



December 1, 2023

Tracking Number: 387464  
Authorization Number: 110118

**EMAIL:** Rachelle Ray ([Rachelle.Ray@gov.bc.ca](mailto:Rachelle.Ray@gov.bc.ca))

British Columbia Ministry of Transportation and Infrastructure  
Suite 4B - 940 Blanshard Street, Victoria, BC, V8W 9T5

Dear Approval Holder:

Enclosed is Approval 110118 for the operation of a pilot study for a water treatment system issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the approval.

This approval does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the approval holder. This approval is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the approval holder to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this Approval will be carried out by staff from the Land Remediation Section. Plans, data and reports pertinent to the approval are to be submitted to the Client Information Officer ([csp\\_cio@Victoria1.gov.bc.ca](mailto:csp_cio@Victoria1.gov.bc.ca)), Land Remediation Section, Environmental Protection Division, Ministry of Environment and Climate Change Strategy, PO Box 9342, Stn Prov Govt, Victoria BC V8W 9M1, or otherwise directed in the authorization.

Please note that a permit will be required for ongoing operation of the treatment system after the expiry of this Approval or the discharge will no longer be authorized.

Yours truly,



A/Manager  
for Director, *Environmental Management Act*  
Land Remediation Section

cc: Barbara Wernick, [barbara.wernick@wsp.com](mailto:barbara.wernick@wsp.com)  
Alex Timmis, [Alex.Timmis@jacobs.com](mailto:Alex.Timmis@jacobs.com)  
Amber Ashenhurst, [Amber.Ashenhurst@gov.bc.ca](mailto:Amber.Ashenhurst@gov.bc.ca)  
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**MINISTRY OF ENVIRONMENT  
AND CLIMATE CHANGE  
STRATEGY  
APPROVAL**

**110118**

*Under the Provisions of the Environmental Management Act*  
**British Columbia Ministry of Transportation and Infrastructure**  
**Suite 4B - 940 Blanshard Street, Victoria, BC, V8W 9T5**

Is authorized to discharge effluent to ground adjacent Highway Creek from a Water Treatment System (WTS) that includes a Passive Water Treatment System (PWTS) and an Enhanced Wetland Treatment System (EWTS) located approximately 32 km west of Westbank, British Columbia, subject to the requirements listed below.

Contravention of any of these requirements is a violation of *the Environmental Management Act* and may lead to prosecution.

This discharge is authorized to occur from the issue date of this Authorization to March 1, 2025.

1. **AUTHORIZED DISCHARGES**

1.1 **Authorized Source**

This section applies to the discharge of effluent from a mineralized area where acid rock drainage (ARD) has occurred at Highway 97C near Highway Creek. The Water Treatment System consists of a Passive Water Treatment System (PWTS) and an Enhanced Wetland Treatment System (EWTS). The SITE ID reference number for this Site is 16475.

The Sludge Pond Waste Disposal Area west of the EWTS is not authorized to accept waste.

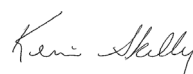
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A site location is provided in the Location Map in Appendix A.

- 1.1.1 The maximum rate of discharge to the PWTS is approximately 2 litres per second via a flow splitter. There is no minimum rate of discharge to the PWTS.
- 1.1.2 There is no maximum or minimum rate of discharge from the PWTS to Highway Creek, except in the event of system maintenance or through action in the Contingency Plan or as otherwise defined in this approval. Characteristics of the discharge from the PWTS must meet the chemical parameters as defined in Section 1.1.6. before being discharged.
- 1.1.3 There is no minimum or maximum rate of discharge from the EWTS.
- 1.1.4 Flows of approximately 2 litres per second or less, at the flow splitter must first be treated by the PWTS and then redirected to the EWTS unless being discharged under the Freshet Contingency Measures described in the Highway Creek Remediation Project – Effluent Water Quality Contingency Plan prepared by Jacobs Consultancy Canada Inc., dated September 16, 2022, or if short-term scheduled maintenance prevents treatment of effluent in the PWTS before being redirected to the EWTS.
- 1.1.5 The authorized discharge period is continuous for 15 months from the date of this authorization.

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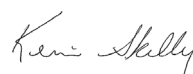
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- 1.1.6 The characteristics of the discharge must not exceed concentrations or units listed below for the following chemical parameters during the authorization period at compliance points described in Section 1.1.10:

| Parameter*                          | Maximum or Minimum | Concentration and Units |
|-------------------------------------|--------------------|-------------------------|
| pH                                  | Maximum:           | 9 pH units              |
| pH                                  | Minimum:           | 6 pH units              |
| Total Sulfate                       | Maximum:           | 750 mg/L                |
| Total Aluminum <sup>^</sup>         | Maximum:           | 400 µg/L                |
| Total Antimony                      | Maximum:           | 9 µg/L                  |
| Total Arsenic                       | Maximum:           | 10 µg/L                 |
| Total Beryllium                     | Maximum:           | 0.15 µg/L               |
| Dissolved Cadmium                   | Maximum:           | 0.2 µg/L                |
| Total Chromium <sup>^</sup>         | Maximum:           | 4 µg/L                  |
| Total Cobalt                        | Maximum:           | 7 µg/L                  |
| Dissolved Copper                    | Maximum:           | 5 µg/L                  |
| Dissolved Iron                      | Maximum:           | 1000 µg/L               |
| Total Iron                          | Maximum:           | 2000 µg/L               |
| Total Lead                          | Maximum:           | 4 µg/L                  |
| Total Manganese                     | Maximum:           | 5000 µg/L               |
| Total Nickel <sup>^</sup>           | Maximum:           | 30 µg/L                 |
| Total Selenium <sup>^</sup>         | Maximum:           | 4 µg/L                  |
| Total Thallium                      | Maximum:           | 0.8 µg/L                |
| Total Uranium                       | Maximum:           | 8.5 µg/L                |
| Dissolved Zinc                      | Maximum:           | 20 µg/L                 |
| Total Suspended Solids <sup>^</sup> | Maximum:           | 25 mg/L                 |

\*Concentration limits assume a hardness of approximately 500 mg/L in the discharge and satisfactory dilution to reach a minimum hardness after mixing in Highway Creek such that hardness does not influence toxicity of the substance in question to result in: (a) lethal effects at the point of discharge, (b) chronic toxicity effects at the edge of the IDZ, and/or (c) hardness does not cause toxicity in and of itself such that it would constitute pollution.

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^ Two (2) exceedances within two times (2X) the limit is acceptable for this parameter during the length of the approval.

- 1.1.7 The characteristics of the discharge (100% effluent) must not exceed the following toxicity parameters at compliance points described in Section 1.1.10:

| Toxicity Test*  | Endpoint    | Result <sup>^</sup> |
|---|-------------|---------------------|
| Rainbow Trout 96 Hour Acute Lethality<br>EPS 1/RM/13, 2 <sup>nd</sup> Edition December 2000 | % Mortality | Pass                |
| Daphnia magna 48 Hour Acute Lethality<br>EPS 1/RM/14, 2 <sup>nd</sup> Edition December 2000 | % Mortality | Pass                |

\* Toxicity test methods are outlined in Section F of the [B.C. Environmental Laboratory Manual](#).

<sup>^</sup> Pass – If less than 50% of the test organisms die after exposure period.

- 1.1.8 The discharge is authorized from the Authorized Works, which consist of the following components:

PWTS: Wildlife fencing, acidity neutralizing chamber, biochemical reactor cells, aerobic polishing cells, vegetated settling basin, limestone ditch, flushed limestone bed, settling basin, and related appurtenances, with a release to the surface flow wetland in the EWTS during normal operation and to the infiltration swale via AD1-4 during contingency measures as described in the Contingency Plan dated September 16, 2022.

EWTS: Wildlife fencing, flushed limestone beds, settling basin, inlet cell, compostable organic material beds, surface flow wetlands, and related appurtenances, with a final diffuse release to Highway Creek via an outlet pond with rip-rap berm.

Sludge Pond Waste Disposal Area is not part of the Authorized Works. Sludge generated from the Acid Neutralizing Chamber or other portion of the Authorized Works must be disposed of at a permitted facility designed to accept the waste and records of disposal must be submitted with the annual report.

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- 1.1.9 The location of the facilities from which the discharge is authorized to originate and the point where the discharge is authorized to occur is approximately 32 kilometres west of Westbank, British Columbia on Highway 97C at the crossing of Highway Creek (Latitude: 49.9098 N, Longitude: 120.0738 W).

The PWTS is located at approximately 49.9116 N, 120.0777 W and the EWTS is located at approximately 49.9113 N and 120.0779 W. The Sludge Pond Waste Disposal Area is located at approximately 49.9097 N, 120.0792 W.

The edge the Initial Dilution Zone (IDZ) is located at SW14, located at approximately (49.9123 N, 120.0784 W).

Facilities are shown on the Site Plan in Appendix A.

- 1.1.10 The points of compliance are described below:

| Description     | Sampling Location | EMS ID           | Lat./ Lon.               |
|-----------------|-------------------|------------------|--------------------------|
| EWTS Discharge  | Outlet Pond       | To be determined | 49.9112 N/<br>120.0782 W |
| PWTS Discharge* | AD1-4             | To be determined | To be determined         |

\*When discharging

- 1.1.11 The approval holder must not discharge under this Authorization unless the Authorized Works are complete and fully operational, or as otherwise specified by the director.

- 1.1.12 Amphibian and wildlife exclusion fencing must be installed within 12 months of the date of this authorization.

The approval holder must install and maintain amphibian and wildlife exclusion fencing around all authorized works which have visible surface water, defined as greater than 2.5 cm depth at any time during the year. Any amphibians observed within the amphibian-fence areas are to be removed promptly as directed by a Qualified Professional.

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2. **GENERAL PROVISIONS**

Where this Authorization provides that the director may require an action to be carried out, the approval holder must carry out the action in accordance with the requirements of the director.

2.1 **Future Upgrading of Works**

The director may require the approval holder to repair, alter, remove, improve or add to existing works, or to construct new works, and to submit plans and specifications for works specified in this Authorization.

2.2 **Future Monitoring**

The director may require the approval holder to conduct further monitoring, and may specify procedures for monitoring and analysis, and procedures or requirements respecting the handling, treatment, transportation, discharge or storage of waste.

The director may amend any requirements under this section, including requiring increased or decreased monitoring based on data submitted by the approval holder and any other data gathered in connection with this Authorization.

2.3 **Future Impact Assessment**

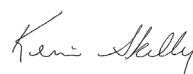
The director may require the approval holder to conduct studies, which may include a Detailed Risk Assessment, and to report information in accordance with the specifications of the director.

The director may amend any requirements under this section, including requiring increased or decreased reporting based on data submitted by the approval holder and any other data gathered in connection with this Authorization.

2.4 **Publication of Documents**

The Ministry of Environment and Climate Change Strategy publishes Regulatory Documents on its website for the purpose of research, public education and to provide transparency in the administration of environmental

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laws. The approval holder acknowledges that the Province may publish any Regulatory Documents submitted by the approval holder, excluding information that would be exempted from disclosure if the document was disclosed pursuant to a request under section 5 of the Freedom of Information and Protection of Privacy Act, and the approval holder consents to such publication by the Province.

## 2.5 **Maintenance of Works**

The approval holder must regularly inspect the Authorized Works and maintain them in good working order. Maintenance of the Authorized Works must follow the draft MOTI Pennask Treatment System O&M Plan provided in Appendix J of the Technical Assessment Report, prepared by Stantec Consulting Ltd., dated August 25, 2023, and future updates as applicable and approved by the director.

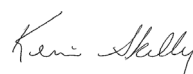
The approval holder must maintain a record of inspections and maintenance of the Authorized Works and make the record available to an officer upon request.

Inspection and maintenance results must be reported quarterly according to Section 5. The draft MOTI Pennask Treatment System O&M Plan must be finalized and submitted to the director within 1 year of the date of this authorization. The director must approve the final MOTI Pennask Treatment System O&M Plan.

## 2.6 **Emergency Procedures**

In the event of an emergency or other condition which prevents normal operation of the Authorized Works or leads to an unauthorized discharge, the approval holder must take remedial action immediately to restore the normal operation of the Authorized Works and to prevent any unauthorized discharges. The approval holder must immediately report the emergency or other condition and the remedial action that has and will be taken to the EnvironmentalCompliance@gov.bc.ca and site@gov.bc.ca email addresses or as otherwise instructed by the director.

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## 2.7 **Bypasses**

The approval holder must not allow any discharge authorized by this Authorization to bypass the Authorized Works, except with the prior written approval of the director. Bypasses between components of the Authorized Works are authorized according to design criteria outlined the Technical Assessment Report and according to Contingency Measures outlined in the Contingency Plan dated September 16, 2022, if required.

## 2.8 **Plans - Works**

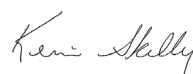
The approval holder must ensure the plans and specifications of the works described in Section 1.1.8 of the definition of Authorized Works are certified by a Qualified Professional and that plans are submitted to the director within 1 year of issuance of the Approval.

The approval holder must cause a Qualified Professional to certify that the works have been constructed in accordance with such plans and specifications before discharge commences under this Authorization.

## 2.9 **Odour Control**

Should objectionable odours, attributable to the operation of the Authorized Works, occur beyond the property on which the Authorized Works is located, the approval holder must undertake measures or additional works to reduce odour to acceptable levels.

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### 3. SAMPLING REQUIREMENTS

#### 3.1 Water Treatment System

The approval holder must install and maintain, suitable to the director, sampling facilities, described below:

| Station ID         | Approximate location at the Site             | Type of Facility | Environmental Management System ID | LAT/LON                  |
|--------------------|--|------------------|------------------------------------|--------------------------|
| EWTS Outlet (EWTS) | Outlet Pond sampling port                    | Surface Water    | To be determined                   | 49.9112 N/<br>120.0782 W |
| SFW3 (EWTS)        | SFW3 pond within EWTS                        | Surface Water    | To be determined                   | 49.9111 N/<br>120.0779 W |
| AD1-4 (PWTS)       | PWTS Discharge (as per the Contingency Plan) | To be determined | To be determined                   | 49.9115 N/<br>120.0773 W |

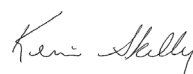
The approval holder must collect samples at each sampling location according to the schedule specified in Section 3.7.

#### 3.2 Groundwater Sampling Locations

The approval holder must install and maintain, suitable to the director, ground and porewater sampling facilities, described below:

| Well ID | Approximate location at the Site      | Type of Facility | Environmental Management System ID | LAT/LON                  |
|---------|---------------------------------------|------------------|------------------------------------|--------------------------|
| MW15-17 | Upgradient of Highway 97C, represents | Monitoring Well  | To be determined                   | 49.9086 N/<br>120.0753 W |

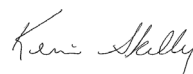
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|         |  |                 |                  |                          |
|---------|--|-----------------|------------------|--------------------------|
|         | background conditions  |                 |                  |                          |
| MW15-21 | Northeast of the Highway 97C crossing of Highway Creek and represents groundwater conditions in the vicinity of the PWTS | Monitoring Well | To be determined | 49.9115 N/<br>120.0773 W |
| MW15-23 | Southeast of the Highway 97C crossing of Highway Creek and represented groundwater in the vicinity of the EWTS           | Monitoring Well | To be determined | 49.9113 N/<br>120.0785 W |
| TH05-01 | Saddle area of the highway and represents groundwater in capped fill material.   | Monitoring Well | To be determined | 49.9095 N/<br>120.0759 W |
| TH06-06 | North of the existing settling pond on the north side of Highway Creek and represents groundwater under Highway Creek    | Monitoring Well | To be determined | 49.9099 N/<br>120.0764 W |

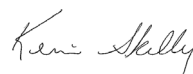
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|                                 |   |                    |                          |                          |
|---------------------------------|---|--------------------|--------------------------|--------------------------|
|                                 | immediately downstream of the fill area.  |                    |                          |                          |
| PWTS influent location (DMH1-1) | At the inlet to the former Aquafix system and represents the shallow groundwater being diverted from under the capped highway bed to the east of Highway Creek. | Sampling Port      | Former E282651A location | 49.9099 N/<br>120.0739 W |
| PW21-1                          | Porewater immediately adjacent to the PWTS and within the diffuse groundwater plume flow path   | Shallow piezometer | To be determined         | 49.9114 N/<br>120.0779 W |
| PW21-2                          | Porewater immediately adjacent to the EWTS and within the diffuse groundwater plume flow path   | Shallow piezometer | To be determined         | 49.9114 N/<br>120.0780 W |

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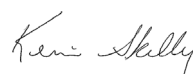
The approval holder must collect samples at each sampling location according to the schedule specified in Section 3.8.

### 3.3 Surface Water Sampling Locations

The approval holder must install and maintain, suitable to the director, sampling facilities, described below:

| <b>LAT/<br/>LON</b>      | <b>Approximate location at the Site</b>   | <b>Environmental<br/>Management<br/>System ID or<br/>Location ID</b> |
|--------------------------|---|--|
| 49.9088 N,<br>120.0743 W | Upgradient reference station, located approximately 100 m upstream of Hwy 97C                             | E244074  |
| 49.9100 N,<br>120.0761 W | Approximately 15 m downstream of the culvert beneath Highway 97C and adjacent to the former Aquafix pond. | E244076  |
| 49.9114 N,<br>120.0781 W | Approximately 10 m downstream of EWTS Outlet Pond between fence and outlet pond.                          | SW15   |
| 49.9115 N,<br>120.0782 W | Approximately 20 m downstream from the EWTS Outlet Pond, north of fence.                                  | SW3A   |
| 49.9117 N,<br>120.0784 W | Approximately 30 m downstream of the EWTS Outlet Pond.  | SW3  |
| 49.9118 N,<br>120.0784 W | Approximately 50 m downstream of the EWTS Outlet Pond.  | SW3B   |
| 49.9123 N,<br>120.0784 W | Approximately 100 m downstream of the EWTS Outlet Pond.   | SW14   |
| 49.9152 N,<br>120.0790 W | At the Bear Creek Forest Service Road   | E244077  |
| 49.9213 N,<br>120.0806 W | Highway Creek upstream of Pennask Creek (former BC ENV sampling location)                                 | E244078  |

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|                          |  |         |
|--------------------------|--|---------|
| 49.9207 N,<br>120.0816 W | Pennask Creek upstream of Highway Creek (former BC MoE sampling location)                                | E244079 |
| 49.9218 N,<br>120.0807 W | Pennask Creek 20 m downstream of Highway Creek   | E244080 |
| 49.9236 N,<br>120.0797 W | Pennask Creek 500 m downstream of Highway Creek at Logging Road Bridge (former BC MoE sampling location) | E244082 |

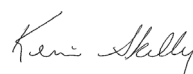
The approval holder must collect samples at each sampling location according to the schedule specified in Section 3.9.

### 3.4 Sediment and Benthic Invertebrate Sampling Locations

The approval holder must install and maintain, suitable to the director, sampling facilities, described below:

| LAT/<br>LON              | Approximate location at the Site  | Environmental Management System ID or Location ID |
|--------------------------|---|---|
| 49.9117 N,<br>123.0784 W | Approximately 30 m downstream of the EWTS Outlet Pond.  | SW3   |
| 49.9152 N,<br>120.0790 W | At the Bear Creek Forest Service Road.  | E244077   |
| 49.9088 N,<br>120.0743 W | Upgradient reference station located approximately 100 m upstream of Highway 97C.                         | E244074   |
| 49.9100 N,<br>120.0761 W | Approximately 15 m downstream of the culvert beneath Highway 97C and adjacent to the former Aquafix pond. | E244076   |
| 49.9114 N,<br>120.0781 W | Approximately 10 m downstream of EWTS Outlet Pond between fence and outlet pond.                          | SW15  |

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The approval holder must collect samples at each sampling location according to the schedule specified in Section 3.10.

**3.5 Analytical Procedures**

The approval holder must carry out analyses in accordance with procedures described in the "British Columbia Laboratory Manual (2020 Edition)", or the most recent edition or by alternative procedures as authorized by the director.

**3.6 Quality Assurance**

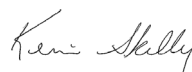
- a) The approval holder must obtain from the analytical laboratory(ies) their precision, accuracy and blank data for each sample set submitted by the approval holder and an evaluation of the data acceptability, based on criteria set by such laboratory.
- b) The approval holder must prepare and submit for analysis by the analytical laboratory(ies) a duplicate sample for each parameter sampled at each monitoring site and each monitoring period or for every one in 10 samples.
- c) The approval holder must submit samples to analytical laboratory(ies) that meet the definition of a qualified laboratory under the Environmental Data Quality Assurance Regulation.

**3.7 Water Treatment System (Discharge Grab Sampling)**

The approval holder must, at a minimum, collect and analyze sample (s) based on the frequency and list of parameters below:

| Location<br>or<br>EMS ID | Parameters* | Frequency                    |  |                                     |           |
|--------------------------|-------------|------------------------------|--|-------------------------------------|-----------|
|                          |             | Once in<br>the first<br>week | Bi-weekly for<br>first three<br>months | Monthly for<br>first four<br>months | Quarterly |
| Outlet<br>Pond<br>(EWTS) | Suite 1     | X <sup>1</sup>               | X <sup>1</sup>                         | X <sup>1</sup>                      | X         |
|                          | Suite 2     | X                            | X**                                    | X                                   | X         |
| SFW3<br>(EWTS)           | Suite 1     | X <sup>1</sup>               | X <sup>1</sup>                         | X <sup>1</sup>                      | X         |

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|                 |         |   |                |                |   |
|-----------------|---------|---|----------------|----------------|---|
| AD1-4<br>(PWTS) | Suite 1 |   | X <sup>1</sup> | X <sup>1</sup> | X |
|                 | Suite 2 | Within two weeks prior to scheduled discharge |                |                |   |

\*Suite 1 Parameters: pH, anions, cations, alkalinity, hardness, acidity, total sulfate, ortho-phosphate, bromide, total and dissolved metals, total and dissolved organic carbon, and true and apparent colour.

Suite 2 Toxicity: Rainbow Trout EPS 1/RM/13 and *Daphnia magna* EPS 1/RM/14 as described in Section 1.1.7.

\*\* Biweekly for first 4 weeks.

X<sup>1</sup>: Chromium samples are to be analyzed for trivalent and hexavalent speciation for the first three months.

### 3.8 Groundwater Sample Analysis

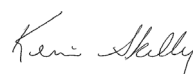
The approval holder must, at a minimum, collect and analyze sample(s) based on the frequency and list of parameters below:

| Well ID                  | Parameters | Frequency      |
|--------------------------|------------|----------------|
|                          |            | Quarterly      |
| MW15-17                  | Suite 3    | X <sup>1</sup> |
| MW15-21                  | Suite 3    | X              |
| MW15-23                  | Suite 3    | X <sup>1</sup> |
| TH05-01                  | Suite 3    | X              |
| TH06-06                  | Suite 3    | X              |
| DMH1-1 (former E282651A) | Suite 3    | X <sup>1</sup> |
| PW21-1 (PWTS porewater)  | Suite 3    | X              |
| PW21-2 (EWTS Porewater)  | Suite 3    | X              |

Suite 3: pH, anions, cations, alkalinity, acidity, ortho-phosphate, bromide, total and dissolved metals, and total and dissolved organic carbon.

X<sup>1</sup>: Chromium samples are to be analyzed for trivalent and hexavalent speciation for the first three months.

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### 3.9 Surface Water Sample Analysis

The approval holder must, at a minimum, collect and analyze sample(s) based on the frequency and list of parameters below:

| Location or EMS ID <sup>^</sup> | Parameters* | Frequency <sup>^^</sup>    |                                  |                |                         |           |                            |
|---------------------------------|-------------|----------------------------|----------------------------------|----------------|-------------------------|-----------|----------------------------|
|                                 |             | Once during the first week | Bi-weekly for first three months | Monthly        | 5-in-30 days (low flow) | Quarterly | Based on Site Observations |
| E244074                         | Suite 1     |                            |                                  | X <sup>1</sup> | X <sup>1</sup>          |           | X <sup>1</sup>             |
| E244076                         | Suite 1     |                            |                                  | X <sup>1</sup> | X <sup>1</sup>          |           | X <sup>1</sup>             |
| SW15                            | Suite 1     |                            | X <sup>1</sup>                   |                |                         | X         | X <sup>1</sup>             |
| SW3A                            | Suite 1     | X <sup>1</sup>             | X <sup>1</sup>                   | X <sup>1</sup> | X <sup>1</sup>          | X         | X <sup>1</sup>             |
|                                 | Suite 2     | X                          | X**                              | X              |                         | X         |                            |
| SW3                             | Suite 1     |                            | X                                | X              |                         |           | X                          |
| SW3B                            | Suite 1     |                            | X                                | X              | X                       | X         | X                          |
| SW14                            | Suite 1     |                            | X                                | X              | X                       |           | X                          |
| E244077                         | Suite 1     |                            |                                  | X <sup>1</sup> | X <sup>1</sup>          |           | X <sup>1</sup>             |
| E244078                         | Suite 1     |                            |                                  |                |                         | X         | X                          |
| E244079                         | Suite 1     |                            |                                  |                |                         | X         |                            |
| E244080                         | Suite 1     |                            |                                  |                |                         | X         |                            |
| E244082                         | Suite 1     |                            |                                  |                |                         | X         |                            |

\*Suite 1 Parameters: pH, anions, cations, alkalinity, hardness, acidity, total sulfate, ortho-phosphate, bromide, total and dissolved metals, total and dissolved organic carbon, true and apparent colour, and Highway Creek flow rate.

Suite 2 Toxicity: Rainbow Trout EPS 1/RM/13 and *Daphnia magna* EPS 1/RM/14 as described in Section 1.1.7.

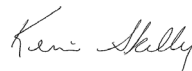
\*\* Biweekly for first 4 weeks.

X<sup>1</sup>: Chromium samples are to be analyzed for trivalent and hexavalent speciation for the first three months.

<sup>^</sup> As specified in Section 3.3.

<sup>^^</sup> If location to be sampled is impeded by snow and or ice, then documentation must be provided to the ministry during the next reporting period indicating that specified location(s) could not be safely sampled.

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3.10 **Sediment Sample Analysis and Benthic Invertebrate Sampling**

The approval holder must, at a minimum, collect and analyze sample(s) from the locations listed, based on the frequency and list of parameters below:

| Location or EMS ID <sup>^</sup> | Parameters | Frequency             |            |
|---------------------------------|------------|-----------------------|------------|
|                                 |            | Before Commissioning* | Annually** |
| E244074                         | Suite 4    | X                     | X          |
|                                 | Suite 5    | X                     | X          |
| E244076                         | Suite 4    | X                     | X          |
|                                 | Suite 5    | X                     | X          |
| SW15                            | Suite 4    | X                     | X          |
|                                 | Suite 5    | X                     | X          |
| SW3                             | Suite 4    | X                     | X          |
|                                 | Suite 5    | X                     | X          |
| E244077                         | Suite 4    | X                     | X          |
|                                 | Suite 5    | X                     | X          |

<sup>^</sup> As specified in Section 3.4.

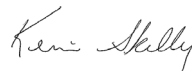
\* If ground conditions allow.

\*\* Based on timing recommendations in [Guidelines for Sampling Benthic Invertebrates in British Columbia Streams](#) (Beatty *et al.* 2006).

Suite 4: Aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, sulfate, thallium, uranium, and zinc, pH, organic carbon, grain size.

Suite 5: Benthic invertebrate sampling for benthic invertebrate community structure analysis following best practices as described in [Guidelines for Sampling Benthic Invertebrates in British Columbia Streams](#) (Beatty *et al.* 2006).

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### 3.11 Sampling Procedures

The approval holder must carry out sampling in accordance with the procedures described in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2013 Edition" or most recent edition, or by alternative procedures as authorized by the director.

### 3.12 Receiving Environment Flow Monitoring

The approval holder must estimate Highway Creek flows using Environment and Climate Change Canada hydrometric station 08LG016 during sampling events described in Section 3.7 to 3.10. In addition, flow must be measured within Highway Creek during all sampling events described in Sections 3.7 to 3.10.

### 3.13 Additional Monitoring

For the toxicity testing described in Sections 3.7 and 3.9, rainbow trout toxicity testing must be increased to once per week if a sample of effluent fails the rainbow trout toxicity test. The approval holder must continue to collect and test samples of effluent on one day each week until the effluent samples pass three consecutive tests, at which time testing can revert to that described in Sections 3.7 and 3.9. If survival of rainbow trout is less than 90%, an additional rainbow trout toxicity test (96 hr survival) must be conducted within two weeks of completion of the initial scheduled test.

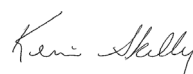
For all additional sampling required by this section, concurrent analytical chemistry samples must also be submitted for chemical analyses as described in Sections 3.7 and 3.9.

## 4. OPERATIONAL REQUIREMENTS FOR EFFLUENT DISCHARGES

### 4.1 Flow Measurement

The approximate effluent volume discharged must be recorded over the term of the Authorization. The approval holder must retain the records for inspection by Ministry staff.

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4.2 **Posting of Outfall**

The approval holder must install and maintain a sign at the entrance to the Site within 2 months of issuance of this Approval. The sign must identify the nature of the authorized works.

4.3 **Foam**

Should foam, attributable to the effluent, become objectionable in receiving waters as determined by the director, the director may require the approval holder to carry out additional treatment to remove the foam or eliminate the cause of the foam on a timeline specified by the director.

4.4 **Colour**

Should colour, attributable to the effluent, become objectionable in receiving waters as determined by the director, the director may require the approval holder to carry out additional treatment to remove the colour forming constituents from the effluent prior to discharge on a timeline specified by the director.

4.5 **Taste and Odour**

Should fish tainting or odours in the receiving environment, attributable to the effluent discharge, become objectionable as determined by the director, the director may require the approval holder to carry out additional treatment to reduce the constituents responsible for such fish tainting or odours on a timeline specified by the director.

4.6 **PWTS Infiltration Swale**

The approval holder must operate the infiltration swale such that:

- a) there is no overflow from the infiltration swale to the surrounding environment; and
- b) except for during contingency measures as described in the Contingency Plan, dated September 16, 2022.

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These conditions apply when conditions are suitable for infiltration.

The approval holder must dispose of any sediments removed from the infiltration swale in a manner authorized by the director, or as authorized by regulation under the *Environmental Management Act*.

#### 4.7 **EWTS Outlet Pond**

The approval holder must operate the outlet pond such that there is no overflow from the outlet pond to the surrounding environment unless conveyed via the rip-rap berm.

The approval holder must dispose of any sediments removed from the outlet pond in a manner authorized by the director, or as authorized by regulation under the *Environmental Management Act*.

### 5. **REPORTING REQUIREMENTS**

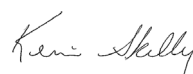
#### 5.1 **Record Keeping and Reporting**

The approval holder must collect and maintain data of analyses and flow measurements required under this Authorization for inspection when requested by Ministry staff and submit the data for the previous quarter to the director in a form satisfactory to the director.

The approval holder must make data submissions in respect of each subsequent quarter within 30 days of the end of the applicable quarter.

The approval holder must submit all data required to be submitted under this section by email to the Ministry's Routine Environmental Reporting Submission Mailbox (RERSM) at [envauthorizationsreporting@gov.bc.ca](mailto:envauthorizationsreporting@gov.bc.ca) and [esp\\_cio@Victoria1.gov.bc.ca](mailto:esp_cio@Victoria1.gov.bc.ca) or as otherwise instructed by the director. For guidelines on how to properly name the files and email subject lines or for more information visit the Ministry website: <https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions/routine-environmental-reporting-submission-mailbox>.

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## 5.2 Annual Report

The approval holder must collect and maintain all data of analysis and flow measurements and the analytical quality assurance/ quality control data.

The approval holder must, on or before April 1, 2025, submit such data and information for the preceding calendar year to the director, by email at envauthorizationsreporting@gov.bc.ca and csp\_cio@Victoria1.gov.bc.ca or as otherwise instructed by the director, in a form that is tabulated, graphically represented and interpreted to the satisfaction of the director, and includes but is not limited to the following:

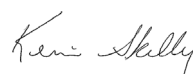
- a) Overview of the project and description of site activities during the previous year;
- b) For each monitoring component (groundwater, porewater, surface water, sediment, benthic invertebrates) – the methods, results, quality assurance, quality control, and interpretation of the analytical results;
- c) Overview of treatment system function;
- d) Summary of episodes, malfunctions, spills or other emergencies;
- e) Identification of risk reduction and adaptive management measures to be undertaken in support of the longer-term function of the treatment systems; and
- f) Conclusions and any recommended amendments to the authorization.

## 5.3 Weekly Reporting

The approval holder must, within **two weeks** of issuance of this authorization, submit analytical data and information for the 1<sup>st</sup> week of operation of the authorized works relating to the discharge from the Outlet Pond and Receiving Environment points of compliance, to the director, by email at envauthorizationsreporting@gov.bc.ca and csp\_cio@Victoria1.gov.bc.ca or as otherwise instructed by the director, in a form that is tabulated, graphically represented and interpreted to the satisfaction of the director, and includes but is not limited to the following:

- a) For each monitoring component (groundwater, porewater, surface water, sediment, benthic invertebrates) – the methods, results, quality assurance, quality control, and interpretation of the analytical results;
- b) Overview of treatment system function;

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- c) Summary of episodes, malfunctions, spills or other emergencies; and
- d) Identification of risk reduction and adaptive management measures to be undertaken in support of the longer-term function of the treatment system.

### 5.3 **Bi-Weekly Reporting**

The approval holder must, within **four weeks** of issuance of this authorization, submit analytical data and information on a bi-weekly basis **for the first three months**, describing the operation of the authorized works relating to the discharge and receiving environment, to the director, by email at envauthorizationsreporting@gov.bc.ca and csp\_cio@Victorial.gov.bc.ca or as otherwise instructed by the director, in a form that is tabulated, graphically represented and interpreted to the satisfaction of the director, and includes but is not limited to the following:

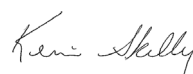
- a) For each monitoring component (groundwater, porewater, surface water, sediment, benthic invertebrates) – the methods, results, quality assurance, quality control, and interpretation of the analytical results;
- b) Overview of treatment system function;
- c) Summary of episodes, malfunctions, spills or other emergencies; and
- d) Identification of risk reduction and adaptive management measures to be undertaken in support of the longer-term function of the treatment system.

## 6. **NON-COMPLIANCE REPORTING**

### 6.1 **Non-compliance Notification**

The approval holder must immediately notify the director by email at EnvironmentalCompliance@gov.bc.ca and csp\_cio@Victorial.gov.bc.ca or as otherwise instructed by the director of any non-compliance with the requirements of this Authorization and must immediately take remedial action to remedy any effects of such non-compliance in accordance with the Contingency Plan, prepared by Jacobs Consultancy Canada Inc, dated September 16, 2022, in Appendix K of the Technical Assessment Report, prepared by WSP Canada Inc., dated September 5, 2023.

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## 6.2 **Non-compliance Reporting**

The approval holder must, within 90 days of any non-compliance event, submit to the director a written report that includes, but is not necessarily limited to, the following:

- a) all relevant test results obtained by the approval holder related to the non-compliance,
- b) an explanation of the most probable cause(s) of the non-compliance, and
- c) a description of remedial action planned and/or taken by the approval holder to prevent similar non-compliance(s) in the future.

The approval holder must submit all non-compliance reporting required to be submitted under this section by email to the Ministry's Compliance Reporting Submission Mailbox (CRSM) at [EnvironmentalCompliance@gov.bc.ca](mailto:EnvironmentalCompliance@gov.bc.ca) or as otherwise instructed by the director. For guidelines on how to report a non-compliance or for more information visit the Ministry website: <https://www2.gov.bc.ca/gov/content?id=076C5CA3ABD342A784CC49EC78CBAE12>.

## 6.3 **Non-compliance Reporting of Toxicity**

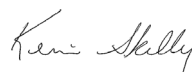
The effluent discharges authorized in Section 1.1 must not be acutely lethal for samples collected at the final discharge point, defined as the point beyond which the approval holder no longer exercises control over the quality of the effluent prior to the introduction of the effluent into the receiving environment and detailed in Section 3.1.

In the event of an acute toxicity test failure, the approval holder must notify the Director immediately in accordance with Section 6.1.

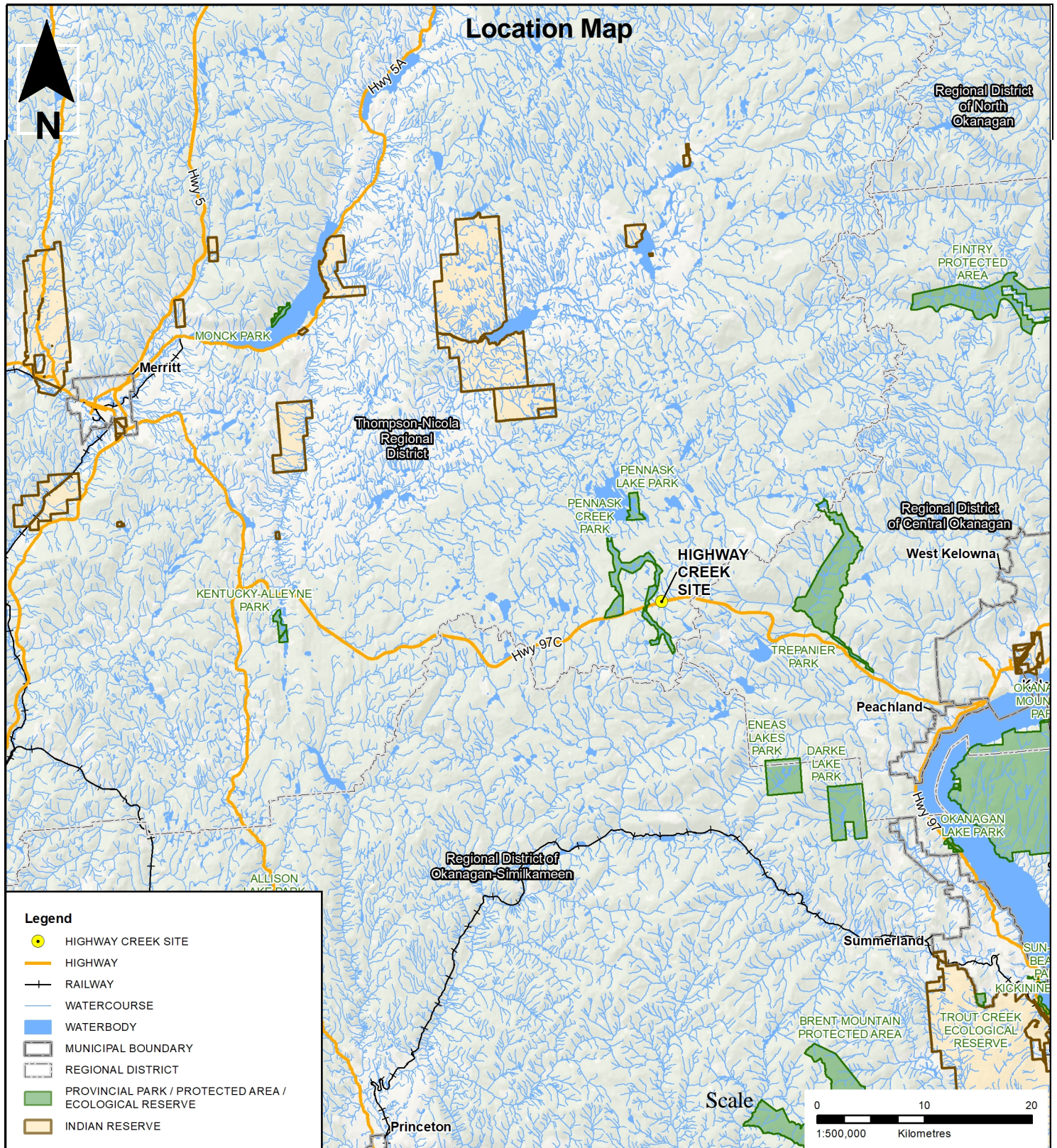
## 6.4 **Spill Reporting**

The approval holder must immediately report all spills to the environment (as defined in the Spill Reporting Regulation) in accordance with the Spill Reporting Regulation, which among other things, requires notification to Emergency Management BC at 1-800-663-3456.

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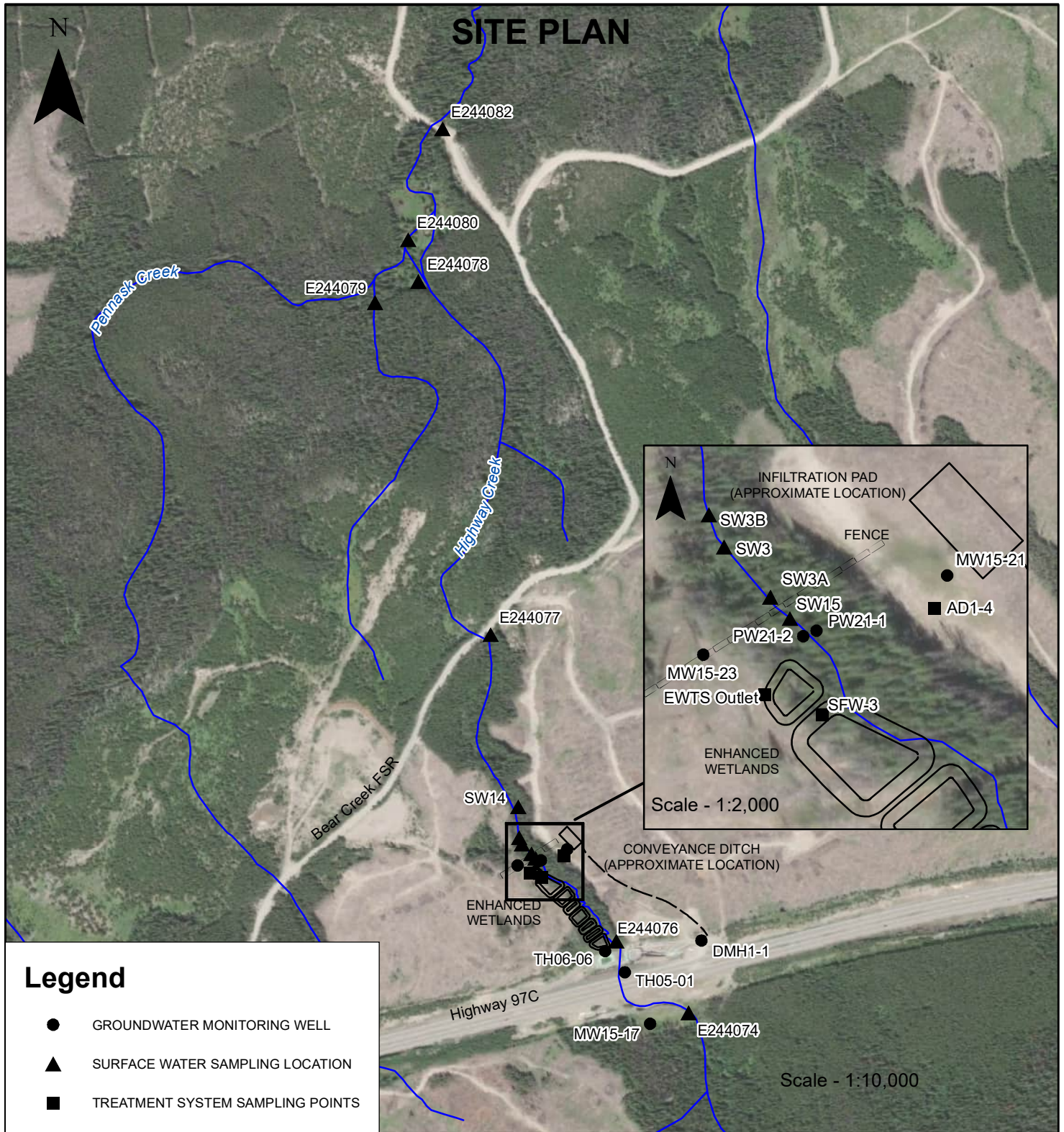
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**Legend**

- GROUNDWATER MONITORING WELL
- ▲ SURFACE WATER SAMPLING LOCATION
- TREATMENT SYSTEM SAMPLING POINTS

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