July 13, 2021

Manitoba Conservation and Climate
Programs and Strategies
1007 Century Street
Winnipeg, MB R3H 0W4

E-mail: warren.rospad@gov.mb.ca

Attention: Warren Rospad

Re: Remedial Action Plan
SW21-03-12-W1, Hydrometric Station 05OB021, Pembina River below Crystal Creek, Manitoba
Pinchin File: 292865

Pinchin Ltd. (Pinchin) is pleased to provide Manitoba Conservation and Climate with the following Remedial Plan (RAP) for approval prior to completing potential remedial excavation at SW21-03-12-W1, Hydrometric Station 05OB021, Pembina River below Crystal Creek, Manitoba (Site).

The Site is developed with an Environment and Climate Change Canada (ECCC) hydrometric monitoring station, which is located on privately-owned land (see Appendix I).

Contact Information for the Landowner is as follows:

Mr. Doug Wilson and Ms. Trudy Wilson

Phone: 204.825.2773

1.0 BACKGROUND

It is understood by Pinchin that ECCC has engaged Winnipeg Environmental Remediations Inc. (Contractor) to complete decommissioning of an existing hydrometric station located at the Site. As part of the decommissioning activities, an assessment of the structure and soils below and around the structure are required to be completed by an Environmental Consultant to assess for presence of mercury in soils prior to decommissioning, in accordance with the document entitled “Update to the National Hydrometric Station Mercury Remediation Guidance Document” prepared by Dillon Consulting for Public Services and Procurement Canada, dated March,2020 (2020 Mercury Guidance Document).

The scope of work presented in this RAP outlines proposed requirements for completion of remedial excavation in the event that assessment of soils at the Site identifies concentrations of mercury in excess of applicable criteria.

2.0 SCOPE OF WORK

In the event that assessment of soils at the Site identifies concentrations of mercury in excess of applicable criteria, the scope of work to be completed includes excavation of impacted soils, verification soil sampling, and excavation backfilling.

The remedial excavation will be conducted in general accordance with the following documents:

- Manitoba Conservation and Climate guidelines entitled:
  - *"Environmental Site Assessments in Manitoba",* dated June 2016.
- Manitoba Conservation and Climate information bulletins entitled:
  - *"Contaminated Sites Remediation Regulation Reporting Requirements and Standards",* dated October 2015.
- Canadian Council of Ministers of the Environment (CCME) publication entitled "Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment – Volume 4 Analytical Methods", dated 2016.
- Pinchin's standard operating procedures (SOPs).
- Canadian Standards Association publication entitled "Phase II Environmental Site Assessment, CSA Standard Z769-00 (R 2018)".
- 2020 Mercury Guidance Document.

2.1 Remediation Activities

2.1.1 Pre-Excavation Activities

Prior to any remedial activities, the following will be completed:

- Pinchin will submit the Remedial Action Plan to Manitoba Conservation and Climate for approval;
- The Contractor will retain the services of an independent contractor and public utility services to identify the locations of buried and overhead utility services prior to any excavation activities;
- The Contractor will pre-arrange for acceptance of soil to be disposed of at Waste Connections disposal facility in Stony Mountain;
- The Contractor will obtain all necessary provincial and municipal permits for completion of remedial excavation;

- Pinchin will mobilize to the Site with the Contractor and conduct a mercury vapour survey using a Lumex RA-915M instrument (if available) or Jerome 505 Mercury Vapour Analyzer to confirm vapour concentrations of mercury within the shelters and exterior are below applicable guidelines and consistent with findings of previous shelter assessments;
- Advance up to fifteen (15) test pits at the Site with shovel or hand-auger to a maximum depth of 0.3 metres around and underneath the shelter to assess soil quality for presence of mercury and to provide information on Site-specific geological characteristics, in accordance with requirements set out in the 2020 Mercury Guidance Document;
- Perform field sample screening using the Lumex RA-915M instrument (if available) on samples collected from each test pit, including duplicate samples on 10% of samples, and compare to applicable criteria, in accordance with requirements set out in the 2020 Mercury Guidance Document. Samples collected for field screening will also be submitted for laboratory analysis of mercury. Advancement of additional test pits may be required based on results of sample field screening; and
- Advise the Contractor if remediation of soils is required based on results of field screening;

2.2 Soil Remediation Activities

2.2.1.1 Soil Excavation

Upon completion of the pre-excavation activities and if remediation of soils is warranted based on presence of mercury concentrations in soils exceeding applicable criteria, the Contractor, working under the direction of Pinchin, will complete the following:

- Using an excavator, soil with identified mercury impacts will be excavated from the ground and placed into pails or soil bags. The impacted soil will then be transported directly from the Site for disposal at the Waste Connections disposal facility in Stony Mountain as hazardous waste.

2.2.1.2 Submittals

- Copies of waybills/bills of lading produced by the licenced disposal facility for the received hazardous waste to the Contractor will be presented to Pinchin for review.

2.2.1.3 Verification Soil Sampling

Following completion of the remedial excavation, Pinchin will document the environmental status of the soil at the excavation limits by completing the following:

- Pinchin will complete confirmatory sampling of remediated area in accordance with the 2020 Mercury Guidance Document using the Lumex RA-915M instrument (if available). A total of eleven (11) confirmatory samples has been assumed for the Site, including duplicate samples on 10% of samples. Samples collected for verification soil sampling will also be submitted for laboratory analysis of mercury. Additional remediation may be required if confirmatory field and/or laboratory samples are noted to have concentrations of mercury above applicable criteria.

2.2.1.4 Restoration

Following successful remediation of impacted soils (if required), the excavation will be backfilled by the Contractor, with clean imported fill material.

The grading will be re-instated to match existing terrain.

2.3 Analytical Laboratory

Soil samples from test pits and verification soil sampling (if required) will be delivered to Bureau Veritas Laboratories (BV Labs) in Winnipeg, Manitoba for analysis of mercury using cold vapour atomic adsorption spectrophotometry (EPA Method 7471). BV Labs is an independent laboratory accredited by the Standards Council of Canada and the Canadian Association for Laboratory Accreditation. Formal chain of custody records of the sample submissions will be maintained between Pinchin and the staff at BV Labs. The soil samples will be submitted on 3 business day rush turnaround time.

2.4 QA/QC Protocols

Various quality assurance/quality control (QA/QC) protocols will be followed during the remedial excavation to ensure that representative samples are obtained and that representative analytical data is reported by the laboratory.

Field QA/QC protocols that will be employed by Pinchin will include the following:

- Soil samples will be extracted from areas not in direct contact with the excavator bucket and/or sampling equipment, where possible, to minimize the potential for cross-contamination;
- Soil samples will be placed in laboratory-supplied sample jars;

- Dedicated and disposable nitrile gloves will be used for sample handling;
- Non-dedicated sampling equipment will be cleaned before initial use and between uses to minimize the potential for cross-contamination; and
- Sample collection and handling procedures will be performed in general accordance with the 2020 Mercury Guidance Document, Manitoba Conservation and Climate Guidelines and Pinchin's SOPs.

BV Lab's internal laboratory QA/QC consists of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, and an evaluation of surrogate recoveries.

2.5 Regulatory Criteria

Analytical results of soil samples will be compared to the CCME Soil Quality Guidelines for mercury.

2.6 Reporting

Pinchin will prepare a factual Final Report for the Site documenting the findings. A copy of the report will be provided to Manitoba Conservation and Climate for review.

3.0 PROJECT SCHEDULE

The shelter decommissioning and soil assessment activities are anticipated to begin July 26th, 2021.

4.0 CLOSING

We trust that the information provided herein is sufficient for Manitoba Conservation and Climate to approve the RAP.

If you have any questions, or require additional information, please do not hesitate to contact the undersigned.

Sincerely,

Pinchin Ltd.

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Attach: APPENDIX I – Site Location Map

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Template: Phase II ESA Stage II PSI Proposal Template, EDR, April 7, 2020

APPENDIX I

Site Location Map

Appendix I: Site Location

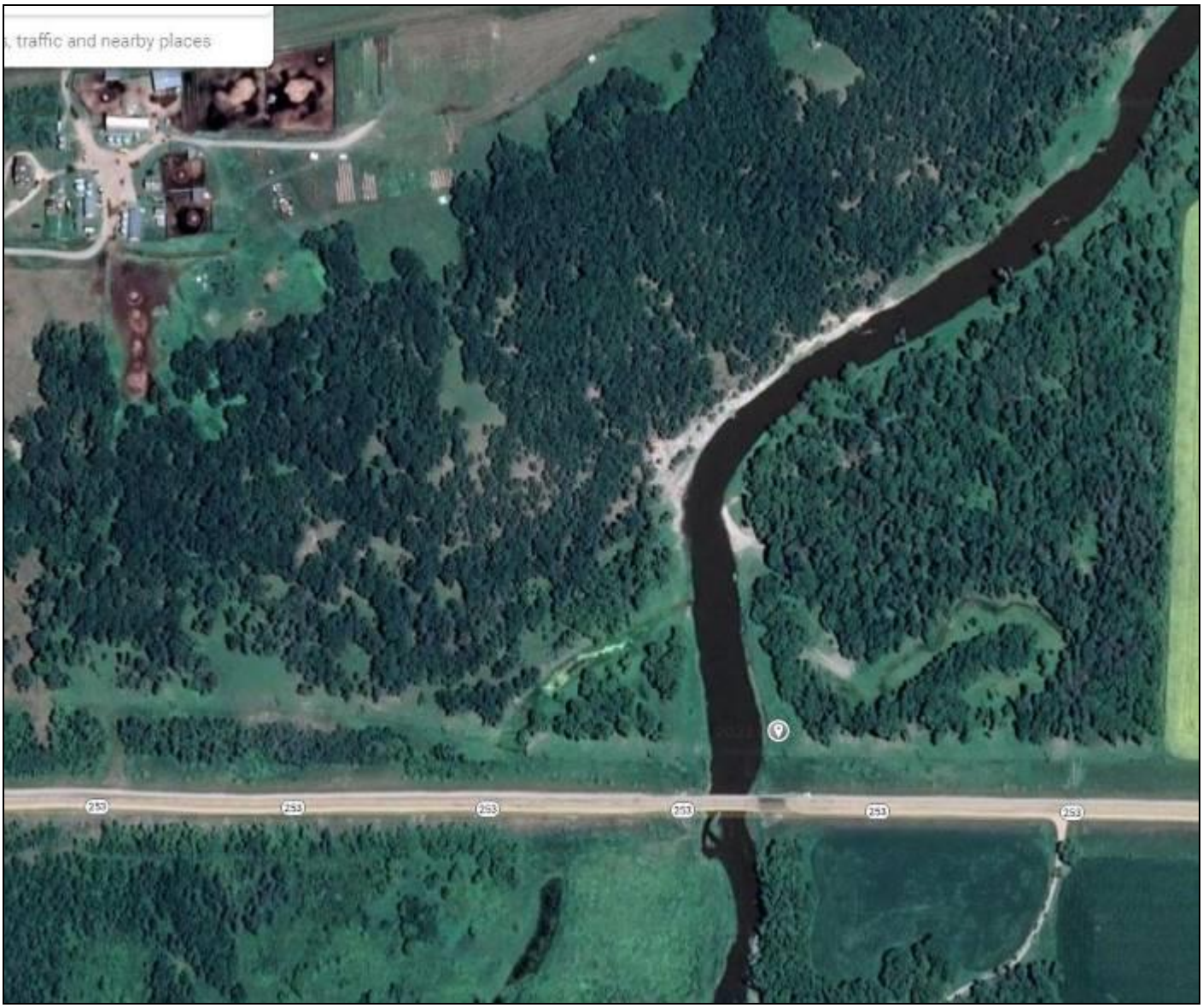

Photo 1: Aerial photo of station location.