HyLIFE FOODS

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May 30, 2023
File: 111440368

Attention: Siobhan Burland Ross
Director (Acting), Environmental Approvals Branch
Manitoba Environment and Climate
14 Fultz Boulevard
Winnipeg, MB R3Y 0L6

Dear Director,

Reference: NOA Request – Licence 2870 RRR R3 Innovations Inc./Town of Neepawa IWWTF Wastewater Transfer, Neepawa, MB

In accordance with Section 14(1) of *The Environment Act*, R3 Innovations Inc. and the Town of Neepawa are jointly submitting a notice of alteration request for a transfer of wastewater from the Springhill Industrial Wastewater Treatment Facility (SH IWWTF) to Cell #1 at the Town of Neepawa (the Town) municipal wastewater treatment facility.

The R3 Industrial Wastewater Treatment Facility (R3 IWWTF) is jointly owned by R3 Innovations Inc. (R3II) and the Town. An upset in the treatment process at the R3 IWWTF was detected on March 27, 2023, that resulted in the need to divert wastewater to the nearby former Springhill IWWTF (SH IWWTF) for storage. The diversion was communicated to Manitoba Environment and Climate (MEC) per the terms of Environment Act Licence 2870 RRR for the first day of the diversion on March 28, 2023.

The current operation of the HyLife pork processing facility generates an approximate weekly average wastewater volume of 1,600 m^3/day, that has been diverted to the SH IWWTF while investigation and recovery efforts have been underway at the R3 IWWTF. The continued operation of the HyLife pork processing facility resulted in the need to transfer approximately 60,000 m^3 of wastewater stored at the SH IWWTF to the former primary cell at the Town of Neepawa municipal wastewater treatment facility for storage on April 19, 2023. This was completed per the terms of the NOA approval provided by MEC on April 19, 2023. At the present rate of HyLife wastewater generation and recovery of wastewater treatment capacity at the R3 IWWTF, the remaining storage capacity at the SH IWWTF is again expected to be exhausted in early June 2023.

R3II and the Town are submitting this Notice of Alteration (NOA) request for an additional transfer of stored wastewater from the SH IWWTF to the 1 m freeboard level of the former primary cell (estimated to be approximately 35,000 to 40,000 m^3) at the Town of Neepawa's municipal treatment facility. This additional transfer combines with continued recovery of the treatment capabilities at the R3 IWWTF and other means of managing wastewater generated by the HyLife pork processing plant (as outlined herein), as an integral step to restoring full operation at the R3 IWWTF and managing the temporarily stored wastewater.

R3II and the Town are seeking an expedited approval to proceed with the additional transfer to maintain production and employment at the HyLlife Foods pork processing plant.

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PROPOSED ALTERATION – TRANSFER OF WASTEWATER FROM R3 IWWTF TO TOWN FOR STORAGE

The proposed Project is the transfer of stored wastewater approximately 2.3 km northwest from the SH IWWTF to Cell #1 (the westernmost cell), at the Town municipal treatment facility. The Town of Neepawa has agreed to receive the wastewater transferred from R3 Innovations at the municipal facility (pending approval by MEC) for storage (up to the 1 m freeboard limit in the cell) and potential, treatment, and subsequent discharge to the Whitemud River via the municipal treatment system outlet.

The wastewater would be conveyed using portable diesel-fueled pumps connected by flexible collapsible 0.2 m (8-inch) diameter sections of hose (rated up to 200 psi) temporarily laid overland between the two facilities. Sections of hose will be coupled using sexless couplers. One pump will be located at the west side of the SH IWWTF to draw wastewater from the cell and pump it via the hose to a point on the west side of the Whitemud River where a second pump will be placed (if required) to convey the wastewater the remaining distance to Cell #1 at the Town municipal facility.

The hose will run west from the pump placed at the SH IWWTF, to Municipal Road 86W and then proceed north along the Road ditch (crossing the road either via existing culvert or on top of the road, in which case the road would be temporarily closed and detour routes are available via neighbouring section roads) and then west across a field before proceeding downslope, reaching the eastern-most golf course bridge over the Whitemud River. The hose would be routed around the golf course playing area, and supported alongside the bridge, to a second pump (if required) on the west side of the river. From the second pump, the hose would be routed along the inner southern cell berms of the Town treatment facility and overland to the inner east side of Cell #1 where the discharge is planned to occur. Figure 1 illustrates the planned conveyance route from the SH IWWTF to the Town's Cell #1.

The Project would be completed by a licensed manure applicator engaged by R3 Innovations with regular monitoring of the line conducted by the contractor/R3II staff during the transfer. The equipment will be placed using two tractors and associated transport trucks, with equipment setup and take-down anticipated to take approximately two days. The transfer itself is expected to be completed within less than one week.

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Completion of the transfer would proceed as soon as possible in May/June 2023, upon regulatory approval and coordination with the selected contractor. No changes to permanent infrastructure are required for the transfer and the integrity of the receiving cell at the Town's facility has been recently assessed and confirmed (attached report DGH Engineering May 23, 2023). The Town of Neepawa has agreed to receive the wastewater transferred from R3 Innovations at the municipal facility as described above.

Expected project inputs include diesel fuel for equipment vehicles and pumps (2-3 trucks to transport the crew, tractors, pumps, and equipment to the site, and 2 portable pumps) as well as the wastewater from the SH IWWTF. Project outputs will include noise and emissions from the equipment vehicles and pumps and the discharge of the transferred wastewater to Cell #1 (the Primary Cell) at the Town municipal treatment facility. Pumps are expected to run continuously during the operation (approximately 1-2 days) with refueling conducted as necessary. Diesel fuel will be dispensed to the pumps from truck mounted slip tanks.

No changes to chemical, electricity, and natural gas usage at the R3 IWWTF are anticipated and incremental changes in terms of waste production, traffic volumes, or health and safety issues are anticipated to be negligible.

The environmental effects of the proposed additional wastewater transfer are identical to those described in the previous wastewater transfer NOA request submission of April 14, 2023, and are not repeated here. Rather this NOA request provides an update on the recovery process and describes a plan forward to provide context for the subject wastewater transfer request.

WASTEWATER MANAGEMENT PLAN

R3II's plan for wastewater management includes the following steps, described in further detail below:

1) Divert wastewater from the HyLife pork processing plant to the SH IWWTF for storage while restoration of the R3 IWWTF.
2) Investigate and identify the cause of the process upset at the R3 IWWTF.
3) Develop mitigation for the process upset to avoid future recurrence.
4) Restore treatment capacity of R3 IWWTF.
5) Manage and treat stored wastewater.

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DIVERT WASTEWATER TO THE SH IWWTF

As summarized previously, wastewater from the HyLife pork processing facility (weekly average of 1,600 m^3/day) that was previously bound for the R3 IWWTF, has been diverted to the SH IWWTF for temporary storage. On April 19, 2023, the SH IWWTF was near capacity and a transfer was approved and initiated from the SH IWWTF to the Town of Neepawa former municipal cell 1. This transfer moved approximately 60,000 m^3 of wastewater to the town lagoon, restoring storage capacity at the SH IWWTF. Since the April transfer, the operation of the pork processing plant has necessitated continued wastewater diversion to the previously emptied SH IWWTF and is expected to fill the SH IWWTF again by the first week of June 2023 (resulting in the need for the proposed additional transfer).

INVESTIGATE THE CAUSE OF THE PROCESS UPSET AT THE R3 IWWTF

A thorough investigation has been conducted at the facility to identify the root cause of the upset condition. This included:

- Employing third-party wastewater treatment experts with experience in the field to review data and provide process advice. Upon initial analysis of the data collected, the presence of an outside chemical was suspected to be impacting the biomass within the R3 IWWTF.
- A full review of MSDS sheets for chemicals used, identified those chemicals that could potentially negatively affect the biomass makeup. In depth analyses were then performed at areas within the HyLife pork processing facility and the R3 IWWTF that involve chemical addition.
- As a result of the investigation, the presence of quaternary amides (gluquat) and paracetic acid (PAA) were identified as potential contributing factors to the IWWTF's upset condition.

DEVELOP MITIGATION FOR THE PROCESS UPSET TO AVOID FUTURE RECURRENCE

R3II's team used the information gathered during the investigation to develop processes to avoid recurrence of the process upset event, and measures to mitigate the effect of the suspected chemical agents on the R3 IWWTF biomass. Measures enacted included the following:

- Development of a thorough, daily inventory system to track daily chemical use and inventories. This provides the means for immediate chemical identification, in the case of overuse or spillage within the facility, to inform mitigation measures.

- Additional testing was deployed throughout the HyLife facility processes to identify areas of elevated gluquat and PAA concentrations. This testing provides a secondary notification on top of the daily inventory system.
- Investigation was conducted to identify alternatives for the use of PAA and gluquat in the HyLife facility processes. No viable alternative was identified for PAA, however the investigation did identify Prevail™, a hydrogen peroxide based disinfectant as a potential alternative to using gluquat. Further investigation into the necessary equipment and procedures for the deployment of Prevail in select areas within the HyLife facility is underway.
- R3II has procured Quatkill™, a neutralizing chemical that will neutralize the impact of gluquats in the wastewater and limit their impacts on the biomass. This chemical is on site and being deployed daily.
- R3II is working to procure sodium bisulfate, to neutralize the effects of excess PAA in the waste stream. This chemical is on order and once received, will be deployed into the waste stream to offset the PAA being utilized.

RESTORE TREATMENT CAPACITY OF R3 IWWTF

R3II initiated investigation of the cause of the process upset and has determined the likely source to be a combination of process chemicals and circumstances of operation that led to a destabilization of the activated sludge biomass. R3II has initiated a number of steps to restore the treatment capacity of the R3 IWWTF with consideration of the following:

- The biological nature of the system (55 day solids retention time) requires an extended period of time to restore treatment capacity. As a biological system, recovery needs to be conducted gradually and conservatively to ensure not to create and additional upset.
- The initial wastewater feed into the bioreactor in March (post-upset) was at approximately 10 m^3/day and the effect on the biomass in the bioreactor was monitored to determine whether the biomass remained viable and intact.
- Progress has been made and as of May 23, 2023, the feed rate to the bioreactor has been increased to 680 m^3/day and the system appears to be stable. There is evidence of nitrifying bacteria within the mixed liquor and there is some reduction in COD within the bioreactor, these are positive signs of recovery.
- Moderate increases to the wastewater feed rate are anticipated to continue and progressively higher feed rates will be possible over time.
- The current rate of recovery is slow but progressing, but based on current information, R3II does not anticipate being able to rectify the process upset and restore normal operations within the

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available storage capacity at the SH IWWTF without another transfer of wastewater to the Town facility, while maintaining production at the HyLife pork processing facility.

- An additional transfer of wastewater will need to be conducted prior to the first week of June, 2023 to accommodate the continued recovery of the R3 Innovations facility.

MANAGE AND TREAT STORED WASTEWATER:

As the storage capacity at the SH IWWTF is expected to be exhausted in early June, and cell 1 at the Town facility is limited in the volume of additional wastewater that can be accomodated (the estimated remaining capacity at the former municipal primary cell is approximately 30,000 m^3), additional management/treatment options are being considered by R3II. Options under consideration need to maintain operation at the HyLife facility and restore treatment capabilities at the R3 IWWTF without discharging non-compliant wastewater to the Whitemud River. The following options are being considered:

- Wastewater hauling to take a portion, or all, of the daily wastewater produced to an alternate location for treatment: The City of Brandon was contacted as a potential wastewater treatment service provider, but has since confirmed that they are not in a position to receive the necessary volume of wastewater for treatment. Further investigation on the logistics and viability of this alternative is ongoing, however it is not expected that there are any other facilities within practical hauling distance with the ability to provide treatment capability beyond those of the Town of Neepawa municipal wastewater treatment facility. Trucking companies are also being solicited to understand the feasibility and their ability to provide transport of the generated wastewater.
- In-situ treatment of wastewater in the Town's holding cell: Insitu treatment alternatives are under investigation. Use of temporary plastic weirs placed in the cell and aeration and chemical treatment of "batches" of stored effluent could provide a moderate amount of pre-treatment, converting unionized ammonium to nitrate/nitrite, which would reduce the ammonia load for treatment if the wastewater was then to be discharged to the Town's municipal treatment system. The use of allum or ferric chloride in the sub-sectioned area of the cell would also settle out particulate in solution, reducing phosphorus and TSS levels to acceptable levels. Once this treatment has been employed, the Town's treatment system could potentially accommodate additional transfer and storage capacity within the cell. This would provide further time for the R3 IWWTF recovery to occur.

Additional treatment scenarios and methods are under consideration and being evaluated in terms of treatment effectiveness, and implementation. R3II will continue to investigate options and propose a treatment plan as part of a future NOA for treatment of the wastewater within the municipal cell.

CONCLUSION

Based on current information, R3II does not anticipate being able to rectify the process upset and restore normal operations within the available storage capacity at the SH IWWTF while maintaining production at the HyLife pork processing facility.

R3II is therefore requesting approval to transfer wastewater stored in the SH IWWTF to the Town of Neepawa's municipal wastewater treatment facility (up to the freeboard level in the receiving cell). The wastewater will be conveyed via a temporary overland pump and transfer line system (the Project) while the R3 IWWTF treatment process is restored to normal operations. The additional storage capacity provided by the transfer, combined with various treatment alternatives under consideration, is an integral part of the plan to restore treatment capacity at the R3 IWWTF in an environmentally responsible manner.

This NOA application has been prepared by R3II for a stored wastewater transfer from the SH IWWTF to the Town municipal treatment facility for storage, and eventual treatment, and discharge to the Whitemud River potentially via the municipal facility outlet. Based on information available to date and as presented herein, adverse effects of the proposed wastewater transfer to the biophysical and socio-economic environment are expected to be not significant. It is anticipated that the proposed alterations will be considered as a minor alteration to the R3 IWWTF licensed development.

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CLOSURE

Should you require any additional information or clarifications please contact Mr. Sheldon Stott, P.Ag., Senior Director of Corporate Sustainability, HyLife Foods LP; or Mr. Stephen Biswanger, P.Eng., Stantec Consulting Ltd.

Regards,

[redacted]

Sheldon Stott, P.Ag. Senior Director of Corporate Sustainability

Attachment: Signed NOA Forms
DGH Engineering Lagoon Condition Assessment Report
Figure 1

c. Colleen Synchyshyn, CAO Town of Neepawa
Stephen Biswanger, Stantec

Notice of Alteration Form

Manitoba
Environment, Climate and Parks

File No. : 2755.20	Environment Act Licence No. : 2870 RRR

Legal name of the Licencee: R3 Innovations Inc./Town of Neepaw

Name of the development: R3 Innovations Inc./Town of Neepawa May 2023 WW Transfer

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Storage <SELECT>

Licencee Contact Person: Mr. Sheldon Stott, P.Ag., Senior Director of Corporate Sustainability
Mailing address of the Licencee: Box 1000, 623 Main Street
City: Neepawa Province: Manitoba Postal Code: R3C 1A5
Phone Number: (204) 424-2313 Fax: (204) 424-5177 Email: sheldon.stott@hylife.com

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):
Mr. Stephen Biswanger, P.Eng.

Phone: (204) 924-7061 Fax: (204) 453-9012	Mailing address: 500 - 311 Portage Avenue, Winnipeg, MB

Email address: stephen.biswanger@stantec.com

Short Description of Alteration *(max 90 characters):*
R3 Innovations is seeking to transfer wastewater to the Town of Neepawa municipal lagoon

Alteration fee attached: Yes: ☑ No: ☐

If No, please explain:

Date: May 30, 2023

Signature: [redacted]

Printed name: Sheldon Stott

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **1 hard copy and 1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☑ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:
Director, Environmental Approvals Branch
Manitoba Environment, Climate and Parks
1007 Century Street
Winnipeg, Manitoba R3H 0W4
EABDirector@gov.mb.ca

For more information:
Phone: (204) 945-8321 Fax: (204) 945-5229
https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/licence/index.html

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

Notice of Alteration Form

Manitoba
Environment, Climate and Parks

File No. : 2755.20	Environment Act Licence No. : 2870 RRR

Legal name of the Licencee: R3 Innovations Inc./Town of Neepaw

Name of the development: R3 Innovations Inc./Town of Neepawa May 2023 WW Transfer

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Storage <SELECT>

Licencee Contact Person: Ms. Colleen Synchyshyn, CAO

Mailing address of the Licencee: Box 339, 275 Hamilton Street

City: Neepawa Province: Manitoba Postal Code: R0J 1H0

Phone Number:(204) 476-7603 Fax: - Email: cao@neepawa.ca

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):

Mr. Stephen Biswanger, P.Eng.

Phone: (204) 924-7061 Fax: (204) 453-9012	Mailing address: 500 - 311 Portage Avenue, Winnipeg, MB

Email address: stephen.biswanger@stantec.com

Short Description of Alteration *(max 90 characters)*:

R3 Innovations is seeking to transfer wastewater to the Town of Neepawa municipal lagoon

Alteration fee attached: Yes: ☑ No: ☐

If No, please explain:

Date: MAY 17, 2023	Signature: [redacted] Printed name: Colleen Synchyshyn

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
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DGH ENGINEERING LTD.
CIVIL | STRUCTURAL | MECHANICAL | ELECTRICAL | INDUSTRIAL

12 Aviation Boulevard
St. Andrews MB R1A 3N5
Canada
T: 204-334-8846
dgh@dghengineering.com

May 29th, 2023

Transmitted by email: Sheldon.Stott@Hylife.com

Attention: Sheldon Stott
Senior Director of Corporate Sustainability
Hylife Ltd.
5 Fabas Street, Box 100 La Broquerie, MB R0A 0W0
Phone: (204) 355-7775

Dear Sheldon:

Re: Hylife Ltd. Neepawa Wastewater Treatment Lagoon, NW 34-14-15 W

Upon your request, I visited the Neepawa wastewater treatment lagoon site located on NW 34-14-15, on May 19, 2023. Mr. Brady Laycock from Hylife attended the site meeting.

HyLife has discharged approximately 95,000 m^3 into the westerly cell to date. The cell in question is partially full as a result of these discharges and precipitation. HyLife is proposing to conduct one additional transfer to the west cell, approximately 30,000-40,000 m3 of effluent from stored wastewater in the Springhill Farms lagoon system.

The recent site visit was to review and provide an opinion on the structural stability and containment integrity of the earth structure.

The earthen structure is judged to be stable and to be safe for holding wastewater within the existing freeboard volume. The conclusion was made based on the following observations:

1. The earthen structure is made of clayey materials. A borehole was drilled on the north berm with a hand auger to a metre depth. The clay was damp, firm and of good quality The site chosen for the bore hole was in a region expected to be representative of the poorest berm condition which was proven to be acceptable.
2. The width of the top of the berm was a minimum of 3 metres. The exterior slopes of the lagoon were in good condition. Relative to the height of the structure, the berm is of substantial size and in good condition.

The water level in the cell is approximately 4 feet below the top of the berms which would allow for approximately 1 additional foot of wastewater to meet the 1 meter freeboard requirement. Initial estimate is this would equate to approximately 30,000-40,000 m^3 of effluent. HyLife should monitor the discharge into this cell and cease transfer once the freeboard has been met.

Should you need any further information or any clarifications, please let me know. We have retained a soil sample and a photo record of the visit is in our files.

Respectfully submitted,

DGH ENGINEERING LTD.

Per:

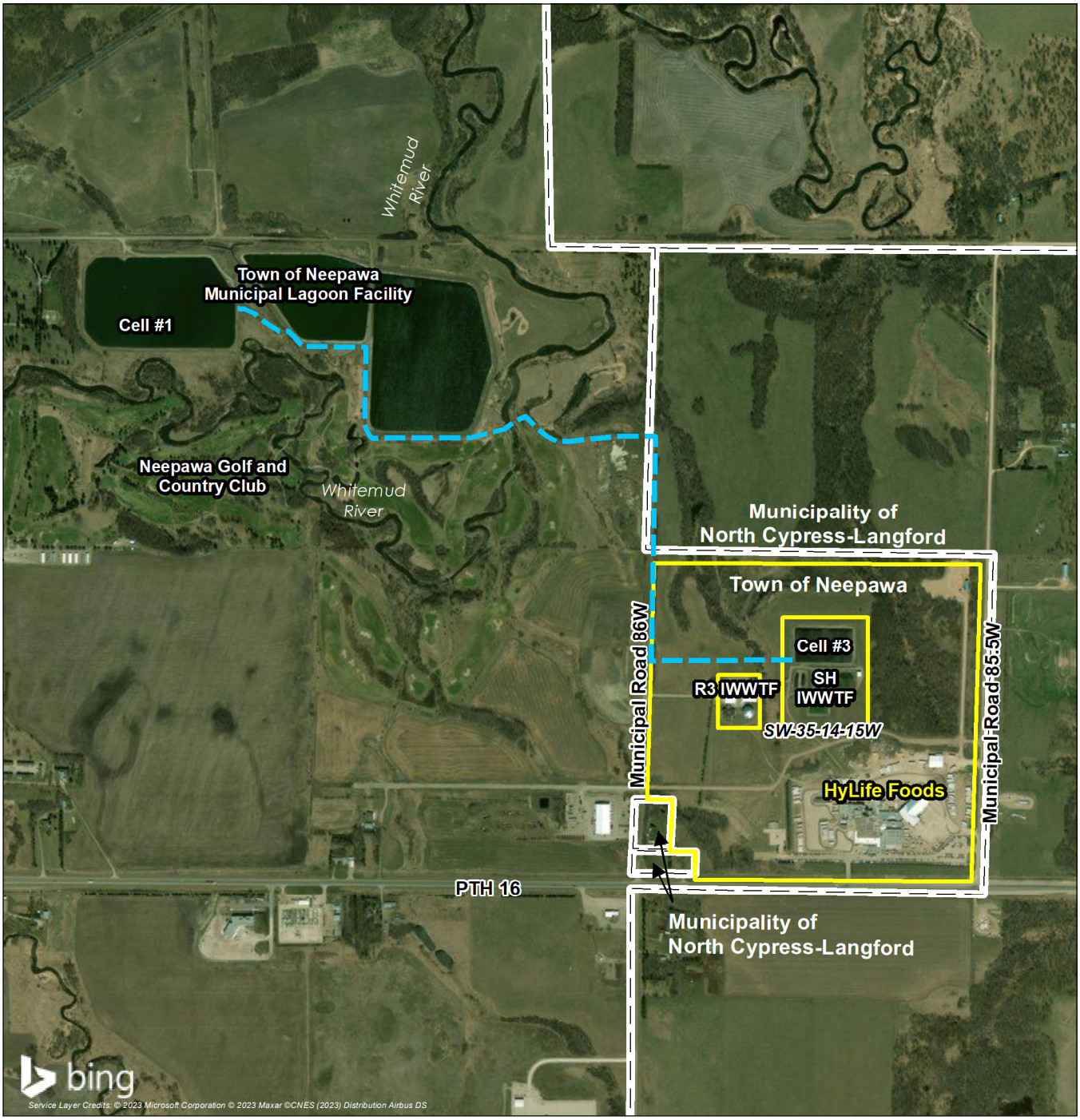
Charles Liu, P.Eng.

Lagoon in question

Berms in good shape

A Borehole drilled---clayey materials

G:_GIS_Project_Folder\111440368_HyfleFoods\ArcMaps\Figure1-2_TransferHoseRoute_R3_WW_Transfer_NOA_20230412.mxd Revised: 2023-04-12 By: ACampigotto



Legend

- Rural Municipality
- Planned Transfer Hose Route

0 200 400 Metres

(At original document size of 8.5x11)
1:15,000

N

Stantec

Project Location
Town of Neepawa,
Manitoba

Prepared by ACampigotto on 2023-04-12
Reviewed by BKrawchuk on 2023-04-12

Client/Project 111440368
R3 Innovations Inc./Town of Neepawa
Wastewater Transfer
Notice of Alteration

Figure No.
1

Title
Planned Transfer Hose Route

Notes
1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base Data Sources: Government of Manitoba.
3. Aerial imagery Source: Microsoft product screenshot reprinted with permission from Microsoft Corporation.