



## Township of Georgian Bluffs & Township of Chatsworth Special Joint Council Agenda

January 13, 2025, 5:00 p.m.

Council Chambers  
177964 Grey Road 18, R.R#3,  
Owen Sound, ON N4K 5N5

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This document can be made available in other accessible formats or with communications supports as soon as practicable and upon request.

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Pages

**1. Call to Order**

**2. Land Acknowledgement Statement**

In the spirit of reconciliation, we acknowledge with respect, the history, spirituality, and culture of the Anishinaabek: The People of the Three Fires known as Ojibway, Odawa, and Pottawatomi Nation, who have inhabited this land from time immemorial. And further give thanks to the Chippewas of Saugeen, and the Chippewas of Nawash, now known as the Saugeen Ojibway Nation, as the traditional keepers of this land. We also recognize, the Metis and Inuit whose ancestors shared this land and these waters. May we all, as Treaty People, live with respect on this land, and live-in peace and friendship with all its diverse peoples.

**3. Approval of Agenda/Additions to the Agenda**

**Recommendation:**

That the agenda be approved as presented.

**4. Staff Reports**

4.1 CAO2025-01 - Full Decommissioning of Biodigester and Site Rehabilitation

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**Recommendation:**

That staff be directed to engage OCWA on a sole source basis for preparing a Biodigester Full Decommissioning and Site Rehabilitation Plan, and,

That the Joint Councils recommend to the BioGRID Board that \$50,000 be allocated from the Future Capital Reserve held by each municipality to the 2025 budget for the completion by OCWA and their sub-consultants of a Biodigester Full Decommissioning and Site Rehabilitation Plan that considers options for both full and partial decommissioning and site rehabilitation, and,

That through the development of a Biodigester Full Decommissioning and Site Rehabilitation Plan, a detailed review of the existing licenses and regulatory approvals on the property is completed to inform if there is potential alternative uses for the property under said licenses, and,

That staff be directed to explore through the decommissioning plan, potential alternative uses for the site and assets associated with the Biodigester and under the existing approved and Licensed uses and,

That staff be directed to bring before the Joint Council prior to Budget 2026 processes, a recommended approach to decommissioning.

5. **Confirming By-law**

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**Recommendation:**

That By-law No. 2025-01, being a by-law to confirm the proceedings of the Special Council on January 13, 2025, be read a first, second and third time, finally passed, signed by the Mayor and Clerk, sealed with the Seal of the Corporation and engrossed in the By-law Book.

6. **Date of Next Regular Meeting/Adjournment**

To be determined.

**Date:** Monday, January 13, 2025

**From:** Niall Lobley, CAO, Patty Sinnamon, CAO

**Subject: Full Decommissioning of Biodigester and Site Rehabilitation**

**Report** CAO2025-01

This document and its attachments are public and available in an accessible format upon request.

## **Recommendation**

That staff be directed to engage OCWA on a sole source basis for preparing a Biodigester Full Decommissioning and Site Rehabilitation Plan, and,

That the Joint Councils recommend to the BioGRID Board that \$50,000 be allocated from the Future Capital Reserve held by each municipality to the 2025 budget for the completion by OCWA and their sub-consultants of a Biodigester Full Decommissioning and Site Rehabilitation Plan that considers options for both full and partial decommissioning and site rehabilitation, and,

That through the development of a Biodigester Full Decommissioning and Site Rehabilitation Plan, a detailed review of the existing licenses and regulatory approvals on the property is completed to inform if there is potential alternative uses for the property under said licenses, and,

That staff be directed to explore through the decommissioning plan, potential alternative uses for the site and assets associated with the Biodigester and under the existing approved and Licensed uses and,

That staff be directed to bring before the Joint Council prior to Budget 2026 processes, a recommended approach to decommissioning.

## **Background**

The Townships of Georgian Bluffs and Chatsworth jointly own a 45-acre property and assets on that property, at 062111 Sideroad 3 in the former Township of Derby, between Concessions 5 and 7. The property consists of a number of wastewater lagoons and associated infrastructure such as spray fields, for receiving and treating wastewater which date from 1975. In 2011, the Townships developed a small

biodigester on site to generate natural gas and supply electricity to the grid under a feed in tariff system.

The site is currently managed as it has been for several years, by the Ontario Clean Water Agency (OCWA) under contract to the Townships. The Biodigester has experienced challenges throughout its operational life to date and has not generated the revenue for the Townships as was originally anticipated. Further, omissions to the original design and construction have had operational impacts, and equipment failures have been challenging to overcome.

In Summer, 2021, in advance of undertaking capital reinvestment in repairs, Township staff received a proposal for Decommissioning and Recommissioning of the Biodigester after the failure of part of the Biodigester. The intent of the plan was to understand a short-term suspension of operations with an expectation of resuming operations.

In late 2021, it was decided to ‘winterize’ the biodigester, ceasing operations on a temporary basis. Using the decommissioning plan as a guide, steps were undertaken to place the biodigester into a temporary state to cease operations while the Townships decided on the Biodigesters eventual fate. It should be noted that the winterization was not a full decommissioning and only partially addressed the decommissioning steps outlined in the Decommissioning and Recommissioning report. Further, it was intended to place the biodigester into a short-term suspension of operations so that it could be brought back online.

The Biodigester has remained inactive since late 2021.

In May 2023, the Joint Councils of Georgian Bluffs and Chatsworth met to review a proposal for a private operator to assume the operations of the shared Biodigester. After a competitive RFP process, only one submission of interest was received. The Joint Councils elected not to move forward with this proposal given the scale of operation the proponent was proposing, the volume of material that would be brought onto site and the fact that a significant proportion of the materials being processed would be being transported inter-regionally to the site.

Subsequent to that meeting, staff followed up with potential partners that had expressed interest, but not submitted proposals to seek to better understand any opportunity that might exist for a private operator to assume the operations. Through these discussions it was clear that the operation of the existing biodigester is not attractive to operators. In essence, the existing facility contains dated technology and is unable to process sufficient materials reliably to make operations commercially viable. In order that the biodigester be a commercially viable venture, significant infrastructure and expansion is required as well as a concerted effort to source both a quantity and nature of feedstock to support commercial operation.

In summer 2024, staff met with and attended the site with staff from OCWA to discuss potential next steps in respect to the Biodigester, in order to seek understanding of the needs for further decommissioning.

## **Analysis**

Staff have been asked by the Joint Councils and Biodigester Board to investigate and report on next steps for the Biodigester. It is recommended that in the absence of a commercially viable solution for the existing facility, work should be commenced on exploring what is required for a decommissioning of the Biodigester.

Alternatively, staff could be directed to explore what would be required from a capital and operating perspective to bring the Biodigester back to operational capabilities; it has become apparent that without significant investment and expansion, the operations of a Biodigester on site is not commercially viable. Based on past discussions of the Joint Councils, staff provide some discussion on decommissioning, rather than re-initiating, within this report.

The Biodigester operation consists of several assets (or liabilities):

- There are several above ground large storage tanks
- There is a building which contains mechanical equipment, control equipment and smaller tanks and pumps
- There are a number of underground storage tanks and a network of piping between tanks

These assets are currently in a winterized state. In this state, they still contain materials, including septage waste. Several of the tanks are open to the elements and have received water through precipitation.

Staff anticipate, based on discussions, that decommissioning of the site can be phased and scoped over a number of years (two or three), or, completed within a shorter period of one year.

### **Option 1: Full Decommissioning and Site Rehabilitation**

A full decommissioning of the site would see the property returned to a condition similar to before the biodigester was established. This would be the removal of all septage materials, their treatment and disposal, the removal of all assets including underground piping and tanks, the removal of the control building and all equipment within it and the removal of the above ground storage tanks. Full decommissioning would manage the current and future risks and liabilities of the site fully and would leave the property dedicated to the management of the lagoons. There would be no further future

operating costs associated with the Biodigester (the lagoons would remain operational) to either municipality.

While OCWA has not sought to obtain a detailed decommissioning plan, it is anticipated that a full decommissioning and rehabilitation of the site would likely be in the order of \$2 - \$2.5M. It is noted that this is a high-level estimate and would include offsets through the sale of any assets retaining value on site. This indicative number is subject to significant additional refinement through the development of a site decommissioning proposal.

### **Option 2: Partial Decommissioning**

In discussion with OCWA there is potential to consider a partial decommissioning. This would seek to remove the more significant liabilities on the property such as the remaining septage and septic materials, seek to dispose of assets with financial value and address areas of risk and liability concern such as underground tanks.

Assets determined to be a lower risk would be left on site. This could include underground pipes, large above ground tanks and the building.

A partial decommissioning would significantly reduce liabilities on the site, especially environmental. It would address risks and would reduce year on year operating costs. However, the assets that remain on site would need to be maintained to ensure they did not become hazardous; for example, work would be required to maintain the building to prevent or manage deterioration to the point of collapse. Some assets, such as the above ground tanks, hold some risk in so far as anyone trespassing on the property could become trapped within these.

It is anticipated that there would be residual and long-term operating costs associated with the Biodigester to maintain any assets that were not removed from the site. The extent of these costs is dependent on the assets that are retained.

### **Option 3: No further decommissioning**

The site could be left as it currently is. Septage materials are currently located in above ground tanks, in below ground tanks and in tanks within the building. These materials would remain in place. This approach would accept the existing liabilities and risks and address this on a reactionary basis as needed. Continual management and maintenance of the site would be required to help manage and reduce these risks and liabilities. Over time, staff anticipate that increasing capital costs would be incurred to repair or remove assets as they age.

It is anticipated that there will be a long term need for continued operational costs associated with the site and as the assets age and deteriorate, that these costs will likely increase.

Staff note that Option 3 should be considered while noting that this will likely not be ultimately recommended by staff. The existing status of the biodigester will create future liabilities if left as tanks will, if left, fail, risking environmental spills. While this is not an imminent risk, it will increase over time without intervention. As such, it is unlikely that a 'do nothing' approach will ultimately be recommended.

### **Operating Costs**

The draft 2025 budget indicates that the Biodigester costs approximately \$66,000 annually to maintain. These costs are largely the service contract with OCWA, heating and electrical costs and repairs that are required. These costs are likely to increase over time as the facility ages, deteriorates and requires additional management.

There is no offsetting revenue generated by the biodigester at this time and so this is a net cost shared by the municipalities.

The costs for operating the lagoons are approximately \$150,000 annually in contract costs to OCWA for operational oversight and hydro.

There is an offsetting revenue of approximately \$100,000 annually generated by septic haulage from the private sector to the site. The residual deficit from operations is absorbed by the municipalities.

Both municipalities have an equal ownership in the site and assets/liabilities on the site. Any revenue offsets the costs of both, and any expenses are equally shared by both.

### **Potential Future Reuse of the Site**

The Request for Proposal process undertaken in 2023 sought to identify potential operators for the existing Biodigester facility. As noted, this was not successful; the only prospective vendor sought to replace the existing biodigester with a larger system and bring in feedstock from a much broader geographic area. The Joint Councils directed staff to not proceed with this proposal.

However, through this process, one vendor expressed some interest in potential alternative uses for the site and in particular, the potential for the use of the above ground tanks for the temporary storage of agricultural waste materials prior to their reuse; manure products collected from one location, prior to being used for fertilizer through land application in another.

It is unclear whether such uses would be aligned with the existing License on the property, what negative and positive impacts would be of such use and what a potential revenue model could look like, but the interest expressed does demonstrate that there could be additional or alternative uses for the site to be explored.

Prior to pursuing these, staff would need to understand the extent and scope of existing licensed uses and explore further as to what potential use of the sites there are, who might be interested in making use of the site, and the impacts, positive and negative, of such uses to the municipalities.

### **Next Steps**

Staff have asked OCWA to provide a cost for completing a decommissioning plan (see attached) which would evaluate the current situation and propose options for full and partial decommission of the Biodigester. OCWA have indicated that a Full Decommissioning and Site Rehabilitation Plan that will consider options for various scopes of decommissioning of the Biodigester can be completed for less than \$50,000.

This proposed plan will build on the Decommissioning and Recommissioning work completed in 2021 with a view to no longer operating the Biodigester and will provide options for partial decommissioning along with a risk and liability assessment and estimated operating cost impacts of varying extents of decommissioning. The plan will also include a phased approach for decommissioning that could be implemented over successive years.

Staff are recommending that \$50,000 be added to the 2025 Biodigester Budget so that a detailed decommissioning plan can be developed to be considered by the Joint Councils before budget, 2026 discussions commence. Staff recommend that given OCWAs extensive knowledge of the past operations and winterization of the site, that OCWA be asked to complete this work and the that Joint Councils waive the requirement for competitive tender or RFP in respect to developing the Decommissioning and Site Rehabilitation plan.

### **Financial Impact**

It is anticipated that the Plan can be developed in 2025 at a cost of no more than \$50,000. The BioGRID Board holds a Future Capital Reserve in the amount of approximately \$476,000 (these fund are held by each Township to the amount of approximately \$238,000). It is recommended that these funds be allocated from that reserve in 2025.

Longer term, if decommissioning is to be explored, staff expect costs to be within the order of \$2M to \$2.5M to be potentially incurred in between 2026 and 2028, or over a shorter period.



The impact to each municipality, assuming the upper end costs, would be \$1.25M over 1 – 3 years.

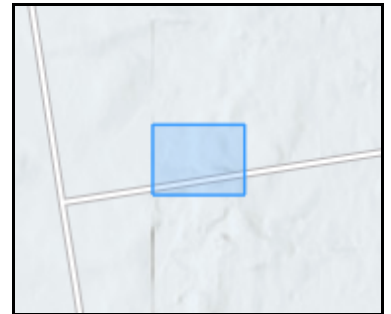
## **Strategic Priorities**

Enhancing Environment and Infrastructure: Managing Water and Wastewater






## **Conclusion**

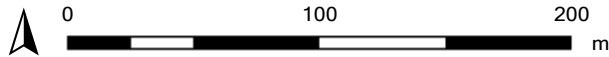
The Biodigester located in the former Township of Derby and owned and operated jointly by the Townships of Georgian Bluffs and Chatsworth has not been operated since 2021 after being winterized. An RFP process to identify a potential private operator of the facility was complete in 2023 without success. The biodigester has been challenging to run and has not generated the return through energy production and waste management that was initially anticipated. Staff are seeking Councils direction to undertake a comprehensive decommissioning and site rehabilitation plan to inform future financial needs, challenges, and opportunities over coming years.

Respectfully Submitted: Niall Loble, CAO, Georgian Bluffs.



**Legend**

- Georgian Bluffs Assets
- Road Surfaces
    -  Gravel
  - Storm Sewer
    -  Main Sewer
    -  Main Sewer
    -  Service Lead
  - Assessment Parcel
    - 



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**Notes**

Print Date: 11/22/2024 08:41:16



# Technical Memorandum

June 14, 2021

<b>To</b>	Patty Sinnamon, Township of Chatsworth	<b>Tel</b>	519 794-3232 x 124
<b>Copy to</b>	Étienne Bordeleau	<b>Email</b>	psinnamon@chatsworth.ca
<b>From</b>	Ben Samuel	<b>Ref. No.</b>	11223233
<b>Subject</b>	<b>BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1</b>		

## 1. Introduction

GHD Limited (GHD) has been retained by the Township of Chatsworth, in collaboration with Ontario Clean Water Agency (OCWA), to provide an evaluation of decommissioning, recommissioning, and costs pertaining to the potential mothballing of the BioGRID system located at the Derby Wastewater Treatment Works (WWTW or Site).

### 1.1 Purpose

The purpose of this memorandum is to discuss the plan for decommissioning and recommissioning of the BioGRID system should it be mothballed, for an evaluation/mothballing period of five years.

### 1.2 Site and evaluation context

The BioGRID system (Bio Green Renewable Industrial Digester) is owned and managed by the BioGRID Joint Board of Management (Joint Board) comprising the Township of Georgian Bluffs (Georgian Bluffs) and the Township of Chatsworth (Chatsworth). Collectively, Georgian Bluffs and Chatsworth are referred to herein as “Townships”. The Site is approved under Ontario Ministry of Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) No. 2206-8KSQZV, issued on August 23, 2011.

The WWTW sewage lagoons were implemented in 1975 and the BioGRID system was implemented in 2011. The sewage lagoons receive liquid sewage directly from the input to the WWTW Dumping Station #1 and are interconnected with the BioGRID system via a drum screen (i.e., the screened liquid portion of materials input to the BioGRID system process are conveyed to the sewage lagoons). The BioGRID system has faced operational and financial challenges related to securing organic waste feedstocks, approaches for setting organic waste feedstock tipping fees, capacity, and bottlenecks of the existing anaerobic digestion (AD) process, material receiving station and other associated infrastructure, renewable energy generation, as well as process/operations of the sewage lagoons. With the challenges faced and previously evaluated at the facility, this evaluation looks to the requirements around BioGRID system mothballing and separated sewage lagoons operations.

This evaluation is understood as supplementing a concurrent study (GHD, 2021) that looks to confirm the feasibility and costs of operating the BioGRID system going forward (e.g., whether as baseline/do-nothing

scenario or as modified scenarios via changes to organic waste feedstocks and infrastructure). Accordingly, this means:

- This evaluation is intended to provide information needed to cease the current BioGRID system operation and continue a standalone treatment process provided via the sewage lagoons system.
- The work of the concurrent study is alternatively reviewing potentially feasible options for the enhanced operation of the BioGRID system and is intended to provide information needed to proceed with operations in a preferred manner.

These two current projects are intended to assist the Townships in making informed decisions on the continued, mothballed, and/or standalone operations of the BioGRID system and sewage lagoons system.

## 1.3 Organization

This memorandum is organized in the following sections:

- **Section 1 Introduction** | Provides the evaluation purpose, context with decision-making intent, and organization of this memorandum.
- **Section 2 Site infrastructure and systems** | Discusses the Site infrastructure and systems identified as requiring specific attention to mothball the BioGRID system.
- **Section 3 Probable costs** | Defines the estimated probable costs to mothball the BioGRID system and undertake annual maintenance of the decommissioned infrastructure.
- **Section 4 Referenced information** | Lists the key relevant documentation reviewed/referenced for the development of this memorandum.
- **Section 5 Attachments** | Lists the enclosed documentation.

## 2. Site infrastructure and systems

Site infrastructure and systems have been identified as requiring specific attention/action for longer-term storage as part of potential mothballing of the BioGRID system. For purpose of this memo, these have been categorized within the following sub-systems:

1. Septage Receiving System
2. Drum Separator System (including Polymer System)
3. Fats, Oils, and Grease (FOG) System (including Pasteurizer and Hydrolyzer)
4. Digester and Digestate Storage
5. Air Pump, Compressor, and Odour Control System
6. Biogas Genset (including Cooling Bed and Monitoring Well)
7. Biogas Genset Electrical (Connections to Grid)
8. Building Cold Water Supply
9. Building and Site (Building, Fencing, Access).

The grouping of the sub-systems has been outlined as a marked-up overlay for the Genivar record drawing “Process Flow and Instrumentation Diagram for the Septage Biogas Project”, dated 06/05/2011, included as Attachment 1. General instructions and specific recommendations are provided herein for the systems/components.

The tasks, instructions, and costs for decommissioning, maintenance, and recommissioning are separate and additional to each other for mothballing the BioGRID system.



## 2.1 Preparation by operations

Preparation by operations staff is recommended prior to initiating a separate general contract for decommissioning and cleaning. By undertaking the following tasks, the Townships will reduce outside costs and ensure compliance with the existing regulatory requirements.

The intent of the preparation is to reduce the amount of material within the tanks and systems so that the general contractor is only required to clean up and dispose of the minimum amount.

The steps recommended for preparation of the Dewatering system by Operations staff are as follows:

1. Run down the stocks of polymer in the mixing tank to the lowest levels.
2. Cease operations receiving septage to be dewatered by the system.
3. Polymer feed system can be disconnected from polymer bottle and connected to clean water. Run clean water through the system as polymer to flush the lines into the Polymer mixing tank and avoid polymer set up.
4. If desired, undertake the caustic flushing and blow out of the lines as described in the supporting tables.
5. A polymer mixing tank can be drained and the dilute contents transferred to the treatment lagoons.
6. Run backwash cycle for the Drum separator and flush any additional points until no visible material is present on the screen.

The steps recommended for preparation of the BioGRID feed system by Operations staff are as follows:

1. Cease receiving FOG material, and pump FOG storage tank manually (over-riding normal low setpoint) to lowest level permitted by pump operation, transferring contents to the pasteurizer.
2. Allow the pasteurizer to operate normally. Once the pasteurization cycle is complete (1 hour) and the material is pasteurized, drain, or pump the full contents of the pasteurizer to the Hydrolyzer tank.
3. The contents of the hydrolyzer tank should then be pumped through to the digester, running the pump manually (over-riding the normal low-level setpoint) to the lowest level permitted by pump operation.
4. If possible (and for further cost savings), the existing FOG Storage, Pasteurizer, and Hydrolyzer tanks could be pressure washed by Operations staff and the washing material diverted to the septage receiving station or the digester.

Once the systems feeding the BioGRID digester cease operations (Dewatering and BioGRID feed systems as described above), the material within the digester be processed until it meets the requirements for Digestate (25-50 days). At this stage, the following steps are recommended to be taken by Operations:

1. Process the liquid digestate in the digestate storage tanks as normal for land application under existing approvals.
2. Lower digester temperatures below 25 degrees Celsius (intent includes lowering biogas production to a level that cannot support combustion).
  - a. Continue to operate the mixer until temperature reaches below 25 degrees Celsius).
3. Open drain valve from BioGRID digester to drain liquid contents (now digestate) into the monitoring well chamber and pump from the chamber into digestate storage tanks, or directly into truck for normal Land Application under existing approvals.
  - a. If the drain valve is not free draining, the drain line should be snaked from the drain valve end in an attempt to clear.
  - b. If standard snaking does not clear the blockage, connection of a temporary pump to the drain valve, to flush water back through the pipe and up into the digester may clear the pipe and restore flow.
4. Transfer as much of the liquid contents of the digester as possible to the digestate storage tank or directly to tanks for off-site hauling and land application under current approval.

## 2.2 General decommissioning tasks

This section provides the identified decommissioning tasks for the BioGRID system.

### 2.2.1 Process liquid piping

All liquid process piping (and plumbing, refer to Section 2.2.2) should be mothballed as follows, unless otherwise indicated:

1. Flushed for solids.
2. Drained.
3. Blown out with compressed air.

GHD understands that the water supply is limited on-site. As such, flushing water may be settled/filtered and re-used to flush process lines clear of solids. Any chemically treated flushing should be monitored if being re-used to ensure levels of chemical remain suitable for the flushing and equipment.

### 2.2.2 Plumbing

Plumbing items such as the pressure tank, water heater, and hose bibs should be mothballed as follows:

1. Drained
2. Powered off (e.g., in the case of the water heater and UV system)
3. Cartridge filter housings should be drained and left open and dry.

### 2.2.3 Pumps

Pumps should be mothballed as follows, unless otherwise noted:

1. Drained.
2. Shaft is rotated.
3. Sprayed interior of the pump volute with an oil mist of suitable product (e.g., BioCorr Rust Preventative):
  - a. The spraying of the interior of the pump volute would include removal of inspection covers to confirm coverage, and re-installing inspection covers. Any oil-lubricated cavities (e.g., seals) should be fully flooded to prevent moisture intrusion.
4. Suction and discharge ports:
  - a. Capped suction and discharge ports (i.e., where the pump has been removed from piping); or
  - b. Closed suction and discharge ports (i.e., where the pump has been left in place and not removed from piping).

### 2.2.4 VFDs and motor starters

For decommissioning, VFDs and motor starters can be powered down at the MCC level or main disconnect level to avoid any parasitic energy use over the mothballed period.

### 2.2.5 Valves

Generally, valves can be left in place and will be cleaned as the piping is flushed. Valves should be exercised periodically during mothballing to prevent seizing.

### 2.2.6 Instruments

Instruments such as magnetic flow meters should be mothballed as follows:

1. Powered down for duration.

They may be left in place if the piping can be confirmed to have been flushed clean and blown dry, though it is recommended that these be removed and capped at the ends (similar to the procedure outlined for pumps, refer to Section 2.2.3 Pumps).

Inline instruments such as temperature probes and ultrasonic level sensors should be mothballed as follows:

1. Drained
2. Flushed

They may be left in place, with the exception of the pH meter as noted in the supporting tables, which will require replacement.

## 2.2.7 Building and security

Power should be maintained to the building and control panels to provide some heat to the building (to a nominal temperature of five (5) degrees Celsius for freeze protection), and operation of control panel internal heaters to prevent condensation within the panels.

Site fencing, doors, and gates should be checked and locked.

## 2.2.8 Equipment specific instructions

Refer to a break-out of the major sub-components and equipment that are included decommissioning (and recommissioning) in Table 2.1 (attached).

## 2.2.9 BioGRID digester (and digestate storage tank)

The general steps for the BioGRID digester system shutdown are included below, though the detailed procedure is required to be reviewed and implemented prior to issuing a contract for cleaning and shut down:

1. Close isolation valve of the digester biogas to cooling field.
2. Ventilate freeboard space until 10 air exchanges have occurred.
  - a. Use a grounded, non-sparking air mover. Monitor air exiting the air mover to verify whether the freeboard space has been sufficiently ventilated. Monitoring should include the following parameters: methane, hydrogen sulphide, and carbon monoxide.
3. Purge biogas piping with nitrogen
4. The membrane roof will need to be opened and partially removed to permit safe entry and removal of material. The membrane removal procedure is outlined in detail in the operations manual, but the steps generally are as follows:
  - a. Relieve pressure in the membrane securement system.
  - b. Shut off compressor.
  - c. Bleed out excess air from the securement hose.
  - d. At this point, the membrane will relax and can be folded back.
5. Once the digester has been purged of biogas, empty any remaining liquid contents.
  - a. Drain liquid contents via drain line to the monitoring well.
  - b. Solids can be re-fluidized by the addition of water to facilitate removal via a vacuum truck. The disposal of solids is discussed below given the general requirements and potential costs.

Once empty, the digester and digestate tanks become more susceptible to ice or frost formation under the base slab. Since the method of construction below the slab (e.g., drainage and insulation), is unknown, GHD

recommends that some method of insulation be utilized to prevent frost formation and reduce potential for frost heave and subsequent damage.

One method of insulating is to fill the tank partially (to depth of 1.5-2.0 m with clean water. The water provides insulative protection for the base slab. Measures also would have to be taken to try to avoid damage from ice formation within the tank. Some methods put into practice may be to provide recirculation (either by submerged tank mixer or by separate circulation pump), or to put in material that would be “crushed” during ice formation, to take the lateral strain that is generated as ice forms – this often takes the form of either wood logs or barrels. Regular inspection should be made during the winter months particularly to gauge the ice formation and any potential for damage. As an alternative to water, insulation could be placed in the form of board insulation, batt insulation, straw, or sand. Each of these would be more costly and difficult to replace though would reduce the potential for ice damage.

## 2.3 General recommissioning tasks

This section provides the identified recommissioning tasks for the BioGRID system.

For all of the equipment and infrastructure noted below, a visual inspection is recommended prior to the specific recommissioning tasks. The visual inspection should be undertaken to look for signs of corrosion, deterioration, cracks/spalling, coating delamination, or other potential modes of failure.

### 2.3.1 Process liquid piping

Where possible, leak testing should be completed for process liquid piping. For gravity lines, leak testing of the infrastructure can be as simple as filling with clean water and then observing liquid level for change over a period of 24 to 48 hours, along with visual inspection (where possible) for leaks.

For pressurized piping, GHD recommends a pressure test prior to bringing the lines back into service. Services/piping sections recommended for pressure test include:

- Main Process line from pumps at the Drum Separator discharge, up to both the hydrolyzer discharge and digester isolation valves.
- Line from hydrolyzer pump to digester isolation valve.
- Line from FOG pump (submersible, inside FOG tank) to Pasteurizer
- Chemical Dosing Lines
- Gas system lines from Digester to Biogas Genset (including cooling bed)

The liquid process lines are recommended to be tested with hydraulic test at pressure 1.5 times the pump dead-head pressure. The gas lines operate under vacuum, but a pressure test in accordance with current TSSA guidelines, or minimum 15 psig, would be recommended as well.

### 2.3.2 Plumbing

On re-start, the plumbing system should be checked for leaks, and the following actions are recommended:

1. Visually inspected for evidence of corrosion or degradation
2. Flushing and super-chlorination of water lines
3. Vents and drain valves closed
4. New Cartridge filters reinstalled
5. New UV lamp (bulb) installed
6. Pressure tank bladder pressure checked
7. Power up system and observe for leakage and confirm pressure and operation of well pump.



### 2.3.3 Pumps

Prior to re-start, the pumps should have the following actions undertaken:

1. Inspected visually for corrosion or degradation.
2. Oil and seal lubrication checked for quality and quantity.
3. Rotated by hand to confirm no seizing has occurred prior to bump test using power once confirmation is made.

On re-start the pump flow rate and operation under normal operating conditions (ideally with clean water testing) should be completed.

### 2.3.4 VFD's and motor starters

Procedure for re-start of VFDs is manufacturer-specific and should be followed in all cases, given that most VFDs and some motor starters have procedures specific to the manufacturer for re-start after storage for more than 12 months. For example, Eaton VFD drives require capacitors to be reformed before full voltage is applied after storage for more than 12 months.

It is recommended that re-start of VFD's be preceded by checkout by a technician certified by the manufacturer of the equipment in place.

### 2.3.5 Valves

Other than checking open/closed position is correct for the desired operation, there are no specific requirements for restart for process valves.

Valve leakage and seating will be checked as part of pressure testing of process lines, and the maintenance program in place over the shut down period should reduce the potential for full valve seizing or failure to operate.

### 2.3.6 Instruments

On restart, instruments generally should be checked and recalibrated.

The pH meter specifically will require a new probe attachment, as they are not designed for long-term shelf storage once in use.

### 2.3.7 Building and security

No recommissioning tasks are anticipated for the Building or building security, aside from any upkeep noted during the maintenance/inspections over the shut-down period.

### 2.3.8 Equipment specific instructions

Refer to a break-out of the major sub-components and equipment that are included recommissioning (and decommissioning) in Table 2.1 (attached).

### 2.3.9 BioGRID digester

A structural integrity inspection is recommended immediately prior to recommissioning, followed by a clean-water (potential to use lagoon effluent as available) fill and leak test.

Restart of the system should follow the procedure for start-up as outlined in the Operations and Maintenance manual prepared by CH4BioGas and will include a pressure test of the membrane and membrane seal, which typically will need to be witnessed or documented for TSSA.

### 2.3.10 Biogas handling and utilization unit

Restart of the system should follow the procedure for Startup as outlined in the Operations and Maintenance manual prepared by CH4BioGas.

Note that gas handling pipe and pressure systems will require witnessed pressure testing in accordance with CSA requirements by licensed technicians to satisfy TSSA requirements.

### 2.3.11 Odour control system

Restart of the system will require turning on power and checking the media state. Note that media may require replacement after extended storage.

## 3. Probable costs

### 3.1 Decommissioning tasks

GHD has prepared an estimate of probable costs for the initial work to clean and shutter the facility, with details provided in Table 3.1 (attached).

Several assumptions have been made with respect to quantities of material and disposal costs that would need to be confirmed by operations, or by general contractor for some items where confirmation is not possible while the facility is online. The chief assumption that creates the highest degree of price uncertainty is the assumption for the quantity and quality of the settled solids at the base of the digester tank. GHD has assumed that 1 m of solids will not drain out and be available for land application under existing approvals. This quantity is highly dependent on the quality of incoming feed, operation of digester, effectiveness of digester mixing, and time elapsed since the last cleanout. The removal and disposal of this material constitutes nearly half of the decommissioning costs, so the discovery of the real field conditions will have a high degree of influence on the costs to the Townships.

The disposal of the majority of the tank contents will be via land application under existing approvals for the digestate, and distribution back to the lagoon treatment system for the small amounts of wash water generated during cleaning.

### 3.2 Recommissioning tasks

Prior to recommissioning, Table 2.1 (attached) highlights specific items as broken out by component or system.

Several administrative or inspection tasks are highlighted below as key items for consideration as general tasks and/or risks.

The overall opinion of probable cost for recommissioning of the facility is detailed in Table 3.2 (attached) and summarized in the table below with further discussion.

### Summary of probable recommissioning cost

Component	Probable Cost
Equipment (rounded probable cost)	\$ 80,000
Permitting: ECA	\$ 5,000
Permitting: TSSA	\$ 15,000
Tank Structural Inspection	\$ 20,000
Pre-Start Equipment Inspection	\$ 20,000
Total	\$ 140,000

In addition to the above known costs, GHD recommends that the inspections be performed ideally in the fiscal year immediately prior to the re-start plans, so that the cost of any required replacement or refurbishment can be updated and considered for subsequent budget/planning.

At a conceptual, 5% of the overall value of the installed equipment (1% equivalent maintenance per year of shut down) would amount to approximately \$250,000, and at this stage of assessment would be reasonable to plan for future allotment.

### 3.2.1 Pre-start inspections: Equipment

While the provisions for decommissioning are anticipated to prepare the equipment and infrastructure for long term storage, in any situation when equipment is placed into and then re-started from storage there is a reasonable assumption some parts of the equipment or infrastructure will require refurbishment or repair.

Planning for Pre-Start equipment inspection is recommended to provide updated information on condition of equipment immediately prior to re-start. The goal of this inspection would be to plan for replacement of any obviously deteriorated equipment and update the anticipated cost for re-start to include any specific repair or refurbishment.

### 3.2.2 Pre-start inspections: Structural

A structural inspection prior to re-start is a requirement from TSSA for the digester tank.

It is recommended that a pre-start inspection also be completed by a structural Engineer licensed in the Province of Ontario for the other large outdoor tanks and at least visual inspection of in-ground structures.

The goal of this inspection is to satisfy TSSA requirements as well as to highlight any areas in need of repair, refurbishment, or recoating prior to re-start, and to provided updated information about cost and timing for any required repairs.

### 3.2.3 Permitting: MECP ECA

While the MECP ECA process does not specifically outline the requirements for a temporary facility shutdown, the MECP is typically most concerned about discharge compliance. Since the facility will be shut down there will be no discharge, so the requirements from MECP are not anticipated to be arduous. The anticipated regulatory approach for the ECA would include an administrative letter advising MECP of the temporary shut-down of the facility (no discharge or emissions during the shut-down period), with intent to restart. On re-start, a similar letter indicating the plan for re-start and re-commissioning of the facility would be required.

Preparation of anticipated letters and submission to MECP would be assumed to have nominal costs of ~\$5k.

### 3.2.4 Permitting: TSSA

For TSSA, there is a more formalized procedure for inspection prior to start-up or in this case re-start of the system.

On re-start, a witnessed pressure test of each gas holding, or utilization system will be required as dictated by CSA codes. The testing will be completed by licensed technicians, and TSSA personnel will require inspection access at key points (after any structural repairs, but before any coatings), and during the water tightness test and then gas-tightness test. Pressure testing under current regulations is typically over a 24-hour period.

Costs for TSSA coordinating, permit applications, and inspections are on an hourly rate basis, but recent project experience had indicated a cost range for TSSA works from \$10 k-\$20 k dependent on the local requirements and the local inspector knowledge of the existing system (if any).

### 3.2.5 Permitting: Risks

For any regulatory agency, there is a risk that the policies, regulations, or enforcement approach and philosophy may change between shut-down and re-start.

Historically the pace of regulatory change is relatively slow, but over the time period for shut down being discussed (up to 5 years) it is likely that there will be updates to applicable codes, and adoptions by regulatory agencies (TSSA) of new or revised standards.

The shut-down and re-start of the facility may also result in a closer examination of the facility by regulatory agencies that could result in requirements for changes or updates to the facility to comply with new or revised permits, new or updated applicable codes and standards, or new or updated compliance requirements.

It is not possible to predict financial or technical implications of future updates to codes and standards at this time.

## 3.3 Annual maintenance tasks

In general, most of the annual maintenance tasks and related costs are routine visual checks by operations staff for signs of leakage, corrosion, or degradation. GHD recommends the following annual maintenance tasks:

- Once monthly walkthrough
  - Includes exercising valves and running the hot water system circulation pump.
- Bi-monthly walkthrough
  - Includes a somewhat more comprehensive checklist as compared with the once-monthly event.
- Semi-annual walkthrough
  - Includes a more comprehensive checklist as compared with the once-monthly event, comprising opening vaults, manholes, and tanks for detailed visual inspection.
- Annual walkthrough
  - Includes inspection and maintenance (e.g., rotating shafts) of the CHP system and the Boiler by a licensed technician.

The base cost for the once monthly and semi-annual walk-throughs is anticipated to be less than twelve person-days per year by personnel familiar with operating water or wastewater facilities. The additional cost for the annual walkthrough is anticipated at \$5,000 per year. The recommended inspections for the subcomponents at the facility are provided in Table 3.3 (attached).

## 4. Referenced information

The key relevant documentation reviewed/referenced for the development of this memorandum is listed below in Table 4.1.

Table 4.1 Referenced information

No.	Document title
1.	Bioenergy Consumption
2.	OpManual_2018
3.	Property map with circle
4.	Drawing 03 012 11 G5RD
5.	Drawing 03 012 11 G7RD
6.	Drawing 03 012 11 M1RD
7.	Drawing 03 012 11 S1RD
8.	Drawing 03 012 11 G2RD
9.	Township of Georgian Bluffs Strategic Plan 2020 2024
10.	Basic Treatment Units Flow Diagram
11.	MECP Amended ECA No. 2206 8KSQZV August 23, 2011
12.	OPA Contract Notification
13.	OPA Contract Termination Excerpt
14.	ESA for Genset
15.	TSSA Approval for Boiler
16.	TSSA Inspection Report
17.	O&M Manuals
18.	O&M Manuals

## 5. Attachments

**Attachment 1: Genivar record drawing “Process Flow and Instrumentation Diagram for the Septage Biogas Project” dated 06/05/2011**

**Attachment 2: Supporting tables**

Table 2.1 Specific recommendations – Decommissioning and recommissioning requirements

- Septage Receiving System Components
- Dewatering System Components
- BioGRID Feed System Components
- BioGRID Digester and Digestate Storage Tanks

- Biogas Handling and Utilization Systems
- Odour Control System
- Building Hot and Cold-Water Supply Systems

### Table 3.1 Probable costs – Decommissioning Tasks

- Including same overall components/system as per above.

### Table 3.2 Probable costs – Recommissioning Tasks

- Including same overall components/system as per above.

### Table 3.3 Recommended Inspections and Maintenance

Regards,



**Ben Samuel**  
Senior Project Manager  
CM/mc/TM01

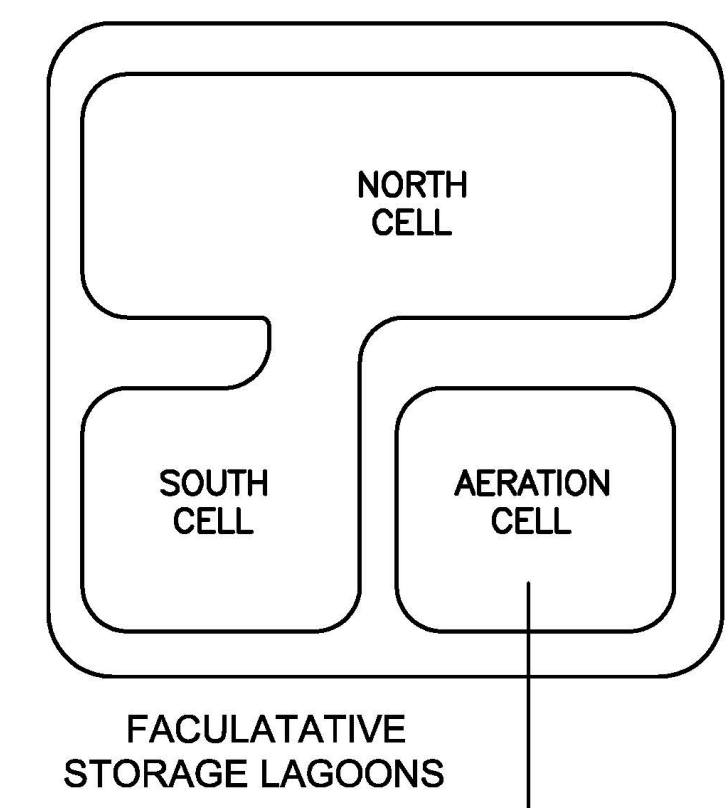
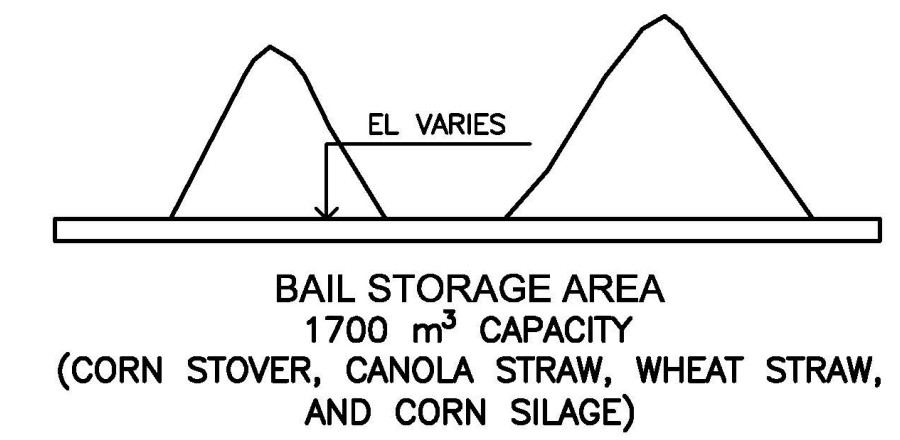
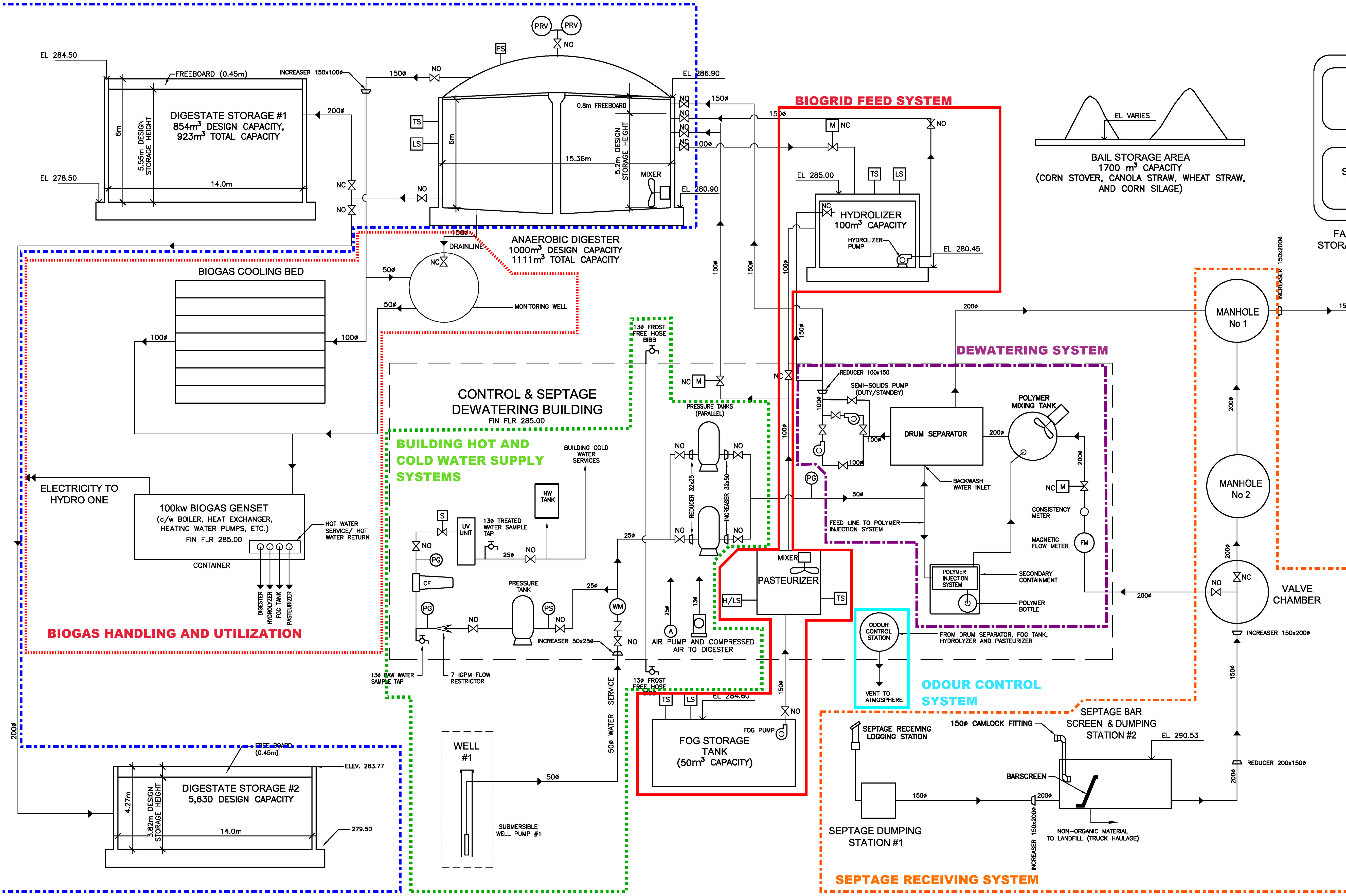
# Attachments

# **Attachment 1**

**Genivar record drawing “Process flow  
and instrumentation diagram for the  
septage biogas project”  
dated 06/05/2011**



**BIOGRID DIGESTER AND DIGESTATE STORAGE TANK**



**LEGEND:**

H/L/S	HIGH/LOW LEVEL SWITCH	NC	ISOLATION VALVE
TS	TEMPERATURE SENSOR	PG	PRESSURE GAUGE
PS	PRESSURE SENSOR	PS	PRESSURE SWITCH
M	AUTOMATIC CONTROL VALVE		
LS	LEVER SWITCH		

**RECORD DRAWING**

06/05/2011	RECORD DRAWING
05/02/2010	POST TENDER - CONSTRUCTION DRAWING
07/10/2009	ISSUE FOR TENDER
DATE	DESCRIPTION
	REVISION / ISSUE

Seal not valid unless signed and dated

**GENIVAR**  
 945 Third Ave E, Suite 212, Owen Sound, ON, N4K 2K8  
 Telephone: (519) 376-7612 / Fax: (519) 376-8008  
 Toll Free: 1-888-376-7612

**PROCESS FLOW AND INSTRUMENTATION DIAGRAM  
SEPTAGE BIOGAS PROJECT**

Client: TOWNSHIP OF GEORGIAN BLUFFS/TOWNSHIP OF CHATSWORTH	
Design: MRS/CSW	Scale: N T S
Drawn: E K	Approved:
Checked: M R S	
Date: DEC 2009	Design Engineer:
DRAWING No. 03-012-11-G2RD	

G:\2003\100\103012\DRM\Record Drawings 2011\03-01-11-G2RD.dwg Jan. 10, 2012 - 3:56pm  
 PLOTTED Tuesday, January 10, 2012 3:56:45 PM

# Attachment 2

## Supporting tables

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

#### Septage Receiving System Components

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
Septage Receiving Logging Station	Septage receiving logging station is an above ground component, operated by electricity. Septage customer proceeds to drop of their load after logging in at the station. There is no weighting station or flowmeter to record the volume of the load. Logging station topically registers which customer and when their truck arrived.	The logging station can be left power on with onboard heat to prevent condensation within the panel and reduce potential for corrosion.	No specific requirement.
Dumping Station No. 1	150 mm diameter influent sewer from the septage receiving tank to the aerated sewage lagoon.	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out, flushed & power washed. Locked/Secured from entry.	No specific requirement.
Dumping Station No. 2 & Bar Screen	Manual bar screen with 9mm spacing, with rated capacity of 57.5 m3/day.	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out & power washed. Locked/Secured from entry.  If possible based on condition, screen should be pivoted/raised up to avoid ice formation around bars with any water accumulation at the base of the chamber.	If raised, lower screen back into operable position.
Valve Chamber	Valve chamber is consisting of two valves; one controls the flow towards the Aerated laqoon and other flow goes to the polymer mixing tank.	Emptied out, cleaned & power washed.	No specific requirement.
MH No. 1 & 2 (to the Aeration Lagoon)	MH No. 1 receives flow from the drum screen and MH No1.	In the event, the site is not receiving any septage or sewerage load then both the manholes need to be cleaned and flushed, power washed of accumulated material. Secured from entrvtampering.	No specific requirement.



**Attachment 2 - Supporting Tables**

GHD Project No: 11223233  
Dated: 14-Jun-21

**BioGRID System Decommissioning and Recommissioning Plan  
Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

**Dewatering System Components**

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
Magnetic Flow Meter	Magnetic Flow Meter is located on a 200 mm diameter pipe which conveys sewerage/septage going from the valve chamber to the polymer mixing tank.	The pipeline feeding the flowmeter should be flushed with water, then purged with diluted caustic water, then flush with water again. Drain and blow out pipe to remove moisture from pipe and meter.  Flow meter can be powered down or left on.	Power up and calibration.
Polymer Injection System	Facility utilizes a formula CP 9310 emulsion polymer. Polymer chemical pump, diluted polymer feed pump, tubing/piping to mixing tank are all part of this system.	Polymer injection system should be well flushed with water (~1 hour). Rinse with diluted caustic water to deactivate any residual polymer, then flush with diluted chlorine water, then rinsed with clean water again. On conclusion, the system should be drained and blown out with compressed air to remove residual water.	Flooding with polymer, re-test of dilution water flow, recalibration of system.
Polymer Mixing Tank	Polymer mixing tank is a stainless-steel tank equipped with a mixer and a level sensor at the top.	Emptied out, cleaned & power washed. Level sensor can be left in place.	No specific requirement for tank. Level sensor will require calibration check.

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

#### BioGRID Feed System Components

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
FOG Storage Tank,	Fats Oils and Greases (FOG) are received in the FOG tank, volume of the tank is 50 m3.	Emptied out, cleaned & power washed.	No specific requirements
FOG Tank Temperature Sensor	The temperature of FOG in the tank is measured using an immersed temperature sensor, GOG is maintained at 20 degrees C via the FOG tank heating control.	Ensure tank cleaning also cleans insertion portion of temperature sensor.	Calibration check.
Chopper Pump	There is chopper pump in the FOG tank, which agitates and transfers FOG to the pasteurizer.	Recommend that the chopper pump inside the FOG be flushed with chorine water, cleaned, dried then stored on blocks in dry, secure location.	Recommend pump test on restart to confirm operation.
Pasteurizer Tank	FOG is pumped from FOG tank into the pasteurizer in batch mode. FOG is pasteurized at 70 deg C in a 2m3 pasteurizer. Pasteurized FOG is delivered to BioGRID or Hydrolyzer via gravity drainage, controlled by the motorized valve cV9. C	Emptied out, cleaned & power washed.	No specific requirements
Pasteurizer Mixer	There is a mixer to agitate FOG, level switch, pasteurizer heat control valve associated with the pasteurizer. As supplied by Waler Engineered Products	Ensure tank cleaning also cleans mixer of any accumulated material.	No specific requirements
Hydrolyzer Tank	Pasteurized FOG and dewatered/thickened septage is conveyed to the hydrolyzer prior to the BioGRID. Hydrolyzer tank is 6.775 m dia x 2.8 m SWD, 100 m3, in-ground covered hydrolyzer tank for conditioning of waste prior to anaerobic digestion. Dry substrate loading chute with cover.	Emptied out, cleaned & power washed.	No specific requirements
Hydrolyzer Temperature Sensor	The temperature of FOG in the tank is measured using an immersed temperature sensor, GOG is maintained at 20 degrees C via the FOG tank heating control.	Ensure tank cleaning also cleans insertion portion of temperature sensor.	Calibration check.
Hydrolyzer pH Meter	pH sensor is part of the hydrolyzer package.	pH sensor component will not last for duration of storage. Remove sensor module.	Purchase and install replacement pH sensor module.
Hydrolyzer Heat Control Valve	Heating system control valve.	No specific requirements, will be flushed as part of pipe flushing.	No specific requirements
Hydrolyzer Chopper Pump	Chopper pump is submersible, located within the hydrolyzer tank.	The chopper pump inside the hydrolyzer needs to be flushed with chorine water and cleaned and dried then stored at a secured place.	Recommend pump test on restart to confirm operation.

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

#### BioGRID Digester and Digestate Storage Tanks

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
BioGRID Digester	BioGRID digester is 1000m <sup>3</sup> , maintained at an internal temperature of around 25-40 degrees C via the hot water heating system. Covered with a flexible membrane to allow gas storage in the freeboard space, held in place with a compressed-air filled securement system.	Digester decommissioning procedure should be completed.  Clean out is recommended to prevent settling and solidification of grit and solids within the digester.	Suggest structural inspection prior to refill. Recommissioning will require water fill/leak test, reinstallation of the membrane, and pressure testing. TSSA notification and witness of pressure testing will be required on restart.
Air Compressor and Air Pump	Located in the BioGRID control room, the air compressor supplies air to the membrane securement system and to the feed for desulphurization.	Drain moisture traps. Disconnect from the local disconnect.	No specific requirements
Digester Pressure Relief Valve	PRV is located on top of the BioGRID, it prevents over pressurization of digester freeboard.	Purge piping of any residual biogas. Would recommend removal and storage within clean, dry, secure space.	No specific requirements
Digestate Storage Tank	There are two digestate storage tanks, with storage capacity of 854m <sup>3</sup> and 5,630m <sup>3</sup> respectively.	Tanks to be emptied and power washed.	Inspection prior to restart, and check for leaks.

**Attachment 2 - Supporting Tables**

GHD Project No: 11223233  
Dated: 14-Jun-21

**BioGRID System Decommissioning and Recommissioning Plan  
Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

**Biogas Handling and Utilization Systems**

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
Biogas Cooling Field	The biogas cooling field is a 6.1 x 15.2 m grid of HDPE piping designed to provide passive gas cooling and moisture removal. Biogas is collected from BioGRID and piped to the Biogas Cooling Field. It is at a 4% incline and the condensate is trapped in the monitoring well.	After the biogas flow has been stopped, piping should be purged of biogas. All the condensate water needs to be allowed to be drained. Condensation needs to allow either to percolate through the digester footing drainage or can be pumped to the valve chamber to send to the Aeration lagoon.	Pressure test prior to restart is recommended.
Boiler	The biogas boiler serves to facilitate system start-up and can act an alternative consumer of biogas. The Biogas boiler receives biogas after it has passed through the biogas cooling field. Thermal energy produced by the boiler is used to heat the HOT Water Supply system. Low temperature hot water boiler (1.2 MMBtu, model number Raytherm 1223).	The gas line of the boiler should be purged with nitrogen. The hot water system should be flooded with propylene glycol to prevent freezing and pipe damage. Power can be shut off at local disconnect.	Full inspection of boiler by licensed technician is prior to restart is recommended. Inspection of fuel train is required prior to restart.
Biogas generator/ CHP unit	100 Kw Co-generation unit uses biogas as a fuel for combustion and production of thermal and electrical energy. The co-generation unit is primary method of biogas combustion. Thermal energy is captured from the exhaust and engine jacket and then supplied to the Hot Water Supply and Return system. Electrical energy is exported to the public through the Hydro One Inc. and power purchase agreement with the Ontario Power Authority.	Isolate the biogas line and purge with nitrogen, including headspace of engine. Batteries need to be disconnected and stored in a cool, dry, secure area and charger should be turned off. Put new oil and filters in engine before storage. Check the freeze level of the antifreeze in the engine loop. Temperature of the storage room should be between 15 deg C to 35 deg C with relative humidity 60%.	Full inspection and servicing of engine by licensed technician prior to restart is recommended. Inspection of fuel train is required prior to restart.

**Attachment 2 - Supporting Tables**

GHD Project No: 11223233  
 Dated: 14-Jun-21

**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

**Odour Control System**

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
Odour Control System	Odour control system consists of a carbon drum filter within the control and dewatering building. Purafill is the manufacturer of the OCS. The drum separator, FOG tank, hydrolyzer, and the pasteurizer are connected to the odour control station.	Turn off suction fan at local disconnect.  The media in the OCS can be left in filter as it is or stored in a dry storage.	No specific requirements.



**Attachment 2 - Supporting Tables**

GHD Project No: 11223233  
 Dated: 14-Jun-21

**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 2.1 - Specific Recommendations – Decommissioning and Recommissioning Requirements**

**Building Hot and Cold Water Supply Systems**

Component/Subsystem	Description	Decommissioning Requirements	Recommissioning Requirements
Hot water supply system	Hot water Supply and Return system consists of a series of PEX tubing. Insulated twin PEX tubing distributes hot water throughout the Site while PEX tubing is embedded in the walls of the BioGRID, below the FOG storage tank, in the walls and floor of the Hydrolyzer and Pasteurizer to provide heating.	Water in the piping loop should be drained of water. Because the system is difficult to drain completely, recommendation is that the piping loop should be flushed and filled with propylene glycol to prevent freezing.	System to be drained of polypropelene glycol and refilled with water, unless assessed to determine whether system will operate with appropriate heat transfer using polypropelene glycol.
Cold water supply system		Water in the piping loop, pressure tank, UV system, filter, and building cold water services should be drained and blown out.	Recommend draining the cold water line and frost-free hydrants and blowing clear with compressed air. The well pump system should be turned off at local disconnect.

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### Septage Receiving System Components

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
Septage Receiving Logging Station	The logging station can be left power on with onboard heat to prevent condensation within the panel and reduce potential for corrosion.	\$ -	
Dumping Station No. 1	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out, flushed & power washed. Locked/Secured from entry.	\$ 3,000.00	1 base day of contractor work for septage receiving area
Dumping Station No. 2 & Bar Screen	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out & power washed. Locked/Secured from entry.  If possible based on condition, screen should be pivoted/raised up to avoid ice formation around bars with any water accumulation at the base of the chamber.	incl. above	
Valve Chamber	Emptied out, cleaned & power washed.	incl. above	
MH No. 1 & 2 (to the Aeration Lagoon)	In the event, the site is not receiving any septage or sewerage load then both the manholes need to be cleaned and flushed, power washed of accumulated material. Secured from entry/tampering.	incl. above	

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### Dewatering System Components

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
Magnetic Flow Meter	The pipeline feeding the flowmeter should be flushed with water, then purged with diluted caustic water, then flush with water again. Drain and blow out pipe to remove moisture from pipe and meter.  Flow meter can be powered down or left on.	\$ 1,500.00	
Polymer Injection System	Polymer injection system should be well flushed with water (~1 hour). Rinse with diluted caustic water to deactivate any residual polymer, then flush with diluted chlorine water, then rinsed with clean water again. On conclusion, the system should be drained and blown out with compressed air to remove residual water.	\$ 750.00	
Polymer Mixing Tank	Emptied out, cleaned & power washed. Level sensor can be left in place.	\$ 870.00	

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### BioGRID Feed System Components

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
FOG Storage Tank,	Emptied out, cleaned & power washed.	\$ 12,133.80	50m <sup>3</sup> – 50,000 Litres -Rectangular Concrete Tank 10feet deep, 16” x16” access, confined space, approximately 2 feet sludge in bottom to vacuum out and offload into on site dumping station. BUDGET \$19,500.00 Power Wash down walls and floor and vacuum out wash water and residue, confined Space , and offload into on site dumping station BUDGET \$32,350.00
FOG Tank Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	incl. above	
Chopper Pump	Recommend that the chopper pump inside the FOG be flushed with chorine water, cleaned, dried then stored on blocks in dry, secure location.	\$ 750.00	
Pasteurizer Tank	Emptied out, cleaned & power washed.	\$ -	2m <sup>3</sup> - 2000 Litres – small stainless steel tank to be empty prior to our power washing and vacuum out wash water and residue, confined space, and offload into on site dumping station
Pasteurizer Mixer	Ensure tank cleaning also cleans mixer of any accumulated material.	incl. above	
Hydrolyzer Tank	Emptied out, cleaned & power washed.	\$ 8,053.08	1 Day, vac truck, wash truck, material transferred to on-site dumping station, as quoted by Accuworkx Inc.
Hydrolyzer Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	incl. above	
Hydrolyzer pH Meter	pH sensor component will not last for duration of storage. Remove sensor module.	incl. above	
Hydrolyzer Heat Control Valve	No specific requirements, will be flushed as part of pipe flushing.	incl. above	
Hydrolyzer Chopper Pump	The chopper pump inside the hydrolyzer needs to be flushed with chorine water and cleaned and dried then stored at a secured place.	\$ 750.00	

## Attachment 2 - Supporting Tables

GHD Project No: 11223233  
Dated: 14-Jun-21

### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### BioGRID Digester and Digestate Storage Tank Components

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
BioGRID Digester	Digester decommissioning procedure should be completed.  Clean out is recommended to prevent settling and solidification of grit and solids within the digester.	\$ 307,200.93	Pressure washing and cleaning of tank only, not disposal of residual solids was quoted by Accuwork Inc. at cost of \$36,745, estimated at 6.5 days effort  Removal of solids is estimated based on 1m depth evenly distributed over the base of the 16m diameter tank, for a total of 200m3 of material. Removal crew for solids is based on 2 months of work (assuming productivity rate from recent GHD project at Humber), and assuming transport at \$2,410.00 per load, 10m3 load as slurry, disposed of at Townships landfill with no additional tipping fee to Townships)
Air Compressor and Air Pump	Drain moisture traps. Disconnect from the local disconnect.	\$ 750.00	
Digester Pressure Relief Valve	Purge piping of any residual biogas. Would recommend removal and storage within clean, dry, secure space.	\$ 1,500.00	
Digestate Storage Tank	Tanks to be emptied and power washed.	\$ 41,971.56	7 Day, vac truck, wash truck, material transferred to on-site dumping station, as quoted by Accuworkx Inc. On-site disposal of washing residuals.
Digestate Storage Tank	Tanks to be emptied and power washed.	\$ 23,771.40	3 Day, vac truck, wash truck, material transferred to on-site dumping station, as quoted by Accuworkx Inc. On-site disposal of washing residuals.

## Attachment 2 - Supporting Tables

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### Biogas Handling and Utilization Units

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
Biogas Cooling Field	<p>After the biogas flow has been stopped, piping should be purged of biogas.</p> <p>All the condensate water needs to be allowed to be drained.</p> <p>Condensation needs to allow either to percolate through the digester footing drainage or can be pumped to the valve chamber to send to the Aeration lagoon.</p>	\$ 750.00	
Boiler	<p>The gas line of the boiler should be purged with nitrogen.</p> <p>The hot water system should be flooded with propylene glycol to prevent freezing and pipe damage.</p> <p>Power can be shut off at local disconnect.</p>	\$ 8,000.00	Technician on site for single day servicing, including flooding of hot water system with polypropylene glycol and nitrogen purging of fuel lines
Biogas generator/ CHP unit	<p>Isolate the biogas line and purge with nitrogen, including headspace of engine.</p> <p>Batteries need to be disconnected and stored in a cool, dry, secure area and charger should be turned off.</p> <p>Put new oil and filters in engine before storage.</p> <p>Check the freeze level of the antifreeze in the engine loop.</p> <p>Temperature of the storage room should be between 15 deg C to 35 deg C with relative humidity 60%.</p>	incl. above	

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### Odour Control System

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
Odour Control System	Turn off suction fan at local disconnect. The media in the OCS can be left in filter as it is or stored in a dry storage.	\$ 750.00	

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.1 - Probable Costs – Decommissioning Tasks**

#### Building Hot and Cold Water Supply Systems

Component/Subsystem	Decommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions (as applicable)
Hot water supply system	Water in the piping loop should be drained of water. Because the system is difficult to drain completely, recommendation is that the piping loop should be flushed and filled with propylene glycol to prevent freezing.	\$ 3,250.00	
Cold water supply system	Water in the piping loop, pressure tank, UV system, filter, and building cold water services should be drained and blown out.	\$ 1,500.00	



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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.2 - Probable Costs – Recommissioning Tasks**

**Septage Receiving System Components**

Component/Subsystem	Recommissioning Requirements	Recommissioning Cost	Recommissioning Cost Assumptions
Septage Receiving Logging Station	The logging station can be left power on with onboard heat to prevent condensation within the panel and reduce potential for corrosion.	\$ 7,200.00	
Dumping Station No. 1	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out, flushed & power washed. Locked/Secured from entry.	incl. above	
Dumping Station No. 2 & Bar Screen	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out & power washed. Locked/Secured from entry. If possible based on condition, screen should be pivoted/raised up to avoid ice formation around bars with any water accumulation at the base of the chamber.	incl. above	
Valve Chamber	Emptied out, cleaned & power washed.	incl. above	
MH No. 1 & 2 (to the Aeration Lagoon)	In the event, the site is not receiving any septage or sewerage load then both the manholes need to be cleaned and flushed, power washed of accumulated material. Secured from entry/tampering.	incl. above	

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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.2 - Probable Costs – Recommissioning Tasks**

**Dewatering System Components**

Component/Subsystem	Recommissioning Requirements	Recommissioning Cost	Recommissioning Cost Assumptions
Magnetic Flow Meter	The pipeline feeding the flowmeter should be flushed with water, then purged with diluted caustic water, then flush with water again. Drain and blow out pipe to remove moisture from pipe and meter.  Flow meter can be powered down or left on.	\$ 3,500.00	
Polymer Injection System	Polymer injection system should be well flushed with water (~1 hour). Rinse with diluted caustic water to deactivate any residual polymer, then flush with diluted chlorine water, then rinsed with clean water again. On conclusion, the system should be drained an blown out with compressed air to remove residual water.	\$ 1,500.00	
Polymer Mixing Tank	Emptied out, cleaned & power washed. Level sensor can be left in place.	incl. above	

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.2 - Probable Costs – Recommissioning Tasks**

#### BioGRID Feed System Components

Component/Subsystem	Recommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions
FOG Storage Tank,	Emptied out, cleaned & power washed.	\$ 3,500.00	Fill tanks and leak test of system. Assume use of temporary transfer pumps for re-use of lagoon water for pressure testing. 1 days cumulative effort to complete the filling and inspection.
FOG Tank Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	incl. with dewatering system Flow Meter line item	
Chopper Pump	Recommend that the chopper pump inside the FOG be flushed with chorine water, cleaned, dried then stored on blocks in dry, secure location.	\$ 750.00	
Pasteurizer Tank	Emptied out, cleaned & power washed.	incl. above	0
Pasteurizer Mixer	Ensure tank cleaning also cleans mixer of any accumulated material.	\$ 750.00	
Hydrolyzer Tank	Emptied out, cleaned & power washed.	incl. above	0
Hydrolyzer Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	incl. with dewatering system Flow Meter line item	
Hydrolyzer pH Meter	pH sensor component will not last for duration of storage. Remove sensor module.	incl. with dewatering system Flow Meter line item	
Hydrolyzer Heat Control Valve	No specific requirements, will be flushed as part of pipe flushing.	incl. above	
Hydrolyzer Chopper Pump	The chopper pump inside the hydrolyzer needs to be flushed with chorine water and cleaned and dried then stored at a secured place.	incl. above	

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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.2 - Probable Costs – Recommissioning Tasks**

**BioGRID Digester and Digestate Storage Tank Components**

Component/Subsystem	Recommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions
BioGRID Digester	Digester decommissioning procedure should be completed.  Clean out is recommended to prevent settling and solidification of grit and solids within the digester.	\$ 39,000.00	Filling and leakage testing using lagoon water. Mobilization cost for crane/scaffold for roof re-installation. Pressure testing per TSSA Witness / Permit by TSSA
Air Compressor and Air Pump	Drain moisture traps. Disconnect from the local disconnect.	\$ 750.00	
Digester Pressure Relief Valve	Purge piping of any residual biogas. Would recommend removal and storage within clean, dry, secure space.	\$ 750.00	
Digestate Storage Tank	Tanks to be emptied and power washed.	\$ 9,000.00	Transfer of liquid from digester to digestate storage, and top up with lagoon water as needed. Pump out back to lagoons at completion of testing.
Digestate Storage Tank	Tanks to be emptied and power washed.	incl. above	0

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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.2 - Probable Costs – Recommissioning Tasks**

**Biogas Handling and Utilization Units**

Component/Subsystem	Recommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions
Biogas Cooling Field	After the biogas flow has been stopped, piping should be purged of biogas. All the condensate water needs to be allowed to be drained. Condensation needs to allow either to percolate through the digester footing drainage or can be pumped to the valve chamber to send to the Aeration lagoon.	\$ 3,000.00	
Boiler	The gas line of the boiler should be purged with nitrogen. The hot water system should be flooded with propylene glycol to prevent freezing and pipe damage. Power can be shut off at local disconnect.	\$ 5,000.00	Checkout by licensed technician prior to restart.
Biogas generator/ CHP unit	Isolate the biogas line and purge with nitrogen, including headspace of engine. Batteries need to be disconnected and stored in a cool, dry, secure area and charger should be turned off. Put new oil and filters in engine before storage. Check the freeze level of the antifreeze in the engine loop. Temperature of the storage room should be between 15 deg C to 35 deg C with relative humidity 60%.	incl. above	

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**BioGRID System Decommissioning and Recommissioning Plan  
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**Table 3.2 - Probable Costs – Recommissioning Tasks**

**Odour Control System**

Component/Subsystem	Recommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions
Odour Control System	Turn off suction fan at local disconnect.  The media in the OCS can be left in filter as it is or stored in a dry storage.	\$ 750.00	

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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.2 - Probable Costs – Recommissioning Tasks**

**Building Hot and Cold Water Supply Systems**

Component/Subsystem	Recommissioning Requirements	Decommissioning Cost	Decommissioning Cost Assumptions
Hot water supply system	Water in the piping loop should be drained of water. Because the system is difficult to drain completely, recommendation is that the piping loop should be flushed and filled with propylene glycol to prevent freezing.	\$ 3,750.00	
Cold water supply system	Water in the piping loop, pressure tank, UV system, filter, and building cold water services should be drained and blown out.	incl. above	

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.3 - Recommended Inspections and Maintenance**

#### Septage Receiving System Components

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
Septage Receiving Logging Station	Septage receiving logging station is an above ground component, operated by electricity. Septage customer proceeds to drop of their load after logging in at the station. There is no weighting station or flowmeter to record the volume of the load. Logging station typically registers which customer and when their truck arrived.	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Power down and open panel to visually inspect for corrosion or degradation.
Dumping Station No. 1	150 mm diameter influent sewer from the septage receiving tank to the aerated sewage lagoon.	None	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.
Dumping Station No. 2 & Bar Screen	Manual bar screen with 9mm spacing, with rated capacity of 57.5 m3/day.	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.
Valve Chamber	Valve chamber is consisting of two valves; one controls the flow towards the Aerated lagoon and other flow goes to the polymer mixing tank.	None	Exercise of valves, 1/4 turn in either direction to confirm free movement.	Exercise of valves, 1/4 turn in either direction to confirm free movement.	Exercise of valves, 1/4 turn in either direction to confirm free movement.
MH No. 1 & 2 (to the Aeration Lagoon)	MH No. 1 receives flow from the drum screen and MH No1.	None	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.	Inspection for water/ice accumulation in chamber.



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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.3 - Recommended Inspections and Maintenance**

#### Dewatering System Components

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
Magnetic Flow Meter	Magnetic Flow Meter is located on a 200 mm diameter pipe which conveys sewerage/septage going from the valve chamber to the polymer mixing tank.	Visually inspect for signs of corrosion or degradation, or moisture accumulation around display screen/readout.	Visually inspect for signs of corrosion or degradation, or moisture accumulation around display screen/readout.	Visually inspect for signs of corrosion or degradation, or moisture accumulation around display screen/readout.	Visually inspect for signs of corrosion or degradation, or moisture accumulation around display screen/readout.
Polymer Injection System	Facility utilizes a formula CP 9310 emulsion polymer. Polymer chemical pump, diluted polymer feed pump, tubing/piping to mixing tank are all part of this system.	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
Polymer Mixing Tank	Polymer mixing tank is a stainless-steel tank equipped with a mixer and a level sensor at the top.	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.

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### BioGRID System Decommissioning and Recommissioning Plan Derby WWTW Asset Evaluation – Technical Memorandum #1

**Table 3.3 - Recommended Inspections and Maintenance**

#### BioGRID Feed System Components

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
FOG Storage Tank,	Fats Oils and Greases (FOG) are received in the FOG tank, volume of the tank is 50 m3.	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
FOG Tank Temperature Sensor	The temperature of FOG in the tank is measured using an immersed temperature sensor, GOG is maintained at 20 degrees C via the FOG tank heating control.	None	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
Chopper Pump	There is chopper pump in the FOG tank, which agitates and transfers FOG to the pasteurizer.	None	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.
Pasteurizer Tank	FOG is pumped from FOG tank into the pasteurizer in batch mode. FOG is pasteurized at 70 deg C in a 2m3 pasteurizer. Pasteurized FOG is delivered to BioGRID or Hydrolyzer via gravity drainage, controlled by the motorized valve cV9. C	None	Exercise valve to reduce potential for seizing.	Exercise valve to reduce potential for seizing.	Exercise valve to reduce potential for seizing.
Pasteurizer Mixer	There is a mixer to agitate FOG, level switch, pasteurizer heat control valve associated with the pasteurizer. As supplied by Waler Engineered Products	None	Rotate mixer shaft to reduce potential for seizing due to long term storage	Rotate mixer shaft to reduce potential for seizing due to long term storage	Rotate mixer shaft to reduce potential for seizing due to long term storage
Hydrolyzer Tank	Pasteurized FOG and dewatered/thickened septage is conveyed to the hydrolyzer prior to the BioGRID. Hydrolyzer tank is 6.775 m dia x 2.8 m SWD, 100 m3, in-ground covered hydrolyzer tank for conditioning of waste prior to anaerobic digestion. Dry substrate loading chute with cover.	None	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
Hydrolyzer Temperature Sensor	The temperature of FOG in the tank is measured using an immersed temperature sensor, GOG is maintained at 20 degrees C via the FOG tank heating control.	None	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
Hydrolyzer pH Meter	pH sensor is part of the hydrolyzer package.				
Hydrolyzer Heat Control Valve	Heating system control valve.	None	Exercise valve to reduce potential for seizing.	Exercise valve to reduce potential for seizing.	Exercise valve to reduce potential for seizing.
Hydrolyzer Chopper Pump	Chopper pump is submersible, located within the hydrolyzer tank.	None	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.	Rotate pump shaft (on shelf) to reduce potential for seizing due to long term storage.

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**BioGRID System Decommissioning and Recommissioning Plan  
 Derby WWTW Asset Evaluation – Technical Memorandum #1**

**Table 3.3 - Recommended Inspections and Maintenance**

**BioGRID Digester and Digestate Storage Tank Components**

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
BioGRID Digester	BioGRID digester is 1000m <sup>3</sup> , maintained at an internal temperature of around 25-40 degrees C via the hot water heating system. Covered with a flexible membrane to allow gas storage in the freeboard space, held in place with a compressed-air filled securement system.	None	Periodic inspection for deterioration or rainwater ingress	Periodic inspection for deterioration or rainwater ingress	Periodic inspection for deterioration or rainwater ingress
Air Compressor and Air Pump	Located in the BioGRID control room, the air compressor supplies air to the membrane securement system and to the feed for desulphurization.	None	None	Exercise to charge and discharge the system.	Exercise to charge and discharge the system.
Digester Pressure Relief Valve	PRV is located on top of the BioGRID, it prevents over pressurization of digester freeboard.	None	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.
Digestate Storage Tank	There are two digestate storage tanks, with storage capacity of 854m <sup>3</sup> and 5,630m <sup>3</sup> respectively.	None	None	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.

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**BioGRID System Decommissioning and Recommissioning Plan  
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**Table 3.3 - Recommended Inspections and Maintenance**

**Biogas Handling and Utilization Units**

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
Biogas Cooling Field	The biogas cooling field is a 6.1 x 15.2 m grid of HDPE piping designed to provide passive gas cooling and moisture removal. Biogas is collected from BioGRID and piped to the Biogas Cooling Field. It is at a 4% incline and the condensate is trapped in the monitoring well.	None	None	None	None
Boiler	The biogas boiler serves to facilitate system start-up and can act an alternative consumer of biogas.  The Biogas boiler receives biogas after it has passed through the biogas cooling field.  Thermal energy produced by the boiler is used to heat the HOT Water Supply system. Low temperature hot water boiler (1.2 MMBtu, model number Raytherm 1223).	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Inspection by licensed technician
Biogas generator/ CHP unit	100 Kw Co-generation unit uses biogas as a fuel for combustion and production of thermal and electrical energy. The co-generation unit is primary method of biogas combustion. Thermal energy is captured from the exhaust and engine jacket and then supplied to the Hot Water Supply and Return system. Electrical energy is exported to the public through the Hydro One Inc. and power purchase agreement with the Ontario Power Authority.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Inspection by licensed technician

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**BioGRID System Decommissioning and Recommissioning Plan  
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**Table 3.3 - Recommended Inspections and Maintenance**

**Odour Control System**

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
Odour Control System	Odour control system consists of a carbon drum filter within the control and dewatering building. Purafill is the manufacturer of the OCS. The drum separator, FOG tank, hydrolyzer, and the pasteurizer are connected to the odour control station.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.	Visual inspection for corrosion or degradation.

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**BioGRID System Decommissioning and Recommissioning Plan  
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**Table 3.3 - Recommended Inspections and Maintenance**

**Building Hot and Cold Water Supply Systems**

Component/Subsystem	Description	Monthly	Bi-Monthly	Semi-Annually	Annually
Hot water supply system	Hot water Supply and Return system consists of a series of PEX tubing. Insulated twin PEX tubing distributes hot water throughout the Site while PEX tubing is embedded in the walls of the BioGRID, below the FOG storage tank, in the walls and floor of the Hydrolyzer and Pasteurizer to provide heating.	Inspection for leaks. Running circulation pump.	Inspection for leaks. Running circulation pump.	Inspection for leaks. Running circulation pump.	Inspection for leaks. Running circulation pump.
Cold water supply system		Visual inspection for leaks, corrosion, or degradation.	Visual inspection for leaks, corrosion, or degradation.	Visual inspection for leaks, corrosion, or degradation.	Visual inspection for leaks, corrosion, or degradation.

No.	Component/ Subsystem	Winterization Requirements	Estimated Completion Date	Work Status	Recommendation/Options
1	Air Compressor and Air Pump	Drain moisture traps. Disconnect from the local disconnect.		Completed	
2	Odour Control System	Turn off suction fan at local disconnect. The media in the OCS can be left in filter as it is or stored in a dry storage.		Completed	
3	Hot water supply system	Water in the piping loop should be drained of water. Because the system is difficult to drain completely, recommendation is that the piping loop should be flushed and filled with propylene glycol to prevent freezing.		To be completed	
4	Cold water supply system	Water in the piping loop, pressure tank, UV system, filter, and building cold water services should be drained and blown out.		To be completed	
5	Magnetic Flow Meter	The pipeline feeding the flowmeter should be flushed with water, then purged with diluted caustic water, then flush with water again. Drain and blow out pipe to remove moisture from pipe and meter. Flow meter can be powered down or left on.	N/A	Flow meter remained unused since last annual calibration. Septage flow not directed through screening process. Room currently heated with electrical heater.	No further action required at this time for winterization
6	Polymer Injection System	Polymer injection system should be well flushed with water (~1 hour). Rinse with diluted caustic water to deactivate any residual polymer, then flush with diluted chlorine water, then rinsed with clean water again. On conclusion, the system should be drained and blown out with compressed air to remove residual water.	N/A	Polymer injection system was not used by past operator and remained unused. Room currently heated with electrical heater. System to be tested and flushed.	No further action required at this time for winterization
7	Polymer Mixing Tank		N/A	Mixing tank has remained unused for a number of years, currently residing in a heated room.	No further action required at this time for winterization
8	Septage Receiving Logging Station	The logging station can be left on with onboard heat to prevent condensation within the panel and reduce potential for corrosion.	TBD, pending client approval	Historically this logging station has been out of commission as PLC touch screen was previously damaged by water infiltration. Station currently covered. Program was retrieved from supplier and loaded on the new logging PLC screen.	No further action required at this time for winterization
9	Dumping Station No. 1	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out, flushed & power washed. Locked/Secured from entry.	12/19/22	Dumping station used when access road to lagoon is uncleared of snow and ice. Septage hauler dumps at slow rate to avoid overflow at last manhole before lagoon influent pipe as influent pipe is partially blocked. Visual inspection showed that dumping station is clear of debris	No further action required at this time for winterization
10	Dumping Station No. 2 & Bar Screen	In the event, the site is not receiving any septage or sewerage load then dumping station no. 1 should be emptied out & power washed. Locked/Secured from entry. If possible based on condition, screen should be pivoted/raised up to avoid ice formation around bars with any water accumulation at the base of the chamber.	12/19/22	Inspection showed some debris to be flushed. Debris flushed on 12/22/2022.	No further action required at this time for winterization
11	Valve Chamber	Emptied out, cleaned & power washed.	12/19/22	Inspection showed some debris to be flushed. Debris flushed on 12/22/2022.	No further action required at this time for winterization
12	MH No. 1 & 2 (to the Aeration Lagoon)	In the event, the site is not receiving any septage or sewerage load then both the manholes need to be cleaned and flushed, power washed of	01/13/23	Manholes currently free of debris. Partial blockage between lagoon and last manhole causes manhole to overflow. Pressure washed pipe using Hydro vac truck. Partial blockage still present. Inspected manholes on Jan. 9 2023 while a septage hauler was dumping using full dumping flow and septage was flowing fine in both manholes.	Further investigation of cause of partial blockage and dislodge. Attempt to reinspect the sewer lateral between lagoon and last manhole now that pipe flow was reestablished. No further action required at this time for winterization
13	FOG Storage Tank	Emptied out, cleaned & power washed.	01/13/23	Located a facility that is willing to accept the bio-waste from the FOG tank. Transportation cost and tipping fee would estimated at \$3,800 plus HST. There is a risk of not being able to remove the entire volume should the existing accumulated material require larger size pump/equipment. This item would be included in the approved \$56,000. Emptied out all liquid content and approximately 40% of solids content. Added fresh water to help with removal of balance of solids content and to protect the tank from frost damage. Balance of solids to be removed will require the use of a hydrovac truck and confined space entry. Will request approval from Townships prior to moving forward with balance of tank cleaning.	Heat tracer wires connected to avoid exposed pipe frost. Suggest to pump remaining volume to Biodigester tank and pump out header pipe to avoid frost damage. Diesel power heater required to heat the debris prior to pumping. Partially refill storage tank with lagoon water to avoid frost damage. Client approval required, this may cause odour complaints. MECP to be contacted for approval. Alternative solution would be to leave the FOG, potentially add water to cover and protect the existing infrastructure. No further action required at this time for winterization.
14	FOG Tank Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	01/13/23	Temperature sensor to be cleaned. once the FOG tank is emptied and cleaned.	Proceeding with winterization requirements No further action required at this time for winterization.
15	Chopper Pumps	Recommend that the chopper pump inside the FOG be flushed with choline water, cleaned, dried then stored on blocks in dry, secure location.	Pending removal of debris	Tank topped up to prevent pump frost damage.	Suggest to leave the pumps in the tanks in the event that the debris cannot be removed. In the event that the debris can be removed the pumps could be removed and should be inspected and/or replaced refurbished as required. No further action required at this time for winterization
16	Pasteurizer Tank	Emptied out, cleaned & power washed.	01/13/22		Tank was emptied when the Biodigester Process was shut down. Tank to be power washed. No further action required at this time for winterization
17	Pasteurizer Mixer	Ensure tank cleaning also cleans mixer of any accumulated material.	01/13/23		Tank was emptied when the Biodigester Process was shut down. Mixer to be power washed. No further action required at this time for winterization
18	Hydrolyzer Tank	Emptied out, cleaned & power washed.	12/22/22	Tank topped up to prevent tank frost damage. No immediate further action required	Heat tracer wires connected to avoid exposed pipe frost. Suggest to pump remaining volume to Biodigester tank and pump out header pipe to avoid frost damage. Diesel power heater required to heat the debris prior to pumping. Partially refill storage tank.
19	Hydrolyzer Temperature Sensor	Ensure tank cleaning also cleans insertion portion of temperature sensor.	01/13/22	Sensor to be cleaned once the hydrolyzer tank is emptied and cleaned.	Temperature sensor to be cleaned when tank is emptied. No Immediate further action required.
20	Hydrolyzer pH Meter	pH sensor component will not last for duration of storage. Remove sensor module.			Replacement pH meter purchased. To be installed when system is re-commissioned. No immediate further action required at this time for winterization
21	Hydrolyzer Heat Control Valve	No specific requirements, will be flushed as part of pipe flushing.		Reintroduced pure glycol in the heating loop on December 21st, 2022. Heat control valve now contains pure mixture of Glycol to prevent frost damage.	Pending further investigation. Third party contractor contacted.



22	Hydrolyzer Chopper Pump (1)	The chopper pump inside the hydrolyzer needs to be flushed with choline water and cleaned and dried then stored at a secured place.	TBD, pending client approval	Tank topped up to prevent pump frost damage. No immediate further action required	Suggest to leave the pumps in the tanks in the event that the debris cannot be removed. In the event that the debris can be removed the pumps could be removed and should be inspected and/or replaced refurbished as required. No immediate further action required at this time for
23	Digester Pressure Relief Valve	Purge piping of any residual biogas. Would recommend removal and storage within clean, dry, secure space.	12/22/22	Confirmed that Pressure relief valve purged of biogas when biodigester was shut down. PRV not removed. No immediate further action required at this time	No further action required at this time for winterization
24	Biogas Cooling Field	After the biogas flow has been stopped, piping should be purged of biogas. All the condensate water needs to be allowed to be drained. Condensation needs to allow either to percolate through the digester footing drainage or can be pumped to the valve chamber to send to the Aeration lagoon.	01/20/23	Completed	No further action required at this time for winterization
25	Boiler	The gas line of the boiler should be purged with nitrogen. The hot water system should be flooded with propylene glycol to prevent freezing and pipe damage. Power can be shut off at local disconnect.	01/20/23	Completed	No further action required at this time for winterization
26	Biogas generator/ CHP unit	Isolate the biogas line and purge with nitrogen, including headspace of engine. Batteries need to be disconnected and stored in a cool, dry, secure area and charger should be turned off. Put new oil and filters in engine before storage. Check the freeze level of the antifreeze in the engine loop. Temperature of the storage room should be between 15 deg C to 35 deg C with relative humidity 60%.	01/13/23	Completed	
27	Unblock line between digester and digestate storage	Unblock the line between the digester and the digestate storage tanks. Line is below the frost line. Work to be completed during warmer weather conditions.	Spring 2023		No further action required at this time for winterization
28	Digestate & Bio- Digester Tanks Winterization	Ensure there is a minimum of fluid at the bottom to prevent frost damage on the floor of the tanks		Completed	Liquid pumped from Lagoon Polishing Cell

May 3, 2024

Niall Lobley (he/him/they)  
Chief Administrative Office (CAO)  
Township of Georgian Bluffs  
177964 Grey Road 18, R.R. #3,  
Owen Sound, ON N4K 5N5

**Re: Proposal No: GEOBLN1329-2418 - BiOGRID System – Evaluation and Decommissioning Costs**

Dear Mr. Lobley:

The Ontario Clean Water Agency (OCWA) is pleased to submit a proposal to undertake a study to evaluate and develop costs to decommission the BioGRID system at Georgian Bluffs in the County of Grey.

## 1 Background

The BioGRID system (Bio Green Renewable Industrial Digester) is owned and managed by the BioGRID Joint Board of Management, consisting of the Township of Georgian Bluffs and the Township of Chatsworth.

The WWTW sewage lagoons were installed in 1975 in the Township of Georgian Bluffs, and the BioGRID system was implemented in 2011.

However, the BioGRID system has encountered various operational and financial hurdles. These include difficulties in securing organic waste feedstocks, determining appropriate tipping fees for organic waste feedstocks, addressing capacity limitations and bottlenecks in the anaerobic digestion process, as well as challenges with the material receiving station and other associated infrastructure. Additionally, issues have arisen concerning renewable energy generation and the overall operation of the sewage lagoons.

Given these challenges, the Townships are currently exploring the full decommissioning of the BioGRID system, which would involve the demolition and removal of all associated structures and equipment related to the biodigester.

The Townships want to provide definite cost estimates to Council members and are presently soliciting pricing for the decommissioning of the plant, site remediation, and improvements to the existing access road leading to the lagoons. Additionally, the pricing is to include a resale or scrap value for the biodigester equipment.

## 2 Scope of Work and Methodology

OCWA proposes to complete the following tasks for the development of costs for the decommissioning of the BioGRID system.

### 2.1 Activity 1: Project Initiation

OCWA will compile and review record drawings, plant design documents, operations and maintenance manuals, and any previous studies completed on the BioGRID system. This will facilitate the development of a comprehensive inventory of equipment and their materials of construction. Additionally, OCWA will engage in discussions with operations staff regarding the potential usability of equipment for the lagoon system's operations, and will take inventory of any newer equipment purchased or installed in recent years for resale value. OCWA will also evaluate the Class EA amendment requirements and coordinate with the MECP.

Concurrently, OCWA will engage the services of a demolition contractor to review drawings, assess site conditions, and estimate costs for the demolition work.

### 2.2 Activity 2: Site Assessment

OCWA expects to conduct two days of site visits with the demolition contractor to complete the following activities:

- Assess the condition of each piece of equipment
- Determine if any equipment can be salvaged for resale or scrapped for materials
- Evaluate accessibility to existing infrastructure
- Determine whether concrete, and other materials require designated substance testing
- Determine quantity of the materials in the digester
- Evaluate the content in the digester to be tested for hazardous materials

### 2.3 Activity 3: Investigation and Cost Development

After the site review, OCWA will inquire about equipment identified as scrap and the resale value of materials. Additionally, OCWA will thoroughly review the costs provided by the contractor to ensure that all aspects of the demolition work are accounted for in the estimates.

### 2.4 Activity 4: Reporting

OCWA will prepare a draft report summarizing the findings from the activities above and provide a recommendation on the most suitable options for decommissioning the BioGRID plant. The report will encompass a comprehensive plan for decommissioning, including costs for demolition, site remediation, and restoration of the road to the lagoon site. These costs will incorporate any items intended for salvage for future use, resale, or scrap value.

The Townships will review the report, and any comments from Councilors will be incorporated into the final report.

### 3 Project Team

#### Shairose Alarakhia, P.Eng., PMP – Project Manager

Shairose Alarakhia has more than 20 years of professional experience in the water and wastewater industry. Her experience includes designing water and wastewater treatment systems for the private sector to project managing the design and construction of water and wastewater treatment plants. Shairose has experience with removals of equipment and construction management.

Shairose manages water and wastewater projects on behalf of municipalities and First Nations all across Ontario.

#### Jananan Muththalagan, M. Eng., P. Eng., PMP – Project Engineer

Jananan Muththalagan joined OCWA in October of 2022. Jananan is a Professional Engineer with over five years of experience in construction management, transportation engineering and linear underground infrastructure. Prior to joining OCWA, Jananan worked at the Ontario Ministry of Transportation and has prior experience working in private construction and Engineering consulting. In addition, Jananan has experience with site inspections, construction administration and project management. Jananan graduated from the University of Western Ontario with a Bachelor of Engineering Science in Civil Engineering and a Masters of Engineering in Water Resources Engineering.

### 4 Schedule

We understand that time is of the essence. OCWA is ready to start the project immediately upon approval. The full project is expected to take approximately 10 weeks to complete according to the schedule provided below and assuming the project is approved to start by May 10, 2024. Table 1 contains a list of the key milestone dates for the project.

*Table 1: Key Milestones*

Task	Schedule	Milestone date
Project Approval to Start		May 10, 2024
Project Start Date		May 20, 2024
Project Initiation	1 week	May 24, 2024
Site Assessment	2 days	June 7, 2024
Investigation and Cost Development	3 weeks	June 28, 2024

Task	Schedule	Milestone date
Draft Report	2 weeks	July 15, 2024
Review Draft Report	2 weeks	July 29, 2024
Final Report	1 week	August 5, 2024

## 5 Project Budget

In reviewing the above scope of work, OCWA proposes a project budget of **\$27,935** (exclusive of HST) for our professional fees, disbursements and travel expenses. OCWA proposes to invoice the Township monthly on a time and material basis.

In addition, OCWA recommends that the Township anticipate a budget of ranging from approximately \$40,000 - \$45,000 for completing the study including \$27,935 for OCWA's services. OCWA estimates \$5,000 - \$10,000 for demolition contractor services and a 15% contingency allowance for total project costs.

A Time Task Matrix for this project is provided in **Appendix A**. If additional services are required outside of the scope of this proposal, this cost would be in accordance with our Engineering Schedule of Rate attached in **Appendix B**. Table 2 summarizes the budget by task.

*Table 2: Budget Summary*

Task	Budget
Activity 1: Project Initiation	\$ 9,951
Activity 2: Site Assessment	\$ 8,246
Activity 3: Investigation and Cost Development	\$ 5,601
Activity 4: Reporting	\$ 4,137
Total Budget	\$27,935
Demolition Contractor (estimate)	\$5,000 - \$10,000
Third Party Contractor/Service Provider Admin Fee (5%)	\$ 500
Contingency Allowance (15%)	\$ 5,765
Overall Project Total (exclusive of HST)	\$44,200

## 6 Terms and Conditions

The Township will be required to sign an Engineering, Procurement and Construction Management (EPCM) Contract with OCWA to define payment terms, dispute resolution, and

insurance requirements and to identify OCWA as an “Agent of the Township”. The Township will be provided a draft copy of the EPCM Contract for review and comment prior to finalization

## 7 Assumptions and Limitations

Based on current understanding of the project, OCWA has assumed the following in development of the scope of work:

- Information on the design of the plant will be provided upon start of the project
- There is adequate information available on the as-built drawings of the existing system
- A presentation to council(s) is not included in the scope of work. Should it be required, it will be at an additional cost.

We are ready to start the project upon receipt of approval notice. Should you have any questions on the above, please feel free to contact the undersigned at [salarakhia@ocwa.com](mailto:salarakhia@ocwa.com) or 416-709-6549.

Sincerely,



**Shairose Alarakhia, P.Eng., PMP**  
Senior Engineer/Project Manager

cc: Leo-Paul, Senior Operations Manager, Orangeville Hub  
Susan Budden, Business Development Manager, Midwest & Georgian Highlands  
Lisa Babel, Director, Project Planning and Delivery

**COUNTERSIGNATURE:**

By signing below, I accept the scope of work described in the above proposal and provide permission on behalf of the Town to proceed.

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(Signature)

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Date

# **APPENDIX A**

## **Time Task Matrix**



Task Description		Total Hours	PM/Eng. Fees	Disbursements	Direct Expenses	Other Expenses	Total Cost
<b>1 Activity 1: Project Initiation</b>							
1.1	Project Setup and Closeout	6.5	\$948.00	\$56.88	\$0.00	\$10,000.00	\$11,004.88
1.2	Collection and Review of Background Information	26	\$3,874.00	\$232.44	\$0.00	\$0.00	\$4,106.44
1.3	Project Management and Communications and Project Financials	16	\$2,434.00	\$146.04	\$0.00	\$0.00	\$2,580.04
1.4	Agreement with Contractor	8	\$1,130.00	\$67.80	\$0.00	\$0.00	\$1,197.80
1.5	Kick off Meeting (Meeting#1-Virtual) with Contractor	7	\$1,001.00	\$60.06	\$0.00	\$0.00	\$1,061.06
<b>Subtotal Task Hours</b>		<b>63.5</b>					
<b>Percentage of Overall Task/Activity Time</b>		<b>100%</b>					
<b>Subtotal Costs</b>			<b>\$9,387.00</b>	<b>\$563.22</b>	<b>\$0.00</b>	<b>\$10,000.00</b>	<b>\$19,950.22</b>
<b>2 Activity 2: Site Assessment</b>							
2.1	Preparation of Information Collection Documents	13	\$2,072.00	\$124.32	\$487.20	\$0.00	\$2,683.52
2.2	Site Visit	35	\$3,962.00	\$237.72	\$0.00	\$0.00	\$4,199.72
2.3	Development of Data Collection and Analysis	8	\$1,286.00	\$77.16	\$0.00	\$0.00	\$1,363.16
<b>Subtotal Task Hours</b>		<b>56</b>					
<b>Percentage of Overall Task/Activity Time</b>		<b>100%</b>					
<b>Subtotal Costs</b>			<b>\$7,320.00</b>	<b>\$439.20</b>	<b>\$487.20</b>	<b>\$0.00</b>	<b>\$8,246.40</b>
<b>3 Activity 3: Investigation and Cost Development</b>							
3.1	Scrap and resale equipment value investigation	14	\$2,226.00	\$133.56	\$0.00	\$0.00	\$2,359.56
3.2	Review of Draft Costs	6	\$936.00	\$56.16	\$0.00	\$0.00	\$992.16
3.3	Finalize the Costs	13	\$2,122.00	\$127.32	\$0.00	\$0.00	\$2,249.32
<b>Subtotal Task Hours</b>		<b>33</b>					
<b>Percentage of Overall Task/Activity Time</b>		<b>100%</b>					
<b>Subtotal Costs</b>			<b>\$5,284.00</b>	<b>\$317.04</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$5,601.04</b>
<b>4 Activity/Phase 4: Reporting</b>							
4.1	Draft Report with Decommissioning Plan	20	\$2,902.00	\$174.12	\$0.00	\$0.00	\$3,076.12
4.2	Final Report	7	\$1,001.00	\$60.06	\$0.00	\$0.00	\$1,061.06
<b>Subtotal Task Hours</b>		<b>27</b>					
<b>Percentage of Overall Task/Activity Time</b>		<b>100%</b>					
<b>Subtotal Costs</b>			<b>\$3,903.00</b>	<b>\$234.18</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$4,137.18</b>
<b>Subtotal Task Hours</b>		<b>0</b>					
<b>Percentage of Overall Task/Activity Time</b>		<b>0%</b>					
<b>Subtotal Costs</b>			<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Total Project Hours and Fees</b>							
<b>Total Project Hours</b>		<b>179.5</b>					
<b>Percentage of Overall Time</b>		<b>100%</b>					
<b>Total Project Fees</b>			<b>\$25,894</b>	<b>\$1,554</b>	<b>\$487</b>	<b>\$10,000</b>	<b>\$37,935</b>
						<i>Third Party Contractor/Service Provider Admin Fee</i>	5% <b>\$500.00</b>
						<i>Contingency Allowance</i>	15% <b>\$5,765.23</b>
						<b>Overall Project Total</b>	<b>\$44,200</b>
						<i>HST</i>	13.00% <b>\$5,746.01</b>
						<b>Project Grand Total</b>	<b>\$49,946</b>

# **APPENDIX B**

## **Schedule of Rates**

## Engineering Schedule of Rates – 2024

CATEGORY	DESCRIPTION	HOURLY RATE
<b>Director</b>	Director	\$200.00
<b>E04</b>	Senior Specialist Engineer /Project Manager	\$189.00
<b>E03</b>	Senior Engineer/Project Manager	\$168.00
<b>E02</b>	Engineer/Project Manager	\$150.00
<b>E01</b>	Engineer In-Training	\$117.00
	Student Engineer	\$100.00
	Administrative Assistant	\$67.00
	Financial Analyst	\$97.00

**Currency:** Canadian Dollars, excluding HST

**Expenses and Disbursements:**

General office expenses including long distance, cellular/data charges, printing, office supplies and courier charges will be charged at 6% of Professional Fees.

Special expenses such as travel and living expenses, third party consultants, capital equipment, contractors fees, permitting fees and any other items not otherwise listed will be charged at cost plus 5% administration fee.

**Invoicing:**

Professional fees and expenses will be invoiced monthly unless otherwise stated and are payable within 30 days. Taxes will be added as applicable.

**Technology and Operations Expertise:**

Technology and Operations experts will be charged at specific individual rates to be provided as needed.

**Overtime:**

Overtime will be charged at 1.5 times the rates stated above, but only if pre-approved by client.

**Terms and Conditions:**

OCWA standard terms and conditions will apply.

**Revision:**

This Schedule of Rates is valid until December 2024 after which time it will be reviewed and updated for 2025.

# The Corporation of the Township of Georgian Bluffs

## By-law Number 2025-001

Being a By-law to confirm the proceedings of the Special Joint Council meeting of the Corporation of the Township of Georgian Bluffs and the Township of Chatsworth held on January 13, 2025.

Whereas, Section 5 (1) of the *Municipal Act* S.O. 2001, c. 25 states that the powers of a municipality shall be exercised by Council; and

Whereas, Section 5 (3) of the *Municipal Act* S.O. 2001, c. 25 provides that municipal power shall be exercised by by-law; and

Whereas, the Council of the Corporation of the Township of Georgian Bluffs deems it expedient and necessary that the proceedings of the Special Joint Council meeting held on January 13, 2025, are confirmed and adopted.

Therefore, the Council of the Corporation of the Township of Georgian Bluffs enacts the following:

1. That the actions of the Council of the Corporation of the Township of Georgian Bluffs at its meeting held on January 13, 2025, in respect to each motion and resolution passed, reports received and direction given by the Council at the said meeting, are hereby adopted and confirmed.
2. That the Mayor and the proper Officials of the Corporation are hereby authorized and directed to do all things necessary to give effect to the said actions of the Council.
3. That the Mayor and Clerk are authorized and directed to execute all documents necessary in that behalf, and the Clerk is authorized and directed to affix the Seal of the Corporation to all such documents.
4. That this by-law shall come into force and effect upon being passed by Council.

Read a first and second time this 13<sup>th</sup> day of January, 2025.

Read a third time and finally passed the 13<sup>th</sup> day of January, 2025.

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Mayor – Sue Carleton

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Clerk – Carly Craig