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# ASSEMBLY OF MANITOBA CHIEFS



## Landfill Search Feasibility Study Committee FINAL REPORT OF THE TECHNICAL SUBCOMMITTEE

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**Report Submitted to:**

**Landfill Search Feasibility Study Oversight Committee**

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## **EXECUTIVE SUMMARY**

### **Overview**

- December 5<sup>th</sup>, 2022
  - The Winnipeg Police Service informed family members of Morgan Harris and Mercedes Myran that their remains were most likely located in the Prairie Green Landfill and a search would not take place.
- December 13<sup>th</sup>, 2022
  - The Assembly of Manitoba Chiefs (AMC), the Southern Chiefs Organization, the MMIWG2S+ Implementation Committee, Manitoba Keewatinowi Okimakanak, the Assembly of First Nations Manitoba Region, and Long Plain First Nation, sent a joint letter to the federal government requesting funding for a feasibility study.
- January 17<sup>th</sup>, 2023
  - AMC formally announced the appointment of the Landfill Search Feasibility Study Committee consisting of an Oversight Committee and a Technical Subcommittee.
- February 22, 2023
  - CIRNAC announced funding for the feasibility study with AMC as the responsible organization.

### **Mandate**

The Technical Subcommittee was tasked with addressing the following:

- 1) Is it feasible to search the Prairie Green Landfill for remains of Morgan Harris and Mercedes Myran?
- 2) If such a search is feasible, how would it be possible, how much would it cost, and how long would it take?

### **Feasibility Study Findings**

- Not conducting a search could cause **considerable distress** to victim family members.
- A search of the Prairie Green Landfill **is feasible**, but there are considerable risks due to exposure to toxic chemicals and asbestos.
- If a search is conducted
  - a **successful outcome is not guaranteed**
  - a strategy that utilizes a conveyor belt system should be considered
  - it could take between 12 and 36 months
  - it could cost between \$84,000,000 (12 months) and \$184,000,000 (36 months)

### **Technical Subcommittee Recommendations**

1. Increase funding for social supports and culturally appropriate social programming for First Nation and Indigenous peoples, specifically MMIWG2S+, including addictions rehabilitation programs, affordable housing, mental health supports, and care and cultural connectivity.
2. Increase funding for homeless shelters so the unhoused can transition into a safer life.
3. Mandatory GPS tracking systems in garbage trucks for all waste removal companies in Canada.
4. Mandatory rear-facing cameras in all garbage trucks so that operators can observe the material being dumped into their truck.
5. Video surveillance of landfill entrances and exits.
6. Support from the responsible Ministry for smaller municipalities/communities to make these changes.

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## 1) PREAMBLE

On December 5<sup>th</sup>, 2022, the Winnipeg Police Service informed Harris family members that Morgan Harris was the victim of a homicide, and that Jeremy Skibicki has been charged with first degree murder. The family was informed that it was believed that Morgan's remains were discarded in a refuse bin in Winnipeg, that was transported and emptied at the Prairie Green Landfill. On December 5<sup>th</sup>, 2022, the Winnipeg Police Service also informed Myran family members that Mercedes Myran was the victim of a homicide, and that Jeremy Skibicki had been charged with first degree murder in her death. The family was informed that it was believed that Mercedes's remains were discarded in a refuse bin in Winnipeg that was transported and emptied at the Prairie Green Landfill. Both families were informed that evidence had been gathered to support first degree murder charges, and that the Winnipeg Police Service did not plan to search the Prairie Green Landfill as part of the homicide investigation.

On December 13<sup>th</sup>, a joint letter from the Assembly of Manitoba Chiefs (AMC), which represents 62 First Nations, the Southern Chiefs Organization, the MMIWG2S+ Implementation Committee, Manitoba Keewatinowi Okimakanak, the Assembly of First Nations Manitoba Region, and Long Plain First Nation, was sent to the federal government, requesting funding to conduct a feasibility study to determine if it is possible to search the Prairie Green landfill to locate remains of missing First Nation women (Morgan and Mercedes). On February 22, 2023, CIRNAC representatives announced funding for the feasibility study, and that the responsible organization would be the Assembly of Manitoba Chiefs (AMC). The AMC formally announced the appointment of the Landfill Search Feasibility Study Committee consisting of an Oversight Committee and a Technical Subcommittee on January 17<sup>th</sup>, 2023, before securing funding. The Technical Subcommittee was responsible for establishing an understanding of the feasibility of a search of the Prairie Green Landfill (PGL), propose ways in which a possible search could be conducted safely, and generating a final report. The Technical Subcommittee has met weekly since its establishment, with individuals and committee Co-Chairs meeting and working together, on a nearly daily basis, since that date. Every other week, the Technical Subcommittee has provided updates to the Oversight Committee.

## 2) PURPOSE

The purpose of this feasibility study is to address two questions:

- 1) Is it feasible to search the Prairie Green Landfill for remains of Morgan Harris and Mercedes Myran?
- 2) If such a search is feasible, how would it be possible, how much would it cost, and how long would it take?

To address these questions, the Technical Subcommittee worked closely with family members of Morgan and Mercedes, relevant experts and government officials including the Winnipeg Police Service, the province of Manitoba, and others to address health and safety concerns, and assist in the development of a potential search plan. The potential search plan proposed takes into consideration family wishes, traditional teachings, hazards and risks, search process, equipment and personnel requirements, and timelines and costs.

This feasibility study has been tailored to the specifics of Prairie Green Landfill and the recovery of remains of Mercedes Myran and Morgan Harris. While there are components of it that could be translatable to searches of other landfills, it is imperative that the proposed potential search strategy not be considered a 'one size fits all' approach. A search of any landfill must be established in close

consultation with the owners and operators of those landfills to ensure safety and efficiency of the search.



### 3) IMPACT STATEMENTS FROM FAMILY & COMMUNITY

The creation of the Landfill Search Feasibility Study Committee and the formation of the Technical Subcommittee was at the behest of First Nations leaders, family members of Morgan and Mercedes, and the First Nations community broadly. It is therefore imperative that the voices of families and community be heard as part of the decision making process of whether or not a search for Morgan and Mercedes be conducted.

***1) Cambria Harris – daughter of Morgan Harris***

[REDACTED]

**II) Elle Harris – Daughter of Morgan Harris**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**III) Family of Mercedes Myran**

[REDACTED]

#### **IV) Community Impact Statement (written by AMC)**

Undoubtedly, the murders of these missing First Nations women have impacted many people in Manitoba, specifically their home of Long Plain First Nation.

First Nation women and girls have been targets for serial killers and violent men for centuries, and 35-year-old Jeremy Skibicki thought of and treated our women as disposable objects. Not only did he steal their lives, futures, their right to a decent burial, and the closure for their families to hold a ceremony with the bodies of their loved ones, but he stole the mothers from their children who now must live with the trauma he left behind. These young people who lost their mothers are strong and have stood up to demand justice for their mothers publicly, but they should not have to do so. They should not be begging for justice and for the powers that be to help them find the bodies of their mothers in a landfill. As individuals and as part of this community, everyone involved who can do the right thing needs to stand up and do right by these women and their families. Through the community coming together and those who felt compelled from across the country to help, we are here today, doing whatever we can to search the landfills in Winnipeg for the bodies of three women who had the unfortunate fate of meeting Jeremy Skibicki.

Jeremy Skibicki was charged with first-degree murder and placed into protective custody for his own safety. How is a serial killer provided more care and protection than our First Nations women and girls? The families, communities, and affected helpers go to bed every night knowing Jeremy Skibicki is warm and safe from the potential harms outside his cell, from the men who would no doubt want revenge for the women he killed so viciously and callously. Yet these women remain in a landfill, and our women remain afraid in the streets of men just like Skibicki, who lurk and target them as easier prey. What is the lasting emotional impact of that reality? We don't know, but we can all agree it is heavy to carry.

The families of Morgan Harris and Marcedez Myran have been working relentlessly over the past couple of months to help us with the feasibility study. They will do whatever is necessary to find their missing family members. The emotional turmoil of knowing their daughters, sisters, and mothers are scattered somewhere amongst the trash that kept building up until we could stop it with determined grassroots First Nations intervention is a trauma many of us could not bear. The Winnipeg Police Service (WPS) and the Royal Canadian Mounted Police (RCMP) publicly refused to help search the landfills as they deemed it unworthy of the hours and budget. The WPS also announced the possession of credible evidence in December of 2022, when Skibicki was initially charged. Although the WPS found physical and credible evidence, they cited, accompanied by a detailed PowerPoint, all the reasons they deemed a search and recovery impossible. It is devastating to know that not only does Jeremy Skibicki not value their daughters, but neither does the government. This systemic racism is something First Nations face in their daily life, and it is why we must do feasibility studies to prove we are worth searching for.

We know other cases of non-First Nation people being searched for and found in landfills by police in much bigger cities, such as the Toronto landfill, with success even after a more extended time between the body disposal and active searching than we are looking at for these three women. As wards of the state, it is the government's fiduciary right to cease the volatile disappearance of our women, girls and gender-diverse people and to create preventative measures to end the exploitation of our most vulnerable citizens. Even when the announcement of another unidentified victim (who was named by communal ceremonial efforts *Mashkode Bizhiki*), the WPS had no search planned. This young First Nation woman is someone's missing daughter. This young woman was loved, cherished, and is still deeply missed, and now all the families with missing daughters in this province fear that she is their missing loved one.

This young woman, whose life was still full of potential, is now a martyr in our community. We will never know who this woman could have become, and now she symbolizes disregard.

Family members are continually re-traumatized every time another First Nation woman or gender-diverse person goes missing, as it triggers their own experiences and ongoing family crisis. Furthermore, many fear reaching out to the public servants and police due to racial discrimination and unjust policing and fear they themselves may go missing. How can we interpret this as meaning anything other than we are unworthy? That is heartbreaking, and it feels hopeless and lonesome to walk in a city that treats us this way and publicly states we are not worth searching for. It relights a fear in women all over this city who live in lower-income neighbourhoods and cannot avoid the streets or walking alone some nights. It brings fear to women who sometimes have no choice but to trust a stranger in their desperate time of need. First Nations women should not be targets for murder, but they most definitely do not deserve to be erased, either. No one deserves to have a landfill as their final resting place.

We as a community do not deserve to be told we are trash, but that is what the actions of this murderer state: you can dispose of us, and no law enforcement will look for us. How could this not have a ripple effect across this province? How will this not ignite fear in the hearts of young women and girls who find themselves in the city of Winnipeg for their higher education, career opportunities, or coming here to make a life for themselves outside of their First Nation? When it comes to alerting the public of our missing loved ones, we must often beg for any media coverage and beg or shame the police into taking any action. As such, our community is forced to do the legwork for which we are not conventionally trained, nor do we receive monetary support as a salaried professional does. This responsibility creates an undue hardship for those who spend hours away from work and children to search for family members. This egregious treatment has caused a national crisis, moved the United Nations (UN) to action, the initiation of a Missing and Murdered Indigenous Women, Girls, & Two-Spirit (MMIWG2S+) database, the creation of a Counter Exploitation Unit, and the implementation of a variety of MMIG2S+ committees, including a landfill search feasibility study, all fulfilled and led by First Nation grassroots community members.

The families are wounded and experiencing profound sadness caused by a void none of us can fill. When any First Nations loses a loved one, we all suffer. When our women are strewn about like trash, we all feel it. We all are affected.

#### **4) SOCIETAL COSTS**

While the responsibility of the Technical Subcommittee has been to establish a potential timeline, process and financial costs associated with conducting a search for remains of Mercedes and Morgan, there are other considerations or potential societal costs that cannot be quantified financially. These societal costs are elaborated below:

##### ***1) The cost of not doing a search***

Concerns have been expressed that not conducting a search for remains of Mercedes and Morgan could send a message that disposing of victims in dumpsters is a good method for perpetrators and one that comes with impunity. This could possibly then set a precedent that could encourage perpetrators to use dumpsters/landfill sites as a means of disposing of the remains of their victims. Although a full examination of this issue falls outside the parameters of this study, it has been included for the consideration of decision makers and stakeholders.

The impact of not conducting a search and humanitarian recovery for remains of Morgan and Mercedes, when it is possible that they are in the PGL, could have long lasting repercussions on the families, friends, loved ones and First Nation and Indigenous communities in Manitoba and across Canada. If, as per Bill C-262, Canada is committed to aligning with the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP), and is committed to addressing the Calls For Justice of the National Inquiry into Missing and Murdered Indigenous Women and Girls (Buller *et al.* 2019), then, Indigenous peoples must be valued, supported and provided the same opportunities for closure and justice as all other peoples in Canada.

## **II) Other costs associated with a search**

If a search is conducted, there are **no guarantees for the recovery of remains of Mercedes and Morgan.** The Technical Subcommittee has worked closely to consider a variety of potential methods of search and recovery, but no search comes with a guarantee. The emotional costs associated with conducting a search and not recovering remains must also be considered, as should the emotional costs associated with potential delays and the duration of a search. Nothing about a potential search of this size and scale is easy, and the toll on the families and First Nation and Indigenous communities must be considered with the appropriate supports being made available.

## **5) MAKING SPACE FOR CEREMONY, ELDERS & FAMILY**

If a search is to take place, it is imperative that there is space, in all ways, for First Nation ceremony, for Elders and for family members.

Any undertaking that aims to honor Traditional First Nation beliefs, systems, and values must have as its primary purpose, the maintenance or restoration of interconnectedness between animals, the elements, human beings, and the entirety of our surroundings. This is a Natural Law.

Our Grandmothers and Grandfathers have been unequivocal since time immemorial that, under Natural Law, our obligations are to share with one another and to care for one another. The fact the remains of two First Nation women are believed to be located at PGL, represents just one of many crimes against Natural Law. Until Mercedes and Morgan are properly returned home, these women, their families and all our communities endure a sacrilege. To this end, the entirety of the PGL project is a ceremony, and the entire project must begin and end with ceremony.

Mercedes and Morgan are believed to have arrived at PGL as result of a series of anti-Natural acts. They are the most direct victims of these crimes, but they are hardly alone. The ripples of their treatment extend to everyone who hears them, and all deserve the utmost respect, patience, understanding, and support.

If Canada and First Nation Peoples are to experience any meaningful engagement and reconciliation of relationships, then situations where even the option of the feasibility study came only after pleas from the First Nation community to search for their family members received enough political support should not happen. Based on this, the committee recommends the following minimal criteria:

1. Ceremonies to begin and end the search deemed appropriate by Elders and Knowledge Keepers.

2. A specified (and weather-appropriate) location to convene in a good way.
3. On-site presence during all search hours of trauma-informed individuals deemed appropriate by Elders and Knowledge Keepers.
4. On-site availability of medicines and spiritual assistance as deemed appropriate by Elders and Knowledge keepers.
5. Replenishment of wood for keeping the fire.

## **6) LITERATURE REVIEW OF FORENSIC SEARCHES OF LANDFILLS**

While the search and recovery for human remains in landfills is known to happen (Laska 1996; Hunter et al. 2013; Paulsen and Moran 2019), detailed accounts from case studies in scholarly literature are scant. Despite this, recommendations and considerations exist in the published literature that can greatly aid in planning a landfill search.

Most landfills have extremely detailed record management and the level of detail of those records can greatly aid in search and recovery efforts (Laska 1996; Hunter et al. 2013; Paulsen and Moran 2019). Landfills usually keep record of the route the garbage trucks follow, the date and time dumpsters would have been emptied, the name of the driver, major customers along a specific route, and the time, date, and location (cell) of the final deposition of waste at the landfill (Laska 1996; Hunter et al. 2013). These pieces of information can provide pivotal information on where to begin a search. In 2004, the detailed information kept by a landfill in Midland, UK was sufficient enough to result in the successful recovery of human remains (Hunter et al. 2013).

When conducting a search at a landfill, archaeological methods are greatly applicable because garbage is commonly deposited in layers, similar to the way in which archaeological sites are created over time. Garbage at landfills is placed in cells that can be the size of football fields with a depth of approximately 8-10 feet (Laska 1996). At the end of each day, after compaction by large machinery, 8-10 inches of soil or spray-on material are placed over the garbage, essentially 'capping' it (Rathje et al. 1992; Laska 1996; Paulsen and Moran 2019). The end result is physical compaction of the garbage, which reduces the rate of decomposition of the underlying material. This process is repeated each day until a hill is formed, resulting in intentional stratigraphic layers that have the possibility of being dated to specific times (Paulsen and Moran 2019). Due to the detailed record keeping at landfills, information regarding these cells can prove very useful in determining where a search should begin. For this reason, landfill managers and operators play a pivotal role in the search process.

Specific search protocols of landfills do not exist, but best practices have been proposed. Once the cell, or cells, of interest has been identified, the first soil cap should be removed and photos of the general area, as well as aerial photographs, should be taken (Laska 1996). While removing garbage layer by layer would be common excavation practice, a search in Stuart, Florida found that compact garbage clumps, sticks, and resists efforts of removal, thereby making a layered search challenging and time consuming (Laska 1996). A more efficient approach that has been proposed is an assembly line approach (Laska 1996; Paulsen and Moran 2019). Where a backhoe digs up the garbage and a dump truck transports it to a designated search area where it can then be spread evenly by heavy equipment (ex. front-end loader with a rake). Once spread, either searchers and/or a K-9 unit (human remains detection dogs) can search through the refuse. K-9 units, when present, should have proper protections (ex. tyvek suits or nylon

booties) to protect the dogs from hazardous material. Once the refuse has been searched, it should be relocated to an area away from the search operation. This process should be repeated until the operation has ended or evidence is found (Laska 1996; Paulsen and Moran 2019). An excavation team should be present inside the cell for detailed examination of the refuse and to track dates by examining newspaper, mail, or whatever may be available. The excavation team should be in full-protective equipment (detailed below). Once the operation is reaching the date of interest, the process should slow to avoid any possible damage to human remains or potential evidence. The scene and the process should be documented (Laska 1996).

Paulsen and Moran (2019) conducted a survey from law enforcement officers who have worked on landfill searches. From a total of 46 cases, the average number of days of searching that ended in the recovery of remains was slightly over 17 days (17.33 days). The longest search took 60 days, while the shortest lasted 2 hours. The latter search was quick because the remains of the victim were in the landfill for only 12-24 hours (Paulsen and Moran 2019). The success rate for the surveyed cases (n=46) was 43.5% (n=20), while 30.4% of cases were unsuccessful. Success was unknown for 26.1% of the reported cases due to incomplete or cessation of communication between the researchers and police agencies (Paulsen and Moran 2019). Searches lasting 30 days increase the success of locating human remains. In addition, results of the survey found that the shorter the time between a body entering a landfill and the start of a search, the higher the success rate (Paulsen and Moran 2019). At the 30-day mark between the victim entering the landfill and the start of a search, chances of a successful search are near even, but drop after a month has passed. Based on the results, Paulsen and Moran (2019) caution initiating a search when more than 60 days has passed between the body entering the landfill and the search being initiated.

In addition to the time between the deposition of a victim and initiating a search, additional factors that should be considered that could lead to successful searches include knowing how much garbage has covered the victim and whether or not the landfill can aid with the operation and expense (Paulsen and Moran 2019). Investigators should identify what items could indicate they are close to garbage associated with the victim's deposition date and the sources of garbage the transporting truck may have picked up along their route (ex. bars, restaurants, car dealers, apartments). Based on these considerations, dates and addresses of mail/papers should be used and be checked periodically throughout the search to determine if the garbage is nearing the date of the victim's likely disposal and determine if the search needs to slow down (Paulsen and Moran 2019). The compaction resulting from the soil or spray-material covering each layer of garbage reduces the rate of decomposition of the underlying material since oxygen is inhibited and access to scavengers is reduced (Rathje et al. 1992; Paulsen and Moran 2019). This process makes it possible to preserve human remains, although no research has suggested for how long.

Health and safety are real concerns during landfill searches. Methane and hydrogen sulfide are produced during waste decomposition. Methane is a flammable gas and an asphyxiant (causes suffocation), whereas hydrogen sulfide is flammable and highly toxic (Laska 1996). Haz-mat teams are recommended to be on site at all times to monitor air-quality, act as safety officers, and perform decontamination of personnel who are in the cell (excavation pit) or working closely with excavated material. Searchers working within the excavation pit are recommended to wear basic level Tyvek covering with half or full-face respirator. When excavation reaches "deep hole" designation, level B suit with a self-contained

breathing apparatus should be worn. Kevlar under-gloves and heavy rubber haz-mat gloves are recommended in addition to fire or haz-mat boots. Seams should be taped to protect against contamination (Laska 1996). Fire Rescue, or a similar agency, is recommended to provide stand-by ambulances, paramedics, and emergency medical technicians. Baseline vital signs for each person working in the excavation pit should be taken since protective equipment should be worn and may impact baseline vitals. An excavation team working in an excavation pit in a landfill in Stuart, Florida had to meet OSHA 1910.120 (Occupational Safety and Health Administration) training requirements for technician and specialist level (Laska 1996). Personnel leaving the excavation pit should first report to a decontamination station with a portable shower, hose, soap, and scrub brushes available. All equipment and personnel should be hosed and scrubbed, with special focus on boots and legs.

Cave-ins are another safety concern since they can occur in any hole deeper than 4 feet. Chances increase in a landfill since the substance (garbage) is not uniform, which therefore potentially leads to higher instability (Laska 1996). Fire Rescue's Tactical Extrication and Rescue Team, or an equally equipped team, should help with the search plan. Ladders can be used to allow easy access to the excavation pit, buttresses could be constructed to shore the wall of the hole as it deepened, and a large industrial blower can be used to supply clean air into the search/excavation pit (Laska 1996).

While landfill searches are complex and can be extensive, the research that is available has shown that proper planning, research, close cooperation among all agencies involved (i.e. public safety, regulators, and utility providers), and consideration of occupation and environmental constraints, can all contribute to successful and safe searches of landfills (Laska 1996; Paulsen and Moran 2019).

## **7) TIMELINE RELATED TO THE DISAPPEARANCE OF MORGAN HARRIS & MARCEDES MYRAN AND THE PRAIRIE GREEN LANDFILL**

The following information has been provided by the Winnipeg Police Service. Morgan Harris, from Long Plain First Nation, was born June 12<sup>th</sup>, 1982, and would have been just short of her 40<sup>th</sup> birthday when she went missing. She had shoulder length dark brown hair and was 5' tall and 100lbs. She was last seen on May 1<sup>st</sup>, 2022, and was reported missing on May 16<sup>th</sup>, 2022. When last seen, she was wearing black ¾ length jacket, a black zip-up hooded mock neck sweater with circular zipper pulls, light blue hoodie, black pants, white or light grey Nike shoes with light blue Nike logo. She was carrying a green re-usable shopping bag, and a white plastic garbage bag with personal belongings. Remains of Morgan are believed to have been deposited in a dumpster in the 1300 block of Henderson Highway on May 3<sup>rd</sup>. On May 16<sup>th</sup>, 2022, at 6:38am the contents of the dumpster were emptied into a Green For Life garbage truck and deposited at the Prairie Green Landfill.

Mercedes Myran, also from Long Plain First Nation, was born November 9<sup>th</sup>, 1995, and would have been 26 years old at the time of her disappearance. She was last seen May 4<sup>th</sup>, 2022, and was reported missing on September 26<sup>th</sup>, 2022. She had medium length dark brown hair, was 5'3" and 90lbs. When last seen she was wearing a black baseball cap with a red peak, and a red "Fortnite" logo, a black hoodie, a black tank top and black pants with black Under Armour shoes. She is not believed to have been carrying a bag of any kind. Remains of Mercedes are believed to have been deposited in a dumpster in the 1300 block of Henderson Highway on May 6<sup>th</sup>, 2022, and remained there until May 16<sup>th</sup>, 2022 at



6:38am, at which time the contents of the dumpster were emptied into a Green For Life garbage truck and then deposited at the Prairie Green Landfill.

Based on the location of the dumpster and the date and time it was picked up, it is believed that remains of both Mercedes and Morgan were likely in the same dumpster and the same garbage truck when deposited at the landfill.

On or about June 19<sup>th</sup>, 2022, as a result of an ongoing investigation, the Winnipeg Police Service formed the belief that remains of Mercedes and Morgan were located at the Prairie Green Landfill. Police subsequently visited the Landfill on June 20<sup>th</sup>, 2022. The Landfill operator made the decision to cease operations in cell 15/13 on this date; the cell in which the relevant dumpster was deposited. To date, no additional material has been deposited in the same cells as that in which remains of Mercedes and Morgan are believed to be located. Consequently, there are 34 days of material that have been deposited in the cell of interest since May 16<sup>th</sup>, 2022.

## 8) TAPHONOMIC CONSIDERATIONS

**Content Warning:** Readers are advised that this section discusses the potential condition of remains of Morgan and Mercedes in detail and may cause significant emotional distress.

The condition of the remains of Mercedes and Morgan must be considered in order to establish a plan that provides the highest probability of recovery. Taphonomy refers to everything that happens to a body after death including the process of decomposition, skeletonization and also human actions, such as the compaction of material at a landfill (Haglund and Sorg, 1997). Based on the information provided by the Winnipeg Police Service with respect to the condition of the bodies of Mercedes and Morgan, it is believed that any proposed search should account for the potential of both intact and/or dismembered remains. It is therefore important to consider all possible scenarios in order to estimate the condition of their remains during the search.

Remains of Morgan Harris are estimated to have been deposited in the dumpster on May 3<sup>rd</sup> at 00:24hrs and was there until May 16<sup>th</sup> at 06:38hrs, at which time the contents of the dumpster were emptied into a Green For Life garbage truck. The average daily high temperature for this period was 17.4°C and the average low was 7.6°C, with a daily overall average of 12.5 degrees Celsius.

Remains of Mercedes Myran are estimated to have been deposited in the dumpster on May 6<sup>th</sup> at 02:36hrs and was there until May 16<sup>th</sup> at 06:38hrs at which time the contents of the dumpster were emptied into a Green For Life garbage truck and transferred to Prairie Green Landfill. The average daily high temperature 17.8°C and the average low was 9.0°C, with a daily overall average of 13.4 degrees Celsius. Note that based on this information, remains of Morgan and Mercedes were likely in the same dumpster, but for slightly different durations; 13 and 10 days respectively.

Decomposition is highly dependent on temperature; warmer temperatures facilitate decomposition and cooler temperatures slow it down (Mann et. al., 1990; Micozzi, 1991). The relationship between maggot activity and weather is the same; warmer temperatures mean a higher degree of insect or maggot activity and cooler temperatures mean slower activity.

Temperatures for the time that remains of Morgan and Mercedes were in the dumpster is based on Environment Canada data from the weather station at The Forks in Winnipeg. This weather station is closest to where the dumpster was located (8.2km from 1300 block, Henderson Highway). It is possible that the temperature of the material in the dumpster was higher than the associated air temperature depending on the degree of sunlight and the fact that decaying organic material can generate heat. Despite this, the overall process of the decomposition of human remains would have followed a normal trajectory, if a little slow during the cooler temperatures, such as at night.

### **I) Complete**

If remains of Mercedes and Morgan were deposited into the dumpster as complete and intact without any exterior wrapping other than clothing, their bodies would go through the normal sequence of decomposition and skeletonization. During the approximate two weeks they were in the dumpster the average daily temperature was between 12.5-13.4°C. Maggot activity would likely have been high during the day and reduced overnight as the temperature cooled, resulting in considerable soft tissue loss over the two weeks. It is very unlikely that the decomposition would extend to full skeletonization during this two-week period. Therefore, it is likely that upon entering the landfill any remains would retain soft tissue and considerable marrow and blood would be retained in the bone (a condition referred to as fresh/greasy).

- a. *Compaction*: The compaction process in the truck and at the landfill, including spreading of material, has the potential to break bones and damage soft tissue. The degree of fragmentation would depend on the amount of soft tissue present. It is possible that the large bones of the body, such as the long bones of the limbs could be broken multiple times. It is also possible that the remains would separate from each other and be redistributed during the compaction process at the landfill. It is possible that intact clothing would limit the spread of the remains.
- b. *Decomposition at the landfill*: In order for decomposition and skeletonization to continue along its normal trajectory, remains require oxygen (Micozzi, 1991). Due to compaction of material at landfills, the use of soil to cap material at the end of the day, and the nature of the material in the landfill, an anaerobic environment is created (Laska, 1996; Rathje et. al., 1992). Consequently, the process of decomposition would slow, and it is therefore possible that there is soft tissue still associated with the remains of Morgan and Mercedes. As the temperature of the landfill decreases over the winter months, the decomposition process will slow further. In addition, it is known that cell 15/13 of PGL is very wet. A wet and anaerobic environment promotes the creation of a material called adipocere, a thick waxy substance that occurs during decomposition in the presence of liquid and absence of oxygen, which can serve to preserve tissue and bone (Hayman and Oxenham 2016; Hester et. al., 2008; Mellen et. al., 1993).
- c. *Possible condition of remains*: some skeletonization with the retention of soft tissue and adipocere; greasy bone; possible fragmentation and dispersal.

### **II) Partial remains, unwrapped**

- a. The same considerations regarding decomposition and maggot activity apply here. If remains of Mercedes and Morgan are partial or separated in some way, it is likely that they are distributed much more widely across the landfill cell.

- b. The possible degree of disarticulation is important to consider here, as the more intentional disarticulation occurred, the higher the likelihood of broad dispersal of the associated remains.

### **III) Complete but wrapped in plastic sheets/garbage bags or similar**

If remains of Mercedes and Morgan were wrapped in plastic, maggot activity could be low and associated decomposition fluids would be retained. If the remains are wrapped very tightly it is possible that there may be no maggot/insect activity and therefore the amount of soft tissue would be much higher than in scenario 1.

- a. *Compaction*: Given that the remains are wrapped with a high amount of soft tissue, the impact of compaction and resulting fragmentation could be less than that associated with the first scenario. The presence of plastic wrapping could also serve to limit the distribution of the remains across the landfill.
- b. *Decomposition at the landfill*: The anaerobic environment of the landfill would slow the decomposition process and it is likely the remains will retain soft tissue and adiopocere will develop as the slow decomposition process continues in a wet environment.
- c. *Possible condition of remains*: entire body possibly retained in plastic wrapping; bones with soft tissue and adiopocere; potentially entire limbs or sections in articulation.

### **IV) Partial remains, wrapped**

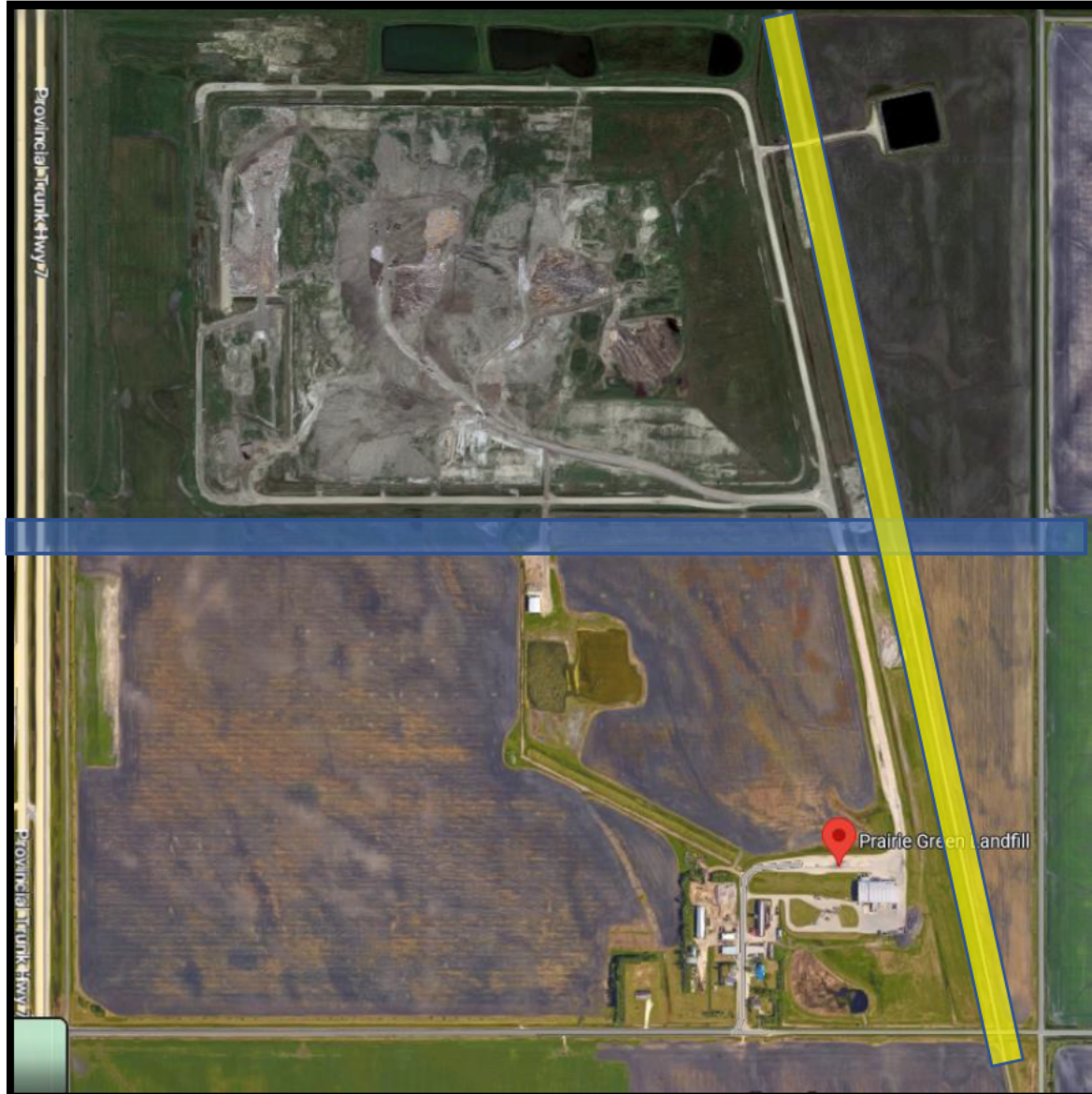
- a. The same considerations regarding decomposition, maggot activity and adiopocere apply here. With the acknowledgement again that if there are multiple bags they may be dispersed throughout the area in the cell.

Ultimately, it is possible that the condition of any remains of Morgan and Mercedes range from large pieces or body segments with soft tissue and adiopocere to smaller body segments or bone with some soft tissue and adiopocere, with or without clothing or a wrapping material. Any search strategy would need to consider all of the scenarios outlined, but planned specifically for the 'partial remains, unwrapped' scenario in order to maximize the likelihood of recovery. It will also be important to consider the recovery of personal effects associated with Morgan and Mercedes.

## **9) THE PRAIRIE GREEN LANDFILL & CELLS OF INTEREST (15/13)**

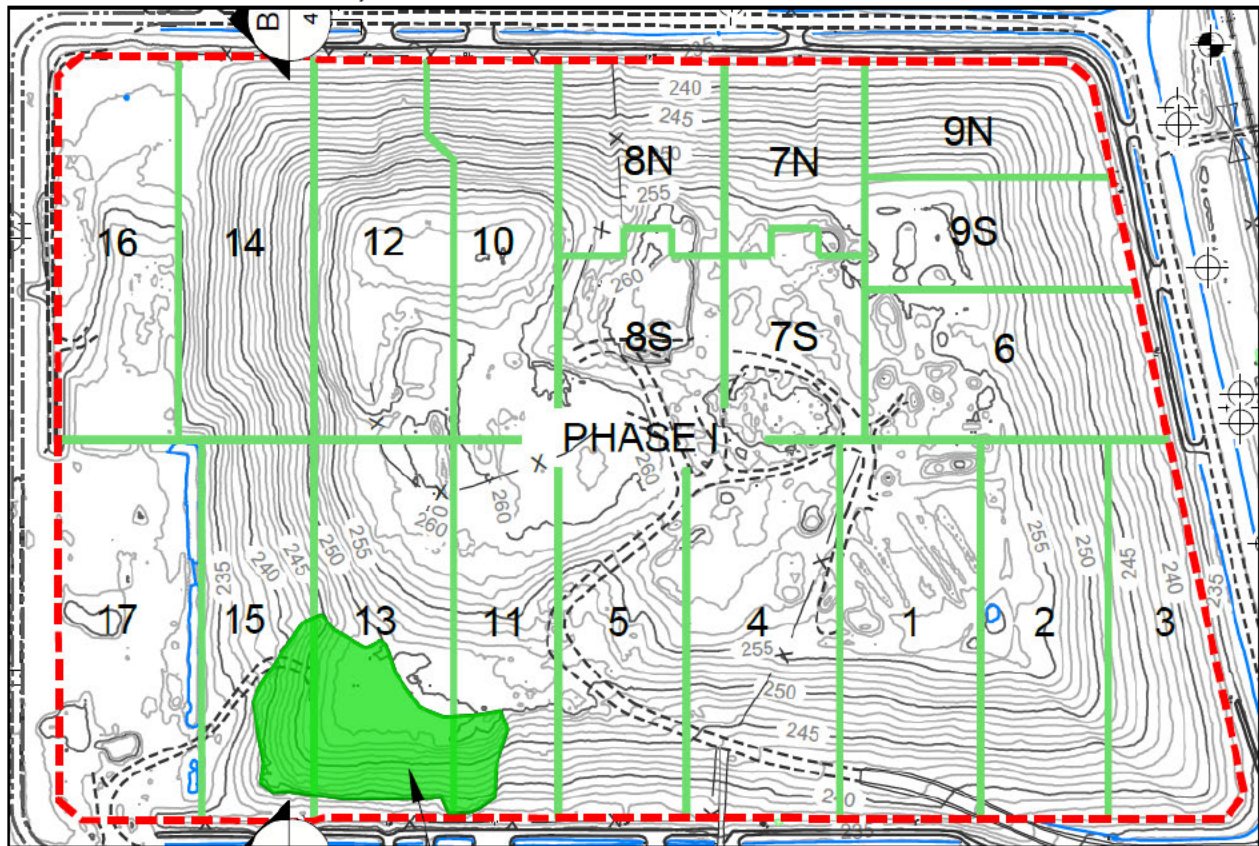
The Prairie Green Landfill (PGL) is operated/owned by Waste Connections Canada and approved under Manitoba Environment Act Licence 2177E R5 and the Development Agreement with the Rural Municipality of Rosser. The landfill has been in operation since 1996 and is located on Prairie Green Road, in Stony Mountain, MB. (Figure 1). It is bordered by Provincial Trunk Highway 7 on the west and there is an active railway on the east side (Figure 1; highlighted in yellow). Recently, as of April 24<sup>th</sup>, 2023, Canadian Pacific Railway has contacted PGL regarding adding a line to the existing rail line system (twinning the line). This could result in the need for a signal crossing in the area. There is also an active Hydro Manitoba power utility corridor running east and west through the property, just south of the active landfill area (Figure 1; highlighted in blue).

**Figure 1: Prairie Green Landfill (Google Maps); blue-hydro/power utility corridor; yellow-railway**



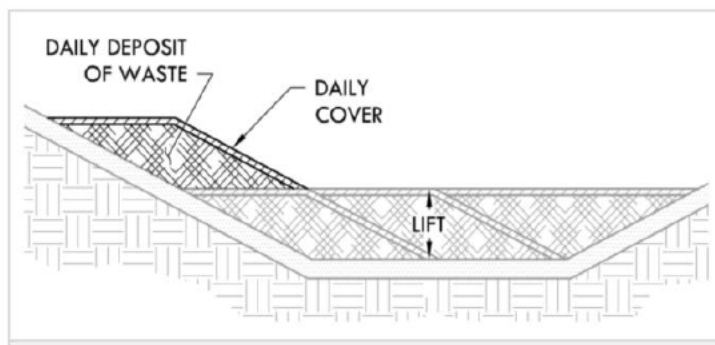
PGL has approval for two separate waste fill areas, known as Phase I and Phase II. Phase I is the current active landfill area (visible at the top of Figure 1) and consists of 17 cells (Figure 2). Cells one through 16 were developed and in use prior to March 2022. Cell 17 is in development as of February 2023. The Landfill accepts both commercial and residential waste, including asbestos (non-friable material in appropriate packaging) and animal waste. Trucks from Waste Connections Canada, Green For Life Environmental Inc. (another waste management company in Winnipeg) and independent small commercial contractors deposit waste daily at PGL. PGL does not employ a GPS monitoring system for the truck deposits but they have stringent record keeping. All asbestos deposits follow legislative requirements and have associated GIS locations documented.

Figure 2: Cell 15/13 Prairie Green Landfill highlighted in green (image used with permission of Waste Connections Canada)



A landfill cell is constructed in a very carefully planned manner (Figure 3). Waste is deposited daily in the active cell, spread with a Caterpillar D6 dozer (or similar), and compacted utilizing a Caterpillar 826 Landfill Compactor (or similar). The waste is compacted in layers to create a compacted waste lift approximately 4 to 5 meters in depth. At the end of each working day, the waste is covered or capped with clean cover material such as soil to prevent nuisance and vector problems. Each morning the soil layer is scraped back in order to continue to add waste material in close proximity with other waste. The soil is reused as needed for the subsequent layer cap. These waste lifts are constructed progressively across the active landfill cell and repeat upwards until the final approved waste elevation of a cell is achieved.

Figure 3: Typical cell development in use at PGL

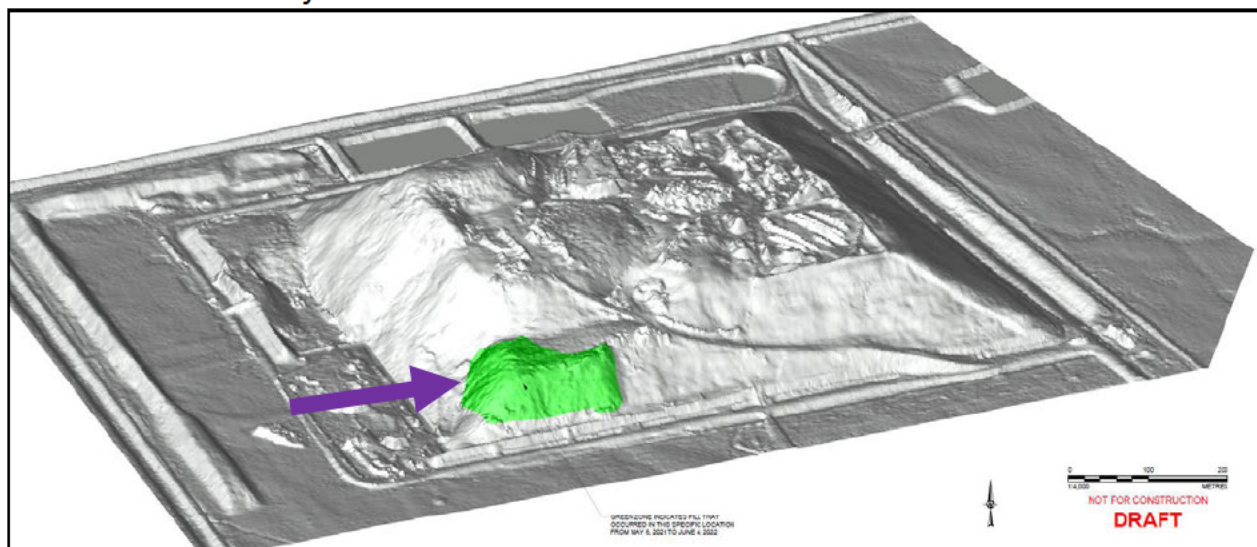


Due to unseasonably wet conditions in 2022, three areas were used for landfilling:

- Cell 16 was in use from January 2022 to the end of March 2022 and then again from November 2022 until present day.
- Cells 15 and 13 were in use from the beginning of April 2022 until June 20<sup>th</sup>, 2022.
- Cell 12 was in use after June 20<sup>th</sup>, 2022 to November 2022.

As cells 15 and 13 were in use as of May 2022, and the Green for Life truck that picked up the dumpster in which Morgan and Mercedes are believed to have been in, deposited its load at the landfill on May 16<sup>th</sup>, 2022, it is probable that the remains of Morgan and Mercedes are associated with these two cells (Figures 2 & 4).

*Figure 4: 3D model of Prairie Green Landfill based on annual topographic scan data; green is cell 15/13 as of June 4<sup>th</sup>, 2022 (image used with permission of Waste Connections Canada). Purple arrow shows location of asbestos.*



The size and shape of the area associated with cells 15/13 is approximately 200m x 100m, with a maximum waste depth of 10m. The estimated volume of material to be searched based on topographical survey data between May 8<sup>th</sup> 2021 and June 4<sup>th</sup>, 2022, is approximately 72 000m<sup>3</sup> (Figure 4). Given that this volume of material includes material deposited for 11 months prior to the timing of the possible deposition of remains of Morgan and Mercedes at the Landfill, it is possible that the volume of material to be searched is much less than estimated. In fact, given the timing of possible deposition and the timing of closure of the cell (May 16<sup>th</sup> – June 20<sup>th</sup>) it is only 34 days of waste material that needs to be searched. That being said, cell 15/13 does not follow the same 'standard' lift construction as other cells, due to the excessively wet spring of 2022 and because it includes asbestos.

The west slope of cells 15/13 (Figure 4: purple arrow), has recorded deposits of asbestos (a total of 712 tonnes between April 11<sup>th</sup> and June 20<sup>th</sup>, 2022). All material is received in yellow double-wrapped bags, placed in a pre-excavated hole in the waste already deposited, and then covered with a minimum of 2m of waste or soil. Between May 16<sup>th</sup> and June 20<sup>th</sup> 2022, approximately 12 tonnes of asbestos (12 of the total 712 tonnes), were landfilled. The pre-excavated holes were on the west slope of cell 15 and material already in the cell was used as cover. This means it is possible that the waste material with

which remains of Mercedes and Morgan may be associated, is the same material that was used to cover the asbestos. Consequently, it is possible that some remains are in close association with the asbestos. If this is the case, the excavation and search of the landfill cell will need to include a plan to excavate the area directly associated with the asbestos, and potentially excavate the asbestos itself. In addition, despite PGL and those bringing in the asbestos, following all required legislation, it is possible that the double-wrapped bags could be punctured or otherwise compromised. This means there is a likelihood that asbestos material and not just the bags that contain it, could be disturbed during excavation. When asbestos is disturbed it can become friable, which is a major health hazard. Consequently, an excavation and search could be a very high-risk endeavour. Further to this, the fact that cell material was used as cover for asbestos on the west slope, suggests that any remains in the cell could be further disturbed or disassociated that if cell 15/13 followed the more 'standard' construction.

### ***Waste Connections Canada Legal Disclaimer***

Information and drawings provided by Waste Connections of Canada on the location and extent of the search area at the Prairie Green Landfill are based on timelines and information provided by the relevant local authorities. All data contained in the information and drawings is simply an estimate based on best available information and should not be interpreted or used as conclusive. All information and drawings supplied by Waste Connections of Canada and contained in the final Feasibility Report is regarded as private and confidential and should not be shared without the prior written consent of Waste Connections Canada.

### ***1) Prairie Green Landfill Responsibility and Licence Alteration Proposal Requirements***

In order for a potential search to take place, Prairie Green Landfill, as the licenced facility under the Environment Act, will be responsible for submitting a Notice of Alteration proposal to Environment and Climate. The excavation and transport of the material from cell 15/13 to an on-site search building will be the responsibility of PGL as part of their regulatory approval to operate the landfill. PGL will be responsible to ensure that all appropriate regulatory approvals are attained before a search can begin. It is important though that the requirements for which PGL is responsible be made clear in this report.

When PGL submits an approval application to Environment and Climate, it must address the following including but not limited to:

- the estimated area and volume of material to be excavated (estimated here as 72 000m<sup>3</sup>)
- the time frame for completion of the search efforts
- measures to ensure the integrity of
  - landfill cells
  - leachate collection system (the system that collects all associated liquid)
  - liner of the cell (the liner prevents contamination of soil from landfill material and its integrity must be maintained)
- measures to prevent
  - the potential release of contaminants during the excavation process (e.g. landfill gas)
  - odour nuisance to the neighborhood
  - dust generation
  - waste migration by vectors (birds, rodents, and other scavengers)
- a waste management plan for excavation addressing
  - the waste transfer location
  - the handling of excavated waste

- special wastes uncovered through the process, including but not limited to animal remains, asbestos, and any hazardous waste
- the waste excavation and removal process, specifically addressing the requirements of Section 26 of the Manitoba Regulation 217/2006 – Workplace Safety and Health Regulation with respect to excavation and tunnels
- the temporary storage of excavated material including the staging area for forensic screening, and prevention of stockpiles from weather elements
- leachate containment during the sorting, screening, and investigation process
- preventative measures to protect groundwater and surface water
- disposal location, if any, of excavated waste material that requires immediate disposal after the forensic screening process
- procedures to
  - address all human health hazards in a health and safety plan
  - restore excavated material into landfill cells
  - decontamination methods
  - prevent run-off to drainage systems
  - address any contingencies, such as
    - any impacted infrastructure
    - release of contaminants
- site layout plan
- training requirements for the personnel to be engaged
- adequate barricade and excavation signs
- description of field testing equipment used for hazard identification e.g. photoionization detector, gas analyzers etc.
- Contingency plan to address any unforeseen environmental issues and other hazards

It is further recommended that other hazards beyond those included in this list of requirements be explored.

## 10) HAZARDS & RISKS

In order for a search to take place, the safety of all members involved in such a process is of highest priority. All health and safety protocols established by PGL/Waste Connections Canada, must be followed in all regards and a clear health and safety plan associated with the search process itself clearly established. Consequently, there are two major components of health and safety, including environmental regulations, that need to be fully addressed in any search proposal; hazards and risks associated with cell excavation and those associated with the search process. While there are two main separate components to consider, there are hazards and risks that apply in both contexts which are of highest priority.

### 1) *Overall Hazards and Risks*

All landfills produce methane, carbon dioxide and hydrogen sulfide. **Methane** and carbon dioxide are natural by-products of the decomposition of natural material in landfills. Both are asphyxiants (causes suffocation) and methane is highly flammable. Methane is included in Schedule 1 – List of Toxic Substances of the Canadian Environmental Protection Act Registry (CEPA Toxic Substances List; Environment and Climate Change Canada).



**Hydrogen sulfide** (H<sub>2</sub>S or 'sour gas'), is a colourless gas that in small amounts smells like rotten eggs. It is flammable and extremely toxic. Exposure to hydrogen sulfide in low concentrations can cause headaches, nausea, confusion, skin complications, irritation of the eyes, nose, throat and lungs, memory loss, disorientation and slower reaction times. In higher concentrations, it can cause unconsciousness and death. Those that survive large amounts of H<sub>2</sub>S exposure, have permanent damage to their nervous systems and impaired learning and memory (Safe Work Manitoba, Bulletin 173).

**Asbestos** is documented to be in cell 15 at PGL. Asbestos is a strong fire-resistant fibrous material that has commonly been used for insulation against heat, noise or fire. The fibres are extremely fine and can stay in the air for hours once disturbed. Inhaling the fibres can cause serious disease such as pneumonia, heart disease and mesothelioma (a form of cancer). The chance of developing one of these diseases is directly related to the amount of asbestos inhaled and the length of exposure. Diseases related to asbestos do not usually develop until years after exposure. As per the *Manitoba Workplace Safety and Health Regulation*, the employer is required to protect workers from exposure to asbestos. If workers are exposed, the levels must be below the Occupational Exposure Limit. There are multiple ways in which the employer can control exposure (taken directly from Safe Work Manitoba, Asbestos;

<https://www.safemanitoba.com/topics/Pages/Asbestos.aspx#>)

- elimination: eliminate or remove the hazard from the workplace, this is the most effective control measure.
- substitution: replace with a less hazardous condition, practice or process
- administrative: improvements in the way work is done
- engineering: physical changes that reduce exposure, and isolate the worker from the hazard
- personal protective equipment: protect the worker with personal protective equipment.

There is a clear risk of exposure to asbestos during both the excavation of material from the cells and during the search of material. It is imperative, that before a search can go forward, a clear Safe Work Plan must be established regarding how to handle asbestos, with mitigation measures being established, prior to any excavation of cell 15/13 taking place. It must also be acknowledged that the best way to mitigate working with asbestos is to use water, which limits the dispersal of fibres. Water or any associated runoff from landfill waste, creates leachate, which requires specific planning, equipment and regulatory approvals.

**Biohazards** are any biological substance that poses a risk to the health of humans or animals. They can be transferred through animal and human remains. It is possible that there are unknown dead animals in the landfill which could pose a risk. Any work with human remains also poses a potential risk. It is therefore imperative that the health and safety plan ensure a component to mitigate these hazards.

## **II) Hazards & Risks Associated with Cell Excavation: Slope Instability**

Of major concern in the process of excavating an already constructed cell, is side slope failure. The responsibility for ensuring this does not happen falls to PGL but it is vital that the hazard and risk of this be clearly articulated here and in any future proposal that were to go forward.

Slope instability and potential land sliding pose a risk during the excavation of previously landfilled waste material. Various factors influence slope stability and include but are not limited to embankment height, slope steepness, moisture content and material properties. A search area was identified based on

information and timelines provided by authorities, and a review of survey information suggest approximately 72,000 m<sup>3</sup> of landfilled waste material will need to be excavated and processed. A preliminary review suggests that excavation slopes will be shallow; side slopes will not exceed about 1H:1.5V, and slope instability should not pose a significant risk. To mitigate any potential risk, it is recommended that safe excavation and slope stability monitoring procedures be developed with the assistance of a geotechnical engineering firm. Suitable emergency response planning must be coordinated with the local fire department (and other relevant authorities) to identify what would be required to respond to a slope failure situation. The excavation and monitoring plan should include the following aspects; slope stability for side slopes of the excavation, the stability of the excavation pit from cave-in, exclusion zone around the excavation, and the load bearing capacity of heavy equipment to prevent cave-in and should include the implementation of slope stability monitoring to further mitigate risk. Details will be submitted for approval by Manitoba Environment and Climate with secondary oversight by the Manitoba Office of the Fire Commissioner. The above is subject to all excavation activities being carried out by Waste Connections of Canada and their plan as approved by Manitoba Environment and Climate. All information on side slope instability has been supplied by Chris Visser, Canadian Region Engineering Manager, Waste Connections Canada.

### **III) Health & Safety associated with Search Process**

The individual responsible for directing the search (Search/Project Director) will be responsible for working closely with PGL to ensure that all health and safety components related to the search process are addressed. They will also be the one responsible for all search employees and to Manitoba Workplace Health and Safety. Manitoba's workplace Safety and Health Act creates accountabilities for both the employing entity and the supervisor overseeing the work. A distinction between the accountabilities should be made if differing corporations or entities engage in a cooperative recovery plan. All activities must adhere to the requirements of the Workplace Safety and Health Act. Close coordination with PGL will be required, as third-party workers who are not PGL employees may be operating on PGL's site, who will have their own requirements and obligations in place.

[https://www.gov.mb.ca/labour/safety/pdf/whs\\_workplace\\_safety\\_act\\_and\\_regs.pdf](https://www.gov.mb.ca/labour/safety/pdf/whs_workplace_safety_act_and_regs.pdf)

In one of the search scenarios possible, it will be necessary to construct a temporary building on PGL property to act as a search facility. The requirements for this building must meet building code and approvals as per the Rural Municipality of Rosser and Fire Code as per Manitoba legislation. As the licence holder, PGL must be involved in the process of constructing a building for use as a search facility. In doing so they will ensure that the floor of the building meets requirements to ensure protection of soil and groundwater, limit odour, limit transport of waste and all other regulations as required. Air dispersal modelling will be required to ensure the appropriate ventilation system is in place. PGL will work with their experts to establish this plan as needed.

The Search Process, from putting material into a hopper, to searching through material on a conveyor system, to that material leaving the conveyor system, will require its own specific Health and Safety Plan that details workplace training for employees, on-site safety protocols in the event of a conveyor belt injury/complication, hazardous gases, biohazardous materials, sharps, appropriate PPE, employee conveyor belt fatigue etc. Safety showers and eyewash stations and first aid kits will be required in the search facility. In addition, a clear path process for decontamination for Search Technicians will be required. To establish such a detailed plan it will be imperative to work closely with PGL's health and safety experts and Manitoba Workplace Health and Safety. No work will be able to begin until such a

plan is in place. It may also be required that the insurance holders of the property will require specific components in a Health and Safety Plan in order for the insurance to be valid.

#### ***IV) Mental Health & Well-Being***

The search for human remains is a difficult task and can drastically affect the mental health and well-being of those doing the work, particularly if this is their first time in such a position. Even though a search such as this is a humanitarian recovery effort, the added stress of knowing Morgan Harris and Mercedes Myran are the victims of homicide can make the toll much greater for the searchers and other personnel. The risk of a negative affect on someone's mental health and well-being is real and should be considered in the same context as other hazards and risks associated with a search of this nature. Such concerns for mental health and well-being extend to all employees of PGL, not only those excavating and transporting the material from the cell to the search facility. It includes all personnel involved in loading the screening system or handling human remains detection dogs, and all searchers actively going through the material on conveyor belts or in any capacity. It is imperative that there be appropriate mental health supports be made available for all individuals involved during the search and for a period of time after the completion of the search, regardless of the search outcome.

### **11) SEARCH OVERVIEW**

There are multiple considerations when planning a search; what is the best process given the scenario and what infrastructure, personnel and equipment are required. The sections below detail these specifics as best as possible based on information provided about the landfill, health and safety, considerations of the potential condition of remains of Mercedes and Morgan and contemplation of a strategy that ensures all material is reviewed and that could have a high probability of recovery.

The Technical Subcommittee has considered utilizing human remains detection dogs (HRDD), also known as cadaver dogs, in the development of a search strategy, either as the main search process or to augment a search. HRDD are specifically and highly trained to detect the gasses associated with decomposing human remains and pass rigorous certification processes. HRDD have been used successfully in the search and recovery of individuals in a variety of situations

To use HHRD dogs as the main search process of landfilled material at PGL, would likely not require the construction of a building, as it is commonly best that HRDD are deployed in an outdoor environment in order to have access to natural airflow. Additionally, in the context of this scenario, having the HRDD work outside would potentially limit their exposure to toxic gases. Material would need to be excavated from cells 15/13 and deposited in rows roughly 6 feet in width. The dogs would be deployed over each row and would alert should the presence of human remains exist. After a signal has been confirmed, the material has to be hand searched in order to locate the specific material that the dog has identified. When a HRDD signals, they signal an area in which the material could be located. It is then up to the human search team to then recover that material. If a dog does not signal the presence of human remains, then that material is considered 'searched', removed, and replaced with new material.

It has been estimated that a search of the landfilled material at PGL would require between 8 and 12 HRDD teams per shift, who would work in a rotation. Cadaver dogs tire after between 45-60 minutes and require about 30-45 minutes of rest between each deployment. They are also susceptible to injury as

they process material while walking over it. The dogs do not have access to the same options for PPE as human searchers, respirators in particular, and are therefore at high risk for injury in a landfill search. Cadaver dogs have been deployed in the past to landfill searches but have not been overly successful due to the hazards associated with such searches, and the search time required is extensive. Further, it is possible that a search that solely relies on HRDD could be quite slow and if 8-12 teams are required it would deplete almost the entire group of North American cadaver dog search teams. In addition, many Canadian cadaver dog teams have been deployed in rotation to Turkey for the humanitarian search of those missing in the recent earthquakes. This means that should a search effort in this context, include HRDD, there may be a shortage of teams, or increased deployment interruptions.

In addition to concerns for the high risk of injury to a HRDD, is the fact if a dog does not indicate/signal on an area of material, that area is considered 'searched' and not to contain any material of interest. HRDD are not infallible, and it is possible human remains could be missed using this approach. While the Technical Subcommittee recognizes that human remains could be missed in any search strategy, we think it is important to utilize a search method that ensures all material is reviewed, such as one that incorporates a conveyor belt system, and allows for the recovery of personal effects. The Technical Subcommittee then has ultimately decided that HRDD should only be used to compliment a conveyor type search process, if deployed at all.

**It is recommended** that if a search is to go forward, a search process that includes a conveyor belt system manned by multiple trained personnel (Search Technicians) be utilized for the search and recovery of remains and personal effects of Morgan Harris and Mercedes Myran. Such a system is recommended to ensure all material is reviewed and to incorporate the potential recovery of personal effects. The search and recovery efforts for the Picton File in Port Coquitlam in BC in 2002-2003 and after the 911 attack in New York City, used conveyor belt systems. It must be kept in mind that these two scenarios are quite different from the one under consideration, as waste in a landfill is not of consistent size and is not easily separated. A search strategy such as this requires: a special use building, conveyor belts and a screening system or additional way to separate out material, multiple trailers/support buildings, trained personnel, detailed safe work practices, and specific personal protective equipment and training.

## **12) SEARCH OPERATION**

Search Operation refers to all the buildings and infrastructure required to ensure a search is conducted safely and follows regulatory requirements (see Section 9, I). The Search Operation (including the building/s and equipment) needs to be constructed so workers can carry out their task in comfort and safety while ensuring adequate space to decompress, access first aid and accommodate the necessary administrative oversight needed for a project of this size and scope.

### ***I) Buildings and Infrastructure***

In order to set up a material processing area, it is required that a search facility building be constructed (following all regulations). In addition to a search facility, are trailers (or similar) for personnel, storage of found material that needs assessment, and equipment. All of these structures require access to electricity, water and high bandwidth internet. The location of the search facility building and all associated trailers **must** be on PGL property, the specific location of such must also be determined by

PGL, Waste Connections Canada and will be subject to the approval of Manitoba Environment and Climate. One potential location is to the east of the railway (Figure 5: highlighted in purple). This potential location for the search facility and associated trailers, must take into account the requirements of crossing the active railway and all necessary permissions. Any consideration of the location of a search facility must consider the overhead power utility corridor (highlighted in blue in Figure 5) as there will likely be strict restrictions as to what can be constructed in the area.

Figure 5: Prairie Green Landfill (Google Maps)



**a. Building for search facility/processing material**

A large, approximately 23 000ft<sup>2</sup> structure is required to house all equipment required for a conveyor belt system search process. This building must follow all municipal, MB Health and Safety, and Environmental legislation requirements. A building will ensure that the search process can continue through all weather as needed.

**b. Temporary trailers/support buildings**

The building/temporary construction type trailer(s) required, are as follows and could be condensed into a single super structure should that be decided as the best approach to provide the best value to the project.

- i. Elder/Knowledge Keepers & Families (or temporary construction type trailer).
  - This space will be designed and used to house the onsite Elder(s) and for families, and to facilitate any guidance, administration of ceremony or Elder counseling to team members as needed. Should a temporary construction type trailer be decided upon instead of an all in 1 super structure, this building would need to have 1 private office, a reception/greeting space and room to fit 3 couches for group activities.
- ii. Administrative offices or temporary construction type trailer(s) to house:
  - Project Managers x 3 (Including PGL Project Manager), Operations Manager, Health and Safety Officer, Administrative Support Clerks x2, Forensic Anthropologist (private office) and student support positions (2 cubical type spaces for these 4 positions).
  - Forensic Anthropologist – the onsite forensic anthropologist will require access to secure and restricted space to examine material pulled by Search Technicians. This space should allow for a ‘dirty lab’ and ‘clean’ office space. Alternatively, there should be a restricted access examination space and a separate office space. For the examination space the equipment needed on site includes:
    - Two 3’x8’ stainless steel exam tables, access to electricity, access to water, digital camera with macro zoom lens.
- iii. Washroom facilities for administrative and support staff
  - Washroom facilities which are accessible for the administrative and support staff, and separate and apart from the locker/change rooms/decontamination areas.
- iv. Change rooms for search facility workers with enough space to accommodate up to 30 lockers in two separate spaces.
  - Separate locker/change rooms for workers with a transition into a PPE donning area and decontamination space prior to entering and exiting the main search facility. This space will need to be handicap accessible as per building code (unless an exemption is provided) and will need to be broken into at least two separate areas for male/female privacy.
- v. Decontamination/shower space located in each change room (or as deemed appropriate in a safe work plan)
  - Workers need to be afforded the opportunity to shower/decontaminate themselves prior to changing back into their street clothes when their shift is complete.

- vi. Lunch/break room space or trailer suitably large enough to accommodate up to 20+ search team members.
  - This space will also need several large, stand-up type refrigerators, microwaves, coffee maker/s, counter space, and a kitchen sink area. This space should also have a lounge/soft seating area for fatigued staff as they rotate positions and breaks throughout the workday.
- vii. 1 climate-controlled space about 8'x20';
  - The secure storage of any remains or similar type items located by the search staff. This will be required for temporary storage until such time as the forensic anthropologist is able to examine the item to determine whether or not it is human. A secure space like this is needed to maintain the continuity of the material and needs to be able to reliably maintain a temperature range of 3 to 8 Celsius and humidity range controlled to 35% rh.
- viii. 1 tool/parts storage area 20'x40'
  - For the building and conveyor maintenance personnel to store tools and parts for replacement and maintenance of the equipment. This area needs to have at least double access doors, so tool cribs, toolboxes and large parts can be moved in and out of the entry of this trailer or space to be stored or worked on.

### **13) EXCAVATION, TRANSPORTATION AND RETURN OF MATERIAL TO LANDFILL**

The search process begins with the excavation of material from the cell, followed by hauling that material to the search facility, and ends with the return of the material to the appropriate landfill cell. This entire process must be under the control and supervision of PGL as the licensed operator of the landfill.

#### ***1) Excavation of material***

The specifics of excavation of material from cell 15/13 must be determined with PGL staff before a search can begin. That being said, the Technical Subcommittee has some recommendations for this process:

- a. Excavation of material from cell 15/13 should occur in a horizontal layer system. This will ensure cell integrity (see side slope failure in Hazards and Risks).
- b. During excavation, extremely large material such as mattresses, furniture, large pieces of piping etc., should be separated out by the excavator operator.
- c. That there be a method of removing large pieces of metal from the material prior to hauling it to the search facility.
- d. An Observer be positioned such that as material is excavated it can be observed for the presence of potential human remains or material that needs assessment immediately. This Observer should be one of the Search Technicians as part of the shift rotation cycle.

## II) *Transportation of material to Search Facility*

The specifics of transportation of material from cell 15/13 **must be** coordinated with PGL staff and approved by Manitoba Environment and Climate before a search can begin. Methods must be incorporated to prevent dripping and spilling of waste and leachate during transfer, search and transport. If a roadway is required to ensure transportation from the landfill to the search facility, this will be the responsibility of PGL. The transportation of material from cells 13/15, could take place using either 10m<sup>3</sup> dump trucks (Figure 6), or 20-25m<sup>3</sup> articulated haul trucks (a.k.a. rock trucks) (Figure 7). Rock trucks are the preferred method according to landfill management due to the ability to travel across bedding and constructed roadways with high moisture content, and/or during freeze and thaw cycles, which will minimize the environmental impact to the surrounding areas and roadways. The material must be covered to prevent dispersal of material during transportation.

Figure 6: 10m<sup>3</sup> Dump Truck



Figure 7: 20-25m<sup>3</sup> Articulated Haul Truck



If the search processes all 72,000m<sup>3</sup> of material, this will translate into 7,200 loads using 10m<sup>3</sup> dump trucks, 3,600 loads using 20m<sup>3</sup> articulated haul trucks and 2,880 loads using 25m<sup>3</sup> articulated haul trucks.

## III) *Return of material to landfill*

Prior to any searched material being returned to the landfill, the Forensic Anthropologist must review all material recovered during the week. If human remains are included in the material recovered that week, a decision can be made if the material needs to be searched a second time. Once the material has been deemed as 'fully searched', PGL operators will load the material into trucks and deposit it back into the landfill as per the regulatory approved protocols. For any retention or placement of material outside of the landfill, there needs to be a proper temporary storage location to prevent leachate percolation into the ground. A leachate management plans needs to be incorporated into the Notice of Alteration Proposal generated by PGL, for approval by Environment and Climate.



## 14) SEARCH PROCESS

Throughout any search process, the system must incorporate methods to prevent dripping of waste and the generation of leachate. If leachate is generated, there must be a system in place to contain, collect and dispose of it (as per regulatory requirements). The suggested search process is one where material excavated from the landfill is placed into a conveyor belt system that slowly passes the material under the watchful eye of trained Search Technicians. Such a material processing system needs to be specifically built for this type of search. It requires a feeding system that brings the materials at a consistent rate, spread depth and width up a conveyor belt system. At the point where material is being loaded into the conveyor system, a Search Technician should be observing to note anything of interest that needs immediate assessment. It is possible to include a large electromagnet to remove metal from the material at the beginning of the process. This metal would require a review by a Search Technician for small pieces that may be associated with personal effects.

From there, the material will enter a shaker deck trommel which will spread out and break down the clumps of clay and frozen material. Alternatively, the material could be placed into a multi-deck screening system where screens of various sizes divert material to size specific conveyor belts. A system that includes the potential to remove the soil from the material and to separate material by size is particularly useful as it can help focus the Search Technicians on the most probable material. It is also visually easier to observe materials of similar size. Of concern in a screening system, is that the material is known to be very wet and wet soil with a high clay content can easily clog traditional screening systems causing excessive down time for cleaning, de-clogging, and potential equipment failures. This must be taken into consideration during the design of the system. This specialized process requires the use of a fully integrated conveyer system which moves material at the same rate and consistency. Given that the conveyor belt and sorting system will need to be custom built, there will be specific time considerations for acquiring the material and set-up.

Four to five Search Technicians will be located on either side of the conveyor belt (or belts if there are multiple organized by size), in a staggered format in order to view all the material as many times as possible. In addition to visually scanning the material on the conveyor belt, there are two possible scenarios for processing the material:

1. The Search Technicians use hand tools to break apart bags or clumps of material or to move the material around as it passes in front of them.
  - a. Physically opening bags or breaking up material with hand tools while the conveyor belt is still moving, has the potential to damage remains if they are in the material being targeted.
2. Any items of interest, such as bags that might need opening will be removed and placed onto a separate table where a Search Technician can open the bag for close inspection while the conveyor belt system continues uninterrupted.

The Search Technicians at all stations on the conveyor line will have a shut off switch should they want or need to stop the line. The shut off will immediately stop the entire line to conduct a more in-depth analysis of an item, remove an object or if a safety concern is presented.

At any point should a Search Technician identify something that could be bone, or soft tissue of any origin, that material must be placed into a clearly labelled collection container. The container must then

be placed into the restricted access storage trailer by assigned personnel for assessment by the Forensic Anthropologist.

### ***I) Search Technician Organization***

One of the potential ways to organize the Search Technicians is to have two Search Teams of approximately 10 members with 1 position of the 10 acting in a supervisory capacity or as a Team Leader. The teams will rotate on an hourly basis, with 8 positions assigned to the conveyor belt system, one as an Observer for the material being placed into the beginning of the conveyor system and one as the Observer for the excavation of the material from the cell. These positions could rotate as it can be difficult visually, cognitively, and physically, to observe a conveyor belt system for an extended period. One hour per position rotation will ensure the Search Technicians are prepared and rested for each position in the search rotation process, thereby mitigating worker fatigue. The workday could then be conducted in 12-hour shifts, with the teams staggered. As an example, Team 1 starts at 6:30am and finishes at 6:30pm, while Team 2 starts at 7:30am and finishes at 7:30pm. The search could take place Monday to Friday, ending at 12:30pm on Friday to ensure that the material that is determined to be returned to the landfill can be done so before the weekend. This may limit the need to cover material for an extended period and limit smell and nuisance. Ultimately then, Monday to Thursday will encompass 13hrs of active searching each day, and Friday will include 6hrs, with Team 1 ending at 11:30 and Team 2 ending at 12:30, for total of 62hrs of active searching a week. This is simply one of the proposed shift rotations and it is recognized that should the search go forward, that autonomy be provided to those responsible for the search to institute the shift schedule as they see fit.

### ***II) Augmentation of search process***

It is possible that there is technology or other equipment that exists that could be used to augment a search such as this. One such technology is the use of baggage scanners, such as those used in airport, which could be used to scan bags in the landfill material instead of working to open them. While it is possible to identify bone in such a system, it is possible that this could drastically increase the time required to process the material.

## **15) POTENTIAL TIMELINE – APPROXIMATELY 3 – 3.5 YEARS**

It is difficult to estimate a timeline for a possible search of the landfilled material at PGL, as the amount of material that can be processed a day can only be roughly estimated. Regardless of how long search processing will take, there will be a minimum 6-month lead time, in order to acquire all necessary permissions, order equipment, establish infrastructure and hire relevant personnel (Table 1). The total volume of material is 72,000m<sup>3</sup>. When converted to weight in tonnes, the total weight of material to be searched is 61,200 tonnes (as per Waste Connections Canada). It is possible that not all 72,000m<sup>3</sup> will need to be searched, but it is best to plan to search all of it.

**Table 1: Potential Timeline of Work**

Description of Task	Estimate of Time Required
Hiring managing personnel; working with PGL to submit approval process to Ministry; applying for other permissions & approvals	2 months
Building required structure(s); installing trailers; hiring other personnel, ordering & receipt of conveyor systems; establishing safe work plans	3 months
Conveyor system set up; personnel training	1 month
Processing material (estimate 97.5tonnes/day) <sup>(1)</sup> ~465 tonnes/week operating on a 4.5day 13hr/day schedule	61, 200tonnes of material to be searched; would require approximately 131 weeks or approximately 2.5years
<b>Total Time Estimated</b>	<b>3 years<sup>(2)</sup></b>

(1) PGL estimates 60tonnes/day for an 8hr/day schedule, which is roughly 7.5tonnes/hr; the estimate here is for a 62hr work week (Section 14:

1) therefore 465 tonnes/week

(2) If following PGL's estimate, it is 3 years for processing plus the estimated 6 month lead time predicted here.

## 16) PROJECTED FISCAL INVESTMENT

PGL (Waste Connections Canada) has provided a detailed cost estimate for the excavation of material from cells 15/13, transport of that material to a search facility on site, and the return of material to the appropriate landfill cell (Table 2). The cost has been calculated for a projected three-year duration and a 12-month option.

**Table 2: Pre & Post Search Facility Operations; to be completed by PGL, Waste Connections**

Scope of Work	Cost
<b>Excavation/Hauling</b> <i>Includes all equipment and labour costs to excavate, sort, load and haul material from cells 15/13 to the processing facility.</i>	\$27, 386, 100
<b>Landfilling</b> <i>Includes all equipment and labour costs to return (i.e., haul only), place, spread and compact searched material in the appropriate PGL cell.</i>	\$14, 999, 400
<b>Miscellaneous</b> <i>Includes First Aid/Medical, Safety Supervisors, Project Managers, Electrical Installation, Water Supply (i.e., for dust control) and Odour Control System Installation and Operation (i.e., neutralizing product)</i>	\$ 2, 463, 500
<b>Subtotal (A): for 3 years</b>	<b>\$44,849,000</b>
<b>Subtotal (A): Estimated 12-month Cost</b>	<b>\$14,949,667</b>

PGL also worked with Interlake Salvage and Recycling (Table #3: Vendor #1) to estimate the potential cost associated with establishing a search facility and associated conveyor belt/screening systems. In generating an estimate of costs, PGL used an in-place material density of 850kg/m<sup>3</sup>, calculated from historical landfill tonnage and survey information. This results in a total weight of material at 61,200 tonnes. They have estimated the daily production rate of 60 tonnes/day which results in a 3-year (36 month) search period for a 6-day work week. The conservative production rate accounts for unknown site and material conditions that could affect productivity and operations. These conditions include but are not limited to wet material, clay content, odour mitigation, risk mitigation (i.e., slope stability, hydrogen sulphide, asbestos, biological, etc.) and equipment breakdowns. PGL has provided detailed estimates in Appendix 1.

Separate from this, Investigative Network Solutions – Maskwa independently generated a proposal for a search facility and processing system. Their estimate is based on a 12-month period. The numbers provided in their proposal are included in Table #3 as 'Vendor #2', recognizing that they would not have had access to the same detailed information as PGL and Vendor #1. The complete proposal provided by ISN is included with this report as an extra document. All costs are estimates made as best as possible with available information and consultations with vendors was not part of a request for proposal process.

**Table 3: PART B - Search Facility Set-up & Processing**

PART B: SETUP		
Scope of Work	Vendor #1 PGL & Interlake Salvage & Recycling	Vendor #2 Investigative Solutions Network – Maskwa
<b>Processing and Support Buildings</b> <i>Construction of a search building and all associated staff buildings/trailers.</i>	\$13,481,000	\$8,000,000
<b>Miscellaneous Infrastructure</b> <i>Includes site preparation (e.g., site grading, granular paving, stormwater management infrastructure, access roads, utilities, etc.), fuel and parts storage, security, electricity and general requirements to establish infrastructure.</i>	\$5,762,900	Vendor #2 did not provide costing for this as this scope of work will be carried out by Waste Connections exclusively.
<b>Processing Facility Equipment</b> <i>Includes the purchase and set up of specialty equipment to facilitate the material search.</i>	\$18,728,250	\$25,000,000
<b>Personnel during 6-month lead &amp; planning stage</b>	\$2,773,150	Not included in quote \$
<b>Subtotal (B): Setup</b>	<b>\$40,745,300<sup>(1)</sup></b>	<b>\$33,000,000<sup>(1)</sup></b>

<sup>(1)</sup> The initial capital expenditure remains the same for operations over one or multiple years

**Table 4: Part C - Processing**

PART C: PROCESSING		
Scope of Work	Vendor #1 PGL & Interlake Salvage & Recycling	Vendor #2 Investigative Solutions Network – Maskwa
<b>Processing Plant Operation</b> <i>Includes processing plant heavy equipment, operating costs and ancillary supplies (e.g., PPE, decontamination, etc.) and services.</i>	\$12,476,700 <sup>(2)</sup>	\$5,500,000 <sup>(3)</sup>
<b>Search Personnel (see below)</b> <i>Includes processing plant staff</i> A quote for ALL search personnel was not provided by Vendor #1, therefore, the salary estimates from the identified positions below were used to complete this cell for a 3-year operation.	\$54,878,400 <sup>(2)</sup>	\$16,500,000 <sup>(3)</sup>
<b>Subtotal (C): 3-year duration</b>	<b>\$67,355,100</b>	<b>\$66,000,000</b>
<b>Subtotal (C): Estimated 12-month Cost</b>	<b>\$22,451,700</b>	<b>\$22,000,000</b>

<sup>(2)</sup> Operation cost for 3-year (36 months) search period.

<sup>(3)</sup> Operation cost for 1-year (12 months) search period.

**Table 5: Total Costs**

TOTAL COSTS		
Subtotal (A + B + C): based on a 3-year duration	\$152,949,400	\$143,849,000
Contingency @ 20%	\$30,589,880	\$28,769,800
<b>Total Estimated 3-year Investment</b>	<b>\$183,539,280</b>	<b>\$172,618,800</b>
Subtotal (A+B+C): based on a 1-year duration	\$78,146,667	\$69,949,667
Contingency @ 20%	\$15,629,333	\$13,989,933
<b>Total Estimated 1-year Investment</b>	<b>\$93,776,000</b>	<b>\$83,939,600</b>

There are additional potential costs not accounted for in this estimate, such as those associated with microscopy or DNA sampling and testing to determine whether unidentifiable bone is of human origin (this is not the same as determining to whom skeletal remains belong). It is difficult to predict how many samples would need to be processed in such a way. DNA analysis can range in cost from \$500-\$2500/sample and microscopy varies considerable. It is possible that the onsite/hired Forensic Anthropologist could perform the microscopy if they have access to the appropriate equipment. It is recommended that a budget item of roughly \$2.5million dollars be established for the potential processing of up to 1000 bone samples for DNA assessment of human/animal origin. The potential cost associated with DNA analysis of found *human remains* in order to determine to whom they belong, will be assumed by the Winnipeg Police Service.

## 17) PERSONNEL

The Technical Subcommittee identified the following personnel positions to run a search if one is to go forward. These positions are recommended as a guide for planning purposes to conduct a safe, effective, and efficient search of the PGL site. These are suggestions only, and the Committee acknowledges that additional personnel may be required, which will be at the discretion of whomever oversees the search project. Further details on possible duties and qualifications for each position can be found in Appendix 2.

### **Project Director** (Daily Average \$3,600/day)

The Project Director will help develop and oversee the entire search process, work directly with PGL in all regards, work closely with the Forensic Anthropologist, and liaise with family members, AMC and Oversight Committee members and other stakeholders as required. They will oversee all administration components including purchasing, hiring and payroll.

### **Prairie Green Landfill District Manager** – *Included in Table 2 – Miscellaneous Costs*

It is imperative that if a search is to take place at the PGL, that PGL/Waste Connections Canada have a representative who can liaise directly with the overall Project Director but also direct the components of the search that directly impact PGL. This person must have extensive relevant experience and be able to make decisions on behalf of PGL/Waste Connections Canada.

### **Project Manager** (Daily Average \$2,400/day)

The Project Manager will supervise the daily operations of the search process and personnel as directed by the Project Director.

### **Logistics (Support to Project Manager)** (Daily Average \$1,800/day)

The Logistics support position will ensure ordering of equipment and PPE, scheduling, coordination with other team members and provide other supports as needed.

### **Recovery Supervisor** (Daily Average \$2,400/day)

The Recovery Supervisor will ensure the collection and documentation of sensitive information and coordinate with the Forensic Anthropologist to ensure supplies and equipment are in place to handle the recovery of remains and personal effects.

### **Occupational Health and Safety Manager** (Daily Average \$1,800/day)

The Occupational Health and Safety Manager will ensure compliance with all relevant Federal and Provincial guidelines/mandates, lead the development of Safe Work plans, liaise with appropriate provincial regulators and maintain a reporting procedure on health and safety during a search.

### **Media/Communications Relations** (Daily Average \$1,800/day)

The Media/Communications Relations position will be responsible for attending/organizing weekly update meetings, prepare and edit publications and reports, and communicating with media, the public, families, and other stakeholders.

**Elder/Knowledge Keeper x2** (Daily Average \$1,800/day)

Elder/Knowledge Keepers will provide support and guidance as needed to families, Search Technicians and other personnel. They will work closely with the overall team to help establish plans and communications.

**Operations/Shift Manager x 2** (Daily Average \$2,400)

The Shift Managers will oversee staffing schedules and budgets, complete tasks requested by the Project Director or other supervisors, organize the repairs and cleaning of equipment and spaces.

**Search Technicians x 24-28** (Daily Average \$1,800; 14 per 12-hour shift)

The Search Technicians will search material on the conveyor belt system for potential human remains or material of interest and act as the 'Observer' during cell excavation and deposition of material into the hopper system. It is imperative that people hired into these positions have relevant training and experience to recognize bone/not bone material, and soft tissue in various stages of decomposition.

**Forensic Anthropologist** (Daily Average \$1,200)

The identification of human remains is pivotal in the context of a potential search and a forensic anthropologist with direct relevant experience is essential. It is not possible to estimate how much material will require the expertise of a forensic anthropologist and therefore it is difficult to approximate the amount of time one would be required. It is recommended that a Forensic Anthropologist be closely involved with planning and devising a search strategy, and therefore possibly be fulltime at the beginning of the process. After that, it may be possible to have the forensic anthropologist on an 'as needed' basis. The Forensic Anthropologist will work directly with the Project Director and PGL District Manager and others on developing an effective and efficient search strategy, assist in hiring, training and supervision of Search Technicians, and regularly review the material collected by Search Technicians. They will be responsible for liaising directly with the Winnipeg Police Service and the Office of the Chief Medical Examiner. Ability to meet the qualifications for a Forensic Anthropologist III as per the Scientific Working Group for Forensic Anthropology preferred, or hiring two positions, with one in a supervisory capacity.

**Administrative Support x 2 (HR/Payroll & Finance Positions)** (Daily Average \$760)

These Support personnel will assist with daily administrative tasks and ensure Human Resources and Payroll aspects of the process are completed.

**Millwright/Maintenance Staff – Buildings/Interior Equipment (2 positions)** (Daily Average \$1,200)

These Maintenance Staff will conduct routine inspections of premises and equipment, perform maintenance as needed, oversee contractors, and organize payment.

**Site Security Personnel x4** (Daily Average \$1,800)

Provide on-site Security for the duration of a search.

## 18) HEALTH & SAFETY TRAINING & PPE REQUIREMENTS

The Technical Subcommittee is cognizant that processing a landfill site has the risk of exposure to toxic materials, biohazards, air-borne hazards, asbestos, in addition to physical hazards such as cut and puncture hazards. To mitigate this exposure, the Committee recommends both health and safety training and Personal Protective Equipment (PPE).

### I) Training

All Search Technicians and staff on site, require training to properly put on and take off their PPE to ensure they remain safe and reduce the risk exposure. Training for staff in proper decontamination procedures when exiting the search facility is also required, to prevent contamination to the support buildings. It is also important to train staff in what to do in the case of an emergency. Staff will be trained in emergency decontamination procedures, first aid and workplace health and safety. The recommended training is as follows:

- a. **Hazmat and PPE** - (Two-day program) – Candidates will be trained in the various types of hazardous materials, ways in which to identify hazardous materials and ways to deal with hazardous materials when they are encountered. Attendees will also learn the nomenclature and type of contamination (primary and secondary contamination principles), decontamination process and procedures (dry vs. wet), various types of decontamination equipment, emergency decontamination procedures, types of personal protective equipment (PPE), site specific PPE and accepted ways in which to don, wear and maintain PPE throughout the workday, along with ways in which to properly dispose of the PPE when it has become contaminated, and at the end of each shift.
- b. **Emergency First Aid** – (One-day program) - Staff will be trained in emergency first aid which includes recognizing and beginning care for breathing and cardiac emergencies, using the AED, recognizing, and assisting with medical conditions such as diabetes, asthma, severe allergic reactions, seizures, and strokes as well as managing bleeding and burns.
- c. **Health and safety training** – working with protocols and safe work plans developed by the Health & Safety Officer in alignment with MB Workplace Health and Safety, staff will be trained on additional health and safety components including but not limited to asbestos.

### II) PPE Requirements

The following list is for potential personal protective equipment to serve as a guideline. Additional equipment may be required as per a developed safe work plan.

- a. **Disposable Microporous coveralls** – Conforms to EN-ISO-1304 standards for PPE, these will be disposed of every time the worker leaves the hot zone (search facility area) and at the end of every shift. New coveralls will be donned prior to re-entry.
- b. **Full Face Respirators** - One per person; everyone is to have their own respirator for fit and hygiene reasons. To be decontaminated at completion of shift.
- c. **P100 HEPA filters for respirator** - 99.97% filter efficiency for particles larger than .2 micron. Filters are to be disposed of at the end of each shift or if they become wet or difficult to breathe through.



- d. **Chemical resistant gloves** – One pair per person. These can be used for multiple shifts if decontaminated between shifts. Will account for damage and need for replacement after each shift to ensure integrity of the barrier.
- e. **Kevlar cut and puncture resistant gloves** - To be worn over the chemical resistant gloves to prevent needle sticks, cuts and abrasions to the hands. These can be used for multiple shifts if decontaminated between shifts. Accounting for damage to gloves and replacement after each shift.
- f. **Haz Mat boots** – Certified to NFPA 1990 for Chemical and Hazmat work. Steel toe and shank to prevent injuries to the feet. Each worker will have their own pair with the appropriate size. These are to be decontaminated after each shift.
- g. **Chemical resistant tape** – to seal the coveralls around the boots and gloves to prevent exposed skin due to coveralls shifting.
- h. **Moisture wicking long sleeve underclothing** - For comfort of worker and an added layer of protecting under the coveralls. Accounting for 30 workers and 5 shirts per worker to allow for a change during their shift and a clean shirt to begin each shift.
- i. **Hard Hats** - Protection for the head in an industrial environment that meets safety standards. One hard hat per person for fit and hygiene reasons.
- j. **High Visibility vest** – one per person with replacements as needed.
- k. **Hazardous material disposal bags** - For disposing of PPE upon leaving the hot zone.
- l. **Commercial Washing/Drying Machines, or Contracted Laundry Services** - For required or optional worker clothing which should not be brought home for laundering, to mitigate potential off site cross contamination.

## 19) IDENTIFICATION OF HUMAN REMAINS

There has been some concern that the ability to identify human remains from amongst material in a landfill would be very challenging due to the presence of animal bones. The Winnipeg Police Service indicated “1500 tonnes of animal remains” were landfilled at PGL, and this was taken to mean remains including bone. PGL has clarified that it accepts rendered pig remains from an animal processing plant. These remains do *not include bone* or large pieces of recognizable soft tissue. Rather, these 1500 tonnes of rendered animal remains are more consistent with a thick sludge that will coat and cover all material with which it is associated, generating a potential biohazard concern, but not an issue in the volume of bones that would have to be reviewed. Further, PGL accepts both commercial and residential waste and it is possible that there are animal remains associated with food or other animal waste such as dead animals that make their way into garbage (cats, mice etc.) in the landfill. Forensic anthropologists are specifically trained to identify animal vs human bone regardless of size; from complete bones, to fragments, to thin sections assessed under a microscope to assess bone cell organization. It is therefore imperative that a forensic anthropologist be involved in a potential search, not just for search strategy, but to determine quickly, and when possible, what bone is animal and what is not.

### 1) *Determination of Human Remains*

During the search, all bone, possible bone, or bone and soft tissue in various stages of decomposition with or without adipocere, must be identified and collected by Search Technicians for later assessment by a qualified forensic anthropologist. Search Technicians will be required to place any material in question into a recovery container. Shift supervisors and/or on-site recovery specialists will be

responsible for assuming control of each item and placing it in the secure temperature-controlled storage unit/trailer. The trailer needs to be refrigerated to prevent further decomposition and secured with access restricted to only those approved to ensure security of any items stored therein. Each item will be assessed by a qualified forensic anthropologist to determine if the material is bone, and if that bone is human. If there is no bone, and it is just a section of soft tissue, that soft tissue must be assessed by a forensic pathologist.

**II) *If the bone is human***

The Technical Sub-Committee recommends that the Winnipeg Police Service (WPS) be the law enforcement agency responsible for the identification of all human remains. WPS will be responsible for ensuring all appropriate agreements are made with the Royal Canadian Mounted Police, the law enforcement agency with jurisdiction in the Rural Municipality of Rosser, before a search or recovery of human remains is initiated. When remains are determined to be human by the forensic anthropologist, the forensic anthropologist will notify the WPS. It would then be the responsibility of the WPS to notify the Office of the Chief Medical Examiner (OCME). Even though this search is not a forensic inquiry, that is, it does not form part of a police investigation, all human remains recovered require a death investigation as per the Manitoba Fatality Inquiries Act. All death investigations are the responsibility of the Office of the Chief Medical Examiner.

The forensic anthropologist will ensure the Project Director is notified when remains are determined to be human and that there is a culturally appropriate and sensitive way with which to inform family members that remains have been recovered. The determination of remains as human is not the same as the identification of remains. Identification requires that the remains be identified to an individual, through either dental records or DNA. This takes time. Dental comparison for identification requires the recovery of dentition and the upper and/or lower jaw and access to dental records from the individual's dentist. A forensic odontologist is required to make this kind of identification. DNA for identification requires a sample of bone be sent to an appropriate lab and the resulting DNA profile compared to a sample of the individual in question. In such instances, the Technical Sub-Committee recommends that the WPS work in conjunction with the RCMP forensics lab or any other appropriate testing facility, following all protocols for processing found bone, to identify any found human remains to a specific individual through DNA analysis and comparison.

Forensic anthropologists are trained to assess found remains to determine age at death, sex, ancestry (genetic heritage), and stature in order to help narrow down the list of missing persons to whom the unknown remains could belong. In most forensic cases, recovered remains are commonly associated with a single person. This situation is unique, where we know that a search could recover the remains of both Mercedes and Morgan. Mercedes and Morgan are very similar in that they are both First Nation females between the ages of 25-45 and around 5 feet tall. Based on skeletal characteristics, it would not likely be possible to differentiate each bone recovered to either Morgan or Mercedes as they would appear quite similar. It may be possible to differentiate them based on age, but that requires recovering specific bones. It is therefore possible that all remains recovered will require DNA analysis in order to ensure that the remains are associated with the correct individual. This can take a considerable amount of time, where each sample could take several months to process.

### III) ***What if it is not possible to identify remains or fragments as human?***

There could be scenarios where the bone that is recovered cannot confidently be determined as human or non-human through standard visual examination. These scenarios include situations when there are no diagnostic features or the fragment is extremely small. If this is the case, it is possible to conduct histological analysis or take a sample for DNA testing. Histological analysis involves taking a section of bone, grinding it down and assessing it under a microscope for distinct human cellular structure. The results of this analysis will determine if the bone is human or not, it will not identify the individual to whom it belongs. DNA testing will still be required to identify the bone to an individual. The Office of the Chief Medical Examiner or an academic institution could potentially conduct the histological analysis, but agreements must be established prior to a search commencing. It is possible to test these small unknown bone fragments for DNA as unique to humans. This is a cost that must be considered by the Technical Subcommittee. Such analysis and testing will take time.

If the bone is encased in soft tissue and it is not possible to determine whether or not the bone and tissue are human, a forensic pathologist opinion is required. In situations such as these, prior to histological analysis or other testing, radiographs should be taken. Distinct human bone morphology should be visible in a radiograph, which the forensic anthropologist can utilize to make a determination in partnership with the pathologist.

Prior to any search taking place, it will be important to establish a clear plan with the Winnipeg Police Service, the Office of the Chief Medical Examiner and labs required to conduct analyses.

## 20) **CONCLUSION**

Ultimately, after consideration of all the variables outlined in this report, the Technical Subcommittee has determined **a search of the PGL for remains of Morgan Harris and Mercedes Myran is feasible**. The committee would like to further advise that although a search of PGL is feasible, finding remains of Mercedes Myran and Morgan Harris is not a certainty. Consequently, there must be a determination of when a search is deemed complete (i.e. if there are no remains found in the 72, 000m<sup>3</sup> of material in cell 15/13, is the search completed?), prior to undertaking such a process. There are also serious risks involved with such a search, given risk of side slope failure, and the exposure to hazardous chemicals and asbestos. Possible far-reaching implications that have not been detailed in this report should also be considered by decision makers.

## 21) **TECHNICAL SUB-COMMITTEE RECOMMENDATIONS BEYOND A SEARCH**

Conducting a search for remains of Morgan and Mercedes in the PGL is only one of many things that could be considered by decision-makers and stakeholders. The Technical Subcommittee recognizes that the issue of the continued victimization of Indigenous women, girls, Two Spirit and others is a much broader issue. Therefore, the Technical Subcommittee makes additional recommendations as follows:

- a) Increase funding for social support and culturally appropriate programming for Indigenous peoples, specifically MMIWG2S+ including access to addictions rehabilitation programs, affordable housing, mental health support and care and cultural connectivity.

- b) Increase in funding dollars available for homeless shelters so the unhoused may be afforded the opportunity to transition back into a safer life.
- c) Make GPS tracking systems in garbage trucks mandatory for all waste removal companies in Manitoba (and nationally).
- d) Make rear-facing cameras with a clear view and audio of the holding area in all garbage trucks mandatory so that truck operators can observe the material that is being dumped into their truck before they compact the load and/or it goes to the landfill.
- e) Digital and load tracking surveillance of rural landfills and additional assistance by the responsible Ministry to support smaller municipalities/communities to upgrade their tracking system for waste material.
- f) Video surveillance of vehicles entering and exiting landfills (possibly a view of the trucks as they are being unloaded).

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**APPENDIX 1: PRAIRIE GREEN LANDFILL/WASTE CONNECTIONS CANADA BUDGET TABLES**

These estimates are based on a 3-year duration, with some estimates as one-time only (ex. building structure).

*Appendix 1 Table 1: Summary of all Costs*

<b>Summary</b>	<b>Estimate</b>
Excavation and Hauling	\$ 27,386,100
Sorting and Processing	\$ 27,428,625
Freight, ACM, PPE, Sundries	\$ 3,776,328
Landfilling (Hauling and Replacement)	\$ 14,999,400
Infrastructure Costs	\$ 19,243,900
Miscellaneous Costs	\$ 2,463,500
~2% Regulatory Approvals, Engineering, CQA, Reporting, etc.	\$ 1,873,500
<b>SUBTOTAL</b>	<b>\$ 97,171,353</b>
<b>10% Contingency</b>	<b>\$ 9,717,135</b>
<b>TOTAL ESTIMATE</b>	<b>\$ 106,888,488</b>

*Appendix 1 Table 2: Excavation & Hauling Costs*

<b>Excavation &amp; Hauling Equipment</b>	<b>Estimate</b>
Excavator with thumb	\$ 2,976,750
Excavator with thumb/claw/magnet	\$ 5,953,500
Excavator with thumb/claw	\$ 2,976,750
Rock truck	\$ 2,976,750
Rock truck	\$ 2,976,750
Rock truck	\$ 2,976,750
Water Truck/sprayer	\$ 1,786,050
Dozer for oversize	\$ 4,762,800
<b>TOTAL</b>	<b>\$ 27,386,100</b>

*Appendix 1 Table 3: Sorting & Processing Equipment & Associated Costs*

<b>Sorting and Processing</b>	<b>Estimate</b>
Excavator with thumb/claw	\$ 2,976,750
Feed hopper	\$ 893,025
Triple deck screener	\$ 4,167,450
Midsized conveyor with 6 man station	\$ 3,572,100
Oversize conveyor with 8 man station	\$ 4,762,800
Skidsteer/loader for fines pile	\$ 1,701,000
Wheel loader for removal	\$ 2,381,400
Rolloff bins	\$ 850,500
Rolloff truck	\$ 1,786,050
Eddy current/magnet drum for midsize	\$ 3,274,425
Conveyors	\$ 1,063,125
<b>SUBTOTAL</b>	<b>\$ 27,428,625</b>
<b>Associated Costs</b>	
Freight	\$ 995,328
ACM remediation	\$ 567,000
Portable decontamination unit	\$ 270,000
PPE and sundries	\$ 1,944,000
<b>SUBTOTAL</b>	<b>\$ 3,776,328</b>
<b>TOTAL</b>	<b>\$ 31,204,953</b>

Appendix 1 Table 4: Infrastructure Costs

Infrastructure	Estimate
Site prep	\$ 1,950,000
Building structure	\$ 9,750,000
Tipping floor	\$ 2,080,000
Admin site office	\$ 46,800
Employee change room	\$ 46,800
Washrooms	\$ 46,800
Decontamination unit	\$ 533,000
Reefer trailer/unit	\$ 46,800
Storage trailer	\$ 46,800
Health and safety office	\$ 46,800
"Relief" trailer	\$ 93,600
Elders/visitors trailer	\$ 93,600
Fuel Storage	\$ 78,000
Parts trailer	\$ 19,500
Fencing at sort facility	\$ 650,000
Fencing on hill	\$ 325,000
Security	\$ 1,300,000
Hydro	\$ 650,000
Misc trailers	\$ 140,400
Insurance/wcb	\$ 1,300,000
<b>TOTAL</b>	<b>\$ 19,243,900</b>

Appendix 1 Table 5: Other Associated Costs (Miscellaneous)

Miscellaneous Costs	Duration	Estimate Costs
First aid/medical	3 years	\$ 390,000
Safety Supervisors	3 years	\$ 292,500
Project Managers	3 years	\$ 390,000
Power Supply (Install)		\$ 260,000
Monthly Hydro		\$ 351,000
<b>SUBTOTAL</b>		<b>\$ 1,683,500</b>
<b>Nuisance/Waste Mitigation</b>		
Deodorizing system & Product		\$ 585,000
Tarp/cover systems		\$ 130,000
Well/water for dust control		\$ 65,000
<b>SUBTOTAL</b>		<b>\$ 780,000</b>
<b>TOTAL</b>		<b>\$ 2,463,500</b>



## APPENDIX 2: PERSONNEL

A more detailed account of possible duties and qualifications for each position indicated in the report.

### **Project Director x 1**

Salary/Daily Average Range - \$3600/day

#### **Duties:**

- Advanced oversight of multifaceted projects and high-level supervision of all personnel
- Fundamental construction management with emphasis on awarding of contracts, graphical chart administration and budget deadline coordination
- Executive, legal intercommunication solidifying the presence of legal framework for construction of various aspects of projects not assumed by PGL
- Cross-party investigation with PGL Director and Forensic Anthropologist to ensure progress and detect any problems
- Liaise with family members, AMC and Oversight committee members and provide regular updates
- Oversee payroll administration
- Oversee equipment purchases and expenditures
- Maintain the integrity and security of all systems used in the project

#### **Qualifications:**

- Experience coordinating large-scale searches related to major crimes
- High-level project/case management
- Excellent leadership and staff supervision
- Major case management for large, forensic-grade recovery projects
- Proficiency in developing operational budgets in the \$60-250 million range
- Significant expertise working with First Nations, First Nation groups and/or First Nation companies

### **Prairie Green Landfill District Manager – Included in Table 16.1 – Miscellaneous Costs**

It is imperative that if a search is to take place at the PGL, that PGL/Waste Connections Canada have a representative who can liaise directly with the overall Project Director but also direct the components of the search that directly impact PGL. This person must have extensive relevant experience and be able to make decisions on behalf of PGL/Waste Connections Canada

#### **Duties:**

- Represent PGL/Waste Connections Canada
- Coordinate necessary permitting and allowances for the needed licence amendments.
- Design and implement the construction components necessary for access road(s) as needed to search facility area(s)
- Manage the excavation of material from cell 15/13 while working with and under the direction of the appropriate engineer/s as assigned by PGL
- Oversight of the transport of material to search facility and collection organization to appropriate landfill cell
- Equipment management related to excavation, collection and transport of material from cells 15/13 to the search facility and back into the respective deposit location/s.
- Guided search implementation with Project Director

- Supervise all personnel associated with excavation, collection and transport and hire sub-contractors within allotted budget

**Qualifications:**

- Analytical decision-making capabilities on behalf of PGL/Waste Connections Canada
- Demonstrate sound leadership and multi-level communication skills
- Strong administrative observation and record keeping control
- Lead-hand experience handling large-scale construction and excavation with forensic recovery projects experience preferred
- Efficiency in planning and documenting logistical costs and related training
- Proficiency in process-based management involving legal operating framework

**Project Manager x 1**

Salary/Daily Average Range - \$2400/day

**Duties:**

- Supervising of project and personnel as delegated by Project Director
- Administrative organization of construction management, with emphasis on contract review, design and/or approval of graphical charts
- Delivery of project(s) within deadlines and meeting budget demands
- Liaise directly with PGL Director and Forensic Anthropologist to ensure progress and problem solving as needed.
- Communicate with family members, LPFN-AMC as needed
- Administrate hiring of Search Technicians and external personnel outside of PGL as required
- Oversee payroll and budgets
- Coordination of equipment maintenance and purchase of assets

**Qualifications:**

- Organization skills related to implementing a large-scale searches/major crimes
- Profound project/case management experience
- Experience in people management
- Major case management for large, forensic evidence recovery projects
- Significant experience working with First Nations, First Nation groups and/or First Nation companies

**Logistics (*Support to Project Manager*) x 1**

Salary/Daily Average Range - \$1800/day

**Duties:**

- Ensure equipment and PPE orders are submitted
- Coordination with Shift managers to obtain burn rate for PPE and other required equipment
- Coordination for delivery with vendors for materials and supplies needed for day-to-day operations
- Coordination of equipment maintenance schedules
- Coordination of drivers/haulers and subcontractors to ensure adequate resources are on-site and being utilized in an efficient manner

**Qualifications:**

- Experience organizing service providers, vendors, and deliveries.

- Project management/Logistics experience
- Highly organized, multitasking capability
- Experience working with various inventory management software systems.
- Significant experience working with First Nations, First Nation groups and/or First Nation companies

**Recovery Supervisor x 1**

Salary/Daily Average Range - \$2400/day

**Duties:**

- Appropriate utilisation of equipment and PPE safety protocol measures during sensitive data collection and recovery
- Coordination with Forensic Anthropologist to ensure the supplies needed to examine and handle forensic evidence is always in place
- High-level communication with other agencies as needed to ensure the proper handling procedures and turn over documentation completed and tracked
- May compile data, statistics, and other information to support research activities

**Qualifications:**

- Prior experience in an evidence recovery or other forensic role
- Experience handling, tracking, and documenting the movement of exhibits
- Highly organized, versatile analytical skillset
- Experience working with various inventory management software systems.
- Significant experience working with First Nations, First Nation groups and/or First Nation companies

**Occupational Health and Safety Manger x 1**

Salary/Daily Average Range - \$1800/day

**Duties**

- Ensure compliance with OH&S Federal and Provincial guidelines/mandates.
- Tracking of near miss reports
- Lead workplace audits and investigations of safety concerns and incidents
- Develop and implement OH&S programs with ongoing priority to review policies and training to mitigate risk and optimize worker's health and safety
- Communicate, engage and influence decision-makers and workers to ensure compliance with health and safety legislation and regulations
- Participation in workplace inspections to ensure that equipment, materials, and production processes do not present a safety or health hazard to employees and those in attendance

**Qualifications:**

- Minimum two years' experience OH&S Management experience or related technical training in a large-scale setting
- Office management certificate or higher
- Highly organized, knowledge of enforcement procedures
- Significant experience working with First Nations, First Nation groups and/or First Nation companies.
- Professional conduct and fostering of a positive occupational health and safety culture

- Excellent intrapersonal skills
- Knowledge of industrial hygiene survey techniques

**Media/Communications Relations x 1**

Salary/Daily Average Range - \$1800/day

**Duties:**

- Attend weekly update meetings
- Communicate with families
- Keeping records of progress, budgets and timescales, and keeping clients up to date
- Preparing and editing organizational publications, including reports, for internal and external audiences
- Coaching client representatives in effective communication with the public and employees
- Analysing media coverage
- Speaking publicly at interviews, press conferences and presentations
- Dealing with enquiries from the public, the press, and related organisations

**Qualifications:**

- Excellent written and verbal communication skills
- Experience arranging interviews, news conferences and other media events
- Deadline-oriented, inquisitive, with great follow-up and reporting capability
- Background in acting as organizational spokesperson and answer written and oral inquiries
- Significant experience working with First Nations, First Nation groups and/or First Nation companies

**Elder/Knowledge Keeper x2**

Daily Rate – \$1800/Day

**Duties:**

- One-on-one meetings with search technicians and families
- Work closely with the Project Director and Project Manager to establish a workplan and create a guide for healing for the families involved
- Sharing wisdom with departments attending to the project, initiatives, and ceremonial prayer

**Operations/Shift Manager x 2**

Salary/Daily Average Range - \$2400

**Duties:**

- Manage & oversee staff and schedule with emphasis on staffing budgets and programs.
- Efficiently complete requested data by Project Director or other supervisors and consultants
- Ensure documentation of hazards and near miss reporting is compliant
- Organize the repair and maintenance of in-house search equipment
- Ensure the cleaning of search facility is maintained to mitigate hazards to Search Technicians
- Ensure entire work site is clear of obstructions and snow removal
- Oversee purchasing/distribution of necessary equipment and PPE
- Train office staff in procedures as required by Project Director and PGL representatives and determine and establish office procedures as necessary
- Oversee payroll and accounting

**Qualifications:**

- Business Management Diploma or higher
- Experience with MB Workplace Health and Safety
- Excellent verbal and written communication skills
- Analytical understanding of office management, payroll procedures and budget reporting
- Strong undertaking of all required data collection and ability to meet deadlines

**Search Technicians x 24-28 positions** (12 per 12-hour shift)

Daily Rate - \$1800

**Duties:**

- Search material on conveyor belt system for potential human remains
- Collect other materials as identified by Project Director or Forensic Anthropologist
- Identify problems quickly and answer questions with other supervising personnel
- Potentially cross trained as site security for rotational opportunities
- Other duties as assigned by Operations Manager, Project Director or Forensic Anthropologist
- Security, material sorting on conveyor system, ability to stand or sit for long periods of time
- Attention to detail and ability to stay on task for long and unstimulating periods of time

**Qualifications:**

- Undergraduate degree in relevant discipline and/or relevant experience
- Ability to recognize bone/not bone material
- Proficiency in recognizing soft tissue in various stages of decomposition
- WHMIS Training
- Excellent attention to detail
- Biohazard training preferred
- PPE maintenance

**Forensic Anthropologist x 1 (or position shared between 2)**

- recommended as a non-salaried position unless deemed necessary; hourly compensation \$150/hr estimated at 20-35hrs/week; \$3000-5350/week or \$1200/day

The identification of human remains is pivotal in the context of this search. A forensic anthropologist with direct relevant experience is essential in this endeavour. It is not possible to estimate how much material will require the expertise of a forensic anthropologist and therefore it is difficult to approximate the amount of time one would be required. It is recommended that a forensic anthropologist be closely involved with planning and devising a search strategy, and therefore possibly be fulltime at the beginning of the process. After that, it may be possible to have the forensic anthropologist on an 'as needed' basis.

**Duties:**

- Collaborate with Project Director and PGL Director and others on the search strategy
- Ensure search strategy is appropriate for recovery of human remains in various stages of decomposition
- Regular review of material collected by searchers to determine presence of human remains
- Liaise directly with Project Director and PGL Director on process and progress
- Liaise directly with the Winnipeg Police Service and the Manitoba Office of the Chief Medical Examiner as needed

- Assist in hiring, training and supervision of Search Technicians as required
- Compile reports and document investigative data as provided by Search Technicians

**Qualifications:**

- Ability to meet the qualifications for a Forensic Anthropologist III as per the Scientific Working Group for Forensic Anthropology preferred
- PhD and relevant experience; in cases where a PhD is not in hand, relevant case experience is required; minimum MA/MSc required
- Direct experience with planning and leading searches for human remains in a variety of contexts
- experience in the identification and analysis of human remains in various stages of decomposition
- Experience working with Indigenous communities/organizations

**Administrative Support x 2 (HR/Payroll & Finance Positions)**

**Salary/Daily Average - \$760**

**Duties:**

- Assist the Project Director and PGL Director with administration related to all daily office procedures
- Designing rotational shift work schedules
- Set up and maintain manual and computerized information filing systems
- Accounting and ability to use QBO or other accounting software as required
- Ability to competently use the full Microsoft office Suite
- May supervise office staff in procedures and in use of current software
- Assist Elders in acquiring required materials for ceremony
- Ordering of supplies such as PPE or other work-related items and maintain inventory
- Other duties as assigned by PGL and Search Directors

**Qualifications:**

- Excellent written and verbal communication skills
- Business Administrative Diploma or higher
- Deadline-oriented with attention to detail
- Fundamental office understanding and quality control
- Significant experience working with First Nations, First Nation groups and/or First Nation companies
- Extensive bookkeeping and/or accounting knowledge

**Millwright/Maintenance Staff – Buildings/Interior Equipment (2 positions)**

Daily Rate - \$1200 (8 hours shift x 5 days per week)

**Duties:**

- Conduct routine inspections of premises and equipment
- Perform preventative maintenance and handle basic repairs as necessary
- Respond to emergency building situations, diagnose mechanical issues
- Communicate repair invoices to administrative staff and work within the given budget
- Oversee contractors when professional repairs are required

**Qualifications:**

- Journeyman Millwright or two years' Maintenance Management or related technical experience
- Skilled in hand and power tools usage and experience with precision measuring instruments
- Ability to take apart machines, equipment, or devices to remove and replace defective parts
- Strong organizational and follow up skills
- Eye for detail and ability to make executive decisions in an effective, timely manner
- Good oral and written communication skills

**Site Security Personnel x4** (Daily Average \$1,800)

Provide on-site Security for the duration of a search.