

December 6<sup>th</sup>, 2024

To the MVLWB,

Please find this letter accompanying the submission of revised documents. Following the approval of our land use permit and water licence, we have revised the SPC and WMP as per your requirements. We have also updated our engagement plan. Please see the revision tables for all three plans below.

Any questions, let me know.

Amy Isaikina – amy.isaikina@arctickingdom.com

#### Waste Management Plan Revisions

Version #	Date	Sections/Pages revised	Summary of Changes/Comments
Version 1	07-July-2024	Entire Document	AK's First Version based on old Taiga versions.
Version 2	6-Dec-2024	All formatting & design.  1) Page 25, section 9  2) Section 4 – Lodge Flow  Section 5 – Cabin Flow  Section 6 – Full camp water and waste usage.  3) Page 23, Table 5  4) See number 2  5) Entire Document  6) See number 3  7) Entire Document  8) Entire Document	Updated information:  1) Contingencies of incineration outside of YK Waste Disposal  2) Overview of flush toilets in the cabin and the lodge rooms  3) Details on food waste disposal and compost  4) Schematics for water flow, use and deposition.  5) All of the responses from the IR have been overviewed in the other items updated.  6) Updated composting procedures no longer compost waste for growing soil.  7) All references to Blachford Lake Lodge have been updated to Blachford Lodge  8) All references for ENR have been updated to GNWT-ECC.

### Spill Contingency Plan Revisions

Version #	Date	Sections/Pages revised	Summary of Changes/Comments
Version 1	07-July-2024	Entire Document	AK's First Version based on old Taiga versions.
Version 2	6-Dec-2024	Entire Format and Design 1) Page 11, table 4, fuels subsection 2) Page 21, table 6 3) Page 22, table 6 4) Section 8, pages 28-29 5) Section 7.1 page 26 6) Entire Document 7) Entire Document	Updated information: 1) Corrected maximum fuel volume on site not to exceed 16,000L. 2) No drilling occurs on the site. Reference to drill rig was removed. 3) Updated the direction of potential discharge for propane to reflect that it would be released as a gas. 4) SPC Updated to include information on applicable fuel transfer procedures. 5) PPE listed in reference to sewage spills. 6) All references to Blachford Lake Lodge have been updated to Blachford Lodge 7) All references for ENR have been updated to GNWT-ECC.

### Engagement Plan Revisions

Version #	Date	Sections/Pages revised	Summary of Changes/Comments
v.4 (VAK)	25-June- 2024	Contacts and Ownership	See Summary of Changes Doc.
Version 1	8-July-2024	First Version updated by Arctic Kingdom	Contact information and engagement information updated.
Version 2	6-Dec-2024	Formatting and Details 1) Entire Document 2) Entire Document	Changes and Updates: 1) All references to Blachford Lake Lodge have been updated to Blachford Lodge 2) All references for ENR have been updated to GNWT-ECC.



# WASTE MANAGEMENT PLAN

Version 2





# **Waste Management Plan**

## **Arctic Kingdom Wilderness Holdings Inc.**

### **Blachford Lodge**

Project	<b>WILDERNESS RESORT</b>
Licence and Permit	<b>Type A Land Use Permit &amp; Type B Water License</b>
Location	Latitude – 62° 09' 55" N, Longitude – 112° 40' 59" W
Date of Submission	December 6 <sup>th</sup> , 2024
Version #	Arctic Kingdom Version 2
Submitted by	Amy Isaikina (Blachford Lodge)

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## **1.1 Project Description**

Blachford Lodge is a small-scale operation open for tourism three seasons a year. Winter Aurora viewing, midnight sun summer getaways, and fall aurora viewing. What started out as a trapping site with guest cabins, Blachford is now a world renowned tourism destination. Our wilderness resort caters to local, Canada wide, international guests, and also to indigenous activities, indigenous use, and educational programming.

Perched on a rock knoll overlooking Blachford Lake, it is a half-hour bush-plane from the city of Yellowknife, the capital of Canada's Northwest Territories. Blachford Lake is located on Chief Drygeese territory, the traditional land of Yellowknives Dene First Nation Akaitcho, Treaty 8 territory. Many miles from roads, or national suppliers of electricity and water, our lodge nonetheless provides many of the benefits of a luxury hotel, with the priceless addition of a pristine wilderness environment, unpolluted by artificial light or noise, the perfect setting for watching the Aurora Borealis.

With a type A land use permit and a type B water licence, our municipal camp operates from January 1 to December 31, for the existing future. MVLWB approved activities include tourism operation, use and draw of water from the lake, and existence on and care for the land. The camp features 22 buildings including 1 main lodge and 5 guest cabins. Accessibility to the site is carried out via aircraft, or by snowmobile in the winter.

Tourism seasons see between 2 and 40 guests, with up to 15 staff. Off seasons can see between 2 and 10 staff.

Annual operational schedule:

December 21 – April 15: Winter Tourism

April 16 – June 4: Breakup/Spring Maintenance/Potential Groups as required.

June 5 – August 12: Summer Tourism

August 13 – October 12: Fall Tourism

October 13 – December 20: Freeze Up/Winter Maintenance/Potential Groups as required.

In accordance with the Mackenzie Valley Land and Water board, Blachford has appropriate regulations, plans, guidelines, equipment, and training in place. We are the only community and establishment in the area and highly value and comply with land and water use, security and stewardship.

This project is owned and operated by Arctic Kingdom as part of their authentic high end northern products and services.

## **1.2 Site Description**

Blachford Lodge is a 2-acre land lease on the peninsula of Blachford Lake, approximately 100 km land miles east of Yellowknife. The 30 year land lease title is owned and operated by Arctic Kingdom Wilderness Lodge Holdings.

Site Location – Latitude – 62° 09' 55" N, Longitude – 112° 40' 59" W, Map Sheet Number – 85 I-2

Please See Figure 1 – Site Map, and Figure 2 – Camp Map

Figure 1 – Site Map



0 50 100 m  
1:10 000  
WGS 84 UTM ZONE 12N



**BLACHFORD**  
LODGE

BY ARCTIC KINGDOM



**ARCTIC**  
KINGDOM

ESTD 1990

BLACHFORD LODGE MAP

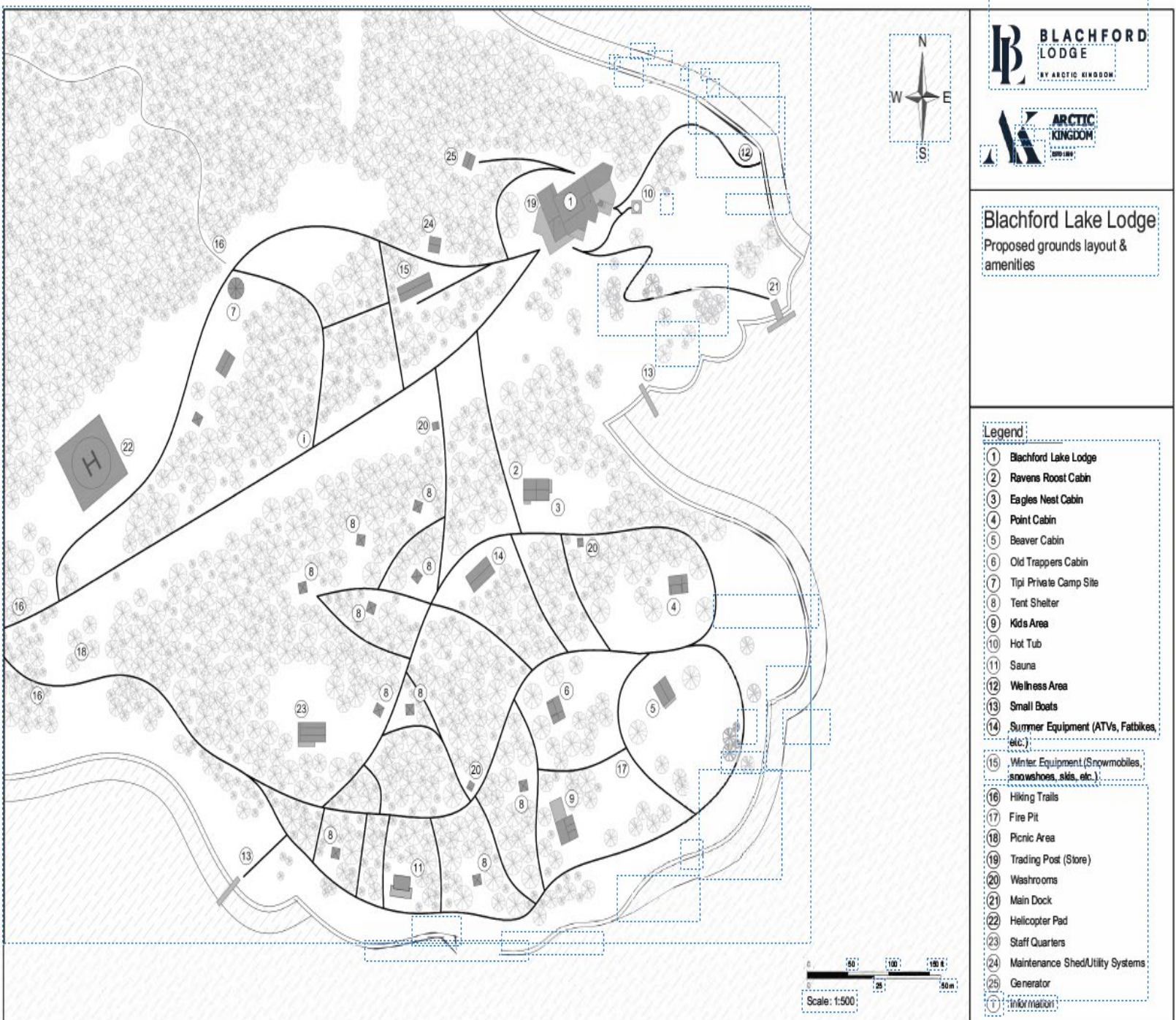


1:150 000  
WGS 84 UTM ZONE 12N

0 2.5 5 km



Figure 2 – Camp Map





### 1.3 Corporate Contact Information

The following Table 1 presents the key corporate information for Blachford Lodge

**Table 1: Blachford Lodge Contact Information**

Position	Information
<b>Company (On-Site)</b>	Lodge Manager – TBC - (Rotating Position)
	PO Box 1568 Yellowknife, NT (ON SITE @ LODGE)
	867-888-1006
	lodge@arctickingdom.com
<b>Project Manager &amp;Point of Contact</b>	Amy Isaikina
	PO Box 1568 Yellowknife, NT
	+1 888.737.6818 ext. 128
	amy.isaikina@arctickingdom.com
<b>Yellowknife Office</b>	Katherine Johnson
	PO Box 1568 Yellowknife, NT
	+1 888.737.6818 ext. 127
	katherine@arctickingdom.com

### 1.4 Effective Date

This Waste Management Plan, Version 2 is effective as of November 29th, 2024. While this Plan is undergoing a public review, the previous version of the Plan shall take precedence and be acted in accordance with until the Board approves a subsequent Plan version.

### 1.5 Revisions

This Waste Management Plan is a living document that will be reviewed annually, at a minimum, and prior to the start of any site activities, with additional reviews as warranted. Updates should be made to reflect changes in policy, practices, and new personnel and associated contact information. Table 2 presents a summary of the versions of this Plan and any revisions made.

**Table 2: Version and Revision History**

Version #	Date	Sections/Pages revised	Summary of Changes/Comments
Version 1	07-July-2024	Entire Document	AK's First Version based on old Taiga versions.

Version 2	6-Dec-2024	<p>All formatting &amp; design.</p> <ol style="list-style-type: none"> <li>1) Page 25, section 9</li> <li>2) Section 4 – Lodge Flow</li> <li>Section 5 – Cabin Flow</li> <li>Section 6 – Full camp water and waste usage.</li> <li>3) Page 23, Table 5</li> <li>4) See number 2</li> <li>5) Entire Document</li> <li>6) See number 3</li> <li>7) Entire Document</li> <li>8) Entire Document</li> </ol>	<p>Updated information:</p> <ol style="list-style-type: none"> <li>1) Contingencies of incineration outside of YK Waste Disposal</li> <li>2) Overview of flush toilets in the cabin and the lodge rooms</li> <li>3) Details on food waste disposal and compost</li> <li>4) Schematics for water flow, use and deposition.</li> <li>5) All of the responses from the IR have been overviewed in the other items updated.</li> <li>6) Updated composting procedures no longer compost waste for growing soil.</li> <li>7) All references to Blachford Lake Lodge have been updated to Blachford Lodge</li> <li>8) All references for ENR have been updated</li> </ol>
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## 1.6 Recipients

Table 3 identifies who the most recent version of the Waste Management Plan has been distributed to:

**Table 3: Recipients of this Version of the Plan**

Name	Position
Blachford Lodge	Site Office – Blachford Lake
Blachford Lodge	Yellowknife Office
Erica Janes	MVLWB
Clint Ambrose	GNWT-ECC
Nahum Lee	GNWT-ECC
Karine Gignac	GNWT-ECC

## 1.7 Copies of Current Version of the Plan

Copies of the most current version of this Plan are always available on-site at the following locations:

- Blachford Lodge Yellowknife Office
- MVLWB Online Profile
- Blachford Lodge Staff Online Drive

Additional copies of the Plan can be obtained by contacting:

Amy Isaikina

Blachford Lodge

[amy.isaikina@arctickingdom.com](mailto:amy.isaikina@arctickingdom.com)

+1 888.737.6818 ext. 128

## 2 Waste Management Plan Requirements and Policies

Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lodge) holds and is held under various regulated and personal environmental policies. In accordance with the Mackenzie Valley Lands and Water Board the operation is bound to comply with existing regulations, to provide such protection of the environment as it is technically feasible and economically practical, to cooperate with other groups on the protection of the environment and to keep employees, government officials, and the public informed.

In addition to our licensing, permits, and applications, the operation is required under our lands lease, under the section 'Environmental' it is stated, and we comply that:

- The lessee shall always keep the land in a condition satisfactory to the minister.
- The lessee shall not unduly interfere with the natural drainage pattern of the land, except with the permission of the minister.
- The lessee shall not do anything which will cause erosion of the banks of any body of water or adjacent to the land and shall provide necessary controls to prevent such erosion.
- The lessee shall dispose of all combustible garbage and debris by burning in an incinerator approved by the Land Agent and remove all non-combustible garbage and debris to an authorized dumping site.
- The lessee shall dispose of human waste in a manner satisfactory to the Minister.
- The lessee shall not discharge or deposit any refuse or other waste materials in any body of water, or the banks thereof, in will, in the opinion of the Minister, impair the quality of the waters or the natural environment and any areas designated for waste disposal shall not be located within thirty-one meters of the ordinary high water mark of any body of water, unless otherwise authorized by the Minister.

Please also refer to all the sections under the lands lease definitions for our required outlook and care of the land, community, and environment associated with our operation.

This relates to the coverage of waste management.

The purpose and scope of the Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lodge) waste management plan is to outline the active management processes for our facility to reduce the number of sources needed, reuse, and recycle as much of our created waste as possible. To treat any matter that is handled and disposed onsite and ship out the remaining waste that we are unable to handle onsite for proper disposal in the designated facilities in Yellowknife. It is in our interest and diligence to responsibly break down our waste as much as possible. This covers all wastes like garbage, all types of recycling, hazardous waste, foods, fuels and oils, etc.

Source Reduction: The lodge and camp exist in a remote area in which goods, services, and people are only able to access the site via aircraft, specifically summer floats, winter skis, or helicopter. With our geographical location it is in our best interests, and cost, to eliminate anything that is non-essential from coming to the site, strictly monitor and control our inventories, substitute and simplify materials for better space and environmental concern, and to train our staff on and off site to be mindful of usages, impacts and efficiencies. With these steps, we only ship what is efficient, environmentally friendly, and needed to the location of the site.



Reusing: All and any materials that can be reused onsite, and off are. This includes materials just as container for storage, materials for construction, and simple day to day equipment. We often have the motto “use it up, wear it out, make it do, or do without” posted in all areas of our camp.

Recycling: Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lodge) hold green policies that state that all material that can be, must be recycled. We have a small recycling organizer onsite in which we breakdown our recycling into categories in accordance with the NWT recycling systems, bag and store the recycling until the next available aircraft back to the refundable and non-refundable centers in Yellowknife.

Treatment: Blackwater generated at the site is managed and pumped out to a sump for disposal. Bulk is composted at the site.

Release to the Receiving Environment: No waste is disposed of, deposited or released into the environment. Separately and covered in a later section of the waste management plan, Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lodge) does operate a covered sump for the safe and healthy release of black water back to the land.

Feel free to browse our website for the many environmental initiatives that we operate with ([www.blachfordlakelodge.com](http://www.blachfordlakelodge.com)) that attribute to our waste management goals and objectives.

### **3.1 Water Intake**

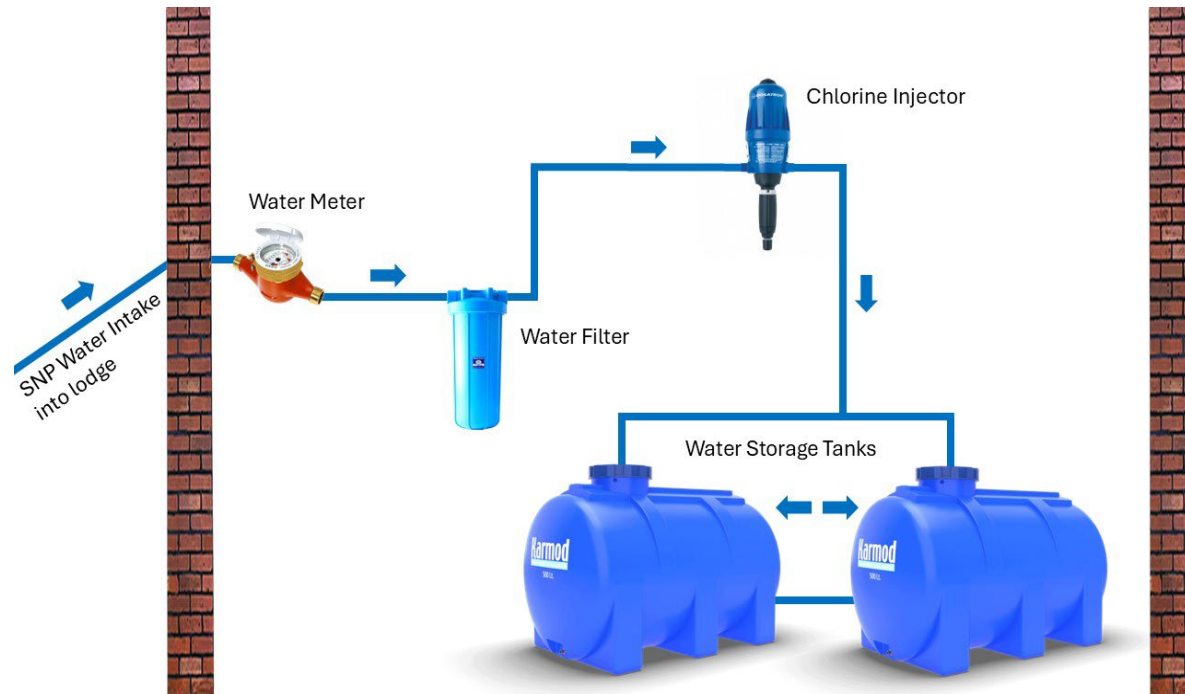
Overview of the current water intake procedures for the Blachford Lodge Site.

1. Water intake (SNP 1) is done via two methods depending on the season:
  - a. In the summer and fall seasons with open water on the lake, an electric submersible pump is placed in the lake 20 meters from shore. The pump is suspended halfway between the lake bottom and top water ensuring prime water intake.
  - b. In the winter with ice frozen over the lake, staff complete a manual process for water intake. Using an ice auger a hole is drilled 20 meters from shore. A 6 meter sucker hose is fed into the hole and attached to a gas powered Honda water pump. The intake hose is suspended halfway between the lake bottom and top water ensuring prime water intake. Two water transfer hoses connect the water pump from the ice hole to the above ground water transfer pipe to the lodge.
2. Water is pumped and connected to a 40 meter above ground water line from the short up the hill and enters through the wall of the basement on the east side of the lodge.
3. Water passes through a water meter for SNP data.
4. Water passes through a Rain fresh 10 micron filter.
5. Water is treated with an automatic chloring injector.
6. Water is collected and stored in 2 conjoined 1000 Litre water tanks, in the basement.
7. All lodge, cabin and camp water comes from these tanks.

In 2025 the lodge will be replacing our seasonal water pumps with an all season automatic submersible water pump, pressure tank and self draining line located 20 meters off short east of the lodge.

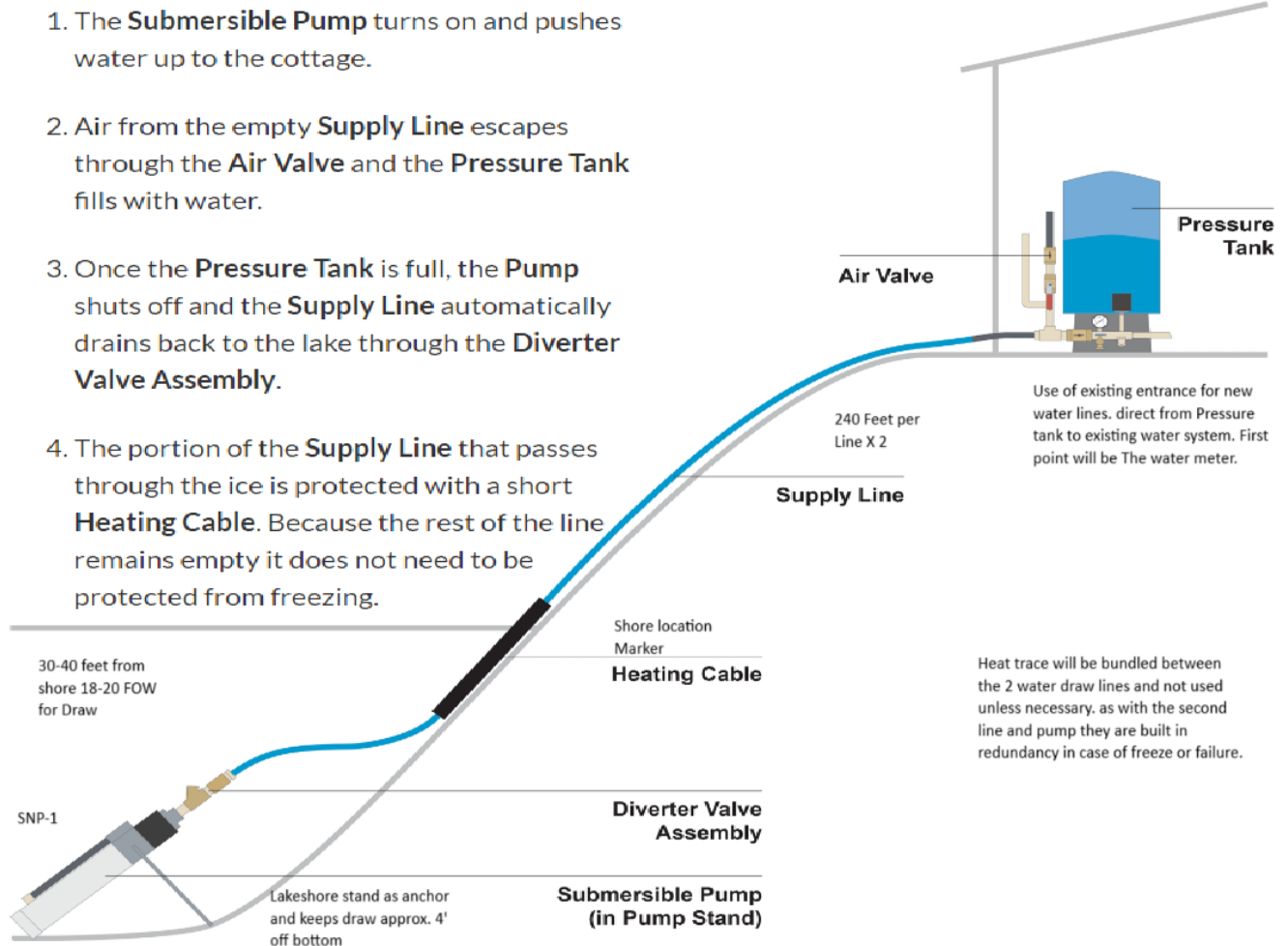
Please See Figure 3 for the water intake Schematic, and Figure 4 for the automatic water line.

**Figure 3 – Lodge Water Intake Schematic**



**Figure 4 – Automatic Self Draining Water Intake**

## How Does the Self-Draining System Work?



### 3.2 Water Source Capacity

Blachford Lodge is located on and sources its water from Blachford Lake. The lake is 16km long east to west. 4km at the widest part on the west from the lodge to the opposite short. 0.5km on average through the narrows from the east over towards the west. There is an average of 25' on the surface over the winter and an average of 60' in depth of the lake.

Blachford Lodge is the only proponent on the land and sourcing water from the lake. Blachford Lake has a surface area of 17,140,285 meters squared. Please see figure 4 confirming the specs via Google Earth.



**Figure 5 – Size and Are of Blachford Lake**



Blachford Lodge operates well below the daily usage trigger of 100m<sup>3</sup> daily that requires further assessment of water sourcing and intake approvals. Annual draw is anticipated to be between 80 and 150 meters cubed per calendar year. Figure 6 and Table 3 show locational and licenced data.

**Table 3 – SNP 1 Intake Data**

Purpose of Water Use	Name and Type of Water Source	Location	Geographic Coordinates		Proposed Water Use
			Latitude	Longitude	
Drinking and Operation Use	Lake Water from SNP 1	SNP 1 intake pipe 40m east of lodge shore	62° 09' 55" N	112° 40' 59" W	<2000l daily

**Figure 6 – SNP 1 Lake Location**



### 3.3 Water Consumption

Water consumption at Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lodge) is for the purpose of municipal usage by the persons on site. The water intake is drawn for drinking, showering, cleaning, dishes, sinks, handwashing, hot tub supply, and low flush toilets.

Monitoring the water is done in various ways including daily testing of chlorine levels in the drinking water onsite, reading and recording the volume of usage daily and updating the record of usage log, monthly water samples sent to YK labs for bacteriological testing and water cleanliness, and the automatic bleach injector ensure that the water is accurately chlorinated as per code required by the Stanton Regional Health Board.

The annual water intake limit for water licences Blachford holds is 19,000m<sup>3</sup>. Arctic Kingdom is intending to use higher water volumes then previous years at Blachford Lodge. These will continue to comply and remain within our limits.

Prior to summer 2024 the average daily consumption during a tourism season was 100-500 litres. With adding flush toilets to the facility in 2024, the increased water use break down as follows: 8 toilets, flushing 6 litres, 7 times daily is an additional 336 litres a day for an increased average daily consumption of 506-1000 liters per day. This is less then the 2000 litres a day referenced. For our scheduled 38 weeks of tourism operations this works out to increase our usage by 90m<sup>3</sup> on an annual basis. The estimate for annual usage is 170m<sup>3</sup>. Please reference Table 4 below for 2024 consumption data. \*Reference unit calculation: Meters Cubed to Litres = multiply the volume value by 1000.

Grey water, black water and bulk flows are broken down into two separate facility systems. Please reference Section 4 for Lodge Flow and Section 5 for Cabin flow for flow schematics on each system. Please refer to Blachford's Spill Contingency plan for any waste spill related information.

**Table 4 – 2024 Water Volume Usage Log**

Week	Date	Meter Reading (m <sup>3</sup> )	Weekly Usage (m <sup>3</sup> )	Annual Usage (m <sup>3</sup> )
1	7-Jan	360.14	0.13	X
2	14-Jan	360.22	0.08	X
3	21-Jan	360.58	0.36	X
4	28-Jan	360.60	0.02	0.59
5	4-Feb	360.78	0.18	X
6	11-Feb	360.95	0.17	X
7	18-Feb	361.04	0.09	X
8	25-Feb	361.18	0.14	0.58
9	3-Mar	361.35	0.17	X
10	10-Mar	361.57	0.22	X
11	17-Mar	361.00	-0.57	X
12	24-Mar	360.49	-0.51	X
13	31-Mar	361.42	0.93	0.24
14	7-Apr	362.55	1.13	X

15	14-Apr	363.06	0.51	X
16	21-Apr	363.85	0.79	X
17	28-Apr	364.21	0.36	2.79
18	5-May	364.96	0.75	X
19	12-May	365.27	0.31	X
20	19-May	366.22	0.95	X
21	26-May	367.01	0.79	2.80
22	2-Jun	369.91	2.90	X
23	9-Jun	371.56	1.65	X
24	16-Jun	375.45	3.89	X
25	23-Jun	377.52	2.07	X
26	30-Jun	378.36	0.84	11.35
27	8-Jul	379.09	0.73	X
28	15-Jul	379.59	0.50	X
29	22-Jul	380.37	0.78	X
30	29-Jul	381.24	0.87	2.88
31	5-Aug	382.16	0.92	X
32	12-Aug	383.24	1.08	X
33	19-Aug	384.85	1.61	X
34	26-Aug	386.40	1.55	5.16
35	2-Sep	387.82	1.42	X
36	9-Sep	389.64	1.82	X
37	16-Sep	391.16	1.52	X
38	23-Sep	392.71	1.55	X
39	30-Sep	394.60	1.89	8.20
40	7-Oct	396.54	1.94	X
41	14-Oct	396.81	0.27	X
42	21-Oct	397.20	0.39	X
43	28-Oct	398.63	1.43	4.03
44	4-Nov	399.04	0.41	X
45	11-Nov	400.75	1.71	X
46	18-Nov	401.28	0.53	X
47	25-Nov	401.61	0.33	2.98
48	2-Dec		-401.61	X
49	9-Dec		0.00	X
50	16-Dec		0.00	X
51	23-Dec		0.00	X
52	30-Dec		0.00	-401.61
Year Consumption (m³)				-360.01



#### **4 Lodge Flow**

The Lodge uses water for many locations including, kitchen sinks, sanitation sinks, dishwashers, laundry facilities, the hot tub, and features including 8 showers, 6 sinks, 3 showers and 3 low flush toilets. These water lines are sourced from the lodge holding tanks.

Lodge grey water, black water and bulk flow as follows:

1. The clivus multrum composting systems are still in place and in use, composting human waste.
2. 3 flush toilets have been added to the 3 of the upstairs lodge room as ensuites. These are 6 l flush toilets that are used in combination with the clivus composting toilet system.
3. Black water and bulk from the toilets is plumbed and put through a Sanicube 2 macerator. \*\*
4. Black water and bulk is then pumped into the black holding tanks in the basement of the lodge (volume of 1000l and 500 liter conjoined tanks)
5. Black water is pumped out of the lodge, 60 meters northwest of the facility to the covered sump.
6. Human waste is settled and removed from the tanks as per the existing composting toilet systems and handling procedures.
7. Human waste is removed from the tanks on an annual basis and placed into composting beds at the site.

\*\*Should all facilities fed into the Sanicube2 be functional at the same time, it would be 10 gallons per minute of flow. This is less than 25% of the units' capabilities and capacity. The macerating of the flow assists it with the transport through the lodge plumbing at an easier and faster rate, this is designed to function better at colder temperatures that we experience through the winter.

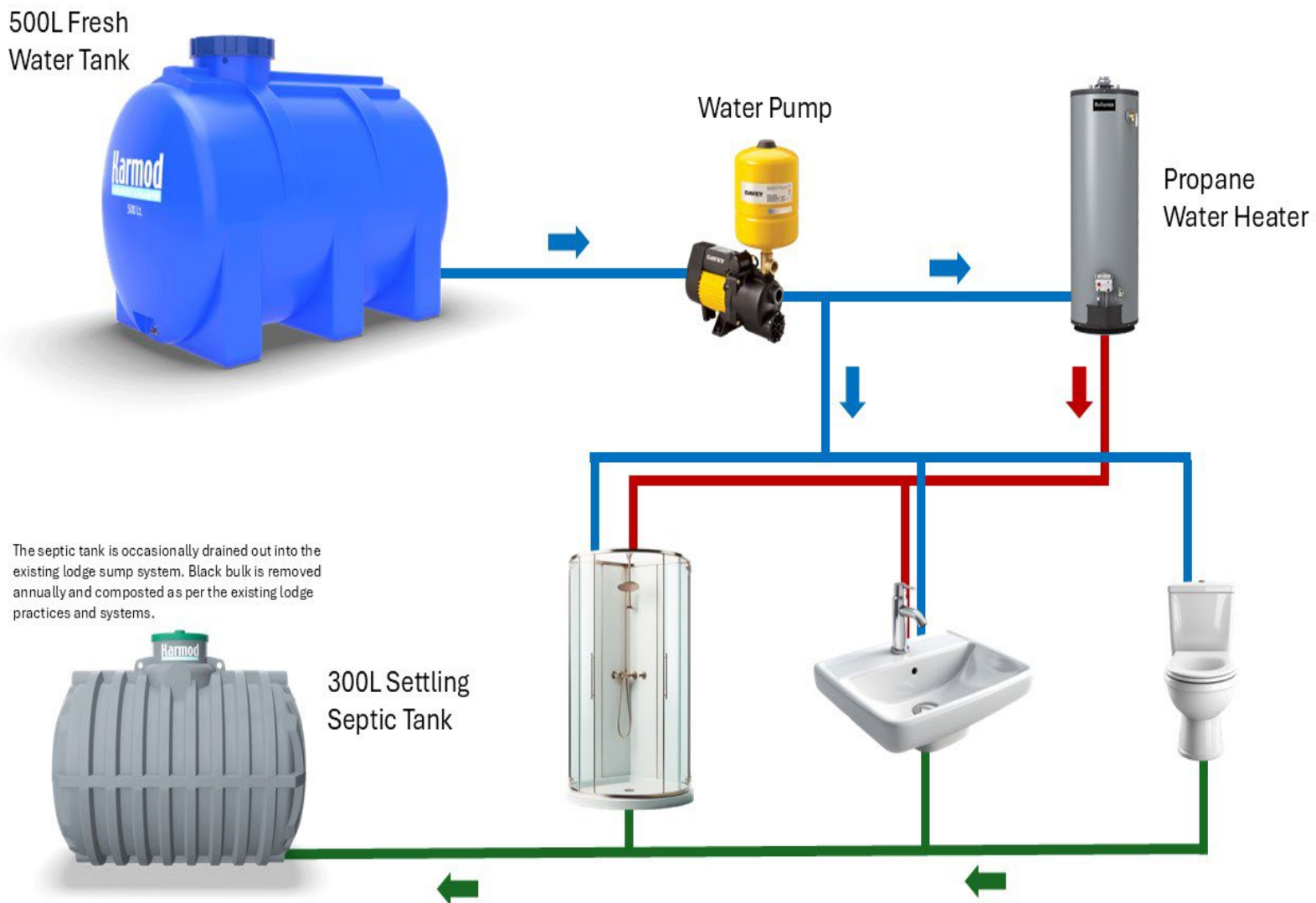
#### **5 Cabin Flow**

The 5 guest cabins in the lower camp feature a total of 5 sinks, 5 showers and 5 low flush toilets. Water is sourced from the lodge holding tanks and transported to cabin freshwater holding tanks. Transport is done either by transport hoses or via atv and trailer tank in the summer, and snowmobile with sled tank in the winter.

1. Water, depending on the outdoor temperatures is either:
2. Soft water line delivered to the cabins.
3. Trucked via atv or snowmobile and holding tank in freezing temperatures.
4. Cabins are outfitted with 500 Litre holding tanks, for water that has been processed, and or from the lodge being metered, filtered and chlorinated to standards.
5. Usage is done in the cabin via sink, toilet or shower.
6. Toilets are flushed into Black Settling tanks.
7. Black water is pumped out of the holding tanks and trucked to the existing lodge sump site, as per the existing system.
8. Human waste is settled and removed from the tanks as per the existing composting toilet systems and handling procedures.
9. Human waste is removed from the tanks on an annual basis and placed into composting beds at the site.

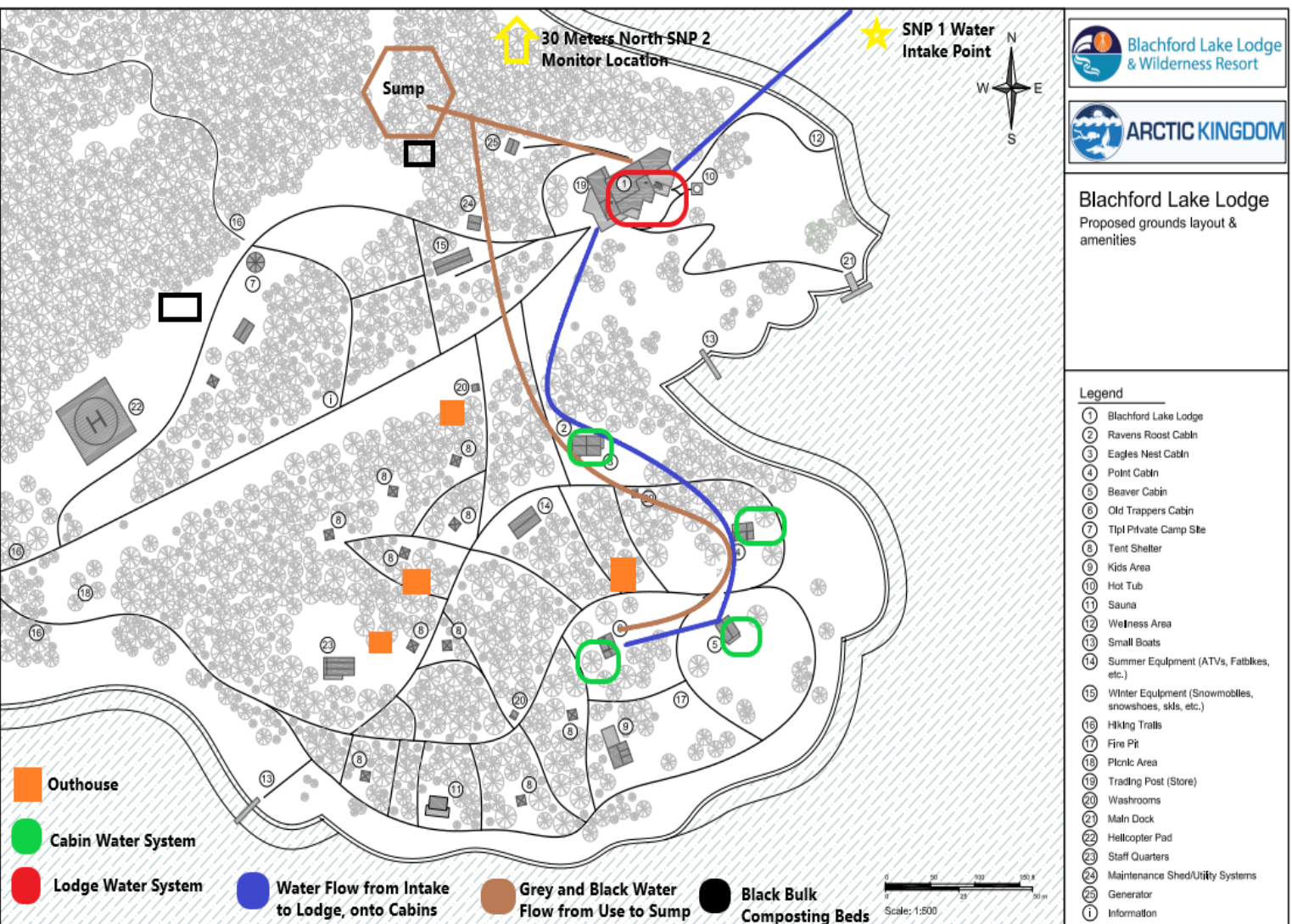
Please see Figure 7 for cabin flow schematic.

Figure 7 – Cabin, Grey Water, Black Water and Bulk Flow



## 6 Water and Bulk Flow at the Site

Figure 8 – Complete Site Flow of Water, Blackwater, and Bulk





## 7 Blackwater & Covered Sump

The sump at Blachford has been licenced and in use at Blachford since 1999, when the main lodge was constructed. Local environment it a rocky outcrop where the main lodge is located that slops downhill into a natural depression where the covered sump is located. There are no other drainage or natural land occurrences in the area.

It has been inspected by staff on a weekly basis, by inspectors on average of twice a year, and has always been an environmentally stable, safe, end effective way of treating and disposing of Black Water. Testing is done to all surrounding water bodies, marking is done to note and changes in size, or environmental impact to the immediate area, sight, color and health of the surrounding flora and fauna are all monitored regularly. The Black bulk is composted at the site, and the same is at the sump, the composting beds have always been an approved method of disposal.

The Sump is located 60 meters northwest of the main lodge. In the summer, we extend the pump out pipe another 20 meters to use the further side of the sump. The sump is 45 meters south from the lake.

The human waste/bulk composting stations human are 50 meters from the buildings, operations and bodies of water. Arctic Kingdom has transitioned the bulk composting process to feature the bulk be composted to soil on the land. Composted human bulk isn't used for gardening or other purposes.

As the existing sump has and can handle the discharge volumes in the past. The SNP is appropriately designed for our set up. We note that there have not been any changes or negative impact but continue to monitor should there be any changes we can analyze, assess, and reassess the sump if need. The sump has been maintained at the same size since its creation, showing that it was designed to handle the same balance of water deposited into the sump and back into the ground.

There is approximately 1000 liters of black water at a time pumped to the sump daily, for 10 months of the year. The additional two months of the year would see 400 litres of black water pumped to the sump daily. The properties of this water contain grey water and black water from the lodge drains, sinks, showers, effluent from the clivus composting toilets, and flush toilets etc., which are used with only environmentally friendly products.

**Figure 8 – Sump Location in Relation to Lodge and SNP Monitoring Station SNP2**



## 8 Waste Generation and Management

**Table 5 - WASTE GENERATION AND MANAGEMENT AT BLACHFORD LODGE**

Type of Waste	Source Generation	Volume Used / Created	Storage	Disposal	Potential Environmental Effects
Human Waste	Humans	Approximately 800 liters annually, fluctuating in the number of people onsite throughout the term	Stored in either the industrial clivus multum, lodge or cabin Black settling tanks, or outhouses.	The clivus and black settling tank bulk is empty annually into soil plots, and composted at the site. Outhouse pits are covered when full and a new pit is dug.	Positive impact of composting waste instead of disposal.
Black Water	Entire camp water usage, sinks, showers, drains, toilets, and effluent pumped out of the clivus composting toilets.	1800 liters daily	Stored in liquid tanks until full, then pumped out on reoccurring cycles	Pumped out to covered sump for natural evacuation into the ground.	No impact on site
Recycling	All materials that can no longer be used after purchase	4 standard bags per week	Stored in the recycling organizer until the next available flight to YK	Refundable are taken to the YK bottle depot, nonrefundable are taken to recycling centres.	No impact on site

Chemical Waste	Paint cans, some cleaner containers etc.	Approximately 15 paint cans and 15 other containers per year	Stored in containers until shipped back to YK on appropriate dates.	To be disposed of at KBL Environmental on allocated dates.	No impact on site
Hazardous Materials	Batteries etc., all other hazardous waste material byproducts	50 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	To be disposed of at KBL Environmental on allocated dates.	No impact on site
Electrical Equipment	Expired, broken, unrepairable electrical devices	50 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates. Electronics recycled at The GNWT's Bottle Shop.	No impact on site
Scrap Metal	Breakdown of metal that cannot be repaired	100 lbs per year	Stored in containers until shipped back to YK on appropriate No impact on site dates.	Disposed at the YK dump on allocated dates.	No impact on site

Rubber Products	Breakdown of Garbage	10 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates.	No impact on site
Construction Materials	Leftover material from any carried out projects	Reused onsite. Not usable 5 standard garbage bags per year	Stored in the garbage bin until next available flight to YK	Disposed of at the YK dump.	No impact on site
Used oil, fuels, solvents	Barrels are reused for fuel. One time oils and solvents for machinery maintenance	10 gallons of waste fuel per year. 1 Gallon of other solvent per year	Stored in sealed containers in appropriate fuels areas until container are full then shipped back to YK.	Oil and fuels disposed of by Basset Fuels. Solvents disposed of at KBL Environmental.	No impact on site



Antifreeze	Needed for liquid lines in the winter	12 liters per year	Stored in sealed containers in appropriate Hazardous Materials areas until container are full then shipped back to YK.	To be disposed of at KBL Environmental.	No impact on site
Carbon Material	Mainly cardboard from shipping, the lodge also breaks down and separates its paper waste	10 lbs per week	Stored in the recycling organizer or allocated bins in the lodge.	All reused as fire starter on site.	No impact on site
Food Waste	Kitchen Scraps	2 5 gallon pails per week, sorted by compostable and non compostable.	Stored in pails until the pails are full.	Food wasted is shipped back to Yellowknife for disposal at the dump.	No impact on site
Organic Waste (brush, ash etc.)	Trail maintenance, wood stove ashes etc.	6 square meters per year	Stored in the composter	Added to the composter	No impact on site

Garbage	All other material that cannot be reused or classified in this table.	4 standard bags per week	Stored in the garbage bin until next flight to YK	Disposed of at the YK dump	No impact on site
Appliance Equipment	Unrepairable breakdown of appliances	1 appliance every two to three years	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates.	No impact on site
Contaminated Soils, Ice or Snow	Should a spill or contamination occur	N/A	Stored in containers until shipped back to YK on appropriate dates.	Disposed of at allocated facility in accordance with Lands and GNWT-ECC	If cleaned up properly, there should be no impact on site with waste removed.

## 9 Off Site Waste Disposal

Off-site Disposal: If waste is proposed to be disposed of off-site within the NWT, written confirmation (e.g., an email, letter, etc.) from the facility/facilities indicating they will accept the waste is required. Please see Figure 9 for our 2024 letter of acceptance, and we will have applicable letters for future years.

Waste transported back to Yellowknife and are transferred to the YK SWDF (or applicable facility) in the van by our expeditor. We pay for a vehicle load per trip to the dump. Please reference the following information from their website: <https://www.yellowknife.ca/en/living-here/garbage.aspx#Commercial-Contractor-Access-Hours-to-the-Solid-Waste-Facility-SWF->

Incineration Theory: Should the Yellowknife Waste facility refuse to accept our waste, the consideration of implementing an incinerator at the site would be favorable. This has been mentioned to GNWT-ECC officers previously, on which we were provided with Environment Canada's Technical Document for Batch Waste Incineration.

Currently, there are no air quality regulations in the NWT, but they are being developed. The Land & Water Boards are currently using the Environment Canada Guide for Incineration.

At a minimum, an incinerator must be dual chambered and meet the dioxins, furans and mercury emissions specified in the document. A manufacturer should be able to confirm if compliance can be achieved.

The inciner8 or Westland models are currently being used by other local facilities and could you a possible addition should we come to this process with the board.

Arctic Kingdom is intending to implement an incinerator at the Blachford site in the future. We have consulted land and water officers on incoming regulations and options but are not ready to proceed yet. This could be put in place sooner, if we were not able to send refuse to Yellowknife.

**Figure 9 – YS SWDF Acceptance for Blachford Lodge 2024**



CITY OF YELLOWKNIFE

July 24, 2024

Arctic Kingdom  
PO BOX 1568  
Yellowknife, NT X1A 2P2

Attention: Ms. Amy Isaikina  
Via email to: amy.isaikina@arctickingdom.com

**RE: Acceptance of Waste Materials from Blachford Lake Lodge**

The City of Yellowknife approves the request to utilize the City's Solid Waste Facility for the Blachford Lake Lodge. Details regarding the waste types and receiving location are listed below.

**Solid Waste Facility**

- Food Waste and Wrappings –approximately two 5-gallon pails per week
- Non Hazardous mixed waste – approximately 4 bags a week
- Corrugated Cardboard – approximately 10 lbs. per week
- Recyclables – approximately 4 bags a week

This waste will be subject to the Commercial Waste from Outside of City Limits tipping fee as outlined in the [Fees and Charges By-Law 4436](#)

The City reserves the right to refuse waste from the project in question, at its sole discretion, at any time.

This agreement is valid until September 1, 2026.

Please feel free to contact the Solid Waste Facility if you have any further questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Vaughn".

Chris Vaughn, P.Eng.  
Manager, Sustainability and Solid Waste  
Public Works and Engineering

DM: 770996



## 10 Project Surveillance Network Program

Blachford Lodge is required to submit data and water samples for the MVLWB and the Health Unit.

### **Mackenzie Valley Land & Water Board (LW and LUP) Requirements:**

Blachford Lodge has 2 technical “SNP” stations onsite at the lodge:

SNP 1 = The pumping location for the lodge drinking water.

SNP 2 = The middle of the dog yard bay behind the lodge.

Each station has different requirements that need to be completed, uploaded online, and submitted to the board by given deadlines. The information for these stations needs to be accurate, not estimated.

### **SNP STATION BLL - 1**

<b>Description</b>	The monthly and annual quantities of Water Pumped from SNP station BLL-1 for domestic purposes shall be measured and recorded in cubic metres.
<b>Location</b>	Water intake at Blachford Lake.
<b>Sampling Frequency</b>	Monthly during intake.
<b>Sampling Parameters</b>	Volume of Water in m3 (meters cubed).
<b>Rationale</b>	To monitor the monthly and annual quantity of Water withdrawn for use.
<b>Status</b>	Active.

SNP 1: The board requires that Blachford record the amount of water that the lodge intakes for use.

Weekly on Mondays the water meter needs too be read to record the water usage of the lodge for that week. Record the data on a chart in the basement by the water tanks, such as below:

Example:

Week Number	Date	BLL Water Meter (M3)	Weekly Usage (M3)	Total Annual Usage (M3)
1	Jan 7	21.66	2.19	2.19
2	Jan 14	23.53	1.87	4.06
3	Jan 21			
4	Jan 28			
5	Feb 4			
6	Feb 11			

Monthly the data from the water usage chart will need to be uploaded to the Blachford online drive. Open the drive; MVLWB folder; SNP Data Recording.xls. Open the document and transfer the recorded results into the online chart.

This information is then tabulated into the annual water licence reports and submitted to the board.

#### **SNP STATION BLL - 2**

Description	The Receiving Environment, downstream of Sump during open water season.
Location	The shore of Blachford Lake, east of Blachford Lodge, at the closest point directly downstream of the Sump.
Sampling Frequency	At the beginning and end of open water season, (i.e. one week following freshet, and before freeze-up)
Sampling Parameters	CBOD5, Total Suspended Solids, Nutrients <sup>a</sup> , Faecal Coliforms
Rationale	To monitor the quality of Water in the Receiving Environment downstream of the Sump.
Status	Active.

Footnotes: a. Total Ammonia (NH<sub>3</sub>, + NH<sub>4</sub> + ), Total Nitrate + Nitrite (NO<sub>3</sub> + NO<sub>2</sub>), Total Phosphorus (TP), Orthophosphate (OP), and Total Organic Carbon (TOC).

SNP 2: The board requires that water samples must be taken downstream from the covered sump (where the black water pumps out) to ensure water quality in the receiving environment.

1 sample must be taken at 2 specific times per year from SNP 2 Location.

June 1<sup>st</sup> and October 1<sup>st</sup> are the approximate timelines. After breakup and before freeze up are the deadlines. Typically, the ice has melted by the first week of June and does not freeze until the third week of October. You need to take the sample the same day as a plane into Yellowknife closest these dates!

**IMPORTANT:** SNP2 Water samples can not be processed by Stanton lab. You need to request bottles, take the samples, and have them processed at **Taiga Labs!** Please read their instructions carefully.

Taiga labs is the only location that can test the sample parameters that the board requires. See Table 5:

Taiga Environmental Laboratory 4601 52nd Avenue – Yellowknife, NT X1A 2R3 Phone: (867) 669-2788  
Fax: (867) 669-2718 Email: [taiga@gov.nt.ca](mailto:taiga@gov.nt.ca)

How to get sample bottles for MVLWB SNP testing from Taiga Labs:

1. Blachford email generated reminder is sent to all parties to initiate bottle pick up.
2. Expediter goes to Taiga Labs with a hard copy of the Taiga-Blachford Field Sheet.
3. Taiga labs fills the bottle order for free, (for both June and October) based on the field sheet.
4. Expediter prints 2 additional hard copies of the field sheet to send to the lodge with the bottles.
5. Expediter packs the bottles and labels the box "TAIGA LABS SNP 2 SAMPLE BOTTLES ONLY".

6. Expediter initiates email communication loop with lodge office, YK office, John, expediter address, and Amy to notify all parties that the bottles will be on the first float plane to the lodge after breakup.
7. Expediter sends bottles to the lodge in the first available yellow bag.

**Table 6: parameters measured at the Receiving Environment, downstream of the Covered Sump during open water season (SNP station BLL-2)**

Sampling Parameters	May	June	July	August	September	October	November
CBOD <sub>5</sub>							
Total Suspended Solids (TSS)							
Total Ammonia (NH <sub>3</sub> + NH <sub>4</sub> <sup>+</sup> )							
Total Nitrate + Nitrite (NO <sub>3</sub> + NO <sub>2</sub> )							
Total Phosphorus (TP)							
Orthophosphate (OP)							
Total Organic Carbon (TOC)							
Faecal Coliforms							