at risk.	Refer to the response above for #106 and response #89 regarding fish and fish habitat.	Refer to mitigation measures proposed above for response to #106 and for response to #89 regarding fish and fish habitat.
SOCIOECONOMIC ENVIRONMENT					
Socioeconomic - General	Cory Swenarchuk, in comment_1.pdf file received from the EAB Sept. 14, 2020	109	"*This project is environmentally unsafe and not a benefit to the community or Manitoba's economy* "	Regarding environmental concerns, refer to the above responses for Environment-specific topics. Benefits of the Project are described in Section 6.6 (Socioeconomic Environment) of the EAP and include, but are not necessarily limited to: employment opportunities during construction phase (20 to 50 people plus indirect employment of up to 60 additional people from support through local businesses and suppliers); employment opportunities during the operation phase (40 to 50 people); CanWhite will be bringing in a new natural gas line and will likely be requiring improved cellular service to the Local Project Area which has the potential to benefit local properties in the vicinity of these services.	Refer to mitigation measures proposed for environment-related topics above.
Infrastructure and Services	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	110	"*Who will pay for the large capital investment to extend the gas line?...Normally the PUB has hearings for gas line extension and the municipality is required to put up upfront cash to fund the infrastructure based on a present value calculation.* "	CanWhite is currently in discussions with Manitoba Hydro to extend and install a natural gas line to the facility. The capital for the line is part of the negotiation process and will not fall on the public.	
	Anne Wowchuk, in comment_2.pdf file received from the EAB Sept. 14, 2020	111	"*The opportunity of a natural gas line is a couple years, by their own admission, and it will only service a small number of residents. I would further suggest that they will be a cost to the residents to install natural gas into their property* . "	Refer to response #110 above. Additionally, the installation of the gas line will allow Manitoba Hydro to offer the benefit of a cleaner burning fuel source to the local residents. It will be at the owner's discretion if they would like to change over or add natural gas services. This would be between the owner and Manitoba Hydro to decide on cost.	
	Lindy Clubb in comment_9.pdf file received from the EAB Sept. 14, 2020	112	General - concerns about the community and roads.	Refer to response #113 above regarding property values, response #138 regarding traffic and response #69 regarding noise.	Refer to mitigation measures proposed for responses to #69 regarding noise.
Land and Resource Use	Leslie Olsson, in comment_1.pdf file; The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Chris Martens in comment_4.pdf file; Linda and Frank Hickling in comment_5.pdf file; received from the EAB Sept. 14, 2020	113	*"The Environment Act Proposal provides no evidence to support their claim that property values will not suffer under their Facility …*"	A study by the Heartland Institute of how silica sand projects affect local property values was referenced in the EAP in Section 6.6.3 (Land and Resource Use). An extensive previous study of property values by the Heartland Institute in the vicinity of silica sand extraction and processing facility locations in the United States found that there were “no documented circumstances of industrial sand mining causing a community-wide reduction of property values”. Therefore, property values are very unlikely to decrease in the vicinity of the Project, noting that the Heartland Institute study included open-pit silica sand extraction and processing projects. However, the CanWhite proposed Project is a sand processing facility that does not include open-pit mining. Also see the response to #109 regarding benefits of the Project. In addition, with an increase of available infrastructure (i.e. natural gas) and nearby associated jobs, it is anticipated that there will be an increased demand for housing in the area resulting in increased in property values. Land is currently zoned as Industrial Extractive Holding Zone which is primarily aggregate operations. The Facility Project will preserve most of the naturally vegetated area within the Project site.	N/A

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	Heather Erickson, in comment_5.pdf file received from the EAB Sept. 14, 2020	114	"*This plant is going to run 24/7, there will be increased rail and vehicular traffic, the availability of potable water is a real and present threat, this will devalue properties of people who have invested their lives in this community* ."	Refer to response #113 above regarding property values, response #138 regarding traffic and response #16 regarding groundwater.	Refer to mitigation measures proposed for responses to #16 regarding groundwater.
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	115	Concern that traffic, including truck and train traffic and associated noise, will decrease property values.	Refer to response #113 above regarding property values, response #138 regarding traffic and response #69 regarding noise.	Refer to mitigation measures proposed for responses to #69 regarding noise.
	Philip Ferguson, in comment_1.pdf file received from the EAB Sept. 14, 2020	116	"*Last summer, heavy equipment came into our community to drill test wells without any notice. We were left wondering what was going on. Really, we just want to be informed* ." "*I just want to be informed about the land use plans surrounding my property.* "	CanWhite will make efforts to provide information to local landowners within the vicinity of the project developments. Further public meetings are expected and planned to occur where more information about the extraction project and process will be shared. All current and previous work sites were under a landowner agreement with permission from the owner of the property.	
Human Health - drinking water contamination (also see responses under the 'Groundwater' environmental component above)	Email from Jim and Julie Hughes, July 26, 2020, and from Ernie and Gail Hartje, Aug. 10, 2020, Public Comments Batch #2	117	General - concern about potential effects on drinking water including potential for toxicity effects/contamination.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Brent Holtzman, Email from Bruce Hobson, Email from Linda Whitford, Aug. 14, 2020, Public Comments Batch #4; Ralph and Bonnie Christianson, and Jackie, in comment_1.pdf file; Tangi Bell in comment_8.pdf file; received from the EAB Sept. 14, 2020	118	General - concern about potential effects on the aquifer and drinking water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Nicole Ferraro, Aug. 14, 2020, Public Comments Batch #4	119	General - concern about potential contamination of drinking water and agriculture water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Chantille Papko, Aug. 14, 2020, Public Comments Batch #4 and in comment_5.pdf file received from the EAB Sept. 14, 2020; Michael Simpson, in comment_1.pdf file; Katheryn Ayers in comment_5.pdf file received from the EAB Sept. 14, 2020	120	General - concern about potential effects on drinking water including potential for toxicity effects/contamination.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Michael Zurek, Aug. 14, 2020, Public Comments Batch #4	121	General - concern about potential effects on the aquifer, drinking water, and including potential for toxicity (including acidity) effects.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Lynne Strome, in comment_1.pdf file received from the EAB Sept. 14, 2020	122	General - concern about potential effects on the "*vast clean water supply* " of the Sandilands aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Jim and Julie Hughes, in comment_3.pdf file; Sue Ziemski and Samantha Braun, in comment_9.pdf file; received from the EAB Sept. 14, 2020	123	General - concern about potential effects on the aquifer and drinking water.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.

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	Art Quanbury, in comment_5.pdf file received from the EAB Sept. 14, 2020	124	"*Not enough is known about the effects on the aquifers when large scale sand removal takes place* ."	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
Human Health - silica dust	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu), Public Comments Batch #1	125	General - concern about potential health effects of respirable silica dust from sand stockpiles.	The handling of fine silica dust collected and all other work associated with the Project will be conducted in accordance with *The Workplace Safety and Health Act* which includes provisions for safely working with potential airborne contaminants. Appropriate personal protective equipment will be supplied to employees and workers. Only trained and authorized personnel will be permitted in areas with the potential for airborne contaminants. Also refer to the response for #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Email from Dennis LeNeveu to wshcompl@gov.mb.ca and added to this project file # 6057.00, Public Comments Batch #1; Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1; Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1	126	General - Concern about respirable silica dust exposure of workers (inside and outside the facility) and nearby residents.	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	127	"*Residents including children near Vivian will be potentially exposed to harmful levels of silica dust that in the long term will cause silicosis and other irreversible fatal health outcomes* ."	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Email from Dennis LeNeveu to wshcompl@gov.mb.ca and added to this project file # 6057.00, Public Comments Batch #1	128	Regarding laboratory report on CanWhite sand in 2019 (https://noble.mediasite.com/mediasite/Play/3bd1bc6031ca470fa4364db528295ba81d?catalog=88b4f8c61c9e48d6a6aab5f4bfb5550f21): "*The...laboratory report taken from the video presentation shows 0.2 weight percent of the sand passed through the finest mesh size of 230 into the pan. A mesh of 230 corresponds to 63 microns. The production of sand will be at least one million tonnes per year. At least 2000 tonnes would be less than 63 microns in size. According to CanWhite's own analysis there will be a large amount of silica dust below 100 microns in diameter that can cause silicosis and cancer.* "	Two samples of raw sand slurry material were analysed by a third-party laboratory. Results showed 0.67% and 0.45% of particulates less than 11 micrometres in size which would represent particles that include silica, clay or a combination of both. It is important to note that these are the measured concentrations prior to the wet process which will result in the removal of these particles. When the sand slurry arrives at the facility, the sand will go through a dewatering process (EAP, Section 2.1.1.1. Processing Description). In the first step of the dewatering process, the sand will pass through cyclones to remove water and fines. Dewatering screens will then filter out particles smaller than 105 microns. Particles smaller than 105 microns (fines) will remain in the water from the cyclone and screening process. This water will then be treated using a flocculation process to separate out the fines. Fines removed from this water treatment process will be pumped to a belt press that will compress the fines and remove the remaining water, forming 'mud cake' style bundles, also known as Filter Cakes, for handling of wet solid fines. The Filter Cakes will be stored in an enclosed structure on-site and periodically transported from the Processing Facility in appropriate containment for use in alternate markets. As a result, fines are not expected to be found in outdoor sand stockpiles (shown as wet sand stockpile 'A' and 'B' in Figure 2-2 in the EAP).	**Additional Proposed Mitigation:** CanWhite will enclose the sand reject pile containing fines (dry plant sand reject pile) and will cover the discharge points onto the hopper and conveyors to further mitigate the potential for dust generation.

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				There are two sand reject piles (in Figure 2-2 in the EAP). The first is the wet plant reject pile that will consist of particles larger than 400 microns removed during the screening process described above. As described in Section 2.3.2 (Solid Waste and By-product) of the EAP, this sand reject pile is kept damp at all times during non-winter months to mitigate the potential for dust generation. The second is a sand reject pile from the dry plant. This reject sand is generated from the final quality control screening process and may contain particles smaller than 105 microns. In addition to keeping this sand reject pile damp, CanWhite will also be enclosing this sand reject pile in a building to further enhance CanWhite's dust control mitigation measures. Also refer to the responses for #125, and #56 regarding air quality.	
	Email from Eileen and John Wazny, July 27, 2020, Public Comments Batch #2	129	"*Will silica sand harm the respiratory system in humans or animals?* "	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Email from Ernie and Gail Hartje, Aug. 10, 2020, Public Comments Batch #2; Email from Jim and Julie Hughes, July 26, 2020, Public Comments Batch #2; Email from Meradith Anderson and Email from Sarah Coss, Aug. 10, 2020, Public Comments Batch #3; Email from Lawrence Michalchuk, Aug. 11, 2020, Batch #3	130	General - concern about potential health effects of silica dust related to the project.	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Brenda Kiansky, in comment_1.pdf file; Stephen Berg, in comment_2.pdf file; Jim and Julie Hughes, in comment_3.pdf file; Marco Gruwel, Kathryn May Wady and Ginette Paillé, in comment_4.pdf file; Heather Erickson, Sher Stoddard and Family in comment_5.pdf file; Janie Gibson, in comment_6.pdf file; Keith Sharp, in comment_8.pdf file; Michael Bagamery and Dianna Larkin-Seepish, in comment_9.pdf file; received from the EAB Sept. 14, 2020	131	General - concern about potential health effects of silica dust related to the project.	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
	Diane Kunec, in comment_9.pdf file received from the EAB Sept. 14, 2020	132	Concern regarding: "*The potential for silica sand to be released into the air from sand stored outside at the facility or while it is being transferred from the plant to rail cars for transport to market* ."	Refer to the responses for #125, and #56 regarding air quality.	Refer to mitigation measures proposed for response to #56 regarding air quality.
Human Health - general	Email from Tracey Demers, Aug. 10, 2020, Public Comments Batch #2; Lindell Page, in comment_8.pdf file; received from the EAB Sept. 14, 2020	133	General - concern about potential risks to human health related to the project.	Refer to the responses for #125 and #56 regarding air quality, #16 regarding groundwater, #71 regarding surface water, #138 regarding traffic and #69 regarding noise.	Refer to mitigation measures proposed for responses to #125 and #56 regarding air quality, #16 regarding groundwater, #71 regarding surface water, #138 regarding traffic and #69 regarding noise.

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	Email from Eileen and John Wazny, July 27, 2020, Public Comments Batch #2	134	"*Will Quality of Life change?* "	Refer to the responses for #125 and #56 regarding air quality, #16 regarding groundwater, #71 regarding surface water, #138 regarding traffic, #69 regarding noise and #113 regarding property values.	Refer to mitigation measures proposed for responses to #125 and #56 regarding air quality, #16 regarding groundwater, #71 regarding surface water, #138 regarding traffic and #69 regarding noise.
Effects on Indigenous and Treaty Rights	Brokenhead Ojibway Nation 'BON' (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC) in comment_6.pdf file received from the EAB Sept. 14, 2020	135	"*In our brief review of the EAP, we have determined that EAP is fundamentally deficient with respect to addressing BON's treaty and aboriginal rights protected under section 35 of the Constitution Act* ."	CanWhite has initiated communications with Brokenhead Ojibway Nation regarding this Facility Project and future extraction activities. Specifically, with respect to the matters covered in section 7(1)(c) of the federal *Impact Assessment Act* , 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.	
	Marci Riel (Manitoba Metis Federation), in comment_9.pdf. file received from the EAB Sept. 14, 2020	136	"*The proposed Project has the potential to impact the rights, claims, and interests of our Community and, as such, engagement and consultation with the MMF through the process ...will need to be followed* ."	CanWhite has initiated communications with the MMF since the original filing. Specifically, with respect to the matters covered in section 7(1)(c) of the federal *Impact Assessment Act* , 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.	
Heritage Resources	Leslie Olsson, in comment_1.pdf file; The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Chris Martens in comment_4.pdf file; Linda and Frank Hickling in comment_5.pdf file; received from the EAB Sept. 14, 2020	137	"*The Facility is near a network of historic cart trails leading to/from the area that served as a travel corridor for Past Peoples. Development within the area has the potential to impact heritage resources, therefore the Historic Resources Branch has concerns* ."	With the application of the mitigation measures described in the Heritage Resources Impact Assessment report provided in Appendix G of the EAP, the impacts on heritage resources are assessed as minor.	EAP, Section 6.6.6, Heritage Resources; Appendix G, Heritage Resources Impact Assessment Report
OTHER					
Traffic	Email from Otto Lang, Aug. 14, 2020, Public Comments Batch #4	138	General - concern about the transportation of sand on roads.	There will be no transport truck hauling of the raw sand or the final product sand. The sand and water slurry will be transported to the Processing Facility using a moveable slurry line, which will be re-located from site to site as the water well drilling rigs relocate. The slurry line will be included in the project description for extraction. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. CanWhite will be loading trains with sand product from the Dry Plant two to three times per week throughout each year of operation.	N/A

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				There will be no substantial increase in local traffic. Traffic will be limited to employees, contractors and suppliers. During the construction phase of the Project, increases in local traffic volumes will be temporarily associated with the 20 to 30 contractors and employees that will travel to the Processing Facility daily. Once Project construction is complete, traffic related to Project operations will only be associated with 20 to 25 employees arriving twice per day for their shift. Additional minor traffic will be related to weekly supply/parts deliveries and contractors for services such as waste disposal. Most Project-related traffic will occur on PTH 15 and PR 302 and will be associated with employees travelling to and from work, deliveries and supplies, or maintenance crews for ongoing maintenance and/or repairs at the Processing Facility. Project operations will occur 24 hours per day, 7 days per week except during any shut-down time required for maintenance. A preliminary traffic projection for the Facility Project operations is provided in **Attachment D**.	
	Jamie Godfredsen, in comment_1.pdf file; Fred Bowley in comment_9.pdf file; in received from the EAB Sept. 14, 2020	139	General - concern about traffic.	Refer to the response above for #138 regarding traffic.	N/A
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf and Chris Martens in comment_4.pdf files received from the EAB Sept. 14, 2020	140	"*The Environment Act Proposal is misleading with respect to the claim that there will be no truck traffic associated with the project. In the Proposal there is no information that supports that all sand can be delivered to the facility by portable pipeline over the 24-year life of the plant – therefore the assertion that there will be no truck traffic cannot be supported* ."	Refer to the response above for #138 regarding traffic. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	141	Concern regarding truck traffic transport of sand project if rail transport becomes not feasible: "*If discussions fall through with CN, truck transport is the only option* . "	The Project, as proposed in the EAP, will be transporting sand product by rail to markets in Canada, the United States and internationally. If there are proposed changes to the Project after an Environment Act Licence is issued, CanWhite will submit a Notice of Alteration to MBCC for review.	N/A
	Darryl Speer, in comment_9.pdf file received from the EAB Sept. 14, 2020	142	"*CanWhite's application states several times that their processing plant will be available to "be operated on a commercial basis to process and transfer sand not mined by the same owner". This changes the thrust of their application substantially-allowing for sand mined elsewhere by other methods, requiring transportation to their site. This implies a hidden agenda for allowing other factors be covered off but not set out in this application.* "	If there are proposed changes to the Project after an Environment Act Licence is issued, CanWhite will submit a Notice of Alteration to MBCC for review.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf and Chris Martens in comment_4.pdf files received from the EAB Sept. 14, 2020	143	"*3 fully loaded freight trains will be added weekly to an already congested CN mainline. But this has been dismissed from the Environment Act Proposal and discussions with CN have not been finalized. If discussions fall through, truck transport is the only option. This increases risks for Silicosis and nuisance dust impacts* ."	CanWhite has confirmed with CN Rail that the railcars containing the sand product produced by the facility will be able to be accommodated on the mainline. CanWhite has no intention to transport the sand product via truck. Please refer to #146 below for additional information.	N/A
	Matthew Tomiak, in comment_9.pdf file received from the EAB Sept. 14, 2020	144	"*...the roads and highways of our municipality are not built to adequately withstand the repetitive and heavy traffic increase. Upgrading and maintaining the infrastructure to support the mining would be very expensive as a municipality and we would be unlikely to see enough compensation from the company to adequately balance the costs to our community* ."	Refer to the response above for #138 regarding traffic. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Don Ans, in comment_9.pdf file received from the EAB Sept. 14, 2020	145	"*...the road infrastructure is not sufficient for the proposed mine. This poses a significant safety risk and infrastructure cost that is not sufficiently recognized in the mine evaluation* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Kyle Buck, in comment_3.pdf file; Heather Erickson and Linda and Frank Hickling in comment_5.pdf file; received from the EAB Sept. 14, 2020	146	General - concern about increased traffic, including increased train traffic.	Refer to the responses above for #138 regarding truck traffic. As stated in Section 2.2.2 (Rail Load Out) in the EAP it is expected that an annual average of three trains per week will leave the Facility. A noise study has been conducted by a third party expert and it has been determined that there is no expected noise impact from the Facility or the Rail Loop specifically to the local residents (refer to Appendix C of the EAP). Canadian National Railway (CN) has confirmed its capability to accommodate the additional three trains as it is designated a CN mainline.	N/A
Project Description - End use of Final Sand Product	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1; Email from Cam Livingstone, Aug. 14, 2020, Public Comments Batch #3; Email from John Heke, Aug. 14, 2020, Public Comments Batch #4	147	General - Concern about fracking / potential use of sand product for fracking.	CanWhite's business model targets high purity silica markets such as the medical glass industry, float glass, renewable energy industry (e.g., solar panel production), electronics (e.g. cell phones, computer chips) and telecommunications (e.g., fibre optics).	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Claudia Gonzalez, Kristie Brooks, Anessa Maize, Victor Andres, Leanne Landriault, Kyle Sierens, Maureen Ferley, Natalie Normandeau, Stephan Berg, Nancy Hall, Katie Nagy, Derek Yarnell, Patrick Moore, Rhian Brynjolson, Samantha Machado, Stephanie Robinson and Ross Brownlee, in comment_2.pdf file received from the EAB Sept. 14, 2020	148	General - Concern about fracking / potential use of sand product for fracking.	Refer to the response for #147 regarding the end use of the final sand product.	N/A
	Mickayla Ziolkoski, Emily MacMaster, Grace Carey, Bonnie Berry, Jess Soko, Amanda Enns, Asta Carvalho, Michelle Curry, Marc Greene, Kassandre Maharajh, Irene Raabe, Kyla Enns, Emma Carey, Lorne Warkentine, Jesse Rodgers, Richard Denesiuk, Jaye Donohoe, Stenice Taylor, Kayla Say, Marco Gruwel, Ginette Paillé, Danielle Sicotte and Maja Crawley, Kathryn May Wady, Akos Knowles, Anne-Sophie Régnie, Talia Bogaski and Jade Raizenne in comment_4.pdf file received from the EAB Sept. 14, 2020	149	General - Concern about fracking / potential use of sand product for fracking.	Refer to the response for #147 regarding the end use of the final sand product.	N/A
	Danielle Jones, John Hasenack, Aurora Dekker, James Wasyluk, Kathryn Ayers, Malina Tillberg, Eric Schiffmann, Kayla Sinclair, Meagan Morfoot, Heather Erickson, Art Quanbury, Lori Bohn, Annette Gargol, Véronique Reynolds, Natalie Normandeau and Steven in comment_5.pdf file; Linda Fearn, Alexander Kelly, Mark Taylor, Natalie Mulaire, Amélie Tétrault, Rosie Jodoin, Matt Gilbert and Dale Sinanan in comment_6.pdf file; Yao Wi, Mike Karakas, Carolyn and James Lintott, Sharon Harman and Tami Reynolds, in comment_8.pdf file; Linda Dawson, Hugh Arklie, Darryl Speer and Peggy and Nancy Kasuba, Charlene Currie in comment_9.pdf file; received from the EAB Sept. 14, 2020	150	General - Concern about fracking / potential use of sand product for fracking.	Refer to the response for #147 regarding the end use of the final sand product.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
Project Description - Sand and Water Slurry & Extraction Method	Article submission titled "CanWhite Sands Corp Proposed Silica Sand Processing Facility and Impacts to the Brokenhead River" by Dennis LeNeveu (July 28, 2020), Public Comments Batch #1; Email from Don Sullivan, Aug. 4, 2020 (referencing July 28, 2020 article by Dennis LeNeveu), Public Comments Batch #2; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	151	General - Concern that the sand and water slurry feeding into the processing facility will contain water and sand contaminated by pyrite and heavy metals from contact with the shale layer, and concern that the sand itself is contaminated with pyrite and heavy metals.	Study results indicate that the sand is not showing detrimental contamination with pyrite or heavy metals. Refer to the response for #16 regarding groundwater. Additional response information is provided in page 7 of **Attachment A**: CanWhite Response to Impact Assessment Agency of Canada (IAAC). These questions will be further address within the Extraction EAP that will be filed with the Environmental Assessment Branch and posted in the Public Registry for public review and comment.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu), Public Comments Batch #1; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	152	General - concern regarding improperly sealed sand slurry extraction boreholes potentially leading to contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1; Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1	153	General - concern regarding improperly sealed sand slurry extraction boreholes potentially leading to contamination of the aquifer.	Refer to the response for #16 regarding groundwater.	Refer to mitigation measures proposed for response to #16 regarding groundwater.
	Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1	154	Concern that "*The method that CWS hopes to employ, and get Provincial approval for, to extract the silica sand is an unproven technique in the silica sand mining industry* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	155	"*This mining technique is unprecedented so there is no known outcome* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	

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	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	156	"*...we have evidence the extraction method using pressurized air will compromise the shale layer separating the carbonate and sandstone aquifers. Shale fragments were clearly visible within the sand piles extracted last year by CanWhite near Vivian and at the Centre line road site* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Michael Bailey, Kim Bjornson and Fred Goods, in comment_1.pdf file; Erin Dolinski in comment_2.pdf file and Ricky Koswin, Andrew Lindsay and Sharon Peters in comment_4.pdf file; Carolyn Bryan, Chris and Marianne Bowker, Michael Plischke in comment_5.pdf file; Evan Woelk Balzer and Wendy Sinclair in comment_6.pdf file; Tamara Towes-Lopéz, Glen Koroluk and Jocelyne Wilson in comment_9.pdf file; received from the EAB Sept. 14, 2020	157	*"Unproven Mining Method: CanWhite Sands Corp. is experimenting with a new, unprecedented method for mining silica sand 200 feet below the surface out of the Winnipeg Formation, a process that has only been experimented within Manitoba, without much success in the past.* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Heather Erickson, in comment_5.pdf file received from the EAB Sept. 14, 2020	158	Concern that: "*...the sand can be delivered to the facility by portable pipeline over a 24 year period and I understand this is not a proven technique.* "	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	159	"*If the pipes leak or burst there will be local land flooding* ."	CanWhite will be utilizing industry experts, experience and technology in the Facility Project design and is committed to following all applicable environmental regulatory and industry standards. Section 6.9.2 (Spills and Leaks) in the EAP outlines the standard procedures that will be implemented to prevent leaks and spills from occurring during Project activities. Further information on the slurry line specifically, will be provided in the upcoming Extraction Project Environmental Act Proposal.	EAP, Section 6.9.2, Spills and Leaks
	Email from Jared Bremner, Aug. 5, 2020, Public Comments Batch #2	160	*"I'm curious how the company expects to get the raw materials to the actual processing plant?* "	Sand will enter the Processing Facility via a sand and water slurry infeed pipe. The moveable slurry pipe supplying the infeed will be a component of the extraction project. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A

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	Email from Don Sullivan, Aug. 4, 2020 (referencing July 28, 2020 article by Dennis LeNeveu), Public Comments Batch #2	161	General - Concern that the sand and water slurry feeding into the processing facility will contain water and sand contaminated by pyrite and heavy metals from contact with the shale layer, and concern that the sand itself is contaminated with pyrite and heavy metals.	Refer to the response for #151 regarding 'Sand and Water Slurry & Extraction Method'	Refer to mitigation measures proposed for response to #16 regarding groundwater.
Project Description - Water Usage / Discharge	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	162	Concern regarding water usage and discharge: "*CanWhite plans to extract 1.36 million tonnes of sand per year from the aquifer. The amount of water withdrawn from the sandstone aquifer will be 1.36x0.85/0.15= 7.7 million tonnes of water ....The processing CanWhite plant area near Vivian is 17 hectares according to the EAP. 7.7 million litres will cover 17 hectares to a depth of 45 meters...6.5 million cubic meters of water must be discharged from the wash plant per year....The only sensible way to handle this much water is to excavate a drain from the wet plant to the BrokenHead River....The EAP does not mention the 6.5 million cubic meters of excess water per year.* "	The Facility Project will require two groundwater wells; one dedicated to emergency fire suppression and the other for use by employees for sinks, showers and toilets in the Processing Facility. The amount of groundwater required for these Facility needs will be minor and will need to be permitted by regulatory authorities to protect the aquifer. The total daily water requirement is 200 to 300 gallons (757 to 1,136 litres) per day to operate the Processing Facility (see Section 2.7 'Water Use' in the EAP). No water from the aquifer is needed to run wet or dry sand processing components; processing water will be recycled in a loop system. Process water will not be discharged to the surface. Additional response information is provided in **Attachment A**: CanWhite Response to Impact Assessment Agency of Canada (IAAC). Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Email from Don Sullivan, Aug. 4, 2020, Public Comments Batch #2	163	"*...we anticipate roughly 6.5 million cubic meters, of the 7.7 million cubic meters of water extracted yearly, will need to be discharged. This discharge of 6.5 million cubic meters of water annually will in all likelihood be released into the Brokenhead River which drains directly into Lake Winnipeg and will contain high levels of heavy metals, chromium and arsenic and will be acidic, as pyrite in the shale withdrawn with the sand and in the sand itself, will cause acid drainage and mobilization of heavy metals* ."	Process water will not be discharged to the surface. Also refer to responses for #162 and #11 above regarding volume of water used in a loop system for the Processing Facility and potential for contamination of process water.	N/A
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	164	"*The reference amount of water withdrawn from the aquifer by solution mining of 7.7 million cubic meters per year as documented in the AECOM EAP will be beyond the sustainable yield of the sandstone aquifer of the Winnipeg Formation* "	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A

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	Email from Jared Bremner, Aug. 5, 2020, Public Comments Batch #2	165	Comments regarding water consumption/use: "*How would this even be plausible to pass when they can't and don't have a number of gallons expected to be used? If passed, why would this mine be the only one that wouldn't have to divulge water consumption?* "	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
	Email from Jared Bremner, Aug. 5, 2020, Public Comments Batch #2	166	"*Is there a tailing dam being built for reclamation of excess water?* "	No tailings will be produced by the Project and therefore no tailings dam will be required. Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
	Email from Dustin (Dusty) Molinski, Aug. 6, 2020, Public Comments Batch #2	167	"*My primary concern is that production or operation (such as yearly maintenance) will mean water (of an unsuitable quality) will be created that is beyond the capacity of the holding tanks on-site described above and that this excess water will be released into the watershed via the existing drainage network to the Brokenhead River and the aquifer* ."	Process water will not be discharged to the surface. Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	168	Concern about "*…what will become millions of cubic meters of water that will be pumped to the surface along with the silica sand in the slurry* ." Concern that the excess water extracted in the silica sand slurry "*...would be impossible to store in a tank. Where exactly will this water go?*"	Process water will not be discharged to the surface. Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
	Email from Jill Winnicki, Aug. 14, 2020, Public Comments Batch #4	169	Concern that "*Excess water discharged at surface level will undoubtedly flow into the Brokenhead River* ."	Process water will not be discharged to the surface. Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
	Heather Erickson, in comment_5.pdf file received from the EAB Sept. 14, 2020	170	"*Toxic excess water will follow the natural drainage pathways and drain back into our rivers, ponds, wells and seep into the carbonate aquifer as migrates* ."	Process water will not be discharged to the surface. Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. No chemicals will be used in the sand processing (refer to response #11).	N/A
	Alexander Kelly, in comment_6.pdf file received from the EAB Sept. 14, 2020	171	"*…the river, during various flows will not support the flushing required to rid the river of the buildup of silica, bringing harm to aquatic, human and animal life* ."	Refer to response #170 above.	N/A
	Gerald Dufault, in comment_3.pdf file received from the EAB Sept. 14, 2020	172	Concern regarding water use from the aquifer: "*If 3.7 million cu/metres of water are used by Can White yearly, at $5 for a one litre bottle, that amounts to a staggering $19.25 Billion every year* ."	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Sher Stoddard and Family, in comment_5.pdf file received from the EAB Sept. 14, 2020	173	"*Can White will be pumping out 143 million litres of water from our aquifer to flush for silica* ."	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A

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				Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Glen Koroluk in comment_9.pdf file received from the EAB Sept. 14, 2020	174	"*It is unclear in CanWhite's EAP as to how much water will be flowing through and into the facility as a result of their slurry line technology, recycling systems and on-site waste water surface tank* ." "*It is also unclear how much water will be used for the combined processing plant and sand extraction aspects of this project* . "	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Lori Bohn, in comment_5.pdf file received from the EAB Sept. 14, 2020	175	"*I am very worried about several issues related to this project. First, it will use 7.7 million cubic meters of water annually from the Winnipeg Formation aquifer. This is a large quantity and could lead to shortages* ."	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Janine Gibson, in comment_6.pdf file received from the EAB Sept. 14, 2020	176	"*Despite the EAP stating ground water impacts of the plant will be negligible, over 7.7 million cubic meters of water are planned for withdrawal from the aquifer per year along with the sand. Most of that water (7.5 million cubic meters of water a year) must be discharged. All 17 hectares of their plant site would be ~44 meters deep (~ 14 story building) in the water* *used yearly. No onsite surface tank could hold this amount of water* ."	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A

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	Samantha Braun, in comment_9.pdf file received from the EAB Sept. 14, 2020	177	"*I've had a look at the specifics on water use by D.M. LeNeveu, in his report submitted to you for the same project, and while my specialty is admittedly more ecological in it's nature, his calculations on water use are both technically relevant and relevant by common sense. His calculations estimate a max water use of 7.7 million cubic meters of water a year; almost double the recharge rate and almost certainly not accounted for on-site for recycling or preventing contaminated run off* . "	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Mike Wakely, in comment_6.pdf file received from the EAB Sept. 14, 2020	178	"*While the proposed facility anticipates using only an amount of water equivalent to a local household of 4 to 6 people on an average day, it does not specify how much water it will draw to the surface as part of the extraction process. The only mention of the composition of the extracted material states that 15% will be solid, which leads one to infer that the rest (85%) will be water. Surely this means an incredible amount of water will be extracted from the aquifer, a volume not accounted for in the proposal. What is more, the on-site surface storage tanks for unused water seem inadequate when compared to the area dedicated for wet sand stockpiling. I understand this proposal is only for the facility, but without acknowledging how much the company intends to extract, how can a facility be approved, particularly as to how it relates to storing water from extraction* ?"	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Brokenhead Ojibway Nation 'BON' (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC), in comment_6.pdf file received from the EAB Sept. 14, 2020	179	"*The sand and water will be sucked up to the surface through hundreds of boreholes a year. Only a fraction of it will be needed to process the sand in the wet plant. The bulk of it, will likely be discharged to the Brokenhead Rive* r."	Process water will not be discharged to the surface. Also refer to responses for #162and #11 above regarding volume of water used in a loop system for the Processing Facility and potential for contamination of process water.	N/A

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				Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	
	Samantha Braun, in comment_9.pdf file received from the EAB Sept. 14, 2020	180	"*I'll be blunt, the set up as described seems to be missing a lot of water to do what's needed to get sand up and out, and very little explanation for what is going to be done with that water, and how to do whatever that is without dumping it overland to the Brokenhead.* "	Refer to response #162 above regarding volume of processing water used in a loop system for the Processing Facility.	N/A
Project Description - Sand Stockpiles	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	181	"*The sand reject piles at the processing plant will be full of acid generating shale and oolite ….Stockpiled sand at the wash plant will generate acid from the marcasite unless the marcasite is removed in the wash plant by special reagents. Then the marcasite will be in the filtered out sand reject pile where it will also generate acid. Acid will mobilize heavy metals in the sand* ."	Refer to the response for #151 regarding 'Sand and Water Slurry & Extraction Method'	Refer to mitigation measures proposed for response to #151 'Sand and Water Slurry & Extraction Method'
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	182	"*There will be some residual silica fines in the stockpiles and outdoor stockpiles of concentrated fines. The EAP does not specify real time air monitors for silica dust.* "	Refer to the response for #125 regarding Human Health - silica dust and #56 regarding air quality. CanWhite will develop and implement a Dust Management Plan that minimizes the potential for exceedances of ambient criteria at the Processing Facility boundary. As indicated in Section 6.3.1.2 (Dust Management and Monitoring) in the EAP, the Dust Management Plan will include a monitoring program that will include sampling and testing for silica dust. CanWhite will consult with MBCC prior to initiation of construction to determine an acceptable monitoring frequency for both the general (total) dust and silica dust monitoring programs.	EAP, Section 8, Follow-up Plans; EAP Section 6.3.1.2, Dust Management and Monitoring
Project Description - Other Topics	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	183	"*So fines from the baghouse will be disposed of? Where? How - without generating dust? If there is a market for fines why are they being disposed of?* "	The fine silica dust that will be captured in the Dry Plant baghouse will be collected and sold because it has saleable value for use in the silica industry. The handling of fine silica dust collected and all other work associated with the Project will be conducted by trained personnel in accordance with *The Workplace Safety and Health Act* which includes provisions for safely working with potential airborne contaminants. Appropriate personal protective equipment will be supplied to employees and workers. As indicated in Section 2.1.2 (Sand Treatment: Dry Processing) in the EAP, fines collected in the baghouse will be removed regularly by trained individuals with proper personal protective equipment, stored safely in appropriate containment and disposed of in accordance with applicable regulations.	EAP, Section 2.1.2, Sand Treatment: Dry Processing; Section 2.3.2 Solid Waste and By-product

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	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	184	"*This Project is in all likelihood not financially viable. The developers will be flush from all their salaries and fees extracted and will walk away leaving the investors and the taxpayer holding the liabilities. What will be the potential stranded liabilities?*"	As a part of the planning process, a 24-year mine life is planned during which CanWhite intends to operate. As indicated in the Facility EAP Section 7.0 (Decommissioning), a Decommissioning Plan will be developed. In accordance with the Mine Closure Regulation, a Closure Plan will be developed and submitted for regulatory review along with the Extraction Project EAP. The Closure Plan will provide detailed procedures for the progressive decommissioning of the Extraction Project and will include provisions for financial assurance. Part of the requirements of a Closure Plan is financial assurance for the cost of closure. Closure activities, including progressively rehabilitating extraction sites, will be ongoing throughout the life of the Extraction Project. Therefore, there are no stranded liabilities.	
	Email from Jared Bremner, Aug. 5, 2020, Public Comments Batch #2	185	"*What are the hours of operation?* "	The Facility Project operations will occur 24 hours per day, 7 days per week except during any shut-down time required for maintenance.	N/A
	Leslie Olsson, in comment_1.pdf file; The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Chris Martens in comment_4.pdf file; Linda and Frank Hickling in comment_5.pdf file; Janine Gibson, in comment_6.pdf file; received from the EAB Sept. 14, 2020	186	"*The Environment Act Proposal states [* CWS plans to*] use of a flocculant material PAM- in their outdoor clarifier (settling/treatment pond). Polyacrylamide (PAM) is nontoxic but degrades with sun, acid and iron into a water-soluble acrylamide monomer, a cancer-causing neuro toxin that deforms fetus' at parts per billion.https://www.gov.mb.ca/sd/pubs/water/drinkingwater/final_factsheet_tce.pdf* "	As stated in the Facility EAP, the flocculant proposed to be used is a food grade biodegradable flocculant. This process is used in water treatment plants within the City of Winnipeg. No water is discharged on surface. All water is contained within the slurry loop system and re-used. The Material Safety Data Sheet (MSDS) for the flocculant is provided in **Attachment E**.	N/A
	Heather Erickson, in comment_5.pdf file received from the EAB Sept. 14, 2020	187	"*...there is also a distinct possibility of the flocculant material being used in the process degrading into a water-soluble acrylamide monomer which is a cancer-causing neuro toxin* ."	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A
	Sher Stoddard and Family, in comment_5.pdf file received from the EAB Sept. 14, 2020	188	"*There are KNOWN health risks from the use of a flocculant material (PAM) in their outdoor clarifying such as; cancer causing neuro toxins that deforms fetuses* ."	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	189	Concern regarding flocculant use: "*Although polyacrylamide (PAM) is nontoxic it degrades from sun, acid and iron into a water-soluble acrylamide monomer, a cancer-causing neuro toxin that deforms fetus' at parts per billion* ." " *This flocculant will go directly into the aquifer via the closed loop slurry mining system* ."	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	190	"*The teratogenic, carcinogenic neurotoxin acrylamide will be generated in the clarifier from the breakdown of polyacrylamide flocculent under the action of sunlight, iron ions and acid in the excess slurry water https://www.nature.com/articles/s41545-018-0016-8#:~:text=The%20presence%20of%20degraded%20polyacrylamide,degradation%20under%20variou s%20environmental%20conditions* ."	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Samantha Braun, in comment_9.pdf file received from the EAB Sept. 14, 2020	191	Concern regarding: "*...use of polyacrylamide flocculent to attempt to mitigate the risk of contaminated water leaving the site.* "	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A
	Janice Gray, in comment_9.pdf file received from the EAB Sept. 14, 2020	192	Concern that usage of polyacrylamide (PAM) as a flocculent will degrade and turn into a neurotoxin.	Refer to response #186 above regarding proposed flocculant to be used are food grade and biodegradable.	N/A
	Leslie Olsson, in comment_1.pdf file and The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Chris Martens in comment_4.pdf file; Sher Stoddard and family in comments_5.pdf files received from the EAB Sept. 14, 2020; Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	193	Concern regarding light pollution.	As indicated in the mitigation measures proposed for the protection of wildlife (EAP Section 6.5.2), fully shielded directional lighting fixtures will be used to focus light specifically to work areas, parking lot and the Processing Facility to minimize the dispersal of light to the surrounding Project Site.	EAP, Section 6.5.2, Wildlife
	Colleen Edmunds, in comment_5.pdf file received from the EAB Sept. 14, 2020	194	"*What I did not see in the official documents from CanWhite was a clear plan about how tailings will be managed and how external surface water quality will be maintained (e.g. down stream)* ."	There are no tailings ponds associated with the Facility Project or the future proposed sand extraction activities. As indicated in response #71 regarding surface water concerns, no chemicals will be used in the processing of the sand. The water that is separated from the sand will be treated with a biodegradable food-grade flocculant as an aid for fines settling, which is the same as what is used at typical water treatment facility. Processing water will be recycled in a loop system and will not be discharged to the surface. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Refer to mitigation measures proposed for response to #71 regarding surface water.
	Janie Gibson, in comment_6.pdf file received from the EAB Sept. 14, 2020	195	"*The Plant plans to be processing silica sand 24/7, even trucking in sand from elsewhere* ."	All sand arrives at the facility via slurry line and leaves the facility via train.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Don Sullivan referring to "Comments on the Vivian Sand Facility Project Public Registry no. 6057.00" by D.M. LeNeveu (dated Aug. 20, 2020) in comment_6.pdf file received from the EAB Sept. 14, 2020	196	"*Weak, unsubstantiated markets for the sand product will threaten the financial viability of the Project increasing likelihood of stranded environmental liabilities* "	CanWhite has determined many viable markets for the sand product to be sold in various industries. Additionally, refer to response #184 on closure plan requirements.	N/A
	Samantha Braun, in comment_9.pdf file received from the EAB Sept. 14, 2020	197	Concern regarding: "...*the treatment of the waste water on site in retention ponds* ."	There are no retention ponds required for this project. Water is treated in a clarifier prior to being returned to the loop system for re-use. Also refer to the response to #71 above regarding how external surface water quality will be maintained.	N/A
	Samantha Braun, in comment_9.pdf file received from the EAB Sept. 14, 2020	198	"*On a more long-term point, there also seems to be an omission of any sort of ecological exit plan, and financial outline of said plan, for when the extraction process has been exhausted or the company has finished using the site* ."	Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	N/A
	Ken Siwak and Mary Ann Haddad, in comment_9.pdf file received from the EAB Sept. 14, 2020	199	Concern regarding if it is HD Minerals (name on mining claims) or CanWhite who "...*assumes or will incur responsibility for costs & damages* ." "*If something happens on the worksite or damage to adjacent properties, etc. who holds or takes liability* ." *"Is it the company that has signed this document* [or] *is it HD Minerals who is responsible on the worksite* ."	CanWhite's wholly owned subsidiary, HD Minerals Ltd., is the legal owner of mineral claims. However, CanWhite will be the operator and therefore will be responsible for any and all liabilities associated with the Project.	N/A
CanWhite Testing/Drilling activities at the Project Site	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	200	"*Boreholes drilled last year by CanWhite near Vivian clearly were not sealed external to the borehole casing* ."	All testing boreholes have been sealed and rehabilitated to *The Water Well Act* standards and requirements to date. Monitoring wells designated for ongoing groundwater studies will continue to be utilized.	N/A
	Email from Brenda Pankratz, July 26, 2020 (forwarded text by Dennis LeNeveu; quoted text is by Dennis LeNeveu), Public Comments Batch #1	201	"*CanWhite has not filed a mine closure report as required by the Mines Act prior to advanced exploration work that CanWhite undertook last year by drilling boreholes extracting hundreds of sand for analysis. CanWhite has not posted financial security as required by the Act.* "	CanWhite has not initiated an 'Advanced Exploration Project' as defined under *The Mines and Minerals Act* and therefore has not filed a mine Closure Plan. CanWhite has been conducting activities as allowed under mining claim permits, borehole licences and landowner agreements for private land access.	N/A
	Email from Ernie and Gail Hartje, Aug. 10, 2020, Public Comments Batch #2	202	"*They have test areas Off Hwy 302 south that there is a couple piles of Silica that is not covered...The sand is very dry and the wind is blowing that fine sand in the area.....They also have drilled many well holes in our aquifer and have not capped those* ."	There are no sand piles currently uncovered on any CanWhite operated sites. Also refer to the response #200 above regarding boreholes drilled last year. There were no uncovered piles as of August 10th.	N/A
	Email from Rick Wastle, Aug. 10, 2020, Public Comments Batch #3, and Rick and Susanne Wastle and family, in comment_3.pdf file received from the EAB Sept. 14, 2020	203	*"...we have seen the silica "hills" left at the test site and are alarmed at the extent of what has already been brought to the surface before the extraction proposal has even been submitted."*	The sand that was brought to surface was for exploration and extraction testing purposes. CanWhite received all the necessary approvals for all work that has been conducted thus far. Also refer to response #200 above regarding boreholes drilled last year.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Anne Wowchuk, in comment_2.pdf file received from the EAB Sept. 14, 2020	204	*"There were stock piles of sand both at the Vivian site and a testing site on Centre Line Road near Highway 302 that were not properly dampened and there was not enough snow to cover the piles of sand. Can White did not remedy the situation until they were questioned on it in the spring of 2020. Their lack of action and consideration for people's health in the past, does not bring confidence that they will follow their plan. Relying on snow cover is not an efficient method of keeping the piles moistened and I would suggest an alternative plan is required. " "As I reside approximately two kilometers from the Centre Line Road, when they were extracting the sand, my water had a brown discolouration from the outdoor tap, first time in thirteen years of living in RM of Springfield."* Other concerns regarding testing activities at the Project Site including: observed lack of / inadequate personal protection equipment; overlanding flooding of Centre Line Road.	For the Facility Project, CanWhite will be using snow cover in addition other dust control mitigation measures as mentioned in the response to #56 regarding air quality. CanWhite has not received complaints from any other local landowners with water wells in the vicinity of CanWhite testing activities. CanWhite has reached out to this landowner to follow-up on this specific well. Personal Protection Equipment (PPE) was available and properly used according to the work circumstance.	N/A
	Kyle Buck, in comment_3.pdf file received from the EAB Sept. 14, 2020	205	*"There was already kids riding quads on uncovered silica piles which is obviously not good to breathe in, which were left by Can White on land near the town. They knew they were supposed to cover or remove them, but they never did and there was no gates or fences to keep kids out. I've seen the water* *run off from black island after one of Can Whites projects was finished there, it's terrifying. No one is Springfield wants this near our land."*	The sites that CanWhite has had operations on are private land. 'No trespassing' and warning signs have been repeatedly posted and ignored. Gates have been installed, and subsequently stolen. There are no sand piles currently uncovered on any CanWhite operated site.	N/A
	Heather Erickson, in comment_5.pdf file received from the EAB Sept. 14, 2020	206	"*Thus far, in their exploration process, CanWhite has not proved to be good stewards of the* *water by properly capping the bore holes they have already done and there is evidence of this* *collected by concerned citizens.* "	All testing boreholes have been sealed and rehabilitated to the Water Well Act standards and requirements to date. Ongoing monitoring wells continue to be utilized. There are no sand piles currently uncovered on any CanWhite operated site.	N/A
	Darryl Speer, in comment_9.pdf file received from the EAB Sept. 14, 2020	207	"*Even their exploratory wells have not been properly sealed and are conduits for aquifer contamination* ." "*their disregard for securing their high hazard silica sand piles from wind erosion and being played in by recreational intruders.* "	The sites that CanWhite has had operations on are majority private land. No trespassing and warning signs have been repeatedly posted and ignored. Gates have been installed, and subsequently stolen. There are no sand piles currently uncovered on any CanWhite operated site. All testing boreholes have been sealed and rehabilitated to the standards and requirements to date as required under *The Groundwater and Water Well Act* . Ongoing monitoring wells continue to be utilized. There are no sand piles currently uncovered on any CanWhite operated site.	N/A
	Janice Brolly and Robert Wood, in comment_5.pdf file received from the EAB Sept. 14, 2020	208	"*CanWhite Sands has yet to deal with the 2018/2019 issues of sand piles being left and test* *wells not being capped* ."	All testing boreholes have been sealed and rehabilitated to the standards and requirements to date as required under *The Groundwater and Water Well Act* . Ongoing monitoring wells continue to be utilized. There are no sand piles currently uncovered on any CanWhite operated site.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
Regulatory and Public Review	Email from C. Hugh Arklie, July 6, 2020, Public Comments Batch #1, also in comment_9.pdf file received from the EAB Sept. 14, 2020; Article submission titled "Massive Silica Sand Mine Proposed for Southern Manitoba" by Don Sullivan (July 21, 2020), Public Comments Batch #1; Email from Rui Dasilva, Aug. 3, 2020, with email content being a forwarded communication by Don Sullivan dated July 21, 2020, Public Comments Batch #1; Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	209	Concern regarding licencing the sand processing plant before assessing the sand extraction mining.	CanWhite's environmental assessment activities contemplate the potential environmental effects of both the Facility Project and the Extraction Project. Both projects are 'developments' which require licensing under The Environment Act. The processing plant is being treated as a 'manufacturing and industrial plant' which is a Class 2 development in section 3 of the Classes of Development Regulation under group 4 "Manufacturing". It makes sense to license the Facility Project separately and in advance of extraction because: it consists of a permanent building and other infrastructure similar to other manufacturing operations located in urban or semi-urban settings; it can 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; special license conditions will have to be contemplated for extraction which contemplates changing of sites, which is not typical for Environment Act licenses and which will not be relevant to the Processing Facility; and construction of the Processing Facility will take time to achieve, whereas extraction involves portable drills which will move frequently and for which no construction season is required. Extraction is mining which must be licensed under *The Environment Act* as a Class 2 development and which is subject to the closure planning and financial assurance provisions of *The Mines and Minerals Act* and to the specific regulation applicable to drilling and closing boreholes. Thus all aspects of both projects are being taken into account in the regulatory review process.	N/A
	Michael Bailey, Kim Bjornson, Leslie Olsson, Jack Kowalchuk and Fred Goods, in comment_1.pdf file; Erin Dolinski, Claudia Gonzalez, Shaun Rempel, Kristie Brooks, El Plotkin, Maureen Ferley, Natalie Normandeau, Stephan Berg, Kati Nagy, Derek Yarnell, Patrick Moore, Rhian Brynjolson, Monica Novotny, Stephanie Robinson, Anne Wowchuk and Victor Andres, in comment_2.pdf file received from the EAB Sept. 14, 2020	210	Concern regarding licencing the sand processing plant before assessing the sand extraction mining.	Refer to the above response for #209.	N/A
	The Powers Family, Cynthia Foreman, Litwin Brown and Chantal Smith in comment_3.pdf; Chris Martens, Maja Crawley, Grace Carey, Bonnie Berry, Jess Soko, Amanda Enns, Marc Greene, Kassandre Maharajh, Irene Raabe, Kyla Enns, Lorne Warkentine, Jesse Rodgers, Jaye Donohoe, Stenice Taylor, Kayla Say, Marco Gruwel, Harry Holmes, Ricky Koswin, Danielle Sicotte, Andrew Lindsay, Sharon Peters, Talia Bogaski, Jade Raizenne and Emily MacMaster in comment_4.pdf file received from the EAB Sept. 14, 2020	211	Concern regarding licencing the sand processing plant before assessing the sand extraction mining.	Refer to the above response for #209.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Carolyn Bryan, Chris and Marianne Bowker, A. Stutski, Danielle Jones, John Hasenack, Malina Tillberg, Kevin Miller, Eric Schiffmann, Heather Erickson, Lori Bohn, Annette Gargol, Janice Brolly, Robert Wood, Michael Plischke, Natalie Normandeau, Linda and Frank Hickling in comment_5.pdf file; received from the EAB Sept. 14, 2020	212	Concern regarding licencing the sand processing plant before assessing the sand extraction mining.	Refer to the above response for #209.	N/A
	Brad Derksen, Janie Gibson, Amélie Tétrault, Evan Woelk Balzer, Wendy Sinclair, Matt Gilbert and Natalie Mulaire, Brokenhead Ojibway Nation (Aug. 24 , 2020 letter to Jennifer Winsor, MBCC) in comment_6.pdf file; Keith Sharp, Jen and Alex Korotkov, Carolyn and James Lintott, and Tangi Bell in comment_8.pdf file; Linda Dawson, Lindy Clubb, Herman and Marilyn Bouw, and Tamara Towes-Lopéz, Diane Kunec, Marci Riel (Manitoba Metis Federation), Glen Koroluk, Darrl Speer, Peggy and Nancy Kasuba, Brian Pannell and Jocelyne Wilson in comment_9.pdf file; received from the EAB Sept. 14, 2020	213	Concern regarding licencing the sand processing plant before assessing the sand extraction mining.	Refer to the above response for #209.	N/A
	Email from Don Sullivan, Aug. 4, 2020, Public Comments Batch #2	214	"*Once the proposed silica sand processing facility receives Manitoba environmental approval, CWS intends to submit a second and separate EAP for environmental approval, under the Manitoba Environment Act, for its proposed silica sand mine and the mining method to extract the silica sand. This splitting of this single proposed development project into two separate projects makes approval, under the Manitoba Environment Act, of the silica sand mine and the mining methods to extract the silica sand a foregone conclusion* ."	Refer to the above response for #209.	N/A
	Tangi Bell, in comment_8.pdf file received from the EAB Sept. 14, 2020	215	"*The Proposal does not mention a mine closure plan and financial bonds for the Facility as required under The Mines Act. It states that "mine" also means (c) a processing plant* . "	The Facility Project as described in the EAP is not being reviewed by the MBCC EAB as a mine. As indicated in the EAP, Section 1.6 (Regulatory Framework), this Project is being reviewed by MBCC under *The Environment Act* as a "*manufacturing and industrial plant"* which is a Class 2 development in section 3 of the Classes of Development Regulation under group 4 "*Manufacturing"*.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Email from Brian Pannell, May 26, 2020, Public Comments Batch #1	216	Concern regarding the adequacy of a virtual engagement 'Zoom' pubic meeting to communicate project information.	Due to government mandated restrictions with coronavirus (COVID-19), CanWhite was not able to hold an in-person event. CanWhite followed the Province of Manitoba's recommendation to host a live event online. As noted in the public meeting presentation to communicate the Facility Project information, CanWhite will be holding another Public Meeting/Open House as part of the Extraction Project review process. In consideration of public health concerns, CanWhite will follow the Province of Manitoba's recommendations regarding the method of holding a future Public Meeting/Open House event during this on-going pandemic situation.	N/A
	Nicole Marie, in comment_4.pdf file received from the EAB Sept. 14, 2020	217	"*Stop trying to be sneaky and pass this* [s**t] *without solicited public input. More than some dinky website that few people will see* ."	Due to government mandated restrictions with coronavirus (COVID-19), followed the Province of Manitoba's recommendation to host a live public information event online regarding the Facility Project on May 26, 2020. As noted in the presentation, CanWhite will be doing another Public Meeting/Open House as part of our Extraction Project review process (refer to Appendix H of the EAP). Section 5.2.1 'Communication Materials' in the EAP provides additional information on the methods used to communicate Project-related information and solicit comments and feedback regarding Facility Project. Further information and another public meeting will be held for the upcoming Extraction Environment Act Proposal.	N/A
	Diane Kunec, in comment_9.pdf file received from the EAB Sept. 14, 2020	218	Concern regarding: "*The reduction in the information and consultation process which was to be carried out this past summer by CanWhite Sands due to the limitations imposed by Covid-19* ."	Refer to the above response for #217 regarding CanWhite's public engagement program.	
	Anne Wowchuk, in comment_2.pdf file received from the EAB Sept. 14, 2020	219	"*Can White stated that there will be another open house in summer of 2020 to discuss the extraction process and no further information can be obtained* ."	Refer to the above response for #217 regarding CanWhite's public engagement program.	N/A
	Jay Anderson, in comment_8.pdf file received from the EAB Sept. 14, 2020	220	"*I am not pleased that I had to discover this project in the media instead of being informed directly that a change in land use was in the works. Common courtesy-the kind a mother would teach-would have dictated that I be informed of the project directly instead of hearing of it "accidentally.* "	Refer to the above response for #217 regarding CanWhite's public engagement program.	N/A
	Email from Eileen and John Wazny, July 27, 2020, Public Comments Batch #2	221	"*The research that has to go into understanding this file; takes us more than a few years! Independent Engineers, Scientists, etc.; have to be consulted* ."	CanWhite retained independent subject-expert consultants, scientists and engineers to provide the Project information contained within the Environment Act Proposal for this Project and including supplemental information provided as attachments to this public response table. Additionally, the Manitoba Government's review process for this Project includes the review and input from government experts on the subject matter pertaining to potential environmental effects of the Project.	N/A
	Janie Gibson, in comment_6.pdf file received from the EAB Sept. 14, 2020	222	"*No independent qualified experts have thoroughly reviewed the project or the applicant's business plan for soundness* . "	Refer to the response for #221 regarding independent qualified technical review of the Project.	N/A
	Email from Robert Hill, Aug. 14, 2020, Public Comments Batch #4	223	*I would request that an independent environmental impact study determine, using the methods to be employed by CanWhite Sands to extract the sand, to what extent contamination of the aquifer might occur. The costs should be borne by CanWhite Sands. The Manitoba government should not rely on results provided by CanWhite Sands in making their decision.*	Refer to the above response for #221.	N/A

ENVIRONMENTAL COMPONENT	PUBLIC COMMUNICATIONS	KEY ISSUE / QUESTION #	KEY ISSUE / QUESTION RAISED	RESPONSE	PROPOSED MITIGATION SUMMARY
	Cynthia Foreman, in comment_3.pdf file received from the EAB Sept. 14, 2020	224	"*I urge you to do your diligence in consulting Brokenhead FN in a legitimate way concerning potential impacts on their land and water.* "	CanWhite has initiated communications with Brokenhead Ojibway Nation regarding this Facility Project and future extraction activities. Specifically, with respect to the matters covered in section 7(1)(c) of the federa*l Impact Assessment Act,* both projects will be carried out on privately-owned land to which Indigenous communities would not at this time have a right of access. Also refer to responses above regarding land and water within this table.	N/A
	Lori Bohn, in comment_5.pdf file received from the EAB Sept. 14, 2020	225	"*The Brokenhead First Nation should also be consulted thoroughly* ."	See response above for #224.	N/A
	Lindy Clubb, in comment_9.pdf file received from the EAB Sept. 14, 2020	226	"*I find it incomprehensible that Brokenhead First Nation was not consulted , meaningfully, by either the company or the government* ."	See response above for #224.	N/A
	Janie Gibson, in comment_6.pdf file received from the EAB Sept. 14, 2020	227	"*There have been no consultations with impacted first nations and Métis Peoples as required under section 35 of the Constitution Act* . "	See response above for #224.	N/A
	Diane Kunec, in comment_9.pdf file received from the EAB Sept. 14, 2020	228	Concern regarding: "*The lack of meaningful consultation with indigenous communities in the area who will be potentially affected by the proposed facility and the extraction activities* ."	See response above for #224.	N/A
Cumulative Effects	Leslie Olsson, in comment_1.pdf file; Erin Dolinski in comment_2.pdf file; The Powers Family, Litwin Brown and Chantal Smith, in comment_3.pdf file; Ricky Koswin, Andrew Lindsay and Sharon Peters, and Chris Martens in comment_4.pdf file; Carolyn Bryan, Chris and Marianne Bowker, Heather Erickson, Michael Plischke, Linda and Frank Hickling in comment_5.pdf file; Evan Woelk Balzer and Wendy Sinclair in comment 6.pdf file; Keith Sharp in comment_8.pdf file; Tamara Towes-Lopéz and Jocelyne Wilson and Glen Koroluk in comment_9.pdf file; received from the EAB Sept. 14, 2020	229	Concern regarding the cumulative impacts on local groundwater.	Refer to the response for #16 regarding groundwater. Information regarding the sand extraction process, including the proposed project design and mitigation measures that will be implemented to avoid or minimize potential adverse environmental effects, will be provided in the upcoming Vivian Sand Extraction Project Environment Act Proposal. Information that clarifies incorrect assumptions and misinformation about the future proposed sand extraction process is provided in a response letter to the Impact Assessment Agency of Canada (IAAC) in **Attachment A**.	Refer to mitigation measures proposed for response to #16 regarding groundwater.

Notes:
N/A = Not applicable
MBCC = Manitoba Conservation and Climate
EAB = Environmental Assessment Branch

EAP = Environment Act Proposal
For 'Key Issue / Question Raised' column, wording in italics is direct wording from the comments submitted. Where wording is not italicized, the comment / question has been summarized for clarity.
Where there are numerous comments, questions or concerns raised regarding the same issue, a summary is provided preceded by 'General – '.
References to 'Batch #1 through Batch #4' in the 'Public Communications' column are used to track the batches of public comments files sent to AECOM by MBCC Environmental Assessment Branch via email.
References to 'comment_1.pdf' through 'comment_9.pdf' in the 'Public Communications' column are used to track the public comments emailed to AECOM by MBCC Environmental Assessment Branch as .pdf files on Sept. 14, 2020

References:

Friesen Drillers. 2019. Supplemental Municipal Groundwater Supply Rural Municipality of Springfield. May 2019. Report to the Rural Municipality of Springfield.

Attachments:

Attachment A: CanWhite Response to Impact Assessment Agency of Canada (IAAC)
Attachment B: Memorandum: Response to the Technical Advisory Committee Questions and Comments related to Air Quality
Attachment C: Clarification Letter Regarding Rail Loop Design
Attachment D: Preliminary Traffic Projection Memorandum
Attachment E: Safety Data Sheet for Sand Wash Polymer

AECOM Imagine it. Delivered.

Table 2, Attachment A

CanWhite Response to Impact Assessment Agency of Canada (IAAC)

CANWHITE SANDS CORP.
Suite 2650, 645 7th Ave SW
Calgary, Alberta
T2P 4G8

ELECTRONIC MAIL

September 11, 2020

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 letters received August 17th and 28th, 2020

CanWhite Sands Corporation (CWS) respectfully submits the following response to the two letters received from IAAC on August 17th and 28th, 2020. This response is broken down into 4 sections:

1. Based upon a discussion between Feisal Somji and Ayesha Sohail on September 4th, 2020 we would like to give you a general overview of the Project as a whole. We believe there are many misconceptions about our Project and we understand from this conversation that there is a misunderstanding of the Project scope.
2. CWS has reviewed the submissions received by IAAC from the Brokenhead Ojibway Nation, which is largely relying on submission made by Mr. LeNeveu and Mr. Sullivan. There are many statements made that are simply untrue and these submissions show a real lack of understanding of our Project. We also believe that many of the items stated in their letters are purposefully exaggerated for effect and we will under this section outline these errors and correct them for the benefit of IAAC review.
3. A response to letter received August 17th, 2020.
4. A response to letter received August 28th, 2020.

Firstly, I would like to clarify that the Environment Act Proposal (EAP) application made by CWS to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) thus far is only for the Processing Facility and associated rail loop. The EAP application does not include the mining (harvesting) and extraction of the sand, and one does not depend on the other. The associated facility would be able to process other sand from various sources in addition to other agriculture products.

The Facility will be reviewed by MBCC under The Environment Act as a “manufacturing and industrial plant” which is a Class 2 development in section 3 of the Classes of Development Regulation under

group 4 “Manufacturing”. The extraction (harvesting) of the sand resource will constitute “mining” which must be licensed under *The Environment Act* as a Class 2 development and which is subject to the closure planning and financial assurance provisions of *The Mines and Minerals Act* and to the specific regulation applicable to drilling and closing boreholes. CanWhite’s intention is to propose an extraction project for licensing later this year while construction of the Processing Facility is underway.

CanWhite is proposing the Processing Facility separately and in advance of extraction 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 Licenses 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’s subsidiary has rights; and
- Construction of the Processing Facility will take time to achieve, whereas extraction involves portable drills which will move frequently and for which no construction season is required.

CWS is currently completing a extensive hydrogeological study of the aquifer and the potential impacts (if any) from the extraction process with Golder Associates Ltd. Again, this is not part of the current EAP application. Once this study is completed, we will commence public engagement and then CWS will prepare and submit an EAP for mining (harvesting) and extraction. At the time of the public engagement phase the Company can answer all the concerns about the extraction process and the impact on the aquifer. CWS cannot answer these questions as of today as the study is not yet completed. This report is not part of the current Processing Facility EAP as this application does not involve extraction of the sand.

Section 1

Overview of the CanWhite Process

CWS is positioned to become the world’s most environmentally friendly silica sand producer. CWS will harvest the sand through 25 cm sized vertical wells. No open pits, no use of chemicals within the aquifer, no acid rock drainage, no surface discharge, no truck traffic, and no production or transportation dust.

The CWS methodology prioritizes land preservation and environmental stewardship.

Three key components of the CWS process include;

1- Temporary, portable harvest sites with immediate ongoing reclamation;
2- Dustless sand transport by slurry line to the Vivian Facility;
3- Fully enclosed, negative pressure sand drying and screening facility.

Component 1 - Harvest site and Methodology

Water well drillers around the world, and more specifically in Manitoba, utilize air to clean out sand from newly drilled and producing water wells. This method has been used for over 50 years and is proven to not harm the formation or water quality. Building upon this process CWS has developed a patented sand

lift system where sand is brought to surface with air and associate aquifer water is left in the aquifer. A net zero solution, CWS has proven the ability to not remove aquifer water while harvesting the sand, therefore there is no anticipated water draw from the aquifer or need for water disposal or discharge at surface.

On private lands under access agreement, a standard 25 cm well is drilled to formation and cemented in place to preserve the existing aquitard. A second 15 cm extraction tube is placed inside the wellbore to the formation. Inside the 15 cm extraction tube an air introduction tube is placed. The air introduction tube is shorter than the extraction tube so the air stays within the extraction tube. As air is introduced into the extraction tube it immediately rises to surface. This movement creates momentum to the surface bringing up the associated fluid and solids. The movement creates a suction effect at the bottom of the extraction tube due to a natural lower pressure inside the extraction tube versus the natural pressure of the geologic formation. This pressure differential allows the formation to "push" the sand into the extraction tube. The end result is very similar to drinking a slush drink with a straw. As the sand is removed the associated water returns to the formation through the annular space between the 25 cm and 15cm tubing. At no time is the formation subject to overpressure and as the sand is delivered wet no dust is generated.

The Harvest process takes an estimated 5 days per well after which the wells are abandoned under the standards defined by the Manitoba's *Mines and Minerals Act,* Drilling Regulation, 1992, and the surface is immediately remediated. As the harvest sites are temporary and portable, the site returns to its natural state within weeks of CWS harvest completion. No traditional mining activities take place and therefore there are no open pits and no underground operations.

Of note, under 5% of the total resource will be extracted using an engineered room and pillar methodology, therefore there are no risks or concerns for subsidence

Component 2 – Dustless temporary transport by slurry

When the sand is available at surface it is placed into a temporary, movable water transportation loop. The continuous water loop accepts the sand up to 15% by volume and transports the sand to the facility where the sand is removed from the loop and the water recycled and returned to transport more sand. As the sand is wet and contained within equipment and introduced into a water loop, no dust is present or generated.

At the facility the sand is deposited wet into a Work In Process (WIP) pile on an engineered surface which contains the equivalent of French Drains allowing full containment of any water discharge. The water, rain and snow melt are captured and recycled for WIP pile wetting and continuous water loop

The continuous water loop is comprised of high-density poly pipe (equivalent to the pipe used by municipalities for water distribution) and portable pumps. This allows the movement of slurry transport to match operational sites and minimizes surface disturbance. Surface crossing will be over private lands under surface use agreements.

The use of the continuous loop eliminates the need for any trucking and allows complete equipment removal from the harvest site allowing full remediation of the lands. CWS will eliminate legacy reclamations as all sites are immediately reclaimed through borehole abandonment and equipment removal.

Component 3 – Negative Pressure Process Facility

The CWS facility is comprised of a dryer, screeners and baghouse. Once sand enters the facility it remains enclosed within a negative air environment within all aspects of the equipment handling and is no longer subject to standard atmospheric pressures. The negative air environment is created by the baghouse which acts as a large multipurpose vacuum system throughout the sand handling process. The processed sand is moved from the facility to loadout silos over the railway loop and transfer to railcars are done under a dustless negative pressure loading facility.

The dryer is dual fuel and will originally operate on propane and later converted to natural gas. CWS as part of the facility development will work with Manitoba Hydro to bring in a high-pressure natural gas line. As the cost of the High Pressure Natural Gas transmission line will be borne CWS the community opportunity for residents east of Dugald to Vivian will be the opportunity to gasify their residences with a more environmentally friendly heating fuel option without the capital costs of the mainline installation.

Section 2

Incorrect assumptions made and relied upon within the contents of the Brokenhead Ojibway Nation (BON) letter to you on August 24, 2020.

On July 16, 2020, CWS submitted an Environmental Act Proposal for the development of a sand Processing Facility located near Vivian, Manitoba. Within the application a discussion of how the sand is transported at 15% by volume is presented. This is not how the sand is extracted from the formation and the BON letter incorrectly calculates extracted water based on this 15% volume. As noted above, CWS has developed a net zero water balance during extraction (harvesting).

When the sand itself is produced at the extraction point, the sand is placed into a water transportation loop system at 15% sand by volume, the water in the loop already exists as we recycle the water. Think if it like a water park ride, the slide always has water flowing through it and the rider merely enters the slide, rides the water and exits when the trip is over. The closed loop acts like a water ride for the sand from the extraction site to the facility, then the water is returned to pick up and transport more sand.

The wet plant does not require any additional water for washing the sand as the source water in the plant is from the continuous loop and recycled. There is no requirement for discharge of produced water. The water within the loop is fully recycled.

For clarity;

- The extraction is not part of the current EAP and no discussion on the extraction process or methodology was included in the Processing Facility EAP;
- The calculation by Mr. LeNeveu and Mr. Sullivan of amount of water produced is erroneous and incorrect and not from CWS;
- No water is discharged to surface at anytime;
- The Facility in the EAP is clearly stated to consume 200-300 USG per day only;
- The wet plant does not require additional water and acts as a sand depositor and water filtration system for recycling the water in the loop;
- The transportation loop is a continuous loop and uses recycled water;

- The sand piles at the facility are placed on engineered surfaces to capture any water run off should it exist, including rain and snow melt and recycle the water;
- The sand minerology has been provided to Manitoba Mines Branch for review.

With the greatest respect to the letters submitted by CanWhite's opponents the statements made are materially and factually incorrect. It would not be possible for one individual to be an expert or be familiar with the materials and studies being worked on or completed by the hundreds of people involved on this Project who are all third party from Internationally recognized firms specializing in the fields required to bring this Project to fruition.

The following are responses outlining incorrect information within the submitted letters found in the Canadian Impact Assessment's Registry relating to the Vivian Sand Processing Project. The Response Items discuss each letter on the registry and refer to the contents and figures within the associated documents.

Response Item #1
Title: Comments on Vivian Sand Facility Project Public Registry no. 6057
Author: D.M. LeNeveu
Date: August 24, 2020

Introduction Comments

- CWS is not solution mining
- Sustainable yield is not affected as produced water is net zero at formation
- Acid will not be produced. Minerology has been presented to the Manitoba Mines Branch and the claims of acid generation are false. Air has been used for water well drilling and water well cleanout for over 50 years in Manitoba with no adverse effects
- The air from compressors are used daily in water well drilling throughout Manitoba with no leaking of oil. The air is scrubbed of all particles and materials and oil less dry screw compressors are available.
- CWS wells are properly sealed and inspected with sealing reports filed on each well. CWS retained Friesen Drilling in addition to their own site inspections and found no irregularities with abandoned sites other than vandalism which has been addressed.
- Surface subsidence does not exist. Our sites are in fields where perfectly flat surfaces do not exist and farm equipment travel over these surfaces is common. Natural land depressions exist as well as mechanical from farm equipment working the soil. To conclude a subsidence occurred using a three foot level is not an accurate measurement. All former sites of CWS have been inspected in 2020 with no subsidence present. Stantec have verified the borehole design.
- The continuous loop water is recycled through a filtering plant and no water is discharged to surface. Should a flocculant be needed, it would be food grade, biodegradable flocculant will be used which has been proven to be environmentally inert and in current use for the production of domestic drinking water in plants throughout North America.
- No water is being discharged from any part of the CWS process and excess slurry water does not exist
- No surface discharge occurs, and the Brokenhead River is not at risk
- CWS is located within an industrial zoned area bordered by two provincial highways and one of CN rails main lines across Canada. CWS studies indicate property values will increase with the plant development.

- Mr. LeNeveu's opinion of markets are just that, an opinion. CWS is willing to make its investment within the current market conditions as CWS is a high purity industrial sand project and not a fracking supply company. No environmental legacies exist as borehole mining require active closure plans and all wells will be immediately abandoned upon completion of sand harvesting.
- Sand Sieve analysis has been provided to Manitoba Mines Branch and Manitoba Health and the sand size had been proven to not be a health threat. As the sand is produce wet, transported wet and processed in a negative pressure environment CWS air quality studies show no risk to adjacent properties.
- CWS have entered discussions with a couple of Indigenous groups and Mr. LeNevue has not been a party to these discussions so has no knowledge or facts to comment on CWS consultations
- CWS use several independent qualified experts to review the project including but not limited to; Stantec/AECOM/Golder/Process Engineers and Equipment/Industrial Accessory Company/Friesen Drillers. These reports and studies have been and will be shared with the appropriate stakeholders as they are completed.

Figure 1, the resource claim although extensive will never be developed to it full extent. A 24 year mine life, under a separate and yet to be filed EAP would only encompass approximately 10% of these mineral claims.

Water Draw on the Sandstone Aquifer

- Slurry sand content is not 15%. As noted above this is the sand to water ratio within the closed loop slurry line system. The sand extraction process is a net zero water consumption process. The water calculation and comparison for river dredging in Japan is not accurate or relevant;
- Sand is harvested at ratios as high as 90% sand and the associated water is left in the formation;
- A complete study on the harvesting and extraction process will be presented to public when available, then the EAP submission will be prepared and submitted;
- CWS has no knowledge of how the water calculation was made by Mr. LeNevue. Regardless these numbers are incorrect;
- The current EAP does not discuss the closed loop slurry line as the continuous loop slurry line is part of the Extraction Project;
- CWS has spent 3 years and over 5 million dollars designing the now patented extraction process. It is not possible for Mr. LeNevue to comment on its effectiveness and ability to produce a high density slurry;
- Figure 3a is a sampling tank and not a piece of equipment that would be used in permanent sand harvesting;
- Figure 3b is a clearing for Seismic and not a drainage path;
- 2019 had excessive rains with severe weather and flash flooding. The surface water from picture taken while trespassing on private land are from annual precipitation. In addition, this area is an exploration site and not a permanent facility;
- Numerous references are taken from unrelated industry, businesses and practices which are not applicable.

Pyrite and Aquifer Contamination

- CWS will not, and never has, harvested sand from the Black Island Member where pyrite could exist. Figure 5 is not a complete detail of the Winnipeg Formation. The upper member is called the Carmen member and is comprised of white silica sandstone. This is the member CWS harvests sand from. The lower members containing Pyrite are the Black Island members, these are layers CWS do not harvest sand from;
- CWS does not excavate or take sand from the Black Island members so Figure 6 and claims of Acid drainage are incorrect and not relevant;
- Any comparison to Black Island is not relevant as it is an entirely different minerology;
- Figure 8, Figure 9 are from an entirely different company, project and sand layer and has no relevance to CWS;
- Figure 10 CWS have extensive minerology tests conducted on the Vivian Sands which have been shared with relevant authorities. The results in Figure 10 are not representative of the sand minerology, nor can the sampling authenticity be verified;
- pH of the CWS sand was taken at 7.4 to 7.6 and comparing it to the Black Island sand is not scientifically correct;
- Figure 11a,b have nothing to do with CWS;
- Using the NI 43 101 report from another company, in another area, in another deposit has no relevancy to CWS;
- Figure 12 is not consistent with the material recovered by CW;
- Comparing Manitoba to California is not relevant and CWS is not pumping the Winnipeg Formation.

Improperly Sealed Boreholes

- CWS is working with the Manitoba Mine Branch and work has been properly documented and filed by Friesen Drillers.
- Figure 17 these wells are grouted and cemented as per the well reports filed with Manitoba regulatory bodies. Again, these wells are on private lands.
- CWS utilizes cement in the abandonment process preserving existing aquitards, formation separation, and impermeable barriers in accordance with Manitoba's *Groundwater and Water Well Act* the *Mines and Minerals Act,* Drilling Regulation, 1992 and the Mine Closure Regulation, 1999.
- Figure 21 a,b is not a borehole but a domestic small diameter water well. The picture clearly shows manual manipulation by shovel by non CWS representatives and standing groundwater.

Additional items within submission

- Figure 15 is not representative as the shale is not brought up by solution mining and the natural placement of shale is within a wet environment where it remains strong and intact.
- Figure 16 is from Arizona and is not relevant
- Figure 17 shows monitoring wells and a test well which are drilled to Manitoba guidelines using cement and proper grouting techniques. These wells have been abandoned to regulations.
- Figure 22 is not from sand within the Vivian area and is not representative of the minerology which has been proven repeatedly and shared with the Manitoba Mines Branch.
- Figure 23 is for sand in Michigan and not CWS sand.
- Figure 24 CWS is not a provider of sand to the Permian market and slide 24 is for in basin sand which is a different sand. CWS is a High Purity Industrial Silica deposit.
- Figure 25 is not an accurate representation of the high Purity Silica sand market.

- CWS has a High Purity deposit and defined uptake markets outside the fracking industry and is business modelled on the High Purity Industrial uses.
- Figure 26 is a centrifugal water pump used on a jet pump test. This piece of equipment was used for a short period of time during an exploration program. This piece is incorrectly identified as a compressor and is not used in the CWS process.
- Figure 27 is not representative of the Vivian sands and a sieve analysis of the sand from Vivian was processed and results given to Manitoba Mines Branch where the size distribution did not pose a health risk.
- CWS sites received two safety inspections in the Spring of 2020 and the site was deemed to not pose any health risk, including silicosis. Despite the favorable result CWS removed the surface piles of sand.

Response Item #2
Title: Environmental Impact Alert- Risk Assessment of CanWhite Sands (CWS) Project – Our Line in the Sand, Citizens Group
Author: Janine G. Gibson
Date: September 5, 2020

Critical Risk #1

- Nowhere in the EAP does it state 7.7 million cubic meters of water will be withdrawn. This is an errant and incorrect calculation by a non-qualified individual who has disseminated false and fake information on social media. CWS is unaware of how this calculation was completed;
- The plant uses 200-300 gallons per day of water.

Critical Risk #2

- High Pressure air is not use and the formation is vented to atmosphere making it impossible to overpressure the formation. The same technique and air supply used by water well drillers to drill water wells and clean out sand for over 50 years is used in lifting the sand to surface;
- CWS has many minerology studies showing no sulfides in the sand. Again, comparison to different formation members, different projects, different companies by non-experts on social media have provided false and incorrect information which is being regurgitated in this letter.

Critical Risk #3

- CWS, if required will use a food grade proven environmentally friendly flocculant which is used in the production of drinking water at facilities across North America;
- The study referred look at oilfield application, sludge and dewatering and agricultural issues with a flocculant. The application is not representative of a CWS process.

Critical Risk #4

- CWS has no surface discharge;
- CWS is not an open pit and does not have tailings ponds;
- CWS does not generate any leaching;
- CWS does not have the minerology in the sand to produce the claims made.

Critical Risk #5

- The water calculation is wrong;
- CWS process will not collapse the sandstone aquifer;
- CWS has a patent pending net zero process leaving the water in the formation;
- All of this information along with independent reports will be shared during the public engagement phase prior to a mining (harvesting) EAP submission.

Critical Risk #6

- The shale and sands are quite stable;
- The Shale Aquitard is preserved, and sink holes will not form;
- CWS will take less than 5% of the sand in place through a properly independent engineered methodology;
- All of this information along with independent reports will be shared during the public engagement phase prior to a mining (harvesting) EAP submission.

Critical Risk #7

- Freshly mined silica is cleaner than beach sand as it has been washed for hundreds of millions of years;
- Slurry extraction removes fines and wet sand cannot produce dust;
- There is a greater risk for health issues from the surface sands at beaches and parks throughout Manitoba.

Response Item #3
Title: Letter to Minister of the Environment and Climate Change, The Hon, Jonathan Wilkinson
Author: Don Sullivan
Date: August 18, 2020

The contents of Mr. Sullivan's letter are incorporated in the letters responded to above. To reiterate, the calculation of water is materially incorrect and assumed. No surface discharge is within the CWS methodology; therefore, the Brokenhead River cannot be impacted.

Response Item #4
Title: The Project is a physical activity based on the potential for the diversion of more than 10 million cubic meters of water from a natural water body to another natural water body
Author: Dennis LeNeveu
Date: September 6, 2020

- The CWS extraction process is designed to be net zero;
- The calculation of water is incorrect and from incorrect assumptions made by the author.

Response Item #5
Title: The species at risk Chestnut Lamprey Eel extant in the Brokenhead River will be endangered by this Project
Author: Dennis LeNeveu
Date: September 6, 2020

- The CWS methodology and process has no surface discharge;
- The minerology of the Vivian Sand does not generate toxic acid or heavy metal runoff.

Response Item #6
Title: Air injection into the sandstone aquifer of the Winnipeg Formation
Author: Dennis LeNeveu
Date: September 6, 2020

- Improper comparison to gas storage caverns;
- The air used in the CWS process is not high pressure air;
- The air injection is designed to stay within the extraction tube and not openly injected into the formation.

Response Item #6
Title: Comments on Manitoba Public Registry 6057 - Vivian Sand Facility Project by D.M. LeNeveu for the Manitoba public Review Process
Author: Dennis LeNeveu
Date: September 3, 2020

- Mr. LeNevue is not aware of CWS initiatives or discussions with key Stakeholders;
- The Vivian Sand Processing Facility is located on private lands;
- Acid drainage is not possible from the minerology and more importantly the fact that CWS will not have surface discharge;
- The mineral rights of CWS are extensive but only a small percentage of the claims will be brought to market through the Vivian Sand Processing Facility.

In conclusion, CWS **r**espectfully asks that the facts, science and independent works of the 3rd party experts be considered over the exaggerated, unrelated and incorrect assumptions and calculations.

Section 3

Response to August 17th, 2020 letter questions:

1. *Proposed water withdrawal, use, discharge and final disposal;*
The processing facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day), which is the approximate daily usage of a household of four to six people based on local water usage data. Water usage at the facility is limited to sinks, toilets, staff kitchen and fire suppression. Water used in the facility daily (approximately 760 to 1,135 litres per day) will be directed to a septic system that will include a septic tank and drain field/leach field. The septic system will be installed, and regularly maintained and

monitored for correct functioning, in accordance with the Onsite Wastewater Management Systems Regulation made under *The Environment Act*.

2. *The proposed area of the railway yard (loop) component of the Project;*
The rail loop is proposed to be 7.4 hectares. The centre of the loop is planned to remain as is, with tree coverage and foliage, therefore the area inside the loop was not accounted for in calculations. For information purposes, when the inner area of the loop is added, the area is 47.1 hectares, which includes the spur line to the CN Rail. It should be noted that this spur line is under ownership care and control of CN and was not included in the Processing Facility EAP. For further details on the loop design please refer to the letter, 'Updated Rail Loop Design Information' filed with the Manitoba Conservation and Climate Environmental, Approvals Branch on spetember 10th 2020.

3. *Any further information that you care to provide to support the Agency's understanding of the Project as proposed.*
As outlined above in Section 1 and 2.

Section 4

Response to August 24th, 2020 letter questions:

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 both the Vivian Sand Processing Facility Project and the Vivian Sand Extraction Project.*

Vivian Sand Facility Project

Key Project Activities include:

- A sand wash and dry facility that will include a 'Wet Plant', a 'Dry Plant' and the following
- associated components;
    - Two outdoor stockpiles of wet sand ready to be processed;
    - One overs sand reject pile (outdoor) associated with the Wet Plant
    - One overs/fines sand reject pile (enclosed) associated with the Dry Plant;
    - Four fully enclosed storage silos for dry sand product;
    - Ancillary structures, including permanent office, staff kitchen, washrooms, operator control centre, maintenance building and storage buildings;
    - Rail loop track (approximately 3.5 km length) connecting with a Rail Load Out for direct sand product loading to enclosed railcars, and for railcar storage; and
    - A 5 m wide single-lane gravel access road approximately 1 km in length to the Project site, with 1 m wide shoulders on either side for passing.

Maps and Layouts:

Please refer to **Appendix A** of this document as well as outlined in detail in the EAP submitted to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) in July 2020.

Appendix A contains the following figures:

- Figure 1-2 Project Site Location and Land Ownership, with original rail loop (as seen in Vivian Sand Facility EAP)
- Figure 2-2 Processing Facility Components (as seen in Vivian Sand Facility EAP)
- Figure 4-8 Land Use within the Local Project Area (as seen in Vivian Sand Facility EAP)
- Rail Concept Option 4 – drawing: Figure 1
- Rail Concept Option 4- drawing: Figure 2

Land Tenure

The Project will be located within the Rural Municipality (RM) of Springfield on private land (no Crown land is associated to this project) as illustrated in **Figure 1-2 in Appendix A**, and within the following land parcels:

- NE-32-10-8E1
- SE-32-10-8E1
- SW-32-10-8E1
- NW-29-10-8E1
- NE-29-10-8E1

CanWhite has entered into agreements which will entitle CanWhite to purchase all privately-owned land.

Zoning

The Project site is conditionally zoned for industrial use which contemplates the proposed Project components and activities. Currently, there are agriculture and historic and active open pit aggregate/quarry operations in the local area.

Estimated Timelines

Project Phases and Activity	Proposed Schedule (subject to the results of Regulatory review)
Construction	
Site preparation (clearing vegetation, grubbing, grading, leveling) and construction of the Processing Facility and associated infrastructure	Q4 2020 to Q1 2021
Operation	
Commissioning the Wet Plant and Dry Plant; sand product production	Q1 2021 Production: Year-round; 24 hours/day, 7 days/week
Decommissioning	
Processing Facility dismantling and site reclamation	At end of Project Life (24 years): **2045**

Note: QX = year quarter (e.g. Q4 = October through December timeframe)

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

- Environment Act Licence – Vivian Sand Facility Project (Provincial)
- Water rights license(s) (Provincial)
- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
- RM of Springfield – Development Agreement (Municipal)
- RM of Springfield – Building Permit(s) (Municipal)

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. 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?

- Environment Act Licence - Vivian Sand Facility Project (Provincial)
  - Approval by: Manitoba Conservation and Climate, Environmental Approvals Branch
  - Assessment as "manufacturing and industrial plant" which is a class 2 development in section 3 of the Classes of Development Regulation 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, 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 2 domestic wells located on the facility site for fire suppression, sinks, toilets etc.
  - Assessment includes; volume to be pumped, rate of pumping, duration, location of wells, size and depth of well, impact on local users.

- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
    - Approval by: RM of Springfield Municipal Council.
    - Required under the Springfield Zoning By-law No. 08-01. Public hearing required in accordance with the Provincial *Planning Act*.
    - Assessment includes; a) relationship to and compliance with the RM of Springfield Development Plan and Council policy; b) compatibility with surrounding development in terms of land use function and scale of development; c) traffic impacts; d) relationship to, or impacts on utility services and public facilities such as recreational facilities and schools; e) relationship to Municipal land, right-of-way or easement regulations; f) effect on stability, retention and rehabilitation of desirable existing uses, buildings, or both in the area; g) relationship to the documented concerns and opinions of area residents regarding the application; h) groundwater and soil conditions; and i) topographical, physical and natural features, and others.
    - Conditions stipulated by council may include; a) additional buffering measures such as increased yard setbacks, berms and fencing; b) performance standards dealing with such potential impacts as noise, odour and vibration; c) limiting the hours of operation; d) imposing design and siting regulations including landscaping, outdoor lighting, refuse and storage areas, and building design and architectural appearance; e) the owner/applicant upgrading certain municipal services such as roads and ditches; f) a letter of credit related to municipal improvements such as road or drainage works; g) liability insurance protecting the municipality from any future legal claims, including environmental contamination to water sources; or h) the owner/applicant entering into a development agreement with the Municipality and others.
- RM of Springfield – Development Agreement/Permit (Municipal)
    - Approval by: RM of Springfield Municipal Council.
    - Required under the Springfield Development plan, in accordance with the Provincial *Planning Act*.
    - Assessment includes timing of construction of any proposed buildings or structures; the control of traffic; and the construction and maintenance of roads, fencing, landscaping, shelter belts, manure storage facility covers or site drainage works by or at the expense of the proponent
- RM of Springfield – Building Permit(s) (Municipal)
    - Approval by: RM of Springfield Municipal Council.
    - Required for applicable building codes and standards.

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).*

The Project Site is located within Treaty No. 1 area (Indian 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 40 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 Area (GHA) number 35 within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of land held in fee simple by private landowners and/or land used for municipal and public purposes and is currently zoned for 'aggregate' by the RM of Springfield. No aspects of the Project will involve Crown land. Therefore, the Project Site itself is not currently available for the exercise of Indigenous or Treaty rights.

CanWhite has to date met with the Manitoba Métis Federation (May 30, 2019 and August 19, 2020) and with a representative from the Southern Chief's Organization. The Company also intends to reach out and provide details on the Project to the Brokenhead Ojibway Nation and will take into account their concerns.

The following additional Public consultations are required per each provincial or municipal approval:

- Environment Act Licence – Vivian Sand Facility Project (Provincial)
    - Public Engagement required. All steps taken are outlined in Section 5 Engagement Program of the Vivian Sand Facility Project Environment Act Proposal filing. The following engagement steps have been taken:
        - Initial public meetings occurred in 2017 with general project meetings to introduce the company.
        - In April 2019, additional general meetings were held in La Broquerie, Anola and Richer to share general overview that sand was being targeted by the project.
        - A Project email (info@viviansandproject.com) launched May 11, 2020
        - A Project toll-free number: 1-888-436-5238 launched May 11, 2020
        - Information Flyers sent out May 11, 2020
        - Newspaper advertisement posted in *The Clipper* local newspaper on May 14, 2020
        - A Project website www.viviansandproject.com launched May 18th, 2020
        - Mail-out information packages sent out May 21, 2020
        - A Virtual Open House presentation held May 26, 2020, 7:00 pm
        - A briefing with the RM of Springfield Council was held prior to the formal Virtual Open House event on May 19, 2020 at 12:00 PM. During this briefing, the engagement plan, public presentation, website and information package materials were presented to Council for review.

- Water rights license(s) (Provincial)
    - None required.

- RM of Springfield - Conditional Use application for the Facility Project (Municipal)
    - Public hearing required. All formal documentation has been filed with the Municipally, awaiting a date for public hearing.

- RM of Springfield – Development Agreement (Municipal)
    - None required.

- RM of Springfield – Building Permit(s) (Municipal)
    - None required.

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

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

Water required for the project will be limited to sinks, toilets, and fire suppression, and this water will be obtained from two domestic wells located on site. CanWhite does not anticipate any impacts or effects on the water quality.

b. Impacts on water quality due to releases or accidents

The two wells on the facility site used for fire suppression, sinks and toilets for employees will be constructed, operated and decommissioned in accordance with the provincial regulations. They will be sealed on surface to protect from any foreign particles entering that may result from any release or accident on surface as is standard practice for domestic and other facility water wells.

c. Impacts on soil quality

An assessment of soil impacts has already been conducted and outlined in Section 6.2.2 of the Vivian Sand Facility Project Environment Act Proposal filing as the following:

Magnitude of Effect: Minor

Direction of Effect: Adverse

Duration of Effect: Long term

Frequency: Intermittent

Scope of Effect: Project Site

Reversibility: Reversible

Construction activities have the potential to cause soil erosion, including clearing, levelling, and construction of the site access road, Wet Plant and Dry Plant, rail loop and associated Project components. Soil erosion can potentially increase during high wind and precipitation events, which are expected to be most frequent during the months of May to September. 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 the construction and decommission phases of the Project.
- Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.
- During the Project decommissioning phase, 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 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

There are no lakes, rivers or streams within the Project Site. The Brokenhead River is the closest major waterbody which is located approximately 6 km east of the Project Site. Although the Local Project Area has some wetlands, artificial ponds and ephemeral drainage areas primarily associated with aggregate quarries and other developments in the area which are not directly connected with permanent natural waterways. Due to the absence of fish bearing waters, no Project related impacts on fish and fish habitat are anticipated.

There is a misconception that fish bearing waterways will be affected by discharge from the facility. As previously stated, there is no water discharge from the facility. All water is contained and recycled, therefore there is no credible potential impact to the Brokenhead River.

e. Impacts on air quality and atmospheric environment, including noise and light pollution

An extensive air quality model and study, noise model and study and overall assessment of impacts has been conducted. The facility Project is not anticipated to impact air quality, or the atmospheric environment, due to its location away from residential, and surrounding of trees, as well as a dust management plan as well as noise and dust monitoring programs in development.

Please see **Appendix C** for the full assessment completed in the Facility Project Environment Act Proposal.

f. Impacts to human health, and socioeconomic conditions

Human health and wellbeing as well as socioeconomic conditions were thoroughly assessed and detailed in Section 6.6 - Socioeconomics and 6.6.4 Human Health of the Vivian Sand Facility Project Environment Act Proposal Human health was found to be negligible due to the noise and dust monitoring, as well as the high safety standards and training to be implemented throughout the life of the project. The socioeconomic conditions were assessed to be positive or negligible for all other assessment items, such as land and resource use, infrastructure services, and labour force and employment, effects on Indigenous and Treaty Rights and heritage resources.

Please see **Appendix C** for the full assessment completed in the Facility Project Environment Act Proposal.

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

iii. If the Projects are anticipated to result in permanent changes or cumulative effects, how you intend to manage those impacts

The Project is expected to last 24 years prior to decommissioning. At the Project end of life, the facility site which contains permanent structures etc. for the Project, will be returned to a natural state to the extent feasible. The decommissioning of the facility site will generally include the following activities:

- Removal of buildings, and foundations as applicable;
- Removal and disposal of miscellaneous infrastructure (e.g. power lines, generators);
- Removal of fuel and oil tanks, as applicable;
- Testing and remediation of contaminated soils, as required;
- Decommissioning (sealing) of the two on-site Processing Facility water wells;
- Re-grading and contouring of previously disturbed areas; and
- Revegetation of disturbed areas to restore the landscape to native conditions to the extent feasible.

Following revegetation through reseeding efforts at the decommissioned facility site, the establishment of shrubs and trees is expected to be evident within 5 to 10 years following closure.

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

   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 dust mitigation plan, dust and noise monitoring, personnel safety training, driving safety, wildlife awareness, waste and hazardous waste disposal and ground water monitoring and management.

5. *What steps have you taken to consult with the public? What steps do you plan to undertake during all phases of the Projects? Are you aware of any public concerns in relation to this projects? If yes, provide an overview of the key issues and the way in which (in general terms) you intend to address these matters?*

   To date, public engagement has occurred in phases and different forms. In April 2019 during the early planning phase, CanWhite held public meetings in Anola, Richer and La Broquerie, Manitoba to introduce CanWhite and provide information about the potential for a future silica sand project in their regional areas. The proposed location for the Processing Facility had not been determined at that time; therefore, formal public feedback regarding a proposed silica sand processing facility was not obtained during these early public engagement meetings.

A formal engagement process for the processing facility was initiated in 2020. As previously described above, all forms of communication were used to share information about the Project. An advertisement was published on May 14, 2020 in the local newspaper (The Clipper) informing the public about the Project, Virtual Open House, project website launch date (May 18th, 2020), Project email and toll-free CanWhite contact number. Members of the public that were interested in more information, looking to register for the Virtual Open House or to provide any comments and/or questions were directed to the Project website to send an email to info@viviansandproject.com or to call the toll-free number 1-888-436-5238.

Information packages were mailed to any local residents who requested hard copies of the information presented on the website. Additionally, 20 information packages were mailed to the RM of Springfield municipal office on May 21, 2020 for general public to pick up.

A Virtual Open House in the form of a live Project presentation by CanWhite followed by a question and answer session was held on May 26, 2020 from 7:00 PM to 9 PM. This was held online as a webinar format due to the coronavirus restrictions and previously approved by provincial regulators as acceptable. It featured a presentation on the facility Project plans followed by a question and answer period where attendees could submit questions to be answered live.

CanWhite maintained a record of correspondences throughout the engagement phase to track and respond to all emails and/or calls pertaining to the Project. Emails received were provided with an immediate autoreply informing the public that their inquiry would be responded to within two business days. Phone calls received after the Virtual Open House was held were provided with a reply within two business days. CanWhite's to respond to all inquires as received.

CanWhite is aware of some key issues and concerns of the public, including water quality, water usage, dust, noise and overall environmental impact. CanWhite has taken steps to mitigate each one of these concerns with various measures, studies and general operating procedures as outlined in the Facility Project Environment Act Proposal and above. Many of the latest concerns from the public arise from inaccurate information being presented by members of the public about the water usage and overall plans that CanWhite has not yet released. It has been communicated that once information is available CWS will engage with the public in the community including the Brokenhead Ojibway Nation, then the Extraction Project Environment Act Proposal will be prepared and submitted.

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

The Project Site is located within Treaty No. 1 area (Indian 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 40 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 Area (GHA) number 35 within which the Project Site is located (Manitoba Sustainable Development 2019).

The Project Site is comprised of land held in fee simple by private landowners and/or land used for municipal and public purposes and is currently zoned for 'aggregate' by the RM of Springfield. No aspects of the Project will involve Crown land. Therefore, the Project Site itself is not currently available for the exercise of Indigenous or Treaty rights.

CWS has to date met with the Manitoba Métis Federation (May 30, 2019 and August 19, 2020) and with a representative from the Southern Chief's Organization.

The Company also intends to reach out and provide details on the Project to the Brokenhead Ojibway Nation and will take into account their concerns. CWS was not aware of any concerns by any Indigenous Communities until the issuance of this letter, as no communication has been received.

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?*

At this time no environmental effect or impacts to the public or Indigenous people are expected from the Facility Project. All potential effects are mitigated as previously mentioned including but not limited to; a dust mitigation plan, dust and noise monitoring, personnel safety training, driving safety, wildlife awareness, waste and hazardous waste disposal and ground water monitoring and management.

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

Thank you for the opportunity to state our position in this regard. The impacts to be taken into account 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 baseline 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.

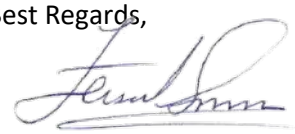
When CWS proceeds with the Extraction Project EAP, a public engagement process, including any Indigenous community interested in the Projects, will be carried out to inform and include input from potentially affected or otherwise interested communities. Specifically, with respect to the matters covered 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,



Feisal Somji, B.Sc., MBA
President and CEO
CanWhite Sands Corp.

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

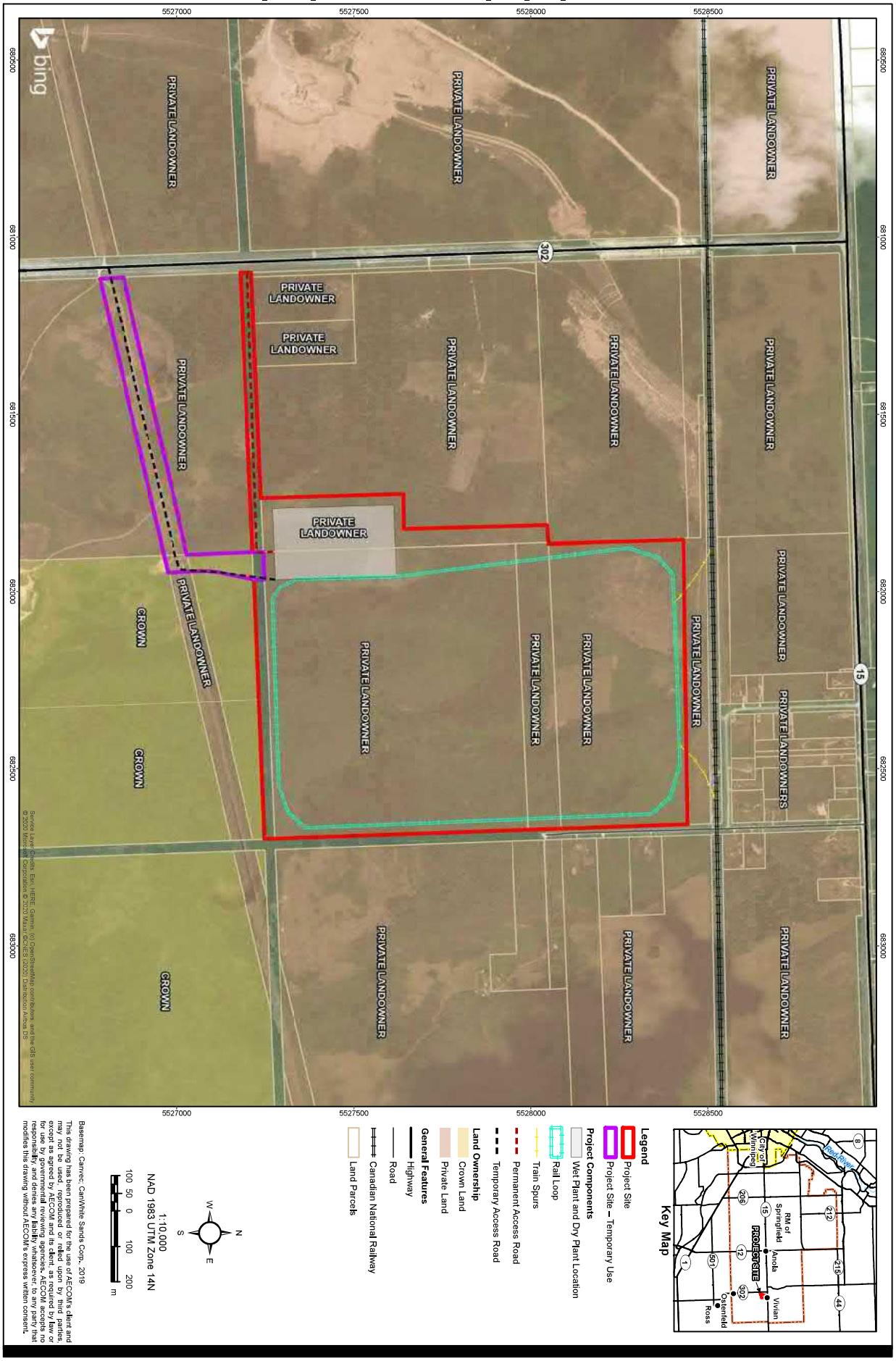
Attachments:

- Appendix A – Maps and Layouts
- Appendix B – Environment Act Proposal Report Guidelines
- Appendix C – Section 6.0 - Environmental Assessment and Mitigation Measures - of Vivian Sand Facility Project – Environment Act Proposal (EAP) Application

Appendix A

Maps, Layouts

Last saved by: PAIGE.CROSSMAN (2020-06-30) Last Plotted: Tue Jun 30, 2020 Project Management Initials: Designer: Checked: Approved: ANSI B 279.4mm x 431.8mm
Filename: L:\ENVIRONMENT\GIS\STEPHANIE CLARKE\WINNIPEG\VIVIAN_60625656\02_MXDS\VIVIAN SAND FACILITY PROJECT\H001-2_60625356_FACILITY_SITELOCATIONLANDOWNERSHIP.MXD



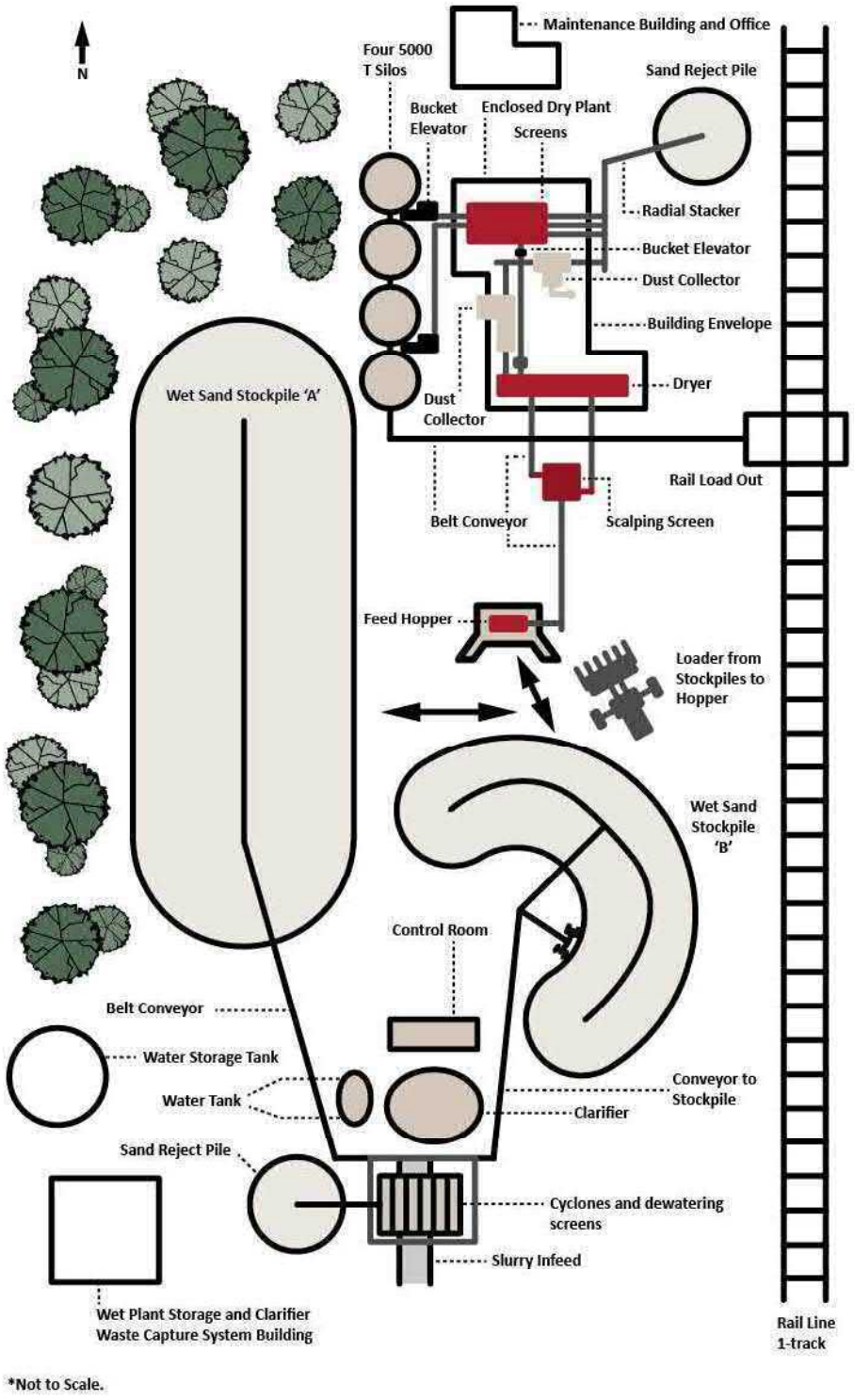
Basemap: Canvec, CanWhite Sands Corp., 2019

Vivian Sand Facility Project
Project Site Location and Land Ownership
CanWhite Sands Corp.

AECOM

Figure: 1-2

Figure 2-2: Processing Facility Components



AECOM

Figure: 4-8

Vivian Sand Facility Project
Land Use within the Local Project Area
CanWhite Sands Corp.

LEGEND

- AREA BOUND BY OUTER LOOP =7.4ha
- AREA BOUND BY INNER LOOP =39.5ha
- AREA BOUND BY CN R/W =0.2ha

TOTAL = 47.1ha

Figure 1

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"X34"), SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"X17")

NOTES:
1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

PERMIT NO.:

TRI INNOVATIONS CONSULTING LTD
ENGINEERING · DESIGN

PROJECT NO.: XXX.01.01

	DRAWN	CHECKED	DESIGN	APPROVED
BY	SM			
DATE	2020-09-04			

TRANSENERGY

RAIL CONCEPT OPTION 4
RAIL LAYOUT
OVERALL SITE PLAN
AREA SKETCH

SCALE	DRAWING NUMBER	REV.
1/2500	XXX0101-RL-SPN-00002	A

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TRACK LENGTHS

A/D TRACK 1 = 2,611m

A/D TRACK 2 = 1,882m

SERVICE TRACK 1 = 411m

SERVICE TRACK 2 = 561m

CONNECTION TRACK = 304m

ENTIRE LOOP TRACK LENGTH = 2,611m

Figure 2

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"X34"), SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"X17")

NOTES:
1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

PERMIT NO.:

TRI INNOVATIONS CONSULTING LTD
ENGINEERING - DESIGN

PROJECT NO.: XXX.01.01

	DRAWN	CHECKED	DESIGN	APPROVED
BY	SM			
DATE	2020-09-04			

TRANSENERGY

RAIL CONCEPT OPTION 4
RAIL LAYOUT
OVERALL SITE PLAN
SKETCH

SCALE	DRAWING NUMBER	REV.
1/2500	XXX0101-RL-SPN-00001	A

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Appendix B

Environmental Act Proposal Report Guidelines

Information Bulletin – Environment Act Proposal Report Guidelines

Manitoba Sustainable Development

These guidelines apply to all Environment Act Proposals (EAPs) under The Environment Act. They prescribe what is required in report(s) supporting the EAP, and the quantity and types of copies required.

Separate, supplementary guidelines exist for certain types of developments, indicating additional information required. These guidelines are available on the Environmental Approvals Branch (EAB) webpage (http://www.gov.mb.ca/sd/eal) or by contacting the EAB.

DEVELOPMENT ENVIRONMENTAL ASSESSMENT (EA) REPORT

This information is based on the Licensing Procedures Regulation (Manitoba Regulation 163/88).
Note that where Imperial measurements are used, metric equivalents must be listed as well.

The EA Report typically contains the following:

- Executive summary
- Introduction and background
- Description of proposed development, including construction, operation, maintenance, and decommissioning if applicable
- Description of existing environment in the project area
- Description of environmental effects of the proposed development
- Description of the human health effects of the proposed development
- Mitigation measures to protect the environment and human health, and residual environmental effects
- Follow-up plans, including monitoring and reporting
- Conclusions

Definitions

"environment" means

(a) air, land and water, or
(b) plant and animal life, including humans

"environmental health" means those aspects of human health that are or can be affected by pollutants or changes in the environment

"pollutant" means any solid, liquid, gas, smoke, waste, odour, heat, sound, vibration, radiation, or a combination of any of them that is foreign to or in excess of the natural constituents of the environment, and

(a) affects the natural, physical, chemical, or biological quality of the environment, or
(b) is or is likely to be injurious to the health or safety of persons, or injurious or damaging to property or plant or animal life, or
(c) interferes with or is likely to interfere with the comfort, well being, livelihood or enjoyment of life by a person.

Introduction and Background

- Need or rationale for the development, purpose, and alternatives; may include one or more of the following depending on the development:

- products or services to be provided and process technologies to be used;
- quantitative information on the volumes or amounts of products or services as applicable;
- current population trends, if a specified population is to be served by the development; and
- reference to previous studies and activities relating to feasibility, exploration, or project siting and prior authorization received from other government agencies.

Description of Proposed Development

- Certificate of Title showing the owner(s) and legal description of the land upon which the development will be constructed; or, in the case of highways, rail lines, electrical transmission lines, or pipelines, a map or maps at a scale no less than 1:50,000 showing the location of the proposed development.

- Owner of land upon which the development is intended to be constructed, and of mineral rights beneath the land, if different from surface owner.

- Existing land use on the site and on land adjoining it, as well as changes that will be made in such land use for the purposes of the development.

- Land use designation for the site and adjoining land as identified in a development plan adopted under The Planning Act or The City of Winnipeg Act, and the zoning designation as identified in a zoning by-law, if applicable.

- Description of proposed development and schedule for stages of the development, including proposed dates for planning, design, construction, commissioning, operation, and decommissioning and/or termination of operation (if known), identifying major components and activities of the development as applicable (e.g. access road, airstrip, processing facility, waste disposal area, etc.).

- Funding, including the name and address of any government agency or program (federal, provincial or otherwise) from which a grant or loan of capital funds have been requested (where applicable).

- Other federal, provincial or municipal approvals, licences, permits, authorizations, etc. known to be required for the proposed development, and the status of the project's application or approval. (Information on federal approval requirements may be obtained from the Canadian Environmental Assessment Agency at http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=D75FB358-1.)

- Results of any public consultations undertaken or to be undertaken in conjunction with project planning.

Description of Existing Environment in the Project Area

- The biophysical environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:
  - description of the local area and regional setting including important terrain features such as hills, valleys, lakes, rivers, shorelines, etc;
  - description of the prevailing climate and meteorological conditions, and identification of any nearby climate monitoring stations;
  - identification and description of local and regional surface waterbodies (lakes, rivers, wetlands, etc.) and description of the regional groundwater conditions including aquifers, recharge areas, quality, wells, etc.;
  - description of the aquatic environment including fish resources, fish habitat, benthic invertebrates, aquatic macrophytes, etc. for each waterbody that could be affected by the proposed development;
  - description of the terrestrial environment including vegetation, wildlife (mammals, birds, amphibians, reptiles, etc.), wildlife habitat, etc. that could be affected by the proposed development;
  - identification and description of any rare, threatened or endangered species or any important or sensitive species and/or habitats, particularly if federally and/or provincially protected; and

- identification and description of the existing land and resource uses in the region including agriculture, forestry, mining, hydroelectric, oil and gas, recreation, tourism, etc.

- The socioeconomic environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:
  - identification of any existing public safety and human health risks in the development area;
  - identification and description of protected areas (e.g. national and provincial parks);
  - heritage resources (e.g. archaeological and historic sites), etc; and
  - identification of Indigenous communities in the vicinity of the proposed development.

Existing environmental information may come from sources such as site visits, previous studies, environmental databases, baseline data, ecological land classification, and traditional ecological knowledge.

Description of Environmental and Human Health Effects of the Proposed Development

- Potential impacts of the development on the environment, including, but not necessarily limited to:
  - impact on biophysical environment, including wildlife, fisheries, surface water, groundwater, and forestry resources;
  - type, quantity and concentration of pollutants (emissions, effluents and solid wastes) to be released, and the technologies proposed to contain or treat the waste streams;
  - information on the storage, transportation and disposal of any hazardous wastes that may be produced;
  - identification of any storage of gasoline or associated products (e.g. diesel fuel, used oil, heating oil, aviation gas, solvents, isopropanol, methanol, acetone, etc.);
  - impact on heritage resources;
  - socio-economic implications resulting from environmental impact; and
  - climate change implications including a greenhouse gas inventory calculated according to guidelines developed by Environment Canada (http://www.ghgreporting.gc.ca/GHGInfo/Pages/page15.aspx) and the United Nations (http://www.ipcc-nggip.iges.or.jp/public/index.html.)
- Potential impacts of the development on human health and safety, including, but not necessarily limited to:
  - potential impact on human health and safety resulting from any release of pollutants, including a human health risk assessment.
- Potential impacts of the development on Indigenous communities, including, but not necessarily limited to:
  - direct impacts on communities in the project area;
  - resource use, including hunting, fishing, trapping, gathering, etc.;
  - cultural or traditional activities in the project area.

Mitigation Measures and Residual Environmental Effects

- Proposed environmental management and risk mitigation practices to be employed to prevent or mitigate adverse implications from the impacts identified above, having regard to, where applicable:

  - mitigation incorporated at the planning and design stages;
  - containment, handling, monitoring, storage, treatment, and final disposal of pollutants;
  - conservation and protection of natural or heritage resources;
  - environmental restoration and rehabilitation of the site upon decommissioning; and
  - protection of environment and human health.

- Residual environmental effects remaining after the application of mitigation measures, to the extent possible expressed in quantitative terms relative to baseline conditions.

- Description of control technology as compared to best available control technology.

Follow-up Plans, including Monitoring and Reporting

- Proposed follow-up activities that will be required at any stage of development (e.g. monitoring, inspection, surveillance, audit, etc.)

COPIES:

For EAP reports, submit the following:

- 2 hard (paper) copies; and
- 1 electronic copy (CD)

Additional hard copies may be required for proposals in locations where internet access is limited.

NOTE: The Environment Act requires that subject to the Confidential Information clause, Section 47, a proposal shall be filed in the public registry. **Proprietary information, if applicable, should be clearly noted. Separate hard and electronic reports excluding proprietary information should be submitted for the public registry.**

The EAB publishes all EAPs on its webpage for public access. For this reason, please use the following guidelines for creating electronic copies:

- Documents must be in Portable Document Format (PDF) or a file type that can be easily converted to PDF (e.g. Microsoft Word or other word processing documents).
- Files should be smaller than 5 MB. Larger files may be broken into logical sections if necessary. Avoid numerous small files.
- The content and order of the electronic copy must be identical to the hard copy. Include tables, pictures, figures, drawings, etc. in the same locations throughout the document as they would be in the hard copy. If the Table of Contents lists them as separate documents, include them as separate electronic files.
- File names must be in lower case letters with no spaces. Numbers and underscores (_) are acceptable (e.g. “eap_sec1.pdf”).
- If GIS data were used to create any maps or drawings included in the submission, include digital data files compatible with ESRI software (e.g. Shapefile, Coverage or DXF format) along with base metadata (author/date/datum/projection/accuracy).

For further information, please contact:
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, MB R3H 0W4
Phone: (204) 945-8321
http://www.gov.mb.ca/sd/eal

Appendix C

Environmental Assessment and Mitigation Measures

6. Environmental Assessment and Mitigation Measures

This section identifies the potential Project effects on the biophysical and socioeconomic environmental components, describes mitigation measures included in the design of the Project to avoid or minimize potential Project effects and determines the residual adverse impacts remaining, if any, after the application of mitigation measures.

The scope of this environmental assessment regarding spatial and temporal boundaries and the environmental components to be assessed has been described in Section 3.

6.1 Effects Assessment Methods

Table 6-1 identifies the biophysical and socioeconomic components that may be potentially affected by the Project due to the potential for interactions with the Project activities and components. Potential interactions were identified based on:

- Professional judgement;
- An understanding of Project components, construction methods, operation processes and the assumption that standard environmentally responsible construction techniques and operating procedures will be applied in the course of project construction, operation and decommissioning/closure; and
- Input received from local communities, the public, stakeholders and communications with regulators (Section 5).

Table 6-1: Environmental Component Potential Interactions with the Project

ACTIVITY	BIOPHYSICAL COMPONENTS										SOCIO ECONOMIC COMPONENTS			
	Physical			Atmospheric		Terrestrial			Aquatic					
	Topography	Soil	Groundwater	Air Quality (dust, noise)	Climate / Greenhouse Gases	Vegetation	Wildlife	Species of Conservation Concern	Surface Water Quality	Fish and Fish Habitat*	Heritage Resources	Land and Resource Use	Human Health and Well-being	Indigenous and Treaty Rights** Aesthetics
CONSTRUCTION														
Mobilizing construction equipment, materials and crew to and from Project Site including improvement of existing construction access road as needed	X	X		X	X	X	X	X	X		X	X	X	
Vegetation clearing, grubbing and leveling for facility and other infrastructure	X	X		X	X	X	X	X	X		X	X	X	
Stockpiling cleared woody debris/organics/soil	X	X		X	X	X	X	X	X		X	X	X	
Disposing of large woody debris (trees)	X	X		X	X		X	X				X	X	
Drilling two groundwater wells for Processing Facility use (i.e. emergency fire suppression; sinks, showers and toilets)	X	X	X	X	X	X	X	X	X		X	X	X	
Construction of Processing Facility, including rail loop	X	X		X	X	X	X	X	X		X	X	X	
Disposing of miscellaneous construction wastes		X					X	X					X	
OPERATION and MAINTENANCE														
Mobilizing operations and maintenance equipment, materials and crew to and from Project Site				X	X		X	X					X	
Sand processing including Processing Facility domestic groundwater use			X	X	X								X	
Transporting sand to main CN rail line from the Processing Facility via railcars, rail loop and railway spurs				X	X		X	X					X	
Disposing of miscellaneous operation and maintenance wastes		X					X	X					X	
DECOMISSIONING/CLOSURE														
Mobilizing decommissioning/closure equipment, materials and crew to and from Project Site				X	X		X	X					X	
Dismantling or demolishing, and removal of, Processing Facility components				X	X		X	X					X	
Spreading organics/soil and revegetating previously disturbed areas	X	X		X	X	X	X	X					X	
Disposing and recycling of waste materials		X					X	X					X	

* No fish habitat occurs within the Project Site. Therefore, Project related activities are not anticipated to interact with fish or fish habitat. Protected spaces such as parks and other protected areas do not occur within the Project Site.
** Project activities are not anticipated to adversely impact Indigenous and Treaty Rights (Section 6.6.5).

The framework for determining environmental impacts of the Project on environmental components includes the following:

- Determine potential adverse effects of the Project on environmental components;
- Apply mitigation measures to avoid or minimize potential adverse effects;
- Determine the residual environmental impacts, which are those adverse environmental effects that remain after the application of mitigation measures; and
- Evaluate the residual environmental impacts based on defined effects evaluation criteria.

The criteria used to evaluate residual environmental impacts are defined in **Table 6-2**, noting that the defined criteria is used as a general guide and may be modified to more appropriately evaluate impacts to specific environmental components.

Table 6-2: Environmental Effects Assessment Criteria

Criteria Term	Definition			
Magnitude of Effect:	Refers to the estimated percentage of population or resource that may be affected by activities associated with the construction, operation and decommissioning/closure of the Project. Where possible and practical, the population or resource base has been defined in quantitative or ordinal terms (e.g. hectares of soil types, units of habitat). Magnitude of effect has been classified as less than (<) 1%, 1% to 10%, or greater than (>) 10% of the population or resource base. Where the magnitude of an effect was determined as virtually immeasurable or represented a potential change that was within the natural variation of population or resource levels, the effect was considered Negligible. An exception to this is regarding human health effects where, for example adverse health issues due to the Project and affecting 1% of the population would still be considered major			
	Negligible (immeasurable)	Minor (<1%)	Moderate (1 to 10%)	Major (>10%)
Direction of Effect:	Refers to whether an effect on a population or a resource is considered to have a positive, adverse or neutral effect			
	Positive	Adverse	Neutral	
Duration of Effect:	Refers to the time it takes a population or resource to recover from the effect. If quantitative information was lacking, duration was identified as short term (<1 year), Moderate term (1 to 10 years) and long term (>10 years)			
	Short term (<1 year)	Moderate (1 to 10 years)	Long term (>10 years)	
Frequency:	Refers to the number of times an activity occurs over the Project phase and is identified as once, rare, intermittent or continuous			
	Once	Rare	Intermittent	Continuous
Scope of Effect:	Refers to the spatial area potentially affected by the effect and categorized as Project Site, Local Project Area or Regional Project Area as defined in **Section 3.2**. Where possible, quantitative estimates of the resource affected are provided			
	Project Site	Local Project Area	Regional Project Area	
Reversibility:	Refers to if an adverse effect is likely to be reversed after completion of the activity or Project decommissioning/closure			
	Reversible	Irreversible		

The significance of residual environmental impacts is commented on where applicable regulatory criteria exist such as a regulatory threshold (e.g. air quality guidelines are exceeded due to Project activities). In the absence of such regulatory thresholds, an overall characterization of the impact is provided, taking into consideration the assessment criteria as described above in **Table 6-2**.

Environmental effects that may be caused as a result of accidents and malfunctions are discussed separately in Section 6.9.

6.2 Physical Environment

6.2.1 Geology/Topography

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

Project construction activities including clearing, levelling, construction of laydown areas, and construction of the Processing Facility and permanent access road (**Figure 1-2**) will have a temporary effect on the Project Site topography. The establishment of two on-site water wells will have a minor impact on the Project Site geological layers in the locations of two well sites. Wet sand stockpiles and sand reject piles will vary in height during project operations, peaking in the fall each year, as wet sand is transferred to the Dry Plant (Section 2.1.1). Sand reject piles, that will not exceed an average height above ground of 8.5 m (28 ft) (Section 2.3.2), will also vary in size as reject sand is disposed of in accordance with regulations. As is the case with buildings and other Project components, the stockpiles are not considered part of the natural topography.

The following measures will be implemented to avoid or minimize Project effects on topography:

- Where applicable, existing roads, trails and other previously disturbed areas will be utilized to minimize disturbance to the natural topography.
- Levelling and grading will occur upon Project decommissioning to return the landscape to elevations typical to the surrounding area.

While measurable disturbances will be imposed on topographic features, disturbances will be limited to the Project Site. With the application of the above described mitigation measures, impacts on topography have been assessed as being minor.

6.2.2 Soils

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

Construction activities have the potential to cause soil erosion, including clearing, levelling, and construction of the site access road, Wet Plant and Dry Plant, rail loop and associated Project components. Soil erosion can potentially increase during high wind and precipitation events, which are expected to be most frequent during the months of May to September. 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 the construction and decommission phases of the Project.
- Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.
- During the Project decommissioning phase, 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 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.

6.2.3 Groundwater

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

Withdrawal of groundwater has the potential to adversely affect regional aquifer quantity and quality.

The local water usage in the area is 52.8 US Gallons/day/person (200 L/day/person) (Friesen Drillers, 2019). Therefore, a household of four, would use approximately 211 US gallons/day (800 L/day). The Processing Facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day). The Processing Facility is proposed to use 200 – 300 US gallons/day (757 – 1,136 L/day), which is the approximate daily usage of a household of four to six people. It is anticipated that the water well will be completed in the Red River Formation carbonate aquifer which is known to be relatively thick and permeable beneath the Project Site.

Groundwater required for the Processing Facility will be drawn using a standard submersible water well pump as is typically used for any domestic, industrial or commercial water well. The water supply well will be constructed by a licensed well drilling contractor in accordance with the Manitoba *Groundwater and Water Well Act* and its supporting regulations, including the Groundwater and Water Well Regulation and the Well Standards Regulation.

Pumping tests were performed on the Project Site in 2019 by CanWhite and Friesen Drillers to determine the effects of continuous water usage at the Project Site for the estimated Project Facility pumping rates of 200 – 300 US gallons per day (757 – 1,136 L/day).

Results of this testing indicated that drawdown effects were localized, occurring only at the Project Site, with limited to no effects within 31 m (100 ft) of the pumping well to the monitoring well. All water levels were continuously recorded with transducers in the monitoring well located on the Project Site as well as domestic wells on surrounding properties. During testing, little to no decline in water levels was observed in the wells at the Project Site. Further, no impact was observed on water levels in any of the nearby domestic wells.

The following measures are expected to minimize the need for more than the proposed quantity of water to be withdrawn from the wells on the Project Site:

- Process water will be recycled into the Wet Plant for reuse in a continuous loop.
- Excess water not required for the sand wash process (Wet Plant) or dust control activities will be recycled back into the slurry loop system in a dedicated enclosed return water pipe, removing the need for any draw of groundwater for Wet Plant usage.
- Water not required for recycling will be stored in a surface water tank for reuse as required.
- Low flow toilets and sinks will be installed for employee usage.

The following measures are expected to effectively mitigate risks to groundwater quality posed by groundwater withdrawal on the Project Site:

- Groundwater wells established at the Project Site for the Processing Facility will be decommissioned (sealed) when no longer required in accordance with applicable regulation.
- Groundwater wells will be constructed by a licensed well drilling contractor in accordance with the Groundwater and Water Well Regulation and the Well Standards Regulation.
- Operations will incorporate the measures described in Section 6.9.2 designed to prevent leaks and spills of substances which could affect groundwater quality.

Based on the understanding of the hydrogeology of the area surrounding the Project Site and in consideration of the results of the groundwater testing described above and with the application of the above mitigation measures, utilization of groundwater at the Project Site is expected to be at rates that will not exceed the ability of the aquifer to recharge and are therefore sustainable. The potential risks to groundwater quality are assessed to be adequately mitigated. Therefore, impacts on groundwater are assessed to be negligible. The effects are expected to be short term because groundwater levels in the aquifer are anticipated to recover quickly following cessation of pumping, which will occur over winter months each year. The seasonal operation of the Processing Facility will allow for aquifer recovery during periods of time when operations have stopped and following closure.

6.3 Atmospheric Environment

6.3.1 Air Quality

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

Regional air quality may be potentially affected by Project components and activities that generate dust (stockpiles; gravel roads), greenhouse gasses (e.g. vehicles used during all phases of the Project; Processing Facility equipment) and through the potential for the generation of fugitive dust from Project construction and decommissioning activities.

6.3.1.1 Air Dispersion Modelling Results

Air dispersion modeling was performed to estimate air quality at sensitive receptors (nearest residents to the Processing Facility) under the worst-case scenario conditions that could occur for this Project (**Appendix B**). The Project operations were assessed in accordance with the Draft Guidelines for Air Quality Dispersion Modelling Manitoba (Manitoba Conservation 2006) using the AERMOD air dispersion

model to predict maximum ground-level concentrations, as well as maximum predicted concentrations at selected nearby sensitive receptors, of the following:

- Dust (including silica dust):
  - Particulate Matter with a diameter of 2.5 micrometres and less ($PM_{2.5}$)
  - Particulate Matter with a diameter of 10 micrometres and less (PM_{10})
  - Total Suspended Particulate (TSP)
- Other air quality parameters:
  - Carbon Monoxide (CO)
  - Nitrogen Dioxide (NO_2)
  - Sulfur Dioxide (SO_2)

Model results were compared with the Manitoba Ambient Air Quality Criteria (MAAQC 2005). The results of the air dispersion modeling, including description of assumptions and mitigation measures factored into the assessment, are provided in **Appendix B** (Air Quality Assessment Report).

In summary, the modelled concentrations of the above-listed air quality parameters were well below the MAAQC provincial guidelines at sensitive receptors. Distances to nearest residences (sensitive receptors) from the CanWhite property line vary from 54 m to 1,115 m (refer to Figure 1 and Table 3 in **Appendix B**).

The air dispersion modeling considered the mitigation measures included in the design of the Project to minimize potential Project effects to air quality which are as follows:

- Overs/fines sand reject pile associated with the Wet Plant and the overs/fines sand reject pile associated with the Dry Plant (**Figure 2-2**) will be kept damp by misting with additional water to mitigate the potential for fugitive dust generation, as needed (e.g. during hot, dry and windy weather); during the winter months, these sand reject piles will be covered with a mesh system (similar to a fishing net) that will allow snow and ice to accumulate on sand reject piles to act as a natural containment to control dust.
- The sand Dry Plant, including all dry sand conveyors and transfer points, will be enclosed with all transfer points under negative pressure to mitigate dust. The dryer is equipped with a baghouse to capture dust generated from the drying process.
- The dry sand product will be loaded into covered grain hopper-type railcars using a retractable sand transfer spout; a method designed to control fugitive dust.
- Natural vegetation buffers will be left around the Processing Facility to limit the potential for dust dispersion to the Local Project Area and reduce wind impact.
- During hot, dry weather, wet sand will be continuously deposited along the length of the stockpiles.
- Appropriate speed limits will be posted on the permanent Processing Facility access road (30 km/hr) and within the Project Site to minimize the potential for dust generation.
- Water will be applied to the permanent Processing Facility access road to minimize dust generation as needed (e.g. during hot, dry weather).
- Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.

Although the height of the sand stockpiles may exceed the height of the surrounding treeline at times during the operation phase, dispersion modelling has predicted that dust from the stockpiles will not exceed MAAQC provincial guidelines at any of the sensitive receptors.

The modelling predicted that exceedances of the MAAQC would occur only 0.3% of the time that the Processing Facility is in operation (between one and five exceedances every five years), and only under

the worst-case emissions scenario. The extent of any exceedance will be limited to within 20 m to 70 m (up to approximately 2/3 length of a football field) from the CanWhite property boundary. The point of this potential exceedance is more than 450 m from the nearest residence. There is no exceedance beyond the property boundary in any other direction or circumstance.

The model does not incorporate natural dust suppression that can occur from rain and snow. During the fall/winter months, the surface of the wet sand stockpiles will freeze which will act as a natural containment to control dust. The model considers the worst-case scenario of hot, dry wind, when sand stockpiles are at their maximum heights. Therefore, predicted concentrations that occur during fall/winter months (when sand stockpiles have the highest potential to be at their maximum height) have been over-estimated.

The reject sand piles, which include the fines sand reject pile that is most prone to airborne dispersion during dry and windy conditions, will not exceed the height of the surrounding treeline. Dust from the fines sand reject pile will also be kept wet by stockpiling the reject sand in a wet (not dry) condition and misting the sand reject piles with water during non-winter months.

With the incorporation of dust from the permanent gravel access road into the air dispersion modeling, the results showed potential exceedances of MAAQC provincial guidelines for particulate matter (gravel road dust) up to 300 m beyond the future CanWhite property line.

However, the potential effects of the access road on air quality were modelled very conservatively, with all traffic on the road simultaneously. Precipitation is expected to reduce access road emissions on about one-third of days in summer and this mitigative effect also was not included in the modelling.

6.3.1.2 Dust Management and Monitoring

As an additional measure to further mitigate the potential for off-site migration of dust from the stockpiles and access road, CanWhite will develop and implement a Dust Management Plan. This Plan, which will be in place during all phases of the Project, will provide procedures for the implementation of measures to control Project related dust, and will include provisions for monitoring and cleanup of the localized migration of fugitive dust from the stockpiles should this occur.

Components of the Dust Management Plan will include the following:

- Dust (particulate matter) will be monitored in the ambient air during the Project construction and operation phases to confirm that mitigation measures that have been put in place are effective and to allow for the implementation of addition engineering and/or operational controls to further control dust if required.
- The monitoring program will include the periodic collection of air samples at sampling stations established throughout the Processing Facility and at the nearby sensitive receptors as identified during air quality modelling.
- The monitoring program will also include sampling and testing for silica dust (total quartz and respirable crystalline) to ensure the potential for silica dust exposure is effectively controlled and mitigated.
- CanWhite will consult with MBCC prior to initiation of construction to determine an acceptable monitoring frequency for both the general (total) dust and silica dust monitoring programs.

The Dust Management Plan will be prepared and submitted to MBCC for review and approval prior to the initiation of construction activities.

6.3.1.3 Summary of Impacts on Air Quality

Based on the above air dispersion modeling results, assumptions as outlined in the detailed report (**Appendix B**), and application of the above mitigation measures, the impacts of the Project on air quality in the Regional Project Area are assessed as negligible to minor. The results of the modeling predict no exceedances of air quality guidelines at the nearest residences under the worst-case scenario conditions for any of the parameters that were modeled (e.g. dust, including silica dust; **Appendix B**).
Impact assessment information for greenhouse gas (GHG) emissions is summarized in Section 6.3.2.

6.3.2 Climate/Greenhouse Gases

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

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 long-term Project operation after the natural gas line is installed in one to two years post-construction (**Appendix B**). Estimated GHG emissions associated with Project equipment are summarized in **Table 6-3.**

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

Emission Sources	Annual Usage Rate	CO_2e (tonnes/year)
Direct Emissions		
Propane Combustion Dryer (Year 1-2)	4,949,422 m^3	27,791
Natural Gas Combustion Dryer (after Year 2)	12,090,044 m^3	24,837
Equipment Exhaust	Variable-depending on engine size and annual utilization	1,053
Vehicles on the Access Road	Variable-depending on engine size and annual utilization	35
	Total Direct (Year 1-2)	**28,879**
	Total Direct (after Year 2)	**25,925**
Indirect Emissions		
Electricity Usage (annual total)	19,998,337 kWh	8,399
	Total Indirect	**8,399**
	Total per Annum (Year 1-2)	**37,278**
	Total per Annum (after Year 2)	**34,324**

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.
- Power use for the long-term operation of the project will be obtained from hydropower via a planned power line and planned installation of a natural gas line which will minimize the need for power from GHG-emitting diesel generators.

Overall, the project is estimated to generate approximately 34,324 tonnes of CO_2e annually during dryer operations with natural gas which is 0.00016% of the reported emissions in 2018 which were 21.8 Mt

CO_2e from Manitoba, and 0.000005% of the reported 729 Mt CO_2e from Canada in 2018 (**Appendix B**). Therefore, the impact of the Project on GHG contributions to the atmosphere is assessed as negligible.

6.3.3 Noise

Magnitude of Effect: Negligible
Direction of Effect: Adverse
Duration of Effect: Long term
Frequency: Continuous
Scope of Effect: Local Project Area
Reversibility: Reversible

Noise generated by Project activities 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. A Noise Impact Assessment was completed for this Project to predict the potential noise level generated by Project components and activities at the nearest points of reception representative of the most exposed noise sensitive residential dwellings surrounding the Project Site in each direction (**Appendix C**). Project components expected to generate noise that may contribute to noise levels at the nearest points of reception are described in **Appendix C**. Examples of the noise-generating components modeled include the primary sources of noise associated with the Project operations in the Wet Plant and Dry Plant such as dewatering cyclones/screens and sprays, pumps, dryers and dry screens, and combustion fans, earth-moving equipment (e.g. wheel loader, dozers, grader, and backhoe) and sand transferring and handling equipment including conveyors, trippers and radial stackers. Sources of noise associated with the Rail Load Out and rail loop components of the Project (e.g. train car loading and movements) were also included in the noise modeling predictions.

The noise assessment (**Appendix C**) evaluated the worst-case scenarios that may occur during one hour of operation to determine the maximum potential noise impact at the points of reception. The noise assessment concluded that Project activities during the construction and operation phases are predicted to not exceed the Manitoba Guidelines for Sound Pollution limits at the eight nearest residences to the Project which range in distance from 720 m west of the Processing Facility to 2.5 km southeast of the Processing Facility (see Table 3-1 and Figure 3-1 in **Appendix C**).

The surrounding Project Site consisting primarily of forest (Section 4.4.1) is anticipated to attenuate (reduce) noise generated by the Processing Facility at the points of reception. In addition to the noise attenuation effect of the forest vegetation surrounding the Project Site, the following measures will be implemented to reduce noise generated from Project activities:

- The Dry Plant will be an enclosed building which will minimize dry sand processing noise.
- The shape of the rail loop will allow the locomotive to pull the train right through the Rail Load Out without the need to regularly decouple or couple individual cars which would be a source of noise; a smaller railcar mover will be used if a railcar needs to be removed or added to the train (e.g. for maintenance).
- Construction 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.
- Noise monitoring will be conducted during Project commissioning to determine if any noise mitigation (e.g. berms) will be needed.

In consideration of the above measures to minimize noise levels due to Project operations and predicted results of the Noise Impact Assessment (**Appendix C**), 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 construction and operation activities but are not expected to measurably affect wildlife populations within the Interlake Plain Ecoregion within which the Project is located. Based on the results of the Noise Impact Assessment (**Appendix C**), expected noise levels at receptors within the Local Project Area are assessed as negligible.

6.4 Aquatic Environment

6.4.1 Surface Water Quality

Magnitude of Effect: Negligible
Direction of Effect: Adverse
Duration of Effect: Short term
Frequency: Intermittent
Scope of Effect: Local Project Area
Reversibility: Reversible

Residual effects from clearing, levelling, compacting, and construction of the Processing Facility have the potential to increase surface water runoff within the Project Site and Local Project Area. Removal of existing vegetation also can pose a risk to surface water quality as more sediment will be exposed to surface water drainage, potentially resulting in sediment laden runoff water.

As indicated in Section 4.3.1, the Project Site contains no surface water apart from roadside ditches. The Local Project Area has some wetlands, artificial ponds and ephemeral drainage areas primarily associated with aggregate quarries and other developments in the area, but these surface waters are not directly connected with permanent natural waterways.

The following mitigation measures will be implemented to avoid or minimize potential effects on surface water quality:

- Construction of ditching within the Project Site, as required, will assist in directing runoff flow and maintaining natural drainage pathways through low areas and will contain water runoff from disturbed areas.
- Construction of the permanent access road to the Processing Facility will include the installation of culverts to equalize surface water flow and maintain natural drainage pathways as required.
- No harmful chemicals will be used in the processing of sand.
- As per Section 2.3.1, wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning.
- As per Section 6.2.2, an approved Erosion and Sediment Control Plan will be implemented for the construction and decommissioning phases of the Project.

With the application of the above described mitigation measures, the impacts on surface water are assessed as negligible.

6.4.2 Fish and Fish Habitat

Project related impacts on fish and fish habitat are not anticipated due to the lack of fish habitat within the Project Site and Local Project Area (Section 4.3.2), and application of an Erosion and Sediment Control Plan as indicated in Section 6.2.2.

6.5 Terrestrial Environment

6.5.1 Vegetation

Magnitude of Effect: Minor (Project Site) to Negligible (Local Project Area)
Direction of Effect: Adverse
Duration of Effect: Long term
Frequency: Intermittent
Scope of Effect: Project Site (vegetation clearing) to Local Project Area (dust deposition)
Reversibility: Reversible

Approximately 17 hectares (ha) of naturally vegetated area is expected to be cleared within the Project Site to construct the Project, but excluding the temporary access road which currently exists (**Section 2.5**). That area to be cleared is approximately 15 times smaller than a section of farmland which is 260 ha. The estimated Project footprint area is provided in **Table 6-4**.

Table 6-4: Estimated Area of the Project Footprint

Project Components	
Permanent Components	**Area (ha)**
Processing Facility including the Wet Plant, Dry Plant and associated components as listed in **Section 1.1**	6.9
Permanent access road (7 m wide x 1 km long)	0.7
Rail loop (approximate 30 m width footprint to accommodate curvature of loop line of sight X 3.5 km rail track length)	10.5
Total Project Footprint Area	18.1
Total Previously Cleared / Disturbed Area with Project Footprint Area	1.1
Total Naturally Vegetated Area Requiring Clearing to accommodate the Project Footprint	**17.0**

Note: Total land area within the Project Site within which project components will be located is 114 ha.

Approximately 15% of the land within the Project Site will need to be cleared of natural vegetation to accommodate the construction and operation of the Project. Land within the centre of the rail loop which consists mostly of forested land that will be partly cleared for line of sight at the rail loop curves. The types of naturally vegetated land cover that will be cleared (i.e., forest, meadow and willow/alder) are common within the Regional Project Area (**Section 4.4.1**).

The following mitigation measures will be implemented to avoid or minimize potential effects of clearing on vegetation:

- Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.
- Usable trees/wood will be cut and stacked at the Project Site for local use as firewood for no longer than one year or disposed of in accordance with applicable regulations.
- Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required.
- A Revegetation Monitoring Program will be implemented after Project construction to determine the success of the revegetation program and determine if follow-up reseeding or replanting is required. The monitoring program will include monitoring during the growing season until the seedlings appear to be established.

Clearing impacts on vegetation are limited to the Project Site and are assessed as minor due to:

- Limited amount of clearing required for Project construction; and
- The site reclamation and revegetation procedures that will occur during Project decommissioning to return the landscape to pre-construction conditions to the extent feasible.

Vegetation within the Project Site and Local Project Area can also be harmed by dust deposition on the surface of plants which may prevent adequate photosynthesis and other life functions of vegetation (Farmer, 1993). Dust will be generated during the construction, operation and closure phases of the Project as follows:

- During the construction phase, dust generation will result from the construction of the Processing Facility and associated infrastructure primarily due to clearing and levelling activities;
- During the construction and operation phases of the Project, use of a gravel road to access the Project Site and Processing Facility by employees will contribute to dust emissions; and
- During the decommissioning phase, dust deposition will be generated from cleanup and removal of the Processing Facility.

Effects of dust deposition are assessed to be minor due to the application of the mitigation measures listed in the air quality Section 6.3.1 to control dust.

With the application of the above mitigation measures, the overall Project impacts to vegetation are assessed as minor within the Project Site and negligible within the Local Project Area.

6.5.2 Wildlife

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

Project activities that disrupt the natural environment (e.g. vegetation clearing, noise) are the primary contributors to potential effects on wildlife. Wildlife management focuses on regional wildlife populations because wildlife populations (e.g. deer) are typically not measurably affected if only an individual or small number of individuals are affected within a relatively small spatial area (e.g. the home range of a deer). Therefore, the spatial scope of the assessment of the Project impacts on wildlife has been conducted in consideration of the Regional Project Area. The availability of nearby alternative habitat for wildlife is also taken into consideration when assessing the potential effects of a development on wildlife.

The limited amount of natural vegetation clearing within the Project Site that is required for Project construction (17 ha; Section 6.5.1) is unlikely to substantially affect wildlife populations within the Regional Project Area because:

- The Project Site currently provides sub-optimal wildlife habitat (generally) due to existing disturbances from previous tree cutting activities, recent aggregate quarry and exploration activities such as trails and mineral exploration sites, and the current adjacent aggregate and agriculture land use activities and adjacent roadways (Section 4.6.4);
- The types of landcover used by wildlife that will be cleared during Project construction are common in the Regional Project Area (Section 4.4.1);

- The amount of naturally vegetated area that will be cleared for the Project is approximately 0.07% of the naturally vegetated area that occurs within the Regional Project Area which consists of approximately 33% previously disturbed landcover due to human development such as agriculture, residential areas and aggregate quarries.

Noise generated during Project construction, operation and decommissioning phases is expected to influence wildlife behaviour (e.g. area avoidance) to varying degrees within the Project Site and Local Project Area depending on the type of wildlife (U.S. National Parks Service, 2018). Noise generated within the Project Site is not expected to be of a magnitude that would substantially affect wildlife populations within the Regional Project Area because:

- Project-generated noise is not expected to be substantial beyond the Project Site (**Appendix C**); and
- Wildlife species present in the vicinity of the Project are anticipated to be accustomed (habituated) to some level of noise (U.S. National Parks Service, 2018) due to the presence of existing developments (e.g. aggregate quarries; CN rail line; Provincial Roads).

Additional potential effects of the Project on wildlife include the following:

- Light pollution emanating from the Processing Facility within the Project Site can also disturb wildlife and alter natural wildlife behaviour for wildlife that may be present within the zone of influence of site lighting (e.g. Dominoni, 2017).
- The minor increase in vehicle traffic in the Regional Project Area as a result of Project construction and operation activities (Section 6.7) is anticipated to result in a minor increase the risk of vehicle collisions with wildlife given the relatively small spatial scale of the Project Site and overall minor increase in Regional Area traffic.

The following measures will be applied to minimize potential adverse effects to wildlife resulting from Project activities:

- Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.
- Vegetation clearing will take place outside of the spring and summer months to the maximum extent feasible to avoid disturbance to breeding birds and other spring breeding wildlife species.
- Vegetation clearing will not take place during the peak breeding bird season for this 'Zone B4' area: April 25 – August 15 (when 90% of bird species in the area are known to nest); pre-clearing nest searches will be conducted no more than 5 days prior to clearing during the 'shoulder' nesting season outside of this 'peak' nesting timeframe (i.e., April 14 – 24 and August 16 – 24; Government of Canada, 2018), as needed.
- Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required.
- Noise mitigation as proposed in Section 6.3.3 will be applied.
- Measures to control dust generation will be applied as described in Section 6.3.1.
- Fully shielded directional lighting fixtures will be used to focus light specifically to work areas, parking lot and the Processing Facility to minimize the dispersal of light to the surrounding Project Site.
- The permanent Project Site access road will have a posted speed limit of 30 km/hr.
- Employees and contractors will be required not to feed or harass wildlife.

With the application of the above mitigation measures, Project impacts to the Regional Project Area wildlife populations are assessed as negligible. The Project is also not anticipated to have a measurable effect on wildlife populations within the Interlake Plain Ecoregion.

6.5.3 Species of Conservation Concern

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

Species of conservation concern that potentially occur in the Regional Project Area (Section 4.4.3; **Appendix E**) are not expected to experience a substantial decrease in regional populations as a result of Project activities due to:

- The limited amount of cleared vegetation/habitat that will be required for the Project (Section 6.5.1);
- Prevalence of similar cover types within the Regional Project Area, and the application of measures indicated in Sections 6.5.1 and 6.5.2 to mitigate adverse effects of the Project on vegetation and wildlife in general.

Therefore, the Project impacts to regional populations of species of conservation concerns are assessed as minor to negligible, depending on the species of conservation concern and their habitat preferences.

6.6 Socioeconomic Environment

6.6.1 Labour Force and Employment

Magnitude of Effect: Moderate
Direction of Effect: Positive
Duration of Effect: Long term
Frequency: Continuous
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. Other supply and services contracts associated with the construction and operation of the Project will provide additional long-term economic opportunities.

As indicated in Section 2.6, approximately 20 to 30 people will be employed under contract for site clearing and Project construction. The need for local suppliers and other business to support the construction phase is likely to provide indirect employment for up to 60 additional people. Once construction is complete, there will be approximately 40 to 50 people employed for the Processing Facility operations. 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.

6.6.2 Infrastructure and Services

6.6.2.1 Emergency Services

Magnitude of Effect: Minor
Direction of Effect: Neutral/Adverse
Duration of Effect: Long term
Frequency: Continuous
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 Project construction and operation that will clearly outline appropriate emergency response protocol.
- An on-site groundwater well will be dedicated to emergency fire suppression.
- CanWhite will notify the RM of Springfield emergency services when Project construction and operation 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.

6.6.2.2 Community Services

Magnitude of Effect: Moderate (benefit)
Direction of Effect: Neutral to Positive
Duration of Effect: Long term
Frequency: Continuous
Scope of Effect: Local and Regional Project Area
Reversibility: Reversible

Water requirements for the Processing Facility will be sustainably sourced from two wells on the Processing Facility property with water quantities used in accordance with regulatory requirements, as applicable.

Existing Local or Regional Project Area wastewater treatment systems will not be used. Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning (Section 2.3.1).

Solid waste 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.

CanWhite may initiate agreements for local / regional community services that would be beneficial for both the RM of Springfield and the Project. Examples of services and supplies that would be needed for the Project that could be supplied by local and/or regional community services include: uniform and laundry services; shop supplies; janitorial services; fuel, oil and grease supply; grounds keeping and

snow removal; small tools and equipment supply; garbage removal; office supplies; Project road maintenance; catering; health, safety supplies; shipping and expediting.

CanWhite will require natural gas services to be installed to the Project site which will provide opportunities for others to utilize this natural gas line that will be brought into the Local Project Area.

The Project will likely require upgraded communications services that may require an additional cell tower in the local area. As part of discussions with communication services companies, CanWhite will discuss the requirement logistics and options which may include an additional cell tower capable of accommodating improved internet services or installation of fibre optics cables along a natural gas line for the Project which would improve internet services.

The RM of Springfield community services (e.g. municipality water system upgrades) would potentially benefit from the additional tax revenue realized from the Project being located within the RM of Springfield.

In consideration of the benefits to the Local and Regional Project Area from the opportunity for local business to supply required goods and services, there is anticipated to be an overall moderate positive impact to community services.

6.6.3 Land and Resource Use

Magnitude of Effect: Minor
Direction of Effect: Adverse/ Positive
Duration of Effect: Long term
Frequency: Continuous
Scope of Effect: Project Site to Local and Regional Project Areas
Reversibility: Reversible

As indicated in **Figure 4-9**, the Project Site is currently designated for industrial use and will continue to be used for industrial purposes.

Use of the permanent gated portion of the Project Site will be limited to CanWhite operations and access will be controlled accordingly. As indicated in Section 2.5, the Project Site access road will be gated at the CanWhite property line to control access to the Project Site. Other existing trails will be blocked (e.g. with pre-cast concrete blocks) appropriately signed to control access to the CanWhite property and Processing Facility as a public safety measure.

During the time when CanWhite will be using the Manitoba Hydro power line access road easement with the permission of Manitoba Hydro during the Project construction phase (expected to be four months to a year), there will be a temporary increase in vehicle traffic along that segment of road which is also used by Manitoba Hydro, snowmobilers and other recreational off-road vehicles (Section 4.6.4.4). The potential for disruption to recreational users will cease on completion of the permanent Processing Facility access road (in a different location described in Section 2.5).

Based on an extensive previous study of property values in the vicinity of silica sand extraction and processing facility locations in the United States, which found that there were “no documented circumstances of industrial sand mining causing a community-wide reduction of property values” (The Heartland Institute, 2016), property values in the Local Project Area are not expected to be adversely affected by the Project. CanWhite will be bringing in a new natural gas line and will likely be requiring

improved cellular service to the Local Project Area which is expected to benefit local properties in the vicinity of these services.

6.6.4 Human Health

Magnitude of Effect: Negligible
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Continuous
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.
- In accordance with Part 12 of Hearing Conservation and Noise Control Regulation, an initial noise exposure assessment will be undertaken prior to commissioning of the facility, and appropriate measures implemented (such as hearing protection), depending on the results of the assessment. During operation and closure, a reassessment will be done if any alterations, renovations or repairs of the workplace are undertaken.
- 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.
- Special training in relation to the handling of silica will be administered to all employees.

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

6.6.5 Effects on Indigenous and Treaty Rights

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

- No fish or fish habitat will be affected by the Project (Section 6.4.2);
- The Project Site is private land, accessible only for the purposes of the Project;
- 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).

6.6.6 Heritage Resources

Magnitude of Effect: Minor
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Continuous
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 and grubbing to prepare the site for Project construction.

A Project Site screening request was submitted to the Manitoba Historic Resources Branch (HRB) to determine the need for a Heritage Resources Impact Assessment (HRIA). HRB determined that a HRIA was required for the Project Site prior to the land being disturbed due to Project activities (**Appendix F**). A HRIA was conducted in the Project Site on May 12 and 13, 2020. The HRIA report documenting the results of the HRIA is provided in **Appendix G** with a summary of the findings provided in Section 4.6.5. The on-site archaeological investigation found that there is a low potential for undiscovered heritage resources to be disturbed as a result of Project activities.

The HRIA report provided in **Appendix G** provides recommended mitigation measures to protect unknown heritage resources that may be discovered at the Project Site. As recommended in the HRIA report, CanWhite will have a Heritage Resources Protection Plan in place prior to the initiation of Project construction activities which will provide guidance to construction contractors to protect heritage resources. If heritage resources are discovered within the Project Site, work will be stopped, HRB will be advised, and the discovered historic resources will be recorded by an archaeologist and adequately protected as required.

With the application of the above described mitigation measures, the impacts on heritage resources are assessed as minor.

6.7 Traffic

Magnitude of Effect: Minor
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Continuous
Scope of Effect: Regional Project Area
Reversibility: Reversible

The increase in Local and Regional Project Area traffic will be not substantial for the following reasons:

- The sand will not be transported by haul truck which will limit traffic associated with the Project to contractors and Processing Facility operation staff during the Project construction and operation phases.
- Processing Facility staff will be limited to approximately 20 to 30 personnel during the construction phase and approximately 40 to 50 personnel during the operation phase of the Project (Section 2.6) with staff arrivals and departures being staggered daily to accommodate the 24 hours, seven days/week operation schedule. Additional minor traffic will be related to weekly supply/parts deliveries and contractors for services such as waste disposal.

- Most traffic will travel along a Processing Facility access road less than 1 km in length, then will travel two km on PR 302 north to PTH 15. Therefore, the use of local roads beyond the short section of PR 302 will be minor.

6.8 Aesthetics

Magnitude of Effect: Minor
Direction of Effect: Adverse
Duration of Effect: Long Term
Frequency: Continuous
Scope of Effect: Project Site
Reversibility: Reversible

The impact of the Project on the aesthetics of the Local Project Area is anticipated to be minor for the following reasons:

- Treed areas adjacent to public roads, local residences and within the Project Site are expected to provide a line of sight barrier to the Project components (e.g. sand silos; stockpiles). Therefore, there will not be a clear view of the Processing Facility from a public road or residence.
    - Most the Project Site area will remain forested and clearing to accommodate the Project footprint will be minimized to the extent feasible (refer to mitigation described in Section 6.5.1 'Vegetation').
- The transmission line towers (approximately 34 m tall) that are present along the proposed temporary access road within the Manitoba Hydro easement (Section 2.5 'Access') are not visible within the Local Project Area except when looking down the cleared transmission line corridor, or the area immediately adjacent to the corridor. Therefore, the tallest Project components (i.e. the sand silos at 42 m tall each and maximum height of sand stockpiles during fall at 28.7 m tall) are also not expected to be visible from a public road or residence given the distance from the Project components to public roads and residences and treed areas blocking the line of sight.
    - Distances to the nearest residences are provided in **Appendix B** (Air Quality Report) and **Appendix C** (Noise Impact Assessment Report).
    - Distance from the centre of the Wet Plant and Dry Plant area where stockpiles and silos will be located to the nearest public road is approximately 790 m to the west (to PR 302), and 450 m north to the road/trail along the Manitoba Hydro transmission line easement that is used by the public for recreational purposes (e.g. snowmobiling).

6.9 Accidents and Malfunctions

To minimize the probability of accidents and malfunctions, the proposed Project phases will be conducted in accordance with applicable regulatory requirements. The following sections provide additional details on precautionary measures that will be implemented by CanWhite to further minimize the potential for accidents and malfunctions to occur.

6.9.1 Worker Health and Safety

Worker protection in Manitoba is regulated through standards, procedures and training under *The Workplace Safety and Health Act,* Workplace Safety and Health Regulation M.R. 217/2006. Safety equipment and personal protective equipment will be supplied to employees and workers. Contractors

and visitors will be subject to site specific environmental health and safety orientation for all phases of the Project.

6.9.2 Spills and Leaks

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. Accidental releases 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 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 by trained personnel;
- Vehicles and Equipment will have pre shift inspections and walk arounds to ensure no 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; 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.

6.9.3 Fires and Explosions

The presence of mechanical equipment, fuels and other hazardous materials creates a potential for fires and explosions. Such incidents can harm on-site personnel, cause equipment damage and lead to a release of contaminants, resulting in consequent effects to other environmental components (air, surface water, groundwater, plants, wildlife, aquatic resources and aesthetics).

Necessary precautions will be taken to prevent fire hazards at the Project Site; including but not limited to:

- Removal of flammable waste on a regular basis and disposal at a licenced disposal facility;
- Workers will be provided with appropriate fire prevention training;
- Appropriate fire extinguishers will be available on the Project Site. Such equipment will comply with and be maintained to the manufacturers' standards and employees will be appropriately trained in their use;
- Storage, transportation and use of hazardous materials, including flammable waste, will comply with regulatory requirements;
- On-site fire prevention/response equipment will be checked on a routine basis and in accordance with local fire safety regulations to maintain proper working order;
- CanWhite will have a dedicated groundwater well on-site for fire suppression protection which will be regularly inspected for compliance;
- Greasy or oily rags or materials subject to spontaneous combustion will be deposited and stored in appropriate receptacles. This material will be removed from the Project Site on a regular basis and be disposed of at licenced waste disposal facility; and
- Smoking will be restricted to designated areas.

With the measures outlined above, and assuming implementation of safe work practices, the risk of fires and explosions is assessed to be appropriately mitigated.

6.9.4 Transportation Accidents

An increase in traffic due to employee and contractor traffic to and from the Project Site has the potential to increase the likelihood for transportation accidents. Transportation accidents can consequently result in the release of pollutants to the environment such as fuel and oils, or materials that the vehicles colliding are transporting (e.g. silica sand; construction wastes). Such accidental releases to the environment could potentially result in secondary effects on other environmental components (e.g. groundwater contamination through seepage, decline in surface water quality through runoff) or tertiary effects on vegetation (e.g. decline of growth potential due to soil contamination), wildlife, aquatic resources and human health.

The following measures will be employed to reduce the risk of transportation accidents:

- The sand product will be transported from the Processing Facility directly by rail to markets rather than using transport trucks.
- The rail loop component of the Project will be constructed in accordance with the most recent applicable engineering specifications.
- Personnel retained to drive and operate vehicles and construction equipment will have a valid appropriate-Class Manitoba Driver's License with a copy provided to CanWhite.
- Speed limits on access roads, local road and Provincial Highways will continue to be implemented. Signage and speed limits on the PR 302 and PTH 15 are regulated by the Province of Manitoba.

The above noted measures are assessed to appropriately mitigate the potential risk of transportation accidents during all phases of the Project.

6.9.5 Power Failure

Backup power for critical infrastructure and equipment during the Project phases will be supplied to the Project Site via two diesel generators (Section 2.8).

The supply of backup power is anticipated to appropriately mitigate the potential risks of a power failure that may result in malfunctions and accidents, and adverse effects to the environment during all Project phases.

6.10 Summary of Environmental Effects and Mitigation Measures

Table 6-5 summarizes potential environmental effects of the proposed Project and the design features, standard operating procedures and other mitigation measures that will be implemented.

Table 6-6 summarizes potential accidents and malfunctions and measures to reduce the risk of such occurrences.

With the application of proposed mitigation measures, adverse environmental impacts of the Project are expected to be sufficiently mitigated summarizes potential environmental effects of the proposed Project and the design features, standard operating procedures and other mitigation measures that will be implemented.

Table 6-5: Summary of Environmental Assessment and Mitigation Measures

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
PHYSICAL ENVIRONMENT				
Geology / Topography	Construction	Clearing, levelling, construction of laydown areas, and construction of the sand Processing Facility including access road improvements as needed.	Where applicable, existing roads and trails and other previously disturbed areas will be utilized to minimize disturbance to the natural topography.	Minor
	Decommissioning	Removal of Project infrastructure and rehabilitation of disturbed areas.	Levelling and grading will occur upon Project decommissioning to return the landscape to elevations typical to the surrounding area.	
Soil Erosion	Construction	Clearing, levelling, construction of laydown areas, and construction of the sand Processing Facility including access road improvements as needed.	An Erosion and Sediment Control Plan will be implemented for the construction and decommission phases of the Project.	Minor
			Areas disturbed during the construction phase that are not required for the Project operation phase (e.g. equipment laydown areas) will be revegetated as quickly as feasible to stabilize the soil and minimize soil erosion.	
	Decommissioning	Removal of Project infrastructure and rehabilitation of disturbed areas.	During the Project decommissioning phase, 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.	
Groundwater	Operation	Withdrawing quantities of groundwater water that exceed capacity of the source aquifer may potentially affect the regional groundwater aquifer and potentially affect regional aquifer quantity and quality.	Process water will be recycled into the Wet Plant for reuse in a continuous loop.	Negligible
			Excess water not required for the sand wash process (Wet Plant) or dust control activities will be recycled back into the slurry loop system in a dedicated enclosed return water pipe, removing the need for any draw of groundwater for Wet Plant usage.	
			Water not required for recycling will be stored in a surface water tank for reuse as required.	
			Low flow toilets and sinks will be installed for employee usage.	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
			Groundwater wells established at the Project Site for the Processing Facility will be decommissioned (sealed) when no longer required in accordance with applicable regulations.	
			Groundwater wells will be constructed by a licensed well drilling contractor in accordance with the Groundwater and Water Well Regulation and the Well Standards Regulation.	
			Operations will incorporate the measures described in Section 6.9.2 designed to prevent accidents or spills of substances which could affect groundwater quality.	
ATMOSPHERIC ENVIRONMENT				
Air Quality	Construction, Operation and Decommissioning	Generation of greenhouse gases from Project equipment. Dust generation from construction traffic along the main roads and temporary trails, and during other Project activities.	Overs/fines sand reject pile associated with the Wet Plant and the overs/fines sand reject pile associated with the Dry Plant will be kept damp by misting with additional water to mitigate the potential for fugitive dust generation, as needed (e.g. during hot, dry and windy weather); during the winter months, these sand reject piles will be covered with a mesh system (similar to a fishing net) that will allow snow and ice to accumulate on sand reject piles to act as a natural containment to control dust.	Minor to Negligible
			The sand Dry Plant, including all dry sand conveyors and transfer points, will be enclosed with all transfer points under negative pressure to mitigate dust. The dryer is equipped with a baghouse to capture dust generated from the drying process.	
			The dry sand product will be loaded into covered grain hopper-type railcars using a retractable sand transfer spout; a method designed to control fugitive dust	
			Natural vegetation buffers will be left around the Processing Facility to limit the potential for dust dispersion to the Local Project Area.	
			Appropriate speed limits will be posted on the permanent Processing Facility access road (30 km/hr) and within the Project Site to minimize the potential for dust generation.	
			Water will be applied to the permanent Processing Facility access road to minimize dust generation as needed (e.g. during hot, dry weather).	
			Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.	
			A Dust Management Plan will be in place during all phases of the Project. This Plan will provide procedures for the implementation of measures to control dust at the Processing Facility and will include provisions for	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
			monitoring and cleanup of the localized migration of fugitive dust from stockpiles should this occur. The Plan will also include a dust monitoring program that will include sampling and testing for silica dust (total quartz and respirable crystalline) to ensure the potential for silica dust exposure is effectively controlled and mitigated.	
Climate / Greenhouse Gases	Construction, Operation, and Decommissioning	Processing Facility operations including use of diesel and natural gas fuel sources; use of heavy machinery, equipment, vehicles, locomotive and railcar mover and any additional tools or equipment that consumes fuel.	Emissions will be minimized by regularly maintaining equipment and vehicles and minimizing idling of vehicles.	Negligible
			Vehicles and equipment will meet required emission standards.	
			Power use for the long-term operation of the project will be obtained from hydropower via a planned power line and planned installation of a natural gas line which will minimize the need for power from GHG-emitting diesel generators.	
Noise	Construction, Operation and Decommissioning	Noise from the Processing Facility, including rail, operations and sources of noise from heavy equipment during Project construction and decommissioning such as bulldozers and excavators.	The Dry Plant will be an enclosed building which will minimize dry sand processing noise.	Negligible
			The shape of the rail loop will allow the locomotive to pull the train right through the Rail Load Out without the need to regularly decouple or couple individual cars which would be a source of noise; a smaller railcar mover will be used if a railcar needs to be removed or added to the train (e.g. for maintenance).	
			Construction 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.	
			Noise monitoring will be conducted during Project commissioning to determine if any noise mitigation (e.g. berms) will be needed.	
AQUATIC ENVIRONMENT				
Surface Water Quality	Construction, Operation, and Decommissioning	Clearing, leveling, compacting, ditching for water drainage as required; stockpiling materials during site preparation and establishment of	Construction of ditching within the Project Site, as required, will assist in directing runoff flow and maintaining natural drainage pathways through low areas and will contain water runoff from disturbed areas.	Negligible
			Construction of the permanent access road to the Processing Facility will include the installation of culverts to equalize surface water flow and maintain natural drainage pathways as required.	
			No harmful chemicals will be used in the processing of sand.	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		associated laydown areas; stockpiling wet sand and overs/fines; removal of Project infrastructure and rehabilitation of disturbed areas.	Wastewater from staff washrooms, shower facilities and staff kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning.	
			An approved Erosion and Sediment Control Plan will be implemented for all phases of the Project.	
Fish and Fish Habitat	Construction, Operation and Decommissioning	Not applicable.	Due to the lack of fish habitat within the Project Site and Local Project Area, and application of an Erosion and Sediment Control Plan, Project related impacts on fish and fish habitat are not anticipated.	None
TERRESTRIAL ENVIRONMENT				
Vegetation	Construction, Operation and Decommissioning	Clearing, leveling, compacting, ditching for water drainage as required; operation of machinery and activities that produce dust; removal of Project infrastructure and rehabilitation of disturbed areas.	Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.	Minor (Project Site) to Negligible (Local Project Area)
			Usable trees/wood will be cut and stacked at the Project Site for local use as firewood for no longer than one year or disposed of in accordance with applicable regulations.	
			Areas disturbed during Project construction, not required for Project operations, will be allowed to revegetate naturally and will be augmented using an approved native seed mixture and native plantings if required.	
			A Revegetation Monitoring Program will be implemented after Project construction to determine the success of the revegetation program and determine if follow-up reseeding or replanting is required. The monitoring program will include monitoring during the growing season until the seedlings appear to be established.	
			Mitigation measures to control dust (see **Air Quality** component in this table) will be applied to minimize accumulation of dust on vegetation.	
Wildlife	Construction, Operation, and Decommissioning	Vegetation clearing; human presence and noise related to Project construction, operation and decommissioning activities such as operation of machinery; increased human presence at the Project	Areas to be cleared of vegetation will be minimized to the extent feasible and will be clearly marked to avoid clearing more than required.	Negligible
			Vegetation clearing will take place outside of the spring and summer months to the maximum extent feasible to avoid disturbance to breeding birds and other spring breeding wildlife species.	
			Vegetation clearing will not take place during the peak breeding bird season for this 'Zone B4' area: April 25 – August 15 (when 90% of bird species in the area are known to nest); pre-clearing nest searches will be conducted no more than 5 days prior to clearing during the 'shoulder' nesting season	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		Site Area and increased traffic at the Project Site and adjacent Local Project Area.	outside of this 'peak' nesting timeframe (i.e., April 14 – 24 and August 16 – 24; Government of Canada, 2018), as needed.	
			Areas disturbed during Project construction, not required for Project operations, will be revegetated using an approved native seed mixture and native plantings as required.	
			Mitigation measures to control noise (see **Noise** component in this table) and dust (see **Air Quality** component in this table) will be applied.	
			Fully shielded directional lighting fixtures will be used to focus light specifically to work areas, parking lot and the Processing Facility to minimize the dispersal of light to the surrounding Project Site.	
			The permanent Project Site access road will have a posted speed limit of 30 km/hr.	
			Employees and contractors will be required not to feed or harass wildlife.	
Species of Conservation Concern	Construction, Operation, and Decommissioning	As above for the **Vegetation** and **Wildlife** components.	Mitigation measures as listed for the **Vegetation** and **Wildlife** components above will be applied.	Minor to Negligible
SOCIOECONOMIC ENVIRONMENT				
Labour Force and Employment	Construction, Operation and Decommissioning	Employment and contract services required for Project construction, operation and decommissioning phases.	Employment opportunities associated with the Project will be advertised as needed within the Regional Project Area.	None (adverse) to Moderate (benefit)
Emergency Services	Construction, Operation, and Decommissioning	Accidents, malfunctions and extreme natural events such as storms.	An Emergency Response Plan will be available on-site during Project construction and operation that will clearly outline appropriate emergency response protocol.	Minor
			An on-site groundwater well will be dedicated to emergency fire suppression.	
			CanWhite will notify the RM of Springfield emergency services when Project construction and operation will begin.	
			Measures to avoid accidents and malfunctions as described in Section 6.9 will be applied.	
Community Services	Construction, Operation, and Decommissioning	Requirement for use of Local and Regional Project Area goods and services (contractor services); utility services	Water requirements for the Processing Facility will be sustainably sourced from two wells on the Processing Facility property with water quantities used in accordance with regulatory requirements, as applicable	None (adverse) to Moderate (benefit)
			Existing Local or Regional Project Area wastewater treatment systems will not be used. Wastewater from staff washrooms, shower facilities and staff	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		(electricity; natural gas; cellular services).	kitchen will be directed to a septic system that will be regularly maintained and monitored for correct functioning.	
			Solid waste 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.	
			CanWhite will require natural gas services to be installed to the Project site which will provide opportunities for others to utilize this natural gas line that will be brought into the Local Project Area.	
			CanWhite will discuss the requirement logistics and options which may include an additional cell tower capable of accommodating improved internet services or installation of fibre optics cables along a natural gas line for the Project which would improve internet services.	
			The RM of Springfield community services (e.g. municipality water system upgrades) would potentially benefit from the additional tax revenue realized from the Project being located within the RM of Springfield.	
Land and Resource Use	Construction, Operation, and Decommissioning	Use of the Project Site for the construction and operation of the Project and temporary use of Manitoba Hydro easement.	CanWhite will be using the Manitoba Hydro power line access road easement with the permission of Manitoba Hydro during the Project construction phase (expected to be four months to a year), there will be a temporary increase in vehicle traffic along that segment of road which is also used by Manitoba Hydro, snowmobilers and other recreational off-road vehicles. The potential for disruption to recreational users will cease on completion of the permanent Processing Facility access road (in a different location described in Section 2.5)	Minor (adverse); Minor (benefit)
			CanWhite will be bringing in a new natural gas line and will likely be requiring improved cellular service to the Local Project Area which is expected to benefit local properties in the vicinity of these services.	
Human Health	Construction, Operation, and Decommissioning	Increased traffic due to employees and contractors accessing the Project Site; dust and noise generated by Project activities; light pollution from the Processing Facility;	Mitigation measures that will avoid or minimize potential adverse effects on human health are those that will be implemented to control noise (See **Noise** component in this table), avoid or minimize effects on air quality (see **Air Quality** component in this table) and avoid or minimize effects on climate (see **Climate/Greenhouse Gasses** component in this table).	Negligible
			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.	

Environmental and Social Component	Project Phase	Sources of Potential Effects	Summary of Measures *	Residual Adverse Impact
		altered viewscape (aesthetics) of the land; disruption to previous uses of the Project Site and adjacent Local Project Area land.	Employee Orientation and Safety training will be mandated for all new hires in addition to required yearly safety reviews for existing staff.	
			In accordance with Part 12 of Hearing Conservation and Noise Control Regulation, an initial noise exposure assessment will be undertaken prior to commissioning of the facility, and appropriate measures implemented (such as hearing protection), depending on the results of the assessment. During operation and closure, a reassessment will be done if any alterations, renovations or repairs of the workplace are undertaken.	
			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.	
			Special training in relation to the handling of silica will be administered to all employees.	
Effects on Indigenous and Treaty Rights	Construction, Operation, and Decommissioning	Potential effects as above **Land and Resource Use and Health and Well-being** components.	The Project is not expected to adversely impact the exercise of Indigenous or Treaty rights because: • No fish or fish habitat will be affected by the Project (Section 6.4.2); • The Project Site is private land, accessible only for the purposes of the Project; • 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).	None anticipated[6]
Heritage Resources	Construction and Decommissioning	Clearing, leveling, compacting, ditching for water drainage as required; removal of Project infrastructure and rehabilitation of disturbed areas	CanWhite will apply mitigation measures to protect potential heritage resources as required by the HRB and as indicated in an Environment Act Licence for the Project.	Minor
			If heritage resources are discovered within the Project Site, work will be stopped, HRB will be advised, and the discovered historic resources will be recorded by an archaeologist and adequately protected as required.	
			A Heritage Resources Protection Plan will be in place prior to the initiation of Project construction activities which will provide guidance to construction contractors to protect heritage resources.	

[6] *Note: there are no First Nation reserve lands within the Local or Regional Project Area.*

Table 6-6: Summary of Potential Accidents and Malfunctions and Measures to Mitigate Risk of Occurrence

Risks Associated with Accidents and Malfunctions	Project Phase	Possible Consequences	Measures to Reduce Risk of Occurrence	Conclusion
Worker Health and Safety	Construction, Operation and Decommissioning	Risk of workplace accidents affecting worker health.	Worker protection in Manitoba is regulated through standards, procedures, and training under the Workplace Safety and Health Regulation, M.R. 217/2006.	Risk is assessed to be appropriately mitigated
			Safety equipment and personal protective equipment will be supplied to employees and workers.	
			Contractors and visitors will be subject to site specific environmental health and safety orientation for all phases of the Project.	
Spills and Leaks	Construction, Operation and Decommissioning	Spills and leaks from diesel fuel, lubricants, oils, hydraulic fluids, and other hazardous materials can have adverse effects to air quality, water quality, groundwater quality, wildlife, plants and human health and safety.	Diesel tanks used on-site will be self-contained aboveground storage tank(s).	Risk is assessed to be appropriately mitigated
			When servicing requires drainage or pumping of lubricating oils or other fuels from equipment, a groundsheet of suitable material and size 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 only 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 only be performed by trained personnel.	
			Vehicles and Equipment will have pre shift inspections and walk arounds to ensure no 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.	

Risks Associated with Accidents and Malfunctions	Project Phase	Possible Consequences	Measures to Reduce Risk of Occurrence	Conclusion
			Fuel and chemical handlers will be trained and qualified, and appropriate emergency response measures will be in place and readily available.	
Fires and Explosions	Construction, Operation and Closure	Accidental fires and explosions from mechanical equipment, fuels, and other hazardous materials may result in loss of equipment and infrastructure, worker health and safety risk, and deterioration or loss of natural habitat.	Removal of flammable waste on a regular basis and disposal at a licenced disposal facility.	Risk is assessed to be appropriately mitigated
			Workers will be provided with appropriate fire prevention training.	
			Appropriate fire extinguishers will be available on the Project Site. Such equipment will comply with and be maintained to the manufacturers' standards, and employees will be appropriately trained in their use.	
			Storage, transportation and use of hazardous materials, including flammable waste, will comply with regulatory requirements.	
			On-site fire prevention/response equipment will be checked on a routine basis and in accordance with local fire safety regulations to maintain proper working order.	
			CanWhite will have a dedicated groundwater well on-site for fire suppression protection which will be regularly inspected for compliance.	
			Greasy or oily rags or materials subject to spontaneous combustion will be deposited and stored in appropriate receptacles. This material will be removed from the Project Site on a regular basis and be disposed of at licenced waste disposal facility.	
			Smoking will be restricted to designated areas.	
Transportation Accidents	Construction, Operation and Decommissioning	Vehicular collisions (human health and safety, traffic disruption, road closure, release of contaminants) and wildlife collisions (loss of wildlife, human health and safety, road closures).	The sand product will be transported from the Processing Facility directly by rail to markets rather than using transport trucks.	Risk is assessed to be appropriately mitigated
			The rail loop component of the Project will be constructed in accordance with the most recent applicable engineering specifications.	
			Personnel retained to drive and operate vehicles and construction equipment will have a valid appropriate-Class Manitoba Driver's License with a copy provided to CanWhite.	
			Speed limits on access roads, local road and Provincial Highways will continue to be implemented. Signage and speed limits on the PR 302 and PTH 15 are regulated by the Province of Manitoba.	
Power Failure	Construction, Operation and Decommissioning	Loss of power potentially leading to equipment malfunctions and accidents.	Backup power for all critical infrastructure and equipment will be supplied to the Project Site via two diesel generators.	Risk is assessed to be appropriately mitigated

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Table 2, Attachment B

Memorandum: Response to the Technical Advisory Committee Questions and Comments related to Air Quality

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To: Marlene Gifford (AECOM)

Date: September 30, 2020

Project #: 60567492

From: Piotr Staniaszek & Pooya Shariaty

cc: Cliff Samoiloff (AECOM); Randy Rudolph (AECOM)

Memorandum

Subject: **AECOM's Response to the Technical Advisory Committee (TAC) Questions and Comments related to Air Quality: CanWhite Vivian Sand Processing Facility Project (File 6057.00)**

The following are responses to air quality related issues/questions #5 and #22 to #25 in 'Table 1: Responses to Technical Advisory Committee (TAC) Review Comments'. The Issue/Question numbering is as per the above-referenced Table 1 to which this memorandum is an attachment.

Issues/Question #5

Please provide modelling data for predicted impact to air quality on closest adjacent private properties (not just to the current residences, which are further away than the closest adjacent private property.

AECOM Answer:

The closest adjacent private properties are just beyond the Processing Facility boundary (i.e. fenceline) The Maximum Point of Impingement (MPOI) is the location of the maximum concentration at or outside the Processing Facility boundary (identified in the isopleth figures in Attachment B of Appendix B in the EAP as the 'Maximum Modeled Concentration'). For this reason, predictions at the MPOI are worst-case predictions for the adjacent private properties. The predicted concentrations at the closest adjacent residences are much lower than the MPOI.

The maximum prediction is obtained for the worst meteorological conditions during the five-year period. In the case of particulate predictions, the highest predictions are obtained from the end of November to February, when there will be winter meteorological conditions (frozen material, and/or ground, some sources covered by snow, and a lower natural background for dust).

For predictions at locations other than the MPOI, the isopleth (contour) plots in the report should be consulted. As previously indicated, these plots represent the worst-case predictions at these locations; in all other days, predictions will be less than those shown.

Issue/Question #21

Provided modeling results show exceedances of the Manitoba Ambient Air Quality Criteria (MAAQC) for $PM_{2.5}$, PM_{10}, and TSP concentrations in the surrounding area of the project. As a result, there is a potential that the proposed project activities will contribute to the deterioration of ambient air quality in the area. Therefore, it is suggested that additional mitigation measures may need to consider for controlling the particulate matter emissions.

AECOM Answer:

To further mitigate particulate matter emissions and improve modeling results, CanWhite will add the following two additional mitigation measures:

1) The sand reject pile associated with the Dry Plant will be covered
2) The discharge points onto the hopper and conveyors will be fully covered.

Error! Reference source not found. below summarizes model results for the following:

- Results without the above two additional mitigation measures;
- Scenario 1: Results with only covering the sand reject pile associate with the dry plant; and
- Scenario 2: Results with covering the sand reject pile associate with the dry plant and covering the discharge points onto the hopper and conveyors.

. Regarding the mitigation measures, the results (refer to Table 1 below) show that:

- Covering of the sand reject pile associated with the Dry Plant has a very small effect on improving air quality outside of the Facility Boundary.
- Covering the discharge points on hopper and conveyor has a significant, positive impact on air quality outside of the Facility Boundary.
- Maximum particulate values, for the unmitigated case and Scenario 1 mitigation, were predicted close to the Facility west boundary.
- For the unmitigated case and Scenario 1, the MPOI for all particulate size fractions was close to the Facility west boundary; whereas for Scenario 2, the MPOI was south of the access road – near the southwest corner of the Facility boundary.

Regarding exceedances of the MAAQC and the conditions under which exceedances occur:

- There are nine days of predicted exceedances of the TSP MAAQC at the MPOI in five years in the unmitigated case and in Scenario 1 (covered sand reject pile associated with the Dry Plant). These exceedances were obtained for results including background (in the case of TSP, background was increased as it is explained in Issue/Question #22).
- In the case of Scenario 2 (covered sand reject pile for Dry Plant and covered discharge points onto the hopper and conveyors) there were only two days of potential exceedances in five years for Scenario 2 (>99.9% of the time predictions are below MAAQC).
- For $PM_{2.5}$ potential exceedances, for all cases, were predicted to occur in December and January. For PM_{10} potential exceedances, for all cases, were predicted to occur in January and the end of November. For TSP exceedances, for unmitigated case and Scenario 1, were predicted to occur in January and February while for Scenario 2, they were predicted to occur in end of November and January.

Predictions in late November to February are overestimated because natural particulate matter background in these months is lower than an annual average. Some modelled emissions would be expected to be lower in winter and late fall due to frozen material (and ground) and snow cover. Modelling did not account for natural mitigation of some particulate matter sources due to precipitation (125 days a year in Winnipeg https://www.currentresults.com/Weather/Canada/Cities/precipitation-annual-average.php).

In modelling of the access road, it was assumed that 11 heavy trucks will travel the access road every day and there will be no dust mitigation for these specific vehicles. In the reality, there will be fewer trucks travelling daily, there may be days without heavy truck travel, and/or some trucks could travel when the road is watered or when there will be natural dust mitigation due to precipitation or frozen road surface. As indicated in Section 6.3.1 'Air Quality' in the EAP, water will be applied to the permanent Processing Facility access road to minimize dust generation as needed (e.g. during hot, dry weather).

Furthermore, a Dust Management Plan, which will include provisions for dust monitoring (EAP, Section 8 'Follow-up Plans'), will be developed and in place during all phases of the Project to confirm that mitigation measures that have been put in place are effective and to allow for the implementation of additional engineering and/or operational controls to further control dust if required. The Dust Management Plan acts as a living document to evaluate the effectiveness of mitigation measures and implement additional corrective actions to avoid potential exceedances if needed.

Table 1: Maximum Predicted Concentrations for All Sources Including the Access Road

Compounds	Averaging Period	Background Concentration (µg/m^3)	Maximum Predicted Concentration Operations (µg/m^3)	Maximum Predicted Concentration + Background (µg/m^3)	MAAQC (µg/m^3)	Location of Maximum Point of Impingement	
						UTM (mE)	UTM (mN)
Results without Additional Mitigation Measures							
$PM_{2.5}$	24-hour	9	30	39	30	681,871	5,527,275
PM_{10}	24-hour	14	80	94	50	681,761	5,527,445
TSP	24-hour	25*	206	231	120	681,761	5,527,445
	Annual mean	6.7	17	24	70	681,961	5,527,444
Scenario 1: Results WITH Additional Mitigation Measure: Covered Sand Reject Pile associate with Dry Plant							
$PM_{2.5}$	24-hour	9	30	39	30	681,761	5,527,445
PM_{10}	24-hour	14	80	94	50	681,761	5,527,445
TSP	24-hour	25*	205	230	120	681,761	5,527,445
	Annual mean	6.7	15	22	70	681,851	5,527,274
Scenario 2: Results WITH Additional Mitigation Measures: Covered Discharge Points onto the Hopper and Conveyors and Covered Sand Reject Pile associate with Dry Plant)							
$PM_{2.5}$	24-hour	9	28	37	30	681,961	5,527,445
PM_{10}	24-hour	14	39	53	50	681,813	5,527,146
TSP	24-hour	25*	112	137	120	681,713	5,527,146
	Annual mean	6.7	13.4	20	70	681,851	5,527,274

* TSP 24-hour background concentration was increased which reduced the apparent impact of mitigation, as explained further in Issue/Question #22

Issue/Question #22

In the modeling study, the same amount of background concentrations (14 µg/m3) for PM_{10} and TSP has been applied, which may not be appropriate. Study[1] has shown that the average mass ratio of PM_{10} to TSP is 0.56 (±0.24) in Canada, and this ratio is relatively higher in the prairies compared to other parts of Canada. It is likely that the TSP concentration in the modeling study has been underestimated due to the use of lower background concentrations. This underestimation indicates a higher potential for the deterioration of ambient air quality in the surrounding area.

AECOM Answer:

The new TSP background was estimated as 25 µg/m^3 using an average mass ratio of PM_{10} to TSP of 0.56 and based on PM_{10} measurements at the Ellen Street (Winnipeg) station of 14 µg/m^3. The new background was applied to model results in Table 1 above.

The increase of TSP background did affect the frequency of exceedances at the MPOI. It is important to note that with 14 µg/m^3 there are four predicted exceedances within five years, whereas with background 25 µg/m^3 there are nine predicted exceedances within five years, for unmitigated and Scenario 1 cases.

Issue/Question #23

The proponent did not provide any information regarding building located within the facility. Was the building-downwash effect taken into account in the modeling?

AECOM Answer:

Building downwash was considered in the modelling. However, only silos and the dry processing building were included to the model due to their proximity to the point sources. Figure 5 in the Air Quality Assessment Report (Appendix B in the EAP) presented the location of the building and the silos with respect to emission source. Figure 1 below also provides a three-dimensional image of the buildings and stack sources included in the Building Profile Input Program – Prime Version (BPIP-PRIME).

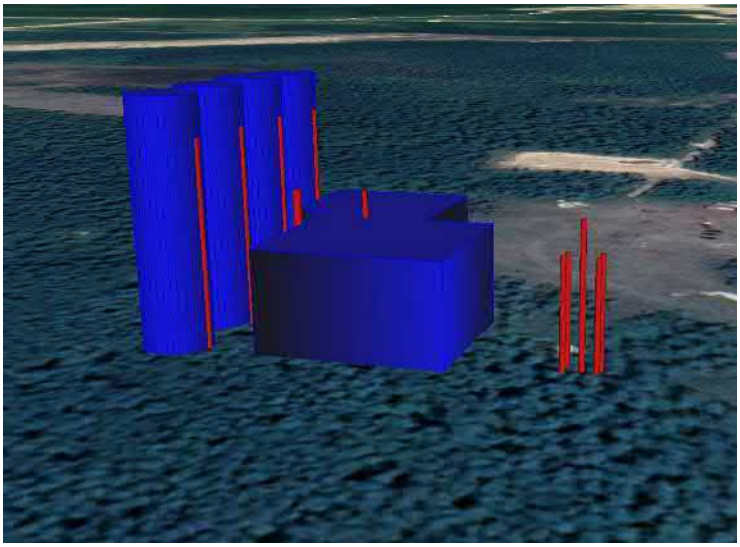

Figure 1: Three-Dimensional representation of buildings and point emission sources (The red-coloured bars protruding from the sides of the silos represent horizontal stacks, at a height corresponding to the top of the red bars. Other red bars represent actual stack sources.)

Issue/Question #24

Table 5 in the assessment report shows "Summary of Ozone Concentration Data Obtained from Ellen St. station". What is the period of the data listed in Table 5? Does the Table 5 summarize the hourly average of one-year data or several years of data? If so, then which year/years?

AECOM Answer:

Ozone data were measured at the Ellen Street station for the most recent year (2019). The hourly data were averaged over each month.

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Table 2, Attachment C

Clarification Letter Regarding Rail Loop Design

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September 10, 2020

Our Reference
Project No. 60625356

Jennifer Winsor P. Eng.
Environmental Engineer
Manitoba Conservation and Climate
Environmental Approvals
1007 Century Street
Winnipeg MB R3H 0W4

RE: Vivian Sand Facility Project – Environment Act Proposal (EAP) Application File: 6057.00: Updated Rail Loop Design Information

Dear Ms. Winsor,

On behalf of CanWhite Sands Corp. (‘CanWhite’), this letter provides updated information on the rail loop component design.

During the design and environmental assessment of the Processing Facility a number of different designs for the rail loop were evaluated. This included refinements in placement, shape, width and length of the rail loop to identify a design that would best fit the physical, environmental and operational constraints of the Project Site. One of the original rail loop designs that was considered was shown in Figure 1-2 (attached) in the Vivian Sand Facility Project EAP. During the course of the environmental assessment and development of the EAP this loop design was slightly revised immediately prior to the submission of the EAP to Manitoba Conservation and Climate, Environmental Approvals Branch (MBCC, EAB) in July 2020. This revised version of the rail loop was considered to address potential noise issues with the original rail loop design as shown in the EAP. This revised version, which is smaller (narrower) and located further away from the nearest residences east of the Project Site, was the design that was included and assessed in the Noise Impact Assessment which was included as Appendix C of the EAP. However, in the EAP submission the original larger rail loop design (which would represent the “worst-case” noise scenario) was the version that was presented in the main EAP document. The smaller loop that is presented in the Noise Impact Assessment is the loop that was intended to be included in the main body of the EAP submission and remains to be the targeted design. AECOM apologizes for this oversight.

The revised, smaller rail loop from the Noise Impact Assessment (Figure 1-1 of Appendix C of the EAP) is attached. Although the incorrect figure was included in the main body of the EAP, the information provided in Section 6.3.3 (Noise) in the EAP remains unchanged as the smaller rail loop design from Appendix C of the EAP was used to complete the noise modelling and environmental assessment for this Project.

Since submission of the EAP, more detailed drawings for CN Rail’s review and approval for the rail loop have been completed. The more detailed rail loop design figures identified as ‘Rail Concept Option 4’ are attached as Figure 1 and Figure 2 for your reference and is the rail loop represented in the Noise Impact Assessment in the EAP. ‘Rail Concept Option 4’ also includes two short inner tracks that serve as service/maintenance track for CN Rail use only. This is a requirement by CN Rail. There are no railcar loading facilities situated over this section of track.

The ‘Rail Concept Option 4’ is the design used in our findings of our Noise Impact Assessment (Appendix C of the EAP) and therefore our noise assessment in the main body of the EAP does not change.

Based on the more detailed rail loop drawings (attached ‘Rail Concept Option 4’; Figures 1 and 2), the calculated footprint area for the rail loop will be approximately 3 ha smaller than the footprint of the rail loop as presented in Table 6.4 of the EAP. The estimated footprint of all infrastructure components

(including the rail loop) in the original proposed design and the revised design, as would be presented in Table 6-4 of the EAP, are summarized below:

Table 6-4: Estimated Area of the Project Footprint (Original)

Project Components	
Permanent Components	**Area (ha)**
Processing Facility including the Wet Plant, Dry Plant and associated components as listed in **Section 1.1**	6.9
Permanent access road (7 m wide x 1 km long)	0.7
Rail loop (approximate 30 m width footprint to accommodate curvature of loop line of sight X 3.5 km rail track length)	10.5
Total Project Footprint Area	18.1
Total Previously Cleared / Disturbed Area with Project Footprint Area	1.1
Total Naturally Vegetated Area Requiring Clearing to accommodate the Project Footprint	**17.0**

Note: Total land area within the Project Site within which project components will be located is 114 ha.

Table 6-4: Estimated Area of the Project Footprint (REVISED, with 'Rail Concept Option 4' Rail Loop Design)

Project Components	
Permanent Components	**Area (ha)**
Processing Facility including the Wet Plant, Dry Plant and associated components as listed in **Section 1.1.**	6.9
Permanent access road (7 m wide x 1 km long)	0.7
Rail loop (approximate 28.5m width footprint to accommodate curvature of loop line of sight 2.6 km rail track length)	7.4
Total Project Footprint Area	15.0
Total Previously Cleared / Disturbed Area within Project Footprint Area	1.1
Total Naturally Vegetated Area Requiring Clearing to accommodate the Project Footprint	**13.9**

Note: Total land area within the Project Site within which project components will be located is 114 ha.

As noted in the EAP the naturally vegetated area within the inside of the rail loop will be retained to the maximum extent feasible. Vegetation will only be cleared to accommodate the rail infrastructure and the required line of sight for the railcars. Culverts will be placed, as required, to ensure no change in natural water drainage and flow.

As shown in the attached 'Rail Concept Option 4' Figure 1, the total area including the footprint of the rail loop and all land area within the rail loop including the rail spur[1] connecting the rail loop to the existing CN Rail mainline is 47.1 ha. This area is 2.9 ha smaller than the minimum required total area of a 'railway yard' to be considered for federal review (total area of 50 ha or more), as described in the *Physical Activities Regulations* of the federal *Impact Assessment Act.* Based on the total area of the rail loop, which including the rail spur is less than 50 ha, in addition to our opinion that the proposed rail facilities for the Project do not constitute a 'railway yard', it is our opinion that this Project does not meet the criteria to trigger a federal review by the Impact Assessment Agency of Canada.

If you have any questions regarding the revised rail loop design, please contact me at your earliest convenience.

[1] The rail spur will be developed by CN Rail and is not part of the proposed Vivian Sand Facility Project.

Yours sincerely,

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Biologist, Environmental Assessor
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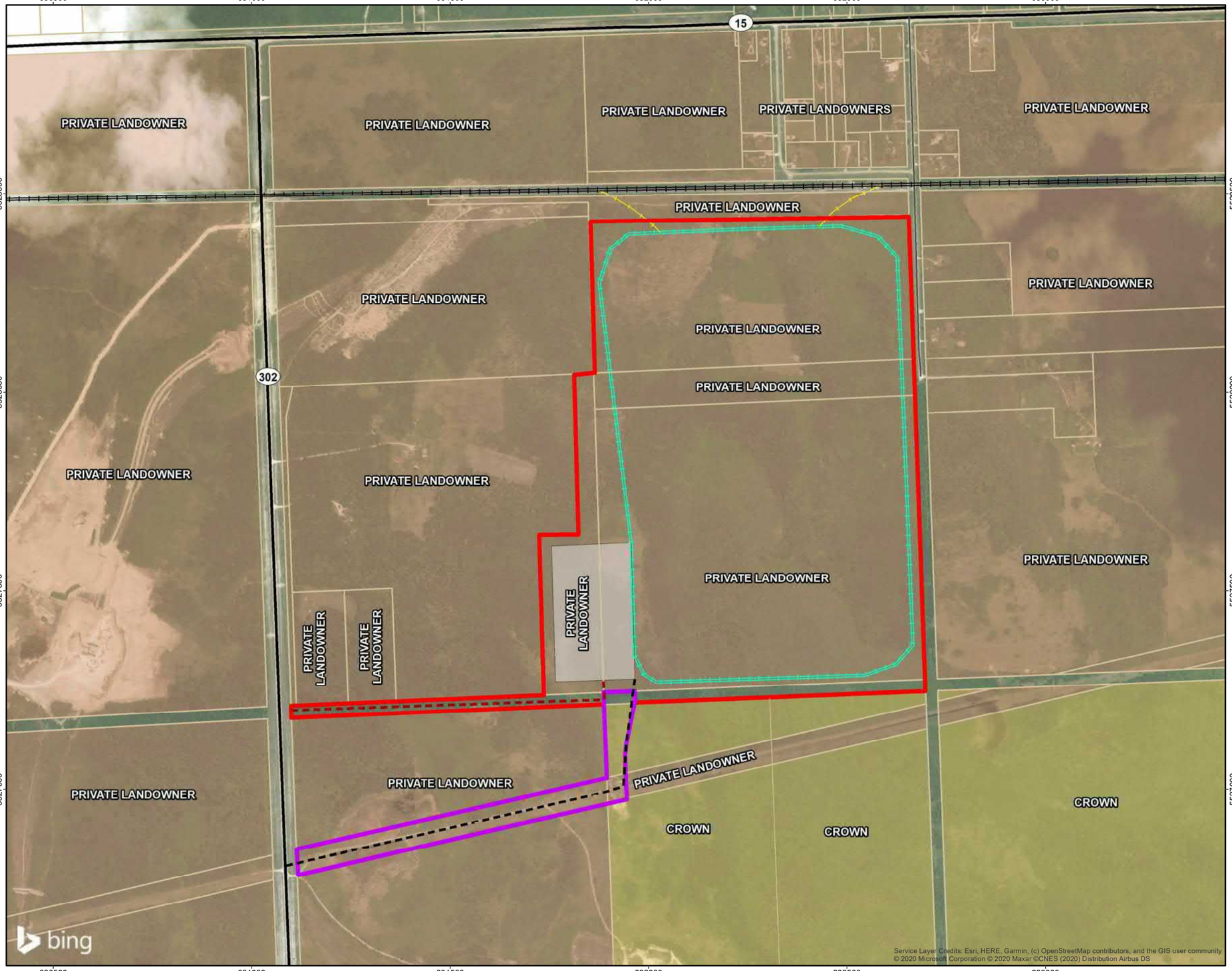
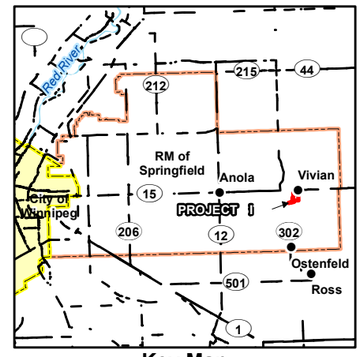
cc:
Siobhan Burland Ross (Manitoba Conservation and Climate, Environmental Approvals)
Feisal Somji (CanWhite)

Attachments:

- Figure 1-2 from the Vivian Sand Facility Project EAP
- Figure 1-1 from Appendix C (Noise Impact Assessment) from the Vivian Sand Facility Project EAP
- Rail Concept Option 4 - drawing: Figure 1
- Rail Concept Option 4 - drawing: Figure 2





Key Map

Legend

- Project Site
- Project Site – Temporary Use

Project Components

- Wet Plant and Dry Plant Location
- Rail Loop
- Train Spurs
- Permanent Access Road
- Temporary Access Road

Land Ownership

- Crown Land
- Private Land

General Features

- Highway
- Road
- Canadian National Railway
- Land Parcels

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W E
S

1:10,000
NAD 1983 UTM Zone 14N

100 50 0 100 200
m

Basemap: Canvec; CanWhite Sands Corp., 2019

AECOM

Figure: 1-2

Vivian Sand Facility Project
Project Site Location and Land Ownership
CanWhite Sands Corp.

ANSI B 279.4mm x 431.8mm
Approved:
Checked:
Designer:
Project Management Initials:
Last Plotted: Tue Jun 30, 2020
Last saved by: PAIGE.CROSSMAN (2020-06-30)
Filename: L:\ENVIRONMENT\GIS\STEPHANIE CLARKE\WINNIPEG\VIVIAN_60625656\02_MXDS\VIVIAN SAND FACILITY PROJECT\H001-2_60625356_FACILITY_SITELOCATIONLANDOWNERSHIP.MXD

Legend

- Access Road
- Rail Loop
- Facility

UTM Zone 14N, NAD 83

N
W E
S

CanWhite Silica Sand Extraction Project
Vivian, Manitoba

0 55 110 220 330 440
m

1:10,000

Project Location and Area Map
June 2020
Project 60625336

Figure 1-1

AECOM

682000
684000
5528000
Vivian
682000
684000
5528000

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

LEGEND

AREA BOUND BY OUTER LOOP =7.4ha

AREA BOUND BY INNER LOOP =39.5ha

AREA BOUND BY CN R/W =0.2ha

TOTAL = 47.1ha

Figure 1

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"X34"), SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"X17")

NOTES:
1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

PERMIT NO.:

TRI INNOVATIONS CONSULTING LTD ENGINEERING · DESIGN

PROJECT NO.: XXX.01.01

	DRAWN	CHECKED	DESIGN	APPROVED
BY	SM			
DATE	2020-09-04			

TRANSENERGY

RAIL CONCEPT OPTION 4
RAIL LAYOUT
OVERALL SITE PLAN
AREA SKETCH

SCALE	DRAWING NUMBER	REV.
1/2500	XXX0101-RL-SPN-00002	A

TRACK LENGTHS

A/D TRACK 1 = 2,611m

A/D TRACK 2 = 1,882m

SERVICE TRACK 1 = 411m

SERVICE TRACK 2 = 561m

CONNECTION TRACK = 304m

ENTIRE LOOP TRACK LENGTH = 2,611m

Figure 2

*DISPLAYED SCALES ARE ONLY ACCURATE WHEN PLOTTED AS ANSI D SIZE (22"X34"), SCALES SHALL BE DOUBLED WHEN PLOTTED ON ANSI B SIZE (11"X17")

NOTES:
1. COORDINATES SHOWN ARE FOR REFERENCE AND HAVE NOT BEEN SURVEYED.

REV.	REVISION DESCRIPTION	BY	DATE	CHD	APPD
A	ISSUED FOR APPROVAL	SM	2020-09-04		

ENGINEER'S STAMP

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PROJECT NO.: XXX.01.01

	DRAWN	CHECKED	DESIGN	APPROVED
BY	SM			
DATE	2020-09-04			

TRANSENERGY

RAIL CONCEPT OPTION 4
RAIL LAYOUT
OVERALL SITE PLAN
SKETCH

SCALE	DRAWING NUMBER	REV.
1/2500	XXX0101-RL-SPN-00001	A

LAST SAVED DATE: 2020-09-09 3:39:24 PM BY: JSCOT PLOTTED DATE: 2020-09-09 3:40:22 PM BY: JSCOT

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AECOM Imagine it. Delivered.

Table 2, Attachment D

Preliminary Traffic Projections Memorandum

AECOM Canada Ltd.
99 Commerce Drive
Winnipeg, MB R3P 0Y7
Canada

T: 204.477.5381
F: 204.284.2040
aecom.com

To:
Marlene Gifford
AECOM

CC:
Laura Weeden, P.Eng., CanWhite Sands Corp.
Brent Bullen, CanWhite Sands Corp.
Cliff Samoiloff, AECOM

Project name:
Vivian Sand Facility Project
File: 6057.00

Project ref:
60625356

From:
James McCutchon, P.Eng.
AECOM

Date:
September 18, 2020

Memo

Subject: Preliminary Traffic Projections – Proposed Vivian Sand Facility Project

AECOM Canada Ltd. (“AECOM”), was retained by CanWhite Sands Corp. (“CanWhite”), to develop a Traffic Projections Memo (“Memo”) for the proposed Vivian Sand Facility Project (“Facility”), just east of Highway PR 302, and south of Highway PTH15 southwest of Vivian, Manitoba in the Rural Municipality of Springfield. This Memo provides preliminary traffic projection information requested by Manitoba Infrastructure to support their review of the July 2, 2020 Vivian Sand Facility Project Environment Act Proposal, and to determine if a more detailed Traffic Study is required. The study limits include PTH 15 to the north to a point 1.7 km south along PR 302. The purpose of this Memo is to estimate site traffic volumes generated by the proposed Facility. The study was conducted according to the following methodology:

- Conduct a review of the site plan of the proposed Facility and determine the access points to the site from the adjoining road network;
- Estimate newly generated traffic projections at full build-out of the proposed Facility; and
- Project full build-out traffic generated by the Facility during AM and PM peak hours at the key intersections in the study area.

Location

The proposed access to the Processing Facility Site Area is east of and adjacent to Highway PR 302 and approximately 1.7 km south of PTH 15 in the rural municipality of Springfield, Manitoba. The proposed location coordinates for the processing facility are 49^0 52’ 18” N and 96^0 28’ 09” W.

Site Generated Traffic

Based on information provided by CanWhite, the processed sand product will be transported from the Facility by rail to markets in Canada, the United States and Internationally. Therefore, the sand product will not be transported by haul truck. Also, the extracted bulk sand product will be transported to the processing facility by slurry line, not by

sand haul truck. The only truck traffic will be the occasional service vehicle, (e.g. septic tank pump out, supply shipments), which would attend the Facility during the day.

CanWhite estimates a target site workforce of 20 to 25 persons per shift once construction is complete and the Facility is operational. For the purposes of this analysis we have used an employee single vehicle volume estimate of 25 vehicles accessing and egressing the site during the morning and evening shifts for the full build out condition. There is expected to be two 12-hour shifts per day from 7 am to 7 pm seven days per week.

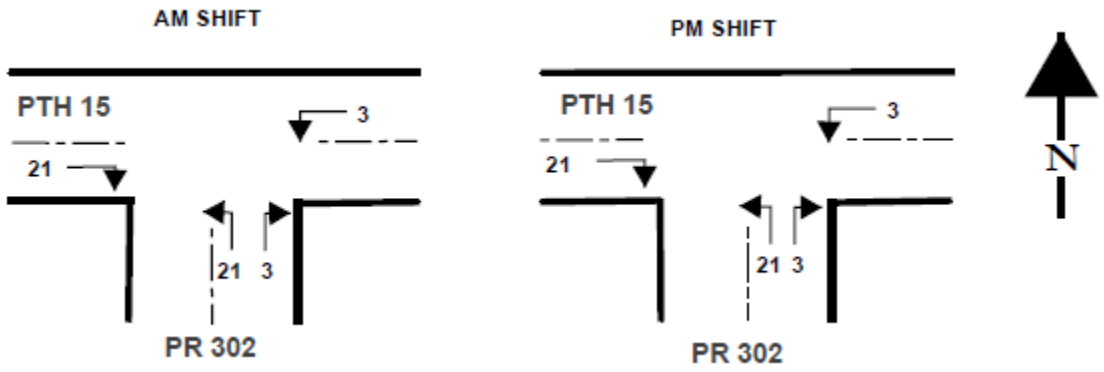
Trip Distribution

Employee workforce origins/destinations were provided by CanWhite which identified that the employee workforce is expected to include 25% from Winnipeg, 25% from the Steinbach area with the remainder from the immediate area including Anola, Vivian, Beausejour, St. Anne and Richer.

For this analysis it is assumed that 80% of the workforce will be arriving/departing at the PR 302 and PTH 15 intersection from/to the west. It is further assumed that the employees from Richer would comprise approximately 10% of the vehicle traffic and would arrive/depart to the south along PR 302. For employees from Vivian it is assumed that they will comprise approximately 10% of the vehicle traffic and arrive/depart at the PR 302 and PTH 15 intersection from the east.

The morning and evening shift trip distribution assignments are shown in Figure 1:

Figure 1 – Trip Distribution Schematic at PR 302/PTH 15 Intersection



The AM and PM Trip distribution calclations are shown in Table 1:

Table 1 – Trip Distribution Calculations at PR302/PTH 15 Intersection

			Intersection of PR 302 and PTH 15							
Employee Vehicles per Shift	Workforce Split	Workforce Location	AM Shift				PM Shift			
			EBR	WBL	NBR	NBL	EBR	WBL	NBR	NBL
25	25%	Winnipeg	6			6	6			6
	25%	Steinbach	6			6	6			6
	10%	Anola	3			3	3			3
	10%	Vivian		3	3			3	3	
	10%	Beausejour	3			3	3			3
	10%	St. Anne	3			3	3			3
	10%	Richer (Assumed that vehicles will arrive/depart from proposed access road to the south on PR 302)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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Table 2, Attachment E

Safety Data Sheet for Sand Wash Polymer

SAFETY DATA SHEET

According to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: **HYPERFLOC™ CP 624**

Type of product: Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Processing aid for industrial applications.

Uses advised against: None.

1.3. Details of the supplier of the safety data sheet

Company: Hychem, Inc.
10014 North Dale Mabry Hwy
Tampa, FL 33618
United States

Telephone: (800) 327-2998

Telefax: (813) 960-0175

E-mail address: -

1.4. Emergency telephone number

24-hour emergency number: Chemtrec: 1-800-424-9300 (CCN 20412)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to paragraph (d) of 29 CFR 1910.1200:

Not classified.

2.2. Label elements

Labelling according to paragraph (f) of 29 CFR 1910.1200:

Hazard symbol(s): None.

Signal word: None.

Hazard statement(s): None.

Precautionary statement(s): None.

2.3. Other hazards

Spills produce extremely slippery surfaces.

For explanation of abbreviations see Section 16.

SECTION 3. Composition/information on ingredients

3.1 Substances
Not applicable, this product is not a substance.

3.2 Mixtures

Hazardous components
Contains no reportable hazardous substances.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. No hazards which require special first aid measures.

Skin contact:
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In case of persistent skin irritation, consult a physician.

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Alternatively, rinse immediately with Diphoterine ®. Get prompt medical attention.

Ingestion:
Rinse mouth with water. Do NOT induce vomiting. Get medical attention immediately if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed

None under normal use.

4.3. Indication of any immediate medical attention and special treatment needed.

None reasonably foreseeable.

Other information:
None.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water. Water spray. Foam. Carbon dioxide (CO2). Dry powder.

Unsuitable extinguishing media:
None.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products:
Carbon oxides (COx). Nitrogen oxides (NOx). Hydrogen chloride. Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

5.3. Advice for fire-fighters

Protective measures:
Wear self-contained breathing apparatus and protective suit.

Other information:
Spills produce extremely slippery surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions:
Do not touch or walk through spilled material. Spills produce extremely slippery surfaces.

Protective equipment:
Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection).

Emergency procedures:
Keep people away from spill/leak.

6.2. Environmental precautions

Do not contaminate water.

6.3. Methods and material for containment and cleaning up

Small spills:
Do not flush with water. Soak up with inert absorbent material.

Large spills:
Dam up. Clean up promptly by scoop or vacuum. Do not flush with water.

Residues:
Soak up with inert absorbent material. After cleaning, flush away traces with water.

6.4. Reference to other sections

SECTION 7: Handling and storage; SECTION 8: Exposure controls/personal protection; SECTION 13: Disposal considerations;

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Renders surfaces extremely slippery when spilled. When using, do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities.

Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

7.3. Specific end use(s)

None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

None.

8.2. Exposure controls

Appropriate engineering controls:

Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Individual protection measures, such as personal protective equipment:

a) Eye/face protection:
Safety glasses with side-shields.

b) Skin protection:
Wear coveralls and/or chemical apron and rubber footwear where physical contact can occur.

i) Hand protection:
PVC or other plastic material gloves.

c) Respiratory protection:
No personal respiratory protective equipment normally required.

d) Additional advice:
Wash hands and face before breaks and immediately after handling the product. Wash hands before breaks and at the end of workday.

Environmental exposure controls:

Do not allow uncontrolled discharge of product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance:	Clear to slightly yellow liquid.
b) Odour:	None.
c) Odour Threshold:	Not applicable.
d) pH:	3 - 7
e) Melting point/freezing point:	< 0°C
f) Initial boiling point and boiling range:	> 100°C
g) Flash point:	Does not flash.
h) Evaporation rate:	No data available.
i) Flammability (solid, gas):	Not applicable.
j) Upper/lower flammability or explosive limits:	Not expected to create explosive atmospheres.
k) Vapour pressure:	2.3 kPa @ 20°C
l) Vapour density:	0.804 g/litre @ 20°C
m) Relative density:	1.0 - 1.2
n) Solubility(ies):	Completely miscible.
o) Partition coefficient:	< 0
p) Autoignition temperature:	Does not self-ignite (based on the chemical structure).
q) Decomposition temperature:	> 150°C
r) Viscosity:	See Technical Bulletin.
s) Explosive properties:	Not expected to be explosive based on the chemical structure.
t) Oxidizing properties:	Not expected to be oxidising based on the chemical structure.

9.2. Other information

None.

SECTION 10. Stability and reactivity

10.1. Reactivity

Stable under recommended storage conditions.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

Protect from frost, heat and sunlight.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Thermal decomposition may produce: hydrogen chloride gas, nitrogen oxides (NOx), carbon oxides (COx). Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Information on the product as supplied:

Acute oral toxicity:	LD50/oral/rat > 5000 mg/kg
Acute dermal toxicity:	LD50/dermal/rat > 5000 mg/kg
Acute inhalation toxicity:	Testing by the inhalation route is inappropriate because exposure of humans via inhalation is unlikely: the substance has no vapour pressure and there is practically no exposure to inhalable aerosols.
Skin corrosion/irritation:	Not irritating.
Serious eye damage/eye irritation:	Slightly irritating.
Respiratory/skin sensitisation:	Not sensitizing to skin. No respiratory sensitization has been observed in the workplace.
Mutagenicity:	Not mutagenic.
Carcinogenicity:	By analogy with similar substances, this substance is not expected to be carcinogenic.
Reproductive toxicity:	By analogy with similar substances, this substance is not expected to be toxic for reproduction.
STOT - single exposure:	No known effects.
STOT - repeated exposure:	No known effects.
Aspiration hazard:	No hazards resulting from the material as supplied.

SECTION 12. Ecological information

12.1. Toxicity

Information on the product as supplied:

Acute toxicity to fish:	LC50/Danio rerio/96 hours > 100 mg/L
Acute toxicity to invertebrates:	EC50/Daphnia magna/48 hours > 100 mg/L
Acute toxicity to algae:	Algal inhibition tests are not appropriate. The flocculation characteristics of the product interfere directly in the test medium preventing homogenous distribution which invalidates the test.
Chronic toxicity to fish:	No data available.
Chronic toxicity to invertebrates:	No data available.
Toxicity to microorganisms:	EC0/activated sludge/0.5 h = 1000 mg/L (OECD 209)
Effects on terrestrial organisms:	Exposure to soil is unlikely.
Sediment toxicity:	Exposure to sediment is unlikely.

12.2. Persistence and degradability

Information on the product as supplied:

Degradation:	Not readily biodegradable.
Hydrolysis:	Does not hydrolyse.
Photolysis:	No data available.

12.3. Bioaccumulative potential

Information on the product as supplied:

Not bioaccumulating.

Partition co-efficient (Log Pow):	< 0
Bioconcentration factor (BCF):	~0

12.4. Mobility in soil

Information on the product as supplied:

Exposure to soil is not to be expected.

Koc: ~0

12.5. Other adverse effects

None.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products:

Dispose in accordance with local and national regulations.

Contaminated packaging:

Rinse empty containers with water and use the rinse-water to prepare the working solution. If recycling is not practicable, dispose of in compliance with local regulations.

Recycling:

Store containers and offer for recycling of material when in accordance with the local regulations.

SECTION 14. Transport information

Land transport (DOT)

Not classified.

Sea transport (IMDG)

Not classified.

Air transport (IATA)

Not classified.

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Information on the product as supplied:

TSCA Chemical Substances Inventory:

All components of this product are either listed on the inventory or are exempt from listing.

US SARA Reporting Requirements:

SARA (Section 311/312) hazard class:
Not concerned.

RCRA status :
Not RCRA hazardous.

California Proposition 65 Information:

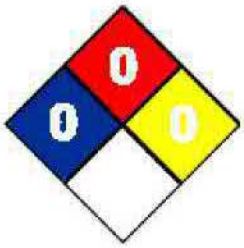
Not concerned

SECTION 16. Other information

NFPA and HMIS Ratings:

NFPA:

Health:	0
Flammability:	0
Instability:	0



HMIS:

Health:	0
Flammability:	0
Physical Hazard:	0
PPE Code:	B

This data sheet contains changes from the previous version in section(s):

SECTION 2. Hazards identification, SECTION 3. Composition/information on ingredients, SECTION 4. First aid measures, SECTION 11. Toxicological information, SECTION 16. Other Information.

Key or legend to abbreviations and acronyms used in the safety data sheet:

None.

This SDS was prepared in accordance with the following:

U.S. Code of Federal Regulations 29 CFR 1910.1200

Version: 15.01.b

LDCC010A

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.