

Appendix A - Consultation Summary



Heartland AI Hub and Gas-Powered Electrical Generation Facility Project

AUC Participant Involvement Program Summary Report

Submitted by: Beacon AI Centers Inc.
December 10, 2025

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Confidentiality Disclaimer

Throughout the design and development of the proposed Heartland AI Hub and Gas-Powered Electrical Generation Facility (the Project), Beacon AI Centers Inc. (the Proponent) has implemented an inclusive Participant Involvement Program (PIP) in full compliance with the Alberta Utility Commission's (AUC) *Rule 007: Facility Applications*. All personal information collected through consultation with stakeholders and engagement with Indigenous groups for the Project was carried out in accordance with the requirements of applicable provincial and federal laws and is consistent with the Proponent's privacy policies.

1 Introduction

1.1 Project Overview

The Proponent is proposing to develop, own and operate one of Canada's largest fully modular, natural-gas-fired reciprocating-engine power plants, designed to deliver 800 megawatts (MW) of continuous, dispatchable electrical power to on-site artificial-intelligence and high-performance-computing (HPC) facilities. Located within the Heartland Industrial Zone in Sturgeon County, Alberta, the installation will form the cornerstone of a purpose-built digital-energy campus capable of supporting Tier IV data-centre operations while maintaining energy independence from the provincial transmission network.

The Project addresses Alberta's growing need for reliable, high-density electrical supply for data-centric industries, particularly artificial-intelligence (AI), high-performance computing (HPC), and cloud-service infrastructure.

Traditional transmission networks are not designed to provide the instantaneous reliability and fault tolerance demanded by Tier IV computing facilities. This Project eliminates dependency on external grid infrastructure by deploying a localized, modular power system directly adjacent to the load.

The Project therefore serves three parallel purposes:

- 1 To supply continuous, reliable, high-density electrical power to support AI and cloud computing.
- 2 To deploy scalable, modular, low-emission gas-engine technology as an alternative to other thermal or turbine generation.
- 3 To create a replicable model for industrial microgrids capable of future hydrogen integration and hybridization with battery-energy storage.

The Project is in the Alberta Industrial Heartland, Sturgeon County – Designated Industrial Zone (IH-DIZ) located on privately owned land on the West 1/2 of Section 15-56-22-4 approximately 320 acres (129.5 hectares), which is located directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 843, approximately 6 kilometres (km) east of Gibbons. The Project Footprint will total 129.5 hectares.

1.2 Purpose of this Report

The purpose of this report is to summarize the Proponent's Participant Involvement Program (PIP) to meet or exceed the requirements set out in the Alberta Utilities Commission's (AUC) *Rule 007: Facility Applications*¹ This report describes engagement activities completed between November 2025 and December 2025 inclusive of any issues or concerns raised and the respective mitigation measures. The Proponent is dedicated to

¹ https://media.auc.ab.ca/prd-wp-uploads/regulatory_documents/Consultations/Rule007.pdf



the long-term benefits of working with Indigenous Communities as well as local communities and organizations therefore engagement will be ongoing throughout all phases of the Project.

2 PIP Overview

2.1 Consultation and Engagement Objectives

The Proponent endeavours to establish respectful, inclusive, and long-term relationships with Indigenous Communities with a particular focus on the *Truth and Reconciliation Commission's (TRC) Call to Action #92*.² The Proponent equally appreciates the feedback from the local Stakeholders, communities and organizations. The Proponent designed the PIP to include information sharing and consultation opportunities for those Indigenous Communities and Stakeholders who were potentially directly impacted within an 800 m radius of the Project, as well as an information sharing and notification process for those within a 2000m radius of the Project.

In addition to the AUC PIP requirements the Proponent included the Aboriginal Consultation Office (ACO) Pre-Consultation Assessment Request Procedure to seek the ACO's direction on consultation with Indigenous Communities to ensure the Crown Duty to Consult was met.

The Proponent designed the PIP to meet the following objectives:

- 1) Identify Indigenous Communities and Stakeholders who may be directly or indirectly affected per the designated radii in *Table 4.7 of AUC Rule 007*.
- 2) Provide Indigenous Communities and Stakeholders with the Project information in a manner that is comprehensible and captures potential impacts.
- 3) Provide opportunities for meaningful information sharing and open dialogue in the preferred mode of engagement and in accordance with ACO Direction for Indigenous Communities.
- 4) Effectively identify areas of interest and/or concern for Indigenous Communities and Stakeholders.
- 5) Develop and implement mitigative measures that appropriately address the issues or concerns raised by Indigenous Communities and Stakeholders.

The Proponent engaged early and often throughout the planning and development stages of the Project to meet the objectives outlined. The Proponent made reasonable efforts to accommodate the needs and concerns of the Indigenous Communities and Stakeholders in the final Project design.

² <https://nctr.ca/about/history-of-the-trc/truth-and-reconciliation-commission-of-canada-calls-to-action/>



The Proponent has a general website (<https://beaconaicenters.com/>) which provides an overview of the Proponent and its projects as well as an option to contact for more information. Additionally, a toll-free phone number (1-866-594-9982) and email (heartland@beacondatacenters.com) were set up for the Indigenous Communities and Stakeholders to call or contact the Proponent for further information, raise concerns or provide feedback. These designated means of contact and information sharing will remain in place of the duration of all Project phases.

The Proponent is confident that the PIP has succeeded in ensuring that Indigenous Communities and Stakeholders have:

- 1) been appropriately and sufficiently notified of the Project;
- 2) been given ample opportunity to ask questions, provide input and feedback, as well as indicate issues and/or concerns about the Project;
- 3) been provided with adequate follow up information and mitigative measures for the issues and/or concerns raised.

If the AUC approves the Project, the Proponent will continue to engage with and respond to Indigenous Communities and Stakeholders who request additional information and/or consultation for the duration of the development, construction, operation, and decommissioning phases of the Project.

3 Stakeholder Engagement

When planning the PIP, the Proponent identified stakeholders within the following Project radii as designated by *Table 4.7 of AUC Rule 007*:

- 1) Occupants, residents, interest holders and landowners within an 800 metre (m) consultation radius of the Project boundary;
- 2) Occupants, residents, interest holders and landowners within a 2,000 m notification radius of the Project boundary;
- 3) Local municipalities within the Project area include Sturgeon County, Town of Gibbons, Strathcona County, and Lamont County; and
- 4) Relevant organizations include Alberta's Industrial Heartland Association.

3.1 Development of Stakeholder List

A Project specific Stakeholder list was developed based on the identified categories of consultation and notification radii which included name, company, address, as well as phone and email where available. A detailed review of the [Sturgeon County Property Map](#) was conducted to determine the specific land parcels (inclusive of parcel size and zoning)



within the 800m consultation radius and the 2000m notification radius. This information was then used to obtain land titles from [Spin2](#) to populate the Stakeholder list. Additionally, local jurisdictions, special interest groups who may have ongoing operations or interest in previous projects in the area were included in the Stakeholder list.

As recommend by the AUC guidelines, the Proponent used the Project Boundary to determine the distance for personal consultation (800m) and confirm the potentially directly affected land parcels/stakeholders, as well as the public notification (2000m) distance to confirm the indirectly affected land parcels/stakeholders.

The Proponent made reasonable attempts to notify and engage with occupants of land parcels affected by the Project via mail, and/or email wherever available, and an Open House. Stakeholders that requested to be included in the PIP were added to the notification list as a special interest group. A comprehensive Stakeholders, Municipalities, Association and Additional Contact List is provided as **Appendix A**.

The Proponent will continue the PIP with any new stakeholders who purchase, lease/rent, or occupy properties within the minimum 2000m radius of the Project Boundary, as well as with any Stakeholders requesting additional information.

3.2 Mailing Lists

A complete list of mailing addresses and available contact information for all Project Stakeholders is provided in **Appendix A**.

3.3 Returned Mail

There were no instances of returned mail for the Project Notification Packages. All nine (9) hand delivered packages were successfully provided. There was one returned mail item for the What We Heard Follow-up letter for a stakeholder in the 2000m public notification radius. All emails were successfully sent with no error email notification received.

4 Consultation and Engagement Procedures

The Proponent has considered all Indigenous Community and Stakeholder issues, concerns, and feedback from the onset of the PIP and while in the Project development phase. Specific mitigation measures were developed where applicable to appropriately address issues and concerns raised. The Project Team have consulted with all landowners within 800m of the Project Boundary via email, mail, and the Open House to ensure each Stakeholder was successfully contacted and informed.



The same procedure was utilized by the Project Team for the larger 2000m notification radius of the Project Boundary.

The Indigenous Consultation Procedure was carried out initially by the ACO PCA Request whereby direction on consultation was provided by the ACO reviewer. Once adequacy was determined by the ACO, the AUC Indigenous Consultation Request for Feedback from AUC was submitted according to *Appendix A1-B of AUC Rule 007*.

4.1 Recording Consultations

The Proponent and the Project Team completed record of contact (ROC's) forms for each interaction or engagement activity throughout consultation and engagement process and PIP. The ROC's detailed the type of engagement activity, who was being engaged, as well as any issues or concerns raised. A blank Record of Contact Form is provided as **Appendix B**.

The ROCs were collectively documented in the Full Engagement Summary (provided in **Appendix C**) categorized by Indigenous Communities, Stakeholders within the 800m consultation radius, Stakeholders within the 2000m notification radius, local Municipalities, and special interest groups respectively. Where community Open Houses were held, event details and the issues and/or concerns raised were documented and summarized by category. In the case of meetings held with Indigenous Communities, Stakeholders, Municipalities, and Special Interest Groups, meetings minutes were recorded and summarized in the Full Engagement Summary.

Where issues, concerns, or specific input and/or feedback was provided by Indigenous Communities, Stakeholders, Municipalities, and Special Interest Groups, these details were documented in a Concern and Response Table (provided in **Appendix D**). The Proponent addressed all issues and concerns with appropriate mitigative measures relative to the respective categories where applicable. Any outstanding issues or concerns are identified as ongoing in the Concern and Response Table.

5 Indigenous Consultation

5.1 Identification of Indigenous Groups

There are no Indigenous Communities within the consultation and notification radii as outlined in the *Table 4.7 and Appendix A1-B of AUC Rule 007*. Although the project footprint is on private land with no expected Water Act applications with crown interests, as a matter of due diligence and meeting the Crowns Duty to Consult, the Proponent opted to follow



the [Government of Alberta's Proponent Guide to First Nations, Metis Settlements and Credibly Asserted Métis Communities consultation procedures](#)³ and submit a Pre-Consultation Assessment Request to the ACO for direction on consultation. Following the ACO response the Proponent proceeded with the AUC Indigenous Consultation Request for Feedback form submission according to *Appendix A1-B of AUC Rule 007*. The Indigenous Consultation Activities are provided in further detail in the following sections with the ACO Pre Consultation Assessment Request responses provided in **Appendix G**.

In recognition of the proposed Project being located in Treaty 6 territory, the Proponent has consulted with the following Indigenous Communities:

³ <https://open.alberta.ca/dataset/fa89ef60-6c3d-4db3-8a0d-f3094582d568/resource/4a4fc3ef-4709-453c-9aca-a46cfb112b94/download/ir-goa-proponent-guide-first-nations-metis-settlements-consultation-procedures-2024.pdf>



- 1) Alexander First Nation
- 2) Alexis Nakota Sioux Nation
- 3) Beaver Lake Cree Nation
- 4) Cold Lake First Nations
- 5) Enoch Cree Nation #440
- 6) Ermineskin Cree Nation
- 7) Frog Lake First Nation
- 8) Heart Lake First Nation
- 9) Kehewin Cree Nation
- 10) Louis Bull Tribe
- 11) Friends of Michel Society (former Michel Indian Band)
- 12) Montana First Nation
- 13) O'Chiese First Nation
- 14) Onion Lake Cree Nation
- 15) Paul First Nation
- 16) Saddle Lake Cree Nation
- 17) Samson Cree Nation
- 18) Sunchild First Nation
- 19) Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)
- 20) Buffalo Lake Métis Settlement
- 21) Kikino Métis Settlement
- 22) Lac Ste. Anne Métis Community Association
- 23) Métis Nation of Alberta - Otipemisiwak Métis Government

The complete Indigenous contact list with respect to Treaty 6 Lands is provided in **Appendix E**.

5.2 Indigenous Consultation Activities

5.2.1.1 Aboriginal Consultation Office (ACO) Pre-Consultation Assessment (PCA) Request

The Proponent utilized the Government of Alberta Landscape Analysis Tool (LAT) to request a LAIRT report, however the response email indicated:

“No report was generated as there are no consultation areas at the location at this time, however results may change once the Aboriginal Consultation Office assesses the project and will provide further advice at that time.”

For this reason, the Proponent opted to submit an ACO PCA Request as per the GoA Proponent Guidelines as a matter of due diligence in meeting the Crown's Duty to Consult.

The Proponent submitted a PCA Request on November 24, 2025, in both the EDS (Public Lands Act) and ACO DS systems (Water Act). The ACO reviewer indicated on November 27, 2025, that the Public Lands Act does not apply to the private land and therefore the ACO office could not give an assessment. The EDS system FNC 202501088 was cancelled on November 27, 2025, upon request of the ACO reviewer. The ACO reviewer sent an information request (IR) in the ACO DS system for FNC202554497 on November 27, 2025, with specific instructions for changes to the application as well as requiring further detail regarding wetland activity size and description of changes to be made. The updated



information was provided on December 8th, 2025. The ACO reviewer provided the Pre-Consultation Assessment Request decision on December 8th, 2025, recommending no consultation was required.

The ACO response is provided in **Appendix G**.

5.2.1.2 Indigenous Community Project-specific information package (PSIP)

The Proponent sent a Project-specific information package (PSIP) via email on November 14, 2025, to the 22 identified Indigenous Communities listed above. The November 2025 Project notification included:

1. An introductory cover letter with a Project and Proponent description;
2. An open house invitation;
3. Project mapping; and
4. AUC brochure titled *Public Involvement in a Proposed Utility Development*.

A copy of the November 14, 2025 Indigenous PSIP Notification is provided in **Appendix F**.

The Friends of Michel Society, formerly the Michel Indian Band, contacted the Proponent via email on November 28, 2025 to request inclusion in the AUC PIP. They were added to the Indigenous contact list and were included in further Project updates as well as meetings as requested.

Indigenous Communities were offered meetings with the Proponent to discuss the Project. The Proponent has met with or has scheduled to meet with the following Communities at the time of the application:

- Ermineskin Cree Nation
- Friends of Michel Society (former Michel Indian Band)
- Louis Bull Tribe
- Kikino Metis Settlement
- O’Chiese First Nation
- Onion Lake Cree Nation
- Samson Cree Nation

See **Appendix C** for a full engagement summary and **Appendix D** for all issues and concerns raised.

Indigenous Consultation will continue throughout the Project lifecycle. The Proponent welcomes feedback about the Project at any time and is committed to engagement as the Project moves through the approval process.

5.2.1.3 AUC Indigenous Consultation Request for Feedback Form

Upon receipt of the ACO PCA Request response and in accordance with the AUC’s *Rule 007: Facility Applications (Appendix A1-B – Participant)*, the Proponent submitted a “Request for AUC staff feedback on participant involvement program for Indigenous group



form” with supporting documentation to the AUC on December 8th, 2025. The Proponent is awaiting response and will follow any recommendations received as feedback from the AUC reviewer.

6 Summary of PIP Activities

6.1 Stakeholder Notifications

The Proponent hand delivered nine (9) PSIP packages to stakeholders within the 800m and 2000m consultation radii who did not have email addresses available on Saturday, November 15, 2025. Those stakeholders within the 800m and 2000m radii with email addresses available were provided PSIP notification packages via email on November 14, 2025.

The Proponent provided clear and transparent materials in the PSIP to deliver timely and relevant information.

The November 2025 Project notification included:

1. An introductory cover letter including a Project and Proponent description;
2. An open house invitation;
3. Project mapping; and
4. AUC brochure titled Public Involvement in a Proposed Utility Development.

The November 2025 Stakeholder PSIP Notification is provided in **Appendix H**.

6.2 Open House

A public Open House was held by the Proponent at the Gibbons Community Cultural Center, Alberta where Indigenous Communities and Stakeholders were invited to participate. Details on the Open House and attendance are provided in the table below.

Table 1: Open House Details and Attendance

Date	Location	Time	Community Attendees
November 18 th , 2025	Gibbons Community Cultural Centre, Gibbons, AB	6:00 pm – 8:00 pm	15

The Proponent ensured that the appropriate subject matter experts on environment, regulatory and permitting, and power plant development attended the open house to listen and effectively respond to questions, concerns and interests.



Information display boards and Project mapping were set up for Attendees to review and reference in their questions. Feedback forms were also provided for attendees to submit their comments on the Project; however, no forms were filled out.

Open House Materials are provided in **Appendix I**.

Please refer to **Appendix C: Consultation and Engagement Summary** where Stakeholder comments were formally recorded.

6.2.1 Advertisements

The Proponent directly invited Indigenous Communities and Stakeholders to the Open House via PSIP notifications either hand delivered or sent via email, as well as follow up emails for clarifications.

The Open House was advertised via The Redwater Review in the November 12, 2025 edition to inform the public. The advertisement included the date, time, and location of the Open House as well as Proponent and Project specific information.

The Open House advertisement is provided in **Appendix J**.

6.2.2 Specific Concerns Raised

The responses of the Open House attendees were categorized by topic. Responses can be summarized as positive based on the feedback received. The Proponent representatives addressed the concerns raised during the event by providing specific information regarding environmental studies and assessments. The following topics were raised:

- 1) Land Use
- 2) Noise Impact
- 3) Air Impact
- 4) Water Usage
- 5) Continued Consultation

6.3 Follow up “What We Heard” Update

In response to the concerns raised by Stakeholders who provided feedback the Proponent provided a follow up update to address those concerns, provide specific information and mitigative measures. This package was sent via email and tracked mail to the Stakeholders, Indigenous Communities and Municipalities on December 8th, 2025.

The December 2025 Stakeholder Follow up is provided in **Appendix K**.



6.4 Notice of Application to Stakeholders, Indigenous Communities, Municipalities, and Associations

The Proponent will provide the AUC issued Notice of Application letter inclusive of proceeding and application number to Stakeholders, Municipalities, and Associations via email and tracked mail on upon receipt.

The AUC Public Involvement Brochure will be included in the Notice of Application package to provide Stakeholders, and Municipalities with further information on how to participate in the AUC's independent review process if interested.

The Proponent understands that the AUC directly informs Indigenous Communities with the Notice of Application and file number via email

6.5 Consultation with local jurisdictions, relevant federal and provincial ministries and agencies and other special interest groups

The Proponent initiated consultation with local jurisdictions and community associations on November 14, 2025. The Project consultation materials were delivered via email to the appropriate contact person and department within each organization along with the *AUC Municipal Engagement Form per AUC Rule007*.

Please refer to **Appendix C** for the comprehensive engagement summary.

6.5.1 Sturgeon County, Strathcona County and Lamont County

The Project is located with Sturgeon County. The Proponent has worked closely with the County representatives since December 2022 to ensure that the Project specifications were within permitting and planning and development parameters stipulated by Sturgeon County Landuse Bylaws and Municipal Development Planning Framework.⁴

Sturgeon County Program Lead, Development and Safety Codes representative Tyler McNab provided the completed AUC Municipal Engagement Form via email on December 5th, 2025.

Strathcona County and Lamont County are both adjacent to the Project boundary so were therefore included in the consultation process to inform any Intermunicipal Planning and Development.

Lamont County responded on November 17th, 2025, to the email notification stating that the Project is outside of their jurisdiction, therefore their Land Use Bylaw and Municipal

⁴ <https://storymaps.arcgis.com/stories/51410f5ca1fa4f779daa19107b0cf6fa>



Development Plan do not apply. Additionally, there is no Intermunicipal Development Plan with Sturgeon County therefore the *AUC Municipal Engagement Form* is not applicable.

To date Strathcona County has not provided a completed *AUC Municipal Engagement Form*, however the Project does not fall within its Intermunicipal Development Plan area. Notification was provided as a courtesy.

Please refer to **Appendix L** for the completed *AUC Municipal Engagement Form* from Sturgeon County and the Lamont County email response.

6.5.2 Town of Gibbons

The Town of Gibbons is located approximately 8 km to the west of the Project Boundary and were included as a Municipal Stakeholder. To date The Town of Gibbons has not provided a completed *AUC Municipal Engagement Form*. The Project falls under the jurisdiction of Sturgeon County in the Designated Industrial Zone (IH-DIZ) and will not create a conflict for any IDP. Notification was provided as a courtesy.

6.5.3 Alberta's Industrial Heartland Association

Alberta's Industrial Heartland Association identifies as a stakeholder due to its active involvement in Strathcona County and Sturgeon County. This internationally recognized team of experts drives capital investment into the Industrial Heartland. The association was engaged via the *AUC Municipal Engagement Form*. and representatives were present at the Open House. No negative impact was expressed by representatives at the Open House.

7 Summary of Inquiries, Concerns and Mitigations

The key concerns raised by Indigenous Communities, Stakeholders, Municipalities and Associations during the Open House event and throughout consultation and engagement were summarized into the categories shown in Table 2. Community feedback was considered and where appropriate, the Proponent sought to implement solutions based on further information provided. The Proponent responses to concerns are also provided in the table.



Table 2: Issues, Concerns and Mitigations

Key Concerns	Specific Interests	Proponent Response/Mitigative Measure
Land Use	Change of Land Use	The project will be situated on private agricultural land within the Industrial Heartland Designated Industrial Zone in Sturgeon County, approximately eight kilometers east of Gibbons
Noise Impact	Impact that sound may have on neighbours, community or region.	The project will comply with AUC Rule 012 noise standards, implementing design and site-specific mitigation measures such as silencers and acoustic barriers to ensure sound levels remain within permissible limits at nearby receptors. Noise modeling predicts compliance with daytime and nighttime limits without low frequency noise effects.
Air Impact	Impacts to air quality from the power generation proposed at the site.	Dispersion modeling indicates that emissions of NO ₂ (Nitrogen Dioxide), CO (Carbon Dioxide) and PM _{2.5} (particulate matter with a diameter of 2.5 micrometers or smaller) from the project will remain below Alberta's Ambient Air Quality Objectives/Guidelines, with minor increases attributable primarily to existing regional industrial facilities rather than the project itself.
Water Usage	Project participants have read concerns that Data Centres use excessive amounts of water.	The project has an approved permit for municipal treated potable water use at 1500 cubic meters per day, addressing concerns about excessive water consumption by data centers.
Consultation Commitment	When will consultation end.	Beacon AI Centers commits to ongoing engagement with communities and stakeholders throughout the project's lifespan, providing updates and addressing inquiries.

Please refer to **Appendix D** for the comprehensive Concern and Response Summary Table.



8 Ongoing Engagement

During consultation and engagement activities, O’Chiese First Nation requested a Technical Review however to date no budget, or scope has been received. The Proponent will continue to communicate with the Nation to provide Project updates and discuss the scope of a technical review as more details are provided.

Additionally, the Proponent has Project Information meetings scheduled with Ermineskin Cree Nation and Louis Bull Tribe respectively in the first week of January 2026 to accommodate the Consultation Timeline Pause from December 22, 2025, to January 2nd, 2026, inclusive.

The Proponent will continue to communicate with Indigenous Communities and Stakeholders following the Project application being submitted. Additional notifications will be circulated to provide updates on further Project submissions and next steps.

Beacon AI Centers is committed to ongoing and open dialogue with all Indigenous Communities, Stakeholders, Municipalities, and special interest groups who have interest in the Project. Beacon is determined to plan, develop and operate the Project with a respectful, socially, environmentally, and economically responsible approach.

Beacon AI Centers intends to maintain the community relationships it has formed, as well as foster potential business and capacity development opportunities to ensure long-term community growth and well being.



Appendix A:

Stakeholder, Municipality, Association and Additional
Contact List



Heartland AI Center Stakeholder Contact List									
Landowners within 800m (Directly Affected)									
Name	Company Name	Address 1	Address 2	City	Province	Postal Code	Country	Email address	Column1
ALTALINK MANAGEMENT LTD			2611 - 3 AVE SE	CALGARY	Alberta	T2A 7W7	Canada	403-267-3400	land@altalink.ca
ATCO ELECTRIC LTD.	ATTN SENIOR SUPERVISOR, LAND DEPARTMENT, CAPITAL DIVISION	PO BOX 2426	10035-105 STREET NW	EDMONTON	Alberta	T5J 2V6	Canada	800-668-2248	KeyAccountsContact@atcoelectric.com
ATCO INVESTMENTS LTD	OF ATTN: VICE PRESIDENT, REAL ESTATE	4TH FLR, WEST BLDG	5302 FORAND STREET SW	CALGARY	Alberta	T3E 8B4	Canada	(403) 292-7500	apcorporate@atco.com
FORT HILLS ENERGY CORPORATION	OF C/O PETRO-CANDA OIL SANDS INC./ Subsidiary of SUNCOR ENERGY INC.	P.O. BOX 2844	150-6 AVE SW	CALGARY	Alberta	T2P 3E3	Canada	866-344-0178	surfaceland@suncor.com
NIKIFORUK HOLDINGS LTD.			23150-18 STREET	EDMONTON	Alberta	T5Y 6B5	Canada	(780) 473-5565	nick@nikiforukconstruction.ca
PEMBINA PIPELINE CORPORATION.			4000, 585-8 AVE SW	CALGARY	Alberta	T2P 1G1	Canada	(403) 231-7500	landrequests@pembina.com
SUNCOR ENERGY INC.	OF ATTN: LAND MANAGER	P.O. BOX 2844	150-6 AVE SW	CALGARY	Alberta	T2P 3E3	Canada	866-344-0178	surfaceland@suncor.com



Heartland AI Center Stakeholder Contact List

Landowners within 2000m (Indirectly Affected)

Name	Company Name	Address 1	Address 2	City	Province	Postal Code	Country	Phone Number	Email address
ALTALINK MANAGEMENT LTD			2611 - 3 AVE SE	CALGARY	Alberta	T2A 7W7	Canada	403-267-3400	land@altalink.ca
ATCO INVESTMENTS LTD	OF ATTN: VICE PRESIDENT, REAL ESTATE	4TH FLR, WEST BLDG	5302 FORAND STREET SW	CALGARY	Alberta	T3E 8B4	Canada	(403) 292-7500	apcorporate@atco.com
BLAINE SHAW			56407 RANGE ROAD 224	STURGEON COUNTY	Alberta	T0A 1N4	Canada		
DELSTAR POWER SYSTEMS INC.			6435-163 AVENUE	EDMONTON	Alberta	T5Y 3E3	Canada	(780) 920-5152	info@delstarpowersystems.com
EAGLE FARMS LTD		BOX 1379	GIBBONS	Alberta	T0A 1N0	Canada			
FORT HILLS ENERGY CORPORATION	OF C/O PETRO-CANDA OIL SANDS INC./ Subsidiary of SUNCOR ENERGY INC.	P.O. BOX 2844	150-6 AVE SW	CALGARY	Alberta	T2P 3E3	Canada	866-344-0178	surfaceland@suncor.com
JOHN JAMES SHAW AND SANDRA SHAW			R.R.#1	GIBBONS	Alberta	T0A 1N0	Canada		
JOHN VELSINK AND CHRISTINE HOOD		BOX 1138		GIBBONS	Alberta	T0A 1N0	Canada		
Mountainside Sales and Rentals	1867039 ALBERTA LTD		5707 2 AVE	EDSON	Alberta	T7E 1L8	Canada	780-723-5536	contact@mssr.ca
NANAKSAR GURDWARA - GURSIKH TEMPLE			1410 HORSEHILLS ROAD NW	EDMONTON	Alberta	T5Y 6G6	Canada	780-472-6335	info@nanaksargurdwara.ca
NILSSON BROS. INC	1855004 ALBERTA LTD		SUITE 100, 101 RIEL DRIVE	ST. ALBERT	Alberta	T8N 3X4	Canada	780-477-2233	donna@nbinc.com
NORTH BANK POTATO FARMS LTD			9613-100 STREET	MORINVILLE	Alberta	T8R 1L9	Canada	780-910-7999 & (7	evb_5@hotmail.com
PEMBINA PIPELINE CORPORATION.	1598313 ALBERTA LTD		4000, 585-8 AVENUE SW	CALGARY	Alberta	T2P 1G1	Canada	(403) 231-7500	landrequests@pembina.com
ROBERT WILFRED SHAW		BOX 1365		GIBBONS	Alberta	T0A 1N0	Canada		
SANDRA SHAW				CORONADO	Alberta	T0A 1N5	Canada		
STUART SHAW AND KAREN E. SHAW			R.R.#1	GIBBONS	Alberta	T0A 1N0	Canada	780-233-8697	tpeter@sturgeoncounty.ca; ahnatiw@sturgeoncounty.ca
STURGEON COUNTY			22329 TWP RD 555	STURGEON COUNTY	Alberta	T0A 1N1	Canada		
SUNCOR ENERGY INC.	OF ATTN: LAND MANAGER	P.O. BOX 2844	150-6 AVE SW	CALGARY	Alberta	T2P 3E3	Canada	866-344-0178	surfaceland@suncor.com
	NILSSON BROS. INC		100, 101 RIEL DRIVE	ST. ALBERT	Alberta	T8N 3X5	Canada	780-477-2233	donna@nbinc.com
	664332 ALBERTA LTD		55113 LAMOUREUX DRIVE	FORT SASKATCHEWAN	Alberta	T8L 2N9	Canada		



Heartland AI Center Municipalities and Special Interest Groups Contact List									
Name	Title	Municipality/Association	Address 1	Address 2	City	Province	Postal Cod	Country	Email Address
Travis Peter	Chief Administrative Officer	Sturgeon County		9623 100 Street	Morinville	AB	T8R1L9	Canada	tpeter@sturgeoncounty.ca
Alanna Hnatiw	Mayor								ahnatiw@sturgeoncounty.ca
Kent McMullin	Senior Investment Attraction Officer								kmcnullin@sturgeoncounty.ca
Mark Morrissey	Director, Economic Innovation and Growth								mmorrissey@sturgeoncounty.ca
Jason Berry	Councillor Division 6								jberry@sturgeoncounty.ca
	Planning and Development Services								pandd@sturgeoncounty.ca
Chris Pullen									cpullen@sturgeoncounty.ca
Tyler McNab		tmcnab@sturgeoncounty.ca							
Eric Lowe	Interim CAO	Town of Gibbons		4807-50 Avenue	Gibbons	AB	T0A1N0	Canada	elowe@gibbons.ca
Richard Henderson	Mayor								rhenderson@gibbons.ca
	Planning and Development/Economic Development Officer								planning@gibbons.ca
Susan Gingell									rsimonowits@gibbons.ca
Robert Simonowits									amorrisson@gibbons.ca
Ashley Morrison									dlongstaff@gibbons.ca
Darrn Longstaff									sstgermain@gibbons.ca
Sharla St. Germain									
Stacy Fedechko	Chief Administrative Officer	Strathcona County		2001 Sherwood Drive	Sherwood Park	AB	T8A 3W7	Canada	officeofthecao@strathcona.ca
Rod Frank	Mayor								rod.frank@strathcona.ca
Chris Malayney	Director, Business Development	Industrial Heartland Association	Suite 300	9939 99 Avenue	Fort Saskatchewan	AB	T8L 4G8	Canada	chris@industrialheartland.com
David MacLean	Director, External Relations								david@industrialheartland.com
Conal MacMillon									conal@industrialheartland.com
Aaron Wick	Reeve	Lamont County	Box 240	5303 - 50th Ave	Lamomt	AB	T0B 2R0	Canada	aaron.w@lamontcounty.ca ; planning-development@lamontcounty.ca



Open House Contact Email List								
Name	Title	Address 1	Address 2	City	Province	Postal Code	Country	Email Address
Jean Figeat	Backwoods Energy Inc.							jfigeat@backwoodsenergy.ca
Darryl Steinhauer								darrylsteinhauer@gmail.com
Gladys Wachowich								gwacowic@intebaun.com
Mike Roper	Ledcor							mike.roper@ledcor.com

Appendix B:
Blank Record of Contact



**Heartland AI Hub and Gas-Powered Electrical Generation Facility
Record of Communication Form (ROC)**

Activity Information

ROC Form Prepared By:

Name:

Date of Communication:

Date:

Type of Communication: (i.e. Phone, Email, Letter)

Participant Information

Name:

Contact:

Question(s), Comment(s), Issue(s), Concern(s)

Follow Up Required?

Yes / No

Who will follow up? **Name:**

Follow up date:

Appendix C:

Full Engagement Summary



1 Contents

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1 Occupants, residents, leaseholders, landowners and interest holders within 800 metres

ALTALINK MANAGEMENT LTD

Lands:

LSD	Land Title #
SW 21 56 22 W4	122013961001

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ALTALINK MANAGEMENT LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
ALTALINK MANAGEMENT LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

ATCO ELECTRIC LTD.

Lands:

LSD	Land Title #
SE/SW portion 21 56 22 W4	152344453001

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ATCO ELECTRIC LTD.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
ATCO ELECTRIC LTD.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



ATCO INVESTMENTS LTD*Lands:*

LSD	Land Title #
N 21 56 22 W4	162 102 508

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ATCO INVESTMENTS LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
ATCO INVESTMENTS LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

FORT HILLS ENERGY CORPORATION C/O PETRO-CANDA OIL SANDS INC. – SUBSIDIARY OF SUNCOR ENERGY INC.*Lands:*

LSD	Land Title #
NE 15 56 22 W4	062 198 791
NE 15 56 22 W4	062 215 993
SE 15 56 22 W4	062 216 101

LSD	Land Title #
SE 15 56 22 W4	062 213 945
SE 22 56 22 W4	062 198 213
SE 22 56 22 W4	062 364 127 001

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
FORT HILLS ENERGY CORPORATION	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
FORT HILLS ENERGY CORPORATION	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



NIKIFORUK HOLDINGS LTD.

Lands:

LSD	Land Title #
NE16 56 22 W4	162351548001

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
NIKIFORUK HOLDINGS LTD.	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
NIKIFORUK HOLDINGS LTD.	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.

PEMBINA PIPELINE CORPORATION.

Lands:

LSD	Land Title #
NE 10 56 22 W4	192 098 534
NE 10 56 22 W4	192 098 535

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
PEMBINA PIPELINE CORPORATION.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
PEMBINA PIPELINE CORPORATION.	November 14, 2025	Email	Paul McLauchlin	Pembina auto response receipt of email.
PEMBINA PIPELINE CORPORATION.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



SUNCOR ENERGY INC.

Lands:

LSD	Land Title #
SW 22 56 22 W4	072 577 648
NW 10 56 22 W4	072 580 633
NW 10 56 22 W4	072 576 521
NE 9 56 22 W4	072 587 574

LSD	Land Title #
NE16 56 22 W4	072 576 708
SE 16 56 22 W4	072 587 569
SE 16 56 22 W4	072 599 732

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
SUNCOR ENERGY INC.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
SUNCOR ENERGY INC.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



2 Occupants, residents, leaseholders, landowners and interest holders within 2000 metres

NANAKSAR GURDWARA - GURSIKH TEMPLE

Lands:

LSD	Land Title #
NE 8 56 22 W4	212 130 965

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
NANAKSAR GURDWARA - GURSIKH TEMPLE	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
NANAKSAR GURDWARA - GURSIKH TEMPLE	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

ALTALINK MANAGEMENT LTD

Lands:

LSD	Land Title #
12-NW-21-56-22-4	122 013 961002
NE 20 56 22 W4	122 012 458
NW 16 56 22 W4	122 025 834004
SW 16 56 22 W4	122 025 834003

LSD	Land Title #
SW 16 56 22 W4	122 025 834002
NW 9 56 22 W4	122 025 834001
SW 9 56 22 W4	122 025 834
NW 4 56 22 W4	122 025 834 005



Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ALTALINK MANAGEMENT LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
ALTALINK MANAGEMENT LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

ATCO INVESTMENTS LTD

Lands:

LSD	Land Title #
N 1/2 21 56 22 W5	162 102 508

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ATCO INVESTMENTS LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
ATCO INVESTMENTS LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



BLAINE SHAW

Lands:

LSD	Land Title #
SW 28 56 22 W5	062 382 609

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
BLAINE SHAW	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
BLAINE SHAW	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.

DELSTAR POWER SYSTEMS INC.

Lands:

LSD	Land Title #
SE 28 56 22 W4	152 378 966

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
DELSTAR POWER SYSTEMS INC.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
DELSTAR POWER SYSTEMS INC.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



EAGLE FARMS LTD

Lands:

LSD	Land Title #
SE 8 56 22 W4	972353114

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
EAGLE FARMS LTD	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
EAGLE FARMS LTD	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.

SANDRA SHAW

Lands:

LSD	Land Title #
SW 27 56 22 W4	002 276 832001
SW 28 56 22 W4	242 214 404

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
SANDRA SHAW	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
SANDRA SHAW	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.



FORT HILLS ENERGY CORPORATION - OF C/O PETRO-CANDA OIL SANDS INC. – SUBSIDIARY OF SUNCOR ENERGY INC.

Lands:

LSD	Land Title #	LSD	Land Title #	LSD	Land Title #
NE 22 56 22 W4	062 213 741	SE 27 56 22 W4	062 211 877	NE 14 56 22 W4	072 706 666
NE 22 56 22 W4	062 257 946	SW 26 56 22 W4	082 193 356	SE 14 56 22 W4	062 205 022
NE 22 56 22 W4	062 213 757	SW 26 56 22 W4	062 211 716	NW 23 56 22 W4	062 241 384
SE 22 56 22 W4	062 364 127001	NW 14 56 22 W4	062 289 036	NW 23 56 22 W4	062 228 090
SE 22 56 22 W4	062 198 213	NW 14 56 22 W4	062 235 958001	SW 23 56 22 W4	062 213 665
SE 27 56 22 W4	062 249 981	SW 14 56 22 W4	062 198 783	NE 23 56 22 W4	062 196 541
SE 27 56 22 W4	062 185 413	NE 14 56 22 W4	062 205 029	SE 23 56 22 W4	062 196 541001
SE 27 56 22 W4	062 211 842				

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
FORT HILLS ENERGY CORPORATION	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
FORT HILLS ENERGY CORPORATION	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



JOHN VELSINK AND CHRISTINE HOOD

Lands:

LSD	Land Title #
SE 17 56 22 W4	892 043 046

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
JOHN VELSINK AND CHRISTINE HOOD	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
JOHN VELSINK AND CHRISTINE HOOD	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.

NILSSON BROS. INC/ 1855004 ALBERTA LTD

Lands:

LSD	Land Title #	Plan #
SE/SW portion 20 56 22 W4	232 125 591	2221247 1 1
SE/SW portion 20 56 22 W4	232 129 591	2221247 1 2

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
NILSSON BROS. INC/ 1855004 ALBERTA LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
NILSSON BROS. INC/ 1855004 ALBERTA LTD	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.



NORTH BANK POTATO FARMS LTD

Lands:

LSD	Land Title #
NE 17 56 22 W4	212 125 390

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
NORTH BANK POTATO FARMS LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
NORTH BANK POTATO FARMS LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

PEMBINA PIPELINE CORPORATION and/or 1598313 ALBERTA LTD.

Lands:

LSD	Land Title #
NE 3 56 22 W4	162 224 623
NE 3 56 22 W4	162 224 622
NW 2 56 22 W4	202 019 297
NW 11 56 22 W4	162 224 633
NE 11 56 22 W4	162 224 620
NE 11 56 22 W4	162 224 619

LSD	Land Title #
SW 11 56 22 W4	162 224 612
SE 11 56 22 W4	202 019 307
SE 10 56 22 W4	192 098 537
SE 10 56 22 W4	192 098 536
SE 10 56 22 W4	192 098 538



Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
PEMBINA PIPELINE CORPORATION and/or 1598313 ALBERTA LTD.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
PEMBINA PIPELINE CORPORATION and/or 1598313 ALBERTA LTD.	November 14, 2025	Email	Paul McLauchlin	Pembina auto response receipt of email.
PEMBINA PIPELINE CORPORATION and/or 1598313 ALBERTA LTD.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

ROBERT WILFRED SHAW

Lands:

LSD	Land Title #
SE 28 56 22 W4	112 403 550

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
ROBERT WILFRED SHAW	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
ROBERT WILFRED SHAW	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.



STUART SHAW AND KAREN E. SHAW

Lands:

LSD	Land Title #
SW 27 56 22 W4	902 282 031

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
STUART SHAW AND KAREN E. SHAW	November 15, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
STUART SHAW AND KAREN E. SHAW	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.

SUNCOR ENERGY INC.

Lands:

LSD	Land Title #	LSD	Land Title #	LSD	Land Title #
NW 22 56 22 W4	072 577 131	SW 16 56 22 W4	122 025 834010	NE 4 56 22 W4	072 576 630
SW 22 56 22 W4	072 577 648	NW 9 56 22 W4	122 025 834008	SW 10 56 22 W4	082 203 540
NW 16 56 22 W4	122 025 834011	SW 9 56 22 W4	122 025 834007	NW 3 56 22 W4	202 079 271001
SW 16 56 22 W4	122 025 834009	NW 4 56 22 W4	122 025 834 012	NW/SW portions 3 56 22 W4	202 079 271

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
SUNCOR ENERGY INC.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
SUNCOR ENERGY INC.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



MOUNTAINSIDE SALES AND RENTALS / 1867039 ALBERTA LTD

Lands:

LSD	Land Title #
SW 27 56 22 W4	152 178 489

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
MOUNTAINSIDE SALES AND RENTALS / 1867039 ALBERTA LTD	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
MOUNTAINSIDE SALES AND RENTALS / 1867039 ALBERTA LTD	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

664332 ALBERTA LTD

Lands:

LSD	Land Title #
NE 8 56 22 W4	222 078 547

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
664332 ALBERTA LTD	November 14, 2025	Hand Delivered	Paul McLauchlin	Project Notification Package hand delivered.
664332 ALBERTA LTD	December 8, 2025	Tracked Mail	Paul McLauchlin	Project Follow-up package sent via Canada Post Tracked Mail.



3 Local Municipalities

Sturgeon County

Lands: (2000 m notification radius)

LSD	Land Title #
SE 17 56 22 W4	062 236 380

Interest Summary: As the Application progresses the Municipality would like to ensure the AUC approves the project before we do as the AUC conditions regarding Noise and other aspects override ours. Local impacts such as storm and water connections should be deferred to municipal approval processes where possible.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
Sturgeon County	November 14 2025	Email	Paul McLauchlin	Notification Package Sent with AUC Municipal Engagement Form attached.
Sturgeon County	November 14 2025	Email	Paul McLauchlin	Notification Package Sent with Letter regarding land parcel within 2000m notification radius.
Sturgeon County	December 5 2025	Email	Paul McLauchlin	Sturgeon County Representative provided completed AUD MEF. Sturgeon County supports the AUC Application.
Sturgeon County	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Town of Gibbons

Interest Summary: No response received.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
Town of Gibbons	November 14 2025	Email	Paul McLauchlin	Notification Package Sent with AUC Municipal Engagement Form attached.
Town of Gibbons	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Strathcona County

Interest Summary: No response received

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
Strathcona County	November 14 2025	Email	Paul McLauchlin	Notification Package Sent with AUC Municipal Engagement Form attached.
Strathcona County	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Lamont County

Interest Summary: No jurisdiction or Intermunicipal Development Plans.

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
Lamont County	November 14 2025	Email	Melinda McLauchlin	Notification Package Sent with AUC Municipal Engagement Form attached.
Lamont County, Shane Olsen	November 17, 2025	Phone Call	Linda Black	Mr. Olsen requested instruction regarding the AUC Municipal Engagement Form and asked for a Municipal Boundary and Project Location Map. Provided.
Lamont County, Shane Olsen	November 17, 2025	Email	Melinda McLauchlin	Email received indicating Lamont County had no jurisdiction or Intermunicipal Development Plans with Sturgeon County and would therefore not be completing the form.
Lamont County, Shane Olsen	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



4 Associations

Industrial Heartland Association

Interest Summary: No negative concerns expressed at Open House

Engagement Summary:

Stakeholder	Date	Type	Beacon Representative	Summary
Industrial Heartland Association	November 14 2025	Email	Paul McLauchlin	Notification Package Sent with AUC Municipal Engagement Form attached.
Lamont County, Shane Olsen	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



5 Indigenous Communities

1. Alexander First Nation
2. Alexis Nakota Sioux Nation
3. Beaver Lake Cree Nation
4. Cold Lake First Nations
5. Enoch Cree Nation #440
6. Ermineskin Cree Nation
7. Frog Lake First Nation
8. Heart Lake First Nation
9. Kehewin Cree Nation
10. Louis Bull Tribe
11. Friends of Michel Society (Former Michel Indian Band) –
12. Montana First Nation
13. O’Chiese First Nation
14. Onion Lake Cree Nation
15. Paul First Nation
16. Saddle Lake Cree Nation
17. Samson Cree Nation
18. Sunchild First Nation
19. Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)
20. Buffalo Lake Métis Settlement
21. Kikino Métis Settlement -
22. Lac Ste. Anne Métis Community Association
23. Métis Nation of Alberta - Otipemisiwak Métis Government



Alexander First Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Alexander First Nation	Ken S. Arcand-Executive Director	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Alexander First Nation	Ken S. Arcand-Executive Director	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Alexis Nakota Sioux Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Alexis Nakota Sioux Nation	Duane Kootenay, Consultation Coordinator	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Alexis Nakota Sioux Nation	Duane Kootenay, Consultation Coordinator	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Beaver Lake Cree Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Beaver Lake Cree Nation	Darlene Paradis-Consultation Director	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Beaver Lake Cree Nation	Darlene Paradis-Consultation Director	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Cold Lake First Nations

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Cold Lake First Nations	Nicole Nicholls, Consultation Manager	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Cold Lake First Nations	Nicole Nicholls, Consultation Manager	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Enoch Cree Nation #440

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Enoch Cree Nation #440	Stephana Morin, Consultation Supervisor	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Enoch Cree Nation #440	Stephana Morin, Consultation Supervisor	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Ermineskin Cree Nation

Interest Summary: Clarification on Open House date, meeting and follow up information offered.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Ermineskin Cree Nation	Marianne Ward	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Ermineskin Cree Nation	Marianne Ward	November 14, 2025	Email	Paul McLauchlin	ECN email read receipt.
Ermineskin Cree Nation	Kaylin Wildcat	November 19, 2025	Email	Paul McLauchlin	ECN follow up email to clarify Open House date.
Ermineskin Cree Nation	Kaylin Wildcat	December 2, 2025	Email	Paul McLauchlin	PM follow up email to offer discussion meeting.



Community	Community Representative	Date	Type	Beacon Representative	Summary
Ermineskin Cree Nation	Marianne Ward	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Ermineskin Cree Nation	Kaylin Wildcat	December 9, 2025	Email	Paul McLauchlin	PM follow up email for any questions or concerns. ECN response to schedule meeting in new year at ECN offices. Tentative Jan. 8 @1:00pm

Frog Lake First Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Frog Lake First Nation	Melvin Abraham	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Frog Lake First Nation	Melvin Abraham	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Heart Lake First Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
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Heart Lake First Nation	Cameron Knutson, Regulatory Manager	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Heart Lake First Nation	Cameron Knutson, Regulatory Manager	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Kehewin Cree Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Kehewin Cree Nation	Patricia Trottier, Consultation Manager	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Kehewin Cree Nation	Patricia Trottier, Consultation Manager	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Louis Bull Tribe

Interest Summary: Project information meeting requested.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Louis Bull Tribe	Shaleigh Raine- Consultation Officer	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.



Community	Community Representative	Date	Type	Beacon Representative	Summary
Louis Bull Tribe	Shaleigh Raine-Consultation Officer	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Louis Bull Tribe	Shaleigh Raine-Consultation Officer	December 9, 2025	Email	Paul McLauchlin	LBT requested project information meeting early January 2026. PM offered week of Jan 5-8, online or in-person option. To be confirmed.

Friends of Michel Society (former Michel Indian Band)

Interest Summary: Project information and follow-ups.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Friends of Michel Society	Gil Goerz, President	November 28, 2025	Email	Paul McLauchlin	President reached out to request inclusion in the PIP.
Friends of Michel Society	Gil Goerz, President	December 3, 2025	Email	Paul McLauchlin	PM responded via email to follow up by end of day and provide project information.
Friends of Michel Society	Gil Goerz, President	December 3, 2025	Email	Paul McLauchlin	PM provided notification package to FMS. FMS acknowledged receipt of package and will coordinate with Board members to arrange a meeting for the next week.
Friends of Michel Society	Gil Goerz, President	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Community	Community Representative	Date	Type	Beacon Representative	Summary
Friends of Michel Society	Gil Goerz, President	December 8, 2025	Email	Paul McLauchlin	FMS follow up email with suggested dates for meeting.
Friends of Michel Society	Gil Goerz, President	December 9, 2025	Email	Paul McLauchlin	Meeting scheduled for December 10, 1:00pm.

Montana First Nation

Interest Summary: No response received.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Montana First Nation	Kyra Northwest-Consultation Manager	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Montana First Nation	Kyra Northwest-Consultation Manager	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

O'Chiese First Nation

Interest Summary: Request for Technical Review.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
O'Chiese First Nation	Andrew Scott	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.



Community	Community Representative	Date	Type	Beacon Representative	Summary
O'Chiese First Nation	Andrew Scott	November 18, 2025	Email	Paul McLauchlin	OFN representative requested a virtual meeting to learn about the project. Expressed importance of Project to Nation.
O'Chiese First Nation	Andrew Scott	November 18, 2025	Email	Paul McLauchlin	PM responded to request for virtual meeting to coordinate with Proponent representatives and OFN to book. Follow up in two days.
O'Chiese First Nation	Andrew Scott	November 20, 2025	Email	Paul McLauchlin	PM follow up email to obtain available times for OFN on Nov 26 & 27 for virtual meeting.
O'Chiese First Nation	Andrew Scott	November 21, 2025	Email	Paul McLauchlin	PM follow up email to schedule virtual meeting. Virtual Meeting scheduled for Nov. 26 at 1:00pm with OFN and Proponent representatives.
O'Chiese First Nation	Andrew Scott	November 26, 2025	Email	Paul McLauchlin	Virtual Meeting scheduled for Nov. 26 at 1:00pm with OFN and Proponent representatives. O'Chiese First Nation requested a Technical Review however to date no budget, or scope has been received. The Proponent will continue to communicate with the Nation to provide Project updates and discuss the scope of a technical review as more details are provided.
O'Chiese First Nation	Andrew Scott	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Onion Lake Cree Nation

Interest Summary: Own an addictions treatment facility in Gibbons.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Onion Lake Cree Nation	Terri Quinney, Duty to Consult Coordinator	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Onion Lake Cree Nation	Terri Quinney, Duty to Consult Coordinator	November 26, 2025	Phone Call	Paul McLauchlin	Facilitated a phone call meeting to discuss interests, high-level information on the Project. Future project details to be provided as available.
Onion Lake Cree Nation	Terri Quinney, Duty to Consult Coordinator	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Paul First Nation

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Paul First Nation	Donald Rain -Manager, PFN Industry Relations Corp.	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Paul First Nation	Donald Rain -Manager, PFN Industry Relations Corp.	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Saddle Lake Cree Nation

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Saddle Lake Cree Nation	Frank Cardinal-Consultation Coordinator	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Saddle Lake Cree Nation	Frank Cardinal-Consultation Coordinator	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Samson Cree Nation

Interest Summary: Project information meeting requested.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Samson Cree Nation	Kaylyn Buffalo - Consultation Project Officer	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Samson Cree Nation	Kaylyn Buffalo - Consultation Project Officer	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Samson Cree Nation	Kaylyn Buffalo - Consultation Project Officer	December 9, 2025	Email	Paul McLauchlin	SCN responded to Follow-up email requesting a meeting the morning of Dec. 15, 2025. Meeting Confirmed Dec. 15, 2025, at 10:00 am.



Sunchild First Nation

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Sunchild First Nation	Byron Daychief, Consultation/Tradition Land Use Director	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Sunchild First Nation	Byron Daychief, Consultation/Tradition Land Use Director	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)	Darryl Steinhauer, Consultation Coordinator	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)	Darryl Steinhauer, Consultation Coordinator	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.



Buffalo Lake Métis Settlement

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Buffalo Lake Métis Settlement	Timothy Patenaude-Consultation Officer	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Buffalo Lake Métis Settlement	Timothy Patenaude-Consultation Officer	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.

Kikino Métis Settlement

Interest Summary: Arrange Project information meeting.

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Kikino Métis Settlement	Sharon Blyan	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Kikino Métis Settlement	Sharon Blyan	November 20, 2025	Email	Paul McLauchlin	KMS Representative responded regarding another open house.
Kikino Métis Settlement	Sharon Blyan	November 20, 2025	Email	Paul McLauchlin	Proponent responded to set up an online presentation of Open House materials and Q&A session.
Kikino Métis Settlement	Sharon Blyan	November 21, 2025	Email	Paul McLauchlin	Second email sent to schedule virtual meeting with KMS and Proponent representatives.



Community	Community Representative	Date	Type	Beacon Representative	Summary
Kikino Métis Settlement	Sharon Blyan	December 2, 2025	Email	Paul McLauchlin	KMS responded to ask for a meeting in Edmonton Thursday, or PM office. PM responded to request an online meeting/presentation and then in person meeting to follow.
Kikino Métis Settlement	Sharon Blyan	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Kikino Métis Settlement	Sharon Blyan	December 8, 2025	Email	Paul McLauchlin	KMS responded to request Open House Presentation Materials.
Kikino Métis Settlement	Sharon Blyan	December 8, 2025	Email	Paul McLauchlin	Proponent provided the Open House slides and offer to review with KMS representative.

Lac Ste. Anne Métis Community Association

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Lac Ste. Anne Métis Community Association	Tracy L. Friedel-President	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Lac Ste. Anne Métis Community Association	Tracy L. Friedel-President	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Lac Ste. Anne Métis Community Association	Tracy L. Friedel-President	December 10, 2025	Email	Paul McLauchlin	LSAMCA requested AUC application materials. PM advised the reports could be provided once finalized and submitted.



Métis Nation of Alberta - Otipemisiwak Métis Government

Interest Summary: No response received

Engagement Summary:

Community	Community Representative	Date	Type	Beacon Representative	Summary
Métis Nation of Alberta - Otipemisiwak Métis Government	Andrea Sandmaier	November 14, 2025	Email	Paul McLauchlin	Project Notification Package Sent via email read receipt.
Métis Nation of Alberta - Otipemisiwak Métis Government	Andrea Sandmaier	November 14, 2025	Email	Paul McLauchlin	MNA auto response email acknowledgement of receipt.
Métis Nation of Alberta - Otipemisiwak Métis Government	Andrea Sandmaier	December 8, 2025	Email	Paul McLauchlin	Project Follow-up package sent via email read receipt.
Métis Nation of Alberta - Otipemisiwak Métis Government	Theo Peters, Consultation Department Director Brad Martin, District Captain, St. Albert Metis District 11.	December 10, 2025	Email	Paul McLauchlin	MNA provided consultation guidance document and verification of Territory District. Project falls within North Saskatchewan River Territory (NSRT) specifically St. Albert Metis District 11. Advised consultation emails are internally directed to appropriate district, and provided direct contact information for Brad Martin, District Captain, St. Albert Metis District 11. Contact information updated.



Appendix D:

Concern and Response Table

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
Onion Lake Cree Nation	Own an addictions treatment facility in Gibbons.	Requested high-level information and understanding of Project. Elections just completed therefore specific portfolio holders are not yet assigned, and some positions are transitioning.	Facilitated a phone call meeting to discuss interests, high-level information on the Project. Future project details to be provided as available.	Ongoing updates.
O'Chiese First Nation	Request for further Project Information Meeting	Nation requested a Technical Review.	Proponent held a virtual meeting with the OFN on November 27, 2025, to discuss the Project in further detail. To date no budget or scope has been received for a Technical Review. The Proponent will continue to communicate with the Nation to provide Project updates and discuss the scope of a technical review as more details are provided.	Ongoing updates.
Kikino Metis Settlement	Request for Open House Materials and in person meeting		Open House material provided. Proponent requested a virtual meeting to present Project information with a follow up in person meeting. Scheduling is being coordinated.	Schedule Meeting and provide ongoing updates.

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
Friends of Michel Society	Request for inclusion in AUC PIP and Project Shapefile		Project Notification package provided via email with Shapefile. Scheduling is being coordinated with FMS board members to arrange a meeting.	Schedule Meeting and provide ongoing updates.
Land Use		Change of Land Use	The project is on private (freehold) land that has been used for agriculture for the past 60+ years. Additionally, the land is within the Industrial Heartland Designated Industrial Zone (DIZ) within Sturgeon County. Industrial Heartland Designated Industrial Zone map with geospatial data of the DIZ can be found here . The project centre is at 53°50'23.07"N 113°11'34.57"W a google earth KMZ file is attached to this email.	Resolved.
Noise Impact		Impact that sound may have on neighbours, community or region.	Pursuant to AUC Rule 012, all regulated facilities are required to comply with the Permissible Sound Level (PSL) standards during both daytime (07:00 to 22:00) and nighttime (22:00 to 07:00) periods. Compliance must be demonstrated at a distance of 1.5 km (the 1.5 km criteria boundary) from the facility's boundary or at the location of the closest residential dwelling, whichever is nearer. For the purposes of this rule,	Resolved.

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
			<p>dwelling are defined as structures that are permanently or seasonally occupied for human rest.</p> <p>The Project requires mitigation measures that are inherent in the designs to achieve compliance with the PSLs of AUC Rule 012. Standard industry practices and mitigation measures, as well as site-specific mitigation will be implemented during operation. The assessment results presented in the previous sections include the application of mitigation measures. Mitigation measures for Project Case components are summarized as follows:</p> <ul style="list-style-type: none"> • Implementation of mitigation measures for the QPAC modulars to achieve 60 dBA at 10 m for each modular. This may be achieved in conjunction with the manufacturer supply modifications, or implementation of additional mitigation measures for the original QPAC modulars, including additional genset exhaust silencers, genset ventilation exhaust silencers, acoustic louvers for radiator and air filtration module, and enhanced modular roof system, etc. • Installation of silencers for the air-cooled chiller outlets 	

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
			<ul style="list-style-type: none"> • Installation of acoustic louvers for the air-cooled chiller inlets • Installation of acoustic barriers on the north end of the northern data hall <p>Noise effects from the Beacon AI Centers – Heartland Project were assessed at the receptor R1 located 200 m north of the Project Development Area (PDA), as well as the receptors R2, R3 and R4, located outside the Local Assessment Area (LAA), for information purposes. The Permissible Sound Levels (PSLs) for the receptors were determined according to the AUC Rule 012 requirements. Baseline Case sound levels at the receptors were determined using the prescribed ASL and NCIA RNM results. Noise model was compiled using manufacturers data, owner’s engineering specifications and drawings, representative noise emission levels from similar equipment, and acoustic calculations. Cumulative sound levels of the Application Case and Foreseeable Application Case were predicted and compared with the PSLs.</p> <p>The modeling results indicate that the predicted cumulative sound levels of both Application Case and Foreseeable Application Case meet the daytime and</p>	

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
			<p>nighttime PSLs at all receptors. Also, based on AUC Rule 012 prescribed approach, low frequency noise effect is not expected at all receptors. This NIA concludes that the Beacon AI Centers – Heartland Project complies with the AUC Rule 012 requirements.</p>	
Air Impact		<p>Impacts to air quality from the power generation proposed at the site.</p>	<p>Beacon plans to build and operate the Heartland Data Center Project which includes a 800 MW power generation facility located in Alberta Industrial Heartland. Potential effects on ambient air quality associated with the Project were evaluated using the AERMOD dispersion model. Maximum ground-level concentrations of NO₂(Nitrogen Dioxide), CO (Carbon Dioxide) and PM_{2.5} (particulate matter with a diameter of 2.5 micrometers or smaller) were predicted and compared to the AAAQO/G (Alberta's Ambient Air Quality Objectives/Guidelines).</p> <p>The air quality assessment shows that maximum predicted ground-level concentrations for all substances of interest associated with emissions from the Project (the Project alone) are below the AAAQO/G for all relevant averaging periods (ranging between 0.5% and 44% of the AAAQO/G).</p>	Resolved.

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
			<p>The maximum predicted NO₂ and CO concentrations for all averaging periods associated with the Base Case, Application Case, and Future Case are below the AAAQO. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations associated with the Base Case, Application Case, and Future case are greater than the relevant AAAQO/G; however, the maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively. These maximum concentrations are associated with emissions from the respective facilities.</p> <p>A comparison between maximum predicted concentrations for the Base Case and Application Case indicates small increases (up to 0.2%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations with the addition of the Project. A comparison between maximum predicted concentrations for the Base Case and Future Case indicates small increases (up to 0.4%) to the maximum predicted NO₂, CO and PM_{2.5}</p>	

Beacon Heartland AI Center Concern and Response Summary Table

Key Concerns - Stakeholder or Indigenous Community	Interest	Specific Concern	Proponent Response/Mitigative Measure	Status
			<p>concentrations. The model results show that overall maximum concentrations in the study area are primarily attributable to emissions from the existing regional industrial facilities.</p> <p>The full Air Impact study will become part of the AUC application that Beacon expects to submit by the end of 2025.</p>	
Water Usage		Project participants have read concerns that Data Centres use excessive amounts of water.	Beacon has an approved Municipal Development Permit with Sturgeon County for water usage in the amount of 1500 m ³ per day. The source is from Municipal treated potable water.	Resolved.
Consultation		When will consultation end.	Beacon is committed to continuing conversations with interested parties for the life of the project. As a new project in the DIZ we look forward to continuing to share project information, updates to the project, and to answer any questions interested parties may have.	Ongoing Updates.

Appendix E:

Indigenous Community Contact List



Heartland AI Center Indigenous Communities Contact List

Community	Representative	Address 1	Address 2	City	Province	Postal Code	Country	Email address
Alexander First Nation	Ken S. Arcand-Executive Director		Box 3480	Morinville	AB	T8R 1S3	Canada	ken@afnirc.ca
Alexis Nakota Sioux Nation	Duane Kootenay, Consultation Coordinator		PO Box 337	Glenevis	AB	T0E 0X0	Canada	consultation@ansn.ca
Beaver Lake Cree Nation	Darlene Paradis-Consultation Director		PO Box 960	Lac La Biche	AB	T0A 2C0	Canada	consultation@blcn.ca
Cold Lake First Nations	Nicole Nicholls, Consultation Manager		PO Box 389	Cold Lake	AB	T9M 1P1	Canada	nicole.nicholls@clfn.com ; consultation@clfn.com
Enoch Cree Nation #440	Stephana Morin, Consultation Supervisor		PO Box 29	Enoch	AB	T7X 3Y3	Canada	Stephana.Morin@enochnation.ca ; larissa.papin@enochnation.ca ; consultation@enochnation.ca
Ermineskin Cree Nation	Carol M. Wildcat, Consultation Director		Box 219	Maskwacis	AB	T0C 1N0	Canada	carol@ermeskin.ca ; bruce.lee@ermeskin.ca ; kaylin@ermeskin.ca ; marianne@ermeskin.ca
Friends of Michel Society (former Michel Indian Band)	Gil Goerz, President		22 - 53009 Range Road 20	Parkland County	AB	T7Y 2G8	Canada	gigoerz70@gmail.com
Frog Lake First Nation	Melvin Abraham		PO Box 621	Frog Lake	AB	T0A 1M0	Canada	melive2016@gmail.com
Heart Lake First Nation	Cameron Knutson, Regulatory Manager		PO Box 447	Lac La Biche	AB	T0A 2C0	Canada	hlfnco@gmail.com
Kehewin Cree Nation	Patricia Trotter, Consultation Manager		Box 220	Kehewin	AB	T0A 1C0	Canada	patricia@kehewin.ca ; vernon@kehewin.ca
Louis Bull Tribe	Shaleigh Raine-Consultation Officer		Box 130	Maskwacis	AB	T0C 1N0	Canada	consultation@louisbulltribe.ca
Montana First Nation	Kyra Northwest-Consultation Manager		Box 70	Maskwacis	AB	T0C 1N0	Canada	kyranorthwest@montanafirstnation.com ; jocelynrabbit@montanafirstnation.com
O'Chiese First Nation	Andrew Scott, Director of Consultation		PO Box 2127	Rocky Mountain House	AB	T4T 1B6	Canada	andrew.scott@ochiesebc.ca ; consultationoffice@ochiesebc.ca
Onion Lake Cree Nation	Terri Quinney, Duty to Consult Coordinator		PO Box 730		SK	S0M 2E0	Canada	terri.quinney@onionlake.ca
Paul First Nation	Donald Rain -Manager, PFN Industry Relations Corp.		Box 66	Duffield	AB	T0E 0N0	Canada	df_rain@hotmail.com ; irc.executivesecretary@gmail.com
Saddle Lake Cree Nation	Frank Cardinal- Consultation Coordinator		Box 696	Saddle Lake	AB	T0A 3T0	Canada	frankcardinal@saddlelake.ca
Samson Cree Nation	Kaylyn Buffalo -Consultation Project Officer		Box 159	Maskwacis	AB	T0C 1N0	Canada	kaylyn.b@samsoncree.com
Sunchild First Nation	Byron Daychief, Consultation/Tradition Land Use Director		PO Box 747	Rocky Mountain House	AB	T4T 1A5	Canada	byron.daychief@sunchildfn.ca ; violafefn@outlook.com ; administrator@sunchildfn.ca
Whitefish Lake Indian Reserve #128 (Whitefish (Goodfish) Lake First Nation)	Darryl Steinhauer - Consultation Coordinator		Box 271	Goodfish Lake	AB	T0A 1R0	Canada	Darryl.steinhauer@gmail.com ; WFL128TraditionalLand@gmail.com
Buffalo Lake Métis Settlement	Timothy Patenaude- Consultation Officer		Box 1160	Buffalo Lake Métis Settlement	AB	T0A 4B0	Canada	consultation@blmetis.ca ; jdesjarlais@blmetis.ca
Kikino Métis Settlement	Sharron Blyan, Consultation Coordinator		General Delivery	Kikino	AB	T0A 2B0	Canada	kikinoconsultation@mcsnet.ca
Lac Ste. Anne Métis Community Association	Tracy L. Friedel-President		Box 2091	Stony Plain	AB	T7Z 1X6	Canada	tracy@lsametis.com ; andrew@lsametis.com ; consultation@lsametis.com
Métis Nation of Alberta - Otipemisiwak Métis Government	Andrea Sandmaier	100 Delia Gray Building	11738 Kingsway Avenue	Edmonton	AB	T5G 0X5	Canada	mna@metis.org.
North Saskatchewan River Territory - St. Albert Metis District 11	Brad Martin, District Captain and Consultation Contact		#201, 15 Rowland Crescent	St. Albert	AB	T8N4B2	Canada	NSRT.Consultation@metis.org ; Bmartin@meti.org

Appendix F:

November 2025 Indigenous PSIP Notification



Via Email:

Insert Indigenous Community
Insert Consultation Contact
Insert Address

November 14, 2025

Dear Insert Name,

RE: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility

On behalf of Beacon AI Centers, I am pleased to notify you that we have initiated the Participant Involvement Program (PIP) as part of our Heartland AI Hub and Gas-Powered Electrical Generation Facility (the Project) application process to the Alberta Utilities Commission (AUC).

Project Overview

Beacon AI Centers is proposing to develop and operate an 800-megawatt (MW) Artificial Intelligence (AI) Data Center with an 800MW Gas Powered Electrical Generation Facility on private land located approximately eight kilometres east of Gibbons, Alberta. The project location is on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.

The campus will consist of modular power units, secure buildings, advanced cooling systems, and fiber optic connections to create the computing foundation for the application of AI. If approved, the project footprint will be 129.5 hectares.

Enclosed in this package you will find the following information regarding the Project:

- **A Project Information Package**
- **A Project Map and Site Plan**
- **The AUC Brochure "Participating in the AUC's Independent Review Process to Consider Facility Applications"**

Community Engagement

Toll Free 1 (866) 594-9982



We would like to invite you to the **Project Open House on Wednesday November 18th, 2025, from 6:00 pm to 8:00 pm at the Gibbons Community Cultural Centre**. The Open House will provide an opportunity to learn more about the Project in greater detail, and have your questions answered and concerns addressed by our team of experts.

We wish to keep open communication with you and incorporate any feedback you may have in relation to the proposed project.

If you have any questions or wish to meet to discuss this project further, please contact me at 780-995-7339 or paulmc@elmatters.com at your earliest convenience.

Sincerely,

Beacon Heartland AI Centre
By its representative Environmental Leadership Matters

<original signed by>

Paul McLauchlin
Senior Engagement Specialist

Toll Free 1 (866) 594-9982

COMMUNITY OPEN HOUSE

Heartland AI Hub and Gas Powered Electrical Generation Facility

Please join us at the Open House to learn more about this exciting project.

Date: November 18th, 2025

Time: 6:00 PM to 8:00 PM

Location: Gibbons Cultural Center

5115-51st Street Gibbons, AB

Please drop in at any time. No registration is required.

About the project:

Beacon AI Centers is developing a 800MW Artificial Intelligence (AI) Data Center with a 800MW Gas Powered Electrical Generation Facility.

The campus will consist of modular power units, secure buildings, advanced cooling systems, and fiber optic connections to create the computing foundation for the application of AI.

Project Location : Located on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.



Contact Information:
Beacon AI Centers
heartland@beacondatacenters.com

Welcome

Beacon AI Data Center Inc. is proposing to develop the Heartland AI Data Center Hub - an 800 Megawatt (MW) digital Infrastructure and clean power facility.

Today, we would like to:

Share information about our exciting project.

Answer any other questions you may have about the project or how the project may benefit you.

Obtain your thoughts and feedback on the data center project.

Land Acknowledgement

Beacon Data Centers Inc. and Sturgeon County recognizes we are on Treaty 6 territory, the traditional homelands of the Alexander and Michel First Nations, as well as the Metis Nation of Alberta's Districts 8 and 11.

We honour and acknowledge all of the First Nations, Métis and Inuit peoples who have lived, traveled and gathered on these lands for centuries.



About Beacon



As a digital infrastructure developer specializing in AI - scale data centers, we aim to facilitate the growth of innovative technologies by providing advanced computing solutions.

Key aspects of our operations include:

- *Partnerships with local stakeholders for economic growth.*
- *Commitment to fostering local talent and work force development.*
- *Anchoring a tech and innovation ecosystem.*

Beacon is led by a highly experienced team of professionals from across the data center, technology, power and finance sectors with capabilities in business management, project development, construction and operations.



Joseph Shovlin
Co-founder

Co-Founder of Beacon, leads market entry and development across the portfolio.

Experienced developer in energy and digital infrastructure.

Leads site identification, permits acquisition and community engagement.



Lauren Armstrong
VP Corporate Affairs

Former principal at Canada's leading high-stakes public strategy and communications firm specializing in energy.

More than a decade at senior levels of federal and provincial Canadian politics / government.

Leads Beacon's communications, brand/digital, and stakeholder and government relations.



Josh Schertzer
CEO

After nearly two decades at Blackstone, most recently serving as CTO of Enterprise Technology, Josh joined Beacon as CEO in May 2025.

At Blackstone, he advised business units and portfolio companies on technology and strategic / investment opportunities. He also oversaw growth and investment in data centers across the United States.



Dermot Callaghan
VP of Data Center Strategy

13 years at Google Data Centers, where he oversaw the delivery of a data center portfolio across 12 countries and 32 local data center markets exceeding multiple GW's of capacity.

Instrumental in the development of Google's commercial operations across the globe.

Worked extensively on Google's next gen data center design and deployment for Gemini.

Local Benefits

The Heartland AI Hub will be a significant asset to the local area, driving economic growth, enhancing technological infrastructure, and contributing positively to the community and environment.

Economic Development

- The presence of an AI data center hub will help attract other tech companies and startups to the area, fostering a tech ecosystem and furthering innovation.
- Transformative supply chain opportunities for local companies with increased demand for construction, mechanical/electrical, landscaping and professional services.
- World Class telecommunication infrastructure due to fibre upgrades for public services, businesses and residents.

Community Benefits

- Significant revenue generation for Sturgeon County and Government of Alberta.
- Partnership opportunities with local educational institutions to offer training rams and internships.
- Dedicated corporate giving for important community initiatives

Project Overview

What is a Data Center?

- An AI data center is a piece of critical digital infrastructure that enables a wide range of technology including AI and cloud computing.
- It houses thousands of advanced computer process. Together, they act like a supercomputer that can analyze massive amounts of information, allowing AI to learn, make predictions, and support new discoveries.
- It combines secure buildings, advanced cooling systems, and fiber-optice connections to create the computing foundation for the application of AI for a variety of uses including medical, technological and government.

Facts and Figures



Employment Opportunities

Local employment opportunity through **1500+** construction jobs and **300+** operational jobs.



Investment

\$7B investment by Beacon Data Centres, and opportunity for other investment avenues by attracting related services and business.



Revenue Generation

Increased tax revenue for the County to fund public services and infrastructure projects.



800 MW On-Site Generation

Gas to Electric Gas Generation



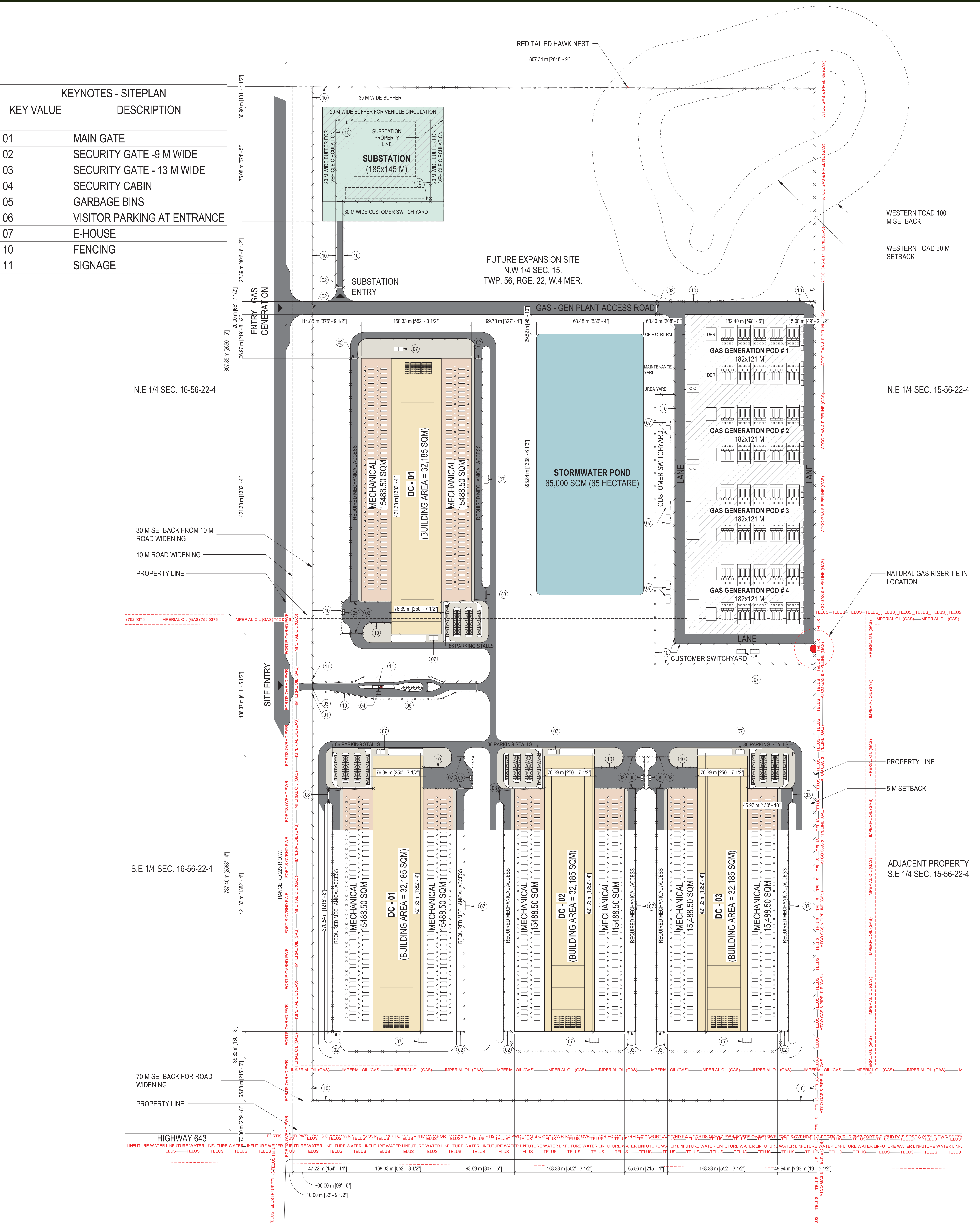
Development Footprint

320-acre Project Footprint.

HEARTLAND



KEYNOTES - SITEPLAN	
KEY VALUE	DESCRIPTION
01	MAIN GATE
02	SECURITY GATE - 9 M WIDE
03	SECURITY GATE - 13 M WIDE
04	SECURITY CABIN
05	GARBAGE BINS
06	VISITOR PARKING AT ENTRANCE
07	E-HOUSE
10	FENCING
11	SIGNAGE



N.E 1/4 SEC. 16-56-22-4

N.E 1/4 SEC. 15-56-22-4

S.E 1/4 SEC. 16-56-22-4

ADJACENT PROPERTY S.E 1/4 SEC. 15-56-22-4

HIGHWAY 643

Gas Generation

The Technology

Noise Assessment

A detailed noise impact assessment is will be undertaken during both the construction and operational phases in compliance with regulatory noise limits contained within Alberta Utilities Commission (AUC) Rule .012.

F - Chimney Module

The Chimney Module contains the structure to support the genset ventilation duct, exhaust piping, and forms the radiator exhaust airflow chimney.

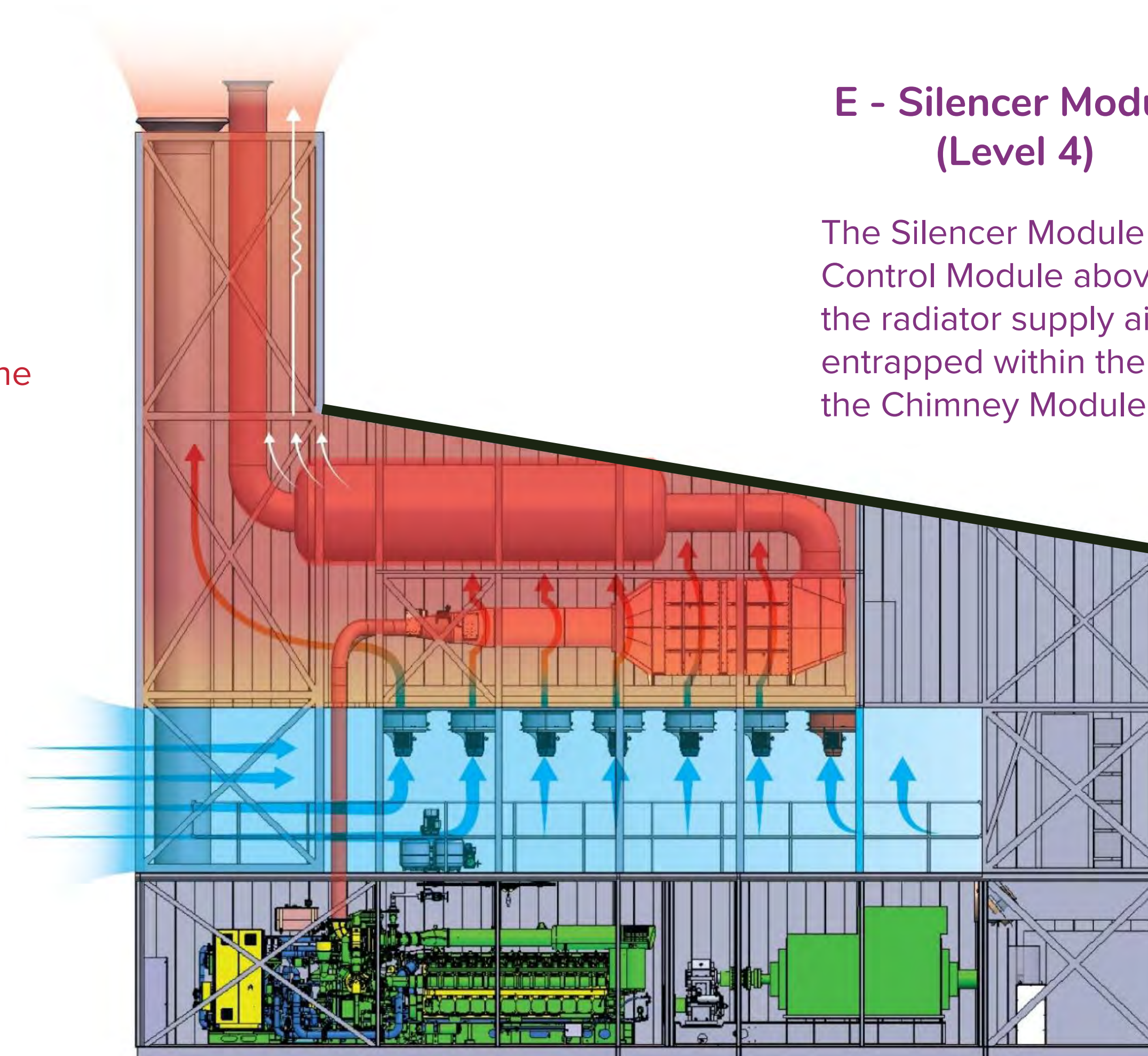
C- Radiator & Air Filtration Module (Level 2)

The Radiator & Air Filtration Module located above the Engine Module and Power Conversion Module aids in minimizing the Qpac5. Large open space is provided beneath the radiators to ensure an adequate supply of ambient air to the radiator cores.

A - Engine Module

The Engine Module, located at ground level contains the Jenbacher J624 natural gas engine and balance of plant components. An overhead bridge crane integrated into the interior roof of the module allows for easy maintenance of the engine.

The technologically advanced Volta Grid modularized QPAC with the Jenbacher J624 Natural Gas Engine.



E - Silencer Module (Level 4)

The Silencer Module located on the fourth floor above the Emissions Control Module above the radiator to prevent pre-heating of the radiator supply air. Radiant heat from the exhaust silencer is entrapped within the radiator exhaust air and directed toward the Chimney Module where it exits out the top of the Qpac5.

D- Emissions Control Module (Level 3)

The Emissions Control Module located on the third floor above the Radiator & Air Filtration Module to prevent pre-heating of the radiator supply air. Radiant heat from the exhaust piping and SCR is entrapped within the radiator exhaust air and directed toward the Chimney Module where it exits out the top of the Qpac5.

B - Power Conversion Module (Level 1)

The Power Conversion Module contains the gearbox, alternator, low voltage power distribution, ventilation fans, and are strategically located to minimize cable lengths and ensure separation between medium and low voltage equipment while minimizing the Qpac5 footprint.

Air Quality

A dispersion modeling assessment, in compliance with the Alberta Air Quality Modeling Guidelines (AQMG) will be undertaken to evaluate the impact on air quality and to meet the requirements of the National Base Level Emissions Requirements (BLIERS).

Next Steps

Thank you for attending the Open House

Project Timeline (2025 - 2028)

- DEC 2024 ○ Application for Master Development Permit Submitted to Sturgeon County.
- APR 2025 ○ Master Development Permit #305305-25-D0035 Issued by Sturgeon County.
- NOV 2025 ○ Application for Development Permit to permit the development of the Gas to Electric Gas Generation Support Facility.
- TODAY ● OPEN HOUSE**
- NOV 2025 ○ Submit Application to Alberta Utilities Commission for consideration.
- DEC 2027 ○ Data Center energized.

For more information, please contact:



Beacon Data Center Inc.
1 (866) 594-9982 (Toll Free)
heartland@BeaconDataCenters.com



Participating in the AUC's independent review process to consider facility applications

www.auc.ab.ca

The AUC regulatory review process to consider facility applications for utility projects



The AUC uses an established process to review social, economic and environmental impacts of facility projects to decide if approval of a project is in the public interest.

The AUC considers applications requesting approval of the need for transmission development and facilities applications seeking approval to construct, operate, alter and decommission electric and natural gas facilities. Applications, as specified in AUC Rule 007, are required for:

- The need for transmission upgrades.
- The route and location of transmission facilities.
- The siting of power plants.
- The construction of a battery storage system.
- The designation of an industrial system.
- The need for and siting of natural gas utility pipelines.

Sometimes the Alberta Electric System Operator's needs identification document application is considered together with a facility application in a single proceeding; sometimes separate proceedings are held to consider each application.

Application review process



- Step 1: Public consultation prior to applying to the AUC
- Step 2: Application filed to the AUC
- Step 3: Public notice
- Step 4: Public submissions to the AUC
- Step 5: Consultation and negotiation
- Step 6: The public hearing process
- Step 7: The decision
- Step 8: Opportunity to appeal
- Step 9: Construction, operation and compliance

Application review process

Step 1: Public consultation prior to applying to the AUC



An applicant seeking approval of a proposed utility development project is required to engage in a participant involvement program prior to filing an application with the AUC. The public involvement program involves consultation with persons whose rights may be directly and adversely affected by the proposed project so that concerns may be raised, addressed and, if possible, resolved.

The application guidelines and requirements for facility applications can be found in AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines*.

Potentially affected parties are strongly encouraged to participate in the public consultation, also called a participant involvement program. Early, active and ongoing discussions with an applicant may lead to greater influence on project planning and what is submitted to the AUC for approval.

Step 2: Application filed to the AUC



When the applicant has concluded its consultation with potentially affected parties and the participant involvement requirements have been completed, the applicant files its application through the AUC online public filing system, called the eFiling System.


AUC staff members review each application submitted to verify that all of the application requirements in Rule 007 have been met before an application is deemed complete. If all of the required information is not provided, the application may be closed or missing information will be requested of the applicant. Rule 007 specifies, among other requirements, that applicants must submit the results of a public involvement program in its application that includes information about how applicants consulted and notified stakeholders and Indigenous groups and identifies any unresolved objections and concerns about the project.

Step 3: Public notice



When the AUC receives an application it is assigned a proceeding number and the AUC generally mails a notice of application directly to those who live, operate a business or occupy land in the project area who may be directly and adversely affected if the AUC approves the application. The notice initiates the opportunity for formal intervention in the proceeding to consider an application or applications. The notice of application will also set out important dates and information about where to find the application and other items being considered. The five-digit eFiling System proceeding number in the notice is the most efficient way to find information about a proposed project through the AUC website.

Step 4: Public submissions to the AUC



Prior to the submission deadline provided in the notice, formal submissions of outstanding concerns and unresolved objections about a project may be submitted to the AUC. To submit a concern, participants will need to register to participate in the proceeding, which involves providing a brief written statement called a statement of intent to participate. Submissions are filed electronically through the eFiling System. The information filed becomes part of the public record and is an important part of the process to ensure that outstanding concerns are heard, understood and considered.

The AUC uses the information gathered through statement of intent to participate submissions to decide whether to hold a hearing on the application(s). The AUC must hold a hearing if a concerned person can demonstrate that they have rights that may be directly or adversely affected by the AUC's decision on the application. Such a person is said to have standing before the AUC. If the AUC decides to hold a hearing, the AUC will provide further opportunities for participants with standing to ask the applicant questions on the public record and present their position on the application either in writing or in person. Hearings may

be held in writing, in person or virtually through web-conference software.

AUC eFiling System

The eFiling System is the online tool that the AUC uses to manage applications and submissions in its proceeding-based review. The eFiling System gives access to all public documents associated with an application. The system is also used to submit your concerns and provide input to the AUC and can be used to monitor related proceeding filings. Those who do not have access to the internet can send submissions, evidence and other material by mail and the AUC will upload the submission on their behalf.

Step 5: Consultation and negotiation (if applicable)



The AUC supports efforts to reach a mutually agreeable outcome among the applicant and affected parties. The AUC encourages the applicant and those who have filed a statement of intent to participate to continue to attempt to resolve any outstanding issues. If all concerns can be satisfactorily resolved this may eliminate the need for a formal hearing. However, if there continues to be unresolved issues, those matters will typically be addressed in an AUC hearing.

Step 6: The public hearing process



The AUC will issue a notice of hearing if a person with standing continues to have legitimate unresolved concerns with the application. The notice of hearing will provide a hearing date and location, or specify if the hearing will be held in writing or virtually. When the AUC holds a public hearing, registered parties are given the opportunity to express their views directly to a panel of Commission members. Any member of the public can listen to an in-person or virtual oral hearing. An oral public hearing operates similar to a court proceeding.

Participants in a hearing can either represent themselves or be represented by a lawyer. In addition, participants may hire experts to assist in preparing and presenting evidence to support their position.

Cost assistance



A person determined by the AUC to have standing or a local intervener can apply for reimbursement of reasonable costs. Those who hire a lawyer or technical experts must be aware that while reimbursement for the costs of legal and technical assistance is available under AUC Rule 009: *Rules on Local Intervener Costs*, recovery of costs is subject to the AUC's assessment of the value of the contribution provided by the lawyer and technical experts in assisting the AUC to understand the specifics of the case. It is also subject to the AUC's published scale of costs.

People with similar interests and positions are expected and encouraged to work together to ensure that expenditures for legal or technical assistance are minimized and costs are not duplicated.

Step 7: The decision



The AUC's goal is to issue its written decision no more than 90 days after the close of record. The AUC can approve, or deny an application and can also make its approval conditional upon terms or conditions. AUC decisions are publicly available through the AUC website at www.auc.ab.ca.

Step 8: Opportunity to appeal



An applicant or participant in a proceeding may formally ask the Court of Appeal of Alberta for permission to appeal an AUC decision. An application for permission to appeal must be filed within 30 days from the date the decision is issued.

An applicant or participant in a proceeding can also ask the AUC to review its decision. An application to review a decision must be filed within 30 days from the date the decision is issued and satisfy the limited grounds described in AUC Rule 016: *Review of Commission Decisions*.

Step 9: Construction, operation and compliance



An applicant that receives approval to build and operate a facility from the AUC is expected to follow through on any commitments it has made to parties and must adhere to any conditions that were set out in that approval. If concerns about compliance with approval conditions and post-construction operations cannot be resolved with the applicant, they can be brought to the AUC's attention for consideration. The AUC has significant compliance and enforcement powers for all approved applications. Additional information is available on the AUC website.

The Alberta Utilities Commission is an independent, quasi-judicial agency of the government of Alberta that ensures the delivery of Alberta's utility services take place in a manner that is fair, responsible and in the public interest.

We are committed to ensuring that Albertans whose rights may be directly and adversely affected by a utility development project are informed of the application and have the opportunity to have their concerns heard, understood and considered.



Contact us

Phone: 310-4AUC
1-833-511-4282 (outside Alberta)
info@auc.ab.ca
www.auc.ab.ca

Eau Claire Tower
1400, 600 Third Avenue S.W.
Calgary, Alberta T2P 0G5

Appendix G:

ACO Pre Consultation Assessment Request responses

Pre-consultation Assessment Request

File Number for Consultation:	FNC202501088	Date of Submission:	2025/11/24
Client Project Name:	Beacon Heartland AI Center		
Client Name:	BEACON DATA CENTERS INC.		
Contact Name:	Black, Linda	Contact Number:	(780)995-7339
Contact Email:	linda@elmmatters.com		

This Pre-consultation Assessment Request, as submitted by the Client, will be reviewed by the Aboriginal Consultation Office (ACO) to assess if consultation is required and if so, with which First Nations/Metis Settlements. The ACO's assessment will be based on the information and content provided by the Client. It is the responsibility of the Client to ensure all required information is included in their submission. If you have questions regarding the consultation process, or if you would like to know the status of your request, email:

ir.fnconsultlands-eds2110ea@gov.ab.ca

Supporting Comments/Clarification:

Attached Supporting Documents (4):
1.LATReport_0000065160
2.LATReport_0000065161
3.BeaconHeartland_AI_Hub_ProjectMapping
4.BeaconHeartland_AI_Hub_supportdocuments
ATS To: NW 15 56 22 W4 ATS From: SW 15 56 22 W4 Project Subject Area Totals 129.5 hectares.
Duration of activity Construction Phase = 24-months: Q1 2026- Q3 2027
In-service operation: Q3 2027 Lifespan: 25 years Buffer Size: 100m
The Beacon AI Data Centres Power Generation and Data Infrastructure Project (the "Project") represents the establishment of one of Canada's largest fully modular, natural-gas-fired reciprocating-engine power plants, designed to deliver 800 megawatts (MW) of continuous, dispatchable electrical power to on-site artificial-intelligence and high-performance-computing (HPC) facilities. Located within the Beacon Heartland Industrial Zone in Sturgeon County, Alberta, the installation will form the cornerstone of a purpose-built digital-energy campus capable of supporting Tier IV data-centre operations while maintaining energy independence from the provincial transmission network.
The Project addresses Alberta's growing need for reliable, high-density electrical supply for data-centric industries, particularly artificial-intelligence (AI), high-performance computing (HPC), and cloud-service infrastructure.
The Project is in the Alberta Industrial Heartland, Sturgeon County – Designated Industrial Zone (IH-DIZ) located on privately owned land that is northeast and southeast quarter sections of W 1/2 of Section 15-56-22-4 which is located directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 843, approximately 6 kilometres (km) east of Gibbons.
Given the project is on privately owned land within an industrial area of the County, Beacon does not expect any potential short- and long-term adverse impacts to First Nation's Treaty rights and traditional uses or Metis Settlements or Credibly Asserted Métis Communities members' harvesting or traditional use activities.
No previous FNC
LAT Shapefile available via email upon request due to EDS file limitations.

Personal information is collected in accordance with Section 33(c) of the Freedom of Information and Protection of Privacy Act. The personal information collected within this form will be used to administer the First Nations/Metis Settlements consultation process. If you have any questions about the collection or use of this information, you can contact the Director, FOIP Services, Indigenous Relations and International and Intergovernmental Relations (780)427-9658.

Pre-consultation Assessment Request

Activity Number	Disp Type	Program Type	Source Line Spacing	Regulator	Purpose Type	Activity Area/Distance	Land Use Area
FNC202501088-001	DML			FP	Commercial Development - Commercial Facility	129.5 HA	North Saskatchewan Region
	ATS Legal - From		ATS Legal - To				
	NW 15 56 22 4		SW 15 56 22 4				
Activity Number	Disp Type	Program Type	Source Line Spacing	Regulator	Purpose Type	Activity Area/Distance	Land Use Area
FNC202501088-002	DML			FP	Electrical - Power Station / Substation	129.5 HA	North Saskatchewan Region
	ATS Legal - From		ATS Legal - To				
	NW 15 56 22 4		SW 15 56 22 4				
Activity Number	Disp Type	Program Type	Source Line Spacing	Regulator	Purpose Type	Activity Area/Distance	Land Use Area
	ATS Legal - From		ATS Legal - To				
Activity Number	Disp Type	Program Type	Source Line Spacing	Regulator	Purpose Type	Activity Area/Distance	Land Use Area
	ATS Legal - From		ATS Legal - To				
Activity Number	Disp Type	Program Type	Source Line Spacing	Regulator	Purpose Type	Activity Area/Distance	Land Use Area
	ATS Legal - From		ATS Legal - To				



FNC202554497 Pre-consultation Assessment Request Submitted

From ACODigitalService@gov.ab.ca <ACODigitalService@gov.ab.ca>

Date Mon 11/24/2025 11:13 AM

To linda@elmatters.com <linda@elmatters.com>

Hi Linda,

A [pre-consultation assessment request](#) has been submitted using the ACO Digital Service for FNC202554497.

If you are unable to access the ACO Digital Service, please contact us at ACODigitalService@gov.ab.ca.

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail.



FNC for FNC202501103 - South Saskatchewan Region

From EDS.Support@gov.ab.ca <EDS.Support@gov.ab.ca>

Date Fri 11/28/2025 4:30 PM

To linda@elmatters.com <linda@elmatters.com>; ir.fnconsultlands-eds2110ea@gov.ab.ca <ir.fnconsultlands-eds2110ea@gov.ab.ca>

The following FNC has been cancelled:

First Nation/Metis Settlement Consultation FNC202501103 for BEACON DATA CENTERS INC.
(1036034001)

This message is generated by Electronic Disposition System (EDS) on 2025/11/28 at 16:30:19

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FNC202554497

Heartland AI Hub and Gas-Powered Electrical Generation Facility

Proponent 1036034001 - BEACON DATA CENTERS INC.

Pre-Consultation Assessment		Adequacy Assessment	
✓ Application	November 24, 2025	Application	—
🔄 Decision	—	Decision	—
ACO Reviewer	—	ACO Reviewer	—
Phone	—	Phone	—
Email	—	Email	—
Proponent	Linda Black	Proponent	—
Phone	(780) 995-7339	Phone	—
Email	linda@elmatters.com	Email	—

Project information

Project buffer

Yes, this project has a buffer.

Buffer description

100 meter non-linear disturbance

Project duration

Project duration is expected to be 25 years.

Construction duration

Construction duration is expected to be 2 years.

Project description and supporting information

Attached Supporting Documents (4):

1. LATReport_0000065160
2. LATReport_0000065161
3. BeaconHeartland_AI_Hub_ProjectMapping
4. BeaconHeartland_AI_Hub_supportdocuments

ATS To: NW 15 56 22 W4 ATS From: SW 15 56 22 W4

Project Subject Area Totals 129.5 hectares

Duration of activity Construction Phase = 24-months: Q1 2026- Q3 2027

In-service operation: Q3 2027

Lifespan: 25 years

Buffer Size: 100m

The Beacon AI Data Centres Power Generation and Data Infrastructure Project (the "Project") represents the establishment of one of Canada's largest fully modular, natural-gas-fired reciprocating-engine power plants, designed to deliver 800 megawatts (MW) of continuous, dispatchable electrical power to on-site artificial-intelligence and high-performance-computing (HPC) facilities. Located within the Beacon Heartland Industrial Zone in Sturgeon County, Alberta, the installation will form the cornerstone of a purpose-built digital-energy campus capable of supporting Tier IV data-centre operations while maintaining energy independence from the provincial transmission network.

The Project addresses Alberta's growing need for reliable, high-density electrical supply for data-centric industries, particularly artificial-intelligence (AI), high-performance computing (HPC), and cloud-service infrastructure.

Traditional transmission networks are not designed to provide the instantaneous reliability and fault tolerance

demanded by Tier IV computing facilities. This Project eliminates dependency on external grid infrastructure by deploying a localized, modular power system directly adjacent to the load.

The Project therefore serves three parallel purposes:

- 1) To supply continuous, reliable, high-density electrical power to support AI and cloud computing.
- 2) To deploy scalable, modular, low-emission gas-engine technology as an alternative to other thermal or turbine generation.
- 3) To create a replicable model for industrial microgrids capable of future hydrogen integration and hybridization with battery-energy storage.

The Project is in the Alberta Industrial Heartland, Sturgeon County – Designated Industrial Zone (IH-DIZ) located on privately owned land that is northeast and southeast quarter sections of W 1/2 of Section 15-56-22-4 which is located directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 843, approximately 6 kilometres (km) east of Gibbons.

Given the project is on privately owned land within an industrial area of the County, Beacon does not expect any potential short- and long-term adverse impacts to First Nation’s Treaty rights and traditional uses or Metis Settlements or Credibly Asserted Métis Communities members’ harvesting or traditional use activities.

No previous FNC

Pre-Consultation Assessment Decision

1 Project Activities

Activity	Regulator	Disposition	Purpose	Consultation Required?
001	AER	WAC	Water Act	
Area	ATS From	ATS To	Amended Site	Communities to be consulted
129.5 ha	NW - 15 - 56 - 22 - W4	SW - 15 - 56 - 22 - W4	No	
Amendment/Renewal description				
—				
Water Act activity description				
Enhancement and rehabilitation activity on the existing licensed irrigation drainage ditch on the north side of the project area. Please see attached letter for further explanation.				
Hydrological connection to fish bearing and/or navigable water source details				
The ditch is classified under Sturgeon County’s policies as a licensed conveyance under the Water Act. Pursuant to section 3 of the Public Lands Act, only permanent and naturally occurring water bodies and watercourses are subject to Crown ownership. Manmade ditches are explicitly excluded from the definition of “bed and shore.” The feature does not appear in provincial watercourse datasets and has no demonstrated connectivity or function as fish habitat under the Fisheries Act. In light of the above, the Province has no Crown interest in this drainage ditch under the Public Lands Act. Management and maintenance responsibility rests with Sturgeon County under its existing point of diversion authorization (DAUT0023777).				
Project construction duration is approximately 2 years.				
Notes				
—				

sandra.muench@gov.ab.ca

November 27 2025, 3:33 PM

Good afternoon Linda,

As discussed in our meeting please make the following changes to this application and then resubmit for further review:

1. Remove the project buffer. A buffer does not apply to this project.

2. Add the drainage ditch location on the map as well as label the wetlands with their size areas that will be impacted by the project.

3. Update the activity size to just be the drainage ditch and wetland areas that will be affected and need a Water Act approval instead of the entire project area (129.5ha).

4. Add to the project description what the plans are for the wetlands in the project area.

*** I forgot to mention in the meeting that the IR-WA-EPEA supplement form is no longer a required form for EPEA or Water Act applications. You can still submit it if you like, but it is no longer a requirement and the form is actually not available on the ACO website anymore.

If you have any questions, give me a call.

Sandra
780-712-9545



FNC202554497

Heartland AI Hub and Gas-Powered Electrical Generation Facility

Proponent 1036034001 - BEACON DATA CENTERS INC.

Pre-Consultation Assessment		Adequacy Assessment	
✓ Application	November 24, 2025	Application	—
✓ Recommendation	December 8, 2025	Recommendation	—
ACO Reviewer	Sandra Muench	ACO Reviewer	—
Phone	(780) 712-9545	Phone	—
Email	sandra.muench@gov.ab.ca	Email	—
Proponent	Linda Black	Proponent	—
Phone	(780) 995-7339	Phone	—
Email	linda@elmmatters.com	Email	—

Project information

Project buffer

No, this project does not have a buffer.

Buffer description

N/A

Project duration

Project duration is expected to be 25 years.

Construction duration

Construction duration is expected to be 2 years.

Project description and supporting information

Attached Supporting Documents (4):

1. LATReport_0000065160
2. LATReport_0000065161
3. BeaconHeartland_AI_Hub_ProjectMapping
4. BeaconHeartland_AI_Hub_supportdocuments

ATS To: NW 15 56 22 W4 ATS From: SW 15 56 22 W4

Project Subject Area Totals 129.5 hectares; Total Wetland Area 15.85 ha

Duration of activity Construction Phase = 24-months: Q1 2026- Q3 2027

In-service operation: Q3 2027

Lifespan: 25 years

Buffer Size: 100m

The Beacon AI Data Centres Power Generation and Data Infrastructure Project (the "Project") represents the establishment of one of Canada's largest fully modular, natural-gas-fired reciprocating-engine power plants, designed to deliver 800 megawatts (MW) of continuous, dispatchable electrical power to on-site artificial-intelligence and high-performance-computing (HPC) facilities. Located within the Beacon Heartland Industrial Zone in Sturgeon County, Alberta, the installation will form the cornerstone of a purpose-built digital-energy campus capable of supporting Tier IV data-centre operations while maintaining energy independence from the provincial transmission network. The Project addresses Alberta's growing need for reliable, high-density electrical supply for data-centric industries, particularly artificial-intelligence (AI), high-performance computing (HPC), and cloud-service infrastructure. Traditional transmission networks are not designed to provide the instantaneous reliability and fault tolerance

demanded by Tier IV computing facilities. This Project eliminates dependency on external grid infrastructure by deploying a localized, modular power system directly adjacent to the load.

The Project therefore serves three parallel purposes:

- 1) To supply continuous, reliable, high-density electrical power to support AI and cloud computing.
- 2) To deploy scalable, modular, low-emission gas-engine technology as an alternative to other thermal or turbine generation.
- 3) To create a replicable model for industrial microgrids capable of future hydrogen integration and hybridization with battery-energy storage.

The Project is in the Alberta Industrial Heartland, Sturgeon County – Designated Industrial Zone (IH-DIZ) located on privately owned land that is northeast and southeast quarter sections of W 1/2 of Section 15-56-22-4 which is located directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 843, approximately 6 kilometres (km) east of Gibbons.

Given the project is on privately owned land within an industrial area of the County, Beacon does not expect any potential short- and long-term adverse impacts to First Nation’s Treaty rights and traditional uses or Metis Settlements or Credibly Asserted Métis Communities members’ harvesting or traditional use activities.

No previous FNC

Pre-Consultation Assessment Recommendation

1 Project Activities

Activity	Regulator	Disposition	Purpose	Consultation Recommended?
001	EPA	WAC	Water Act	No
Area	ATS From	ATS To	Amended Site	Communities to be consulted
15.85 ha	NW - 15 - 56 - 22 - W4	SW - 15 - 56 - 22 - W4	No	
Amendment/Renewal description				
—				
Water Act activity description				
Enhancement and rehabilitation activity on the existing licensed irrigation drainage ditch on the north side of the project area. Please see attached letter for further explanation.				
Wetlands within the project area will be directly impacted by the project, resulting in loss of wetland area, with the exception of the semi-permanent graminoid marsh in the northeast corner of NW 15-56-22 W4.- A Wetland Assessment Impact Report and Water Act Application will be submitted for proposed impacts to wetlands. Thirteen ephemeral water bodies are located in the Project footprint. To address impacts to the ephemeral water bodies in the Project footprint, Beacon will seek approval under the Water Act before construction commences. Two potential watercourses were field verified and confirmed as ephemeral drainages with no bed or bank observed. These watercourses will be considered and incorporated in the stormwater management plan (Montrose 2025).				
Hydrological connection to fish bearing and/or navigable water source details				
The ditch is classified under Sturgeon County’s policies as a licensed conveyance under the Water Act.				
Pursuant to section 3 of the Public Lands Act, only permanent and naturally occurring water bodies and watercourses are subject to Crown ownership. Manmade ditches are explicitly excluded from the definition of “bed and shore.”				
The feature does not appear in provincial watercourse datasets and has no demonstrated connectivity or function as fish habitat under the Fisheries Act.				
In light of the above, the Province has no Crown interest in this drainage ditch under the Public Lands Act.				
Management and maintenance responsibility rests with Sturgeon County under its existing point of diversion authorization (DAUT0023777).				
Project construction duration is approximately 2 years.				

Notes

Correction on Regulator to AEP.

Pre-consultation Assessment comments

This file has been assessed and processed using the 2024 Proponent Guide. To review the 2024 Proponent Guide please see:

<https://www.alberta.ca/indigenous-consultations-in-alberta>

<https://open.alberta.ca/publications/goa-proponent-guide-first-nations-metis-settlements-consultation-procedures>

Appendix H:

November 2025 Stakeholder, Municipality and Association
PSIP Notification



Via Email:

Insert Name

Insert Address

November 14, 2025

Dear Insert Name/Representative,

RE: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility

On behalf of Beacon AI Centers, I am pleased to notify you that we have initiated the Participant Involvement Program (PIP) as part of our Heartland AI Hub and Gas-Powered Electrical Generation Facility (the Project) application process to the Alberta Utilities Commission (AUC).

Please note that the following land parcel is within the AUC 800-meter consultation radius or 2000-meter notification radius for thermal power plant applications as indicated in the table below.

LSD	Land Title #	AUC consultation or notification radius
		800m
		2000m

Project Overview

Beacon AI Centers is proposing to develop and operate an 800-megawatt (MW) Artificial Intelligence (AI) Data Center with an 800MW Gas Powered Electrical Generation Facility on private land located approximately eight kilometres east of Gibbons, Alberta. The project location is on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.

The campus will consist of modular power units, secure buildings, advanced cooling systems, and fiber optic connections to create the computing foundation for the application of AI. If approved, the project footprint will be 129.5 hectares.

Enclosed in this package you will find the following information regarding the Project:

- **A Project Information Package**
- **A Project Map and Site Plan**
- **The AUC Brochure "Participating in the AUC's Independent Review Process to Consider Facility Applications"**

Community Engagement

Toll Free 1 (866) 594-9982



We would like to invite you to the **Project Open House on Wednesday November 18th, 2025, from 6:00 pm to 8:00 pm at the Gibbons Community Cultural Centre**. The Open House will provide an opportunity to learn more about the Project in greater detail, and have your questions answered and concerns addressed by our team of experts.

We wish to keep open communication with you and incorporate any feedback you may have in relation to the proposed project.

If you have any questions or wish to meet to discuss this project further, please contact me at 780-995-7339 or paulmc@elmatters.com at your earliest convenience.

Sincerely,

Beacon Heartland AI Centre
By its representative Environmental Leadership Matters

<original signed by>

A small, handwritten signature in blue ink, appearing to be the name Paul McLauchlin.

Paul McLauchlin
Senior Engagement Specialist

Toll Free 1 (866) 594-9982



Via Email:

Insert Municipality
Insert Contact Name
Insert Address

November 14, 2025

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Municipal engagement form

The Alberta Utilities Commission wishes to provide a forum for municipalities potentially affected by power plant and/or energy storage applications to provide feedback to the Commission. The intent of this form is to receive feedback on a proposed power plant and/or energy storage project's compliance with municipal planning policies and the applicant's consultation with municipalities. This form will have been provided to affected municipalities by the project applicant for a minimum of 30 days, as part of the application process, and the applicant will inform the municipality of the process to complete this form within the required timeline.

It is optional for affected municipalities to complete this form. In the absence of this form being completed, the onus is on the project applicant to share documentation of its attempts to follow up with the municipality to complete this form, as part of its facility application.

The applicant will also be responsible for submitting information on the items included in this form as part of its facility application.

Identification
Project name: Municipality: Municipality contact information:
Municipal planning frameworks
Municipal development plan Does the proposed project area comply with the municipal development plan? If no, please explain.
Intermunicipal development plan Does the proposed project area comply with the intermunicipal development plan? If no, please explain.
Land use bylaw What is the current land use zoning for the proposed project area?

Does the proposed project area comply with the land use bylaw (including applicable setbacks)? If no, please explain.

If applicable, what is the land use amendment status for the proposed project area?

Development permit

If applicable, what is the development permit status for the proposed project area?

Was consultation conducted with the municipality?

Yes No

Does the municipality have outstanding unresolved concerns about the project?

Yes No

Comments:

Overall comments from the municipality about the project:

Signature (municipality):

X _____

Title:

Date: Click or tap to enter a date.

When complete, please provide this form to the applicant

COMMUNITY OPEN HOUSE

Heartland AI Hub and Gas Powered Electrical Generation Facility

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Date: November 18th, 2025

Time: 6:00 PM to 8:00 PM

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5115-51st Street Gibbons, AB

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Project Location : Located on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.



Contact Information:
Beacon AI Centers
heartland@beacondatacenters.com

Welcome

Beacon AI Data Center Inc. is proposing to develop the Heartland AI Data Center Hub - an 800 Megawatt (MW) digital Infrastructure and clean power facility.

Today, we would like to:

Share information about our exciting project.

Answer any other questions you may have about the project or how the project may benefit you.

Obtain your thoughts and feedback on the data center project.

Land Acknowledgement

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Co-Founder of Beacon, leads market entry and development across the portfolio.

Experienced developer in energy and digital infrastructure.

Leads site identification, permits acquisition and community engagement.



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Local Benefits

The Heartland AI Hub will be a significant asset to the local area, driving economic growth, enhancing technological infrastructure, and contributing positively to the community and environment.

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- It combines secure buildings, advanced cooling systems, and fiber-optice connections to create the computing foundation for the application of AI for a variety of uses including medical, technological and government.

Facts and Figures



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Local employment opportunity through **1500+** construction jobs and **300+** operational jobs.



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\$7B investment by Beacon Data Centres, and opportunity for other investment avenues by attracting related services and business.



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Increased tax revenue for the County to fund public services and infrastructure projects.



800 MW On-Site Generation

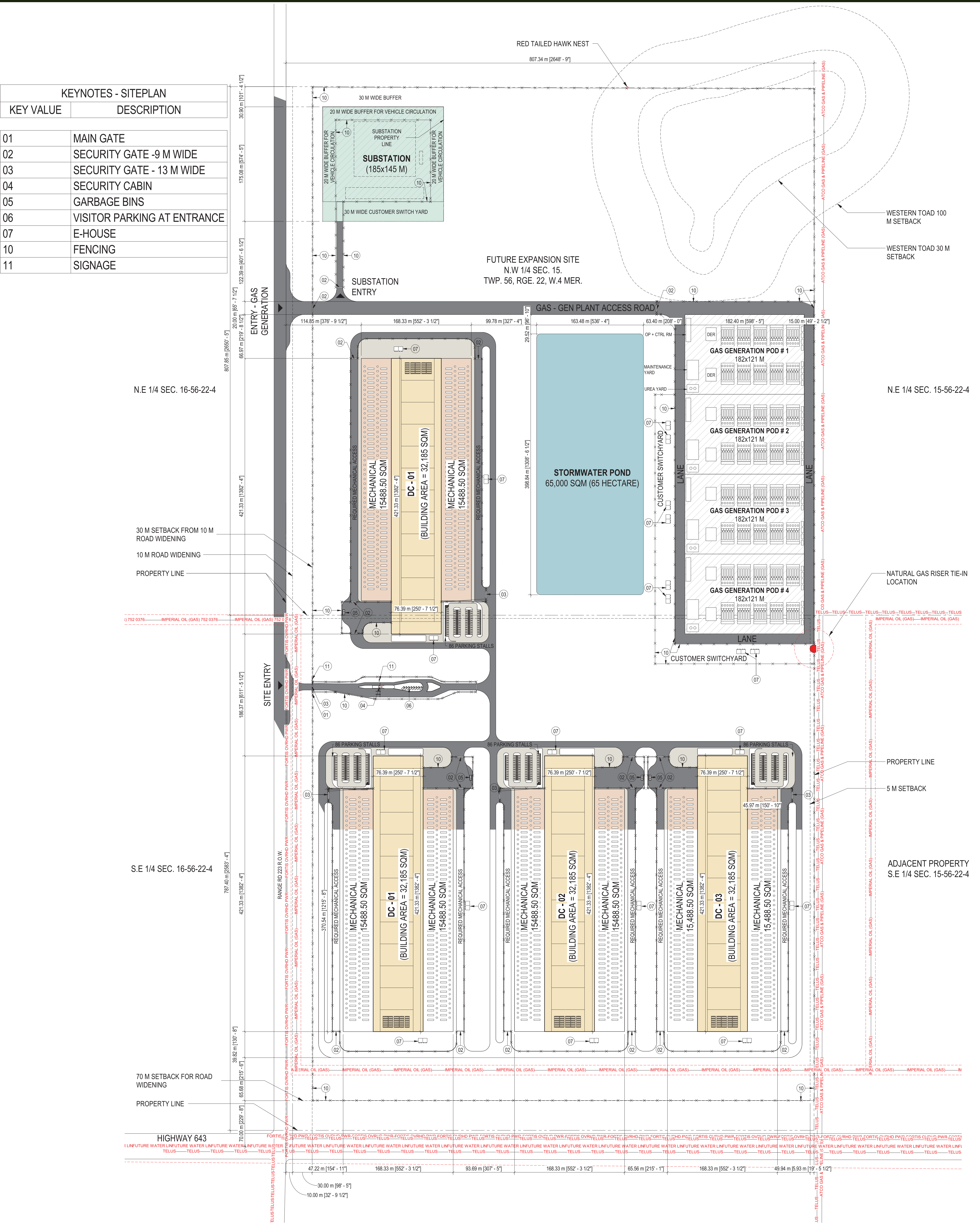
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320-acre Project Footprint.

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N.E 1/4 SEC. 16-56-22-4

N.E 1/4 SEC. 15-56-22-4

S.E 1/4 SEC. 16-56-22-4

ADJACENT PROPERTY
S.E 1/4 SEC. 15-56-22-4

HIGHWAY 643

Gas Generation

The Technology

Noise Assessment

A detailed noise impact assessment is will be undertaken during both the construction and operational phases in compliance with regulatory noise limits contained within Alberta Utilities Commission (AUC) Rule .012.

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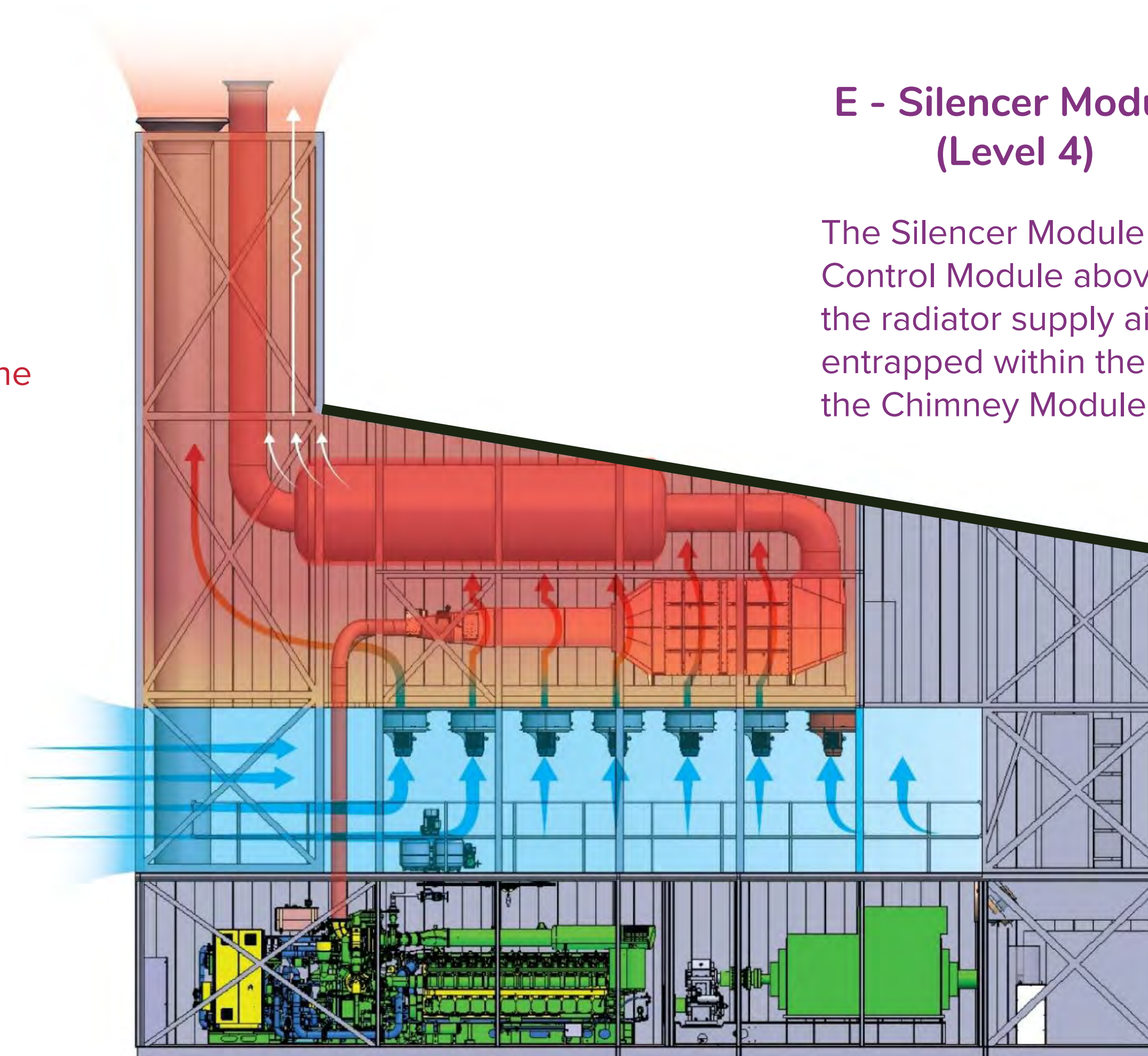
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A dispersion modeling assessment, in compliance with the Alberta Air Quality Modeling Guidelines (AQMG) will be undertaken to evaluate the impact on air quality and to meet the requirements of the National Base Level Emissions Requirements (BLIERS).

Next Steps

Thank you for attending the Open House

Project Timeline (2025 - 2028)

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- APR 2025 ○ Master Development Permit #305305-25-D0035 Issued by Sturgeon County.
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- TODAY ● OPEN HOUSE**
- NOV 2025 ○ Submit Application to Alberta Utilities Commission for consideration.
- DEC 2027 ○ Data Center energized.

For more information, please contact:



Beacon Data Center Inc.
1 (866) 594-9982 (Toll Free)
heartland@BeaconDataCenters.com



Participating in the AUC’s independent review process to consider facility applications

www.auc.ab.ca

The AUC regulatory review process to consider facility applications for utility projects



The AUC uses an established process to review social, economic and environmental impacts of facility projects to decide if approval of a project is in the public interest.

The AUC considers applications requesting approval of the need for transmission development and facilities applications seeking approval to construct, operate, alter and decommission electric and natural gas facilities. Applications, as specified in AUC Rule 007, are required for:

- The need for transmission upgrades.
- The route and location of transmission facilities.
- The siting of power plants.
- The construction of a battery storage system.
- The designation of an industrial system.
- The need for and siting of natural gas utility pipelines.

Sometimes the Alberta Electric System Operator’s needs identification document application is considered together with a facility application in a single proceeding; sometimes separate proceedings are held to consider each application.

Application review process



- Step 1: Public consultation prior to applying to the AUC
- Step 2: Application filed to the AUC
- Step 3: Public notice
- Step 4: Public submissions to the AUC
- Step 5: Consultation and negotiation
- Step 6: The public hearing process
- Step 7: The decision
- Step 8: Opportunity to appeal
- Step 9: Construction, operation and compliance

Application review process

Step 1: Public consultation prior to applying to the AUC



An applicant seeking approval of a proposed utility development project is required to engage in a participant involvement program prior to filing an application with the AUC. The public involvement program involves consultation with persons whose rights may be directly and adversely affected by the proposed project so that concerns may be raised, addressed and, if possible, resolved.

The application guidelines and requirements for facility applications can be found in AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines*.

Potentially affected parties are strongly encouraged to participate in the public consultation, also called a participant involvement program. Early, active and ongoing discussions with an applicant may lead to greater influence on project planning and what is submitted to the AUC for approval.

Step 2: Application filed to the AUC



When the applicant has concluded its consultation with potentially affected parties and the participant involvement requirements have been completed, the applicant files its application through the AUC online public filing system, called the eFiling System.


AUC staff members review each application submitted to verify that all of the application requirements in Rule 007 have been met before an application is deemed complete. If all of the required information is not provided, the application may be closed or missing information will be requested of the applicant. Rule 007 specifies, among other requirements, that applicants must submit the results of a public involvement program in its application that includes information about how applicants consulted and notified stakeholders and Indigenous groups and identifies any unresolved objections and concerns about the project.

Step 3: Public notice



When the AUC receives an application it is assigned a proceeding number and the AUC generally mails a notice of application directly to those who live, operate a business or occupy land in the project area who may be directly and adversely affected if the AUC approves the application. The notice initiates the opportunity for formal intervention in the proceeding to consider an application or applications. The notice of application will also set out important dates and information about where to find the application and other items being considered. The five-digit eFiling System proceeding number in the notice is the most efficient way to find information about a proposed project through the AUC website.

Step 4: Public submissions to the AUC



Prior to the submission deadline provided in the notice, formal submissions of outstanding concerns and unresolved objections about a project may be submitted to the AUC. To submit a concern, participants will need to register to participate in the proceeding, which involves providing a brief written statement called a statement of intent to participate. Submissions are filed electronically through the eFiling System. The information filed becomes part of the public record and is an important part of the process to ensure that outstanding concerns are heard, understood and considered.

The AUC uses the information gathered through statement of intent to participate submissions to decide whether to hold a hearing on the application(s). The AUC must hold a hearing if a concerned person can demonstrate that they have rights that may be directly or adversely affected by the AUC’s decision on the application. Such a person is said to have standing before the AUC. If the AUC decides to hold a hearing, the AUC will provide further opportunities for participants with standing to ask the applicant questions on the public record and present their position on the application either in writing or in person. Hearings may

be held in writing, in person or virtually through web-conference software.

AUC eFiling System

The eFiling System is the online tool that the AUC uses to manage applications and submissions in its proceeding-based review. The eFiling System gives access to all public documents associated with an application. The system is also used to submit your concerns and provide input to the AUC and can be used to monitor related proceeding filings. Those who do not have access to the internet can send submissions, evidence and other material by mail and the AUC will upload the submission on their behalf.

Step 5: Consultation and negotiation (if applicable)



The AUC supports efforts to reach a mutually agreeable outcome among the applicant and affected parties. The AUC encourages the applicant and those who have filed a statement of intent to participate to continue to attempt to resolve any outstanding issues. If all concerns can be satisfactorily resolved this may eliminate the need for a formal hearing. However, if there continues to be unresolved issues, those matters will typically be addressed in an AUC hearing.

Step 6: The public hearing process



The AUC will issue a notice of hearing if a person with standing continues to have legitimate unresolved concerns with the application. The notice of hearing will provide a hearing date and location, or specify if the hearing will be held in writing or virtually. When the AUC holds a public hearing, registered parties are given the opportunity to express their views directly to a panel of Commission members. Any member of the public can listen to an in-person or virtual oral hearing. An oral public hearing operates similar to a court proceeding.

Participants in a hearing can either represent themselves or be represented by a lawyer. In addition, participants may hire experts to assist in preparing and presenting evidence to support their position.

Cost assistance



A person determined by the AUC to have standing or a local intervener can apply for reimbursement of reasonable costs. Those who hire a lawyer or technical experts must be aware that while reimbursement for the costs of legal and technical assistance is available under AUC Rule 009: *Rules on Local Intervener Costs*, recovery of costs is subject to the AUC's assessment of the value of the contribution provided by the lawyer and technical experts in assisting the AUC to understand the specifics of the case. It is also subject to the AUC's published scale of costs.

People with similar interests and positions are expected and encouraged to work together to ensure that expenditures for legal or technical assistance are minimized and costs are not duplicated.

Step 7: The decision



The AUC's goal is to issue its written decision no more than 90 days after the close of record. The AUC can approve, or deny an application and can also make its approval conditional upon terms or conditions. AUC decisions are publicly available through the AUC website at www.auc.ab.ca.

Step 8: Opportunity to appeal



An applicant or participant in a proceeding may formally ask the Court of Appeal of Alberta for permission to appeal an AUC decision. An application for permission to appeal must be filed within 30 days from the date the decision is issued.

An applicant or participant in a proceeding can also ask the AUC to review its decision. An application to review a decision must be filed within 30 days from the date the decision is issued and satisfy the limited grounds described in AUC Rule 016: *Review of Commission Decisions*.

Step 9: Construction, operation and compliance



An applicant that receives approval to build and operate a facility from the AUC is expected to follow through on any commitments it has made to parties and must adhere to any conditions that were set out in that approval. If concerns about compliance with approval conditions and post-construction operations cannot be resolved with the applicant, they can be brought to the AUC's attention for consideration. The AUC has significant compliance and enforcement powers for all approved applications. Additional information is available on the AUC website.

The Alberta Utilities Commission is an independent, quasi-judicial agency of the government of Alberta that ensures the delivery of Alberta's utility services take place in a manner that is fair, responsible and in the public interest.

We are committed to ensuring that Albertans whose rights may be directly and adversely affected by a utility development project are informed of the application and have the opportunity to have their concerns heard, understood and considered.



Contact us

Phone: 310-4AUC
1-833-511-4282 (outside Alberta)
info@auc.ab.ca
www.auc.ab.ca

Eau Claire Tower
1400, 600 Third Avenue S.W.
Calgary, Alberta T2P 0G5

Appendix I:
Open House Materials

COMMUNITY OPEN HOUSE

Heartland AI Hub and Gas Powered Electrical Generation Facility

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Date: November 18th, 2025

Time: 6:00 PM to 8:00 PM

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Beacon AI Centers is developing a 800MW Artificial Intelligence (AI) Data Center with a 800MW Gas Powered Electrical Generation Facility.

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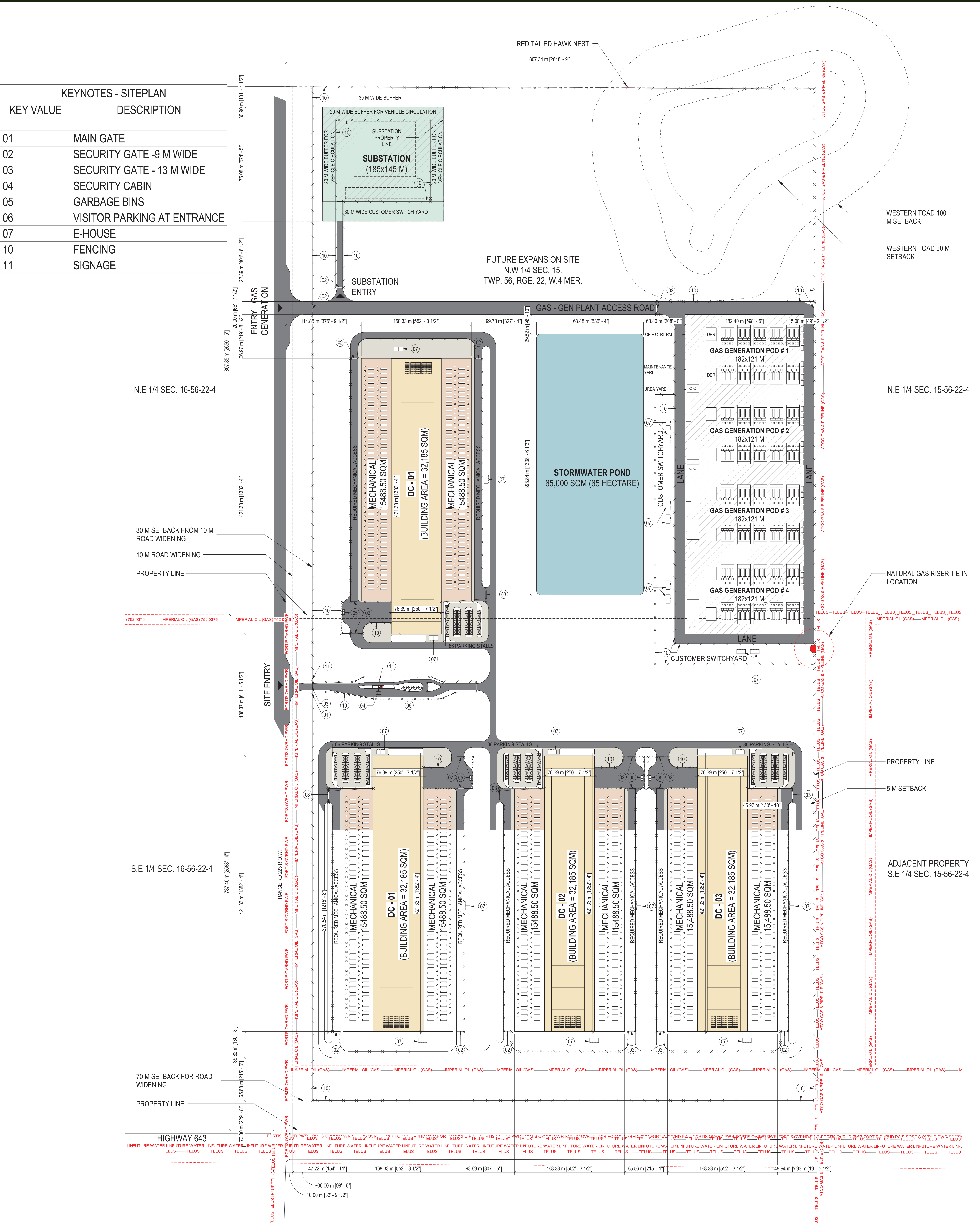
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HEARTLAND



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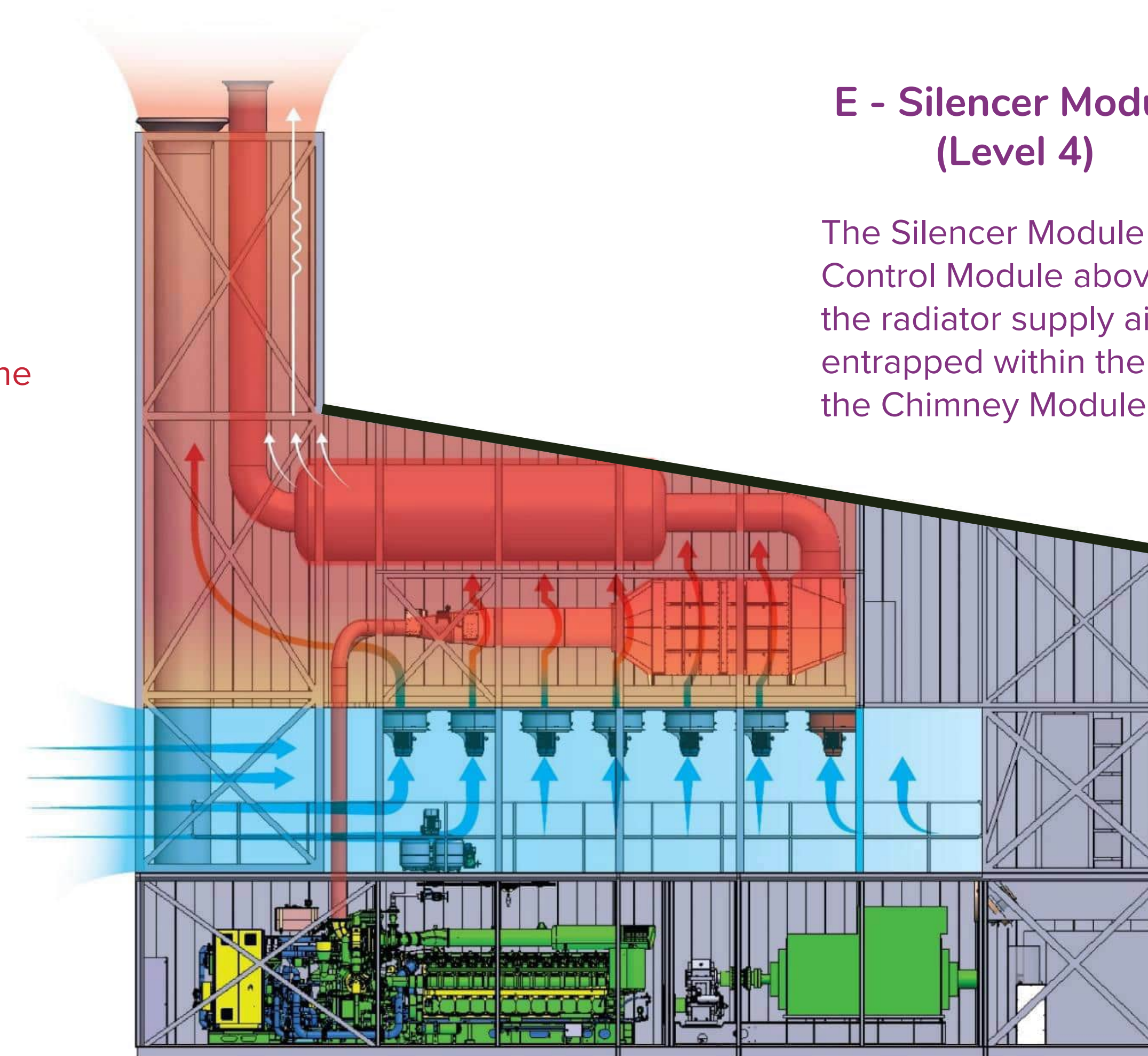
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www.auc.ab.ca

The AUC regulatory review process to consider facility applications for utility projects



The AUC uses an established process to review social, economic and environmental impacts of facility projects to decide if approval of a project is in the public interest.

The AUC considers applications requesting approval of the need for transmission development and facilities applications seeking approval to construct, operate, alter and decommission electric and natural gas facilities. Applications, as specified in AUC Rule 007, are required for:

- The need for transmission upgrades.
- The route and location of transmission facilities.
- The siting of power plants.
- The construction of a battery storage system.
- The designation of an industrial system.
- The need for and siting of natural gas utility pipelines.

Sometimes the Alberta Electric System Operator’s needs identification document application is considered together with a facility application in a single proceeding; sometimes separate proceedings are held to consider each application.

Application review process



- Step 1: Public consultation prior to applying to the AUC
- Step 2: Application filed to the AUC
- Step 3: Public notice
- Step 4: Public submissions to the AUC
- Step 5: Consultation and negotiation
- Step 6: The public hearing process
- Step 7: The decision
- Step 8: Opportunity to appeal
- Step 9: Construction, operation and compliance

Application review process

Step 1: Public consultation prior to applying to the AUC



An applicant seeking approval of a proposed utility development project is required to engage in a participant involvement program prior to filing an application with the AUC. The public involvement program involves consultation with persons whose rights may be directly and adversely affected by the proposed project so that concerns may be raised, addressed and, if possible, resolved.

The application guidelines and requirements for facility applications can be found in AUC Rule 007: *Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines*.

Potentially affected parties are strongly encouraged to participate in the public consultation, also called a participant involvement program. Early, active and ongoing discussions with an applicant may lead to greater influence on project planning and what is submitted to the AUC for approval.

Step 2: Application filed to the AUC



When the applicant has concluded its consultation with potentially affected parties and the participant involvement requirements have been completed, the applicant files its application through the AUC online public filing system, called the eFiling System.


AUC staff members review each application submitted to verify that all of the application requirements in Rule 007 have been met before an application is deemed complete. If all of the required information is not provided, the application may be closed or missing information will be requested of the applicant. Rule 007 specifies, among other requirements, that applicants must submit the results of a public involvement program in its application that includes information about how applicants consulted and notified stakeholders and Indigenous groups and identifies any unresolved objections and concerns about the project.

Step 3: Public notice



When the AUC receives an application it is assigned a proceeding number and the AUC generally mails a notice of application directly to those who live, operate a business or occupy land in the project area who may be directly and adversely affected if the AUC approves the application. The notice initiates the opportunity for formal intervention in the proceeding to consider an application or applications. The notice of application will also set out important dates and information about where to find the application and other items being considered. The five-digit eFiling System proceeding number in the notice is the most efficient way to find information about a proposed project through the AUC website.

Step 4: Public submissions to the AUC



Prior to the submission deadline provided in the notice, formal submissions of outstanding concerns and unresolved objections about a project may be submitted to the AUC. To submit a concern, participants will need to register to participate in the proceeding, which involves providing a brief written statement called a statement of intent to participate. Submissions are filed electronically through the eFiling System. The information filed becomes part of the public record and is an important part of the process to ensure that outstanding concerns are heard, understood and considered.

The AUC uses the information gathered through statement of intent to participate submissions to decide whether to hold a hearing on the application(s). The AUC must hold a hearing if a concerned person can demonstrate that they have rights that may be directly or adversely affected by the AUC’s decision on the application. Such a person is said to have standing before the AUC. If the AUC decides to hold a hearing, the AUC will provide further opportunities for participants with standing to ask the applicant questions on the public record and present their position on the application either in writing or in person. Hearings may

be held in writing, in person or virtually through web-conference software.

AUC eFiling System

The eFiling System is the online tool that the AUC uses to manage applications and submissions in its proceeding-based review. The eFiling System gives access to all public documents associated with an application. The system is also used to submit your concerns and provide input to the AUC and can be used to monitor related proceeding filings. Those who do not have access to the internet can send submissions, evidence and other material by mail and the AUC will upload the submission on their behalf.

Step 5: Consultation and negotiation (if applicable)



The AUC supports efforts to reach a mutually agreeable outcome among the applicant and affected parties. The AUC encourages the applicant and those who have filed a statement of intent to participate to continue to attempt to resolve any outstanding issues. If all concerns can be satisfactorily resolved this may eliminate the need for a formal hearing. However, if there continues to be unresolved issues, those matters will typically be addressed in an AUC hearing.

Step 6: The public hearing process



The AUC will issue a notice of hearing if a person with standing continues to have legitimate unresolved concerns with the application. The notice of hearing will provide a hearing date and location, or specify if the hearing will be held in writing or virtually. When the AUC holds a public hearing, registered parties are given the opportunity to express their views directly to a panel of Commission members. Any member of the public can listen to an in-person or virtual oral hearing. An oral public hearing operates similar to a court proceeding.

Participants in a hearing can either represent themselves or be represented by a lawyer. In addition, participants may hire experts to assist in preparing and presenting evidence to support their position.

Cost assistance



A person determined by the AUC to have standing or a local intervener can apply for reimbursement of reasonable costs. Those who hire a lawyer or technical experts must be aware that while reimbursement for the costs of legal and technical assistance is available under AUC Rule 009: *Rules on Local Intervener Costs*, recovery of costs is subject to the AUC's assessment of the value of the contribution provided by the lawyer and technical experts in assisting the AUC to understand the specifics of the case. It is also subject to the AUC's published scale of costs.

People with similar interests and positions are expected and encouraged to work together to ensure that expenditures for legal or technical assistance are minimized and costs are not duplicated.

Step 7: The decision



The AUC's goal is to issue its written decision no more than 90 days after the close of record. The AUC can approve, or deny an application and can also make its approval conditional upon terms or conditions. AUC decisions are publicly available through the AUC website at www.auc.ab.ca.

Step 8: Opportunity to appeal



An applicant or participant in a proceeding may formally ask the Court of Appeal of Alberta for permission to appeal an AUC decision. An application for permission to appeal must be filed within 30 days from the date the decision is issued.

An applicant or participant in a proceeding can also ask the AUC to review its decision. An application to review a decision must be filed within 30 days from the date the decision is issued and satisfy the limited grounds described in AUC Rule 016: *Review of Commission Decisions*.

Step 9: Construction, operation and compliance



An applicant that receives approval to build and operate a facility from the AUC is expected to follow through on any commitments it has made to parties and must adhere to any conditions that were set out in that approval. If concerns about compliance with approval conditions and post-construction operations cannot be resolved with the applicant, they can be brought to the AUC's attention for consideration. The AUC has significant compliance and enforcement powers for all approved applications. Additional information is available on the AUC website.

The Alberta Utilities Commission is an independent, quasi-judicial agency of the government of Alberta that ensures the delivery of Alberta's utility services take place in a manner that is fair, responsible and in the public interest.

We are committed to ensuring that Albertans whose rights may be directly and adversely affected by a utility development project are informed of the application and have the opportunity to have their concerns heard, understood and considered.



Contact us

Phone: 310-4AUC
1-833-511-4282 (outside Alberta)
info@auc.ab.ca
www.auc.ab.ca

Eau Claire Tower
1400, 600 Third Avenue S.W.
Calgary, Alberta T2P 0G5

PLEASE SIGN-IN!



BEACON HEARTLAND AI HUB OPEN HOUSE NOVEMBER 18th, 2025 GIBBONS, AB

NAME	PHONE	EMAIL	WOULD YOU LIKE PROJECT UPDATES?
Kent McMullen			
JEAN FIGEAT			✓
CHRIS PULLAN			
JASON BERRY			✓
Tyler Menal			
Darryl Steinhauer			✓
Chris Melanay			
GLADYS WACHOWICZ			✓
Rick Henderson			✓
Robert Simonowits			✓
Ashley Morrison			✓
Darren Longstaff			✓
Sharla St. Germain			✓
Mike Koper			✓
Conal MacMillan			✓

PLEASE NOTE! Your personal information is collected when you voluntarily complete our sign in sheet, and our survey response and is used in the same manner as any other personal information we collect in the course of responding to your requests. We will not send you any unsolicited electronic communication.

Appendix J:

Open House Advertisement and Invitation

COMMUNITY OPEN HOUSE

Heartland AI Hub and Gas Powered Electrical Generation Facility

Please join us at the Open House to learn more about this exciting project.

Date: November 18th, 2025

Time: 6:00 PM to 8:00 PM

Location: Gibbons Cultural
Center
5115 51st Street Gibbons, AB

Please drop in at any time. No registration is required.

About the project:

Beacon AI Centers is developing a 800MW Artificial Intelligence (AI) Data Center with a 800MW Gas Powered Electrical Generation Facility.

The campus will consist of modular power units, secure buildings, advanced cooling systems, and fiber optic connections to create the computing foundation for the application of AI.

Project Location : Located on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.



Contact Information:
Beacon AI Centers
heartland@beacondatacenters.com



Home / 2025 / November / 12 / Beacon Data Center

NOTICES

Beacon Data Center

admin • November 12, 2025

COMMUNITY OPEN HOUSE

Heartland Beacon AI Data Center Project

Please join us at the Open House to learn more about this exciting project:

Date: November 18th, 2025

Time: 6:00 PM to 8:00 PM

Location: Gibbons Cultural Center
5115-52nd Street
Gibbons, AB

Please drop in at any time.
No registration required.
There will be no formal presentation.

About the project:

Beacon Data Center Inc. is proceeding with the development of a 800 MWA Artificial Intelligence (AI) Data Center with a supporting Gas to Electric Generation facility on the W 1/2 of Section 15-56-22-4 which is located directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 843 in the Industrial Heartland of Alberta in Sturgeon County.

Sturgeon County on April 10th, 2025 issued approval of Master Development Permit # 305305-25-D0035 for the Beacon Heartland AI Data Center.

ARCHIVES

December 2025

November 2025

October 2025

September 2025

August 2025

July 2025

June 2025

May 2025

April 2025

March 2025

February 2025

January 2025

December 2024

November 2024

October 2024

September 2024

August 2024

Appendix K:

*December 2025 Stakeholder Indigenous Municipality and
Association Follow Up Letter*

December 8, 2025

Dear Stakeholder,

**RE: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility –
Feedback Follow up.**

On behalf of Beacon AI Centers, I am following up regarding the feedback we heard from the Heartland AI Hub and Gas-Powered Electrical Generation Facility (the Project) Open House held Tuesday, November 18th, 2025 and Project Notification Packages sent November 14, 2025 as part of the Participant Involvement Program (PIP) for the application process to the Alberta Utilities Commission (AUC).

Project Overview

Beacon AI Centers is proposing to develop and operate an 800-megawatt (MW) Artificial Intelligence (AI) Data Center with an 800MW Gas Powered Electrical Generation Facility on private land located approximately eight kilometres east of Gibbons, Alberta. The project location is on the W 1/2 of Section 15-56-22-4 which is directly north and adjacent to Hwy # 643 and 1/2 mile east of Hwy # 825 in Sturgeon County.

Enclosed in this package you will find the following information regarding the Project:

- **The AUC Brochure** *"Participating in the AUC's Independent Review Process to Consider Facility Applications"*

Further Details of Questions we Have Heard

What follows this summary is a detailed response table to the questions we have had to date on the Heartland AI Hub project.

Toll Free 1 (866) 594-9982

Project Information Summary

- **Project location and overview:** The project will be situated on private agricultural land within the Industrial Heartland Designated Industrial Zone in Sturgeon County, approximately eight kilometers east of Gibbons.
- **Noise impact and mitigation:** The project will comply with AUC Rule 012 noise standards, implementing design and site-specific mitigation measures such as silencers and acoustic barriers to ensure sound levels remain within permissible limits at nearby receptors. Noise modeling predicts compliance with daytime and nighttime limits without low frequency noise effects.
- **Air quality assessment:** Dispersion modeling indicates that emissions of NO₂(Nitrogen Dioxide), CO (Carbon Dioxide) and PM_{2.5} (particulate matter with a diameter of 2.5 micrometers or smaller) from the project will remain below Alberta's Ambient Air Quality Objectives/Guidelines, with minor increases attributable primarily to existing regional industrial facilities rather than the project itself.
- **Water usage:** The project has an approved permit for municipal treated potable water use at 1500 cubic meters per day, addressing concerns about excessive water consumption by data centers.
- **Consultation commitment:** Beacon AI Centers commits to ongoing engagement with communities and stakeholders throughout the project's lifespan, providing updates and addressing inquiries.
- **Supporting documentation:** Detailed noise and air impact studies will be submitted as part of the formal AUC application expected by the end of 2025.
- **Community engagement invitation:** The company encourages continued dialogue and offers contact information for further discussion or questions regarding the project.

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What We Heard

From discussions with communities, Nations, and stakeholders we heard the following key concerns.

Beacon Heartland AI Center What did we hear?		
Key Concerns	Specific Concern	Proponent Response/Mitigative Measure
Land Use	Change of Land Use	The project is on private (freehold) land that has been used for agriculture for the past 60+ years. Additionally, the land is within the Industrial Heartland Designated Industrial Zone (DIZ) within Sturgeon County. Industrial Heartland Designated Industrial Zone map with geospatial data of the DIZ can be found here . The project centre is at 53°50'23.07"N 113°11'34.57"W a google earth KMZ file is attached to this email.
Noise Impact	Impact that sound may have on neighbours, community or region.	<p>Pursuant to AUC Rule 012, all regulated facilities are required to comply with the Permissible Sound Level (PSL) standards during both daytime (07:00 to 22:00) and nighttime (22:00 to 07:00) periods. Compliance must be demonstrated at a distance of 1.5 km (the 1.5 km criteria boundary) from the facility's boundary or at the location of the closest residential dwelling, whichever is nearer. For the purposes of this rule, dwellings are defined as structures that are permanently or seasonally occupied for human rest.</p> <p>The Project requires mitigation measures that are inherent in the designs to achieve compliance with the PSLs of AUC Rule 012. Standard industry practices and mitigation measures, as well as site-specific mitigation will be implemented during operation. The assessment results presented in the previous sections include the application of mitigation measures. Mitigation measures for Project Case components are summarized as follows:</p> <ul style="list-style-type: none"> • Implementation of mitigation measures for the QPAC modulars to achieve 60 dBA at 10 m for each modular. This may be achieved in conjunction with the manufacturer supply

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Beacon Heartland AI Center What did we hear?		
Key Concerns	Specific Concern	Proponent Response/Mitigative Measure
		<p>modifications, or implementation of additional mitigation measures for the original QPAC modulars, including additional genset exhaust silencers, genset ventilation exhaust silencers, acoustic louvers for radiator and air filtration module, and enhanced modular roof system, etc.</p> <ul style="list-style-type: none"> • Installation of silencers for the air-cooled chiller outlets • Installation of acoustic louvers for the air-cooled chiller inlets • Installation of acoustic barriers on the north end of the northern data hall <p>Noise effects from the Beacon AI Centers – Heartland Project were assessed at the receptor R1 located 200 m north of the Project Development Area (PDA), as well as the receptors R2, R3 and R4, located outside the Local Assessment Area (LAA), for information purposes. The Permissible Sound Levels (PSLs) for the receptors were determined according to the AUC Rule 012 requirements. Baseline Case sound levels at the receptors were determined using the prescribed ASL and NCIA RNM results. Noise model was compiled using manufacturers data, owner’s engineering specifications and drawings, representative noise emission levels from similar equipment, and acoustic calculations. Cumulative sound levels of the Application Case and Foreseeable Application Case were predicted and compared with the PSLs.</p> <p>The modeling results indicate that the predicted cumulative sound levels of both Application Case and Foreseeable Application Case meet the daytime and nighttime PSLs at all receptors. Also, based on AUC Rule 012 prescribed approach, low frequency noise effect is not expected at all receptors. This NIA concludes that the Beacon AI Centers – Heartland Project complies with the AUC Rule 012 requirements.</p>

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Beacon Heartland AI Center What did we hear?

Key Concerns	Specific Concern	Proponent Response/Mitigative Measure
		The full Noise effects study will become part of the AUC application that Beacon expects to submit by the end of 2025.
Air Impact	Impacts to air quality from the power generation proposed at the site.	<p>Beacon plans to build and operate the Heartland Data Center Project which includes a 800 MW power generation facility located in Alberta Industrial Heartland. Potential effects on ambient air quality associated with the Project were evaluated using the AERMOD dispersion model. Maximum ground-level concentrations of NO₂(Nitrogen Dioxide), CO (Carbon Dioxide) and PM_{2.5} (particulate matter with a diameter of 2.5 micrometers or smaller) were predicted and compared to the AAAQO/G (Alberta's Ambient Air Quality Objectives/Guidelines).</p> <p>The air quality assessment shows that maximum predicted ground-level concentrations for all substances of interest associated with emissions from the Project (the Project alone) are below the AAAQO/G for all relevant averaging periods (ranging between 0.5% and 44% of the AAAQO/G).</p> <p>The maximum predicted NO₂ and CO concentrations for all averaging periods associated with the Base Case, Application Case, and Future Case are below the AAAQO. The maximum predicted 1-hour and 24- hour PM_{2.5} concentrations associated with the Base Case, Application Case, and Future case are greater than the relevant AAAQO/G; however, the maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively. These maximum concentrations are associated with emissions from the respective facilities.</p>

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Beacon Heartland AI Center What did we hear?

Key Concerns	Specific Concern	Proponent Response/Mitigative Measure
		<p>A comparison between maximum predicted concentrations for the Base Case and Application Case indicates small increases (up to 0.2%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations with the addition of the Project. A comparison between maximum predicted concentrations for the Base Case and Future Case indicates small increases (up to 0.4%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations. The model results show that overall maximum concentrations in the study area are primarily attributable to emissions from the existing regional industrial facilities.</p> <p>The full Air Impact study will become part of the AUC application that Beacon expects to submit by the end of 2025.</p>
Water Usage	Project participants have read concerns that Data Centres use excessive amounts of water.	Beacon has an approved Municipal Development Permit with Sturgeon County for water usage in the amount of 1500 m ³ per day. The source is from Municipal treated potable water.
Consultation	When will consultation end.	Beacon is committed to continuing conversations with interested parties for the life of the project. As a new project in the DIZ we look forward to continuing to share project information, updates to the project, and to answer any questions interested parties may have.

Toll Free 1 (866) 594-9982



Community Engagement

We wish to keep open communication with you and incorporate any feedback you may have in relation to the proposed project.

If you have any questions or wish to meet to discuss this project further, please contact me at 780-995-7339 or paulmc@elmatters.com at your earliest convenience.

Sincerely,

Beacon Heartland AI Centre
By its representative Environmental Leadership Matters

<original signed by>

Paul McLauchlin
Senior Engagement Specialist

Toll Free 1 (866) 594-9982

Appendix L:

Completed AUC Municipal Engagement Form and
Responses

Municipal engagement form

The Alberta Utilities Commission wishes to provide a forum for municipalities potentially affected by power plant and/or energy storage applications to provide feedback to the Commission. The intent of this form is to receive feedback on a proposed power plant and/or energy storage project's compliance with municipal planning policies and the applicant's consultation with municipalities. This form will have been provided to affected municipalities by the project applicant for a minimum of 30 days, as part of the application process, and the applicant will inform the municipality of the process to complete this form within the required timeline.

It is optional for affected municipalities to complete this form. In the absence of this form being completed, the onus is on the project applicant to share documentation of its attempts to follow up with the municipality to complete this form, as part of its facility application.

The applicant will also be responsible for submitting information on the items included in this form as part of its facility application.

<p>Identification</p> <p>Project name: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility</p> <p>Municipality: Sturgeon County</p> <p>Municipality contact information: 9613 100 Street, Morinville, AB, T8R 1L9, 780-939-4321, 780-939-8275, pandd@sturgeoncounty.ca</p>
<p>Municipal planning frameworks</p> <p>Municipal development plan</p> <p>Does the proposed project area comply with the municipal development plan? If no, please explain. Yes, Within Bylaw 1681-25 Municipal Development Plan (MDP) datacenters are not specifically referenced. However, SDA 3.0 Alberta Industrial Heartland Strategic Development Area section, 3.4 details the facilitating and encouraging the growth of Alberta's energy sector. With criterion b specifically highlighting "Developing economic development initiatives that promote the diversification of Non-Residential Type 1 development activity in the AIH." With regards to the associated energy generation component, criterion e states "Locating future development of the energy production sector to the AIH in an effort to become an energy production leader in Alberta."</p>
<p>Intermunicipal development plan</p> <p>Does the proposed project area comply with the intermunicipal development plan? If no, please explain.</p> <p>N/A - No Inter municipal Development Plan is in place for this area</p>
<p>Land use bylaw</p> <p>What is the current land use zoning for the proposed project area?</p> <p>I5 - Heavy Industrial, Power Plants are considered a Heavy Industrial Use which is a permitted use in the Land Use Bylaw, Datacenters are also considered a permitted use in this district.</p>

Does the proposed project area comply with the land use bylaw (including applicable setbacks)? If no, please explain.

Yes, the Site plans provided show compliance with the Land Use Bylaw including setbacks.

If applicable, what is the land use amendment status for the proposed project area?

Development permit

If applicable, what is the development permit status for the proposed project area?

a Development Permit was approved for a 400mw grid powered Datacenter under Development Permit 305305-25-D0035, an new application was applied for to amend this permit to include a change from 400mw to 800mw and add in the 800mw Heavy Industrial Power Generation component. This application is currently being reviewed but the county does not expect any challenges.

Was consultation conducted with the municipality?

Yes No

Does the municipality have outstanding unresolved concerns about the project?

Yes No

Comments: As the Application progresses the Municipality would like to ensure the AUC approves the project before we do as the AUC conditions regarding Noise and other aspects override ours. Local impacts such as storm and water connections should be deferred to municipal approval processes where possible.

Overall comments from the municipality about the project:

Sturgeon County Supports the AUC application.

Signature (municipality):

<original signed by>

Title: Program Lead, Development and Safety Codes

Date: Click or tap to enter a date.

When complete, please provide this form to the applicant



Fw: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility Information Package

From Melinda McLauchlin <melinda@beacondatacenters.com>

Date Tue 11/18/2025 7:18 AM

To linda@elmatters.com <linda@elmatters.com>

From: Planning - Development <planning-development@lamontcounty.ca>

Sent: Monday, November 17, 2025 2:29 PM

To: Melinda McLauchlin <melinda@beacondatacenters.com>

Cc: Peter Tarnawsky <peter.t@lamontcounty.ca>

Subject: RE: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility Information Package

Hi Melinda,

Please note that, as this application falls outside of Lamont County's jurisdiction, our Land Use Bylaw (LUB) and Municipal Development Plan (MDP) do not apply. Additionally, we do not have an Intermunicipal Development Plan (IDP) with Sturgeon County to guide our review. Therefore, we will not be completing the attached form.

Samantha

From: Melinda McLauchlin <melinda@beacondatacenters.com>

Sent: Friday, November 14, 2025 6:09 PM

To: Aaron Wick <aaron.w@lamontcounty.ca>; Planning - Development <planning-development@lamontcounty.ca>

Subject: Beacon AI Centers, Heartland AI Hub and Gas-Powered Electrical Generation Facility Information Package

Dear Reeve Aaron Wick,

On behalf of Beacon AI Centers, I am pleased to notify you that we have initiated the Participant Involvement Program (PIP) as part of our Heartland AI Hub and Gas-Powered Electrical Generation Facility (the Project) application process to the Alberta Utilities Commission (AUC).

We would like to invite you to the Project Open House on Wednesday November 18th, 2025, from 6:00 pm to 8:00 pm at the Gibbons Community Cultural Centre. The Open House will provide an opportunity to learn more about the Project in greater detail, and have your questions answered and concerns addressed by our team of experts.

We wish to keep open communication with you and incorporate any feedback you may have in relation to the proposed project.

If you have any questions or wish to meet to discuss this project further, please contact me at 780-266-7245 or melinda@beacondatacenters.com at your earliest convenience.

Sincerely,

Beacon Heartland AI Centre

Toll Free 1 (866) 594-9982

heartland@beacondatacenters.com



Appendix B - Air Quality Assessment

Beacon AI Centers - Heartland Project Air Quality Assessment

December 2025

Prepared for:
Beacon AI Centers
Calgary, AB

Prepared by:
Stantec Consulting Ltd.
Calgary, AB

Project/File:
145400058

Limitations and Sign-off

This document entitled Beacon AI Centers - Heartland Project Air Quality Assessment was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Beacon AI Centers (the "Client") to support the regulatory review process for its *Environmental Protection and Enhancement Act* (EPEA) Approval (the "Application") for the Beacon Power Generation Project (the "Project"). In connection therewith, this document may be reviewed and used by Alberta Environment and Protected Areas (AEPA) and the Alberta Utilities Commission (AUC) participating in the review process in the normal course of its duties. Except as set forth in the previous sentence, any reliance on this document by any other party or use of it for any other purpose is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The information and conclusions in the document are based on the conditions existing at the time the document was published and does not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by the Client or others, unless expressly stated otherwise in the document. Any use which another party makes of this document is the responsibility and risk of such party. Such party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other party as a result of decisions made or actions taken based on this document.

Prepared by: **Bajwa, Kanwardeep**
Digitally signed by Bajwa, Kanwardeep
Date: 2025.12.10 13:18:08 -07'00'

Signature

Kanwardeep Bajwa, Ph.D.

Printed Name

Quality Reviewer:

Reid Allan Person -- P. Eng. - APEGA

Digitally signed by Reid Allan Person -- P. Eng. - APEGA
Date: 2025.12.10 12:12:02 -07'00'

Signature

Reid Person, M.Eng., P.Eng. (AB, BC, SK)

Printed Name

Independent Reviewer:



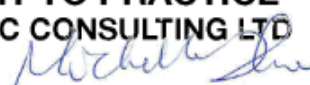
Digitally signed by Bentzen, Michelle
Date: 2025.12.10 13:30:52 -07'00'

Signature

Michelle Bentzen, M.E.Des.

Printed Name



PERMIT TO PRACTICE STANTEC CONSULTING LTD	
RM SIGNATURE:	
RM APEGA ID #:	113862
DATE:	December 10 2025
PERMIT NUMBER: P000258	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	



Executive Summary

Beacon AI Centers (Beacon) is proposing to construct, own and operate an electricity generation facility within a data center campus in Alberta's Industrial Heartland (AIH). The total electrical site production features a capacity of 920 MWe, providing 800 MWe of continuous, dispatchable electricity to the four on site data centers. The Project is located approximately 7 km north of Fort Saskatchewan, Alberta, in the NW 15-56-22 W4M and SW 15-56-22 W4M. The Project will consist of 200 natural gas fired Jenbacher J624 4.6 MW engines for power generation.

Stantec Consulting Ltd. (Stantec) was contracted by Beacon to conduct air dispersion modelling in support of an application for the *Environment Protection and Enhancement Act* (EPEA) approval. The dispersion modelling was performed in accordance with the current Alberta Environment and Protected Areas (AEPA) Air Quality Model Guideline (AQMG (AEP 2021a)) and Supplementary Guideline for the Preparation of Air Quality Modelling for Regulatory Applications (AEP 2022a) specific to the IH-DIZ. The dispersion modelling assessment was conducted with the objective of assessing the effects on ground-level concentrations for key substances of interest resulting from Project emissions compared to the Alberta Environment and Protected Areas (AEPA) Ambient Air Quality Objectives and Guidelines (AAAQO/G; (AEPA 2024a)). The primary substances of interest emitted by the Project are nitrogen oxides (NO_x), carbon monoxide (CO) and fine particulate matter (PM_{2.5}). Emissions of sulphur dioxide (SO₂) are considered negligible as the Project combusts sweet natural gas.

The air quality assessment shows that maximum predicted ground-level concentrations for all substances of interest associated with emissions from the Project (the Project alone) are below the AAAQO/G for all relevant averaging periods (ranging between 0.5% and 44% of the AAAQO/G).

The maximum predicted NO₂ and CO concentrations for all averaging periods associated with the Base Case, Application Case, and Future Case are below the AAAQO. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations associated with the Base Case, Application Case, and Future case are greater than the relevant AAAQO/G; however, the maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 kilometre (km) south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively. These maximum concentrations are associated with emissions from the respective facilities.

A comparison between maximum predicted concentrations for the Base Case and Application Case indicates small increases (up to 0.2%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations with the addition of the Project. A comparison between maximum predicted concentrations for the Base Case and Future Case indicates small increases (up to 0.4%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations. The model results show that overall maximum concentrations in the study area are primarily attributable to emissions from the existing regional industrial facilities.



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Acronyms / Abbreviations

AAAQO/G	Alberta Ambient Air Quality Objectives and Guidelines
AEIR	Annual Emissions Inventory Reporting
AEPA	Alberta Environment and Protected Areas, formerly Alberta Environment and Parks (AEP)
AQMG	Air Quality Model Guideline
ARM2	Ambient Ratio Method Version 2
asl	above sea level
Beacon	Beacon AI Centers
BPIP	Building Profile Input Program
°C	degrees Celsius
CDEM	Canadian Digital Elevation Model
CO	Carbon Monoxide
ECCC	Environment and Climate Change Canada
EPEA	Environmental Protection and Enhancement Act
FAP	Fort Air Partnership
g/s	grams per second
GJ	gigajoule
GTG	Siemens SGT6-8000H gas turbine generators
HAMP	Heartland Air Monitoring Partnership
IH-DIZ	Industrial Heartland – Designated Industrial Zone
K	Kelvin (measure of temperature)
kg	kilogram
kg/h	kilogram per hour
km	kilometre
kPa	kilopascal
kW	kilowatt
m	meter
m/s	meters per second
m ³	cubic meter
MW	megawatt



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Acronyms / Abbreviations

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MWh	megawatt hour
NAD	North American Datum
NO	nitric oxide (nitrogen monoxide)
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides (oxides of nitrogen)
NPRI	National Pollutant Release Inventory
OLM	Ozone Limiting Method
PVMRM	Plume Volume Molar Ratio Method
PRIME	Plume Rise Model Enhancements
The Project	the Beacon Power Generation Project
PM _{2.5}	fine particulate matter with aerodynamic particle diameter less than 2.5 microns
SCR	Selective Catalytic Reduction
SO ₂	sulphur dioxide
Stantec	Stantec Consulting Ltd.
t/d	tonnes per day
TCM	Total Conversion Method
TF/EE	transboundary flows/exceptional events
UTM	Universal Transverse Mercator
U.S. EPA	U.S. Environmental Protection Agency
WRF	Weather research and Forecasting
µg/m ³	microgram per cubic meter



1 Introduction

Beacon AI Centers (Beacon) is proposing to construct, own and operate an electricity generation facility within a data center campus in Alberta's Industrial Heartland (AIH). The total electrical site production features a capacity of 920 MWe, providing 800 MWe of continuous, dispatchable electricity to the four on site data centers. The Project is located approximately 7 km north of Fort Saskatchewan, Alberta, in the NW 15-56-22 W4M and SW 15-56-22 W4M. The Project will consist of 200 natural gas fired Jenbacher J624 4.6 MW engines for power generation.

Stantec Consulting Ltd. (Stantec) was contracted by Beacon to conduct air dispersion modelling in support of an application for the *Environment Protection and Enhancement Act* (EPEA) approval. The dispersion modelling was performed in accordance with the current Alberta Environment and Protected Areas (AEPA) Air Quality Model Guideline (AQMG (AEP 2021a)) and Supplementary Guideline for the Preparation of Air Quality Modelling for Regulatory Applications (AEP 2022a) specific to the IH-DIZ. The dispersion modelling assessment was conducted with the objective of assessing the effects on ground-level concentrations for key substances of interest resulting from Project emissions compared to the Alberta Environment and Protected Areas (AEPA) Ambient Air Quality Objectives and Guidelines (AAAQO/G; (AEPA 2024a)). The primary substances of interest emitted by the Project are nitrogen oxides (NO_x), carbon monoxide (CO) and fine particulate matter (PM_{2.5}). Emissions of sulphur dioxide (SO₂) are considered negligible as the Project combusts sweet natural gas.

The main objective of the study was to use plume dispersion modelling to assess potential effects on air quality from Project emissions. The air quality assessment focused on the following tasks:

- Summarizing regional air quality
- Calculating Project emissions and comparing emissions to provincial and federal emission standards
- Characterizing meteorological and surface conditions
- Completing plume dispersion modelling
- Assessing Project effects on ambient air quality in combination with existing nearby industrial sources and regional background concentrations in the study area



2 Regulatory Criteria

2.1 Ambient Air Quality Objectives

Air quality is assessed by comparing measured or predicted concentrations to objectives and standards. AEPA has established AAAQO/G for a number of substances. They are referred to as AAAQO/G (AEPA 2024a).

The Project is a source of NO_x, CO and PM_{2.5}. Oxides of nitrogen are produced in most combustion processes and are almost entirely made up of nitrogen oxide (NO) and nitrogen dioxide (NO₂). Together they are often referred to as NO_x. Nitrogen dioxide is a respiratory irritant, while NO is relatively inert. As such, regulatory ambient air quality objectives exist for NO₂, and not for NO or NO_x. Table 2.1 presents the relevant AAAQO/G.

Table 2.1 Alberta Ambient Air Quality Objectives and Guidelines

Key Substance of Interest	Averaging Period	AAAQO/G ^a (µg/m ³)
NO ₂	1-hour	300
	Annual	45
CO	1-hour	15,000
	8-Hour	6,000
PM _{2.5}	1-hour	80 ^b
	24-Hour	29

Notes:

Concentrations are in micrograms per cubic metre (µg/m³) at 25 Celsius (°C) and 101.325 Kilopascal (kPa).

^a Alberta Ambient Air Quality Objectives (AEPA (2024a) unless otherwise stated.

^b Alberta Ambient Air Quality Guideline (AEPA (2024a)



2.2 Interpretation of Predicted Concentrations

AEPA AQMG (AEP 2021a) recognizes that extreme, rare, and transient meteorological conditions can affect predicted 1-hour average ambient air concentrations. To address this issue, AEPA recommends “the highest eight 1-hour predicted average concentrations for each receptor in each single year should be disregarded”. Therefore, for the assessment of 1-hour average concentrations, the 9th highest hourly values (equal to the 99.9th percentile) for each year at a given location are used to determine compliance with the 1-hour AAAQO/G.

For averaging periods greater than 1-hour (e.g., annual), no predicted exceedances of the AAAQO/G are viewed as being acceptable. Therefore, the maximum 8-hour, 24-hour, and annual average predicted concentrations are used in the assessment.

Five years of meteorological data is used as input to AERMOD dispersion model. Maximum predicted concentrations are determined for each year of output. The summary tables and figures in Section 6 show the results of the maximum of the five individual years.



3 Regional Setting

3.1 Study Area

The Project will be located approximately 7 km north of Fort Saskatchewan, Alberta, in the IH-DIZ. A 35 km by 35 km study area centered at the Project was selected for the air quality assessment to model the cumulative effects of the Project and other regional industrial facilities within the IH-DIZ. The study area extents are based on the guidance in the Supplementary Guideline for the Preparation of Air Quality Modelling for Regulatory Applications (AEP 2022a).

Topography within the 35 km 35 km air quality study area is shown in Figure 3.1. With the North Saskatchewan River running from southwest to northeast across the study area, the terrain slopes downhill along the river, and uphill to the northwest and southeast of the study area. The Project is located at a base elevation of 644 m above sea level (asl). Terrain elevations within the study area range from approximately 585 to 725 m asl.

The Canadian Digital Elevation Model (CDEM) data (NRCan 2016), with approximately 30 m spatial resolution, was used to characterize the terrain in the study area and assign terrain elevations to emission sources and receptor points.

3.2 Background Ambient Air Quality

The background ambient air quality is the result of anthropogenic (man-made) and biogenic (natural) air emissions on a local, regional, and global scale. Representative background ambient air quality concentrations were determined based on analysis of regional ambient air quality monitoring data and were added to the model predicted concentrations to account for other emission sources (anthropogenic or biogenic) in and outside the study area that may not have been captured in the air dispersion modelling (e.g., emissions associated with distant oil sands facilities or vehicle emissions on nearby roads).

The Project is located within the Heartland Air Monitoring Partnership (HAMP) airshed (formerly known as Fort Air Partnership (FAP)). The Supplementary Guideline for the Preparation of Air Quality Modelling for Regulatory Applications (AEP 2022a) prescribes the representative monitoring stations in the IH-DIZ for the determination of baseline concentrations. The prescribed ambient air quality monitoring station for NO₂ and PM_{2.5} is the Gibbons station and for CO is the Fort Saskatchewan station which are part of the HAMP/FAP.

Continuous ambient NO₂ and PM_{2.5} monitoring data from the Gibbons station and CO from the Fort Saskatchewan station were obtained from the AEPA Data Management Platform (AEPA 2025a). The data representing the most recent three years (2022 to 2024) with a complete data record were analyzed in accordance with the AQMG (AEP 2021a) and the background ambient concentrations were determined. For PM_{2.5}, the data from 2021 to 2023 was used after removing data influenced by wildfire smoke. The 2024 PM_{2.5} data was not used because it was influenced by wildfire smoke and information to remove the wildfire events from monitoring data is not yet available.



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Section 3: Regional Setting

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The background ambient air concentrations for the study area are summarized and compared to the AAAQO in Table 3.1. The background NO₂ concentrations are 10.6% and 21.8% of the 1-hour and annual AAAQO, respectively. The background CO concentrations range between 2.5% and 6.3% of the 1-hour and 8-hour AAAQOs, respectively. The PM_{2.5} concentrations range from 21.5% to 57.7% of the 1-hour and 24-hour AAAQO/G, respectively. These background concentrations were added to the Base Case, Application Case, and Future Case (see Section 5.6) dispersion modelling predictions.

Table 3.1 Ambient Background Concentrations

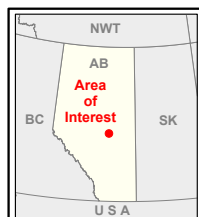
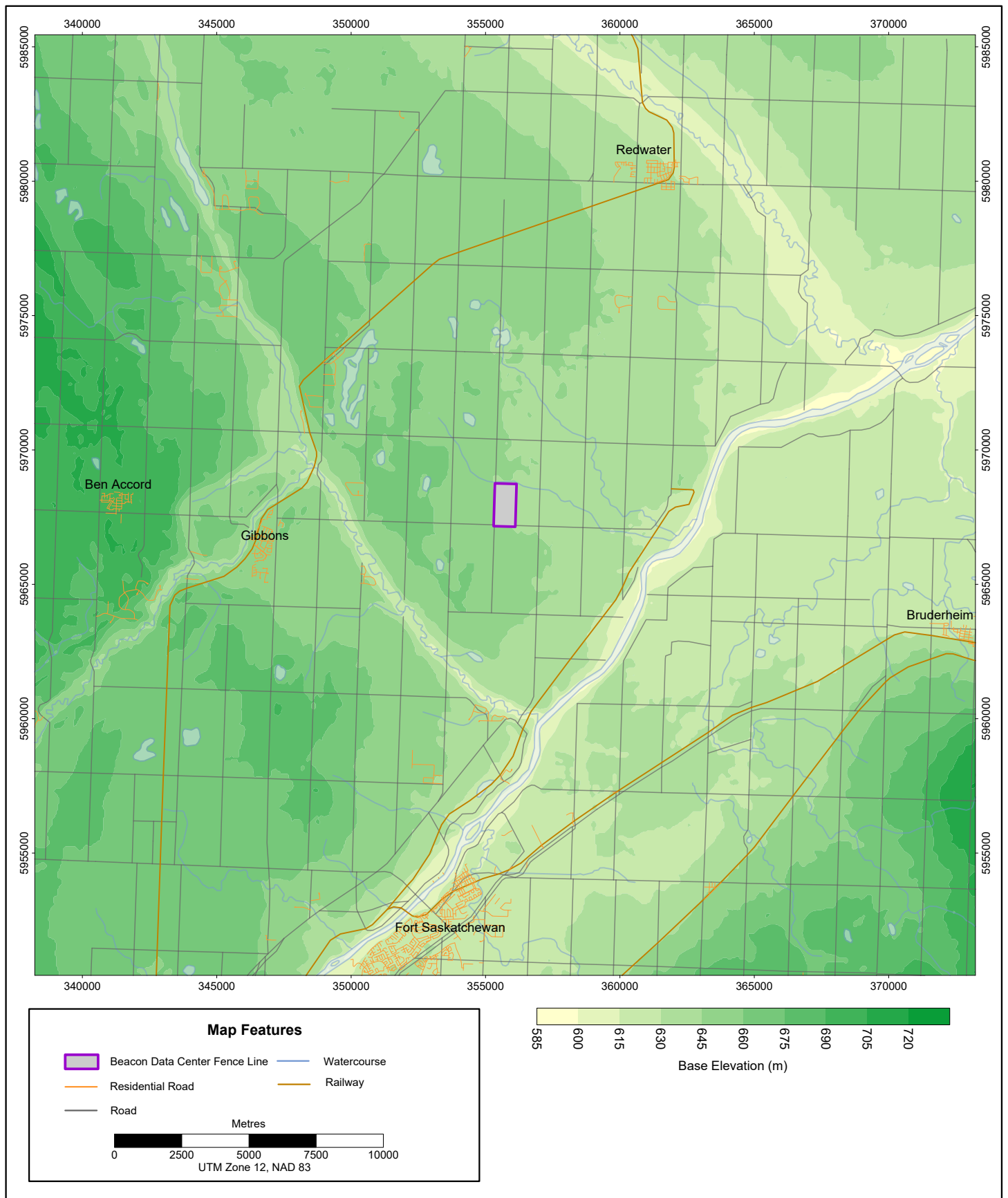
Station	Species	Averaging Period	Background Concentration ^{a b} (µg/m ³)	AAAQO/G (µg/m ³)	Percent of Applicable AAAQO/G
Gibbons	NO ₂	1-hour	31.9	300	10.6
		Annual	9.8	45	21.8
Fort Saskatchewan	CO	1-hour	380	15,000	2.5
		8-hour	379	6,000	6.3
Gibbons	PM _{2.5} ^c	1-hour	17.2	80	21.5
		24-hour	16.7	29	57.7

Notes:

- ^a For 1-hour averaging period, the 90th percentile value from the cumulative frequency distribution of the background monitoring data is calculated for each year. For 24-hour and annual averaging period, the average value is calculated from the reduced dataset (after removing values greater than the 90th percentile) for each year.
- ^b The background concentrations are calculated as the 3-year average, as per the AQMG.
- ^c Identified transboundary flows/exceptional events (TF/EE) influences removed from data; Based on 2021-2023 data; 2024 data not included in the analysis because it is influenced by TF/EE events and data to exclude those events from the analysis is not yet available.

Source: AEPA Data Management Platform (AEPA 2025a).





Beacon AI Centers - Heartland Project Air Quality Assessment

Terrain Elevations within the 35 km by 35 km Study Area

PREPARED BY
Stantec

PREPARED FOR

FIGURE NO.
3.1

4 Emissions

4.1 Beacon Data Center

Proposed emission sources for the Project include 200 Jenbacher J624 engines. There are also 8 Clearfire CFLC-5000 condensing boilers associated with the data center buildings. The 200 natural gas-fired engines will be installed in four generation pods, each containing 50 engines. Each gas generation pod will include 10 QPAC units, and each QPAC consists of five Jenbacher J624 engines.

QPAC is a modular power plant platform which consists of five subunits each housing a Jenbacher J624 engine. The QPAC design combines the exhaust gases from the engine with air streams from the cooler and engine room ventilation into a single discharge to optimize plume rise and dispersion.

While Beacon only needs to operate 44 engines to produce 200 MW power from each gas generation pod, dispersion modelling has been completed based upon the conservative assumption that all 50 engines in each gas generation pod will operate continuously at the maximum rated capacity. The Project equipment burns sweet natural gas and as a result there are no substantive emissions of sulphur dioxide (SO₂).

Each Jenbacher J624 engines is equipped with high efficiency emission control systems including selective catalytic reduction (SCR) and oxidation catalysts that substantially reduce emissions. The SCR system is estimated to reduce engine NO_x emissions by more than 95%. The oxidation catalyst is estimated to reduce CO and VOC emissions by more than 95% and 90%, respectively. Ammonia (NH₃) emissions associated with slip from the SCR system are not evaluated as the concentration exiting the QPAC are already less than the odour-based AAAQO for NH₃.

Table 4.1 provides the stack parameters and emissions rates for a generator engine. Emission rates were estimated based on the performance data sheets for the Jenbacher engines. The NO_x emission rate for each engine is 0.265 kg/h (0.074 g/s). The CO and PM_{2.5} emission rates for each engine are 0.508 kg/h (0.141 g/s) and 0.068 kg/h (0.019 g/s), respectively. The combustion gas plume from engine stack is released adjacent to cooler and ventilation outlets. The stack exit temperature and exit velocity is based on the combined plume of combustion gas and cooler and ventilation exhaust.

The associated data center buildings include natural gas fired boilers for building heat. The boiler exhaust parameters and emission rates are provided in Table 4.2. The NO_x emission rate is based on 30 ppm NO_x at 3% O₂ in the exhaust gas (16 g/GJ heat input). The CO emission rate is calculated using AP-42 emission factor for external combustion sources (US EPA 1998) and PM_{2.5} emission rate is based on CEPEI (Canadian Energy partnership for Environmental Innovation) emission factor for boilers (CEPEI 2017).

Figure 4.1 shows the Project plot plan with location of buildings, generation pods, QPACs, and stacks. Figure 4.2 shows the layout of a generation pod. Table 4.3 provides the location coordinates of each of the 200 generator stacks.



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Section 4: Emissions

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The NO_x emissions from the Project for new electricity generation facilities are subject to provincial and federal emission limits. Table 4.4 shows provincial and federal emission criteria for each type of equipment along with emission rates in equivalent units. Project emissions meet federal and provincial emission standards for new electrical generation facilities.

The Air Emissions Requirement Policy for the Industrial Heartland Designated Industrial Zone (DIZ Emission Policy; AEPA 2025d) outlines regulatory requirements for new and existing industrial air emissions in Alberta’s IH-DIZ region. The policy lists requirements for new boilers, heaters, furnaces, cracking furnaces, and steam methane furnaces at new facilities but does not apply to the small utility boilers for data center building heat.

The DIZ Emission Policy does not specify emission limits for natural gas fired reciprocating engine generators; however, AEPA has developed a Staff Directive that specifies a requirement for engines to emit less than 0.2 kg NO_x/MWh if located in a designated urban census area. The NO_x emission intensity of the Jenbacher J624 generators is 0.06 kg NO_x/MWh, less than the AEPA staff guidance. The Project complies with AEPA emission control policy and the DIZ Emission Policy.

Table 4.1 Stack Parameters and Emissions for each Generator Engine

Source		Generator Engine
Make/Model		Jenbacher J624
Period of Operation		Continuous
Power Rating	MW (Output)	4.6
Fuel Heat Input (HHV)	GJ/h	41.7
Fuel Type		Sweet Natural Gas
Stack Parameters		
Stack Height	m	21.4
Stack Inside Diameter ^a	m	5.09
Exit Temperature ^b	K	368.7
Exit Velocity	m/s	8.0
Emission Rate ^c		
NO _x	g/s	0.0737
CO	g/s	0.141
PM _{2.5}	g/s	0.0189

Notes:

- ^a Stack diameter is equivalent of 5.57 m length and 3.65 m width based on equipment drawings (QPAC).
- ^b Exit temperature is based on combined flow rate - cooler outlet flow rate of 6261 Am³/min (366 K), ventilation outlet flow rate of 2650 Am³/min (330 K), and engine exhaust flow rate of 880 Am³/min (623 K).
- ^c Emission rates from Jenbacher performance specifications



Table 4.2 Stack Parameters and Emissions for the Boilers

Source		Condensing Boiler	Condensing Boiler	Condensing Boiler	Condensing Boiler	Condensing Boiler	Condensing Boiler	Condensing Boiler	Condensing Boiler
Make/Model		Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000	Clearfire CFLC-5000
Period of Operation		Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Power Rating	MW	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
Fuel Heat Inout (HHV)	GJ/h	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28
Fuel Type		Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas	Sweet Natural Gas
Stack Location									
Easting	m	355522	355517	355785	355780	355953	355958	355490	355495
Northing	m	5967725	5967725	5967719	5967720	5967715	5967716	5967923	5967922
Base Elevation	m	645	645	646	646	646	646	645	645
Stack Parameters									
Stack Height	m	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
Stack Inside Diameter	m	0.356	0.356	0.356	0.356	0.356	0.356	0.356	0.356
Exit Temperature	K	350	350	350	350	350	350	350	350
Exit Velocity	m/s	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Emission Factor									
NO _x	30 ppm (corrected to 3% O ₂)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
CO (AP-42)	lb/MMBtu (HHV)	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082
PM _{2.5} (CEPEI)	g/GJ (HHV)	0.134	0.134	0.134	0.134	0.134	0.134	0.134	0.134
Emission Rate									
NO _x	g/s	0.0234	0.0234	0.0234	0.0234	0.0234	0.0234	0.0234	0.0234
CO	g/s	0.0519	0.0519	0.0519	0.0519	0.0519	0.0519	0.0519	0.0519
PM _{2.5}	g/s	0.000196	0.000196	0.000196	0.000196	0.000196	0.000196	0.000196	0.000196



Table 4.3 Location and Base Elevation of each Generator Engine Stack

Generation Pod 1				Generation Pod 2				Generation Pod 3				Generation Pod 4			
Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)
SP11	356,013	5,968,355	643	SP21	356,009	5,968,233	643	SP31	356,005	5,968,111	643	SP41	356,002	5,967,989	645
SP12	356,017	5,968,355	643	SP22	356,013	5,968,233	643	SP32	356,009	5,968,111	643	SP42	356,006	5,967,989	645
SP13	356,021	5,968,354	643	SP23	356,017	5,968,232	643	SP33	356,013	5,968,111	643	SP43	356,010	5,967,989	645
SP14	356,025	5,968,354	643	SP24	356,021	5,968,232	643	SP34	356,017	5,968,110	643	SP44	356,014	5,967,989	645
SP15	356,029	5,968,354	643	SP25	356,025	5,968,232	643	SP35	356,022	5,968,110	643	SP45	356,018	5,967,989	645
SP16	356,037	5,968,354	643	SP26	356,034	5,968,232	643	SP36	356,030	5,968,110	643	SP46	356,027	5,967,988	645
SP17	356,041	5,968,354	643	SP27	356,038	5,968,232	643	SP37	356,034	5,968,110	643	SP47	356,031	5,967,988	645
SP18	356,045	5,968,354	643	SP28	356,042	5,968,232	643	SP38	356,038	5,968,110	643	SP48	356,035	5,967,988	645
SP19	356,049	5,968,354	643	SP29	356,046	5,968,232	643	SP39	356,042	5,968,110	643	SP49	356,039	5,967,988	645
SP110	356,053	5,968,353	643	SP210	356,050	5,968,231	643	SP310	356,046	5,968,110	643	SP410	356,043	5,967,988	645
SP111	356,062	5,968,353	643	SP211	356,058	5,968,231	643	SP311	356,055	5,968,109	643	SP411	356,051	5,967,988	645
SP112	356,066	5,968,353	643	SP212	356,062	5,968,231	643	SP312	356,059	5,968,109	643	SP412	356,055	5,967,988	645
SP113	356,070	5,968,353	643	SP213	356,066	5,968,231	643	SP313	356,063	5,968,109	643	SP413	356,059	5,967,988	645
SP114	356,074	5,968,353	643	SP214	356,070	5,968,231	643	SP314	356,067	5,968,109	643	SP414	356,063	5,967,987	645
SP115	356,078	5,968,353	643	SP215	356,074	5,968,231	643	SP315	356,071	5,968,109	643	SP415	356,067	5,967,987	645
SP116	356,087	5,968,353	643	SP216	356,083	5,968,231	643	SP316	356,079	5,968,109	643	SP416	356,076	5,967,987	645
SP117	356,091	5,968,353	643	SP217	356,087	5,968,231	643	SP317	356,083	5,968,109	643	SP417	356,080	5,967,987	645
SP118	356,095	5,968,352	643	SP218	356,091	5,968,230	643	SP318	356,087	5,968,109	643	SP418	356,084	5,967,987	645
SP119	356,098	5,968,352	643	SP219	356,095	5,968,230	643	SP319	356,091	5,968,109	643	SP419	356,088	5,967,987	645
SP120	356,102	5,968,352	643	SP220	356,099	5,968,230	643	SP320	356,095	5,968,108	643	SP420	356,092	5,967,987	645
SP121	356,111	5,968,352	643	SP221	356,107	5,968,230	642	SP321	356,104	5,968,108	643	SP421	356,100	5,967,987	644
SP122	356,115	5,968,352	643	SP222	356,111	5,968,230	642	SP322	356,108	5,968,108	643	SP422	356,104	5,967,986	644
SP123	356,119	5,968,352	643	SP223	356,115	5,968,230	642	SP323	356,112	5,968,108	643	SP423	356,108	5,967,986	644
SP124	356,123	5,968,352	643	SP224	356,119	5,968,230	642	SP324	356,116	5,968,108	643	SP424	356,112	5,967,986	644
SP125	356,127	5,968,352	643	SP225	356,124	5,968,230	642	SP325	356,120	5,968,108	643	SP425	356,116	5,967,986	644
SP126	356,012	5,968,309	643	SP226	356,008	5,968,187	643	SP326	356,004	5,968,065	644	SP426	356,001	5,967,944	645
SP127	356,015	5,968,309	643	SP227	356,012	5,968,187	643	SP327	356,008	5,968,066	644	SP427	356,005	5,967,944	645
SP128	356,019	5,968,309	643	SP228	356,016	5,968,187	643	SP328	356,012	5,968,065	644	SP428	356,009	5,967,944	645
SP129	356,023	5,968,309	643	SP229	356,020	5,968,187	643	SP329	356,016	5,968,065	644	SP429	356,013	5,967,943	645
SP130	356,028	5,968,309	643	SP230	356,024	5,968,187	643	SP330	356,020	5,968,065	644	SP430	356,017	5,967,943	645
SP131	356,036	5,968,309	643	SP231	356,032	5,968,187	643	SP331	356,029	5,968,065	644	SP431	356,025	5,967,943	645
SP132	356,040	5,968,309	643	SP232	356,036	5,968,187	643	SP332	356,033	5,968,065	644	SP432	356,029	5,967,943	645
SP133	356,044	5,968,309	643	SP233	356,040	5,968,187	643	SP333	356,037	5,968,065	644	SP433	356,033	5,967,943	645
SP134	356,048	5,968,308	643	SP234	356,044	5,968,186	643	SP334	356,041	5,968,065	644	SP434	356,037	5,967,943	645
SP135	356,052	5,968,308	643	SP235	356,048	5,968,186	643	SP335	356,045	5,968,064	644	SP435	356,041	5,967,943	645



Beacon AI Centers - Heartland Project Air Quality Assessment

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Generation Pod 1				Generation Pod 2				Generation Pod 3				Generation Pod 4			
Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)	Model ID	Easting (m)	Northing (m)	Base Elevation (m)
SP136	356,061	5,968,308	643	SP236	356,057	5,968,186	643	SP336	356,053	5,968,064	644	SP436	356,050	5,967,943	645
SP137	356,065	5,968,308	643	SP237	356,061	5,968,186	643	SP337	356,057	5,968,064	644	SP437	356,054	5,967,942	645
SP138	356,069	5,968,308	643	SP238	356,065	5,968,186	643	SP338	356,061	5,968,064	644	SP438	356,058	5,967,942	645
SP139	356,073	5,968,308	643	SP239	356,069	5,968,186	643	SP339	356,065	5,968,064	644	SP439	356,062	5,967,942	645
SP140	356,077	5,968,308	643	SP240	356,073	5,968,186	643	SP340	356,069	5,968,064	644	SP440	356,066	5,967,942	645
SP141	356,085	5,968,308	643	SP241	356,082	5,968,186	643	SP341	356,078	5,968,064	644	SP441	356,074	5,967,942	645
SP142	356,089	5,968,307	643	SP242	356,086	5,968,185	643	SP342	356,082	5,968,064	644	SP442	356,078	5,967,942	645
SP143	356,093	5,968,307	643	SP243	356,090	5,968,185	643	SP343	356,086	5,968,064	644	SP443	356,082	5,967,942	645
SP144	356,097	5,968,307	643	SP244	356,093	5,968,185	643	SP344	356,090	5,968,063	644	SP444	356,086	5,967,942	645
SP145	356,101	5,968,307	643	SP245	356,097	5,968,185	643	SP345	356,094	5,968,063	644	SP445	356,090	5,967,941	645
SP146	356,110	5,968,307	643	SP246	356,106	5,968,185	642	SP346	356,103	5,968,063	644	SP446	356,099	5,967,941	645
SP147	356,114	5,968,307	643	SP247	356,110	5,968,185	642	SP347	356,107	5,968,063	644	SP447	356,103	5,967,941	645
SP148	356,118	5,968,307	643	SP248	356,114	5,968,185	642	SP348	356,110	5,968,063	644	SP448	356,107	5,967,941	645
SP149	356,122	5,968,307	643	SP249	356,118	5,968,185	642	SP349	356,115	5,968,063	644	SP449	356,111	5,967,941	645
SP150	356,126	5,968,307	643	SP250	356,122	5,968,185	642	SP350	356,119	5,968,063	644	SP450	356,115	5,967,941	645



Beacon AI Centers - Heartland Project Air Quality Assessment

Section 4: Emissions

December 2025

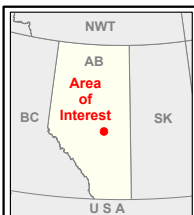
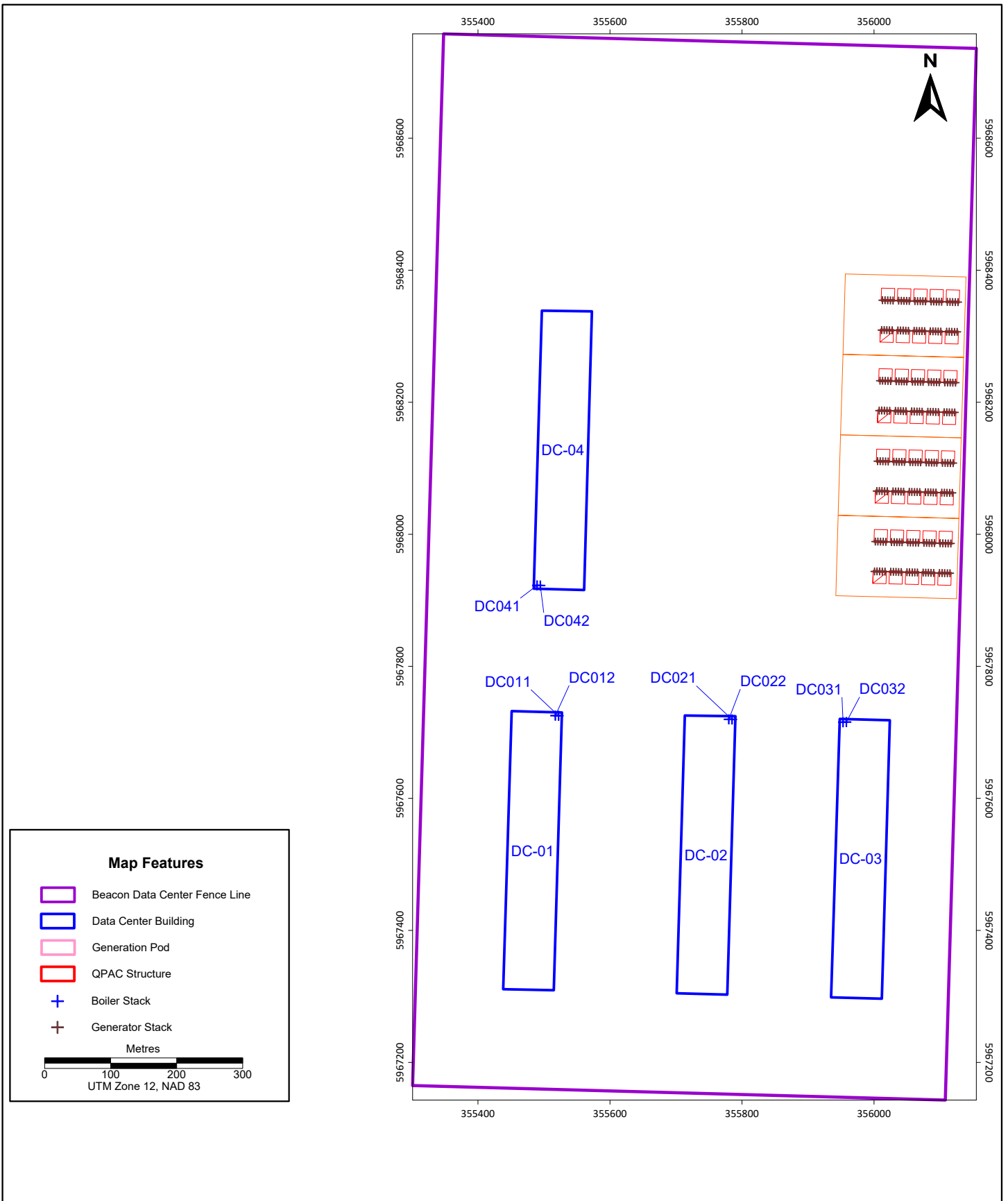
Table 4.4 Comparison of Project NO_x Emissions with Provincial and Federal Emission Limits for New Electricity Generation Facilities

Regulatory Jurisdiction	Substance	Reference	Units	Emission Limits (for each new generating unit)	Project Emission
Provincial	NO _x	AEPA (2025c) ^{a b}	g/kWh	0.2	0.06 ^d
Federal	NO _x	Environment and Climate Change Canada (ECCC 2016) ^{a c}	g/kWh	2.7	

Notes:

- ^a AEPA and ECCC emission limits apply to gross power.
- ^b Emission standards to facilities with total installed capacity greater than 1 MW
- ^c Emission standards for new natural gas fired generating units greater than 75 kW.
- ^d Calculated based upon gross electrical power output.



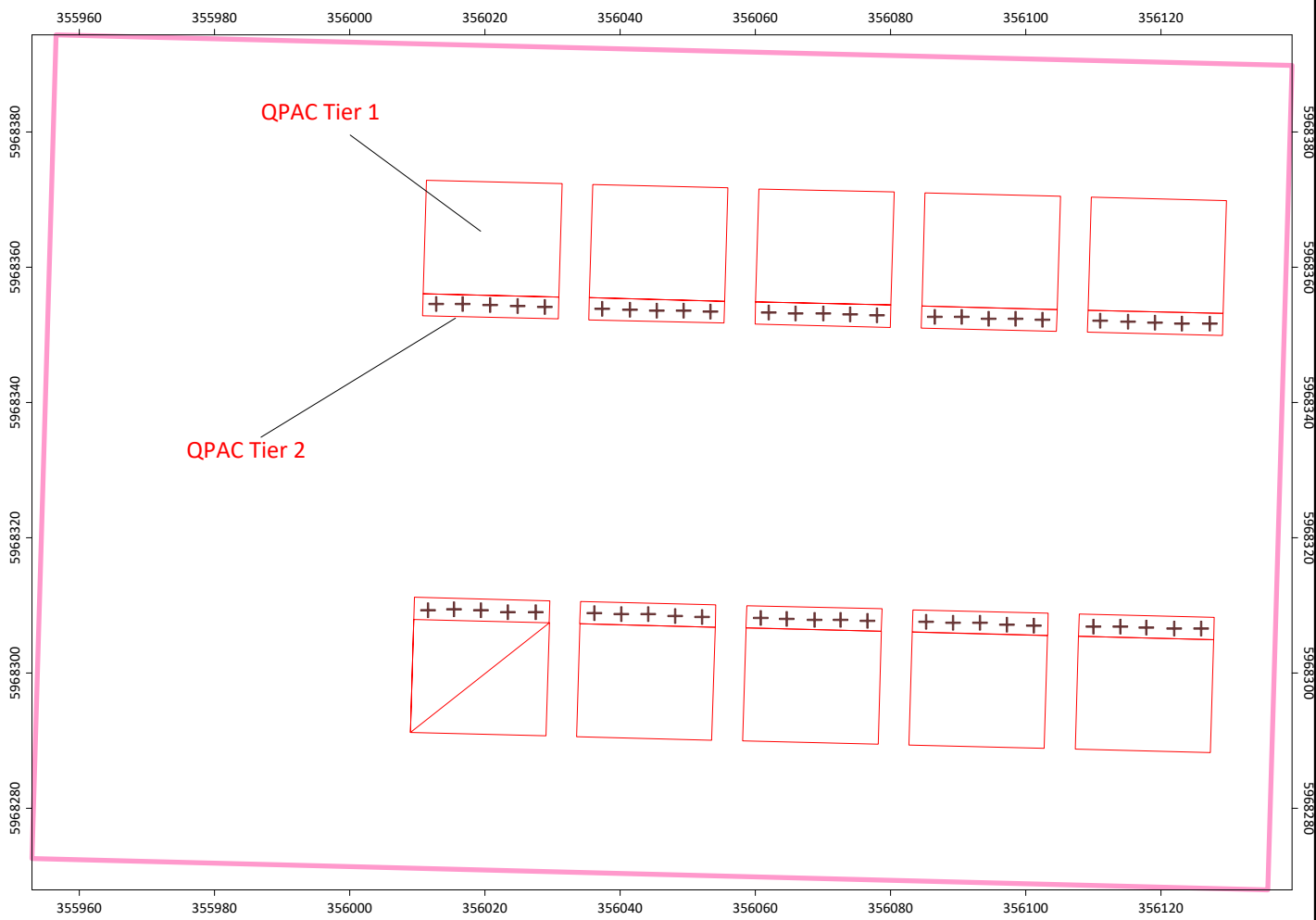


Simplified Project Plot Plan

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FIGURE NO.
4.1

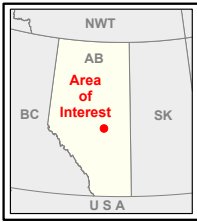


Map Features

- Generation Pod
- QPAC Structure
- Generator Stack

Metres

UTM Zone 12, NAD 83



Beacon AI Centers - Heartland Project Air Quality Assessment

Simplified Generation Pod Layout

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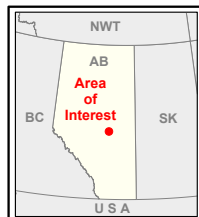
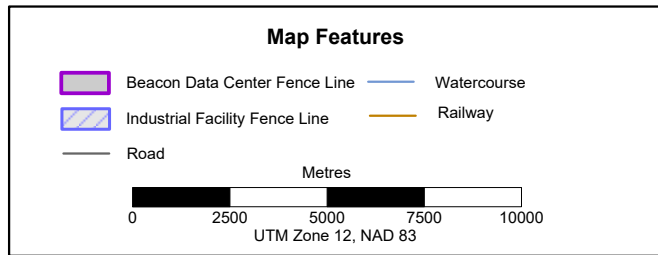
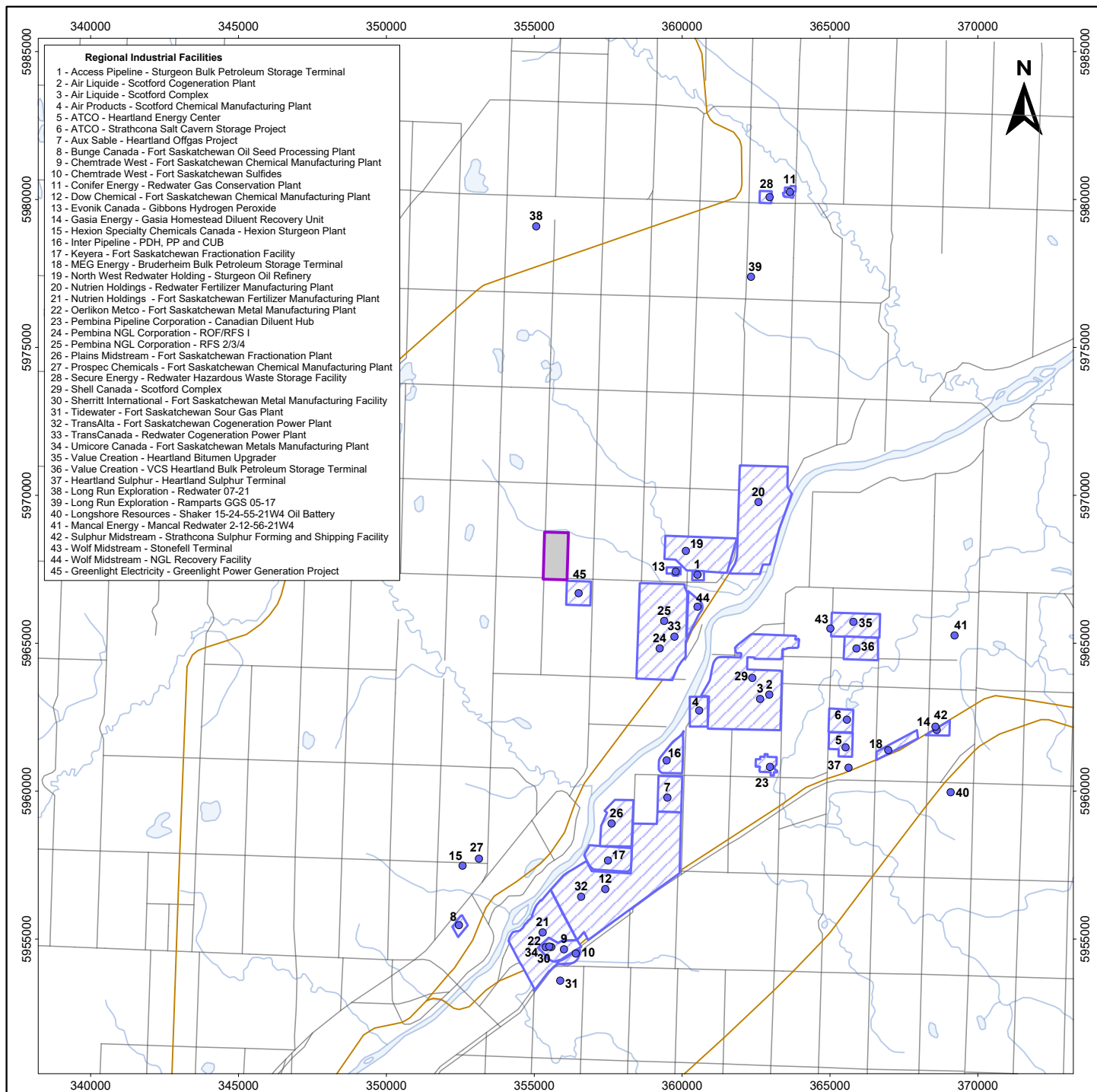
FIGURE NO.
4.2

4.2 Regional Emissions

As recommended by the AQMG (AEP 2021a), nearby industrial emission sources in the study area have been included in dispersion modelling. Based on a search of the most recent Alberta Annual Emissions Inventory Reporting (AEIR) (AEPA 2024b), the Environment and Climate Change Canada (ECCC) National Pollutant Release Inventory (NPRI) database (ECCC 2024), and provincial EPEA Approvals (AEPA 2025b), it was determined that there are 44 existing and approved major sources of emissions located in the 35 km by 35 km study area. There is one proposed project within the study area – the Greenlight Power Generation Project (Greenlight), which has not received an approval yet. This project is included in the Future Case to assess cumulative emissions from existing, approved and proposed regional facilities in the study area. Emissions from these facilities are included in the dispersion modelling. The facility names and facility total emissions are summarized in Table 4.5. The stack, area source, and volume source location, parameters, and emission rates of each regional emission source are presented in Appendix A.

Figure 4.3 shows the locations of the neighbouring facilities in the study area relative to the Project. Table 4.5 summarizes total emissions associated with the regional emission sources within the study area.





Beacon AI Centers - Heartland Project Air Quality Assessment

Regional Facilities within the Study Area

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 FIGURE NO.
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Section 4: Emissions

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Table 4.5 Emissions from Regional Facilities within the Study Area

No.	Operator	Facility	NO _x (t/d)	CO (t/d)	PM _{2.5} (t/d)
Existing and Approved Facilities					
1	Access Pipeline Inc.	Sturgeon Bulk Petroleum Storage Terminal	0.0002	0.0001	0.000004
2	Air Liquide Canada Inc.	Scotford Cogeneration Plant	1.572	0.378	0.020
3	Air Liquide Canada Inc.	Air Liquide Scotford Complex	1.763	0.257	0.016
4	Air Products Canada Ltd.	Scotford Chemical (Hydrogen) Manufacturing Plant	0.709	0.496	0.054
5	ATCO Energy Solutions Ltd.	Heartland Energy Center	0.664	0.947	0.223
6	ATCO Energy Solutions Ltd.	Strathcona Salt Cavern Storage Project and Brine Storage Pond	0.0001	0.001	0.0002
7	Aux Sable Canada Ltd.	Heartland Off-gas Project	0.177	0.149	0.012
8	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	0.077	0.095	0.023
9	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	0.0004	0.0004	0.023
10	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	0.015	0.019	0.0003
11	Conifer Energy Inc.	Redwater Gas Conservation Plant	0.122	0.604	0.012
12	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	8.068	2.345	0.295
13	Evonik Canada Inc	Gibbons Hydrogen Peroxide	0.058	0.049	0.008
14	Gasia Energy Partners Ltd.	Gasia Homestead Diluent Recovery Unit	0.066	0	0.011
15	Hexion Specialty Chemicals Canada Inc.	Hexion Sturgeon Plant	0.230	0.195	0.038
16a	Inter Pipeline Propylene Ltd.	Propane Dehydrogenation (PDH)	0.191	0.021	0.016
16b	Inter Pipeline Propylene Ltd.	Polypropylene (PP)	0.267	0.129	0.025
16c	Inter Pipeline Propylene Ltd.	Cogeneration Power Plant	1.107	0.396	0.003
17	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility and Brine Storage Ponds	1.327	3.091	0.092
18	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	0.080	0.134	0.013
19	North West Redwater Holding Corp	Sturgeon Oil Refinery	2.945	2.333	0.005
20	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	9.228	14.2	0.606



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No.	Operator	Facility	NO _x (t/d)	CO (t/d)	PM _{2.5} (t/d)
21	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	2.674	1.221	0.411
22	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	0.002	0.002	0.041
23	Pembina Marketing Ltd.	Canadian Diluent Hub Bulk Petroleum Storage Terminal	0.035	0.177	0.056
24	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility (ROF)	0.663	0.841	0.233
25	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	0.867	0.908	0.065
26	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant and Associated Brine Storage	0.813	0.550	0.070
27	Prospec Chemicals	Fort Saskatchewan Xanthate and Xanthate Derivatives Chemical Manufacturing Plant	0.012	0.123	0.0004
28	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	0.062	0.123	0.008
29a	Shell Chemicals Canada	Scotford Chemicals Facility	1.560	0.973	0.042
29b	Shell Canada Products	Scotford Refinery	4.244	3.800	0.078
29c	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	10.109	3.359	0.011
30	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	8.363	0.887	0.059
31	Tidewater Midstream and Infrastructure Ltd.	Fort Saskatchewan Sour Gas Plant	0.007	0.001	0.002
32	TransAlta Generation Partnership	Fort Saskatchewan Cogeneration Power Plant	1.872	0.203	0.070
33	TransCanada Energy Ltd.	Redwater Cogeneration Power Plant	0.823	0.340	0.027
34	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	0.018	0.015	0.108
35	Value Creation Inc.	Heartland Bitumen Upgrader	0.801	4.804	0.162
36	Value Creation Inc.	VCS Heartland Bulk Petroleum Storage Terminal	0.0004	0.001	0.0004
37	Heartland Sulphur Ltd.	Heartland Sulphur Terminal	0.021	0.017	0.0003
38	Long Run Exploration Ltd.	Redwater 07-21	0.029	0.044	0.0002
39	Long Run Exploration Ltd.	Ramparts GGS 05-17	0.144	0.223	0.001
40	Longshore Resources Ltd	Shaker 15-24-55-21W4 Oil Battery	0.015	0.031	0.004
41	Mancal Energy Inc	Mancal Redwater 2-12-56-21W4	0.004	0.008	0.001



Beacon AI Centers - Heartland Project Air Quality Assessment

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No.	Operator	Facility	NO_x (t/d)	CO (t/d)	PM_{2.5} (t/d)
42	Sulphur Midstream Ltd.	Strathcona Sulphur Forming and Shipping Facility	0.018	0.015	0.0003
43	Wolf Midstream	Stonefell Terminal	0	0	0
44	Wolf Midstream	NGL Recovery Facility	0.004	0.006	0.001
Total (Existing and Approved)			61.82	44.49	2.95
Future Facilities					
45	Greenlight Electricity GP	Greenlight Power Generation Project	4.47	2.82	1.63
Total (Existing, Approved, and Proposed)			66.30	47.31	4.58



5 Modelling Methodology

The effects of the Project emissions on ambient air quality are evaluated using a numerical atmospheric dispersion model. Dispersion models simulate transport, dispersion, transformation, and deposition processes in the atmosphere. Dispersion models are used to predict ambient air quality changes for a wide range of meteorological conditions and account for local terrain influences. Because of the many uncertainties associated with the application of dispersion models, the model results can be viewed as “best estimates” relative to the decision-making process when standardized model approaches are adopted (U.S. EPA 2005).

The AERMOD model is used to assess air quality changes due to the Project emissions. This air quality assessment is undertaken in accordance with the AQMG (AEP 2021a).

5.1 Meteorology

Meteorology influences how the air emissions from industrial and natural sources disperse into the atmosphere and thus have a direct effect on ambient air quality. The atmospheric dispersion of emissions is governed by the amount of turbulence that exists in the mixed layer of air in contact with the ground. The turbulence levels are dependent on thermal effects (e.g., vertical temperature stratification) and mechanical effects caused by topography, surface roughness, and wind speed. The height of the mixing layer determines the vertical extent to which emissions can diffuse.

Meteorological data for the AERMOD dispersion model was prepared using the latest version (Version 24142) of the AERMET meteorological model (U.S. EPA 2024a) using the 5-year Weather Research and Forecasting Model (WRF) 4 km resolution meteorological dataset (2015-2019) provided by AEPA for dispersion model assessments (AEP 2022b). Surface and upper air data for AERMET input was extracted from the WRF dataset for the Project location using the AEPA Multi-Model Extraction Utility 2 (MMEU2) (AEP 2021b). The AERMET model was used to process the meteorological dataset and estimate friction velocity and Monin-Obukhov length – two parameters that characterize the amount of turbulence in the atmosphere based on provided input for the land cover within 3 km of the Project. Modern planetary boundary layer theory is used by AERMET to scale turbulence and other parameters to the height of the plume. The AERMET model derives hourly mixing heights based on the upper air and surface meteorology, which are used in the AERMOD dispersion model.

The details of the use of the AERMET model and results are provided in Appendix B. AERMET model input options were specified following the AQMG (AEP 2021a). The wind rose derived for the Project location based on the extracted 2015-2019 AERMET data indicates that winds occur most often from the west, southwest northwest directions. Winds occur least frequently from the northeast.

The meteorological data that is used to evaluate air quality changes associated with Project emissions account for the seasonal and diurnal variations over a five-year period, and for the amount of turbulence in the atmosphere. The five-year period includes cool, normal, and warm years. The data are viewed as being representative of the wide range of meteorological conditions that could occur in the region.



5.2 AERMOD Model

AERMOD is a steady-state plume dispersion model which can simulate the effects of hourly varying meteorological conditions on air emission transport, dispersion, transformation, and deposition. The model is designed to estimate near-field (less than 50 km) ground-level concentrations considering terrain influences. The concentration distribution in the plume is assumed to be Gaussian in both horizontal and vertical directions. AERMOD contains algorithms for near-source effects such as building downwash, transitional plume rise, and partial plume penetration.

AERMOD requires hourly meteorological data processed with the AERMET meteorological pre-processor including parameters that characterize the amount of turbulence in the atmosphere (friction velocity and Monin-Obukhov length). AERMOD produces hourly average pollutant concentrations that can be further processed to obtain predictions for other averaging periods. Input terrain elevations at receptor locations for the AERMOD model are assigned by a Stantec in house tool to extract terrain elevations.

The AERMOD dispersion model (U.S. EPA 2024b) is accepted by AEPA for refined air quality assessments. This assessment is undertaken in accordance with the AQMG (AEP 2021a) and Supplementary Guideline for the Preparation of Air Quality Modelling for Regulatory Applications (AEP 2022a) specific to IH-DIZ. At the time that the modelling was completed, Version 24142 was the most recent version of the AERMOD model available from the United States Environmental Protection Agency (U.S. EPA). As required in the AQMG (AEP 2021a), this version of the model was used in the assessment.

5.3 NO_x to NO₂ Conversion

NO_x includes NO and NO₂. Most of the NO_x emissions are in the form of NO which is converted in the atmosphere to NO₂ due to reactions with ambient O₃. Air quality regulators have selected NO₂ to assess and manage ambient levels of NO_x for several reasons: much of the information on the distribution in air, human exposure and dose, and associated health effects for NO_x is available for only NO₂, and emissions and concentrations of NO₂ are highly correlated with those of other oxides of nitrogen which allow management of NO_x emissions via a focus on NO₂. Consequently, only NO₂ concentrations are regulated by the AAAQO/G.

The AQMG (AEP 2021a) specifies several recommended methods for estimating the fraction of NO₂ concentrations in the plume for the purpose of comparison to the AAAQO/G. The recommended methods must be implemented in a tiered approach, where the first screening tier of the assessment is to conservatively assume that 100% of the NO_x concentrations are converted to NO₂ (i.e., Total Conversion Method (TCM)). If the AAAQO/G are met using this conservative assumption, no other conversion method needs to be implemented. If the results do not meet the AAAQO/G, another recommended method, such as the Ambient Ratio Method Version 2 (ARM2), Ozone Limiting Method (OLM), or Plume Volume Molar Ratio Method (PVMRM) may be applied.



In this assessment, the TCM method NO₂ concentrations from Project emissions met the AAAQO/G. The ARM2 method was also implemented to more realistically estimate NO₂ concentrations. The AQMG (AEP 2021a) recommended default maximum equilibrium ratio of 0.9 and the minimum ratio of 0.2 (equivalent to an assumed NO₂/NO_x in-stack ratio of 0.2) was used for all point sources that were considered in this assessment (Project and non-Project sources).

5.4 Receptor Grids and Terrain

Calculations of ground-level air concentrations were made for locations outside the Project boundary according to the AQMG (AEP 2021a). A series of nested Cartesian grids with increasing receptor density with proximity to the Project were applied. In total, 6,129 receptors were generated for this assessment. As shown in Figure 5.1, the receptor grids and their corresponding spacing are as follows:

- 20 m spacing along the Project fenceline
- 20 m spacing within 200 m of the Project fenceline
- 50 m spacing within the 500 m of the Project fenceline
- 250 m spacing within the 2 km of the Project fenceline
- 500 m spacing within the 5 km of the Project fenceline
- 1000 m spacing beyond the 5 km of the Project fenceline

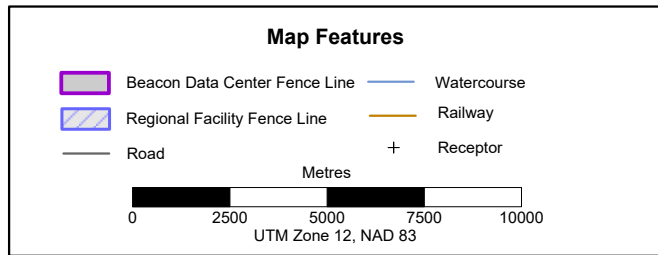
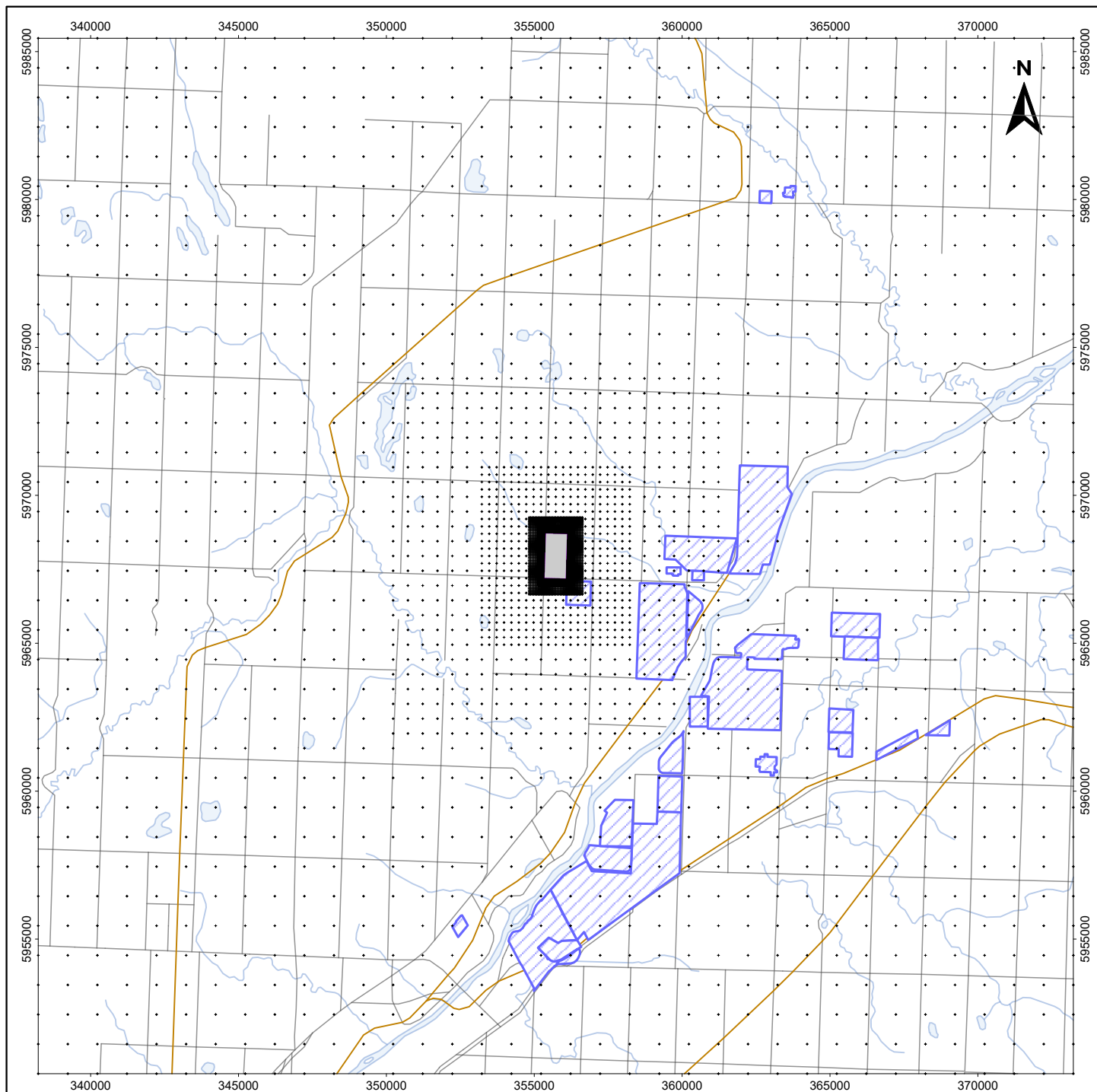
Actual terrain elevations were applied to all receptors used in dispersion modelling based on Canadian Digital Elevation Model (CDEM; (NRCAN 2016)) terrain elevation data.

5.5 Building Downwash Effects

Buildings or other solid structures may affect the flow of air in the vicinity of a source and cause building downwash effects (e.g., eddies on the downwind side), which have the potential to reduce plume rise and affect dispersion. For dispersion modelling purposes, building downwash effects were considered using the Plume Rise Model Enhancements (PRIME) downwash routine (Schulman et al. 1998) in the Building Profile Input Program (BPIP) (U.S. EPA 1995).

The BPIP is pre-processor program was used to provide the building downwash inputs for the AERMOD model based on the locations of the emission sources and site buildings or structures. For dispersion modelling purposes, building downwash effects were considered for Project sources. Information for the buildings or structure heights is provided in Table 5.1 and building locations are shown in Figure 4.1 and 4.2.





Beacon AI Centers - Heartland Project Air Quality Assessment

Receptors Applied to the Dispersion Modelling

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FIGURE NO.
5.1

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Table 5.1 Buildings or Structures Considered in the Dispersion Modelling

Buildings or Structure Name	Height (m)
Data Center Building (DC-01)	15.85
Data Center Building (DC-02)	15.85
Data Center Building (DC-03)	15.85
Data Center Building (DC-04)	15.85
Each QPAC Structure Tier 1	15.3
Each QPAC Structure Tier 2	20



5.6 Modelling Scenarios

To assess the effects on air quality associated with emissions from the Project, dispersion modelling was conducted for the following scenarios:

- Base Case: includes emissions associated with existing and approved regional facilities in the study area (excluding the Project) and ambient background
- Project Case: includes emissions from the Beacon Power Generation Project
- Application Case: includes cumulative emissions from the Project, existing regional facilities and ambient background
- Future Case: includes cumulative emissions from the Project, existing and approved regional facilities, as well as the adjacent proposed Greenlight facility, and ambient background

Table 5.2 summarizes total emissions associated with the Project and the regional emission sources. The Project will contribute 2.0%, 5.3%, and 10% of the total Application Case NO_x, CO, and PM_{2.5} emissions within the study area. The Project will contribute 1.9%, 5.0%, and 6.7% of the total Future Case NO_x, CO, and PM_{2.5} emissions within the study area.

Table 5.2 Total Emissions within the Study Area

Modelling Scenario	NO_x (t/d)	CO (t/d)	PM_{2.5} (t/d)
Base Case (Regional Sources - Existing and Approved)	61.8	44.5	2.95
Project Case	1.29	2.47	0.327
Application Case (Base Case + Project Case)	63.1	47.0	3.27
Contribution of Project to Application Case (%)	2.0%	5.3%	10.0%
Greenlight Power Generation Project (Proposed)	4.47	2.82	1.63
Future Case (Application Case + Greenlight)	67.6	49.8	4.91
Contribution of Project to Future Case (%)	1.9%	5.0%	6.7%



6 Dispersion Modelling Results

The air dispersion modelling assessment considered four scenarios: Base Case, Project Case, Application Case, and Future Case. Contour plots of the maximum predicted concentrations for all modelling cases are provided in Appendix C. The NO₂ (Total Conversion Method (TCM)) values shown in Table 6.1 to Table 6.3 are equivalent to NO₂ assuming 100% conversion of NO_x to NO₂. The assessment focuses on predicted NO₂ concentrations associated with the more realistic ARM2 approach rather than TCM.

6.1 Base Case

Dispersion modelling for the Base Case includes emissions from the existing and approved regional industrial facilities. The maximum predicted concentrations, including background, are summarized in Table 6.1.

Table 6.1 Maximum Predicted Ground-level Concentrations (µg/m³) Associated with the Base Case

Substance	Averaging Period	Maximum Predicted Ground-Level Concentrations (µg/m ³)	Ambient Background Concentration (µg/m ³)	Maximum Predicted Concentration Including Background (µg/m ³)	AAAQO/G (µg/m ³)	Comparison of Predictions to AAAQO/G
NO ₂ (TCM) ^a	1-hour ^b	607	31.9	639	NA	NA
	Annual	26.2	9.8	36.0	NA	NA
NO ₂ (ARM2) ^c	1-hour ^b	160	31.9	192	300	64%
	Annual	18.0	9.8	27.8	45	62%
CO	1-hour ^b	1510	380	1890	15,000	13%
	8-hour	1100	379	1479	6,000	25%
PM _{2.5}	1-hour ^b	141	17.2	158	80	198%
	24-hour	45.1	16.7	61.8	29	213%

Notes:

^a 100% of the NO_x concentrations are converted to NO₂ (Total Conversion Method (TCM)).

^b 9th highest predictions (AEP 2021 a).

^c NO_x was converted to NO₂ using the ARM2.

Bold text indicates exceedance of the AAAQO/G.

NA – Not Applicable (TCM NO₂ concentrations not compared against the AAAQO as ARM2 values used for comparison to AAAQO)



6.1.1 NO₂ Predictions

The maximum predicted 1-hour and annual average ground-level NO₂ concentrations associated with the Base Case are 192 µg/m³ and 27.8 µg/m³, respectively, including background. All maximum predicted NO₂ concentrations are less than the relevant AAAQO. The maximum predicted 1-hour and annual NO₂ concentrations occur 12.3 km south-southwest of Project boundary adjacent to the Bunge Canada facility and 12.8 km south-southeast of Project boundary close to Dow Chemical facility, respectively, as shown in Appendix C, Figures C.1 and C.2.

6.1.2 CO Predictions

The maximum predicted 1-hour, and 8-hour average ground-level CO concentrations associated with the Base Case are 1,890 µg/m³ and 1,479 µg/m³, respectively, including background. All maximum predicted CO concentrations are less than the relevant AAAQO. The maximum predicted 1-hour and 8-hour CO concentrations occur 7.1 km east of the Project boundary adjacent to Nutrien Redwater fertilizer facility, as shown in Appendix C, Figures C.3 and C.4.

6.1.3 PM_{2.5} Predictions

The maximum predicted 1-hour and 24-hour average ground-level PM_{2.5} concentrations associated with the Base Case are 158 µg/m³ and 61.8 µg/m³, respectively, including background. All maximum predicted PM_{2.5} concentrations are greater than the relevant AAAQO/G. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively, as shown in Appendix C, Figures C.5 and C.6.

6.2 Project Case

Dispersion modelling for the Project Case includes emissions from the 200 generator engines and 8 boilers. All combustion equipment are assumed to operate continuously at maximum rated capacity. The maximum predicted concentrations, without background, are summarized in Table 6.2.



Table 6.2 Maximum Predicted Ground-level Concentrations ($\mu\text{g}/\text{m}^3$) Associated with the Project Case

Substance	Averaging Period	Maximum Predicted Ground-Level Concentrations ($\mu\text{g}/\text{m}^3$)	AAAQO/G ($\mu\text{g}/\text{m}^3$)	Comparison of Predictions to AAAQO/G
NO ₂ (TCM) ^a	1-hour ^b	76.6	NA	NA
	Annual	3.88	NA	NA
NO ₂ (ARM2) ^c	1-hour ^b	68.9	300	23%
	Annual	3.50	45	8%
CO	1-hour ^b	76.6	15,000	0.5%
	8-hour	70.1	6,000	1.2%
PM _{2.5}	1-hour ^b	19.6	80	25%
	24-hour	12.8	29	44%

Notes:

^a 100% of the NO_x concentrations are converted to NO₂ (Total Conversion Method (TCM)).

^b 9th highest predictions (AEP 2021a).

^c NO_x was converted to NO₂ using the ARM2.

NA – Not Applicable (TCM NO₂ concentrations not compared against the AAAQO as ARM2 values used for comparison to AAAQO)

6.2.1 NO₂ Predictions

The maximum predicted 1-hour and annual average ground-level NO₂ concentrations associated with the Project Case are 68.9 $\mu\text{g}/\text{m}^3$ and 3.50 $\mu\text{g}/\text{m}^3$, respectively, without background. All maximum predicted NO₂ concentrations are less than or equal to 23% of the relevant AAAQO. The maximum predicted 1-hour and annual NO₂ concentrations occur on the Project fenceline, as shown in Appendix C, Figures C.7 and C.8.

6.2.2 CO Predictions

The maximum predicted 1-hour and 8-hour average ground-level CO concentrations associated with the Project Case are 76.6 $\mu\text{g}/\text{m}^3$ and 70.1 $\mu\text{g}/\text{m}^3$, respectively, without background. All maximum predicted CO concentrations are less than or equal to 1.2% of the relevant AAAQO. The maximum predicted 1-hour and 8-hour CO concentrations occur on the Project fenceline, respectively, as shown in Appendix C, Figures C.9 and C.10.



6.2.3 PM_{2.5} Predictions

The maximum predicted 1-hour and 24-hour average ground-level PM_{2.5} concentrations associated with the Project Case are 19.6 µg/m³ and 12.8 µg/m³, respectively, without background. All maximum predicted PM_{2.5} concentrations are less than or equal to 44% of the relevant AAAQO/G. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur on the Project fence line, respectively, as shown in Appendix C, Figures C.11 and C.12.

6.3 Application Case

Dispersion modelling for the Application Case includes emissions from the Project and the regional existing and approved facilities. The maximum predicted concentrations, including background, are summarized in Table 6.3.

6.3.1 NO₂ Predictions

The maximum predicted 1-hour and annual average ground-level NO₂ concentrations associated with the Application Case are 192 µg/m³ and 27.9 µg/m³, respectively, including background. All maximum predicted NO₂ concentrations are less than the relevant AAAQO. The 1-hour and annual NO₂ concentrations increased by less than or equal to 0.2% compared to the Base Case predicted concentrations.

The maximum predicted 1-hour and annual NO₂ concentrations occur 12.3 km south-southwest of Project boundary adjacent to the Bunge Canada facility and 12.8 km south-southeast of Project boundary close to Dow Chemical facility, respectively, as shown in Appendix C, Figures C.13 and C.14.

6.3.2 CO Predictions

The maximum predicted 1-hour, and 8-hour average ground-level CO concentrations associated with the Application Case are 1,890 µg/m³ and 1,479 µg/m³, respectively, including background. All maximum predicted CO concentrations are less than the relevant AAAQO. The maximum predicted 1-hour and 8-hour CO concentrations occur 7.1 km east of the Project boundary adjacent to Nutrien Redwater fertilizer facility, as shown in Appendix C, Figures C.15 and C.16. The 1-hour and annual CO concentrations increased by less than or equal to 0.01% compared to the Base Case predicted concentrations.

6.3.3 PM_{2.5} Predictions

The maximum predicted 1-hour and 24-hour average ground-level PM_{2.5} concentrations associated with the Application Case are 158 µg/m³ and 61.8 µg/m³, respectively, including background. All maximum predicted PM_{2.5} concentrations are greater than the relevant AAAQO/G. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively, as shown in Appendix C, Figures C.17 and C.18. The 1-hour and



24-hour PM_{2.5} concentrations increased by less or equal to 0.0002% relative to the Base Case predicted concentrations.



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Table 6.3 Maximum Predicted Ground-level Concentrations ($\mu\text{g}/\text{m}^3$) Associated with the Application Case

Substance	Averaging Period	Maximum Predicted Ground-Level Concentrations ($\mu\text{g}/\text{m}^3$)	Ambient Background Concentration ($\mu\text{g}/\text{m}^3$)	Maximum Predicted Concentration Including Background ($\mu\text{g}/\text{m}^3$)	AAAQO/G ($\mu\text{g}/\text{m}^3$)	Comparison of Predictions to AAAQO/G	% Change between Base Case and Application Case
NO ₂ (TCM) ^a	1-hour ^b	607	31.9	639	NA	NA	0.0004%
	Annual	26.2	9.8	36.0	NA	NA	0.2%
NO ₂ (ARM2) ^c	1-hour ^b	160	31.9	192	300	64%	0.000%
	Annual	18.1	9.8	27.9	45	62%	0.2%
CO	1-hour ^b	1510	380	1890	15,000	13%	0.0001%
	8-hour	1100	379	1479	6,000	25%	0.01%
PM _{2.5}	1-hour ^b	141	17.2	158	80	198%	0.00003%
	24-hour	45.1	16.7	61.8	29	213%	0.0002%

Notes:

^a 100% of the NO_x concentrations are converted to NO₂ (Total Conversion Method (TCM)).

^b 9th highest predictions (AEP 2021a).

^c NO_x was converted to NO₂ using the ARM2.

Bold text indicates exceedance of AAAQO/G.

NA – Not Applicable (TCM NO₂ concentrations not compared against the AAAQO as ARM2 values used for comparison to AAAQO)



6.4 Future Case

Dispersion modelling for the Future Case includes emissions from the Project, regional existing and approved facilities, and regional proposed facilities. The maximum predicted concentrations, including background, are summarized in Table 6.3.

6.4.1 NO₂ Predictions

The maximum predicted 1-hour and annual average ground-level NO₂ concentrations associated with the Future Case are 192 µg/m³ and 28.0µg/m³, respectively, including background. All maximum predicted NO₂ concentrations are less than the relevant AAAQO. The 1-hour and annual NO₂ concentrations increased by less than or equal to 0.4% compared to the Base Case predicted concentrations.

The maximum predicted 1-hour and annual NO₂ concentrations occur 12.3 km south-southwest of Project boundary adjacent to the east of Bunge Canada facility and 12.8 km south-southeast of Project boundary close to Dow Chemical facility, respectively, as shown in Appendix C, Figures C.19 and C.20.

6.4.2 CO Predictions

The maximum predicted 1-hour, and 8-hour average ground-level CO concentrations associated with the Future Case are 1,890 µg/m³ and 1,479 µg/m³, respectively, including background. All maximum predicted CO concentrations are less than the relevant AAAQO. The maximum predicted 1-hour and 8-hour CO concentrations occur 7.1 km east of the Project boundary adjacent to Nutrien Redwater fertilizer facility, as shown in Appendix C, Figures C.21 and C.22. The 1-hour and annual CO concentrations increased by less than or equal to 0.006% compared to the Base Case predicted concentrations.

6.4.3 PM_{2.5} Predictions

The maximum predicted 1-hour and 24-hour average ground-level PM_{2.5} concentrations associated with the Future Case are 158 µg/m³ and 61.8 µg/m³, respectively, including background. All maximum predicted PM_{2.5} concentrations are greater than the relevant AAAQO/G. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively, as shown in Appendix C, Figures C.17 and C.18. The 1-hour and 24-hour PM_{2.5} concentrations increased by less or equal to 0.0003% relative to the Base Case predicted concentrations.



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Table 6.4 Maximum Predicted Ground-level Concentrations ($\mu\text{g}/\text{m}^3$) Associated with the Future Case

Substance	Averaging Period	Maximum Predicted Ground-Level Concentrations ($\mu\text{g}/\text{m}^3$)	Ambient Background Concentration ($\mu\text{g}/\text{m}^3$)	Maximum Predicted Concentration Including Background ($\mu\text{g}/\text{m}^3$)	AAAQO/G ($\mu\text{g}/\text{m}^3$)	Comparison of Predictions to AAAQO/G	% Change between Base Case and Future Case
NO ₂ (TCM) ^a	1-hour ^b	607	31.9	639	NA	NA	0.0004%
	Annual	26.3	9.8	36.1	NA	NA	0.4%
NO ₂ (ARM2) ^c	1-hour ^b	160	31.9	192	300	64%	0.0001%
	Annual	18.2	9.8	28.0	45	62%	0.4%
CO	1-hour ^b	1510	380	1890	15,000	13%	0.0001%
	8-hour	1100	379	1479	6,000	25%	0.006%
PM _{2.5}	1-hour ^b	141	17.2	158	80	198%	0.00007%
	24-hour	45.1	16.7	61.8	29	213%	0.0003%

Notes:

^a 100% of the NO_x concentrations are converted to NO₂ (Total Conversion Method (TCM)).

^b 9th highest predictions (AEP 2021a).

^c NO_x was converted to NO₂ using the ARM2.

Bold text indicates exceedance of AAAQO/G.

NA – Not Applicable (TCM NO₂ concentrations not compared against the AAAQO as ARM2 values used for comparison to AAAQO)



7 Summary and Conclusions

Beacon is proposing to construct, own and operate an electricity generation facility within a data center campus in Alberta's Industrial Heartland. The total electrical site production features a capacity of 920 MWe, providing 800 MWe of continuous, dispatchable electricity to the four on site data centers. Potential effects on ambient air quality associated with the Project were evaluated using the AERMOD dispersion model. Maximum ground-level concentrations of NO₂, CO and PM_{2.5} were predicted and compared to the AAAQO/G.

The air quality assessment shows that maximum predicted ground-level concentrations for all substances of interest associated with emissions from the Project (the Project alone) are below the AAAQO/G for all relevant averaging periods (ranging between 0.5% and 44% of the AAAQO/G).

The maximum predicted NO₂ and CO concentrations for all averaging periods associated with the Base Case, Application Case, and Future Case are below the AAAQO. The maximum predicted 1-hour and 24-hour PM_{2.5} concentrations associated with the Base Case, Application Case, and Future case are greater than the relevant AAAQO/G; however, the maximum predicted 1-hour and 24-hour PM_{2.5} concentrations occur approximately 12.7 km south of the Project boundary near the Sherritt and Umicore facilities and 13.7 km south of the Project boundary near the Tidewater gas plant and Chemtrade facilities, respectively. These maximum concentrations are associated with emissions from the respective facilities.

A comparison between maximum predicted concentrations for the Base Case and Application Case indicates small increases (up to 0.2%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations with the addition of the Project. A comparison between maximum predicted concentrations for the Base Case and Future Case indicates small increases (up to 0.4%) to the maximum predicted NO₂, CO and PM_{2.5} concentrations. The model results show that overall maximum concentrations in the study area are primarily attributable to emissions from the existing regional industrial facilities.



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Appendices



Appendix A Regional Sources and Emission Parameters



Table A.1 Regional Point Sources and Emission Parameters

Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S1	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	440 kW Regeneration Gas Heater (H-62) Exhaust Stack	357553	5959132	622	9.1	0.39	3.50	621	5.40E-02	8.59E-03	1.94E-04	No	No
S2	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	120 kW Fire Water Tank Heater (H-70620) Exhaust Stack	357379	5958490	626	9.1	0.34	15.00	689	5.00E-03	4.11E-03	1.25E-04	No	No
S3	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	COSRP Incinerator (H-902) Stack	357334	5958559	626	27.4	0.60	12.00	886	1.10E-01	5.14E-01	9.72E-02	No	No
S4	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	Merox Incinerator (H-8700) Stack	357613	5959130	623	9.1	0.50	5.00	923	5.88E-02	1.76E-02	3.99E-04	No	No
S5	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	Emergency Flare Stack (M-401)	357288	5958516	625	19.8	1.09	99.90	723	5.67E-02	2.43E-01	8.12E-02	No	No
S6	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	12.5 MW Debutanizer 1 Hot Oil Heater (H-30) Exhaust Stack	357635	5959095	624	26.6	1.40	8.30	674	1.55E+00	4.71E-01	8.42E-03	No	No
S7	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	Emergency Flare Stack (H-2)	357735	5959218	624	80.0	0.76	157.60	1173	5.44E-02	2.80E-01	9.72E-02	No	No
S8	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	Emergency Flare Stack (H-3)	357685	5959184	623	19.8	0.61	99.90	708	2.13E-01	1.16E+00	4.07E-01	No	No
S9	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	484 kW Regeneration Heater (H-62A) Exhaust Stack	357544	5959130	622	6.4	0.41	3.50	623	7.36E-02	8.18E-02	3.31E-03	No	No
S10	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	42.82 MW Depropanizer Hot Oil Heater (H-7002) Exhaust Stack	357749	5959058	625	47.7	1.80	12.10	532	6.78E-01	7.53E-01	3.05E-02	No	No
S11	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	26.67 MW Debutanizer 2 Hot Oil Heater (H-7004) Exhaust Stack	357504	5959105	622	31.9	1.30	15.40	541	4.22E-01	4.69E-01	1.90E-02	No	No
S12	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	16.11 MW Debutanizer 2 Hot Oil Heater (H-60) Exhaust Stack	357534	5959104	623	28.2	1.80	6.40	666	2.00E+00	5.77E-01	1.30E-02	No	No
S13	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	23.45 MW Depropanizer Hot Oil Heater (H-1) Exhaust Stack	357735	5959059	625	44.7	2.10	6.60	648	2.90E+00	9.47E-01	2.14E-02	No	No
S14	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	2.7 MW Natural Gas Heater (H-650) Exhaust Stack	357514	5958527	627	13.3	0.79	5.50	663	3.36E-01	2.05E-02	1.59E-04	No	No
S15	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	1.6 MW Feed Pre-Heater (H-8710) Exhaust Stack	357601	5959113	623	7.8	0.50	3.40	553	1.98E-01	2.45E-02	5.55E-04	No	No
S16	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	4.25 MW Glycol Heater (H-901) Exhaust Stack	357370	5958558	626	18.0	1.20	4.00	553	4.07E-01	4.52E-01	1.83E-02	No	No
S17	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	5.82 MW Glycol Heater (H-801) Exhaust Stack	357361	5958559	626	17.3	1.20	1.50	653	2.97E-01	3.30E-01	1.34E-02	No	No
S18	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant	160 kW Fire Water Tank Heater (H-150) Exhaust Stack	357372	5958495	626	7.9	0.34	35.00	689	6.94E-03	5.71E-03	1.74E-04	No	No
S19	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	1,175 kW De-ethanizer Regeneration Gas Heater (H-3044) Exhaust Stack	357295	5957695	629	11.9	0.76	6.00	442	5.19E-01	4.36E-01	9.87E-03	No	No
S20	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	32,800 kW Hot Oil Furnace (HR-15.02) Exhaust Stack	357330	5957707	630	42.9	2.10	6.60	498	6.81E-01	1.19E+01	2.69E-01	No	No
S21	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	29,472 kW Hot Oil Medium Heater (HR-4155) Exhaust Stack	357235	5957689	629	38.4	2.10	7.62	515	1.18E+00	1.09E+01	2.48E-01	No	No
S22	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	Emergency Flare Stack (FS-3147)	357182	5957726	629	70.5	0.61	20.00	1273	1.40E-01	7.60E-01	2.66E-01	No	No
S23	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	South Flare Pond	357393	5957874	629	22.5	0.74	10.13	837	0.00E+00	0.00E+00	0.00E+00	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S24	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	Pond 4 Flare Pond	357906	5957454	629	22.5	0.74	10.13	837	0.00E+00	0.00E+00	0.00E+00	No	No
S25	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	21,101 kW De-ethanizer Heat Medium Heater (H-3150) Exhaust Stack	357315	5957709	629	43.1	1.85	15.00	421	5.50E-01	7.83E+00	1.77E-01	No	No
S26	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	1,172 kW Glycol Reboiler (BO-10.01) Exhaust Stack	357307	5957646	630	7.0	0.41	2.40	439	3.89E-01	3.26E-01	7.38E-03	No	No
S27	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	746 kW Gas Turbine (PM-18.03) Exhaust Stack	357358	5957570	630	6.7	0.91	43.30	593	2.61E+00	6.68E-01	1.55E-02	No	No
S28	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	746 kW Gas Turbine (PM-18.05) Exhaust Stack	357365	5957570	630	6.7	0.91	43.30	593	2.61E+00	6.68E-01	1.55E-02	No	No
S29	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	820 kW Gas Turbine (PM-18.04) Exhaust Stack	357361	5957570	630	6.7	0.91	43.30	593	2.87E+00	7.35E-01	1.70E-02	No	No
S30	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	820 kW Gas Turbine (PM-18.14) Exhaust Stack	357369	5957570	630	6.7	0.91	43.30	593	2.87E+00	7.35E-01	1.70E-02	No	No
S31	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	1,139 kW Regeneration Gas Heater (HR-15.01) Exhaust Stack	357317	5957694	630	6.6	0.76	35.30	603	5.01E-01	4.21E-01	9.52E-03	No	No
S32	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility	917 kW Regeneration Gas Heater (HR-4111) Exhaust Stack	357254	5957688	629	13.1	0.61	1.95	603	4.05E-01	3.40E-01	7.70E-03	No	No
S51	TransCanada Energy Ltd.	Redwater 40 MW Cogeneration Power Plant	General Electric LM6000-PD DLE Gas Turbine and Heat Recovery Unit Common Exhaust Stack	359737	5965222	637	30.0	3.00	24.10	446	9.53E+00	3.94E+00	3.13E-01	No	No
S52	Conifer Energy Inc.	Redwater Gas Conservation Plant	828 kW Amine Reboiler (E-405) Exhaust Stack	363588	5980359	615	9.1	0.60	2.42	573	8.28E-02	5.61E-02	1.27E-03	No	No
S53	Conifer Energy Inc.	Redwater Gas Conservation Plant	551 kW Inlet Compressor (K-800) Engine Exhaust Stack	363622	5980352	615	10.0	0.25	31.40	422	4.08E-01	3.08E+00	8.37E-03	No	No
S54	Conifer Energy Inc.	Redwater Gas Conservation Plant	Truck Tank Vapour Incinerator Stack	363448	5980106	618	6.6	0.79	6.80	889	6.75E-02	9.65E-02	1.35E-03	No	No
S55	Conifer Energy Inc.	Redwater Gas Conservation Plant	Process Flare Stack	363683	5980384	614	30.5	0.31	0.10	1273	5.67E-02	3.08E-01	1.08E-01	No	No
S56	Conifer Energy Inc.	Redwater Gas Conservation Plant	100 kW Glycol Regen Reboiler (H-650) Exhaust Stack	363630	5980383	615	9.1	0.31	1.12	573	1.00E-02	1.50E-02	1.50E-04	No	No
S57	Conifer Energy Inc.	Redwater Gas Conservation Plant	2,344 kW #1 Field Gate Treater (V-105) Exhaust Stack	363638	5980331	616	8.7	0.60	6.77	753	9.39E-02	1.31E-01	2.97E-03	No	No
S58	Conifer Energy Inc.	Redwater Gas Conservation Plant	2,344 kW #1 Field Gate Treater (V-110) Exhaust Stack	363629	5980331	616	8.7	0.60	6.77	753	9.39E-02	1.31E-01	2.97E-03	No	No
S59	Conifer Energy Inc.	Redwater Gas Conservation Plant	150 kW Refrig Reboiler (H-633) Exhaust Stack	363630	5980381	615	9.1	0.31	1.68	573	1.50E-02	8.37E-03	1.65E-04	No	No
S60	Conifer Energy Inc.	Redwater Gas Conservation Plant	293 kW SRU Waste Gas Oil Heater (B-901) Exhaust Stack	363563	5980392	615	13.1	0.31	3.12	573	2.90E-02	1.64E-02	3.85E-04	No	No
S61	Conifer Energy Inc.	Redwater Gas Conservation Plant	SRU Incinerator (B-920) Stack	363558	5980397	615	35.1	0.36	31.60	1300	1.04E-01	4.02E-02	1.03E-03	No	No
S62	Conifer Energy Inc.	Redwater Gas Conservation Plant	551 kW Inlet Compressor (K-700) Engine Exhaust Stack	363622	5980352	615	10.0	0.25	31.40	422	4.08E-01	3.08E+00	8.37E-03	No	No
S63	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Waste Gas Incinerator Stack	356377	5954515	624	64.0	1.13	3.38	598	3.77E-02	3.18E-02	9.21E-05	No	No
S64	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Flare Stack	356372	5954520	624	67.0	1.10	3.38	598	1.84E-02	8.32E-02	1.07E-04	No	No
S65	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Methane Propane Heater #1 Stack	356431	5954513	624	1.1	0.15	5.00	385	1.69E-03	1.44E-03	4.22E-05	No	Yes
S66	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Methane Propane Heater #2 Stack	356431	5954511	624	1.1	0.15	5.00	385	1.69E-03	1.44E-03	4.22E-05	No	Yes



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S67	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Sulphur Vapourizer Stack	356411	5954494	624	4.6	0.30	5.00	986	4.81E-03	4.09E-03	1.20E-04	No	No
S68	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Hot Oil Heater Stack #1	356394	5954517	624	4.1	0.30	5.00	473	5.00E-02	4.25E-02	1.25E-03	No	No
S69	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Methane Vaporizer #1 Stack	356396	5954517	624	4.1	0.30	5.00	473	2.37E-03	2.01E-03	5.91E-05	No	No
S70	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Methane Vaporizer #2 Stack	356417	5954512	624	4.1	0.30	5.00	473	2.37E-03	2.01E-03	5.91E-05	No	No
S71	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Hot Oil Heater Stack #2	356396	5954515	624	4.1	0.30	5.00	473	5.00E-02	4.25E-02	1.25E-03	No	No
S72	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Vent Condenser Stack	355462	5954710	622	11.9	0.20	5.61	293	0.00E+00	0.00E+00	0.00E+00	No	No
S73	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Wash Bay, North Screener & Blender Baghouse Vent	355426	5954742	622	2.6	0.70	22.00	300	0.00E+00	0.00E+00	5.36E-03	No	Yes
S74	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Reduction Furnace Vent Stack HE-04	355405	5954717	622	9.1	0.30	20.60	388	0.00E+00	0.00E+00	1.62E-03	No	No
S75	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Reduction Furnace Vent Stack HE-06	355408	5954726	622	6.8	0.30	15.30	388	0.00E+00	0.00E+00	3.59E-03	No	Yes
S76	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	HVEM Plant and AIMS Dust Baghouse Stack	355298	5954625	622	3.1	0.51	17.60	293	0.00E+00	0.00E+00	4.25E-01	No	Yes
S77	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	High Value Electronic Vent Stack	355367	5954594	622	10.9	0.16	2.24	300	0.00E+00	0.00E+00	0.00E+00	No	No
S78	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Leach Autoclave Vent	355418	5954711	622	6.8	0.07	2.20	379	0.00E+00	0.00E+00	0.00E+00	No	No
S79	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	PCS Storage Tank Vent	355424	5954686	622	4.6	0.10	2.10	333	0.00E+00	0.00E+00	0.00E+00	No	No
S80	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Screening Baghouse Vent	355404	5954725	622	5.7	0.63	14.19	305	0.00E+00	0.00E+00	5.36E-03	No	Yes
S81	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Nickel Area Baghouse Vents	355394	5954928	620	5.6	0.70	21.40	298	0.00E+00	0.00E+00	1.07E-02	No	Yes
S82	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Packaging and PTA Baghouse Vent	355357	5954811	621	3.8	0.80	25.40	300	0.00E+00	0.00E+00	1.07E-02	No	Yes
S83	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Aluminum and Furnace Baghouse Vent	355408	5954687	622	2.2	0.51	23.60	300	0.00E+00	0.00E+00	5.36E-03	No	No
S84	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	NiCrAl Bent Blending Baghouse Vent	355388	5954726	622	5.0	0.16	2.13	440	0.00E+00	0.00E+00	0.00E+00	No	No
S85	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Primary Reformer Stack	355214	5955284	617	36.6	3.40	15.96	422	2.78E+01	9.28E+00	2.10E-01	No	No
S86	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	CO2 Collection Vent	355298	5955258	618	49.0	0.41	75.00	285	0.00E+00	0.00E+00	0.00E+00	No	No
S87	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Degasifier Vent Stack	355300	5955244	618	36.0	0.10	0.50	292	0.00E+00	0.00E+00	0.00E+00	Yes	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S88	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Selexol Vent Separator Stack	355316	5955249	618	10.7	0.76	4.10	273	0.00E+00	0.00E+00	0.00E+00	Yes	No
S89	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Main Urea Stack	355265	5955115	618	67.1	2.70	23.00	320	3.56E-01	2.97E-01	4.50E+00	No	No
S90	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Utilities Boiler Stack	355218	5955195	618	30.2	1.50	7.10	476	2.03E+00	1.36E+00	3.08E-02	No	No
S91	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Lime Silo Baghouse Exhaust Stack	355321	5955169	619	15.3	0.10	7.40	283	0.00E+00	0.00E+00	0.00E+00	No	No
S92	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Ammonia Loadout Heater Exhaust Stack	355384	5955299	618	4.5	0.46	16.40	366	3.00E-01	2.53E-01	5.72E-03	No	No
S93	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Urea Loadout Dust Scrubber Exhaust Stack	355347	5955022	619	9.1	0.41	18.30	283	0.00E+00	0.00E+00	0.00E+00	No	No
S94	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Synthesis Start Up Heater Stack	355320	5955293	618	11.0	1.30	3.80	630	4.81E-01	4.06E-01	9.14E-03	No	No
S95	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Ammonia Storage Tank Flare Stack	355218	5955012	618	13.7	1.20	7.40	727	1.89E-03	1.62E-03	3.58E-05	No	No
S96	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Carbon Dioxide Stripper Vent	355298	5955258	618	49.0	0.76	6.70	286	0.00E+00	0.00E+00	0.00E+00	Yes	No
S97	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Selexol Dehydrator Vent	355317	5955249	618	13.7	0.15	0.50	337	0.00E+00	0.00E+00	0.00E+00	Yes	No
S98	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Excess Carbon Dioxide Stack	355262	5955265	618	8.0	0.67	2.70	275	0.00E+00	0.00E+00	0.00E+00	No	No
S99	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Purge Gas Vent Stack	355237	5955231	618	5.0	0.30	28.50	305	0.00E+00	0.00E+00	0.00E+00	No	No
S100	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Front End Vent Stack	355205	5955232	617	50.0	1.68	23.60	611	0.00E+00	2.54E+00	0.00E+00	No	No
S101	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Back End Vent Stack	355286	5955244	618	55.0	0.90	33.30	320	0.00E+00	0.00E+00	0.00E+00	No	No
S102	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - East Train Process Unit - Reactor-Granulator Tail Gas Scrubber Stack	362384	5968260	627	30.5	1.52	14.00	349	0.00E+00	0.00E+00	1.60E-01	No	No
S103	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Sulphuric Acid I Process Unit - Tail Gas Stack	362561	5968281	626	76.2	2.29	13.20	343	0.00E+00	0.00E+00	6.67E-01	No	No
S104	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Process Unit - Primary Reformer Exhaust North Cell Stack	362484	5967999	626	29.0	1.47	20.00	464	2.08E+01	2.13E+00	4.81E-02	No	No
S105	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Process Unit - Primary Reformer Exhaust South Cell Stack	362484	5967994	626	29.0	1.47	20.00	464	2.08E+01	2.13E+00	4.81E-02	No	No
S106	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Carbon Dioxide Stripper Stack	362443	5968003	626	45.0	0.60	21.50	430	0.00E+00	0.00E+00	0.00E+00	No	No
S107	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Wet Vent Header Exhaust Stack	362429	5968004	626	45.0	0.15	0.26	328	0.00E+00	1.20E+02	0.00E+00	No	No
S108	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Dry Vent Header Exhaust Stack	362426	5968005	626	45.0	0.91	0.10	328	0.00E+00	0.00E+00	0.00E+00	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S109	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia I Converter Start-up Heater Exhaust Stack	362419	5968025	626	26.2	0.98	1.10	1200	1.37E-01	1.15E-01	2.61E-03	No	No
S110	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia II Process Unit - Primary Reformer Exhaust Stack	362441	5967781	625	25.9	3.65	15.00	713	2.78E+01	9.25E+00	2.11E-01	No	No
S111	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia II Carbon Dioxide Stripper Stack (Upper & Lower Vent)	362442	5967896	626	85.0	0.61	23.10	473	0.00E+00	0.00E+00	0.00E+00	No	No
S112	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - East Train Process Unit - Dryer-Cooler Scrubber Stack	362394	5968256	627	35.1	2.74	15.00	322	1.42E+00	6.22E-01	4.57E-01	No	No
S113	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia II Wet Vent Header Exhaust Stack	362440	5967896	626	85.0	1.58	0.20	328	0.00E+00	2.01E+01	0.00E+00	No	No
S114	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia II Dry Vent Header Exhaust Stack	362446	5967922	626	63.7	0.91	0.11	328	0.00E+00	0.00E+00	0.00E+00	No	No
S115	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonia II Converter Start-up Heater Exhaust Stack	362477	5967948	626	36.6	1.68	0.90	1225	3.44E-01	2.90E-01	6.56E-03	No	No
S116	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonium Nitrate Process Unit - "Brinks" Prill Tower Filter Scrubber Stack	362374	5968034	626	42.7	1.52	34.30	311	0.00E+00	0.00E+00	2.10E+00	No	No
S117	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonium Nitrate Process Unit - Process Scrubber Vent	362369	5968044	626	42.7	1.37	19.70	331	0.00E+00	0.00E+00	5.91E-01	No	No
S118	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Ammonium Nitrate Prill Tower Fans Vent	362380	5968044	626	36.1	1.83	17.00	304	0.00E+00	0.00E+00	7.89E-01	No	No
S119	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Nitric Acid Process Unit - Tail Gas Stack	362329	5967991	626	45.4	1.22	24.90	442	1.81E+01	5.31E-01	1.20E-02	No	No
S120	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Urea Process Unit - Synthesis Unit Process Vent	362324	5967865	625	55.0	0.25	20.30	325	0.00E+00	0.00E+00	0.00E+00	No	No
S121	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Urea Process Unit - Granulation Unit Scrubber Stack	362339	5967824	625	54.9	3.51	12.80	316	0.00E+00	0.00E+00	3.53E-01	No	No
S122	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Urea Process Unit - Synthesis D-410 Relief Drum Vent	362324	5967864	625	55.0	0.91	0.10	442	0.00E+00	0.00E+00	0.00E+00	No	No
S123	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - East Train Process Unit - Dust Collection Baghouse Type Filter Exhaust Stack	362374	5968268	627	30.5	1.02	10.30	345	0.00E+00	0.00E+00	7.50E-02	No	No
S124	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Utilities Ammonia Flare Stack	362706	5967896	619	15.2	0.30	10.00	450	3.15E-01	2.64E-01	5.99E-03	No	No
S125	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Utilities Boiler # 1 Exhaust Stack	362531	5968035	625	19.5	1.20	1.60	454	3.21E+00	1.11E+00	3.67E-02	No	No
S126	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Utilities Boiler # 2 Exhaust Stack	362543	5968034	625	19.5	1.75	14.13	397	1.27E+00	2.69E+00	6.37E-02	No	No
S127	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Utilities Boiler # 3 Exhaust Stack	362557	5968035	625	18.2	1.50	1.60	400	6.18E+00	2.59E+00	7.07E-02	No	No
S128	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	HRSG Stack No.1	362518	5968203	626	36.6	2.10	22.80	439	2.64E+00	9.25E-01	3.14E-01	No	No
S129	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	HRSG Stack No.2	362518	5968225	626	36.6	2.10	22.80	439	2.64E+00	9.25E-01	3.14E-01	No	No
S130	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - West Train Process Unit - Reactor-Granulator-Cooler Tail Gas Scrubber Stack	362340	5968260	628	30.5	1.52	18.00	352	0.00E+00	0.00E+00	3.23E-01	No	No
S131	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - West Train Process Unit - Dryer Scrubber Stack	362339	5968246	627	35.1	2.13	8.00	330	1.13E+00	6.22E-01	2.85E-01	No	No
S132	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Granulation - West Train Process Unit - Dust Collection Baghouse Type Filter Exhaust Stack	362357	5968268	628	30.5	1.02	6.00	345	0.00E+00	0.00E+00	7.50E-02	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S133	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Phosphoric Acid D-665 Attack Tank Fume Scrubber Stack	362510	5968261	626	28.7	1.12	14.50	300	0.00E+00	0.00E+00	0.00E+00	No	No
S134	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Phosphoric Acid D-1014 North Filter Scrubber Stack	362509	5968292	626	28.7	1.22	8.50	299	0.00E+00	0.00E+00	0.00E+00	No	No
S135	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Phosphoric Acid D-675 South Filter Scrubber Stack	362511	5968323	627	28.7	2.13	18.70	300	0.00E+00	0.00E+00	0.00E+00	No	No
S136	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	High Pressure Still Bottoms Evaporator Stack	355771	5954744	623	24.5	0.79	33.52	330	0.00E+00	0.00E+00	0.00E+00	No	Yes
S137	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Boiler Exhaust Stack 3	355605	5954726	623	18.7	1.33	5.00	400	3.00E+01	1.01E+00	2.29E-02	No	No
S138	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Hydrogen Sulphide Scrubber Flare Stack	355616	5954659	623	20.4	0.50	1.50	1273	0.00E+00	0.00E+00	0.00E+00	No	No
S139	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Tail Gas Stack	355766	5954577	623	61.0	1.51	14.00	350	0.00E+00	0.00E+00	0.00E+00	No	No
S140	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Fume Scrubber Stack	355790	5954520	623	36.6	0.80	2.71	310	0.00E+00	0.00E+00	1.51E-03	No	No
S141	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Clark Compressor #2 Stack	355300	5954830	620	12.0	0.46	45.52	660	4.66E+00	9.81E-01	1.14E-02	No	No
S142	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Clark Compressor #3 Stack	357553	5959132	622	12.0	0.46	45.52	660	8.83E+00	4.75E-01	2.08E-02	No	No
S143	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Clark Compressor #4 Stack	357553	5959132	622	12.0	0.46	45.52	660	5.08E+00	7.28E-01	1.39E-02	No	No
S144	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Clark Compressor #5 Stack	357553	5959132	622	11.9	0.76	32.00	690	3.11E+00	1.09E+00	3.12E-02	No	No
S145	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Clark Compressor #6 Stack	357553	5959132	622	16.2	0.62	40.00	650	1.12E+01	1.38E+00	1.59E-02	No	No
S146	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Low Pressure Flare Stack	357553	5959132	622	15.5	0.11	0.00	950	3.10E-02	0.00E+00	0.00E+00	No	No
S147	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Vent Gas Scrubber Stack	357553	5959132	623	24.4	0.37	17.82	300	0.00E+00	0.00E+00	0.00E+00	No	No
S148	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Main Flare Stack	355347	5954877	620	21.0	0.46	0.00	950	4.35E+00	0.00E+00	0.00E+00	No	No
S149	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Powerhouse Clark Stack	355591	5954705	623	8.3	0.30	45.00	680	0.00E+00	0.00E+00	0.00E+00	No	No
S150	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Lime Bin Vent Filter 1 Exhaust Stack	355611	5954823	623	10.3	0.63	12.69	319	0.00E+00	0.00E+00	1.50E-03	No	No
S151	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Ammonia Storage Tank Emergency Flare Stack	355217	5955013	618	27.4	0.10	13.40	1273	9.49E-03	2.05E-02	4.80E-04	No	No



Beacon AI Centers - Heartland Project Air Quality Assessment
Appendix A: Regional Sources and Emission Parameters
December 2025

Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S152	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Cobalt Sintering Furnaces Stack	355372	5954677	622	11.6	0.40	11.50	444	1.62E+00	3.47E-02	4.05E-02	No	No
S153	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Nickel Dryer and Sintering Furnace Stack	355728	5954626	623	7.3	0.35	24.70	444	2.66E+00	5.79E-02	6.66E-02	No	No
S154	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Oxydrolisis Tower Vent Condenser Stack	355692	5954600	623	7.0	0.36	5.63	358	0.00E+00	0.00E+00	0.00E+00	No	No
S155	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Lime Bin Vent Filter 2 Exhaust Stack	355618	5954820	623	10.3	0.63	12.69	319	0.00E+00	0.00E+00	1.50E-03	No	No
S156	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Granulation Unit Common Stack	355756	5954477	623	45.5	2.00	10.81	330	3.29E-01	5.14E-02	2.92E-01	No	No
S157	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Primary Reformer Exhaust Stack	355428	5954765	622	25.7	1.64	13.29	450	1.51E+00	1.42E+00	3.21E-02	No	No
S158	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Reduction Autoclave Flash Tanks Condenser Vent	355663	5954669	623	26.6	0.27	2.23	360	0.00E+00	0.00E+00	0.00E+00	No	No
S159	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Cobalt Separation Scrubber Stack	355657	5954703	623	27.5	0.34	30.00	300	0.00E+00	0.00E+00	0.00E+00	No	No
S160	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Dryer Scrubber Tank Exhaust Stack	355562	5954628	623	20.5	0.61	18.00	310	3.21E-02	6.42E-03	4.59E-02	No	No
S161	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Boiler Exhaust Stack 1	355559	5954739	623	22.0	2.10	7.00	450	1.15E+01	1.49E+00	3.38E-02	No	No
S162	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Boiler Exhaust Stack 2	355552	5954728	623	22.0	2.14	7.00	450	1.16E+01	1.45E+00	3.27E-02	No	No
S163	North West Redwater Holding Corp	Sturgeon Oil Refinery	Atmospheric Crude Unit (ACU) Heater Exhaust Stack	360312	5968310	634	65.0	2.05	15.00	554	2.50E+00	2.40E+00	4.64E-03	No	No
S164	North West Redwater Holding Corp	Sturgeon Oil Refinery	Hydrocarbon Flare Stack	360691	5968484	635	95.0	1.65	1.00	1473	7.71E+00	5.08E+00	1.43E-02	No	No
S165	North West Redwater Holding Corp	Sturgeon Oil Refinery	Acid Gas Flare Stack	360341	5968514	635	85.0	0.31	1.00	1473	4.99E-01	1.50E-01	4.22E-04	No	No
S166	North West Redwater Holding Corp	Sturgeon Oil Refinery	Tank Farm Incinerator Stack	359901	5967970	632	18.3	2.40	12.50	1148	4.00E-01	1.20E-01	3.38E-04	No	No
S167	North West Redwater Holding Corp	Sturgeon Oil Refinery	Sulphur Recovery Unit Incinerator Exhaust Stack	360341	5968514	635	85.0	1.83	17.98	923	2.51E+00	7.52E-01	2.12E-03	No	No
S168	North West Redwater Holding Corp	Sturgeon Oil Refinery	Heating Up Stack	360334	5968094	632	45.0	0.80	7.31	413	1.32E-01	3.16E-01	6.11E-04	No	No
S169	North West Redwater Holding Corp	Sturgeon Oil Refinery	Vacuum Crude Unit (VCU) Heater Exhaust Stack	360301	5968363	635	65.0	1.37	15.00	620	6.11E-01	1.03E+00	1.99E-03	No	No
S170	North West Redwater Holding Corp	Sturgeon Oil Refinery	Common Exhaust Stack for LC-Fining (LCF) Feed Heater and LCF Hydrogen Heater	360704	5967929	631	65.3	1.32	15.10	607	6.11E-01	7.41E-01	1.43E-03	No	No
S171	North West Redwater Holding Corp	Sturgeon Oil Refinery	LCF Atmospheric Heater Stack	360538	5968039	632	65.3	0.89	15.00	547	2.50E-01	3.68E-01	7.11E-04	No	No
S172	North West Redwater Holding Corp	Sturgeon Oil Refinery	LCF Vacuum Heater Stack	360513	5967920	632	65.3	1.01	15.20	641	3.06E-01	4.59E-01	8.87E-04	No	No
S173	North West Redwater Holding Corp	Sturgeon Oil Refinery	Common Exhaust Stack for Recycle Gas Heater, Product Fractionator Heater, and Hydrotreater Heater	360603	5968213	633	88.0	2.70	15.00	588	4.56E+00	4.23E+00	8.17E-03	No	No
S174	North West Redwater Holding Corp	Sturgeon Oil Refinery	Steam Boiler A Exhaust Stack	360284	5967998	632	33.5	2.00	18.45	436	4.67E+00	3.63E+00	7.02E-03	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S175	North West Redwater Holding Corp	Sturgeon Oil Refinery	Steam Boiler B Exhaust Stack	360283	5967982	632	33.5	2.00	18.45	436	4.67E+00	3.86E+00	7.47E-03	No	No
S176	North West Redwater Holding Corp	Sturgeon Oil Refinery	Steam Boiler C Exhaust Stack	360283	5967966	632	33.5	2.00	18.45	436	4.67E+00	3.87E+00	7.48E-03	No	No
S178	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Package Boiler #1 Stack	359111	5957414	628	15.2	2.13	1.89	436	3.39E+00	1.50E+00	3.39E-02	No	No
S179	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #8 Stack	359118	5957341	629	55.2	1.93	8.86	432	3.33E+00	2.15E-02	5.07E-02	No	No
S180	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #9 Stack	359133	5957340	629	55.2	1.93	8.86	432	3.33E+00	2.01E-02	5.39E-02	No	No
S181	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #10 Stack	359147	5957340	629	55.2	1.93	8.86	432	3.33E+00	2.01E-02	5.30E-02	No	No
S182	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #11 Stack	359162	5957339	629	55.2	1.93	8.86	432	3.33E+00	2.15E-02	5.36E-02	No	No
S183	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #12 Stack	359185	5957338	629	63.7	2.03	13.70	392	3.47E+00	3.19E-02	1.31E-01	No	No
S184	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Spent Caustic Incinerator Stack	359088	5957338	629	43.5	0.44	1.00	313	3.63E-01	1.60E-01	3.64E-03	No	No
S185	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Loading Vent Incinerator Stack	358785	5957150	629	17.1	1.88	3.10	1173	6.94E-02	3.40E-02	7.70E-04	No	No
S186	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Storage Tank Vent Incinerator Stack	358709	5957920	629	17.2	1.32	1.00	1173	4.58E-02	2.09E-02	4.44E-04	No	No
S187	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-1 Flare Stack	358950	5957817	632	75.8	2.18	9.40	860	1.86E-01	1.60E+00	4.28E-02	No	No
S188	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	CO2 Incinerator Stack	358809	5957482	629	27.4	2.44	4.30	1073	1.60E-01	1.05E-01	2.37E-03	No	No
S189	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Package Boiler #2 Stack	359111	5957393	628	15.2	2.13	1.89	436	3.24E+00	1.43E+00	3.24E-02	No	No
S190	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Brine Degas Incinerator Stack	358723	5958265	630	11.4	1.20	7.57	1033	4.07E-01	1.80E-01	4.06E-03	No	No
S191	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Fractionator Flare Stack	358841	5957876	630	61.0	2.03	10.26	856	1.51E-01	1.30E+00	4.82E-02	No	No
S192	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	NGL Dryer Regenerator Heater Stack	358830	5957577	629	20.4	0.76	1.30	508	4.25E-02	1.95E-01	4.42E-03	No	No
S193	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Wells Dowtherm Furnace Stack	357602	5957168	627	12.2	0.76	1.74	431	5.73E-02	2.53E-02	5.83E-04	Yes	No
S194	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Wells Flare Stack	357286	5957165	629	31.4	1.36	12.91	842	2.66E-02	2.27E-01	2.22E-04	No	No
S195	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly Furnace #1 Stack	357297	5955769	625	33.0	1.13	7.00	453	8.30E-01	3.67E-01	8.28E-03	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S196	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly Furnace #2 Stack	357321	5955766	625	46.0	1.46	5.70	493	1.53E+00	6.76E-01	1.53E-02	No	No
S197	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly Furnace #3 Stack	357314	5955731	625	46.0	1.47	5.70	473	1.57E+00	6.93E-01	1.56E-02	No	No
S198	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly Flare Stack	357267	5955950	625	42.7	0.91	0.70	873	1.15E-01	9.81E-01	5.10E-02	No	No
S199	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Combined Gas Turbine/ Heat Recovery Unit 101 Stack	356679	5956357	626	30.5	4.57	25.30	408	5.07E+00	1.97E+00	4.46E-02	No	No
S200	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #1 Stack	359022	5957340	629	43.5	1.77	8.08	441	3.33E+00	2.01E-02	5.54E-02	No	No
S201	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Combined Gas Turbine/ Heat Recovery Unit 201 Stack	356690	5956330	626	30.5	4.57	20.20	391	2.28E+01	9.38E+00	2.12E-01	No	No
S202	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	MEGlobal CO2 Vent	356869	5956401	625	47.5	0.51	27.00	533	0.00E+00	0.00E+00	0.00E+00	No	No
S203	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	EO Storage and Tank Car Depad Vent	356451	5956951	624	3.1	0.05	0.00	300	0.00E+00	0.00E+00	0.00E+00	No	No
S204	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Sweetwater Inert Vent	356953	5956510	625	15.2	0.05	210.00	368	0.00E+00	0.00E+00	0.00E+00	No	No
S205	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Glycol Vacuum Inerts Vent	356920	5956498	625	20.0	0.10	1.18	300	0.00E+00	0.00E+00	0.00E+00	No	No
S206	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Reactor Analyzer Vent	356915	5956404	625	18.3	0.05	0.21	298	0.00E+00	0.00E+00	0.00E+00	No	No
S207	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	T-7 Analyzer Vent	356820	5956562	625	4.6	0.13	15.00	298	0.00E+00	0.00E+00	0.00E+00	No	No
S208	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Glycol Evaporator Vent	356865	5956491	625	3.7	0.05	9.00	381	0.00E+00	0.00E+00	0.00E+00	No	No
S209	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	T-7 Light Ends Vent	356807	5956550	625	13.7	0.10	0.00	306	0.00E+00	0.00E+00	0.00E+00	No	No
S210	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Cycle Gas Vent	356883	5956442	625	18.3	0.20	0.00	323	0.00E+00	0.00E+00	0.00E+00	No	No
S211	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #2 Stack	359029	5957339	629	43.5	1.77	8.08	441	3.33E+00	2.04E-02	5.31E-02	No	No
S212	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Methane Purification Vent	356841	5956446	625	18.3	0.25	0.00	301	0.00E+00	0.00E+00	0.00E+00	No	No
S213	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Evaporator Reboiler Inert Vent	356967	5956510	625	1.2	0.05	0.00	403	0.00E+00	0.00E+00	0.00E+00	No	No
S216	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-1 Decarbonator Vent	359196	5957780	631	9.7	0.46	5.40	293	0.00E+00	0.00E+00	0.00E+00	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S217	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-1 Deaerator Vent #1	359163	5957759	631	9.7	0.08	1.80	293	0.00E+00	0.00E+00	0.00E+00	No	No
S218	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-1 Deaerator Vent #2	359175	5957758	631	9.7	0.08	1.80	293	0.00E+00	0.00E+00	0.00E+00	No	No
S219	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	ES Decarbonator Vent	356708	5956303	626	6.1	0.46	7.40	293	0.00E+00	0.00E+00	0.00E+00	No	No
S220	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly-2 Heater 4 Stack	357509	5956118	626	53.1	1.70	5.90	447	4.33E-01	1.49E-01	1.75E-02	No	No
S221	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly-2 Heater 5 Stack	357556	5956024	626	53.1	1.70	5.90	447	4.33E-01	1.49E-01	1.75E-02	No	No
S222	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #3 Stack	359051	5957339	629	43.5	1.77	8.08	441	3.33E+00	2.01E-02	5.26E-02	No	No
S223	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	SD-4511 A Vent	357515	5956075	626	20.0	1.10	7.10	293	0.00E+00	0.00E+00	0.00E+00	No	No
S224	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	SD-4511 B Vent	357516	5956078	626	20.0	1.10	7.10	293	0.00E+00	0.00E+00	0.00E+00	No	No
S225	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	SD-5511 A Vent	357562	5955981	627	20.0	1.10	7.10	293	0.00E+00	0.00E+00	0.00E+00	No	No
S226	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	SD-5511 B Vent	357563	5955983	627	20.0	1.10	7.10	293	0.00E+00	0.00E+00	0.00E+00	No	No
S227	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Poly-2 Flare Stack	357383	5955961	625	41.1	0.63	0.02	1286	6.42E-02	2.92E-01	1.13E-01	No	No
S228	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LP-8 Flare Stack	357311	5956295	625	59.0	0.56	0.26	1042	3.31E-01	1.51E+00	5.83E-01	No	No
S229	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #13 Stack	359313	5957322	631	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S230	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #14 Stack	359332	5957321	631	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S231	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #15 Stack	359351	5957321	631	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S232	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #16 Stack	359370	5957320	630	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S233	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #4 Stack	359058	5957338	629	43.5	1.77	8.08	441	3.33E+00	2.01E-02	5.60E-02	No	No
S234	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #17 Stack	359390	5957319	630	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S235	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #18 Stack	359409	5957319	630	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S236	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Cracking Furnace #19 Stack	359428	5957319	630	63.7	2.30	19.10	396	1.46E+00	1.65E-01	1.65E-01	No	No
S237	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 LP Vent Incinerator Stack	359575	5957378	629	22.9	3.60	4.10	1073	4.80E-01	4.04E-01	9.14E-03	No	No
S238	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Spent Caustic Incinerator Stack	359084	5957335	629	40.2	0.90	1.00	313	3.63E-01	1.65E-01	3.64E-03	No	No
S239	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Ground Flare	359514	5957573	631	2.8	0.11	0.13	1226	3.69E-01	1.68E+00	9.24E-03	No	No
S240	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-2 Elevated Flare Stack	359576	5957393	629	18.3	0.45	0.17	1134	4.50E-02	1.55E-02	7.94E-02	No	No
S241	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	ATR Fired Heater Stack	358676	5957575	628	40.0	2.00	13.70	423	2.31E-01	7.94E-02	2.81E-02	No	No
S242	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	ATR Flare Stack	358552	5957566	629	115.0	1.98	0.02	1309	8.39E-02	3.83E-01	1.48E-01	No	No
S243	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #5 Stack	359080	5957337	629	43.5	1.77	8.08	441	3.33E+00	2.15E-02	5.09E-02	No	No
S244	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #6 Stack	359086	5957338	629	43.5	1.77	8.08	441	3.33E+00	2.00E-02	5.31E-02	No	No
S245	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Ethylene Cracking Furnace #7 Stack	359104	5957340	629	55.2	1.93	8.86	432	3.33E+00	1.96E-02	5.65E-02	No	No
S246	Access Pipeline Inc.	Sturgeon Bulk Petroleum Storage Terminal	29.3 kW Tank Heater 1 Exhaust Stack	360518	5967324	631	13.7	0.14	8.53	429	1.00E-03	8.60E-04	2.50E-05	No	No
S247	Access Pipeline Inc.	Sturgeon Bulk Petroleum Storage Terminal	29.3 kW Tank Heater 2 Exhaust Stack	360517	5967306	630	13.7	0.14	8.53	429	1.00E-03	8.60E-04	2.50E-05	No	No
S248	Air Products Canada Ltd.	Scotford Chemical (Hydrogen) Manufacturing Plant	SMR Furnace Stack	360700	5962713	626	30.5	4.00	15.40	400	8.17E+00	5.52E+00	6.24E-01	No	No
S249	Air Products Canada Ltd.	Scotford Chemical (Hydrogen) Manufacturing Plant	Flare Stack	360810	5962702	626	48.8	1.65	0.10	1165	2.43E-02	1.95E-01	1.89E-03	No	No
S250	Air Products Canada Ltd.	Scotford Chemical (Hydrogen) Manufacturing Plant	Diesel Generator	360746	5962769	626	1.5	0.05	0.50	373	1.76E-02	2.39E-02	2.12E-03	No	No
S251	Air Products Canada Ltd.	Scotford Chemical (Hydrogen) Manufacturing Plant	Process Steam Vent	360828	5962792	626	2.9	0.06	1.22	293	0.00E+00	0.00E+00	0.00E+00	No	No
S252	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Alum Reactor Scrubber 1 Stack	355992	5954648	624	11.5	0.40	5.00	377	0.00E+00	0.00E+00	8.62E-02	No	No
S253	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Alum Reactor Scrubber 2 Stack	355994	5954648	624	11.5	0.40	5.00	377	0.00E+00	0.00E+00	8.62E-02	No	No
S254	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Alum Reactor Scrubber 3 Stack	355998	5954644	624	11.5	0.40	5.00	377	0.00E+00	0.00E+00	8.62E-02	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S255	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Aluminum Trihydrate Baghouse Stack	355986	5954643	624	14.0	0.33	3.52	327	0.00E+00	0.00E+00	3.47E-03	No	No
S256	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Sodium Bisulphite (SBS) Reactor Scrubber Stack	356005	5954647	624	5.5	0.27	1.43	301	0.00E+00	0.00E+00	0.00E+00	No	No
S257	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Sulphonated Organics (MSX) Reactor Scrubber Stack	356033	5954680	624	6.7	0.14	11.30	313	0.00E+00	0.00E+00	0.00E+00	No	No
S258	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Cooling Tower	355994	5954639	624	11.4	8.04	3.70	308	0.00E+00	0.00E+00	7.71E-04	No	No
S259	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Cogeneration Unit 4F-202 Exhaust Stack	359756	5965749	635	27.4	2.74	29.47	449	3.61E+00	1.04E+00	8.52E-02	No	No
S260	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	55.2 MW Heat Medium Heater 4HR-201 Exhaust Stack	359140	5965720	637	21.3	3.51	6.10	555	8.83E-01	1.96E+00	7.50E-03	No	No
S261	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Incinerator 4HR-204 Stack	359136	5965743	637	9.1	1.00	1.47	1123	5.31E-02	8.94E-02	8.06E-03	No	No
S262	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	RFS4 Flare 4F-202 Stack	359247	5965767	637	55.9	0.71	0.10	1312	2.78E-02	1.27E-01	4.92E-02	No	No
S263	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	64.6 MW Heat Medium Heater 2HR-201 Exhaust Stack (RFSII)	359629	5965705	636	38.2	3.30	5.90	435	2.44E+00	4.21E+00	9.52E-02	No	No
S264	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Glycol Regeneration Heater 2HR-203 Exhaust Stack	359655	5965694	635	6.1	2.09	0.08	435	2.83E-02	2.38E-02	5.28E-04	No	No
S265	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Incinerator 2HR-204 Stack (RFSII)	359662	5965723	636	13.7	1.61	3.60	1123	2.78E-01	2.19E-01	6.62E-02	No	No
S266	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	64.6 MW Heat Medium Heater 3HR-201 Exhaust Stack (RFSIII)	359623	5965767	637	21.3	3.51	6.10	555	2.44E+00	1.63E+00	3.68E-02	No	No
S267	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Incinerator 3HR-204 Stack (RFSIII)	359665	5965739	636	9.1	1.00	4.53	1123	5.32E-02	8.93E-02	8.08E-03	No	No
S268	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Flare F-202 Stack (RFS II/III)	359576	5965747	637	57.9	1.83	0.10	1194	1.99E-01	1.08E+00	3.79E-01	No	No
S269	Pembina NGL Corporation	Redwater Fractionation Facilities 2, 3 and 4	Brine Pond Excess Gas Burner Exhaust Stack	359455	5966403	635	3.0	0.05	0.14	1311	1.11E-02	5.06E-02	1.94E-02	No	No
S270	ATCO Energy Solutions Ltd.	Strathcona Salt Cavern Storage Project and Brine Storage Pond	Degasification Flare Stack	365573	5962416	626	19.9	0.20	0.10	1189	1.37E-03	7.43E-03	2.41E-03	No	No
S271	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	9.76 MW Heater 1 Exhaust Stack	366719	5961173	630	23.5	1.30	5.50	583	2.06E-01	3.46E-01	3.13E-02	No	No
S272	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	9.76 MW Heater 2 Exhaust Stack	366773	5961193	630	23.5	1.30	5.50	583	2.06E-01	3.46E-01	3.13E-02	No	No
S273	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	9.76 MW Heater 3 Exhaust Stack	366827	5961213	630	23.5	1.30	5.50	583	2.06E-01	3.46E-01	3.13E-02	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S274	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	Railcar Vapour Incinerator Stack	367669	5961622	630	12.2	0.25	34.70	1423	3.06E-01	5.15E-01	4.66E-02	No	No
S275	MEG Energy Corp.	Bruderheim Bulk Petroleum Storage Terminal and Diluent Removal Facility	Emergency Flare Stack	366961	5961482	628	5.2	0.50	0.44	442	2.36E-03	3.55E-03	4.26E-03	No	No
S276	Pembina Marketing Ltd.	Canadian Diluent Hub Bulk Petroleum Storage Terminal	Flare Stack	363105	5960652	629	45.0	0.10	0.80	1243	3.65E-01	1.98E+00	6.42E-01	No	No
S279	Inter Pipeline Propylene Ltd.	Heartland Petrochemical Complex 116 MW Cogeneration Power Plant	441 GJ/h Heat Recovery Steam Generator 1 Exhaust Stack	359599	5961201	634	45.0	3.20	20.20	369	4.33E+00	1.49E+00	1.68E-02	No	No
S280	Inter Pipeline Propylene Ltd.	Heartland Petrochemical Complex 116 MW Cogeneration Power Plant	441 GJ/h Heat Recovery Steam Generator 2 Exhaust Stack	359598	5961153	634	45.0	3.20	20.20	369	4.33E+00	1.34E+00	1.55E-02	No	No
S281	Inter Pipeline Propylene Ltd.	Heartland Petrochemical Complex 116 MW Cogeneration Power Plant	366 GJ/hour Auxiliary Boiler 1 Exhaust Stack	359569	5961193	634	30.0	2.00	17.10	422	2.03E+00	8.64E-01	2.44E-03	No	No
S282	Inter Pipeline Propylene Ltd.	Heartland Petrochemical Complex 116 MW Cogeneration Power Plant	366 GJ/hour Auxiliary Boiler 2 Exhaust Stack	359585	5961192	634	30.0	2.00	17.10	422	2.03E+00	8.31E-01	2.35E-03	No	No
S283	Inter Pipeline Propylene Ltd.	Heartland Petrochemical Complex 116 MW Cogeneration Power Plant	3.87 GJ/hour Natural Gas Fired Fuel Gas Heater Exhaust Stack	359563	5961154	634	7.3	0.61	2.80	473	8.89E-02	5.42E-02	3.33E-03	No	No
S284	Value Creation Inc.	VCS Heartland Bulk Petroleum Storage Terminal	Emergency Flare Stack	365894	5964823	625	60.0	0.39	2.90	1265	4.10E-03	1.26E-02	4.58E-03	No	No
S285	TransAlta Generation Partnership and Prairie Boys Capital Corporation	Fort Saskatchewan 118 MW Thermal Electric (Cogeneration) Power Plant	Cogen Power Plant Exhaust Stack	356654	5956398	625	32.3	4.70	20.20	391	2.17E+01	2.35E+00	7.70E-01	No	No
S286	TransAlta Generation Partnership and Prairie Boys Capital Corporation	Fort Saskatchewan 118 MW Thermal Electric (Cogeneration) Power Plant	Cooling Tower 1	356560	5956444	625	13.8	7.70	6.20	308	0.00E+00	0.00E+00	9.05E-03	No	No
S287	TransAlta Generation Partnership and Prairie Boys Capital Corporation	Fort Saskatchewan 118 MW Thermal Electric (Cogeneration) Power Plant	Cooling Tower 2	356565	5956432	625	13.8	7.70	6.20	308	0.00E+00	0.00E+00	9.05E-03	No	No
S288	TransAlta Generation Partnership and Prairie Boys Capital Corporation	Fort Saskatchewan 118 MW Thermal Electric (Cogeneration) Power Plant	Cooling Tower 3	356576	5956437	625	13.8	7.70	6.20	308	0.00E+00	0.00E+00	9.05E-03	No	No
S289	TransAlta Generation Partnership and Prairie Boys Capital Corporation	Fort Saskatchewan 118 MW Thermal Electric (Cogeneration) Power Plant	Cooling Tower 4	356570	5956449	625	13.8	7.70	6.20	308	0.00E+00	0.00E+00	9.05E-03	No	No
S290	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	21705 Tail Gas Incinerator Stack	361708	5963043	624	90.0	3.36	18.00	689	3.06E+00	1.36E+00	3.83E-03	No	No
S291	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	41703 Acid Gas Flare Stack	361786	5963610	624	90.0	0.61	1.00	1273	1.08E+00	3.23E-01	9.11E-04	No	No
S292	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	21105 Vacuum Heater Stack	361720	5963437	623	68.0	1.53	20.00	498	2.25E+00	2.22E+00	6.00E-03	No	No
S293	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	41106 Atmos Heater Stack	361706	5964278	620	66.0	2.40	20.50	475	9.83E-01	1.56E+00	5.56E-03	No	No
S294	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	41107 Vac Heater Stack	361695	5964062	623	68.0	1.53	20.00	498	6.42E-01	1.25E+00	4.06E-03	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S295	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	22206/22306 B RHC Stack	361649	5963228	624	65.0	1.84	19.20	553	4.99E+00	1.50E+00	4.22E-03	No	No
S296	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	27201/02 HC Flare Stack	361639	5962858	624	76.2	0.76	2.10	1273	8.02E-01	2.41E-01	6.78E-04	No	No
S297	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	42206 RHC Stack	361872	5963992	622	65.0	1.84	19.20	675	1.16E+01	3.44E+00	1.11E-02	No	No
S298	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	47201 HC Flare Stack	362067	5964197	624	95.0	1.22	0.80	1273	7.35E-02	2.21E-02	6.22E-05	No	No
S299	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	Water Cooling Tower	362115	5963223	623	12.6	8.53	7.90	293	0.00E+00	0.00E+00	2.78E-03	No	No
S300	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	Vapour Combustion Unit Stack	361485	5964028	621	19.8	1.22	0.30	1253	1.97E-01	3.36E-01	2.43E-02	No	No
S301	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	41705 Tail Gas Incinerator Stack	361700	5963768	625	90.0	2.59	18.00	742	1.61E+00	3.49E-01	9.83E-04	No	No
S302	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	21104 Base Plant Atmospheric Column Change Heater Exhaust Stack	361677	5963407	623	66.0	3.47	22.00	485	6.39E+00	4.23E+00	1.19E-02	No	No
S303	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	24103 HMU Steam Reformer Stack	361976	5962936	625	66.0	4.00	10.00	447	2.13E+01	4.63E+00	1.28E-02	No	No
S304	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	24203 HMU Steam Reformer Stack	362019	5963033	625	66.0	4.00	10.00	433	2.13E+01	8.97E+00	1.99E-02	No	No
S305	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	45114 Package Steam Boiler Stack	361995	5963780	625	45.0	1.80	10.00	394	4.47E+00	7.83E-01	2.21E-03	No	No
S306	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	44103 HMU Steam Reformer Stack	362051	5964036	622	50.0	4.50	13.80	443	3.61E+01	7.58E+00	2.14E-02	No	No
S307	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	CO2 Vent Stack	362172	5963009	625	50.0	1.21	9.99	579	0.00E+00	0.00E+00	0.00E+00	No	No
S308	Shell Canada Limited	Scotford Oil Sands Processing Plant (Bitumen Upgrader)	21703 Acid Gas Flare Stack	361530	5962865	625	85.0	0.61	1.20	1273	2.55E-01	7.64E-02	2.15E-04	No	No
S309	Shell Canada Products	Scotford Refinery	Utilities B-5101A/B Stack	362162	5962444	625	45.7	0.50	10.00	415	3.76E+00	1.59E+00	3.59E-02	No	No
S310	Shell Canada Products	Scotford Refinery	NHT (Naphtha Hydrotreating Unit) H-3101 Stack	361808	5962407	625	45.7	0.89	10.00	393	3.38E-01	4.15E-01	9.39E-03	No	No
S311	Shell Canada Products	Scotford Refinery	CCR (Continuous Catalytic Reformer) H-3201/02/03; H-3204 A/B/C Stack	361732	5962437	625	45.7	0.50	10.00	393	6.74E+00	3.90E+00	8.82E-02	No	No
S312	Shell Canada Products	Scotford Refinery	HAD (Hydrodealkylation Unit) H-4201 A/B Stack	362022	5962409	625	45.7	0.50	10.00	393	8.11E-01	6.81E-01	1.38E-02	No	No
S313	Shell Canada Products	Scotford Refinery	Flare S-7201 Stack	361638	5962855	624	62.4	0.91	10.00	773	9.25E-01	5.09E+00	7.56E-02	No	No
S314	Shell Canada Products	Scotford Refinery	CCR Regenerator Vent Stack	361732	5962437	625	15.2	0.15	2.60	748	0.00E+00	0.00E+00	0.00E+00	No	No
S315	Shell Canada Products	Scotford Refinery	Polaris Boiler Flue Gas Stack	362345	5963019	625	30.0	1.88	19.60	341	1.64E+00	3.68E+00	3.36E-02	No	No
S316	Shell Canada Products	Scotford Refinery	Polaris Boiler Flue Gas Quench and CO2 Absorption System Vent Stack	362301	5962726	625	71.0	0.55	8.53	429	0.00E+00	0.00E+00	0.00E+00	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S317	Shell Canada Products	Scotford Refinery	SMR Flue Gas Quench and CO2 Absorption System Vent Stack	362298	5962693	625	78.0	0.55	8.53	429	0.00E+00	0.00E+00	0.00E+00	No	No
S318	Shell Canada Products	Scotford Refinery	ADU (Atmospheric Distillation Unit) H-1101 Stack	361996	5962572	624	45.7	1.40	10.00	393	9.16E+00	4.05E+00	9.16E-02	No	No
S319	Shell Canada Products	Scotford Refinery	HOS (Hot Oil System) H-1501 Stack	361903	5962572	625	45.7	1.50	10.00	393	1.11E+00	9.33E-01	2.11E-02	No	No
S320	Shell Canada Products	Scotford Refinery	DHT (Diesel Hydrotreater) H-2001 Stack	361985	5962627	625	49.2	0.77	10.00	393	2.42E-01	2.03E-01	4.60E-03	No	No
S321	Shell Canada Products	Scotford Refinery	SMR (Steam Methane Reformer) H-2101/2102 Stack	362018	5962808	625	45.7	0.50	10.00	663	1.84E+01	2.01E+01	4.54E-01	No	No
S322	Shell Canada Products	Scotford Refinery	HCU 1 (Hydro Cracker Unit) H-2201/2202 Stack	361738	5962835	624	45.7	0.51	10.00	408	8.62E-01	7.24E-01	1.64E-02	No	No
S323	Shell Canada Products	Scotford Refinery	HCU 2 (Hydro Cracker Unit) H-2301/2302 Stack	361736	5962755	624	45.7	0.51	10.00	408	7.65E-01	6.42E-01	1.45E-02	No	No
S324	Shell Canada Products	Scotford Refinery	HCU Frac (Hydro Cracker Fractionator) H-2401/2402 Stack	361733	5962686	624	45.7	0.51	10.00	408	4.22E+00	1.87E+00	4.22E-02	No	No
S325	Shell Canada Products	Scotford Refinery	DHU (Distillate Hydrogenation Unit) H-2501 Stack	361943	5962630	624	45.7	0.60	10.00	582	1.74E-01	1.16E-01	2.63E-03	No	No
S326	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Gas Turbine / HRSG Exhaust Stack	362716	5963163	624	32.3	5.60	14.40	438	1.75E+01	3.64E-01	1.31E-01	No	No
S327	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Auxiliary Boiler Exhaust Stack	362698	5963163	624	22.9	1.80	4.43	408	1.04E+00	1.04E+00	1.83E-02	No	No
S328	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Chiller Tower	362563	5963111	624	15.2	3.50	2.50	296	0.00E+00	0.00E+00	2.00E-03	No	Yes
S329	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Carbon Dioxide Plant Distillation Tower	362644	5963127	624	12.9	0.50	4.50	295	0.00E+00	0.00E+00	0.00E+00	No	No
S330	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Cooler Tower 1	362591	5963070	624	15.2	7.60	8.50	299	0.00E+00	0.00E+00	2.00E-03	No	No
S331	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Cooler Tower 2	362602	5963070	624	15.2	7.60	8.50	299	0.00E+00	0.00E+00	2.00E-03	No	No
S332	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Vent Condenser Stack AU-01	355506	5954743	623	11.6	0.20	3.00	303	0.00E+00	0.00E+00	0.00E+00	No	No
S333	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Leach Tank UC-TK-51 Vent	355525	5954758	623	7.4	0.08	1.64	350	0.00E+00	0.00E+00	0.00E+00	No	No
S334	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Leach Tank UC-TK-53 Vent	355524	5954756	623	7.4	0.08	1.64	357	0.00E+00	0.00E+00	0.00E+00	No	No
S335	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Leach Tank UC-TK-55 Vent	355515	5954750	623	10.4	0.15	0.41	358	0.00E+00	0.00E+00	0.00E+00	Yes	No
S336	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Natural Gas Fired Heater Stack PU-FR-187	355507	5954713	623	10.0	0.30	3.26	425	1.05E-01	8.93E-02	2.63E-03	No	No
S337	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Natural Gas Fired Heater Stack U-FR-188	355505	5954714	623	10.0	0.30	3.26	425	1.05E-01	8.93E-02	2.63E-03	No	No
S338	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Vent Condenser Stack AU-02	355506	5954741	623	11.6	0.20	3.40	305	0.00E+00	0.00E+00	0.00E+00	No	No
S339	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Dust Collector Exhaust Stack UC-DC-01	355509	5954780	622	0.5	0.31	6.00	305	0.00E+00	0.00E+00	3.68E-01	No	Yes
S340	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Dust Collector Exhaust Stack UC-DC-06	355505	5954771	622	5.5	0.31	6.10	300	0.00E+00	0.00E+00	1.25E-01	No	Yes



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S341	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Dust Collector Exhaust Stack UC-DC-07	355483	5954727	622	4.3	0.31	5.00	305	0.00E+00	0.00E+00	1.76E-01	Yes	No
S342	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Dust Collector Exhaust Stack UC-DC-40	355513	5954749	623	8.1	0.20	27.40	305	0.00E+00	0.00E+00	4.41E-01	No	Yes
S343	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Dust Collector Exhaust Stack UC-DC-50	355483	5954776	622	9.1	0.36	4.20	308	0.00E+00	0.00E+00	1.36E-01	No	Yes
S344	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Aqua Scrubber Vent	355496	5954726	623	9.0	0.10	0.10	288	0.00E+00	0.00E+00	0.00E+00	Yes	No
S345	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	Natural Gas Fired Boiler 1 Stack	362944	5980095	623	3.6	0.55	8.53	429	2.34E-01	1.11E-01	1.91E-02	No	No
S346	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	Natural Gas Fired Boiler 2 Stack	362958	5980080	623	3.6	0.55	8.53	429	2.34E-01	1.11E-01	1.91E-02	No	No
S347	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	Thermal Oxidizer Exhaust Stack	362973	5980065	623	12.8	1.78	4.51	1041	1.51E-01	1.16E+00	5.81E-02	No	No
S348	Shell Chemicals Canada	Scotford Chemicals Facility	CO2 Stripper Vent Stack	362687	5963519	625	54.4	0.45	8.20	298	0.00E+00	0.00E+00	0.00E+00	No	No
S349	Shell Chemicals Canada	Scotford Chemicals Facility	Mechanical Vacuum System Vent	362787	5963747	625	20.0	1.00	5.00	500	0.00E+00	0.00E+00	0.00E+00	Yes	No
S350	Shell Chemicals Canada	Scotford Chemicals Facility	EB Reactor Pressure Control Valve	362708	5963705	625	20.0	1.00	5.00	500	0.00E+00	0.00E+00	0.00E+00	No	No
S351	Shell Chemicals Canada	Scotford Chemicals Facility	Ethylene Oxide Vent Absorber Stack	362687	5963519	625	30.0	1.00	5.00	500	0.00E+00	0.00E+00	0.00E+00	Yes	No
S352	Shell Chemicals Canada	Scotford Chemicals Facility	EG Vacuum System Vent Stack	362687	5963519	625	20.0	1.00	5.00	500	0.00E+00	0.00E+00	0.00E+00	No	No
S353	Shell Chemicals Canada	Scotford Chemicals Facility	EG Water Surge Drum Vent	362687	5963519	625	20.0	1.00	5.00	500	0.00E+00	0.00E+00	0.00E+00	Yes	No
S354	Shell Chemicals Canada	Scotford Chemicals Facility	Benzene Vapour Recovery Unit Vent	362889	5963846	624	5.0	0.25	2.60	283	0.00E+00	0.00E+00	0.00E+00	No	No
S355	Shell Chemicals Canada	Scotford Chemicals Facility	Ethylbenzene Reactor Heater Stack 101/102	362832	5963761	625	50.0	1.60	10.00	468	1.41E+00	9.86E-01	3.68E-02	No	No
S356	Shell Chemicals Canada	Scotford Chemicals Facility	Common Stack for Reboilers 103/4/5	362946	5963781	624	76.2	1.65	11.20	413	3.90E+00	2.01E+00	4.80E-02	No	No
S357	Shell Chemicals Canada	Scotford Chemicals Facility	Steam Superheater Stack	362851	5963721	625	78.0	2.74	5.00	473	1.05E+01	4.91E+00	2.04E-01	No	No
S358	Shell Chemicals Canada	Scotford Chemicals Facility	Utility Boilers Stack	362751	5963794	625	30.5	1.90	6.40	378	2.01E+00	1.48E+00	1.89E-01	No	No
S359	Shell Chemicals Canada	Scotford Chemicals Facility	Flare Stack	362550	5963807	625	80.2	0.90	53.40	1273	2.01E-01	1.86E+00	4.95E-06	No	No
S360	Shell Chemicals Canada	Scotford Chemicals Facility	Benzene Vapour Combustion Unit Outlet Stack	362889	5963846	624	13.3	1.70	5.20	1143	5.66E-03	3.89E-03	1.23E-03	Yes	No
S361	Shell Chemicals Canada	Scotford Chemicals Facility	Cooling Water Tower	362572	5963958	624	18.0	18.00	9.80	300	0.00E+00	0.00E+00	7.28E-03	No	No
S362	Shell Chemicals Canada	Scotford Chemicals Facility	HS-102 Regeneration Heater Stack	362806	5963784	625	30.6	0.50	3.40	823	3.47E-02	1.98E-02	6.94E-04	No	No
S363	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Prepress Cooker Scrubber Stack	352549	5955627	640	19.2	0.63	18.20	281	0.00E+00	0.00E+00	1.39E-02	No	No
S364	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Extractor, Distillation System Stack	352556	5955585	640	20.1	0.15	0.52	303	0.00E+00	0.00E+00	0.00E+00	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S365	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Meal Pelletizing System Cyclone Stack 2	352556	5955585	640	10.7	0.43	32.70	308	0.00E+00	0.00E+00	1.50E-02	No	Yes
S366	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Seed Cleaning and Handling Baghouse Handling Stack	352517	5955651	641	8.0	1.03	8.50	293	0.00E+00	0.00E+00	4.05E-02	No	Yes
S367	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Meal Hammermill Baghouse Stack	352516	5955570	640	8.7	0.34	15.30	313	0.00E+00	0.00E+00	8.10E-03	No	Yes
S368	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Meal Pelletizing System Cyclone Stack 1	352526	5955600	640	10.7	0.43	32.70	308	0.00E+00	0.00E+00	1.50E-02	No	Yes
S369	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Seed Preheater Cyclone Stack	352553	5955652	641	6.5	0.37	22.20	333	0.00E+00	0.00E+00	4.86E-02	No	No
S370	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Seed Flaker Aspiration Cyclone Stack	352527	5955621	641	17.0	0.69	21.60	319	0.00E+00	0.00E+00	3.13E-02	No	No
S371	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	DTDC Meal Dryer-Cooler Cyclone Stack	352558	5955568	640	10.5	0.78	12.60	325	0.00E+00	0.00E+00	6.71E-02	Yes	Yes
S372	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Pneumatic Dockage Conveying System Baghouse Stack	352541	5955639	641	17.0	0.20	12.00	293	0.00E+00	0.00E+00	2.31E-03	No	Yes
S373	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Boilers 1 and 2 Common Exhaust Stack	352519	5955610	641	21.3	1.52	4.40	513	8.89E-01	1.10E+00	6.94E-03	No	No
S374	Prospec Chemicals - Division of Charles Tennant & Company (Canada) Ltd.	Fort Saskatchewan Xanthate and Xanthate Derivatives Chemical Manufacturing Plant	Regenerative Thermal Oxidizer Stack	353128	5957714	644	10.4	0.51	28.08	561	1.23E-01	1.42E+00	3.36E-03	No	No
S375	Prospec Chemicals - Division of Charles Tennant & Company (Canada) Ltd.	Fort Saskatchewan Xanthate and Xanthate Derivatives Chemical Manufacturing Plant	Makeup Air Unit Stack	353140	5957656	644	3.0	0.20	2.90	400	1.07E-02	8.95E-03	8.10E-04	Yes	No
S376	Prospec Chemicals - Division of Charles Tennant & Company (Canada) Ltd.	Fort Saskatchewan Xanthate and Xanthate Derivatives Chemical Manufacturing Plant	Laboratory Fume Hood Exhaust Vent	353134	5957685	644	2.6	0.19	0.77	293	0.00E+00	0.00E+00	0.00E+00	No	No
S377	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	76,547 kW Heat Medium Heater Exhaust Stack	359723	5965066	638	38.0	3.49	3.66	423	1.99E+00	4.95E-01	1.12E-02	No	No
S378	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Brine Pond Excess Gas Burner 2 Exhaust Stack	359568	5964920	637	2.0	6.00	0.10	300	1.56E-03	8.42E-03	2.94E-03	No	No
S379	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	4,532 kW ROF De-Ethanizer Project Heater Exhaust Stack	359694	5965004	638	25.9	0.93	7.62	585	1.18E-01	1.17E-01	2.64E-03	No	No
S380	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,548 kW ROF De-Ethanizer Project Heater Exhaust Stack	359705	5965004	638	18.1	0.46	8.60	725	4.03E-02	3.77E-02	8.61E-04	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S381	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	9,517 kW Ethylene Handling Project Heater Exhaust Stack	359724	5965043	638	7.6	0.61	24.60	614	2.47E-01	6.15E-02	1.39E-03	Yes	No
S382	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,670 kW ROF Debottleneck Project Heater Exhaust Stack	359420	5965064	639	14.6	0.74	6.38	1019	4.28E-02	1.08E-02	2.50E-04	No	No
S383	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	20,680 kW ROF Debottleneck Heater Exhaust Stack	359424	5965076	639	26.3	1.83	5.92	641	5.38E-01	1.34E-01	3.03E-03	No	No
S384	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	675 kW ROF Debottleneck Project SRU Thermal Oxidizer Exhaust Stack	359422	5965052	639	15.2	0.46	12.65	1044	1.59E+00	4.76E-01	1.08E-02	No	No
S385	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	4,267 kW Propane Regeneration Heater Exhaust Stack	359113	5964797	641	22.0	0.87	6.40	570	7.46E-02	9.18E-02	2.08E-03	No	No
S386	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Pembina General Flare Stack	359721	5964960	637	54.9	0.61	0.10	1573	1.20E+00	6.50E+00	2.28E+00	No	No
S387	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Tube Storage Flare Stack	359649	5963844	623	14.0	0.15	0.10	1573	1.21E-02	6.57E-02	2.30E-02	No	No
S388	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,147 kW Propane Regen Gas Heater Exhaust Stack	359696	5965050	638	9.4	0.59	3.90	725	3.14E-01	3.86E-01	8.72E-03	No	No
S389	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Propane Flare Stack	359649	5963844	623	45.7	1.50	0.00	1195	1.55E-01	8.42E-01	2.95E-01	No	No
S390	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	2,634 kW Propylene Regeneration Heater Exhaust Stack	359802	5965097	638	8.5	0.41	11.48	560	1.25E-01	8.75E-02	3.75E-03	No	No
S391	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Brine Pond Excess Gas Burner 2 Exhaust Stack	358622	5964651	642	4.3	4.51	0.42	1282	4.20E-02	8.44E-03	2.97E-03	No	No
S392	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	508 kW Glycol Regen Heater Exhaust Stack	359696	5965067	638	14.6	0.46	0.10	725	4.40E-02	4.45E-02	1.00E-03	No	No
S393	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,911 kW Ethane Regen Gas Heater #1 Exhaust Stack	359693	5965060	638	9.5	0.79	3.80	725	4.97E-02	8.30E-03	1.88E-04	No	No
S394	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,911 kW Ethane Regen Gas Heater #2 Exhaust Stack	359693	5965056	638	9.5	0.79	0.10	725	4.97E-02	8.30E-03	1.88E-04	No	No



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S395	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,911 kW Ethane/Propane Gas Heater #1 Exhaust Stack	359693	5965042	638	9.5	0.79	0.10	725	4.97E-02	5.20E-03	1.17E-04	No	No
S396	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,911 kW Ethane/Propane Gas Heater #2 Exhaust Stack	359693	5965037	638	9.5	0.79	3.80	725	4.97E-02	5.20E-03	1.17E-04	No	No
S397	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	1,715 kW ROF Regen Gas Heater Exhaust Stack	359722	5965053	638	9.1	0.76	0.65	989	4.39E-02	2.63E-02	5.83E-04	No	No
S398	Pembina NGL Corporation	Redwater Fractionation and Storage I (RFS I) Facility and Redwater Olefins Facility	Acid Gas/Waste Gas Incinerator Stack	359692	5965025	638	15.5	1.83	9.55	1146	9.02E-01	3.18E-01	5.24E-02	No	No
S399	Aux Sable Canada Ltd.	Aux Sable Canada Ltd.-Heartland Offgas Project	Heat Medium Heater (14 MMBtu/h)	359370	5960305	634	4.6	0.61	8.30	406	6.83E-01	5.75E-01	4.63E-02		
S400	Aux Sable Canada Ltd.	Aux Sable Canada Ltd.-Heartland Offgas Project	Heat Medium Heater (14 MMBtu/h)	359370	5960310	634	4.6	0.61	8.30	406	6.83E-01	5.75E-01	4.63E-02		
S401	Aux Sable Canada Ltd.	Aux Sable Canada Ltd.-Heartland Offgas Project	Heat Medium Heater (14 MMBtu/h)	359370	5960315	634	4.6	0.61	8.30	406	6.83E-01	5.75E-01	4.63E-02		
S402	Evonik Canada Inc	Evonik Degussa-Gibbons Hydrogen Peroxide	Boiler 1 Stack	359779	5967407	634	18.3	0.63	12.60	449	2.87E-01	1.18E-01	2.80E-02		
S403	Evonik Canada Inc	Evonik Degussa-Gibbons Hydrogen Peroxide	Boiler 2 Stack	359750	5967431	633	10.0	0.85	6.70	489	2.41E-01	2.01E-01	2.80E-02		
S404	Evonik Canada Inc	Evonik Degussa-Gibbons Hydrogen Peroxide	Hydrogen Plant Stack	359818	5967432	634	21.1	0.76	13.30	455	1.44E-01	2.48E-01	3.10E-02		
S405	Tidewater Midstream and Infrastructure Ltd.	Tidewater Midstream and Infrastructure Ltd. - Fort Saskatchewan Sour Gas Plant	Regenerator Gas Heater (466 kW)	355890	5953580	624	7.2	0.45	3.20	876	0.00E+00	0.00E+00	0.00E+00		
S406	Tidewater Midstream and Infrastructure Ltd.	Tidewater Midstream and Infrastructure Ltd. - Fort Saskatchewan Sour Gas Plant	Glycol Heater (170 kW)	355830	5953605	624	4.9	0.39	3.09	529	7.79E-02	1.16E-02	2.80E-02		
S407	Tidewater Midstream and Infrastructure Ltd.	Tidewater Midstream and Infrastructure Ltd. - Fort Saskatchewan Sour Gas Plant	Continuous Flare	355910	5953600	624	30.1	0.36	0.10	1273	0.00E+00	0.00E+00	0.00E+00		
S408	ATCO Energy Solutions Ltd	ATCO Heartland Energy Center	Gas Turbine	365543	5961511	633	50.0	6.46	21.00	351	7.18E+00	8.53E+00	2.52E+00		
S409	ATCO Energy Solutions Ltd	ATCO Heartland Energy Center	Auxiliary Boiler	365509	5961451	633	15.0	1.40	7.50	421	5.09E-01	2.43E+00	5.79E-02		
S410	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 1 - DRU Heater 1	365401	5965645	627	100.0	1.60	13.60	443	5.33E-01	3.20E+00	1.74E-01		
S411	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 1 - Boiler 1	365401	5965645	627	100.0	2.05	23.00	443	4.86E-01	2.92E+00	2.43E-01		
S412	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 1 - Boiler 2	365401	5965645	627	100.0	2.05	23.00	443	8.06E-02	4.83E-01	2.43E-01		
S419	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 2 - DRU Heater 2	366229	5965652	624	50.0	1.27	21.50	443	1.08E+00	6.50E+00	1.74E-01		
S420	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 2 - Boiler 3	366246	5965612	624	50.0	1.71	20.10	443	2.00E+00	1.20E+01	2.89E-01		
S421	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 2 - Boiler 4	366236	5965635	624	50.0	1.71	20.10	443	2.00E+00	1.20E+01	2.89E-01		



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
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S428	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 3 - DRU Heater 3	366063	5965439	624	50.0	1.27	21.50	443	1.08E+00	6.50E+00	1.74E-01		
S429	Value Creation Inc.	Heartland Bitumen Upgrader	Phase 3 - Boiler 5	366106	5965443	624	50.0	1.71	20.10	443	2.00E+00	1.20E+01	2.89E-01		
S446	Inter Pipeline Propylene Ltd.	PDH	No 1 Interheater	359602	5961055	634	74.0	2.00	5.90	450	9.25E-01	8.10E-02	7.63E-02		
S447	Inter Pipeline Propylene Ltd.	PDH	No 2 Interheater	359579	5961056	634	74.0	1.80	5.50	453	6.94E-01	6.06E-02	5.71E-02		
S448	Inter Pipeline Propylene Ltd.	PDH	No 3 Interheater	359556	5961056	634	74.0	1.80	4.70	448	5.78E-01	5.27E-02	4.97E-02		
S449	Inter Pipeline Propylene Ltd.	PDH	Vent Stack	359540	5961050	634	78.6	0.40	7.20	342	0.00E+00	0.00E+00	0.00E+00		
S450	Inter Pipeline Propylene Ltd.	PDH	Flare Stack	359631	5960728	632	124.0	48.80	0.00	934	9.04E-03	4.92E-02	3.59E-03		
S451	Inter Pipeline Propylene Ltd.	PP	Incinerator	359345	5960779	633	23.7	1.95	6.00	1033	2.62E+00	1.10E-01	2.62E-01		Vertical
S452	Inter Pipeline Propylene Ltd.	PP	LSB Air Handling Unit	359626	5961407	634	12.2	0.30	7.50	333	3.08E-02	2.59E-02	0.00E+00		Vertical
S453	Inter Pipeline Propylene Ltd.	PP	LSB Unit Heater 1	359625	5961396	634	7.0	0.10	7.50	333	1.64E-03	1.38E-03	2.49E-05		Horizontal
S454	Inter Pipeline Propylene Ltd.	PP	LSB Unit Heater 2	359610	5961388	634	7.0	0.10	7.50	333	1.64E-03	1.38E-03	2.49E-05		Horizontal
S455	Inter Pipeline Propylene Ltd.	PP	LSB Unit Heater 3	359599	5961392	634	7.0	0.10	7.50	333	1.64E-03	1.38E-03	2.49E-05		Horizontal
S456	Inter Pipeline Propylene Ltd.	PP	LSB Unit Heater 4	359601	5961403	634	7.0	0.10	7.50	333	1.64E-03	1.38E-03	2.49E-05		Horizontal
S457	Inter Pipeline Propylene Ltd.	PP	LSB Unit Heater 5	359617	5961411	634	7.0	0.10	7.50	333	1.64E-03	1.38E-03	2.49E-05		Horizontal
S458	Inter Pipeline Propylene Ltd.	PP	Railcar Rinse Water Heater	359276	5960870	633	23.4	0.61	15.00	473	1.38E-01	1.62E-01	1.04E-03		Vertical
S459	Inter Pipeline Propylene Ltd.	PP	Railcar Recycle Wash Water Heater	359277	5960889	634	24.0	0.61	15.00	473	1.38E-01	1.62E-01	1.04E-03		Vertical
S460	Inter Pipeline Propylene Ltd.	PP	Hot Glycol Heater	359334	5960756	632	9.1	0.56	20.00	437	1.28E-01	1.00E+00	5.15E-03		Vertical
S461	Inter Pipeline Propylene Ltd.	PP	PP storage Building Heater 1	359394	5960857	633	5.7	0.13	7.50	333	2.40E-03	2.01E-03	3.62E-05		Horizontal
S462	Inter Pipeline Propylene Ltd.	PP	PP storage Building Heater 2	359372	5960844	633	5.7	0.13	7.50	333	2.40E-03	2.01E-03	3.62E-05		Horizontal
S463	Inter Pipeline Propylene Ltd.	PP	PP storage Building Heater 3	359379	5960813	633	5.7	0.13	7.50	333	2.40E-03	2.01E-03	3.62E-05		Horizontal
S464	Inter Pipeline Propylene Ltd.	PP	PP storage Building Heater 4	359390	5960812	633	5.7	0.13	7.50	333	2.40E-03	2.01E-03	3.62E-05		Horizontal
S465	Inter Pipeline Propylene Ltd.	PP	PP storage Building Heater 5	359393	5960824	633	5.7	0.13	7.50	333	2.40E-03	2.01E-03	3.62E-05		Horizontal
S466	Inter Pipeline Propylene Ltd.	PP	PP storage Building Air Handling Unit	359380	5960989	634	9.2	0.30	7.50	333	8.18E-03	6.88E-03	1.24E-04		Vertical
S467	Inter Pipeline Propylene Ltd.	PP	Peroxide Storage Building Heater	359367	5960856	633	5.6	0.25	7.50	333	2.38E-03	2.00E-03	3.60E-05		Vertical
S468	Inter Pipeline Propylene Ltd.	PP	PP Storage Office Building Heater	359359	5960829	633	5.7	0.25	7.50	333	1.64E-03	1.38E-03	2.49E-05		Vertical
S469	Inter Pipeline Propylene Ltd.	PP	Additive System Vents	359373	5960924	634	36.0	0.76	36.70	303	0.00E+00	0.00E+00	3.33E-04		Vertical
S470	Inter Pipeline Propylene Ltd.	PP	Pellet Dryer Exhaust Fan Vent	359365	5960924	634	25.5	37.40	17.10	333	0.00E+00	0.00E+00	7.11E-03		Vertical
S471	Inter Pipeline Propylene Ltd.	PP	Dedusting System Exhaust Air Filter Vent	359309	5960892	634	20.3	0.20	14.70	303	0.00E+00	0.00E+00	8.33E-03		Horizontal
S472	Inter Pipeline Propylene Ltd.	PP	Flare	359397	5961151	634	41.1	3.32	0.01	899	1.86E-03	8.47E-03	3.28E-03		Vertical
S473	Hexion Specialty Chemicals Canada Inc.	Hexion Sturgeon	Thermal Oxidizer	352575	5957482	646	27.7	1.68	7.20	867	2.66E+00	2.25E+00	4.44E-01		
S474	Air Liquide Canada Inc.	Scotford Cogeneration Plant	Auxiliary Boiler Exhaust Stack	362952	5963270	624	22.9	1.80	24.10	468	6.97E-01	1.14E+00	3.20E-02		
S475	Air Liquide Canada Inc.	Scotford Cogeneration Plant	Gas Turbine/HRSG Exhaust Stack	362942	5963258	624	32.3	5.60	16.60	438	1.75E+01	3.24E+00	1.99E-01		
S476	Gasia Energy Partners Ltd.	Gasia Homestead Diluent Recovery Unit	Charge Heater	368620	5962086	631	48.2	1.70	7.90	519	5.50E-01	0.00E+00	8.50E-02		



Source ID	Operator	Facility	Source Description	Stack parameters							Emission Rate			Rain Cap	Non-Vertical
				UTM E (m)	UTM N (m)	Base Elevation (m)	H (m)	D (m)	V (m/s)	T (K)	NOX (g/s)	CO (g/s)	PM25 (g/s)		
S477	Gasia Energy Partners Ltd.	Gasia Homestead Diluent Recovery Unit	Hot Oil Heater	368595	5962072	631	9.5	0.61	7.90	523	1.50E-01	0.00E+00	3.10E-02		
S478	Gasia Energy Partners Ltd.	Gasia Homestead Diluent Recovery Unit	Boiler	368607	5962054	631	10.0	0.61	7.90	523	6.00E-02	0.00E+00	1.20E-02		
S479	Sulphur Midstream Ltd	Strathcona Sulphur forming and Shipping Facility	Steam Boiler	368529	5962159	630	15.9	0.50	10.00	473	1.55E-01	1.30E-01	2.34E-03		
S480	Sulphur Midstream Ltd	Strathcona Sulphur forming and Shipping Facility	Steam Boiler	368600	5962204	630	15.9	0.50	10.00	473	5.07E-02	4.26E-02	7.66E-04		
S481	Heartland Sulphur Ltd	Heartland Sulphur Terminal	Steam Generator 1	365611	5960794	632	12.2	0.50	10.00	473	1.55E-01	1.30E-01	2.34E-03		
S482	Heartland Sulphur Ltd	Heartland Sulphur Terminal	Steam Generator 2	365621	5960794	632	9.8	0.50	10.00	473	5.07E-02	4.26E-02	7.66E-04		
S483	Heartland Sulphur Ltd	Heartland Sulphur Terminal	Re-melt Boiler Exhaust 1	365631	5960794	632	7.6	0.50	10.00	473	1.70E-02	1.43E-02	2.56E-04		
S484	Heartland Sulphur Ltd	Heartland Sulphur Terminal	Re-melt Boiler Exhaust 2	365641	5960794	632	7.6	0.50	10.00	473	1.70E-02	1.43E-02	2.56E-04		
S485	Wolf Midstream	NGL Recovery Facility	Heater	360532	5966262	631	9.5	0.80	3.80	452	4.97E-02	6.78E-02	6.14E-03		
S177	Access Pipeline Inc./Wolf Midstream	Stonefell Terminal	Heater	365012	5965499	625	7.5	0.50	10.00	473	0.00E+00	0.00E+00	0.00E+00		
S486	Mancal Energy Inc	MANCAL REDWATER 2-12-56-21W4	Heater	369211	5965265	622	7.5	0.50	10.00	473	4.79E-02	9.32E-02	9.89E-03		
S488	Longshore Resources Ltd	Shaker 15-24-55-21W4 Oil Battery	Heater	369079	5959964	655	7.5	0.50	10.00	473	1.73E-01	3.61E-01	5.14E-02		
S490	Long Run Exploration Ltd.	Redwater 07-21	Compressor	355066	5979093	656	10.0	0.50	30.00	773	3.36E-01	5.13E-01	1.80E-03		
S491	Long Run Exploration Ltd.	Ramparts GGS 05-17	Heater	362329	5977388	632	7.5	0.50	10.00	473	1.67E+00	2.58E+00	6.98E-03		

Notes:

- H – Stack Height
- D – Stack Diameter
- V – Exit Velocity
- T – Exhaust Temperature



Table A.2 Regional Volume Sources and Emission Parameters

Source ID	Operator	Facility	Source Description	Stack parameters						Emission Rate		
				UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Effective Height (m)	Initial σ_y (m)	Initial σ_z (m)	NOX (g/s)	CO (g/s)	PM25 (g/s)
NP1	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Plant 32 Cooling Tower	362729	5967969	620	18.9	20.40	4.65	0.00E+00	0.00E+00	3.30E-03
NP2	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Plant 36 Cooling Tower	362449	5967674	625	18.9	15.90	8.80	0.00E+00	0.00E+00	4.47E-03
NP4	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Sulphuric Acid Cooling Tower	362605	5968463	628	18.0	23.20	8.40	0.00E+00	0.00E+00	4.50E-04
NP5	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Utilities Unit Cooling Towers	355653	5954872	623	22.0	20.81	9.30	0.00E+00	0.00E+00	3.75E-07
NP7	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Cobalt Separation and Reduction Unit	355647	5954688	623	14.0	10.98	6.52	6.71E-02	1.34E-02	5.13E-06
NP14	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	LHC-1 Cooling Towers	359169	5957952	632	19.9	29.42	8.37	0.00E+00	0.00E+00	1.37E-03
NP15	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	ES Cooling Towers	356282	5956513	623	18.0	18.26	7.44	0.00E+00	0.00E+00	5.35E-04
NP16	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	MEGlobal Cooling Towers	357124	5956631	624	19.8	4.88	8.37	0.00E+00	0.00E+00	9.68E-05
NP27	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Cooling Towers	355319	5955219	618	13.7	1.86	6.37	0.00E+00	0.00E+00	4.00E-03
NP29	North West Redwater Holding Corp	Sturgeon Oil Refinery	Cooling Tower (PM)	360668	5968355	634	16.8	9.07	7.81	0.00E+00	0.00E+00	1.47E-04
NP36	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Duct Burners	362715	5963135	624	32.3	1.16	15.02	8.45E-01	7.10E-01	1.61E-02



Table A.3 Regional Area Sources and Emission Parameters

Source ID	Operator	Facility	Source Description	Stack parameters		Emission Rate		
				Effective Height (m)	Initial σ_z (m)	NOX (g/s)	CO (g/s)	PM25 (g/s)
NP3	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Miscellaneous Stationary Propane Combustion	5.0	2.30	1.74E-02	1.01E-02	2.68E-04
NP6	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Ammonium Sulphate Unit	15.3	7.10	0.00E+00	0.00E+00	5.24E-03
NP8	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Nickel Intermediate Dry Stack	3.5	1.00	0.00E+00	0.00E+00	1.34E-04
NP9	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Cobalt Sintering & Storage	7.5	3.49	1.47E-01	2.94E-02	4.41E-03
NP10	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Maintenance Shop	8.0	3.72	4.48E-02	8.95E-03	1.34E-03
NP11	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Granulation Unit	19.2	8.93	0.00E+00	0.00E+00	7.00E-03
NP12	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Nickel Reduction Unit	21.2	9.87	0.00E+00	0.00E+00	2.01E-03
NP13	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Leach Unit Feed Shed Heaters	5.0	2.33	1.80E-02	1.94E-02	7.36E-05
NP17	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Building Heaters	5.0	2.33	5.45E-02	2.32E-02	1.10E-03
NP18	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Building Heaters	5.0	2.33	5.45E-02	2.32E-02	1.10E-03
NP19	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Propane Heaters	1.5	1.40	6.52E-03	3.76E-03	1.00E-04
NP20	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Propane Heaters	1.5	1.40	6.52E-03	3.76E-03	1.00E-04
NP21	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Various Space Heating and Ventilation Exhausts	5.0	2.33	6.66E-03	8.56E-03	3.17E-05
NP22	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Various Heating and Ventilation Exhausts	5.0	2.33	4.76E-03	4.12E-03	1.27E-05
NP23	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Seed Bin Vents (5)	12.7	5.67	0.00E+00	0.00E+00	2.98E-04
NP24	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Meal Bin Vents (3)	15.1	6.80	0.00E+00	0.00E+00	1.34E-02
NP25	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Pellet Bin Vents (2)	15.1	6.80	0.00E+00	0.00E+00	3.43E-03
NP26	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant and Associated Brine Storage Ponds	Space Heater Exhaust Vents	5.0	2.33	7.13E-04	4.12E-04	1.10E-05
NP28	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Stationary Propane Users	5.0	2.33	6.02E-03	3.49E-03	9.26E-05
NP30	Pembina Marketing Ltd.	Canadian Diluent Hub Bulk Petroleum Storage Terminal	Space Heater Exhaust Vents	6.3	2.92	4.25E-02	6.68E-02	6.04E-03
NP31	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility and Brine Storage Ponds	Space Heater Exhaust Vents	5.0	2.33	3.75E-02	3.12E-02	1.00E-03
NP33	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Combined Heating	5.0	2.33	2.40E-02	2.01E-02	4.44E-04
NP34	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Infrared Dryers	5.0	2.33	0.00E+00	0.00E+00	2.35E-03
NP35	Conifer Energy Inc.	Redwater Gas Conservation Plant	Space Heater Exhaust Vents	10.0	4.65	3.75E-02	3.12E-02	1.00E-03
NP37	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Miscellaneous Heaters	5.0	2.33	1.02E+00	8.59E-01	1.94E-02
NP38	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Propane Combustion	5.0	2.33	2.29E-04	1.37E-04	2.97E-06
NP39	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	Space Heater Exhaust Stacks	5.0	2.33	9.51E-02	4.12E-02	3.17E-04



Table A.4 Regional Area Sources Locations

Source ID	Operator	Facility	Source Description	Corner 1		Corner 2		Corner 3		Corner 4		Corner 5		Corner 6		Corner 7		Corner 8		Base Elevation (m)
				UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	
NP3	Nutrien (Canada) Holdings ULC	Redwater Fertilizer Manufacturing Plant	Miscellaneous Stationary Propane Combustion	362045	5968431	362916	5968415	362508	5967567	361980	5967587	-	-	-	-	-	-	-	-	632
NP6	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Ammonium Sulphate Unit	355530	5954596	355555	5954631	355573	5954618	355551	5954583	-	-	-	-	-	-	-	-	623
NP8	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Nickel Intermediate Dry Stack	355811	5955436	355823	5955493	355880	5955469	355868	5955451	355852	5955405	355842	5955393	355830	5955398	-	-	630
NP9	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Cobalt Sintering & Storage	355264	5954721	355309	5954793	355327	5954782	355333	5954792	355392	5954746	355382	5954730	355394	5954703	355363	5954659	621
NP10	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Maintenance Shop	355482	5954967	355500	5954995	355624	5954927	355604	5954894	-	-	-	-	-	-	-	-	621
NP11	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Granulation Unit	355738	5954495	355745	5954507	355756	5954501	355762	5954511	355774	5954504	355754	5954470	355742	5954477	355749	5954489	623
NP12	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Nickel Reduction Unit	355672	5954622	355682	5954639	355698	5954630	355706	5954643	355700	5954647	355705	5954655	355747	5954631	355724	5954590	623
NP13	Sherritt International Corporation	Fort Saskatchewan Metal Manufacturing Plant	Leach Unit Feed Shed Heaters	355698	5954826	355889	5954734	355825	5954635	355646	5954728	-	-	-	-	-	-	-	-	623
NP17	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Building Heaters	356040	5956612	356954	5957149	357658	5955865	356740	5955337	-	-	-	-	-	-	-	-	609
NP18	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Building Heaters	358412	5957203	358479	5958486	359434	5958459	359369	5957158	-	-	-	-	-	-	-	-	630
NP19	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Propane Heaters	356040	5956612	356954	5957149	357658	5955865	356740	5955337	-	-	-	-	-	-	-	-	609
NP20	Dow Chemical Canada ULC	Fort Saskatchewan Chemical Manufacturing Plant	Site Propane Heaters	358412	5957203	358479	5958486	359434	5958459	359369	5957158	-	-	-	-	-	-	-	-	630
NP21	Chemtrade West Ltd. Partnership	Fort Saskatchewan Sulphides	Various Space Heating and Ventilation Exhausts	356280	5954515	356462	5954650	356488	5954641	356493	5954448	356373	5954452	-	-	-	-	-	-	624
NP22	Chemtrade West Ltd. Partnership	Fort Saskatchewan Chemical Manufacturing Plant	Various Heating and Ventilation Exhausts	355966	5954642	356069	5954761	356143	5954685	356048	5954570	-	-	-	-	-	-	-	-	624
NP23	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Seed Bin Vents (5)	352462	5955665	352483	5955692	352525	5955671	352483	5955631	-	-	-	-	-	-	-	-	642
NP24	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Meal Bin Vents (3)	352497	5955576	352507	5955584	352527	5955550	352505	5955533	352497	5955541	352512	5955558	-	-	-	-	641
NP25	Bunge Canada	Fort Saskatchewan Oil Seed Processing Plant	Pellet Bin Vents (2)	352494	5955572	352508	5955562	352491	5955545	352479	5955552	-	-	-	-	-	-	-	-	641
NP26	Plains Midstream Canada ULC	Fort Saskatchewan Fractionation Plant and Associated Brine Storage Ponds	Space Heater Exhaust Vents	357476	5959134	357887	5959107	358026	5958467	357790	5958187	355700	5954647	355705	5954655	-	-	-	-	621
NP28	Nutrien (Canada) Holdings ULC	Fort Saskatchewan Fertilizer Manufacturing Plant	Stationary Propane Users	355099	5955353	355490	5955434	355531	5955071	355155	5955016	-	-	-	-	-	-	-	-	611



Source ID	Operator	Facility	Source Description	Corner 1		Corner 2		Corner 3		Corner 4		Corner 5		Corner 6		Corner 7		Corner 8		Base Elevation (m)
				UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	UTM E (m)	UTM N (m)	
NP30	Pembina Marketing Ltd.	Canadian Diluent Hub Bulk Petroleum Storage Terminal	Space Heater Exhaust Vents	362671	5961135	363119	5961126	363115	5960677	362661	5960687	-	-	-	-	-	-	-	-	628
NP31	Keyera Energy Ltd.	Fort Saskatchewan Fractionation Facility and Brine Storage Ponds	Space Heater Exhaust Vents	356946	5958152	358291	5958079	358274	5957425	358227	5957347	358092	5957285	357063	5957341	356783	5957673	356906	5957904	620
NP33	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Combined Heating	355188	5954742	355339	5954888	355561	5954764	355430	5954592	-	-	-	-	-	-	-	-	619
NP34	Oerlikon Metco (Canada) Inc.	Fort Saskatchewan Metal Manufacturing Plant	Infrared Dryers	355188	5954742	355339	5954888	355561	5954764	355430	5954592	-	-	-	-	-	-	-	-	619
NP35	Conifer Energy Inc.	Redwater Gas Conservation Plant	Space Heater Exhaust Vents	363487	5980394	363477	5980105	363723	5980096	363738	5980392	-	-	-	-	-	-	-	-	616
NP37	Air Liquide Canada Inc.	Air Liquide Scotford Complex	Miscellaneous Heaters	362697	5963147	362734	5963146	362733	5963123	362696	5963124	-	-	-	-	-	-	-	-	624
NP38	Umicore (Canada) Inc.	Fort Saskatchewan Metals and Chemical Manufacturing Plant	Propane Combustion	355487	5954791	355546	5954758	355512	5954695	355455	5954730	355700	5954647	355705	5954655	-	-	-	-	622
NP39	Secure Energy Services Inc.	Redwater Hazardous Waste and Recyclables Storage and Processing Facility	Space Heater Exhaust Stacks	362627	5980290	363028	5980278	363017	5979876	362616	5979888	-	-	-	-	-	-	-	-	625



Appendix B Climate and Meteorology in the Study Area



B.1 Introduction

Stantec has analyzed the meteorological data that were developed and used in the Air Quality Assessment for the Beacon Power Generation Project (the Project). Five years of meteorological data from January 1, 2015, to December 31, 2019, were used in the dispersion modelling study which was outlined in the main report. The AEP extraction utility software Multi-modal Extraction Utility 2 (MMEU2) was used to extract the site-specific surface and upper air meteorological data from the 2015-2019 WRF 4-km grid meteorological data provided by Alberta Environment and Parks (AEP 2021a).

The AERMOD meteorological pre-processor AERMET (most recent v24142) was used to process the meteorological dataset used in dispersion modelling (U.S. EPA 2024). The MMEU2 provides a formatted standardized Solar and Meteorological Surface Observation Network (SAMSON) surface station file and a Radiosonde Observation (RAOBS) upper air station file that are readable by the AERMOD modelling system meteorological model AERMET (U.S. EPA, 2024).

AERMET is used to estimate two stability parameters, friction velocity and Monin-Obukhov length, to characterize the amount of turbulence in the atmosphere. The friction velocity is a measure of mechanical effects alone, such as wind shear at ground-level. The Monin-Obukhov length indicates the relative strengths of mechanical and buoyancy effects on atmospheric turbulence. Thus, AERMOD can account for turbulence both from wind shear, and from buoyancy effects due to solar heating during the day and radiational cooling at night. To properly account for these effects, AERMET requires three land use parameters: albedo, Bowen ratio, and surface roughness. Albedo is defined as the fraction of total incident solar radiation reflected by a particular surface without absorption. Bowen ratio is an indicator of surface moisture conditions and can be defined as the ratio of the sensible heat flux to the latent heat flux. Surface roughness is a length scale that characterizes the roughness of the earth's surface.

B.2 Surface Characteristics

For this assessment, the 2015 Land Use Cover of Canada (NRCan, 2020) was used to determine land use categories within the 3km of the Project. The 2015 Land Cover of Canada data was extracted by AEP MMEU2. Site-specific values for albedo, Bowen ratio, and surface roughness were selected based on land use within 3 km of the Project and on the Air Quality Model Guideline (AQMG; (AEP 2021b). Considering the surface characteristics surrounding the Project, four wind direction sectors were used in the AERMET stage 2 run. Selected land type surface parameters are presented in Table B.1. The values of each parameter were based on AQMG Appendix E (AEP 2021b) and varied as a function of month of year to account for the changing surface characteristics of the growing seasons and snow cover.



Table B.1 Surface Parameters Applied in AERMET Processing (Wind Direction 0 to 360)

Month	Albedo	Bowen Ratio	Surface Roughness (m)
January	0.600	0.500	0.014
February	0.600	0.500	0.014
March	0.600	0.500	0.014
April	0.140	0.300	0.040
May	0.140	0.300	0.040
June	0.200	0.500	0.200
July	0.200	0.500	0.200
August	0.200	0.500	0.200
September	0.200	0.700	0.200
October	0.200	0.700	0.200
November	0.600	0.500	0.014
December	0.600	0.500	0.014

Note:
Sector of wind direction 0 to 360degrees use values of agricultural land



B.3 Meteorology In The Study Area

The meteorological data used to run AERMOD (as output from AERMET) can be summarized in terms of its major parameters: ambient temperature, wind speed and direction, atmospheric stability, and mixing height. The following sections discuss these parameters and present the results of analyses performed on the meteorological dataset.

B.3.1 Ambient Temperature

Average and median surface temperatures extracted at the project site for January 1, 2015, to December 31, 2019, are provided in Table B.2. Extreme minimum and maximum temperatures for the five-year period were -38.6 and 30.9 °C, respectively.

Table B.2 Average and Median Surface Temperatures for the Project Site Based on AERMET Data from January 1, 2015 to December 31, 2019

Season	Air Temperature (°C)	
	Average	Median
Winter	-9.4	-8.1
Spring	7.1	7.1
Summer	15.9	15.7
Autumn	5.6	5.0

Note:

^a Winter: November, December, January, February and March. Spring: April, and May. Summer: June, July, and August. Autumn: September and October.

B.3.2 Winds

Figure B.1 shows the frequency distributions of hourly average wind speed based on the meteorological dataset applied in dispersion modelling from January 1, 2015, to December 31, 2019. For 65.3% of the time, wind speeds were less than 4.0 m/s.

Wind roses are an efficient and convenient means of presenting wind data. The length of the radial barbs gives the total percent frequency of winds from the indicated direction, while portions of the barbs of different widths indicate the frequency of associated wind speed categories. Figure B.2 presents the annual wind rose. Winds are mainly from west, southwest, and northwest.



Figure B.1 Frequency Distribution of Hourly Average Wind Speed for the Project Site Based on AERMET Data from January 1, 2015 to December 31, 2019

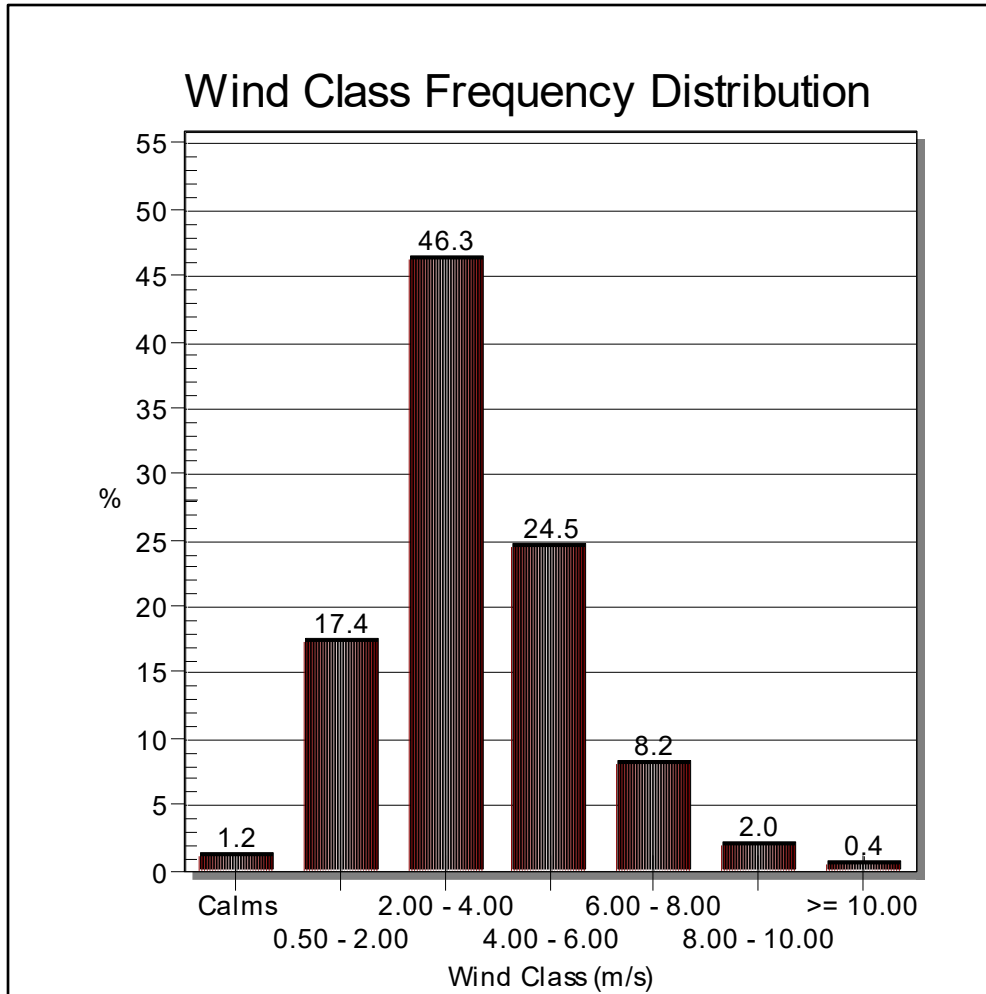
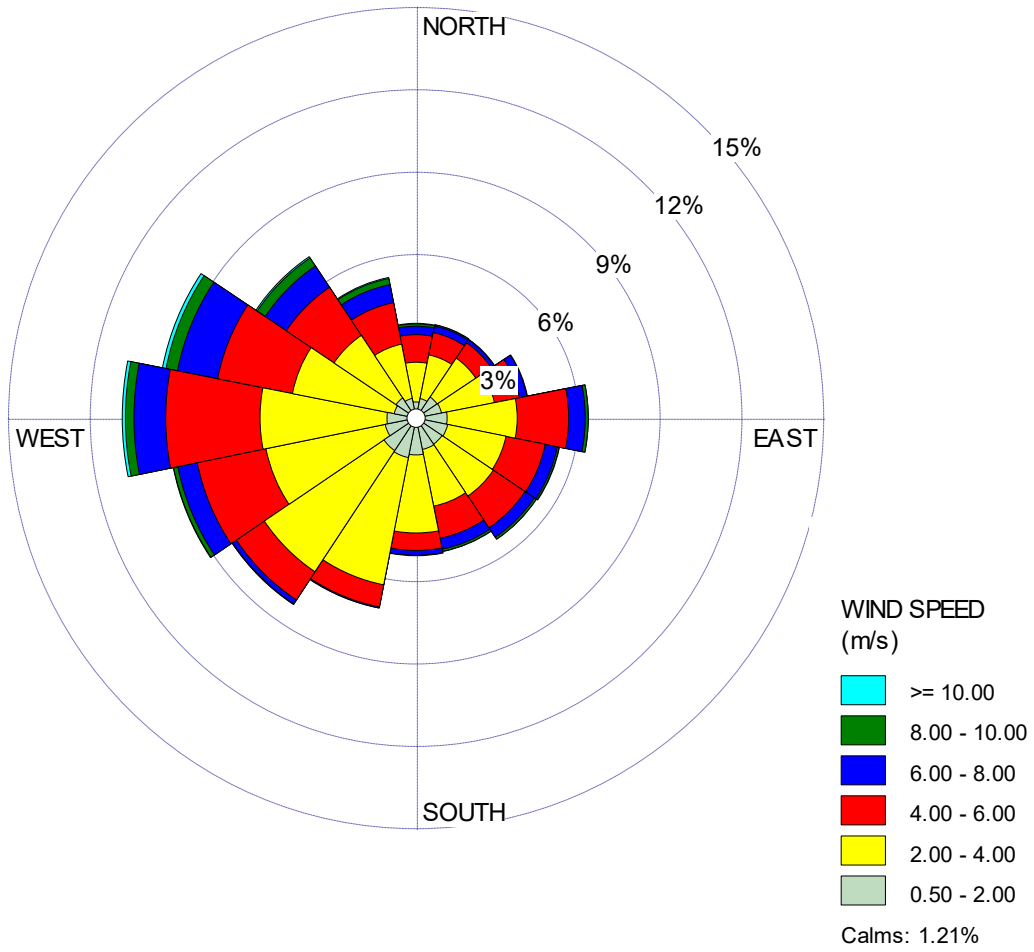


Figure B.2 Annual Wind Rose of Hourly Average Wind Speed and Direction for the Site Based on AERMET Data from January 1, 2015 to December 31, 2019

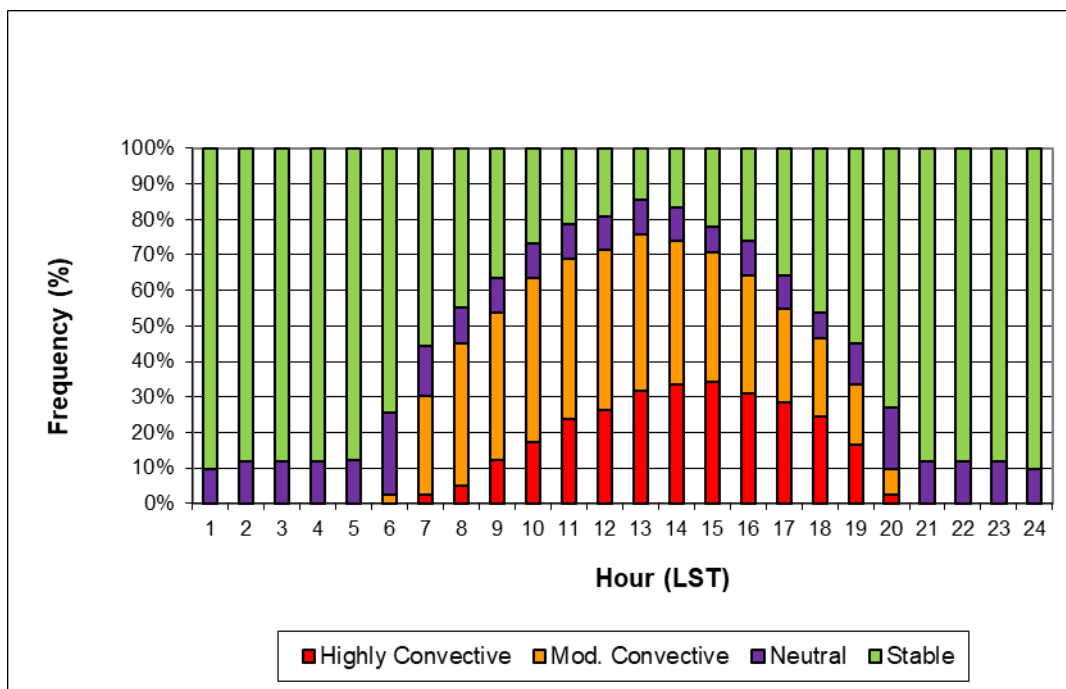


B.3.3 Atmospheric Stability

Atmospheric turbulence near the earth’s surface is a function of atmospheric stability, which is governed by thermal and mechanical influences. The atmosphere can be broadly described as being stable, neutral, or unstable. During night-time hours, the earth’s surface emits thermal radiation and cools. Air in contact with the ground thus becomes cooler and denser than the air aloft. This phenomenon is referred to as a ground-based temperature inversion. Vertical motions of the atmosphere are suppressed, and the atmosphere is described as stable. This contrasts with daytime situations when the sun heats the ground. Air in contact with the ground becomes warmer and less dense than the air aloft. Vertical motions of the atmosphere are enhanced, and the atmosphere is said to be unstable. When a balance exists between incoming and outgoing radiation, there is no net heating or cooling of the air in contact with the ground and vertical motions of the atmosphere are neither enhanced nor suppressed. Such an atmosphere is described as neutral and exists during overcast skies or in transition from unstable to stable conditions. Mechanical mixing may also create neutral atmospheres generated by strong winds.

Figure B.3 presents the frequency distribution of atmospheric stability with time of day for meteorological data applied in dispersion modelling. Generally, highly and moderately unstable conditions are dominant from early morning (approximately 09:00) to early evening (approximately 17:00) while neutral and stable conditions occur most often during night-time.

Figure B.3 Frequency Distribution of Atmospheric Stability with Time of Day for the Project Site Based on AERMET Data from January 1, 2015 to December 31, 2019



B.3.4 Mixing Height

Strong solar heating or strong winds can create a two-layered atmosphere. The lower layer is well mixed and characterized by either neutral or unstable conditions; the upper layer is characterized by stable conditions (elevated temperature inversion). Vertical motions in the upper layer are damped, which effectively prevents the transfer of air between the two layers. The depth of this lower atmospheric boundary layer is defined as the mixing height. Thus, emissions injected into the mixing layer may become trapped if they do not have enough buoyancy or momentum to penetrate the elevated stable layer. This leads to the classical trapping situation that is often associated with poor air quality.

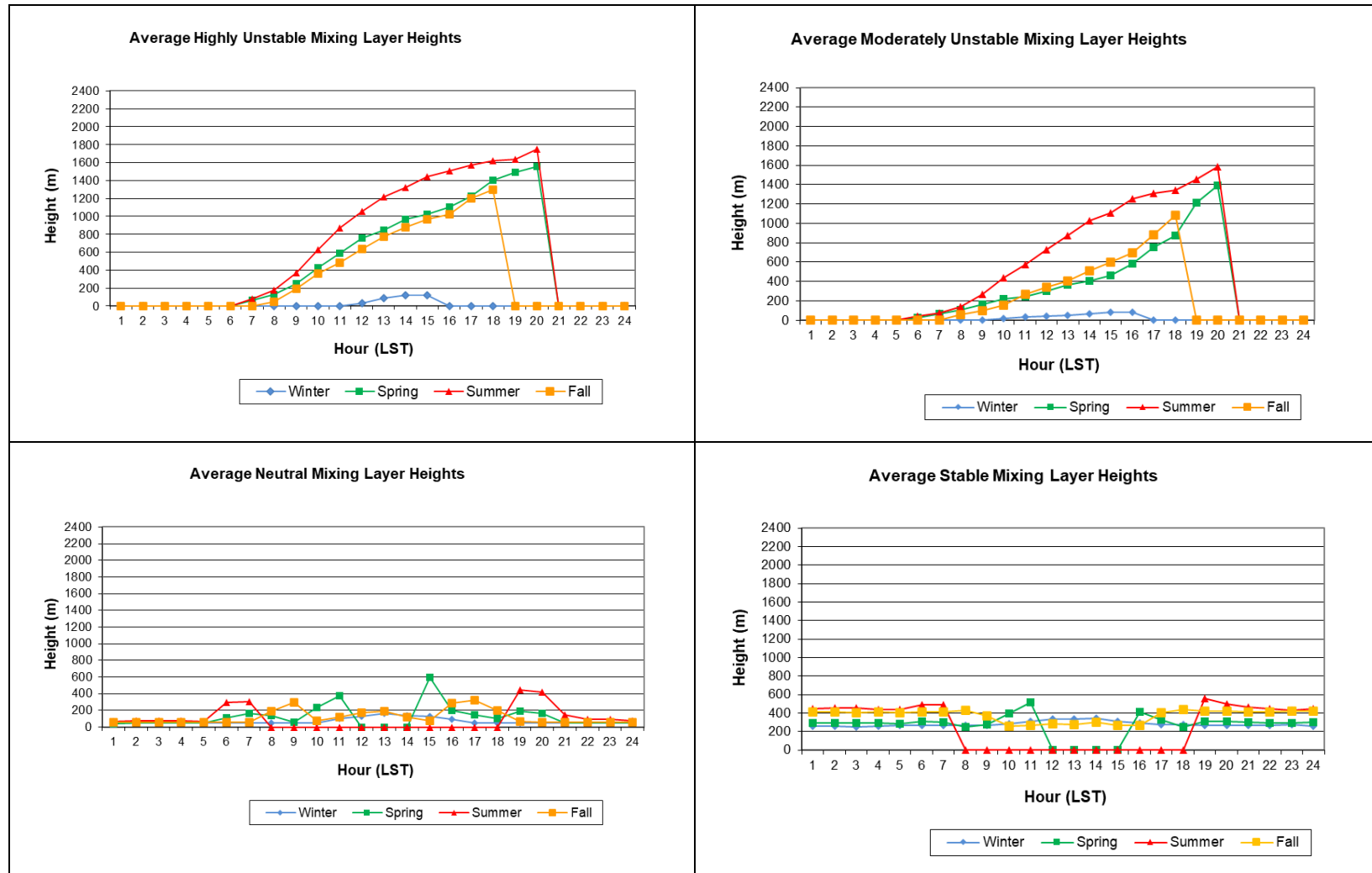
Mechanical interactions result in mixing of air by roughness at the surface of the earth. Surface roughness can be due to topography, forests, or buildings. Heights of the mechanically mixed layer are location dependent and proportional to wind speed.

Atmospheric thermal interactions are caused by the effects of solar radiation. During the day, unstable conditions are created by radiation from the sun. This creates warmer, less dense air that rises, while cooler, more dense air from above sinks to ground level. As air rises, it expands and cools. Upward motion ceases at the height where rising air reaches the same temperature as surrounding air. This height is called the convective mixing height. It is dependent on the intensity of solar radiation and vertical temperature characteristics of the air mass.

The hourly distribution of average mixing layer height for highly unstable, moderately unstable, neutral, and stable atmospheric conditions for meteorological data applied in dispersion modelling are presented in Figure B.4. Mixing heights vary from several tens of metres to several thousands of metres, depending on the intensity of solar radiation reaching the earth's surface and wind speed. Mixing heights are much greater during the spring and summer than the winter. Maximum mixing heights usually occur during late afternoon hours when the effects of solar heating are greatest, while minimum heights occur at night.



Figure B.4 Hourly Distribution of Average Mixing Layer Heights for Highly Unstable, Moderate Unstable, Neutral, and Stable Conditions by Season for the Project Site Based on AERMET Data from January 1, 2015 to December 31, 2019



B.4 References

AEP (Alberta Environment and Parks). 2021a. The Alberta Weather Research Forecast (WRF) meteorological data for 2015 to 2019. September 2021. Alberta Environment and Parks (AEP). Available at: <https://www.alberta.ca/meteorological-data-for-dispersion-models.aspx>

AEP 2021b. Air Quality Model Guideline. September 2021. Alberta Environment and Parks (AEP). Available at: <https://open.alberta.ca/publications/air-quality-model-guideline-2021>

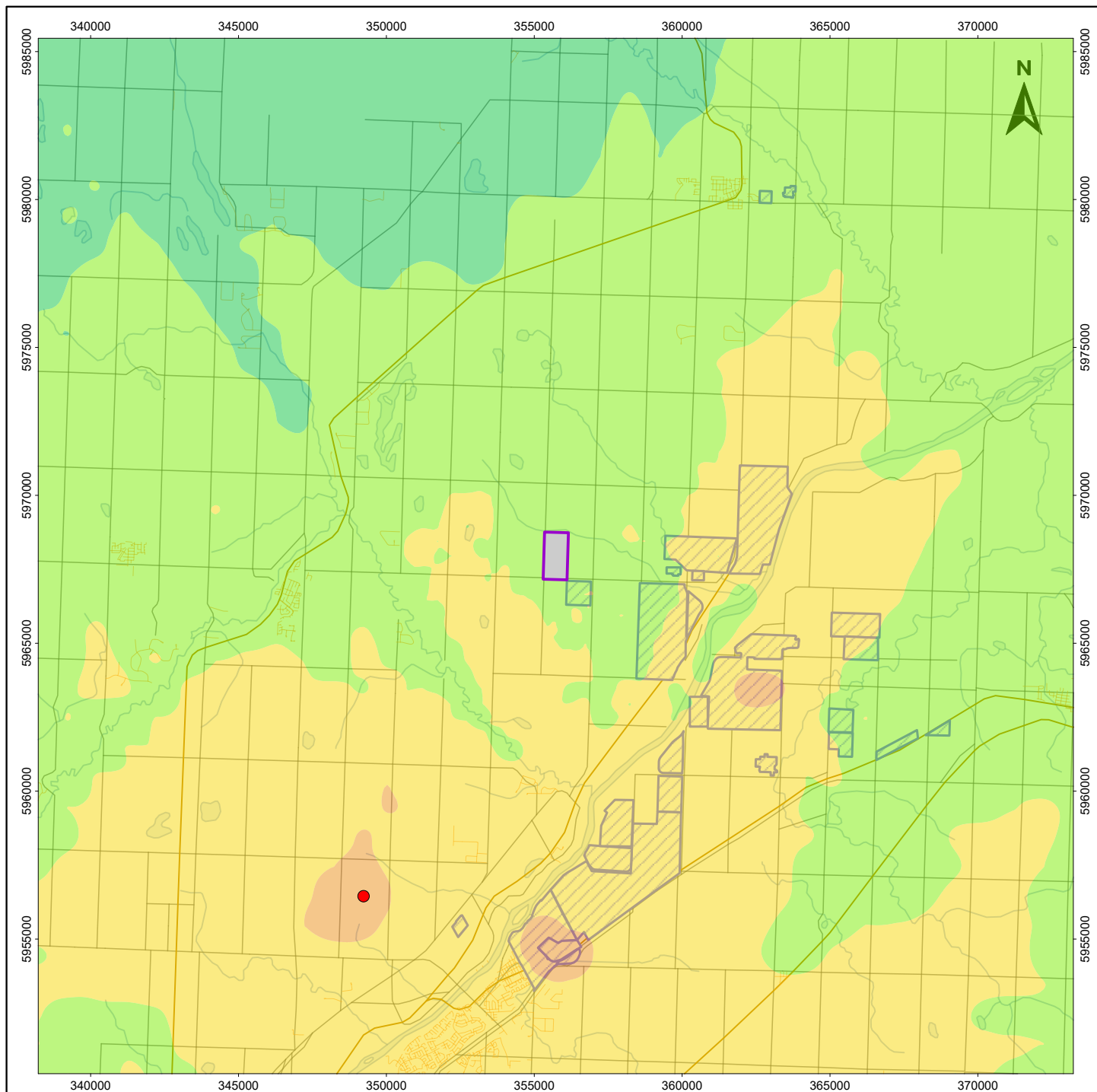
NRCan (Natural Resources Canada). 2020. Natural Resources Canada 2015 Land Cover of Canada dataset available at : <https://open.canada.ca/data/en/dataset/4e615eae-b90c-420b-adee-2ca35896caf6>

U.S EPA (United States Environmental Protection Agency). 2024. User's Guide for the AERMOD Meteorological Preprocessor (AERMET). United States Environmental Protection Agency (U.S. EPA). Research Triangle Park, North Carolina: Office of Air Quality Planning and Standards. Air Quality Assessment Division. November 2024.



Appendix C Isopleths of Maximum Predicted Concentrations



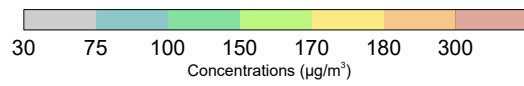


Map Features

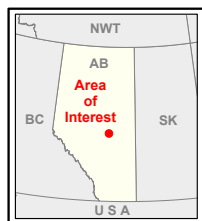
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



Maximum Concentration: 192 $\mu\text{g}/\text{m}^3$
1-hour NO_2 AAAQO: 300 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

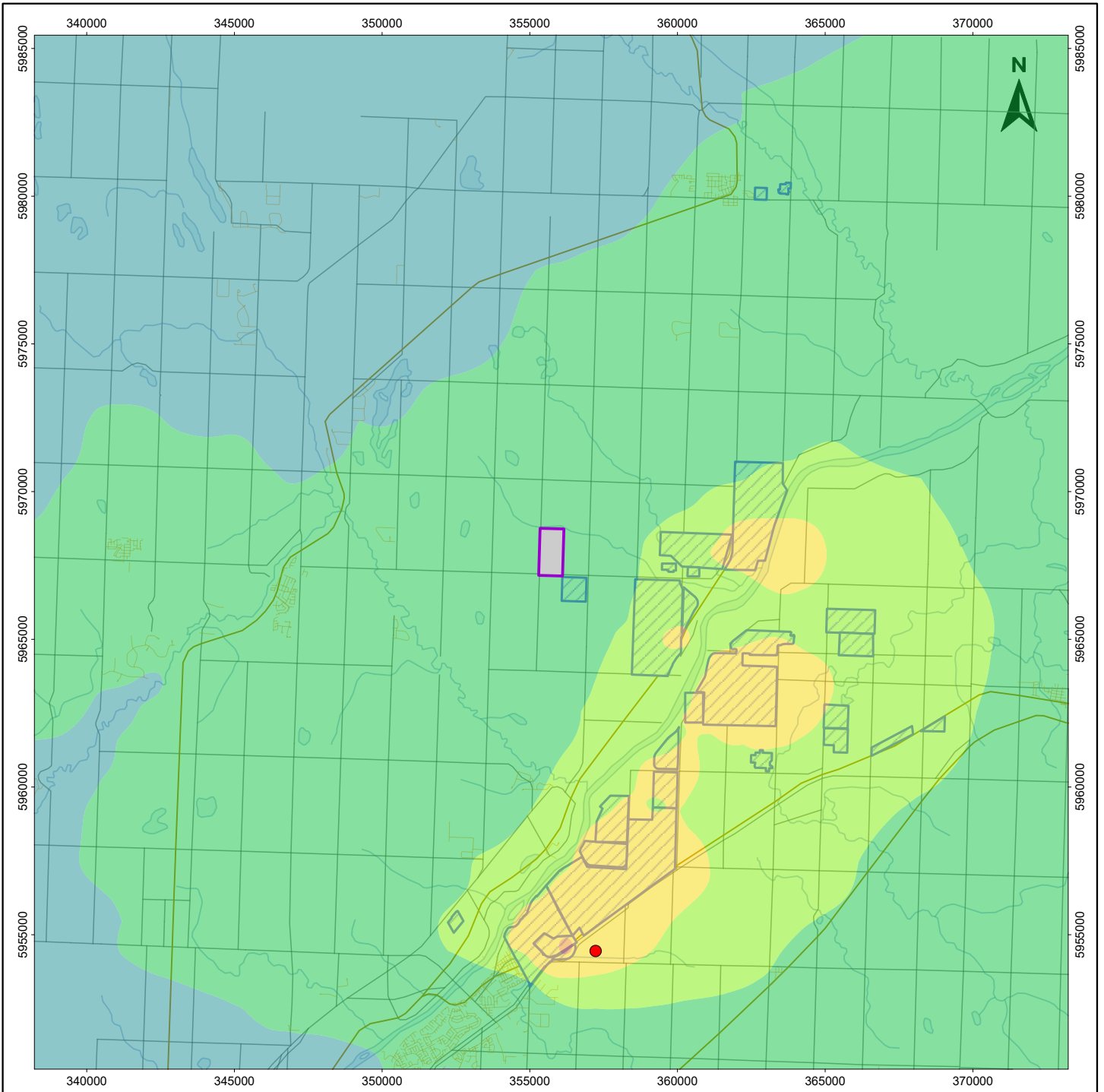
Maximum Predicted 1-hour NO_2 (ARM2) Concentrations (Base Case)

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 Stantec

PREPARED FOR

FIGURE NO.
C.1

N:\111400058\airfwr

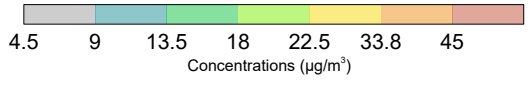


Map Features

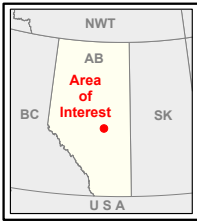
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



Maximum Concentration: 27.8 $\mu\text{g}/\text{m}^3$
 Annual NO_2 AAAQO: 45 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

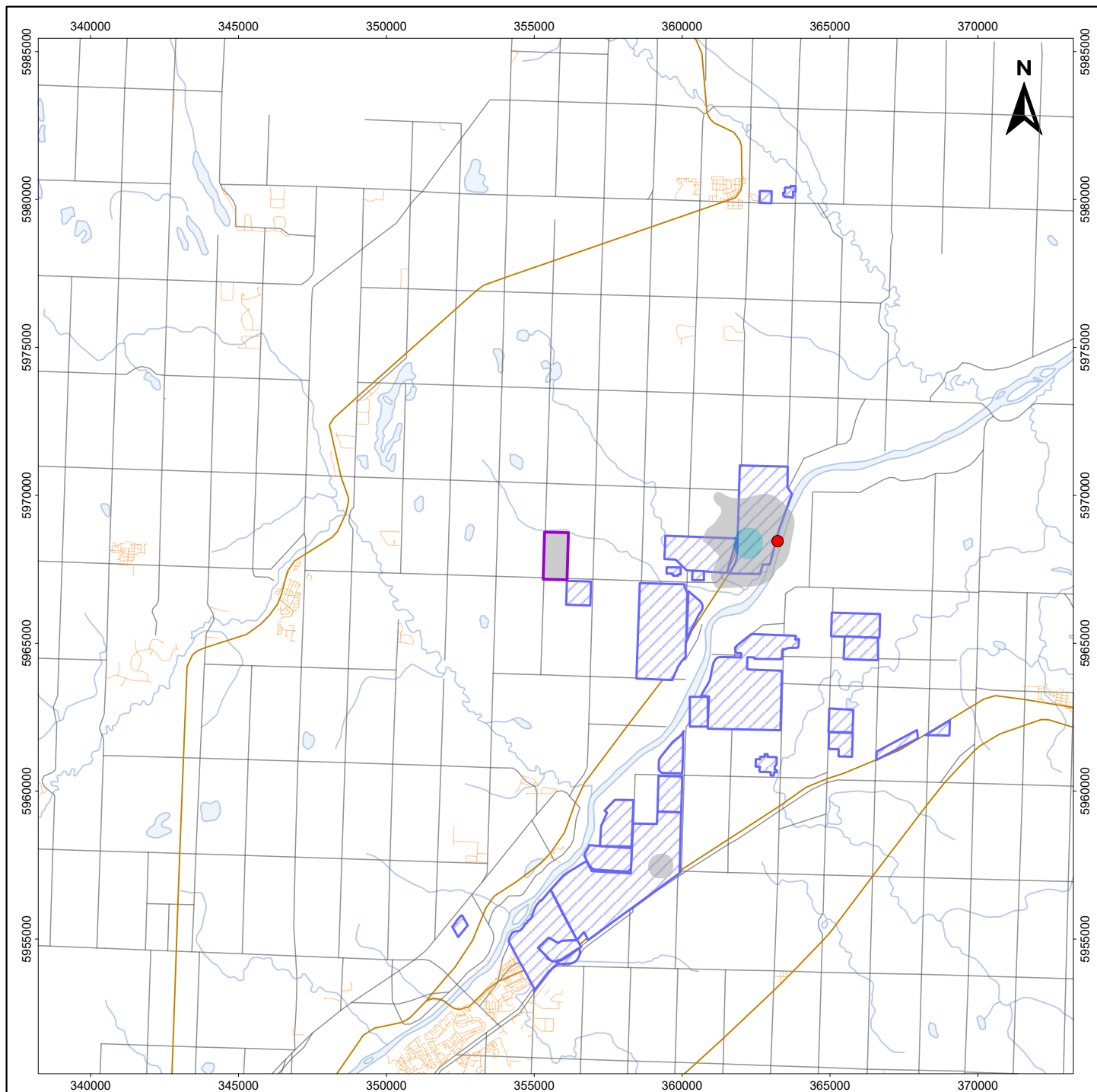
Maximum Predicted Annual NO_2 (ARM2) Concentrations (Base Case)

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PREPARED FOR

FIGURE NO. **C.2**

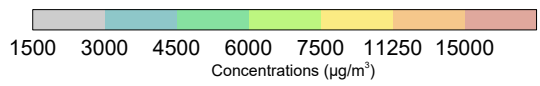
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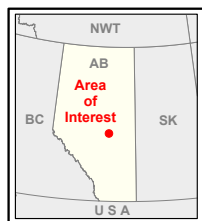
Map Features

- Beacon Data Center Fence Line
- Industrial Facility Fence Line
- Road
- Watercourse
- Railway
- Residential Road

Metres
0 2500 5000 7500 10000
UTM Zone 12, NAD 83



● Maximum Concentration: 1890 µg/m³
1-hour CO AAAQO: 15000 µg/m³



Beacon AI Centers - Heartland Project Air Quality Assessment

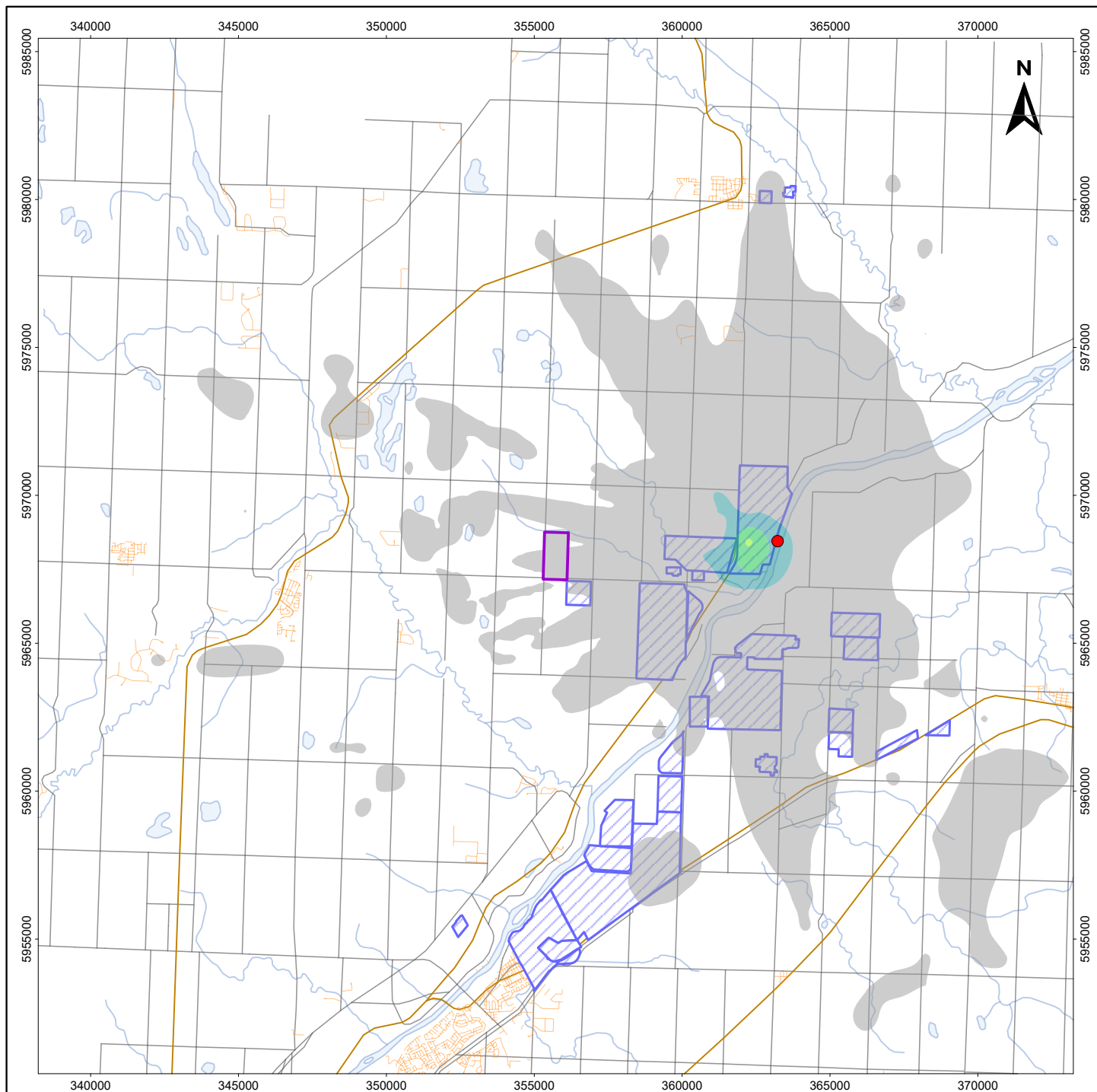
**Maximum Predicted 1-hour CO Concentrations
(Base Case)**

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PREPARED FOR

FIGURE NO.
C.3

N:\111400058\airfdr

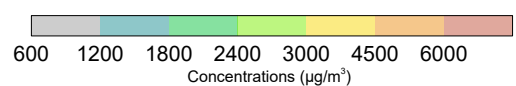


Map Features

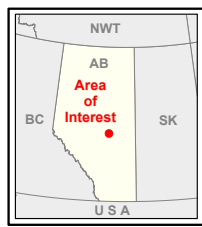
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



Maximum Concentration: 1479 $\mu\text{g}/\text{m}^3$
 8-hour CO AAAQO: 6000 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

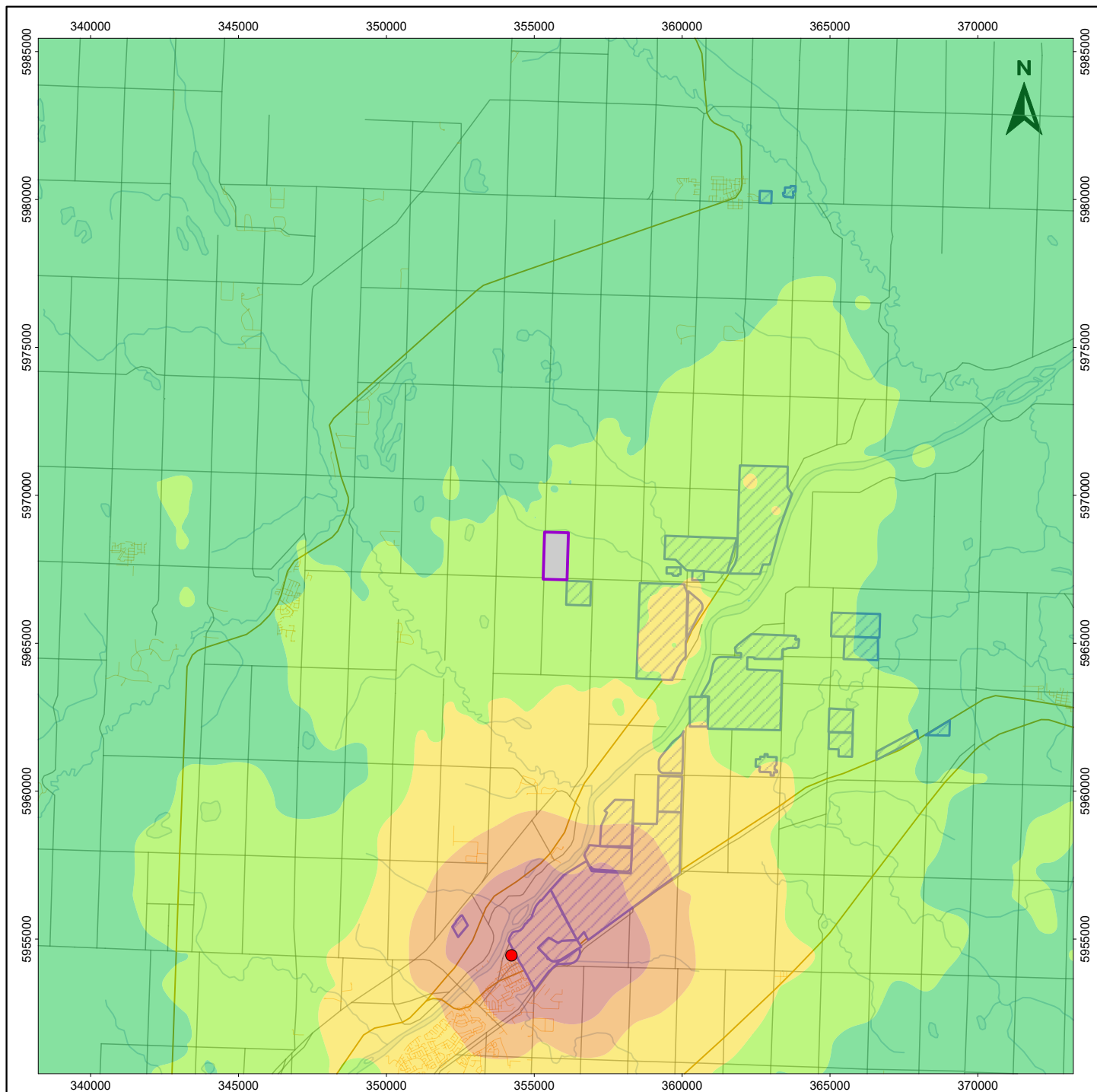
**Maximum Predicted 8-hour CO Concentrations
(Base Case)**

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FIGURE NO.
C.4

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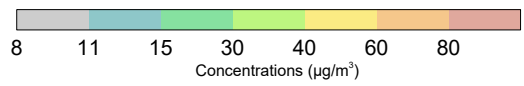


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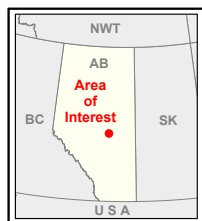
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



● Maximum Concentration: 158 $\mu\text{g}/\text{m}^3$
1-hour $\text{PM}_{2.5}$ AAAQG: 80 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

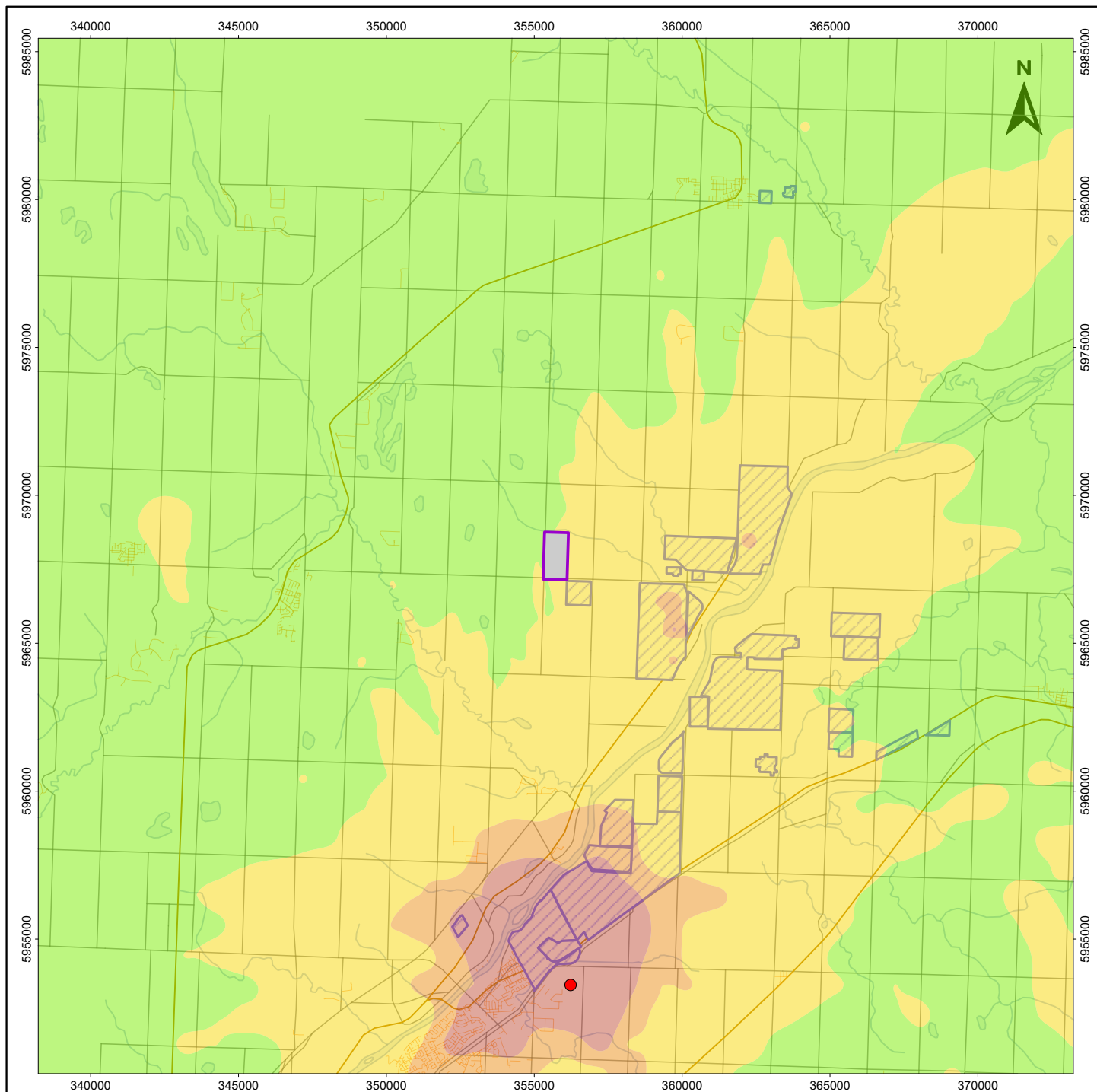
**Maximum Predicted 1-hour $\text{PM}_{2.5}$ Concentrations
(Base Case)**

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PREPARED FOR

FIGURE NO.
C.5

N:\111400058\air\air

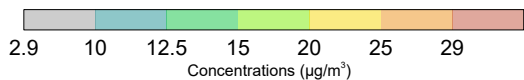


Map Features

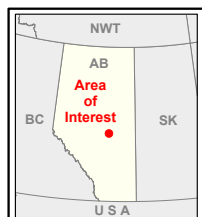
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



● Maximum Concentration: 61.8 µg/m³
 24-hour PM_{2.5} AAAQO: 29 µg/m³



Beacon AI Centers - Heartland Project Air Quality Assessment

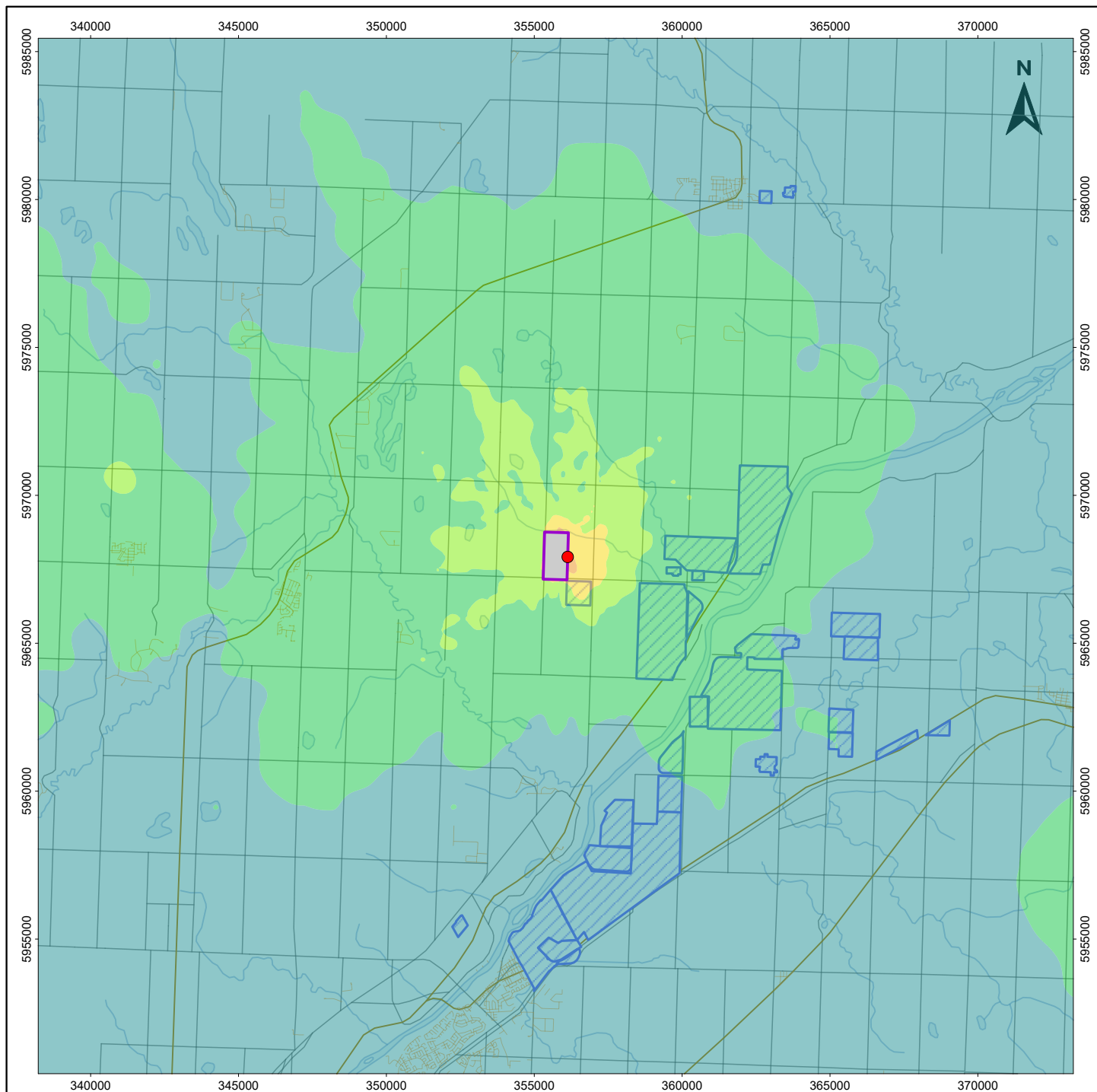
**Maximum Predicted 24-hour PM_{2.5} Concentrations
(Base Case)**

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FIGURE NO.
C.6

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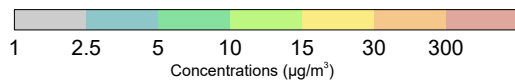


Map Features

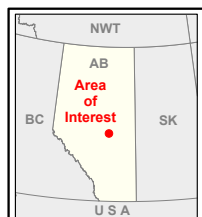
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



Maximum Concentration: 68.9 $\mu\text{g}/\text{m}^3$
 1-hour NO_2 AAAQO: 300 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

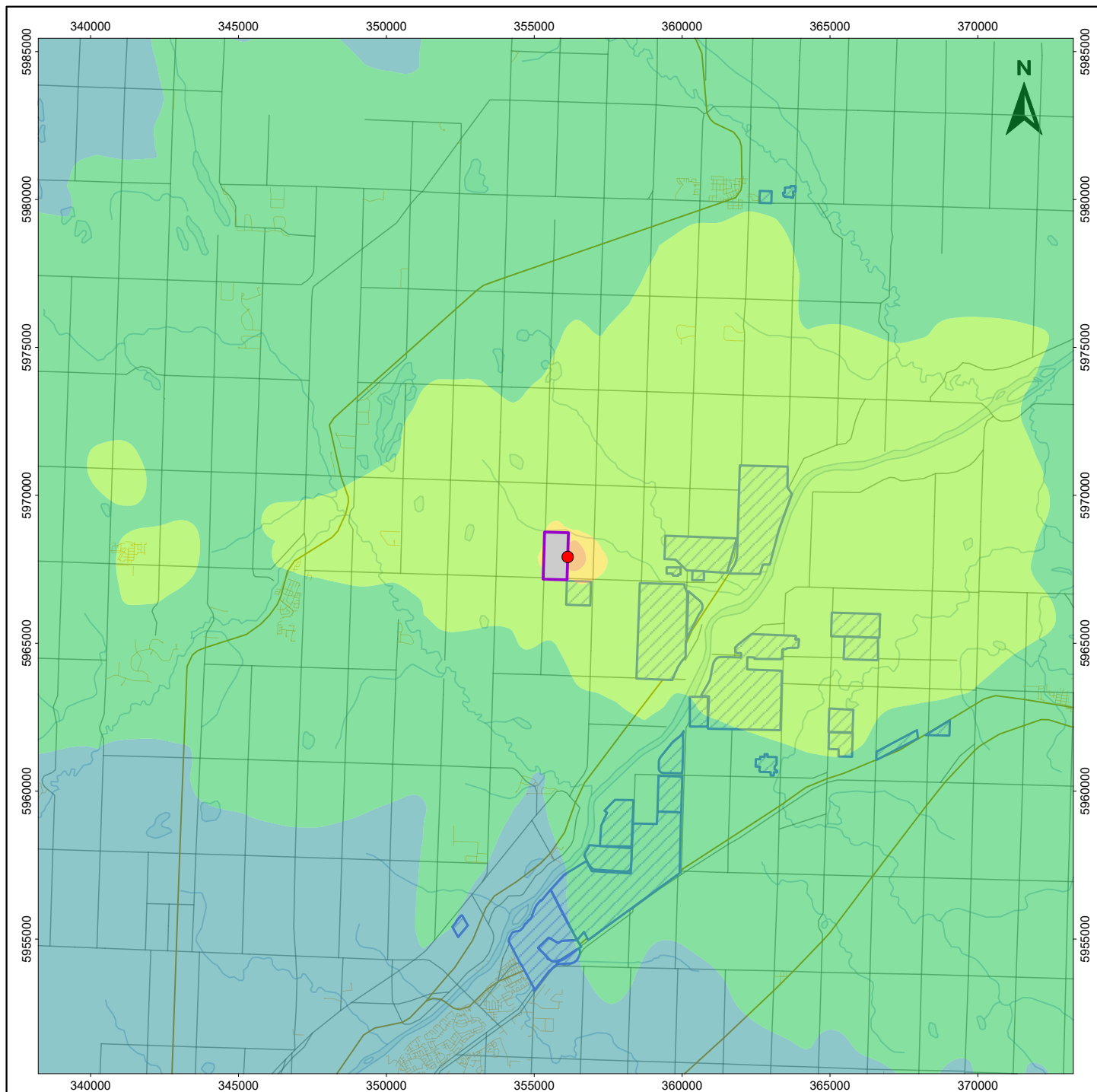
**Maximum Predicted 1-hour NO_2 (ARM2) Concentrations
 (Project Case)**

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FIGURE NO.
C.7


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Map Features

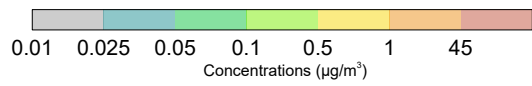
 Beacon Data Center Fence Line	 Watercourse
 Industrial Facility Fence Line	 Railway
 Road	 Residential Road


Metres

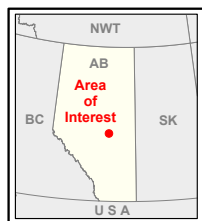


0 2500 5000 7500 10000

UTM Zone 12, NAD 83




 Maximum Concentration: 3.50 $\mu\text{g}/\text{m}^3$
 Annual NO_2 AAAQO: 45 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

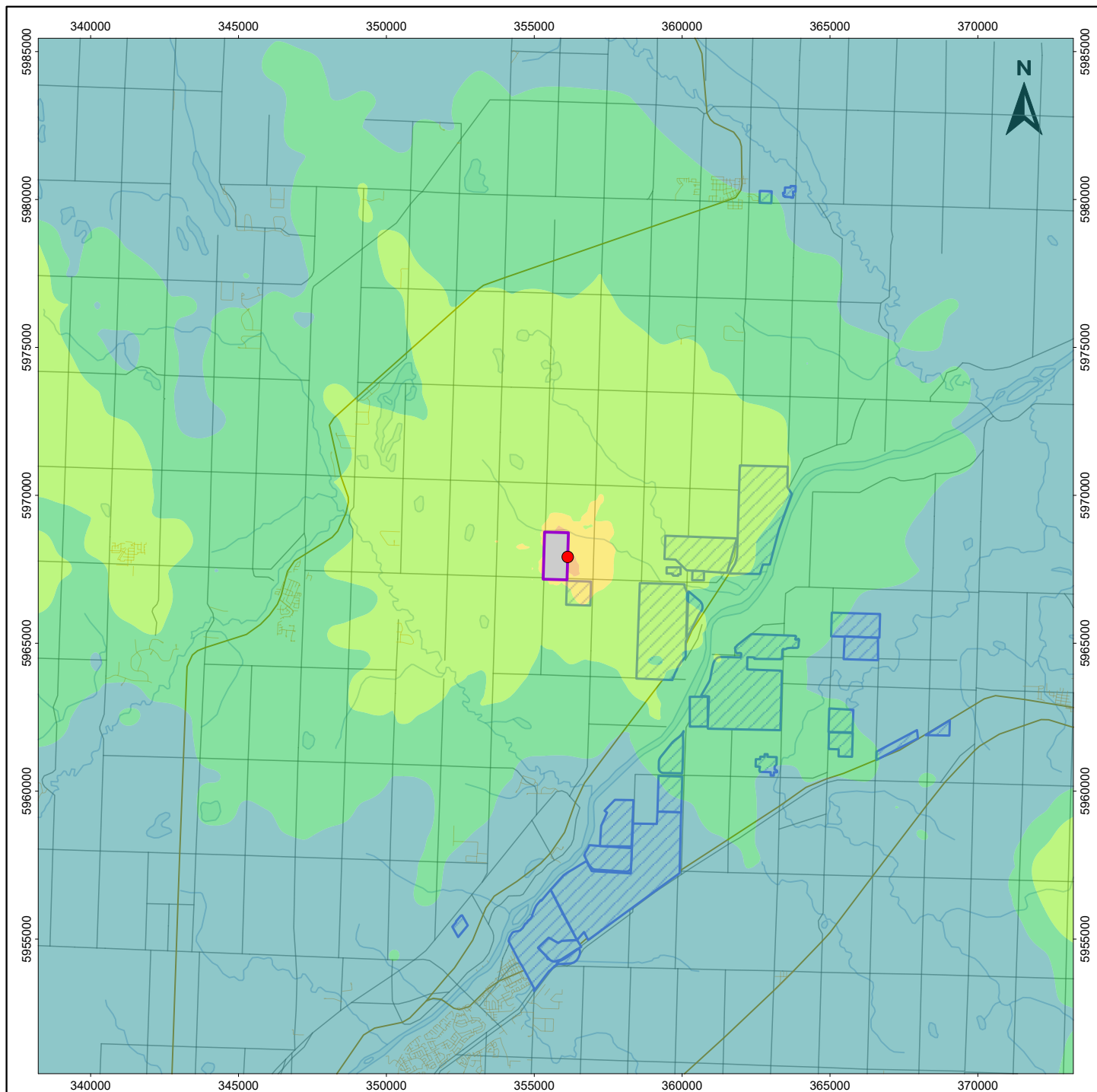
**Maximum Predicted Annual NO_2 (ARM2) Concentrations
 (Project Case)**

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FIGURE NO.
C.8

N:\111400058\airfdr

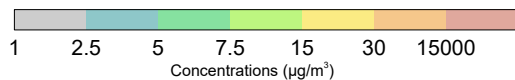


Map Features

Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

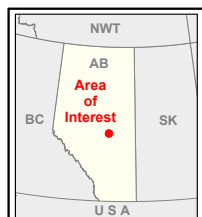
Metres

UTM Zone 12, NAD 83



Maximum Concentration: 76.6 $\mu\text{g}/\text{m}^3$
 1-hour CO AAAQO: 15000 $\mu\text{g}/\text{m}^3$

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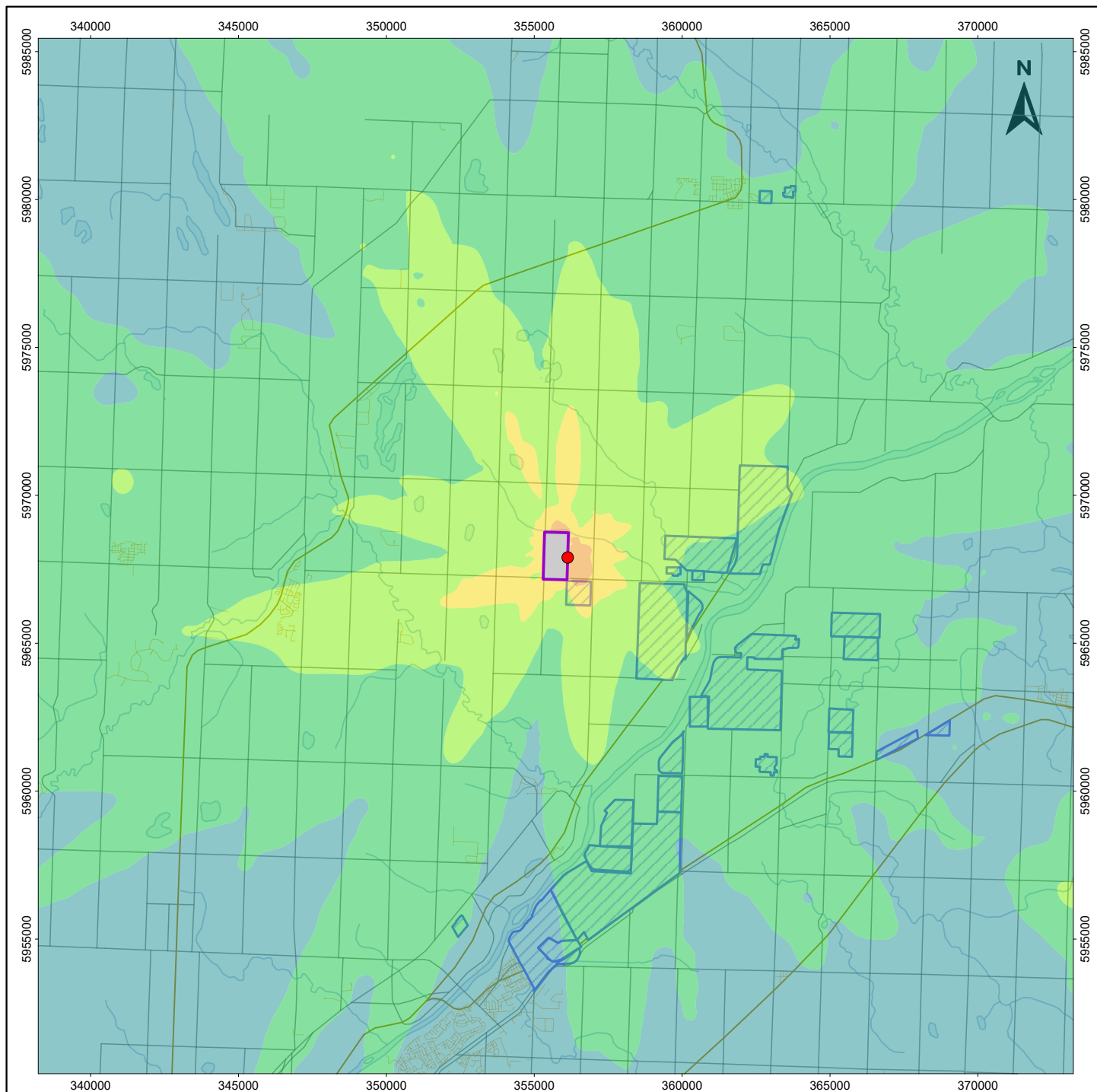
Beacon AI Centers - Heartland Project Air Quality Assessment

Maximum Predicted 1-hour CO Concentrations (Project Case)

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FIGURE NO.
C.9

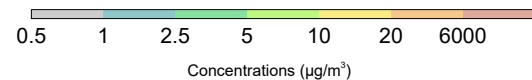


Map Features

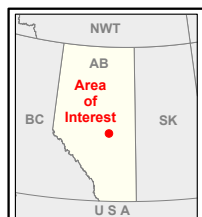
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



Maximum Concentration: 70.1 $\mu\text{g}/\text{m}^3$
 8-hour CO AAAQO: 6000 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

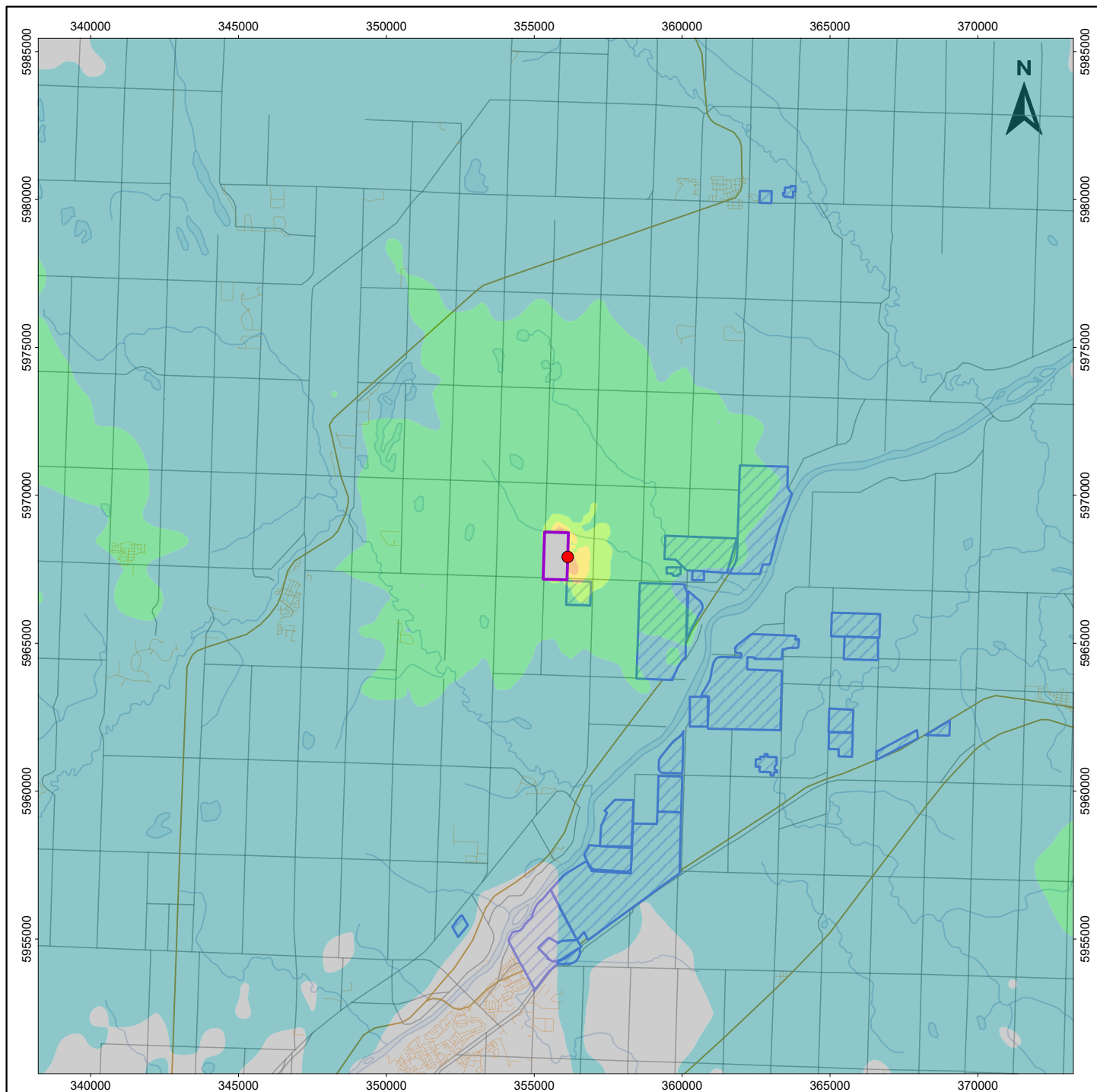
**Maximum Predicted 8-hour CO Concentrations
(Project Case)**

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FIGURE NO. **C.10**

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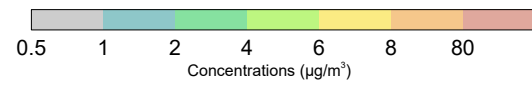


Map Features

Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

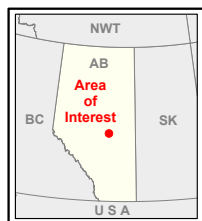
Metres

UTM Zone 12, NAD 83



Maximum Concentration: 19.6 $\mu\text{g}/\text{m}^3$
 1-hour $\text{PM}_{2.5}$ AAAQG: 80 $\mu\text{g}/\text{m}^3$

N:\111400058\airfdr



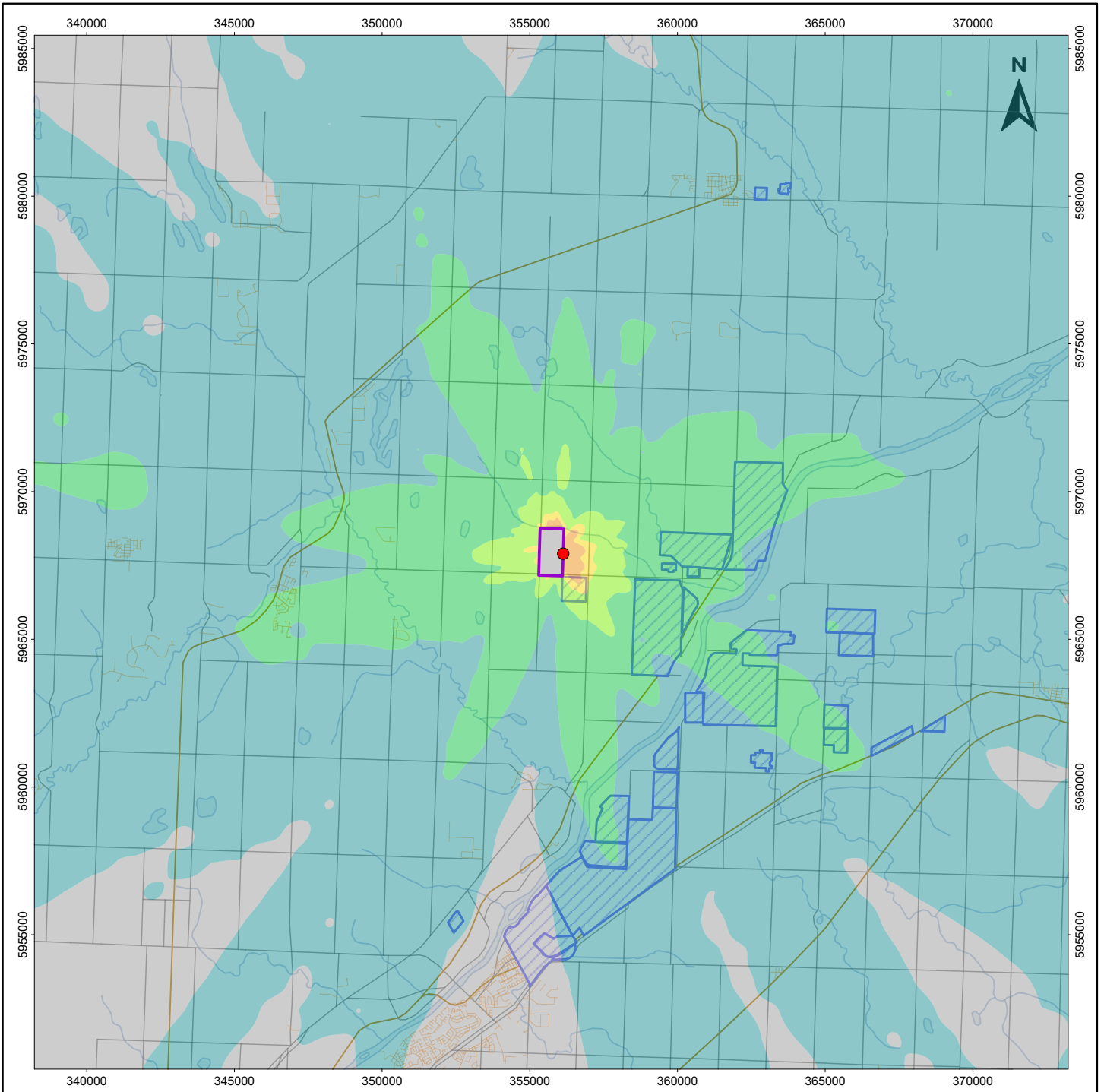
Beacon AI Centers - Heartland Project Air Quality Assessment

**Maximum Predicted 1-hour $\text{PM}_{2.5}$ Concentrations
(Project Case)**

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PREPARED FOR

FIGURE NO. **C.11**



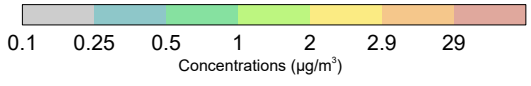
Map Features

- Beacon Data Center Fence Line
- Industrial Facility Fence Line
- Road
- Watercourse
- Railway
- Residential Road

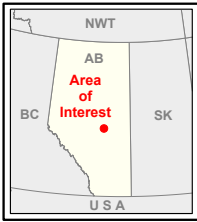
Metres

0 2500 5000 7500 10000

UTM Zone 12, NAD 83



● Maximum Concentration: 12.8 $\mu\text{g}/\text{m}^3$
 24-hour $\text{PM}_{2.5}$ AAAQO: 29 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

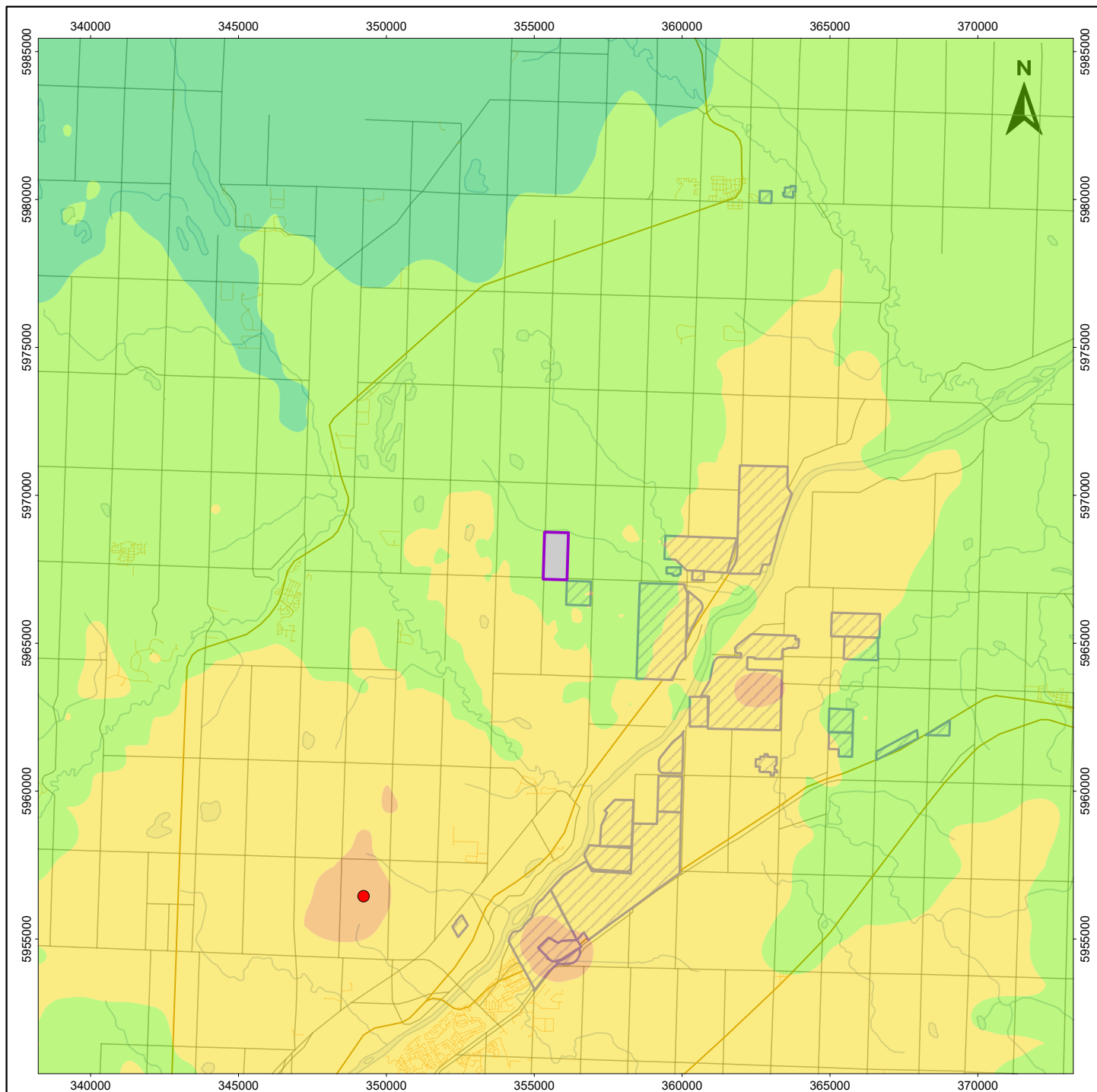
Maximum Predicted 24-hour $\text{PM}_{2.5}$ Concentrations (Project Case)

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PREPARED FOR

FIGURE NO.
C.12

N:\111400058\airfdr

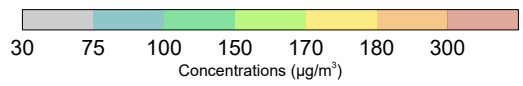


Map Features

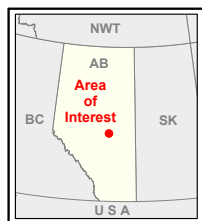
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



Maximum Concentration: 192 $\mu\text{g}/\text{m}^3$
1-hour NO_2 AAAQO: 300 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

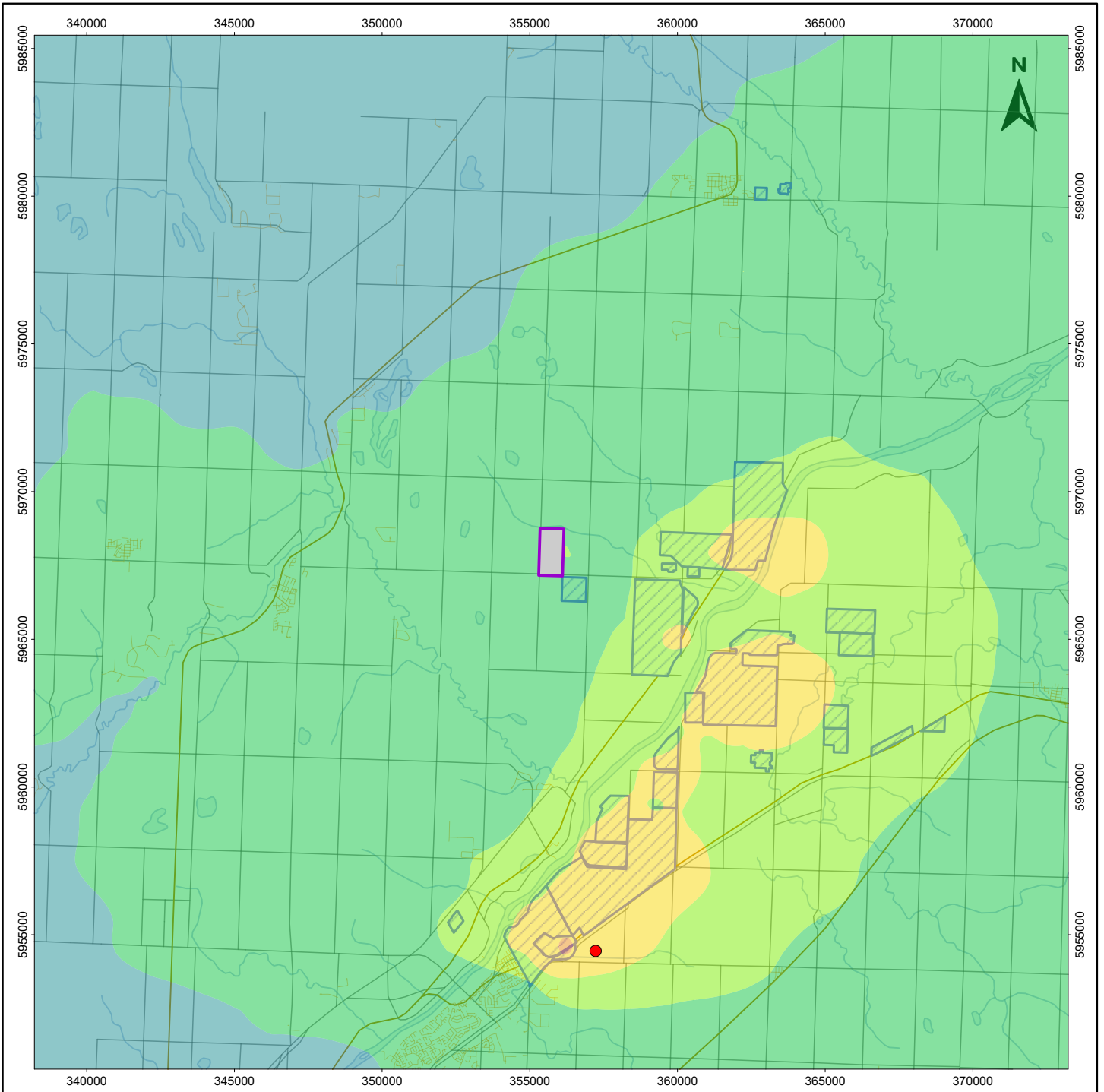
**Maximum Predicted 1-hour NO_2 (ARM2) Concentrations
(Application Case)**

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PREPARED FOR

FIGURE NO.
C.13

N:\111400058\airfiter



Map Features

- Beacon Data Center Fence Line
- Industrial Facility Fence Line
- Road
- Watercourse
- Railway
- Residential Road

Metres

0 2500 5000 7500 10000

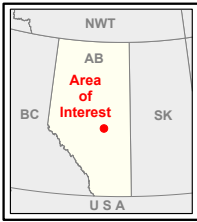
UTM Zone 12, NAD 83

4.5 9 13.5 18 22.5 33.8 45

Concentrations ($\mu\text{g}/\text{m}^3$)

● Maximum Concentration: 27.9 $\mu\text{g}/\text{m}^3$

Annual NO_2 AAAQO: 45 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

Maximum Predicted Annual NO_2 (ARM2) Concentrations (Application Case)

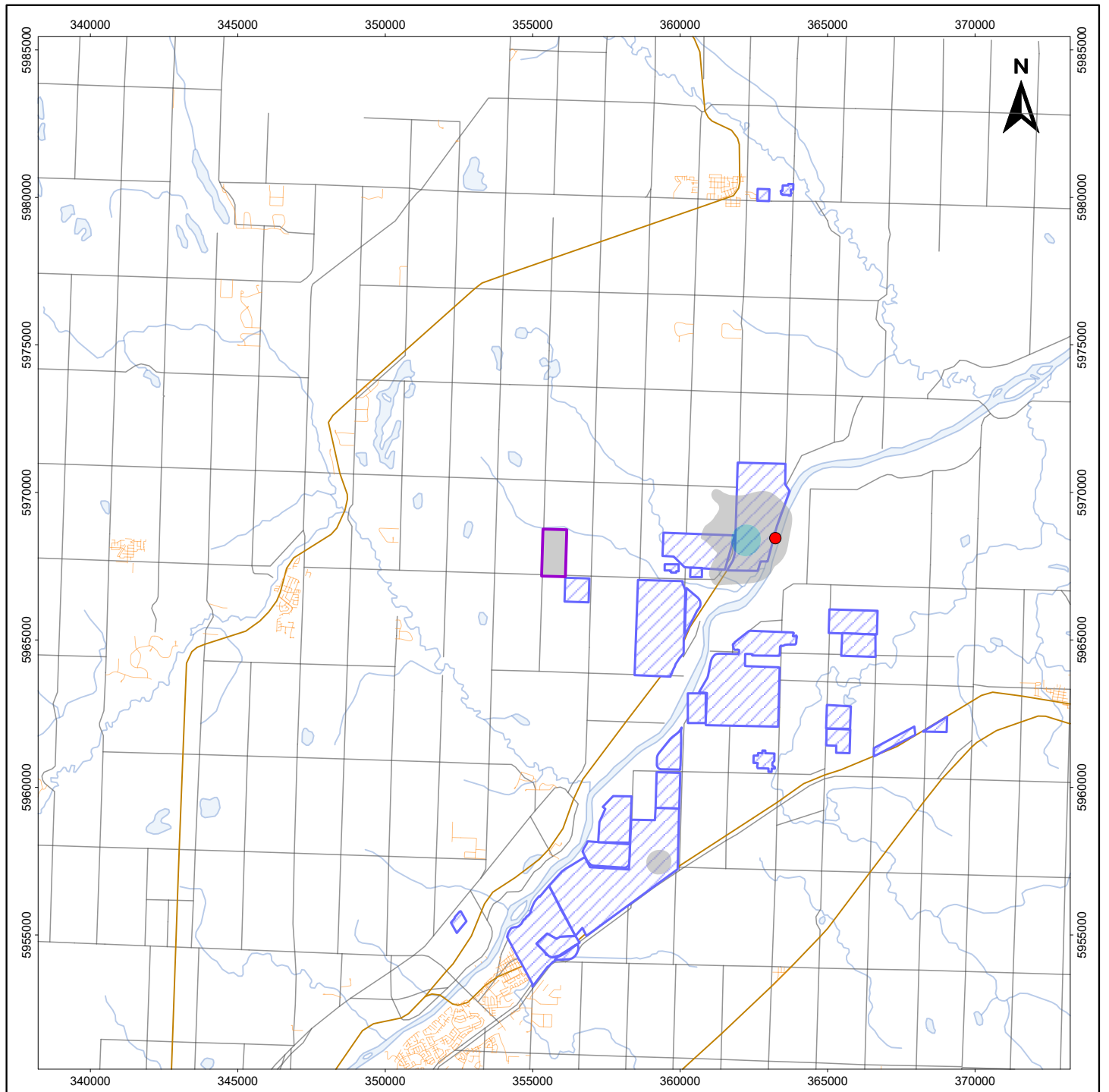
PREPARED BY

PREPARED FOR

FIGURE NO.

C.14

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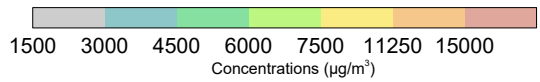
Map Features

- Beacon Data Center Fence Line
- Industrial Facility Fence Line
- Road
- Watercourse
- Railway
- Residential Road

Metres

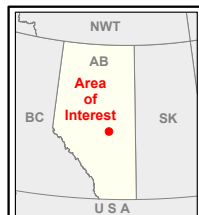
0 2500 5000 7500 10000

UTM Zone 12, NAD 83



● Maximum Concentration: 1890 µg/m³

1-hour CO AAAQO: 15000 µg/m³



Beacon AI Centers - Heartland Project Air Quality Assessment

**Maximum Predicted 1-hour CO Concentrations
(Application Case)**

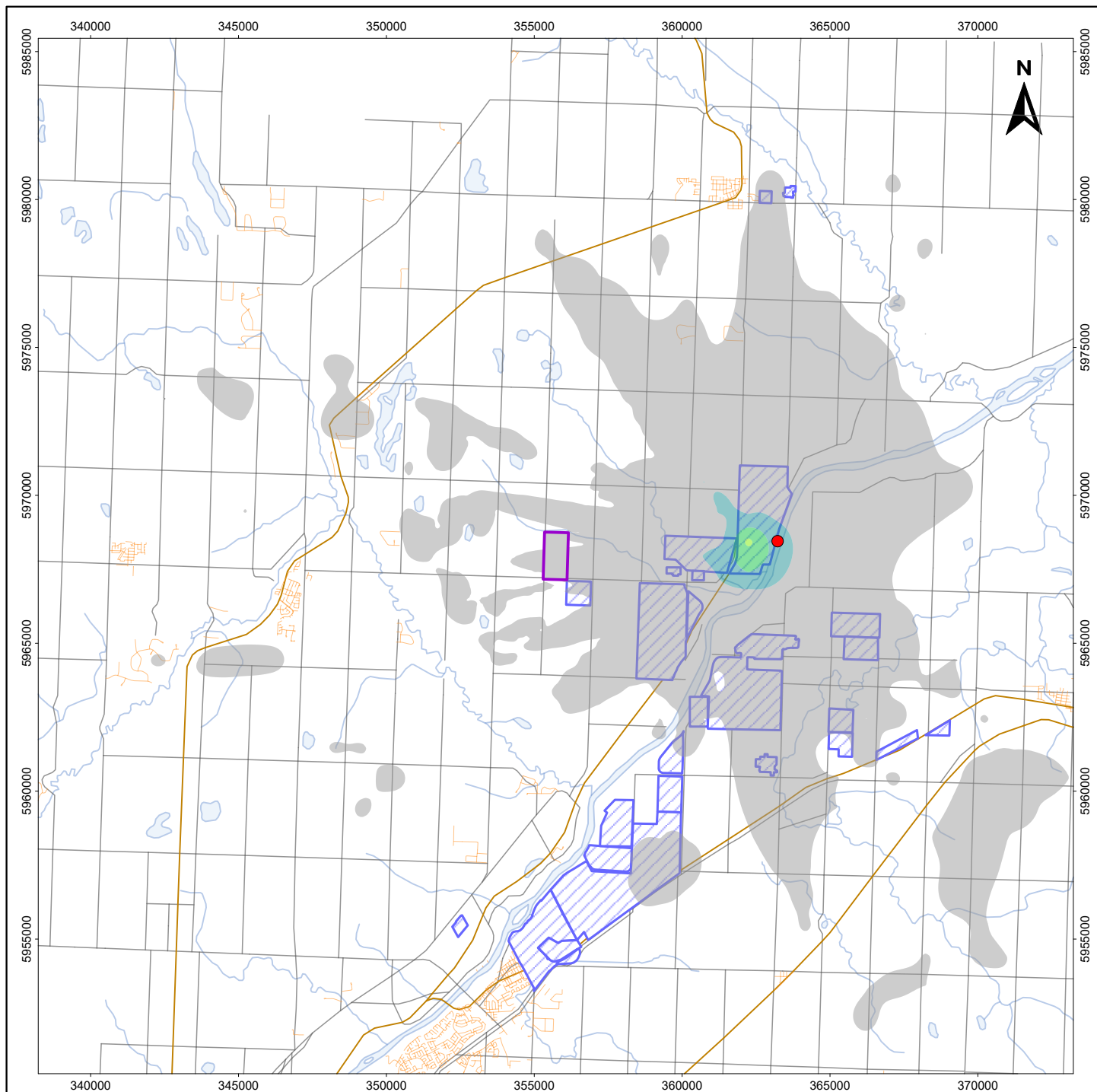
PREPARED BY

PREPARED FOR

FIGURE NO.

C.15

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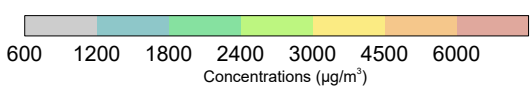


Map Features

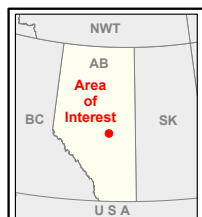
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



● Maximum Concentration: 1479 $\mu\text{g}/\text{m}^3$
 8-hour CO AAAQO: 6000 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

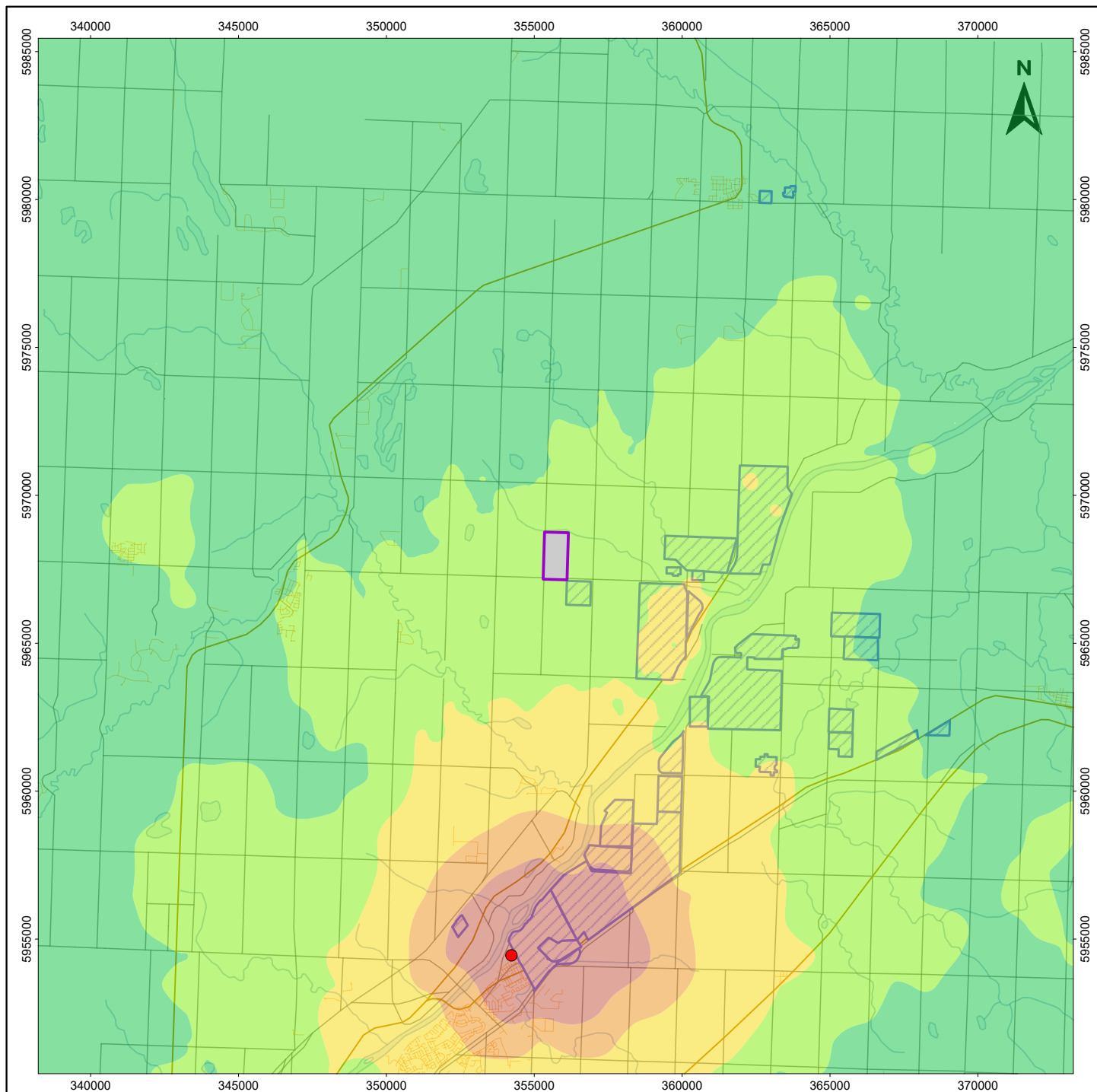
**Maximum Predicted 8-hour CO Concentrations
 (Application Case)**

PREPARED BY
 Stantec

PREPARED FOR

FIGURE NO.
C.16

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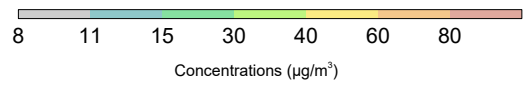


Map Features

Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

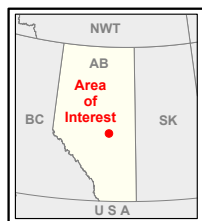
Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



● Maximum Concentration: 158 $\mu\text{g}/\text{m}^3$
1-hour $\text{PM}_{2.5}$ AAAQG: 80 $\mu\text{g}/\text{m}^3$

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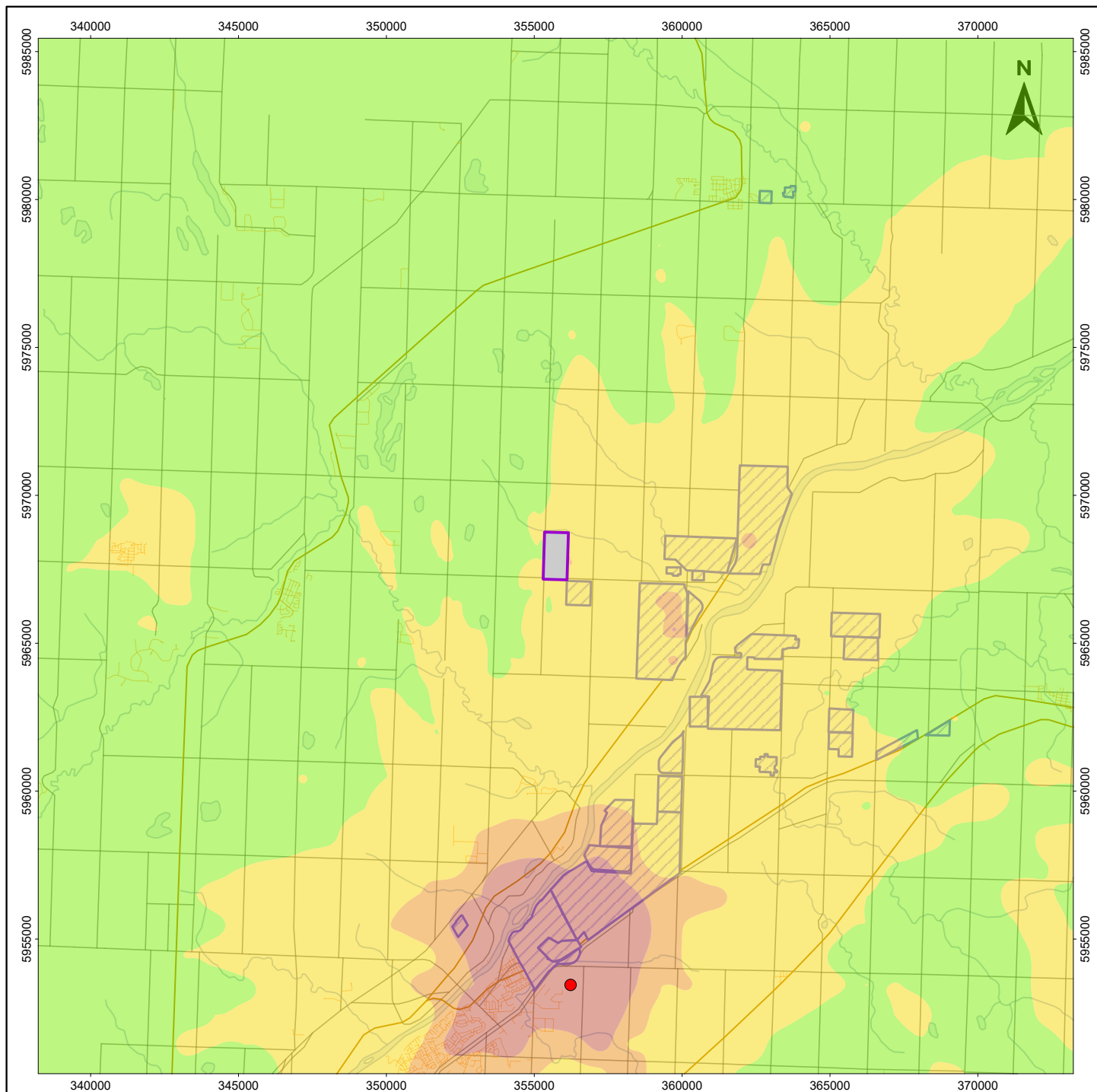
Beacon AI Centers - Heartland Project Air Quality Assessment

Maximum Predicted 1-hour $\text{PM}_{2.5}$ Concentrations (Application Case)

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 Stantec

PREPARED FOR

FIGURE NO.
C.17

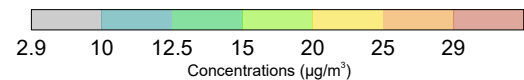


Map Features

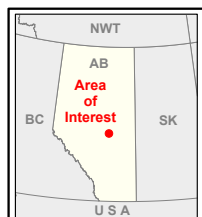
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



● Maximum Concentration: 61.8 $\mu\text{g}/\text{m}^3$
 24-hour $\text{PM}_{2.5}$ AAAQO: 29 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

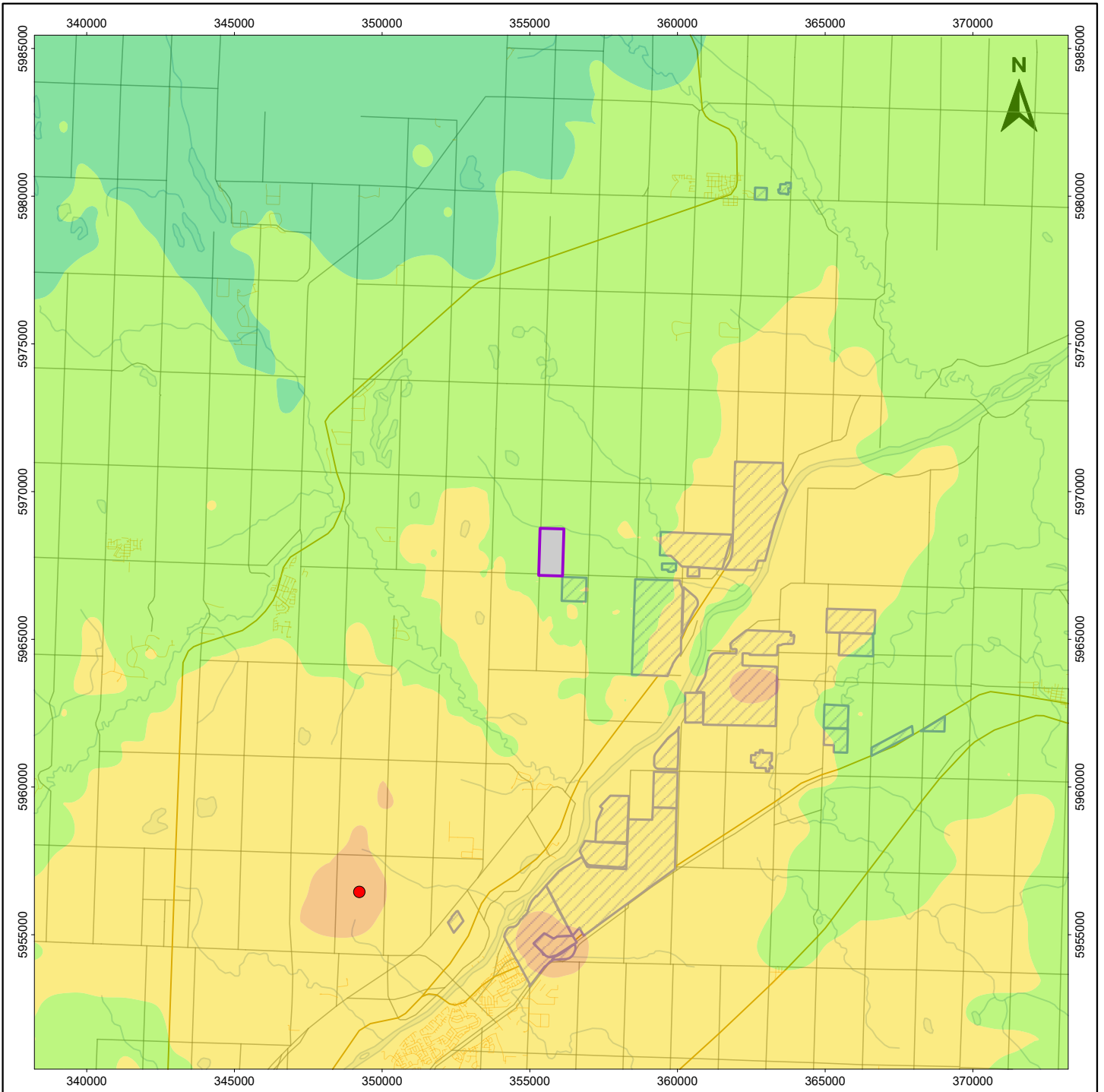
**Maximum Predicted 24-hour $\text{PM}_{2.5}$ Concentrations
 (Application Case)**

PREPARED BY
 Stantec

PREPARED FOR

FIGURE NO.
C.18

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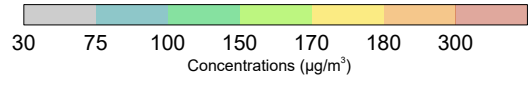


Map Features

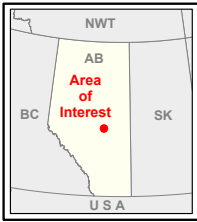
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



Maximum Concentration: 192 $\mu\text{g}/\text{m}^3$
1-hour NO_2 AAAQO: 300 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

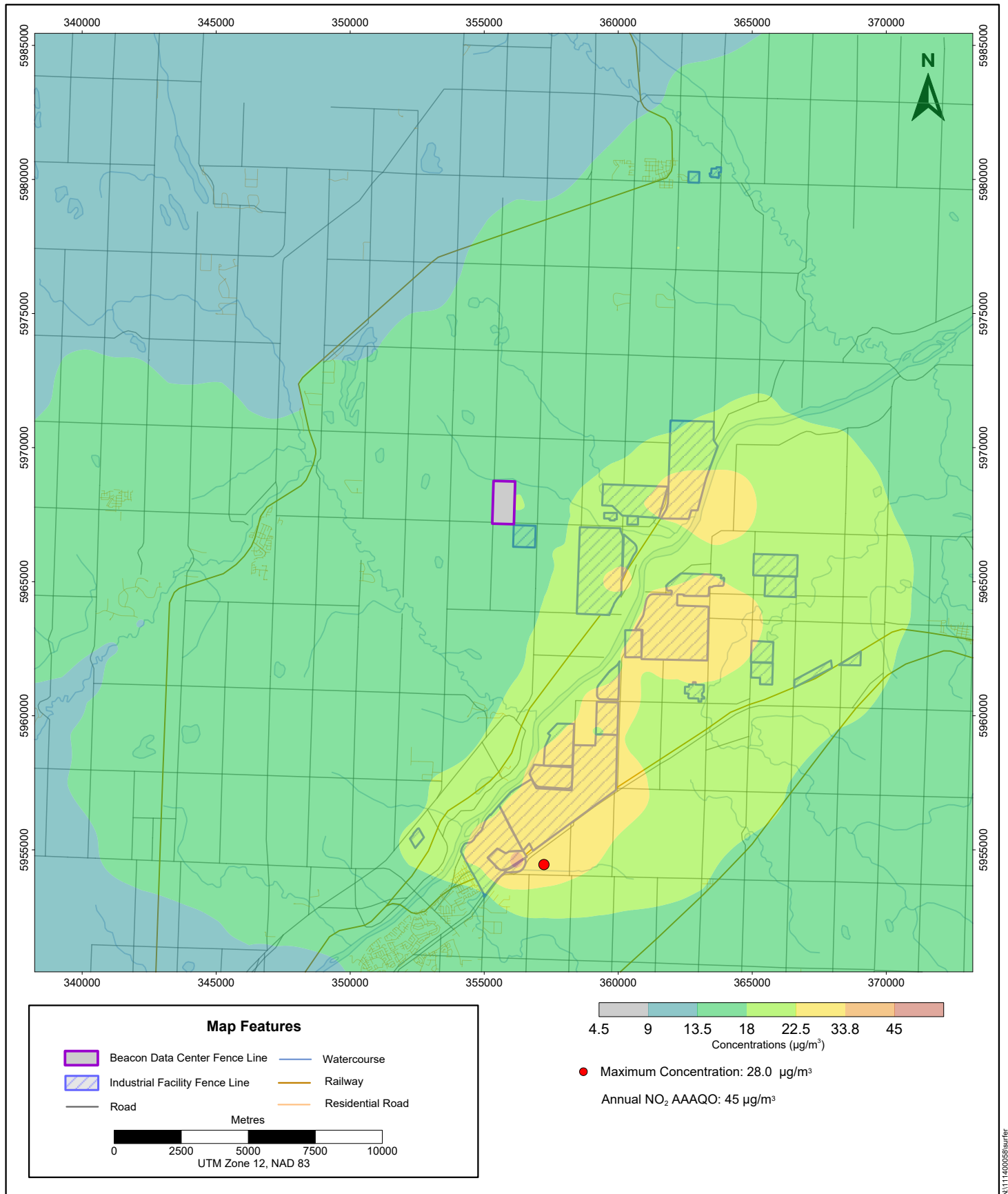
Maximum Predicted 1-hour NO_2 (ARM2) Concentrations (Future Case)

PREPARED BY
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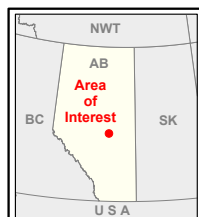
PREPARED FOR

FIGURE NO.
C.19

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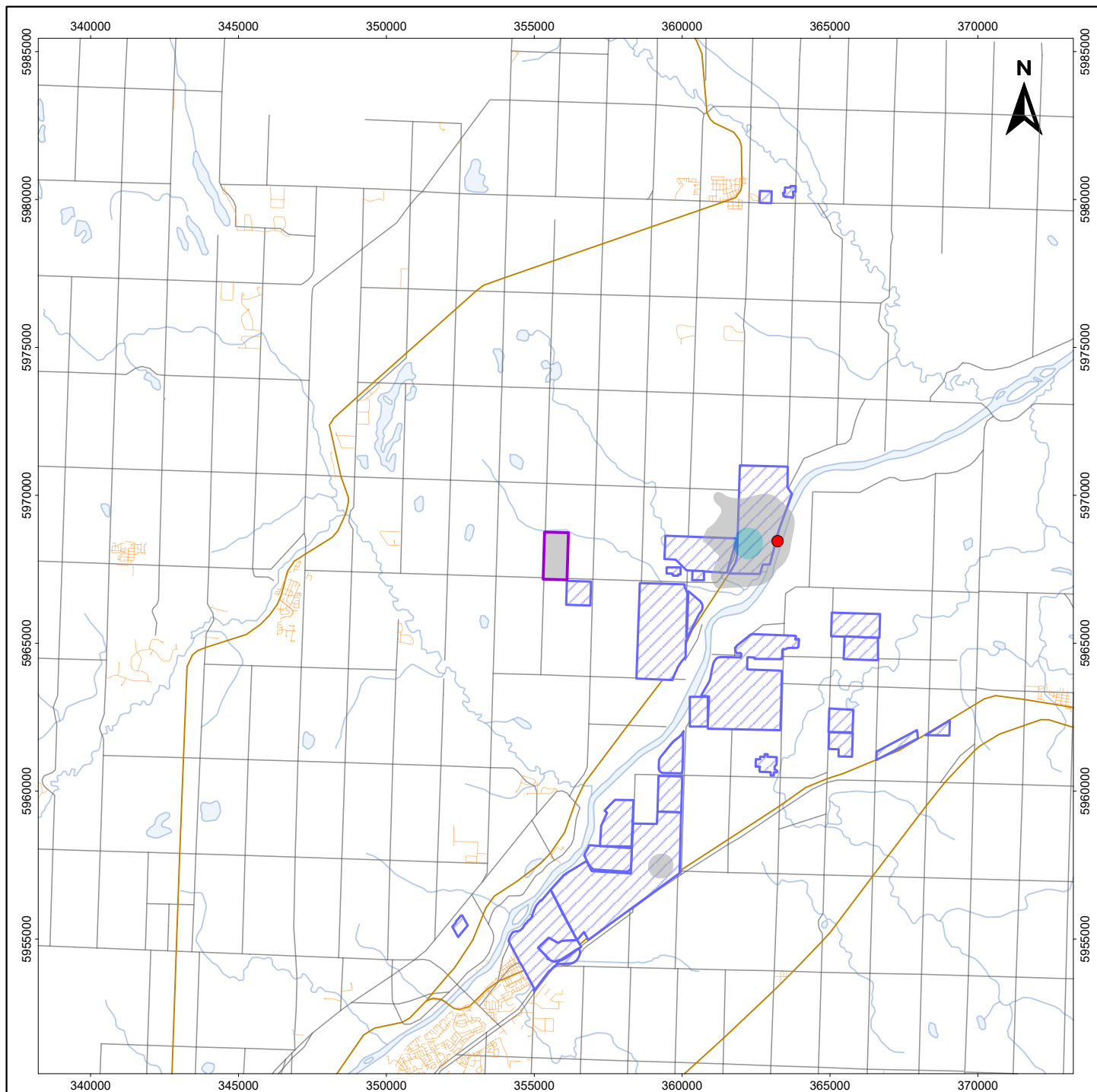
Beacon AI Centers - Heartland Project Air Quality Assessment

Maximum Predicted Annual NO_2 (ARM2) Concentrations (Future Case)

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FIGURE NO.
C.20

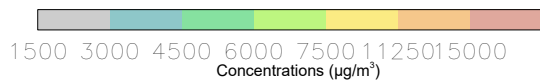


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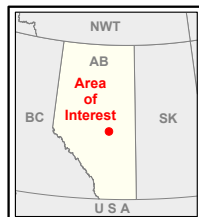
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

0 2500 5000 7500 10000
UTM Zone 12, NAD 83



● Maximum Concentration: 1890 $\mu\text{g}/\text{m}^3$
1-hour CO AAAQO: 15000 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

**Maximum Predicted 1-hour CO Concentrations
(Future Case)**

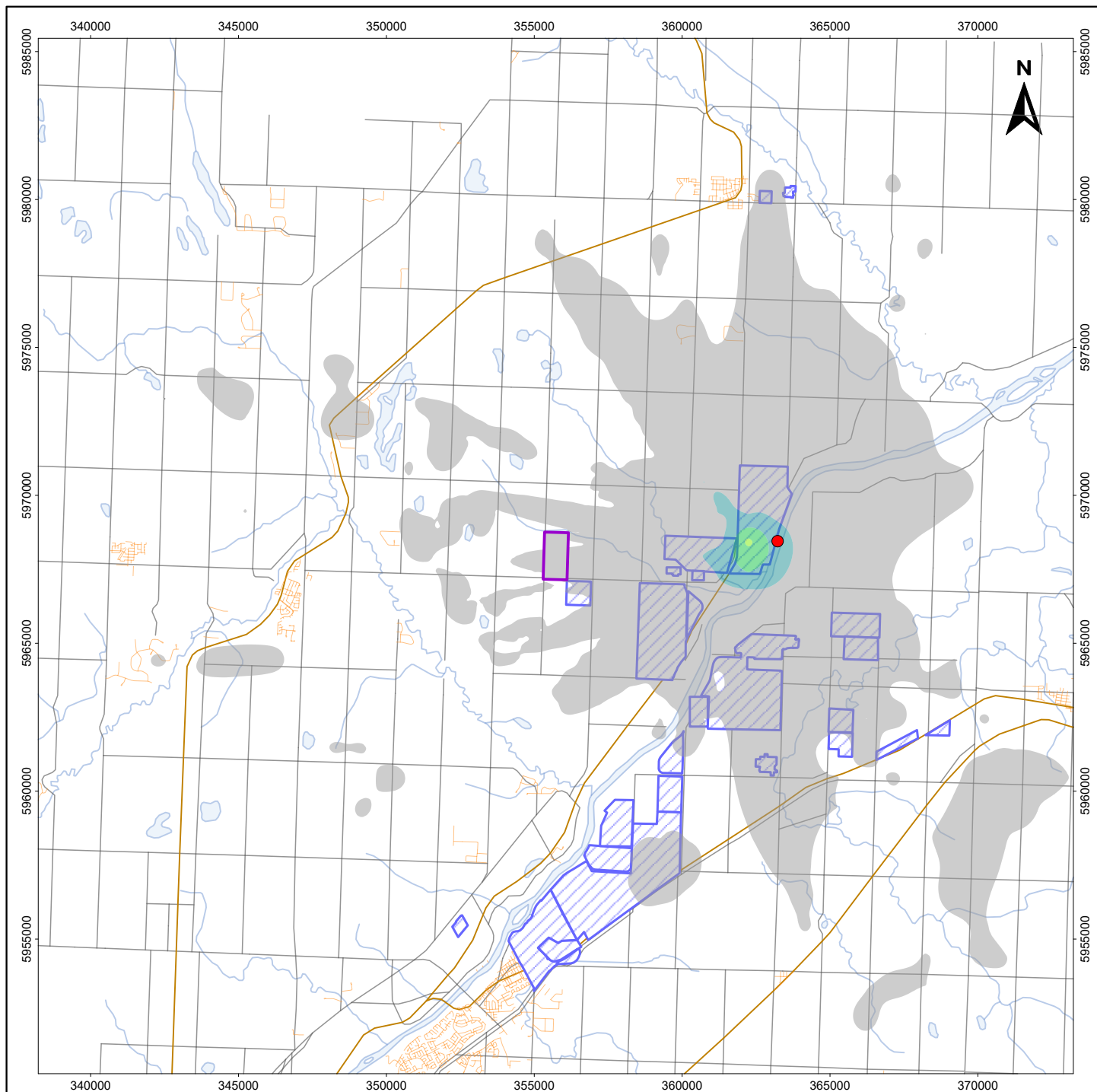
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 Stantec

PREPARED FOR

FIGURE NO.

C.21

N:\111400058\airfdr

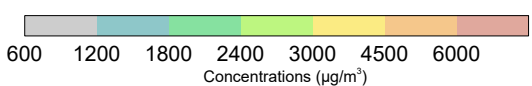


Map Features

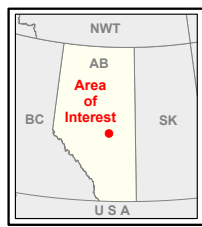
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



● Maximum Concentration: 1479 $\mu\text{g}/\text{m}^3$
 8-hour CO AAAQO: 6000 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

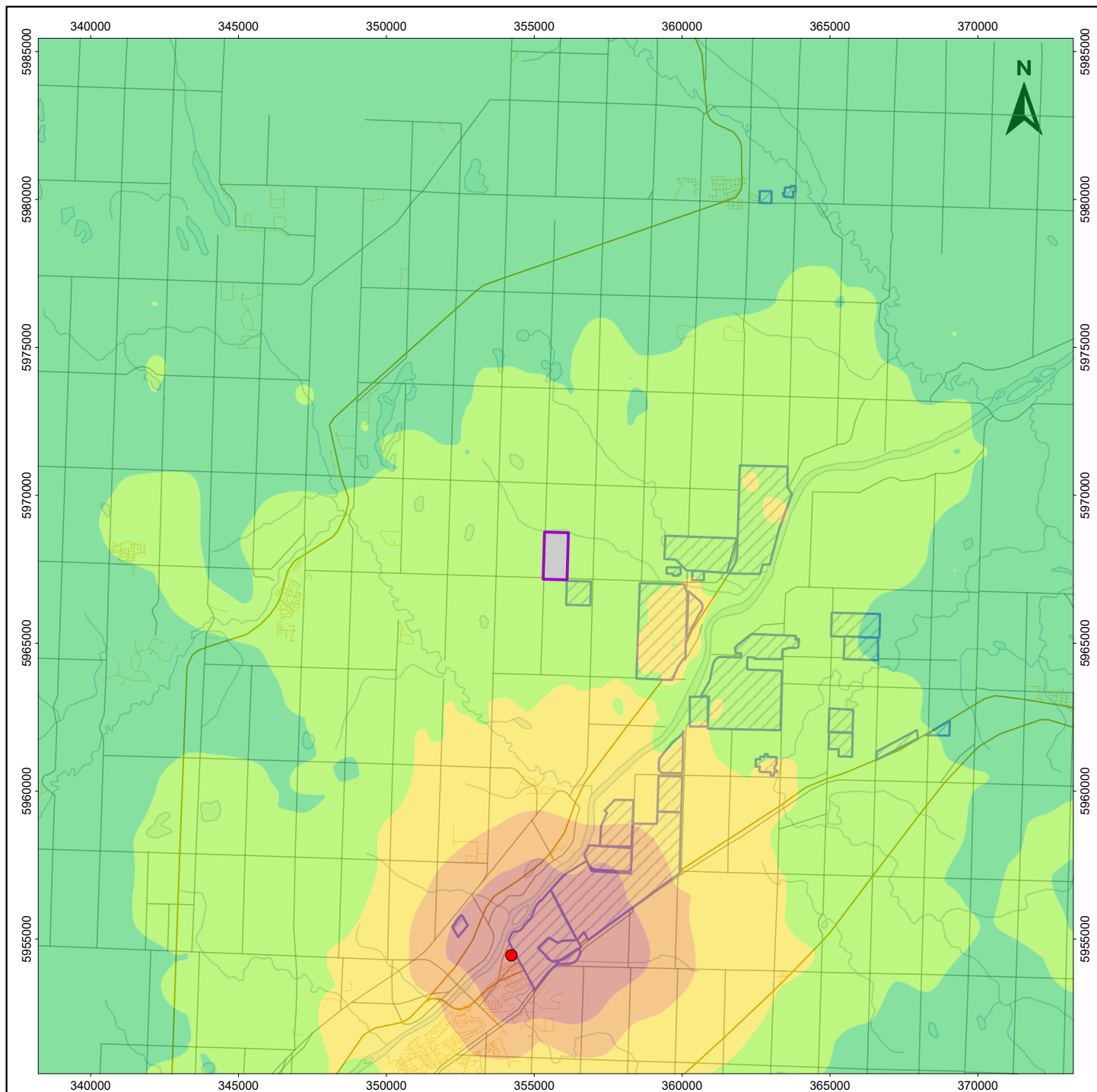
**Maximum Predicted 8-hour CO Concentrations
(Future Case)**

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FIGURE NO.
C.22

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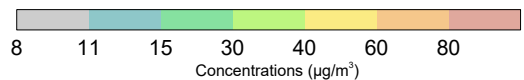


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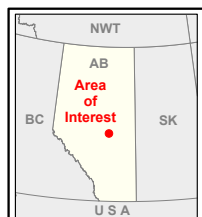
Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

Metres

UTM Zone 12, NAD 83



● Maximum Concentration: 158 $\mu\text{g}/\text{m}^3$
 1-hour $\text{PM}_{2.5}$ AAAQG: 80 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

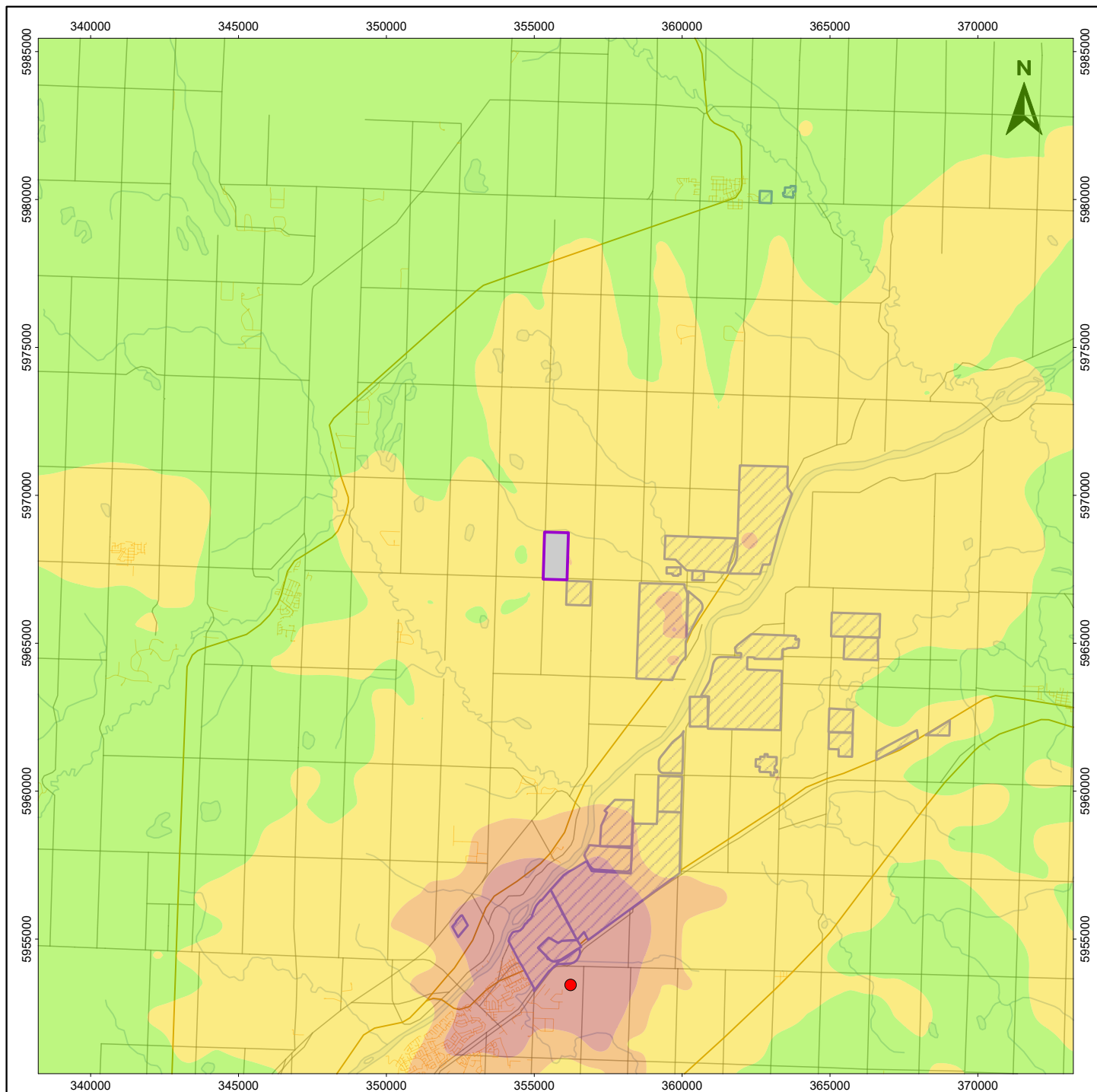
**Maximum Predicted 1-hour $\text{PM}_{2.5}$ Concentrations
 (Future Case)**

PREPARED BY
 Stantec

PREPARED FOR

FIGURE NO.
C.23

N:\111400058\airfiter



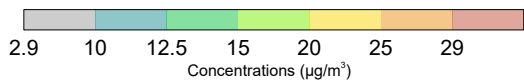
Map Features

Beacon Data Center Fence Line	Watercourse
Industrial Facility Fence Line	Railway
Road	Residential Road

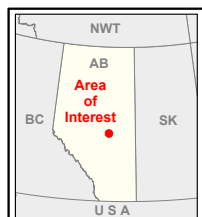
Metres

0 2500 5000 7500 10000

UTM Zone 12, NAD 83



● Maximum Concentration: 61.8 $\mu\text{g}/\text{m}^3$
 24-hour $\text{PM}_{2.5}$ AAAQO: 29 $\mu\text{g}/\text{m}^3$



Beacon AI Centers - Heartland Project Air Quality Assessment

**Maximum Predicted 24-hour $\text{PM}_{2.5}$ Concentrations
 (Future Case)**

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 Stantec

PREPARED FOR

FIGURE NO.
C.24

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Appendix C - Noise Impact Assessment

Beacon AI Centers – Heartland Project Noise Impact Assessment



Stantec Consulting Ltd.

Prepared for:
Beacon AI Centers

December 9, 2025

Prepared by:
Stantec Consulting Ltd.

Project/File:
145400058

Limitations and Sign-off

This document entitled “Beacon AI Centers – Heartland Project Noise Impact Assessment” was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Beacon AI Centers (the “Client”). The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by

Yong Ma, P.Eng.

Printed Name

Quality
Reviewer:

Signature

Jonathan Chui, P.Eng.

Printed Name

Independent
Reviewer:

Sanaz Zabani, M.Sc. INCE.

Printed Name



Executive Summary

Beacon AI Centers (Beacon) is proposing to construct, own and operate an electricity generation facility within a data center campus in the Alberta Industrial Heartland – Designated Industrial Zone (AIH-DIZ): Beacon AI Centers – Heartland Project (the Project). The total electrical site production features a capacity of 920 megawatts (MW), providing 800 MW of continuous, dispatchable electricity to the four data centers on site. Beacon retained Stantec Consulting Ltd. (Stantec) to conduct a noise impact assessment (NIA) for the Project.

The Project is located in the quarter sections of NW 15-56-22 W4M and SW 15-56-22 W4M, at approximately 13.5 kilometres (km) north of Fort Saskatchewan, Alberta.

The electricity generation facility consists of 200 Jenbacher J624 lean-burn natural gas engines and 8 Clearfire CFLC-5000 condensing boilers. Each engine has a net output of 4.6 MW, for a total facility capacity of 920 MW with 200 engines. The NIA study also includes the noise sources from the onsite artificial intelligence (AI), high-performance computing (HPC), cloud-compute campus, and a substation. The AI HPC campus includes four data center buildings.

Stantec developed this NIA for the Project in support of its regulatory application to the Alberta Utilities Commission (AUC). The NIA will be conducted in accordance with the requirements in AUC Rule 012: Noise Control, September 30, 2024 (AUC Rule 012) with consideration of the Northeast Capital Industrial Association (NCIA) Regional Noise Management Plan (RNMP). The purpose of this NIA is to quantify the Project noise effects at the noise receptors and assess the compliance with the AUC Rule 012 requirements.

There is one closest noise receptor (R1) identified within the 1.5 km local assessment area (LAA), located at approximately 200 metres (m) north of the Project boundary. Three other noise receptors (R2, R3, and R4) are outside the 1.5 km criteria boundary; however, they are within the 3 km regional assessment area (RAA) and are included herein for information purposes. Permissible Sound Levels (PSL) are determined at these receptors.

Project noise effect is assessed through Baseline Case, Project Case, Application Case, and Foreseeable Application Case approaches. Baseline Case includes the noise effect from the Ambient Sound Level (ASL) and other third-party regulated existing energy related facilities, and approved but not yet constructed energy-related facilities; Project Case includes noise effect from the Project only; Application Case assesses the cumulative noise effect including the Baseline Case and the Project Case; Foreseeable Application Case includes cumulative noise effect from the Baseline Case, the Project Case, and the proposed Greenlight Electricity Center facility, which is adjacent to the Project and currently under AUC application process (AUC Application 30261-A001). Both the Application Case and Foreseeable Application Case cumulative sound level results are compared to the PSLs to verify compliance with the AUC Rule 012 requirements.



Beacon AI Centers – Heartland Project Noise Impact Assessment

Executive Summary

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The cumulative sound levels for both Application Case and Foreseeable Application Case at all receptors meet the daytime and nighttime PSLs. Low-frequency noise (LFN) effect analysis is based on methods prescribed in AUC Rule 012. LFN effect is not expected at all receptors. This NIA concludes that the Project complies with the AUC Rule 012 requirements.



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Appendix A	Alberta Transportation Traffic Volume
Appendix B	Sound Power Levels



Acronyms / Abbreviations

°C	degrees Celsius
AER	Alberta Energy Regulator
AI	Artificial Intelligence
AIH-DIZ	Alberta Industrial Heartland – Designated Industrial Zone
ASDT	Annual Summer Daily Traffic
ASL	Ambient Sound Level
AUC	Alberta Utility Commission
Beacon	Beacon AI Centers
BSL	Basic Sound Level
dB	decibel
dBA	A-Weighted Decibel
dBC	C-Weighted Decibel
Greenlight	Greenlight Electricity Center facility
HPC	high-performance computing
Hz	hertz
INCE	Institute of Noise Control Engineers of the USA
ISO	International Organization for Standardization
km	kilometre
LAA	local assessment area
L _{eq}	Energy Equivalent Sound Level
LFN	Low frequency noise
m	metre
m/s	metres per second
MW	megawatt
NCIA	Northeast Capital Industrial Association
NIA	Noise Impact Assessment
PDA	Project Development Area
the Project	Beacon AI Centers – Heartland Project
PSL	Permissible Sound Level



Beacon AI Centers – Heartland Project Noise Impact Assessment

Acronyms / Abbreviations

December 9, 2025

PWL	Sound Power Level re 10^{-12} Watt
R	noise receptor
RAA	regional assessment area
RNM	Regional Noise Model
RNMP	Regional Noise Management Plan
Rule 012	AUC Rule 012: <i>Noise Control</i>
SCR	Selective Catalytic Reduction
SPL	Sound Pressure Level re 20 μ Pa
Stantec	Stantec Consulting Ltd.
UTM	Universal Transverse Mercator



Glossary

Term	Definition
Ambient Noise	All noises that exist in an area and are not related to a facility. Ambient noise includes sound from other industrial noise not being measured, transportation sources, animals, and nature. Ambient noise is the same as background sound level.
Ambient Sound Level (ASL)	The ASL consists of all noise in an area that is not related to regulated facilities. This noise includes sound from other non-regulated industrial facilities, transportation sources, animals and nature. The ASL does not include any energy-related industrial component and must be measured without it. The ASL can be measured when the sound level in an area is not felt to be represented by the basic sound levels (BSLs). The ASL must be measured under representative conditions. As with comprehensive sound levels, representative conditions do not constitute absolute worst-case conditions (i.e., the quietest day in this case) but conditions that portray typical conditions for the area.
Background Sound Level (i.e., Baseline)	It includes noise from all sources other than the sound of interest (i.e., sound from other industrial noise not being measured, transportation sources, animals, and nature).
Bands (octave, 1/3 octave)	A series of electronic filters separate sound into discrete frequency bands, making it possible to know how sound energy is distributed as a function of frequency. Each octave band has a centre frequency that is double the centre frequency of the octave band preceding it.
Basic Sound Level (BSL)	The A-weighted Leq sound level commonly observed to occur in the designated land-use categories with industrial presence. The BSL is assumed to be 5 decibel sound pressure level (dBA) above the ASL and is set out in Table 1 of AUC Rule 012.
Category	A classification of a dwelling unit in relation to transportation routes used to arrive at a BSL.



Beacon AI Centers – Heartland Project Noise Impact Assessment

Glossary

December 9, 2025

Term	Definition
Class A Adjustment	Consists of the sum of adjustments that account for the seasonal nature of the noise source, absence of both tonal and impulse/impact components, and the actual ASL in an area. It cannot exceed +10 dBA. The Class A adjustment is added to the BSL, the daytime adjustment, and the Class B adjustment to arrive at a permissible sound level.
Class B Adjustment	An adjustment based on the duration of a noisy activity that recognizes that additional noise can be tolerated if it is known that the duration will be limited. An adjustment of B1, B2, B3, or B4 may be selected as applicable.
Comprehensive Sound Level	The sound level that is a composite of different airborne sounds from many sources far away from and near the point of measurement. The Comprehensive Sound Level does include industrial components and must be measured with them, but it should exclude abnormal noise events.
Daytime	The hours from 07:00 to 22:00.
Daytime Adjustment	An adjustment that allows a 10 dBA increase because daytime sound levels are generally about 10 dBA higher than nighttime values.
dB - Decibel	A logarithmic unit associated with sound pressure levels and sound power levels.
dBA - Decibel, A-Weighted	A logarithmic unit where the recorded sound has been filtered using the A frequency weighting scale. A-weighting somewhat mimics the response of the human ear to sounds at different frequencies. A-weighted sound pressure levels are denoted by the suffix 'A' (i.e., dBA), and the term pressure is normally omitted from the description (i.e., sound level or noise level).
dB(C) - Decibel, C-Weighted	The logarithmic units associated with a sound pressure level, where the sound pressure signals has been filtered using a frequency weighting. The C-weighting approximates the sensitivity of human hearing at industrial noise levels (above about 85 dBA). C-weighted sound pressure levels are denoted by the suffix 'C' (i.e., dB(C)). C-weighted levels are often used in low-frequency noise analysis, as the filtering effect is nearly flat at lower frequencies.



Beacon AI Centers – Heartland Project Noise Impact Assessment

Glossary

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Term	Definition
Decibel Addition	<p>In acoustics, due to the logarithmic nature of the decibel scale, the addition of two or more sound pressure levels (denoted as SPL₁, SPL₂ ... SPL_n) is done as follows:</p> $SPL_1 + SPL_2 + \dots + SPL_n = 10 \log (10^{(SPL_1/10)} + 10^{(SPL_2/10)} + \dots + 10^{(SPL_n/10)})$ <p>As an example:</p> <p>50 dB + 50 dB = 53 dB</p>
Dwelling Unit	<p>Any permanently or seasonally occupied structure used for habitation for the purpose of human rest; including a nursing home or hospital with the exception of an employee or worker residence, dormitory, or construction camp located within an energy-related industrial plant boundary. Trailer parks and campgrounds may qualify as a dwelling if it can be demonstrated that they are in regular and consistent use.</p> <p>In the case of a condominium or apartment complex, each unit is considered a dwelling.</p>
Dwelling Unit (most affected)	<p>The most impacted dwelling(s) are those subject to the highest average weighted sound level relative to the permissible sound level.</p> <p>The nearest dwelling unit may not necessarily be the one most adversely affected because of factors such as topography or man-made features. For example, the nearest dwelling unit to a facility may be located behind an intervening ridge, while a more distant dwelling unit may be in direct line of sight with the facility. Care must be taken in determining the most impacted dwelling unit.</p>
Energy Equivalent Sound Level (L _{eq})	<p>An energy-average sound level taken over a specified period of time. It represents the average sound pressure encountered for the period. The time period is often added as a suffix to the label (e.g., L_{eq}(24) for the 24-hour equivalent sound level). L_{eq} is usually A-weighted. An L_{eq} value expressed in dBA is a good, single value descriptor of the annoyance of noise.</p>
Frequency	<p>Number of cycles per unit of time. In acoustics, frequency is expressed in hertz (Hz) (i.e., cycles per second).</p>



Beacon AI Centers – Heartland Project Noise Impact Assessment

Glossary

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Term	Definition
Frequent Aircraft Flyovers	Used in the assessment of categories as part of a site-specific analysis for dwellings that lie within a contour area with a noise exposure forecast 25 or greater, as designated by Transport Canada. In the absence of any noise exposure forecast contours for local airport, Transport Canada is to be contacted for current air traffic statistics. In this case, to qualify for the BSL adjustment, a dwelling must be within 5 km of an airport that has a minimum of nine aircraft takeoffs or landings over the nighttime period.
Heavily Travelled Road	Generally, includes highways and any other road where the average traffic count is at least 10 vehicles per hour over the nighttime period. It is acknowledged that highways are sometimes lightly travelled during the nighttime period, which is usually the period of greatest concern.
Hertz (Hz)	Unit of measurement of frequency, numerically equal to cycles per second.
Low Frequency Noise (LFN)	Noise in the low frequency range (AUC definition), 20 Hz up to 250 Hz, where a clear tone is present below and including 250 Hz and the difference between the overall C-weighted sound level and the overall A-weighted sound level exceeds 20 dB.
Nighttime	The hours from 22:00 to 07:00.
Noise	Unwanted sound.
Noise Level	Same as Sound Level, except applied to unwanted sounds
No net increase	The logarithmic addition of sound pressure levels when predicting noise where the sum does not exceed the permissible sound level by more than 0.4 dB.
Permanent Facility	Any existing or proposed facility that will be at a location longer than two months.
Permissible Sound Level (PSL)	The maximum sound level that a facility should not exceed at a point 15 m from the nearest or most impacted dwelling unit. The PSL is the sum of the BSL, daytime adjustment, Class A adjustment, and Class B adjustment.
Sound	A dynamic (fluctuating) pressure.



Beacon AI Centers – Heartland Project Noise Impact Assessment

Glossary

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Term	Definition
Sound Pressure Level (SPL)	<p>The logarithmic ratio of the root mean square sound pressure to the sound pressure at the threshold of hearing. The sound pressure level is defined by equation below, where P is the RMS pressure due to a sound and P₀ is the reference pressure. P₀ is usually taken as 2.0 × 10⁻⁵ Pascals.</p> $\text{SPL (dB)} = 20 \log(P_{\text{RMS}}/P_0)$
Sound Power Level (PWL)	<p>The logarithmic ratio of the instantaneous sound power of a noise source to that of the reference power. The sound power level is defined by equation below where W is the sound power of the source in watts, and W₀ is the reference power of 10⁻¹² watts.</p> $\text{PWL (dB)} = 10 \log(W/W_0)$
Spectrum	<p>The description of a sound wave's resolution into its components of frequency and amplitude.</p>
Tonal Components	<p>Often industrial facilities exhibit tonal components. Examples of tonal components are transformer hum, sirens, and piping noise. The test for the presence of tonal components consists of two parts (as per tonality prescribed in AUC Rule 012). The first part must demonstrate that the sound pressure level of any one of the slow-response, A-weighted, 1/3-octave bands between 20 kHz and 16 kHz is 10 dBA or more than the sound pressure level of at least one of the adjacent bands within two 1/3-octave bandwidths. In addition, there must be a minimum of a 5 dBA drop from the band containing the tone within two bandwidths on the opposite side. The second part is that the tonal component must be a pronounced peak clearly obvious within the spectrum.</p>



1 Introduction

Beacon AI Centers (Beacon) is proposing to construct, own and operate an electricity generation facility within a data center campus in the Alberta Industrial Heartland – Designated Industrial Zone (AIH-DIZ): Beacon AI Centers – Heartland Project (the Project). The total electrical site production features a capacity of 920 megawatts (MW), providing 800 MW of continuous, dispatchable electricity to the four data centers onsite. Beacon retained Stantec Consulting Ltd. (Stantec) to conduct a noise impact assessment (NIA) for the Project.

The electricity generation facility consists of 200 Jenbacher J624 lean-burn natural gas engines and 8 Clearfire CFLC-5000 condensing boilers. Each engine has a net output of 4.6 MW, for a total facility capacity of 920 MW with 200 engines. The NIA study also includes the noise sources from the onsite artificial intelligence (AI), high-performance computing (HPC), cloud-compute campus, and a substation. The AI HPC campus includes four data center buildings. Unless otherwise indicated, the Project herein will include the electricity generation facility, AI HPC campus and substation.

Stantec developed this NIA for the Project in support of its regulatory application to the Alberta Utilities Commission (AUC). The NIA included both power generation facility and digital infrastructure facility. The NIA will follow the requirements of AUC Rule 012: Noise Control, September 30, 2024, (AUC Rule 012) with consideration of the Northeast Capital Industrial Association (NCIA) Regional Noise Management Plan (RNMP). The AUC and NCIA have worked together to manage noise effects from the regulated facilities within the AIH-DIZ. The assessment methodology and technical details of the assessment are included in this report. The NIA uses manufacturer noise emission data, engineering estimates, noise propagation modelling calculations, and NCIA Regional Noise Model (RNM) results to predict the cumulative noise levels in the surrounding environment. The purpose of this NIA is to quantify the noise effects from the Project's design at the residential receptors and assess the compliance with the AUC Rule 012 requirements.



2 Study Area and Receptor

2.1 Study Area

The Project is located at the NW 15-56-22 W4M and SW 15-56-22 W4M (the Project development area [PDA]), at approximately 14 kilometres (km) northeast of Fort Saskatchewan, Alberta. The Project is situated in the AIH-DIZ area.

The local assessment area (LAA) is defined by a 1.5 km buffer area from the PDA boundary. This LAA boundary also represents the AUC 1.5 km criteria boundary.

The regional assessment area (RAA) is defined as the area which may be affected by environmental noise emissions from the Project. The RAA will extend 3 km from the PDA to encompass noise effects from the Project as well as other AUC- and Alberta Energy Regulator (AER)-regulated facilities.

The proposed Greenlight Electricity Center facility (Greenlight) is adjacent to the Project and is currently under the AUC application process.

2.2 Noise Receptor

The AUC Rule 012 prescribes Permissible Sound Level (PSL) for noise receptors. A noise receptor is defined by Rule 012 as any dwelling located within 1.5 km of the facility boundary; if there are no dwellings within 1.5 km, a noise receptor is any point at 1.5 km from the facility boundary.

There is one receptor (R1) located at approximately 200 metres (m) north of the PDA northern boundary. Three other receptors (R2, R3 and R4) are outside the 1.5 km boundary; however, they are within the RAA and are included herein for information purposes. The receptor ID, location, and distance to the Project are presented in Table 1. Figure 1 shows the PDA, RAA, and LAA for the Project only, and the receptor locations.

Table 1 Noise Receptor Location

Receptor ID	Description	Receptor Height (m)	UTM Coordinates ^a (m)		Approximate Distance and Direction from Project Boundary
			Easting	Northing	
R1	Single residential dwelling	1.5	355462	5968930	200 m North
R2 ^b	Single residential dwelling	1.5	353596	5968782	1,770 m Northwest
R3 ^b	Single residential dwelling	1.5	353578	5967033	1,790 m Southwest
R4 ^b	Single residential dwelling	1.5	353528	5966044	2,150 m Southwest

Note:

^a UTM Zone 12U NAD 83

^b Receptors are located outside 1.5 km LAA boundary, for information only

m = metre; UTM = Universal Transverse Mercator





- Receptor
- Project Development Area
- Local Assessment Area (1.5km)
- Regional Assessment Area (3km)
- Substation
- Third Party Facility (Greenlight)
- Road
- Watercourse
- Waterbody



Project Location NW ¼ and SW ¼ 15-056-22 W4M, Alberta Prepared by NF on 2025-12-01

Project 145400058

Beacon AI Centers – Heartland Project

Figure No. 1

Title

Study Area and Receptor Locations

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3 Regulatory Framework

AUC Rule 012 provides noise limits associated with energy-related facilities. In this assessment, noise limits are applied in accordance with AUC Rule 012.

3.1 Permissible Sound Level (PSL)

In accordance with AUC Rule 012, all regulated facilities must meet the daytime (07:00 to 22:00) and nighttime (22:00 to 07:00) PSL at a distance of 1.5 km (1.5 km criteria boundary) from the facility boundary or at the nearest residential dwelling, whichever is closer. Only structures that are permanently or seasonally occupied for habitation for the purpose of human rest are defined as dwellings. Exceptions to this definition include any employee or worker residence, dormitory, or construction camp located within an industrial energy-related plant boundary. A noise receptor is defined by AUC Rule 012 as any dwelling located within 1.5 km of the facility boundary. If there are no dwellings within 1.5 km, a noise receptor is any point at 1.5 km from the facility boundary.

The determination of the daytime and nighttime PSLs at a receptor is based on the population density and proximity to transportation (i.e., proximity to heavily travelled roadways, rail lines, or frequent aircraft flyovers). AUC Rule 012 defines the Ambient Sound Level (ASL) as the sound level that is a composite of different airborne sounds from many sources far away from and near the point of measurement. The AUC Rule 012 advises that the average rural ASL is 5 decibels (dB) below the Basic Sound Level (BSL) of 50 decibel sound pressure level (dBA) and 40 dBA; therefore, the ASL of 45 dBA Energy Equivalent Sound Level (L_{eq}) and 35 dBA are assumed for rural receptor with no adjustment for dwelling density or proximity to transportation. Using a similar approach, the ASL for the receptor of the Project with dwelling density or proximity to transportation adjustments are assumed to be 5 dB less than the BSLs. The PSL is the sum of BSL, daytime adjustment, Class A adjustment, and Class B adjustment. No Class A and Class B adjustments are applicable at the receptors for the Project. The daytime PSL is set at 10 dB above the nighttime value.

For the Project, four noise receptors (i.e., R1 through R4 in Table 1) are selected in the NIA. R1 is located within the LAA. R2, R3, and R4 are located outside the LAA and within the RAA. These three receptors are included for information purposes only. R3 and R4 are located along west of Highway 825. AUC Rule 012 defines heavily travelled roads as roads where 90 or more vehicles travel during the nine-hour nighttime period consistently for any one-month period in a year. The traffic volumes were validated by the Alberta Transportation's Average Annual Summer Daily Traffic (ASDT). To calculate the nighttime period traffic volume from ASDT, AUC Rule 012 prescribes that 10 percent (%) of daily traffic volume can be assumed for the nighttime periods.

The ASDT Reference #96580 traffic data for the intersection of Highway 825 and 643 indicates total of 11,090 vehicles per day along Highway 825 and 643 in 2024. A conservative assumption of 90% and 10% split in traffic volume results in a presumed nighttime traffic volume of 1,109 units in 2024 (higher than 90 vehicles per nighttime period). This qualifies Highway 825 as a heavily traveled road as defined in Rule 012. R3 and R4 are classified as "Category 2" because they are located more than 30 m but less



than 500 m from Highway 825. The 2024 traffic ASDT volume data for the intersection of Highway 825 and 643 is included in Appendix A.

Noise receptors, the population density, transportation category, PSL, and ASL values for the receptors are summarized in Table 2.

Table 2 Permissible Sound Level and Ambient Sound Level

Receptor ID	Dwelling Unit Density per Quarter Section ^a of land	Proximity to Transportation (Category) ^b	Ambient Sound Level ^c (dBA)		Permissible Sound Levels (dBA)	
			Daytime	Nighttime	Daytime	Nighttime
R1	1 to 8	1	45	35	50	40
R2 ^d	1 to 8	1	45	35	50	40
R3 ^d	1 to 8	2	50	40	55	45
R4 ^d	1 to 8	2	50	40	55	45

Notes:

- ^a Refers to a quarter section or a 451 m radius, with the most likely affected receptors at the centre. For quarter sections with various land uses or with mixed densities, the density chosen must be factored for the area under consideration on a prorated basis
 - ^b Definition of transportation proximity category as follows:
 Category 1—receptor units more than 500 m from heavily travelled roads and rail lines and not subject to frequent aircraft flyovers
 Category 2—receptor units more than 30 m but less than 500 m from heavily travelled roads and rail lines and not subject to frequent aircraft flyovers
 Category 3—receptor units less than 30 m from heavily travelled roads and rail lines and/or subject to frequent aircraft flyovers
 - ^c ASL is 5 dB below the BSL prescribed in the AUC Rule 012; daytime BSL is 10 dB higher than nighttime value
 - ^d Receptors are located outside 1.5 km LAA boundary, for information only
- dBA = A-weighted decibel

3.2 Low Frequency Noise

As part of the NIA requirements in AUC Rule 012, the potential for low-frequency noise (LFN) effects from a project should be considered. LFN is defined as a receptor where a clear tone is present at a frequency between 20 hertz (Hz) and 250 Hz and the difference between the overall C-weighted sound level and the overall A-weighted sound level is equal to or greater than 20 dB. The presence of both conditions at a receptor indicates the potential for LFN concerns.

3.3 Northeast Capital Industrial Association

NCIA is a not-for-profit cooperative representing industry located in AIH-DIZ area. NCIA member companies range from chemical and petrochemical industries to industrial service companies.



In 2012, the RNMP developed by NCIA in collaboration with the AUC and AER (previous Energy Resources Conservation Board). The RNMP provides a regional approach for managing environmental noise from industrial activity and is the regional solution for NCIA member companies in AIH-DIZ to comply with the AER Directive 038 and AUC Rule 012.

The RNM, developed following the RNMP, is an online tool showing typical noise levels in AIH-DIZ area. To populate the model, member facilities work with noise consultants to develop facility noise models. The noise models are then combined into one regional model to show the noise effects in the region member facilities. The model can predict noise levels up to 5 kilometers from a noise source (i.e., an industrial facility). The accuracy of the model is evaluated each year by conducting 24-hour noise measurements at 13 pre-selected locations in the region. Predicted sound level results from the RNM will be used to quantify the baseline sound levels during an assessment. The latest RNM is presented in the 2024 RNMP Report (NCIA 2025), and reference report *2023 Regional Noise Model Update – Northeast Capital Industrial Association Regional Noise Management Plan*, prepared by SLR Consulting Ltd. in May 2024 (SLR 2024).

AUC indicates the RNMP meets the criteria set out in AUC Rule 012. An applicant can use the RNM to quantify the baseline acoustic environment without the proposed project. If the PSLs are exceeded at nearby receptors due to the baseline acoustic environment, a “no net increase” approach is used to determine whether the noise effect from a proposed project is acceptable (i.e., the noise levels would have no net increase as a result of the proposed project because of the existing baseline sound levels). If there is any net increase, the applicant would need to address how the noise level would be planned to be restored to the initial level in the next short-term (3 to 5 years) period.



4 Methodology

4.1 Environmental Noise Descriptors

Environmental noise typically varies over time. To account for this variation, a single number descriptor (L_{eq}) is used. It is defined as the steady, continuous sound level over the specified time that has the same acoustic energy as the actual varying sound levels over the same time. The unit for L_{eq} is the dBA, which reflects the response of the human ear to different sound frequencies. Time periods commonly used for L_{eq} measurements and regulatory criteria are daytime (07:00 to 22:00) and nighttime (22:00 to 07:00). The daytime L_{eq} is the 15-hour A-weighted L_{eq} . Similarly, the nighttime L_{eq} is a 9-hour A-weighted L_{eq} .

For a summary of acronyms and additional details on commonly used noise terminology, refer to the Glossary.

4.2 Assessment Approach

The NIA assessment considered three cases as follows:

- **Baseline Case:** includes the noise effect from the ASL and other third-party existing energy facilities (including regulated and non-regulated; NCIA member and non-member); approved but not yet constructed energy-related facilities; and proposed NCIA member facilities expected to be built within 1 to 5 years. These facilities are included in the NCIA RNM Case 2: Future Case.
- **Project Case:** includes noise effect from the Project only.
- **Application Case:** assesses cumulative noise effect, including the contribution from the Baseline Case and the Project Case. The Application Case cumulative sound level results are compared to the PSLs to verify compliance with the AUC Rule 012 requirements.
- **Foreseeable Application Case:** includes cumulative noise effect from the Baseline Case, the Project Case, and the proposed Greenlight facility. As the RNM used Future Case in their results, the Foreseeable Application Case is used for the NIA herein. The Foreseeable Application Case cumulative sound level results are also compared to the PSLs to verify compliance with the AUC Rule 012 requirements.

The approach used to assess the Project noise effects within the LAA boundary during normal operations of the Project is summarized as follows:

1. Determine ASLs and PSLs for selected noise receptors within the LAA and RAA.
2. Quantify the Baseline Case sound levels. The prescribed ASL and RNM noise level result will be incorporated in the determination for the Baseline Case sound levels at the noise receptors.
3. Predict the Project Case sound levels representing the noise effect from the Project only.



4. Determine the Application Case and Foreseeable Application Case sound levels.
5. Assess compliance with the AUC Rule 012 requirements by comparing both the Application Case and Foreseeable Application Case cumulative sound levels at the noise receptors to the PSLs.

4.3 Noise Modelling

Noise predictions were conducted using Cadna/A acoustic modeling software (DataKustik 2025), which utilizes the internationally accepted sound propagation algorithms (ISO 9613-1: 1993, ISO 9613-2: 1996). The modelling parameters used in the assessment are summarized in Table 3.

Table 3 Acoustic Modelling Parameters

Item	Model Parameters	Model Setting
1	Temperature	10°C
2	Relative humidity	70%
3	Wind speed	Downwind condition, as per ISO 9613-2 standard downwind setting (wind speed of 1 m/s to 5 m/s)
4	Noise propagation model	CadnaA (DataKustik 2025)
5	Standard	ISO 9613
6	Ground conditions and attenuation factor	Ground absorption (G) of 0.8 (surrounding area) and 0.25 (Project area)
7	Terrain Parameters (terrain resolution)	Ground terrain incorporated at 50 m by 50 m resolution.
9	Reflection parameters	1 order of reflection

Notes:

°C = degrees Celsius; m = metre; m/s = metres per second

Meteorological factors, such as temperature, humidity, and wind speed and direction, affect sound propagation. Effects of wind and atmospheric stability on outdoor sound propagation during various weather conditions can cause large variations in Project-related sound levels when measured at a receptor location. Upwind sound propagation, or propagation during unstable atmospheric conditions, typically results in lower receptor levels, while downwind conditions and stable atmosphere tend to increase receptor levels. The wind speed is based on ISO 9613-2 standard, which assumes 1 metre per second (m/s) to 5 m/s downwind condition from the source to the receptor in the sound propagation calculation.

The Project is set in an area with dense vegetation and loose soil. Correspondingly, the ground absorption constant G was set to 0.8 (soft, absorptive ground) outside of the Project boundary and 0.25 (relatively hard, gravel) within the Project boundary.

Building structures were included in the model to account for the reflective effects and barrier effects of buildings. One order of reflection is also incorporated in the model.



5 Baseline Case

The Baseline Case sound levels are the combined sound levels of the ASL and the NCIA RNM results for the Project RAA.

5.1 RNM Results

In accordance with the RNMP Report 2025, which covers the 2024 calendar year, the RNM noise model (2023 model) represents existing facilities from NCIA member companies and proposed facilities that have already been approved by AER or AUC but are not yet constructed. Two cases of modeling scenarios are presented:

Case 1: Existing Case

- includes submitted sound models of existing facilities of NCIA member companies
- includes sound models of existing non-member facilities voluntarily submitted or from the data collected as part of other studies shared with NCIA

Case 2: Future Case

- includes all facilities from Case 1
- includes proposed facilities expected to be constructed within 1 to 5 years

According to AUC Rule 012, the Baseline Case should include existing energy-related facilities, approved but not yet constructed energy-related facilities, and proposed energy-related facilities that have been deemed complete under applications to AUC. In a conservative approach, Case 2: Future Case of the RNM is used to determine the noise contributions from the existing energy-related facilities, and approved and proposed energy-related facilities in the AIH-DIZ area.

The latest 2023 RNM model noise contours are available as CadnaA® gridmap for NCIA members, and the model results represent the concept of “downwind in all directions” in the noise model based upon noise propagation standard ISO 9613-2:1996.

Stantec obtained the gridmap from NCIA on behalf of Beacon. The gridmap results of RNM Case 2 are imported into the CadnaA noise model to determine the sound levels at the receptors within the assessment area. The predicted daytime and nighttime sound levels at noise receptors R1 through R4 are presented in Table 4. Figure 2 shows the noise contour results from the RNM.



Table 4 NCIA RNM “Case 2: Future Case” Results

Receptor ID	Daytime Sound Level (dBA)	Nighttime Sound Level (dBA)
R1	33.0	33.0
R2	29.5	29.5
R3	31.2	31.2
R4	31.3	31.3

Note:

dBA = A-weighted decibel; NCIA = Northeast Capital Industrial Association; RNM = Regional Noise Model

5.2 Baseline Case Results

The Baseline Case sound levels are the combined sound levels of the ASL and NCIA RNM results. Table 5 summarizes the results at the receptors. The results show that Baseline Case sound levels at the receptors are below the PSLs.

Table 5 Baseline Case Results

Receptor ID	Ambient Sound Level (dBA) ^a		NCIA RNM “Case 2: Future Case” Results (dBA)		Baseline Case Sound Level ^b (dBA)		PSL (dBA)	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	45	35	33.0	33.0	45.3	37.1	50	40
R2	45	35	29.5	29.5	45.1	36.1	50	40
R3	50	40	31.2	31.2	50.1	40.5	55	45
R4	50	40	31.3	31.3	50.1	40.5	55	45

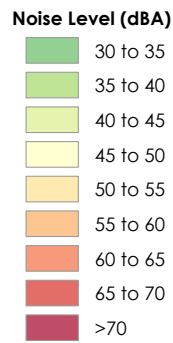
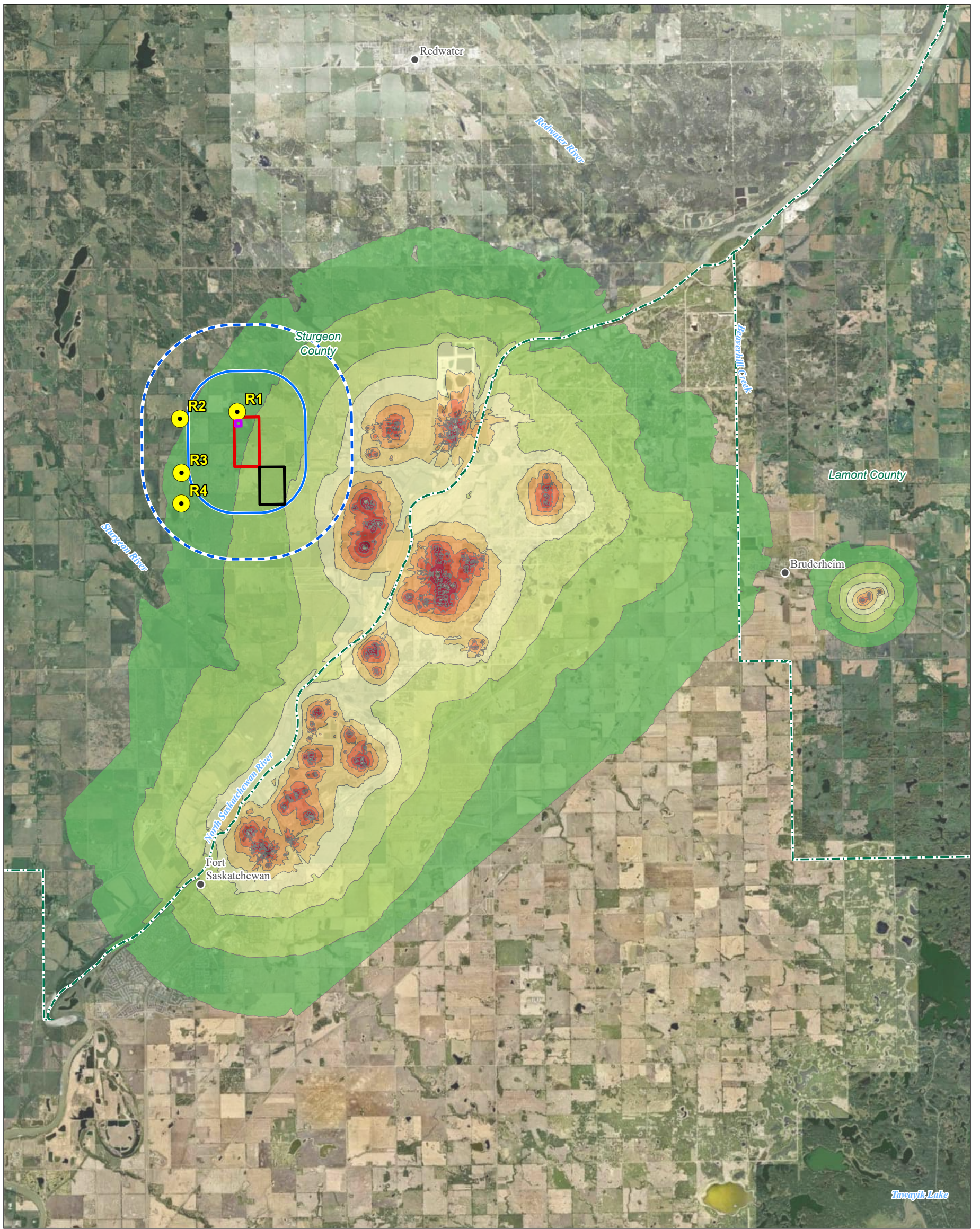
Notes:

^a Ambient Sound Level (ASL) values from Table 2

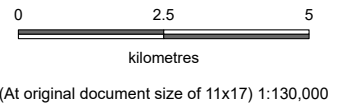
^b Logarithmic additions of ASL and RNM results

dBA = decibel, A-Weighted; NCIA = Northeast Capital Industrial Association; RNM = Regional Noise Model





- Receptor
- Project Development Area
- Local Assessment Area (1.5km)
- Regional Assessment Area (3km)
- Third Party Facility (Greenlight)
- Substation
- Populated Centre



Project Location NW ¼ and SW ¼ 15-056-22 W4M, Alberta Prepared by NF on 2025-12-30

Project 145400058

Beacon AI Centers – Heartland Project

Figure No.

2

Title

RNM Noise Contours

6 Project Case

The Project Case considers noise effect from the continuous normal operation of the Project. The following sections discuss noise emission assessment and mitigation requirements for operation phase as required by AUC Rule 012.

6.1 Noise Emission Sources

The Project case considers noise from the continuous operation of the Project sources only. The Project noise sources include the power generation facility, AI HPC campus, and substation. The following sections present the noise emission sources and modelling results for the Project Case.

The power generation facility will consist of 200 Jenbacher J624 lean-burn natural gas engines. Jenbacher's QPAC is a modular power generation platform which consists of 5 subunits each housing a Jenbacher J624 gas genset and supporting equipment. Each subunit includes the genset module, engine exhaust system equipped with Selective Catalytic Reduction (SCR) and exhaust silencer, genset module ventilation exhaust outlet, radiator and air filtration module, and other auxiliary modules. In accordance with the manufacturer's specifications, each QPAC noise emission will achieve 65 dBA measured at 10 m from the modular. The power facility will consist of 4 generation pods, each containing 10 QPAC modulars. A substation is located on the northern section of the PDA and will serve the Project.

The AI HPC campus consists of four data hall buildings housing AI HPC processing equipment, and each data hall also encloses two Clearfire CFLC-5000 condensing boilers with outdoor boiler exhaust outlets. Each data hall is equipped with 196 air-cooled chiller units with 96 associated pump enclosures and water tanks.

The Project was modelled using the following major pieces equipment and their associated ancillary systems:

- 40 QPAC power modular units, consisting of:
 - 200 genset engine exhaust outlets
 - 200 genset module ventilation outlets
 - 40 QPAC modular roofs
 - 40 QPAC modular side sources including genset enclosure breakout, radiator and air filtration module
- AI HPC campus, consisting of:
 - 4 data hall buildings housing AI HPC processing equipment
 - each data hall, including 2 condensing boilers; the boiler exhaust outlets are located outdoor



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Section 6: Project Case

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- each data hall consisting of 196 air-cooled chiller units; total of 784 air-cooled chiller units
- each data hall consisting of 96 pump enclosures; total of 384 pump enclosures
- substation

The sound power levels for operating equipment sources were determined based on manufacturers provided information, and Stantec noise database for similar equipment. Noise mitigation measures are incorporated in the modeling to meet the AUC Rule 012 requirements. Details of mitigation measures are described in Section 9.

Noise-emitting equipment associated with the Project and corresponding sound power levels with mitigation are summarized in Table 6. Sound power levels in octave band center frequencies are presented in Appendix B.

Table 6 Noise Source Sound Power Levels

Noise Source Name	Qty	Sound Power Level (dBA) ^a	Reference ^b
QPAC Genset Exhaust Outlet with 90-degree Directivity	200	85	1
QPAC Genset Ventilation Exhaust Outlet with 90-degree Directivity	200	85	1
QPAC Modular Roof	40	87	1
QPAC Modular Side Source	40	91	1
Air-Cooled Chiller Outlet	784	85	2
Air-Cooled Chiller Inlet	784	86	2
Pump Enclosure	384	81	3
CFLC-5000 Condensing Boiler Outlet with 90-degree Directivity	8	80	3
Data Hall Building Envelope	4	79	4
Substation	1	95	3

Notes:

^a Sound Power level per unit or individual piece of equipment; dBA = A-weighted decibel

^b 1 – Sound power level is derived based on manufacturer provided data (i.e., each QPAC meets 65 dBA at 10 m), then applied mitigation measures to meet 60 dBA at 10 m

2 – Sound power level is based on manufacturer provided noise specification, then applied mitigation measures

3 – Representative value based on similar equipment

4 – Calculated value based on acoustic method (Bies & Hansen)



6.2 Project Case Results

Table 7 summarizes the predicted Project Case sound levels at the receptors. Figure 3 presents the Project Case noise contours within the RAA. The model assumes all operation equipment run continuously during both the daytime and nighttime periods. Therefore, prediction results are the same for both periods.

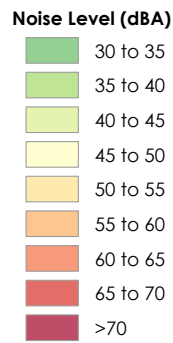
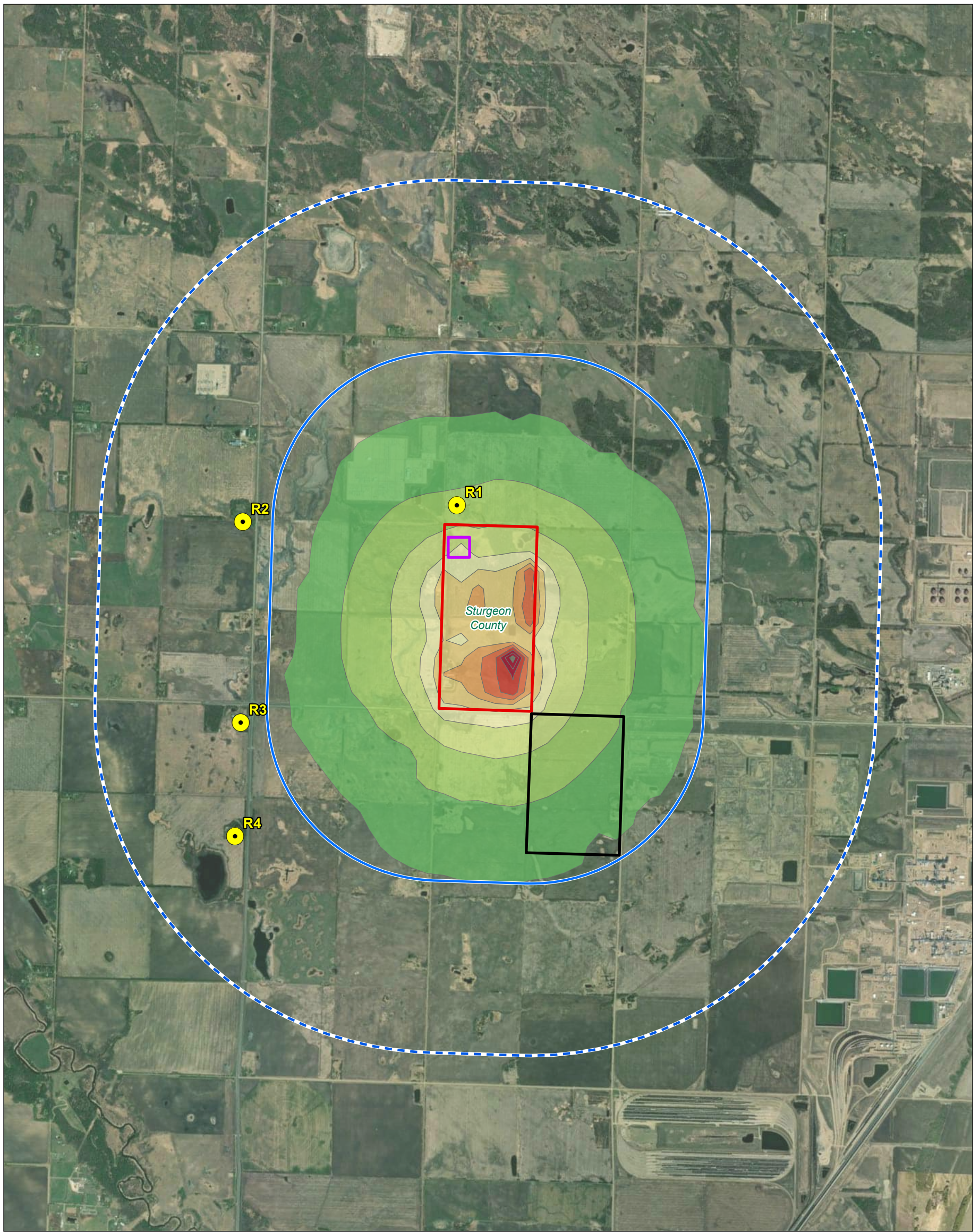
Table 7 Project Case Sound Levels

Receptor ID	Project Case Sound Level (dBA)	
	Daytime	Nighttime
R1	36.4	36.4
R2	25.9	25.9
R3	26.3	26.3
R4	24.2	24.2

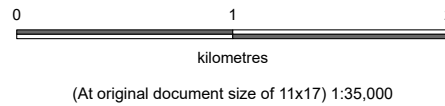
Note:

dBA = A-weighted decibel





- Receptor
- Project Development Area
- Local Assessment Area (1.5km)
- Regional Assessment Area (3km)
- Substation
- Third Party Facility (Greenlight)



Project Location: NW ¼ and SW ¼ 15-056-22 W4M, Alberta
 Prepared by NF on 2025-12-01

Project: 145400058

Beacon AI Centers – Heartland Project

Figure No.

3

Title

Project Noise Contours

6.3 Low Frequency Noise Analysis

AUC Rule 012 assesses LFN by the presence of a clear tone between 20 Hz and 250 Hz, and where the difference between the overall C-weighted sound level and the overall A-weighted sound level is equal to, or greater than 20 dB. The presence of both conditions at a receptor indicates the potential for LFN concerns. The ASL and third-party facility noise contributions are not included in the LFN analysis.

A presence of tones below 250 Hz are commonly identified from post-construction field noise measurements rather than during the design stage because equipment noise emission data in one-third octave bands (needed for identifying tones) is typically not available from the manufacturers. Sound generated by modern power plants does not generally have low frequency tonal components unless there is a deficiency in the aerodynamic design of some component equipment.

Table 8 presents the predicted A-weighted and C-weighted sound levels at the receptors. Results in Table 8 show that the dBC minus dBA values are all below 20 dB. Therefore, this assessment concludes there is low potential for LFN effect at the receptors R1 through R4.

Table 8 Low Frequency Noise Analysis

Receptor ID	Predicted Daytime and Nighttime Project Only Sound Level		dBC minus dBA (dB)	Equal to or Greater than 20 dB?
	dBA	dBC		
R1	36.4	53.3	16.9	No
R2	25.9	45.0	19.1	No
R3	26.3	45.4	19.1	No
R4	24.2	44.1	19.9	No

Notes:

dB = decibel; dBA = A-weighted decibel; dBC = C-weighted decibel



7 Application Case

The Application Case determines the cumulative sound levels by combining the Baseline Case (i.e., ASL and NCIA RNM results) and Project Case sound levels together. These results are compared to the PSLs to verify the Project’s status of compliance.

Table 9 summarizes the cumulative sound levels at the receptors. The results indicate the cumulative sound levels meet the PSLs at all receptors. Therefore, the Project complies with the AUC Rule 012 requirements.

Table 9 Application Case Results

Receptor	Project Case Sound Level (dBA)		Baseline Case Sound Level (dBA)		Cumulative Sound Level ^a (dBA)		Permissible Sound Level (dBA)		Meet PSLs?
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	
R1	36.4	36.4	45.3	37.1	46	40	50	40	Yes
R2	25.9	25.9	45.1	36.1	45	37	50	40	Yes
R3	26.3	26.3	50.1	40.5	50	41	55	45	Yes
R4	24.2	24.2	50.1	40.5	50	41	55	45	Yes

Note:

^a Logarithmic addition of Project Case and Baseline Case; the values are rounded to the nearest whole number before comparison to PSL according to AUC Rule 012

dBA = decibel, A-Weighted; PSL = Permissible Sound Levels



8 Foreseeable Application Case

The Foreseeable Application Case determines the cumulative sound levels by combining the Baseline Case (i.e., ASL and NCIA RNM results); Project Case sound levels; and the proposed Greenlight facility, which is currently under AUC application process. These results are also compared to the PSLs to verify the Project's status of compliance.

Table 9 summarizes the cumulative sound levels at the receptors. The results indicate the cumulative sound levels meet the PSLs at all receptors. Therefore, the Project complies with the AUC Rule 012 requirements.



Table 10 Foreseeable Application Case Results

Receptor	Project Case Sound Level (dBA)		Baseline Case Sound Level (dBA)		Sound Level from Greenlight Facility (dBA)		Cumulative Sound Level ^a (dBA)		Permissible Sound Level (dBA)		Meet PSLs?
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	
R1	36.4	36.4	45.3	37.1	31.8	31.8	46	40	50	40	Yes
R2	25.9	25.9	45.1	36.1	26.7	26.7	45	37	50	40	Yes
R3	26.3	26.3	50.1	40.5	28.2	28.2	50	41	55	45	Yes
R4	24.2	24.2	50.1	40.5	27.9	27.9	50	41	55	45	Yes

Note:

^a Logarithmic addition of Project Case, Baseline Case and Greenlight facility; the values are rounded to the nearest whole number before comparison to PSL according to AUC Rule 012

dBA = decibel, A-Weighted; PSL = Permissible Sound Levels



9 Mitigation Measures and Assumptions

The Project requires mitigation measures that are inherent in the designs to achieve compliance with the PSLs of AUC Rule 012. Standard industry practices and mitigation measures, as well as site-specific mitigation, will be implemented during operation. The assessment results presented in the previous sections include the application of mitigation measures. Mitigation measures for Project Case components are summarized as follows:

- Implementation of mitigation measures for the QPAC modulars to achieve 60 dBA at 10 m for each modular. This may be achieved in conjunction with the manufacturer supply modifications, or implementation of additional mitigation measures for the original QPAC modulars, including additional genset exhaust silencers, genset ventilation exhaust silencers, acoustic louvers for radiator and air filtration module, and enhanced modular roof system.
- Installation of silencers for the air-cooled chiller outlets
- Installation of acoustic louvers for the air-cooled chiller inlets
- Installation of acoustic barriers on the north end of the northern data hall

The following assumptions or conditions were included in the assessment:

- Plot plan and equipment layout are based on the information and drawings provided for current design (i.e., Site Plan, Drawing No. -A-100.2, Rev1, 2025.11.25).
- The Project needs to operate 44 gensets to produce 200 MW power from each generation pod during normal operation. Noise modelling has been completed based upon the conservative assumption that all 50 gensets in each generation pod will operate continuously at the maximum rated capacity, i.e., the power facility will produce 920 MW power output with 200 engines operation.
- All equipment is continuously operating at 100% capacity.
- The data hall buildings are built with pre-engineered wall and roof panel configurations to achieve sound transmission class rating of 43 or higher.
- The acoustic performance of the Project equipment components will meet the values specified in Table 6 and Table B.1.
- The total sound power level of the substation will not exceed 95 dBA. A separate NIA for the substation will be conducted associated with its AUC application.



10 Conclusion

Noise effects from the Project were assessed at the receptor R1 (located 200 m north of the PDA) and at receptors R2, R3 and R4 (located outside the LAA) for information purposes. The PSLs for the receptors were determined according to the AUC Rule 012 requirements. Baseline Case sound levels at the receptors were determined using the prescribed ASL and NCIA RNM results. Noise model was compiled using manufacturers data, owner's engineering specifications and drawings, representative noise emission levels from similar equipment, and acoustic calculations. Cumulative sound levels of the Application Case and Foreseeable Application Case were predicted and compared with the PSLs.

The modeling results indicate that the predicted cumulative sound levels of both Application Case and Foreseeable Application Case meet the daytime and nighttime PSLs at all receptors. Also, based on AUC Rule 012 prescribed approach, low frequency noise effect is not expected at all receptors. This NIA concludes that the Project complies with the AUC Rule 012 requirements.



11 Acoustic Practitioners Information

Table 11 Practitioners Information

Name	Yong Ma, P.Eng	Jonathan Chui, P.Eng, INCE
Title	Senior Acoustic Engineer	Senior Noise Specialist
Role	<ul style="list-style-type: none"> • Discipline lead • Noise emission and modelling • NIA report author 	<ul style="list-style-type: none"> • Quality Review
Training and experience	<ul style="list-style-type: none"> • Over 25 years of experience in acoustic consulting • Member of the APEGA 	<ul style="list-style-type: none"> • Over 23 years of experience in acoustic consulting • Member of the APEGA and the INCE

Notes:

APEGA = Association of Professional Engineers and Geoscientists of Alberta; INCE = Institute of Noise Control Engineers of the USA; NIA = noise impact assessment



12 References

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- ISO (International Organization for Standardization). 1993. International Standard ISO 9613-1, ISO 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors. Part 1: Calculation of Absorption of Sound by the Atmosphere. Geneva, Switzerland.
- ISO. 1996. International Standard ISO 9613-1, ISO 9613-2, Acoustics – Attenuation of sound during propagation outdoors. Part 2: General Method of Calculation. Geneva, Switzerland.
- NCIA (Northeast Capital Industrial Association). 2025. NCIA Regional Noise Management Plan (RNMP) Report (covering the 2024 Calendar Year). Prepared for the Albert Energy Regulator (AER) and the Alberta Utilities Commission (AUC), June 2025.
- SLR (SLR Consulting (Canada) Ltd.). 2024. 2023 Regional Noise Model Update - Northeast Capital Industrial Association Regional Noise Management Plan. Prepared for Northeast Capital Industrial Association. SLR Consulting (Canada) Ltd., May15, 2024.



Appendices





Appendix A

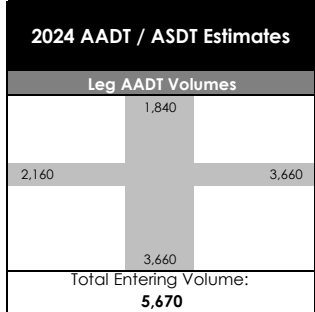
Alberta Transportation Traffic Volume



Reference Number:
96580

Intersection of:
643 & 825 E OF GIBBONS

Vehicle Type	Volume	%
A: Passenger Vehicle	1,706	91.7%
B: Recreational Vehicle	17	0.9%
C: Bus	2	0.1%
D: Single Unit Truck	51	2.7%
E: Tractor Trailer Unit	84	4.5%
AAADT	1,840	
ASADT	2,170	



From North			
	950		
	Right	Thru	Left
A	194	670	10
B	2	6	0
C	2	0	0
D	9	20	0
E	13	24	0

To North	
	910
A	832
B	9
C	0
D	22
E	47

To West	
	1,080
A	954
B	2
C	5
D	44
E	75

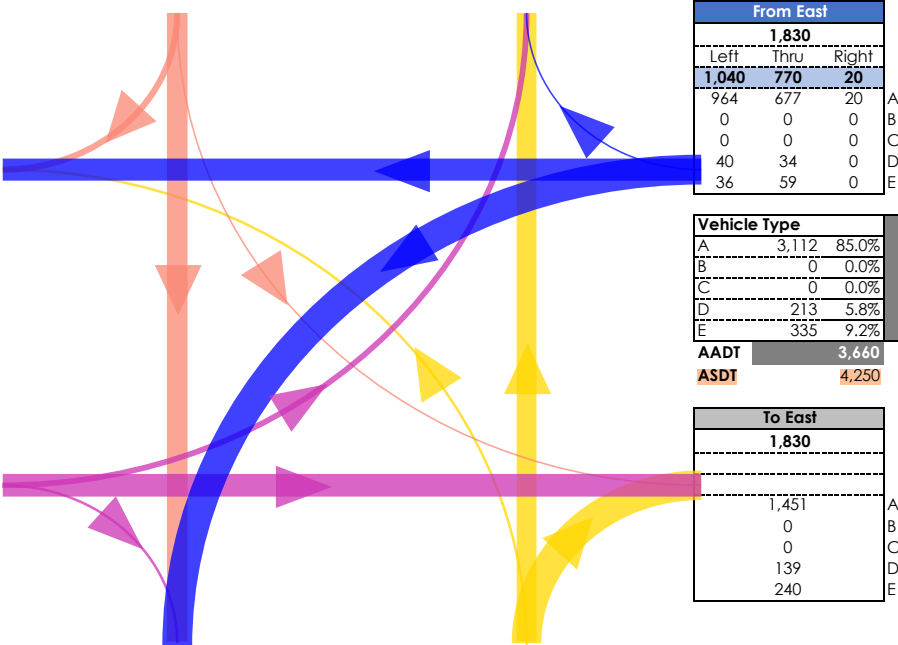
From East			
	1,830		
	Left	Thru	Right
A	964	677	20
B	0	0	0
C	0	0	0
D	40	34	0
E	36	59	0

Volume	%
A	1,814 84.0%
B	2 0.1%
C	9 0.4%
D	118 5.5%
E	217 10.0%
AAADT	2,160
ASADT	2,560

Vehicle Type	Volume	%
A	3,112	85.0%
B	0	0.0%
C	0	0.0%
D	213	5.8%
E	335	9.2%
AAADT	3,660	
ASADT	4,250	

From West			
	1,080		
	Left	Thru	Right
A	186	589	85
B	0	0	0
C	0	0	4
D	8	65	1
E	6	136	0

To East	
	1,830
A	1,451
B	0
C	0
D	139
E	240



To South	
	1,850
A	1,719
B	6
C	4
D	61
E	60

From South			
	1,810		
	Left	Thru	Right
A	90	690	1,030
B	83	626	852
C	0	9	0
D	3	0	0
E	1	14	74
E	3	41	104

Vehicle Type	Volume	%
A: Passenger Vehicle	3,280	89.6%
B: Recreational Vehicle	15	0.4%
C: Bus	7	0.2%
D: Single Unit Truck	150	4.1%
E: Tractor Trailer Unit	208	5.7%
AAADT	3,660	
ASADT	4,280	

ABBREVIATIONS:

AAADT: Annual Average Daily Traffic.
Average daily traffic expressed as vehicles per day for the period from January 1 to December 31 (inclusive), 365 days.

ASADT: Average Summer Daily Traffic.
Average daily traffic expressed as vehicles per day for the period from May 1 to September 30 (inclusive), 153 days.

NOTE:
Coloured line thickness corresponds to turning movement volume.



Appendix B

Sound Power Levels



Table B.1 Source Sound Power Levels (dB re 1pW)

Source Name	PWL (dB) in Octave Band Center Frequency (Hz) per Unit ¹									dBA
	31.5	63	125	250	500	1000	2000	4000	8000	
QPAC Genset Exhaust Outlet with 90-degree Directivity	94	92	93	78	77	73	74	80	80	85
QPAC Genset Ventilation Exhaust Outlet with 90-degree Directivity	83	85	85	83	78	77	76	78	79	85
QPAC Modular Roof	78	81	87	85	80	79	78	80	81	87
QPAC Modular Side Source	82	85	91	89	84	83	82	84	85	91
Air-Cooled Chiller Outlet	89	84	95	86	77	74	74	78	75	85
Air-Cooled Chiller Inlet	89	86	94	87	81	76	77	76	71	86
Pump Enclosure	81	80	83	80	78	76	73	71	66	81
CFLC-5000 Condensing Boiler Outlet with 90-degree Directivity	78	79	81	77	76	75	73	69	66	80
Data Hall Building Envelope	98	96	91	79	73	66	63	61	59	79
Substation	93	96	98	95	90	90	87	85	79	95

Note:

¹ PWL includes mitigation measures



Appendix D - Groundwater Tables

TABLE 1a

Water Wells Within a 5 km Radius of NW 15-056-22 W4M

Beacon Data Centers Inc.

Heartland - NW/SW-15-056-22 W4M

Water Well Number	Well ID*	Location	Well Owner	Direction From Site	Distance From Site km**	Total Depth m	Top of Screen m	Bottom of Screen m	Top of Perforation m	Bottom of Perforation m	Bottom of Casing m	Depth to Water m	Bedrock Depth m	Date of Information	Proposed Use For Well	Type of Work
1	264230	5-15-56-22-W4M	Lamoureux, S.	S-SW	0.64	0.00	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
2	264234	SW-15-56-22-W4M	Prins	S	0.80	15.24	---	---	---	---	0.00	---	---	8-Apr-83	Domestic	Chemistry
3	264237	SW-15-56-22-W4M	Groat, Wayne	S	0.80	60.96	---	---	54.86	60.96	25.60	9.14	9.14	12-Jun-89	Domestic	New Well
4	264223	SW-15-56-22-W4M	Fermaniuk, Mike	S	0.80	11.58	---	---	---	---	11.58	2.74	5.49	26-Apr-77	Domestic	New Well
5	266035	SW-15-56-22-W4M	Groot, William J.	S	0.80	35.05	---	---	17.68	18.59	17.68	4.88	1.52	15-Sep-82	Domestic	New Well
6	266042	SW-22-56-22-W4M	Fermaniuk, Mike	N	0.81	9.14	---	---	---	---	0.00	---	---	13-Feb-68	Domestic	Chemistry
7	264460	SW-22-56-22-W4M	Fermaniuk, Fred	N	0.81	61.87	---	---	48.77	60.96	0.00	9.14	33.53	18-Jul-88	Domestic & Stock	New Well
8	1755004	NE-16-56-22-W4M	Morin, Graham And Sharon	W	0.82	21.34	---	---	14.33	15.85	20.73	8.53	10.67	8-Oct-04	Domestic	New Well
9	1690077	SE-22-56-22-W4M	Shepherd, R	NE	1.16	57.30	---	---	27.43	33.53	38.10	7.92	8.53	11-Oct-01	Domestic	New Well
10	264312	SE-16-56-22-W4M	Lemoireux, L./Montpellier	SW	1.16	20.42	---	---	---	---	20.42	7.01	5.49	7-May-80	Domestic & Stock	New Well
11	264246	NE-15-56-22-W4M	Allan, Bob	E-SE	1.20	12.19	---	---	---	---	0.00	3.66	---	18-Jul-77	Stock	New Well
12	1066449	8-21-56-22-W4M	Thurber Engineering	N-NW	1.20	54.86	---	---	42.67	48.77	39.62	13.72	14.02	10-Aug-11	Domestic	New Well
13	1066450	8-21-56-22-W4M	Thurber Engineering Ltd (Bubrae, Milan)	N-NW	1.24	54.86	---	---	39.62	48.77	0.61	---	8.84	9-Aug-11	Monitoring	New Well
14	264073	16-9-56-22-W4M	Lamoureux, L.P.	S-SW	1.56	6.10	---	---	---	---	---	---	---	19-Jun-35	Domestic & Stock	New Well
15	264479	4-23-56-22-W4M	Lamoureux	E-NE	1.56	9.75	---	---	---	---	0.00	3.66	---	1-Jan-21	Stock	New Well
16	157044	NW-10-56-22-W4M	Montpellier, Eleanor	S	1.63	10.36	---	---	---	---	0.00	---	---	20-Feb-90	Domestic	Chemistry
17	157045	NW-10-56-22-W4M	Montpellier, Morris	S	1.63	70.10	---	---	---	---	0.00	---	---	20-Feb-90	Domestic	Chemistry
18	2093903	NE-22-56-22-W4M	Derouin, Louis	N-NE	1.80	6.71	---	---	---	---	---	---	---	30-Jun-84	Domestic & Stock	Well Inventory
19	264455	NE-21-56-22-W4M	Shaw, Colin	N-NW	1.81	45.72	---	---	28.96	35.05	21.95	10.67	9.75	3-May-88	Domestic & Stock	New Well
20	264468	NE-22-56-22-W4M	Derouin	N-NE	1.81	45.72	---	---	39.62	45.72	30.48	6.71	5.49	16-Aug-85	Stock	New Well
21	264090	NE-10-56-22-W4M	Gauthier, Ricky J.	S-SE	1.82	91.44	---	---	---	---	0.00	---	---	22-Mar-89	Domestic	Chemistry
22	264319	SW-16-56-22-W4M	Hood, A.	W-SW	1.82	10.67	---	---	---	---	0.00	---	---	31-Jul-59	Domestic	Chemistry
23	264321	SW-16-56-22-W4M	Hood, Andrew	W-SW	1.82	14.63	---	---	---	---	14.63	3.35	12.19	13-Aug-81	Domestic & Stock	New Well
24	160457	SW-21-56-22-W4M	Kalco Farms Ltd	W-NW	1.82	12.19	---	---	---	---	0.00	---	---	23-Dec-91	Domestic	Chemistry
25	209814	NE-9-56-22-W4M	Lamoureux, Louis	S-SW	1.83	21.95	---	---	9.14	19.81	0.00	7.62	5.49	18-Feb-93	Domestic	New Well
26	264326	5-16-56-22-W4M	Friess, J.	W-SW	1.93	14.63	---	---	---	---	0.00	---	---	1-Jan-34	Domestic	New Well
27	266046	12-23-56-22-W4M	Derouin/Derwin	NE	2.01	9.14	---	---	---	---	0.00	3.05	---	1-Jan-26	Domestic & Stock	New Well
28	264087	5-10-56-22-W4M	Todd, W.A.	S	2.24	21.34	---	---	---	---	0.00	---	---	1-Jan-16	Domestic	New Well
29	264452	NW-21-56-22-W4M	Shaw, John	NW	2.30	42.67	---	---	---	---	0.00	---	---	29-Nov-67	Domestic	Chemistry
30	264483	NW-23-56-22-W4M	Derouin, Lewis	NE	2.30	34.14	---	---	---	---	30.48	9.14	---	1-May-84	Stock	New Well
31	264122	NW-11-56-22-W4M	Briggs, Earl C.	SE	2.31	65.84	---	---	26.21	65.84	26.21	15.24	6.10	21-Nov-80	Domestic	New Well
32	264063	NW-9-56-22-W4M	Melnychuk, Walter	SW	2.31	19.51	---	---	---	---	19.51	6.40	7.32	11-Jul-79	Domestic	New Well
33	264715	1-28-56-22-W4M	Shaw, J.	N-NW	2.32	6.71	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
34	264130	12-11-56-22-W4M	Hood	SE	2.33	61.87	---	---	---	---	0.00	10.67	---	1-Jan-36	Domestic & Stock	New Well
35	264376	1-20-56-22-W4M	Hall, H.C.	W-NW	2.34	7.01	---	---	---	---	0.00	---	---	1-Jan-31	Domestic & Stock	New Well
36	264076	SW-10-56-22-W4M	Kampjes, John	S	2.43	99.97	---	---	69.49	94.49	31.39	0.00	6.10	22-Nov-76	Domestic	New Well
37	264083	SW-10-56-22-W4M	Kampjes, John	S	2.43	71.93	---	---	---	---	0.00	33.53	48.77	2-Sep-65	Industrial	New Well
38	272617	SW-10-56-22-W4M	Kampjes, John	S	2.43	99.97	---	---	---	---	99.97	---	---	24-Jun-77	Domestic	Chemistry
39	295166	SW-27-56-22-W4M	Cissel, Keith	N	2.44	38.10	---	---	32.92	35.97	24.38	5.79	3.96	13-Aug-00	Domestic	New Well
40	264683	SW-27-56-22-W4M	Shaw, J.J.	N	2.44	7.92	---	---	---	---	0.00	---	---	24-Oct-63	Domestic	Chemistry
41	264684	SW-27-56-22-W4M	Shaw, James	N	2.44	19.81	---	---	---	---	0.00	---	---	26-Feb-60	Domestic	Chemistry
42	264687	SW-27-56-22-W4M	Shaw, James	N	2.44	18.29	---	---	---	---	0.00	---	---	24-Oct-63	Stock	Chemistry
43	264691	SW-27-56-22-W4M	Shaw, James	N	2.44	14.33	---	---	---	---	0.00	---	---	3-Nov-72	Domestic	Chemistry
44	241871	NE-14-56-22-W4M	Jasman, Rod	E	2.44	24.99	---	---	10.67	13.72	0.00	7.62	23.77	22-Sep-93	Domestic	New Well
45	153191	SW-27-56-22-W4M	Shaw, Stuart	N	2.44	50.29	---	---	38.10	50.29	35.97	18.29	13.72	2-Aug-90	Domestic & Stock	New Well
46	264338	NE-17-56-22-W4M	Hall, Marshall	W	2.46	42.67	36.58	42.67	---	---	42.67	9.75	28.65	15-Jun-88	Stock	New Well
47	157043	SE-10-56-22-W4M	Koska, D.	S-SE	2.56	70.10	---	---	---	---	0.00	---	---	14-Dec-90	Domestic	Chemistry
48	263953	SE-9-56-22-W4M	Westra, C.	S-SW	2.57	96.01	---	---	83.82	96.01	18.29	24.38	12.19	13-Mar-76	Stock	New Well
49	1795058	SE-9-56-22-W4M	Kalco Farms - Kalisvaart, Jack	S-SW	2.57	80.77	---	---	54.86	79.25	27.43	29.90	4.57	30-Nov-04	Domestic	New Well
50	264415	SE-27-56-22-W4M	Debouin, Marty	N-NE	2.57	11.58	---	---	---	---	0.00	3.05	---	28-Aug-78	Domestic	Chemistry
51	264196	SE-14-56-22-W4M	Allan, R.	E-SE	2.57	64.01	---	---	45.72	59.44	45.72	13.72	47.24	30-Aug-74	Domestic & Stock	New Well
52	264208	SE-14-56-22-W4M	Allen Farms	E-SE	2.57	21.95	19.51	21.95	---	---	21.95	4.88	11.58	1-Nov-78	Stock	New Well
53	264214	SE-14-56-22-W4M	Allan, Robert	E-SE	2.57	18.29	---	---	---	---	0.00	---	---	13-Mar-84	Domestic	Chemistry
54	264701	SE-28-56-22-W4M	Shaw, Thomas	N-NW	2.57	60.96	---	---	---	---	0.00	---	---	28-Jan-69	Domestic	Chemistry
55	264703	SE-28-56-22-W4M	Shaw, Allen	N-NW	2.57	45.72	---	---	39.62	45.72	21.34	6.10	16.76	8-Dec-73	Domestic	New Well
56	264710	SE-28-56-22-W4M	Shaw, T.	N-NW	2.57	73.15	---	---	51.82	56.39	48.77	6.10	3.05	26-May-97	Stock	Deepened
57	264620	SE-27-56-22-W4M	Trott, Peter	N-NE	2.57	60.96	---	---	---	---	27.43	6.10	21.34	29-Mar-74	Domestic	New Well
58	264676	SE-27-56-22-W4M	Saunders, Gecil	N-NE	2.57	35.66	---	---	---	---	33.22	6.10	22.86	27-Aug-84	Stock	New Well
59	264681	SE-27-56-22-W4M	Sekrijer, Michael W.	N-NE	2.57	4.88	---	---	---	---	0.00	---	---	24-Aug-87	Domestic	Chemistry

TABLE 1a

Water Wells Within a 5 km Radius of NW 15-056-22 W4M

Beacon Data Centers Inc.

Heartland - NW/SW-15-056-22 W4M

Water Well Number	Well ID*	Location	Well Owner	Direction From Site	Distance From Site km**	Total Depth m	Top of Screen m	Bottom of Screen m	Top of Perforation m	Bottom of Perforation m	Bottom of Casing m	Depth to Water m	Bedrock Depth m	Date of Information	Proposed Use For Well	Type of Work
60	266032	SE-14-56-22-W4M	Allen, Don	E-SE	2.57	39.62	---	---	---	---	39.62	4.27	8.23	11-Oct-75	Stock	New Well
61	271664	SE-27-56-22-W4M	Trott, Mrs	N-NE	2.57	7.62	---	---	---	---	0.00	3.66	---	24-Oct-73	Domestic	Chemistry
62	296283	SE-14-56-22-W4M	Thimer, Greg	E-SE	2.57	48.77	---	---	6.10	12.19	0.00	4.88	7.92	3-Apr-00	Domestic	New Well
63	296284	SE-14-56-22-W4M	Thimer, Greg #1	E-SE	2.57	109.73	---	---	30.48	36.58	0.00	5.18	21.03	2-Apr-00	Domestic	New Well
64	41340	SE-27-56-22-W4M	Mceroe Farms Ltd	N-NE	2.57	17.68	---	---	8.53	10.67	0.00	3.05	10.67	7-Jun-01	Domestic & Stock	New Well
65	295165	SE-20-56-22-W4M	Kalco Farms	W-NW	2.59	73.15	---	---	42.67	73.15	0.00	22.86	23.77	25-Oct-00	Domestic	New Well
66	264328	SE-17-56-22-W4M	Hood, Andrew	W-SW	2.59	44.20	---	---	36.58	42.67	24.38	18.29	10.67	6-May-88	Domestic & Stock	New Well
67	264377	SE-20-56-22-W4M	Can Bechtel#Well 2	W-NW	2.59	77.72	---	---	---	---	0.00	---	5.49	1-Jan-67	Unknown	New Well
68	266029	16-8-56-22-W4M	Petherbridge	W-SW	2.67	13.72	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
69	264058	1-9-56-22-W4M	Lamoureux, A.	S-SW	2.71	60.96	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
70	238761	4-28-56-22-W4M	Shaw, J.J.	NW	2.82	45.72	---	---	18.29	24.38	0.00	3.29	6.40	24-Jan-94	Domestic & Stock	New Well
71	266052	4-28-56-22-W4M	Schales, J.H./Shaw	NW	2.89	19.81	---	---	---	---	0.00	9.14	---	19-Jun-35	Domestic & Stock	New Well
72	264449	16-20-56-22-W4M	Trotter	NW	2.90	18.29	---	---	---	---	0.00	3.05	---	19-Jun-35	Domestic & Stock	New Well
73	264495	NE-23-56-22-W4M	Sustrich, Kevin	E-NE	2.92	36.58	19.81	21.34	---	---	21.34	3.96	21.34	12-Aug-81	Domestic	New Well
74	260274	NE-23-56-22-W4M	Derouin, Dan	E-NE	2.92	37.19	30.48	36.58	---	---	36.58	10.49	12.19	30-Aug-95	Domestic	New Well
75	264112	SW-11-56-22-W4M	Briggs, Earl	S-SE	2.93	106.68	---	---	14.02	64.01	14.02	24.38	4.57	6-Mar-80	Domestic	Deepened
76	264593	SW-26-56-22-W4M	Sharrun, Ken	NE	2.94	38.10	---	---	32.00	38.10	31.70	4.57	21.34	1-Apr-73	Domestic	New Well
77	264613	SW-26-56-22-W4M	Sharrun, Ken	NE	2.94	10.36	---	---	---	---	---	---	---	31-Jan-72	Domestic	Chemistry
78	289216	NE-8-56-22-W4M	Petherbridge, Al	W-SW	2.95	17.37	---	---	11.28	16.76	0.00	3.66	7.32	2-Jun-97	Domestic	New Well
79	264516	4-24-56-22-W4M	Steele, W.H.	E	3.12	13.11	---	---	---	---	0.00	4.88	---	1-Jan-35	Domestic & Stock	New Well
80	1690055	NW-17-56-22-W4M	Kruger, Gary	W	3.25	75.59	---	---	32.92	39.01	23.77	11.13	12.50	15-Jun-04	Domestic	New Well
81	264332	NW-17-56-22-W4M	Griffiths, Julie	W	3.26	9.14	---	---	---	---	0.00	---	---	30-Mar-84	Domestic	Chemistry
82	264333	NW-17-56-22-W4M	Hall, E.	W	3.26	91.44	67.06	73.15	---	---	73.15	26.52	36.58	14-Jun-88	Stock	New Well
83	295832	NW-17-56-22-W4M	Weise, Allan	W	3.26	17.07	---	---	4.57	12.19	0.00	2.44	8.53	13-Jun-00	Domestic	New Well
84	154375	NE-3-56-22-W4M	Kugler, Irwin	S-SE	3.34	59.44	---	---	45.72	57.91	30.48	25.91	5.49	17-Apr-85	Stock	New Well
85	158577	NE-3-56-22-W4M	Kugler, Erika	S-SE	3.34	64.01	---	---	30.48	64.01	0.00	19.81	30.48	6-Apr-68	Domestic	New Well
86	157046	NE-28-56-22-W4M	Shaw, Ron	N-NW	3.35	36.58	---	---	---	---	0.00	---	---	20-Jul-90	Domestic	Chemistry
87	150311	NE-28-56-22-W4M	Shaw, Tom	N-NW	3.35	40.23	---	---	21.95	40.23	24.38	12.19	14.33	6-Feb-90	Domestic	New Well
88	1130115	SW-17-56-22-W4M	Roe, Thom	W-SW	3.35	65.53	---	---	22.86	28.96	18.29	11.70	6.10	13-Nov-02	Domestic	New Well
89	152159	SW-20-56-22-W4M	Shaw, Wilfred	W-NW	3.36	46.02	---	---	24.38	46.02	24.38	22.86	22.25	8-Feb-90	Domestic	New Well
90	167042	NE-4-56-22-W4M	Stewart, Roy	S-SW	3.36	64.01	---	---	42.67	48.77	0.00	10.67	4.57	17-Jun-92	Stock	New Well
91	264184	SW-13-56-22-W4M	Blom, Bernard	E-SE	3.36	76.20	---	---	---	---	0.00	---	---	13-Apr-78	Domestic	Chemistry
92	264187	SW-13-56-22-W4M	Blom, Klaas	E-SE	3.36	65.53	---	---	---	---	0.00	---	---	17-Jun-58	Domestic	Chemistry
93	264509	SW-24-56-22-W4M	Foster, Ray	E-NE	3.36	17.07	---	---	---	---	17.07	3.96	---	15-Sep-79	Domestic & Stock	New Well
94	264378	SW-20-56-22-W4M	Shaw, Wilf	W-NW	3.36	59.44	---	---	---	---	57.61	6.10	28.04	10-Aug-76	Stock	New Well
95	264380	SW-20-56-22-W4M	Can Bechtel#Well 3	W-NW	3.36	67.06	---	---	---	---	0.00	---	22.86	1-Jan-67	Unknown	New Well
96	264381	SW-20-56-22-W4M	Shaw, Wilf	W-NW	3.36	12.19	---	---	---	---	12.19	7.62	---	1-Jan-69	Domestic	New Well
97	264615	12-26-56-22-W4M	Myoski	N-NE	3.37	13.72	---	---	---	---	0.00	1.83	---	1-Jan-34	Domestic & Stock	New Well
98	1690059	SE-26-56-22-W4M	Vermeer Dairy Ltd	NE	3.42	86.87	---	---	74.68	86.87	35.97	22.95	31.09	19-Jul-02	Domestic & Stock	New Well
99	167590	SE-26-56-22-W4M	Rimmer, Chad	NE	3.45	0.00	---	---	---	---	0.00	---	---	24-Aug-92	Domestic	Chemistry
100	264560	SE-26-56-22-W4M	Van Ingen, Fred	NE	3.45	42.67	37.80	41.76	---	---	36.58	12.80	31.39	18-Jun-88	Domestic & Stock	New Well
101	264574	SE-26-56-22-W4M	Van Ingen, Fred	NE	3.45	54.86	38.40	39.93	---	---	37.49	12.19	31.39	29-Jun-88	Domestic & Stock	New Well
102	264091	SE-11-56-22-W4M	Serink, Mike	SE	3.45	64.01	---	---	51.82	64.01	30.48	10.67	6.10	10-Oct-73	Unknown	New Well
103	266049	SE-26-56-22-W4M	Van Ingen Farm	NE	3.45	44.20	---	---	---	---	0.00	---	---	5-Oct-70	Stock	Chemistry
104	266051	SE-26-56-22-W4M	Teefy, William	NE	3.45	42.67	---	---	---	---	0.00	---	---	10-Jan-84	Domestic	Chemistry
105	293129	SE-26-56-22-W4M	Vermeer, Maryn/Ans	NE	3.45	80.47	---	---	64.92	77.11	0.00	19.08	31.70	23-Jul-99	Domestic	New Well
106	42219	SE-8-56-22-W4M	Eagle Farms/Mockman, Jack	SW	3.46	80.77	---	---	54.86	79.25	28.04	28.65	4.57	18-Nov-02	Domestic	New Well
107	264728	SE-29-56-22-W4M	Reddekopp, Peter	NW	3.46	30.48	---	---	21.34	28.96	13.72	6.10	10.36	3-Nov-76	Stock	New Well
108	264730	SE-29-56-22-W4M	Walker, R.	NW	3.46	12.80	---	---	---	---	0.00	---	---	24-Oct-63	Unknown	Chemistry
109	263947	1-8-56-22-W4M	Walson, A.	SW	3.47	6.10	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
110	263856	14-2-56-22-W4M	Trotter, J.	S-SE	3.55	54.86	---	---	---	---	0.00	12.19	---	1-Jan-24	Domestic & Stock	New Well
111	263854	NW-2-56-22-W4M	Sank, Lloyd	S-SE	3.63	36.58	---	---	---	---	0.00	---	---	21-Jun-66	Domestic	Chemistry
112	1795059	NW-20-56-22-W4M	Kalisvaart, Michael	W-NW	3.63	56.39	---	---	24.38	54.86	56.39	7.62	18.29	10-Aug-05	Domestic	New Well
113	1690036	NW-26-56-22-W4M	Braun, Steve	N-NE	3.63	84.73	---	---	76.20	82.30	35.97	19.84	28.96	17-Jul-01	Stock	New Well
114	264416	NW-28-56-22-W4M	Whaling, Robert	N-NW	3.63	51.82	---	---	---	---	51.21	6.10	12.19	11-Nov-74	Domestic	New Well
115	264719	NW-28-56-22-W4M	White	N-NW	3.63	45.11	---	---	---	---	24.08	5.49	6.10	3-Jun-75	Domestic & Stock	New Well
116	264721	NW-28-56-22-W4M	White, Larry	N-NW	3.63	24.38	---	---	---	---	0.00	---	---	8-Feb-73	Domestic	Chemistry
117	264724	NW-28-56-22-W4M	Miskuski, M.	N-NW	3.63	50.29	---	---	---	---	50.29	6.10	7.62	13-Nov-74	Domestic	New Well
118	264726	NW-28-56-22-W4M	White, Larry	N-NW	3.63	67.06	---	---	---	---	0.00	---	---	20-Sep-77	Unknown	Chemistry

TABLE 1a

Water Wells Within a 5 km Radius of NW 15-056-22 W4M

Beacon Data Centers Inc.

Heartland - NW/SW-15-056-22 W4M

Water Well Number	Well ID*	Location	Well Owner	Direction From Site	Distance From Site km**	Total Depth m	Top of Screen m	Bottom of Screen m	Top of Perforation m	Bottom of Perforation m	Bottom of Casing m	Depth to Water m	Bedrock Depth m	Date of Information	Proposed Use For Well	Type of Work
119	264617	NW-26-56-22-W4M	Maddox, H.	N-NE	3.63	7.62	---	---	---	---	0.00	---	---	22-Apr-83	Domestic	Chemistry
120	264518	NW-24-56-22-W4M	Serink, Darwin	E-NE	3.64	24.38	---	---	---	---	24.38	4.57	---	8-Oct-75	Stock	New Well
121	264523	NW-24-56-22-W4M	Serink, D.	E-NE	3.64	57.91	---	---	36.58	57.91	36.58	4.57	32.00	23-Jul-74	Domestic	New Well
122	264530	NW-24-56-22-W4M	Schnieder, Larry	E-NE	3.64	19.51	---	---	---	---	19.51	5.79	19.20	2-Aug-79	Domestic	New Well
123	159104	NW-24-56-22-W4M	Serink, Darwin	E-NE	3.64	42.67	35.36	41.45	---	---	42.67	5.49	---	24-Sep-91	Stock	New Well
124	264151	NW-12-56-22-W4M	Minchou, Clarence	E-SE	3.65	22.86	---	---	---	---	0.00	---	9.75	1-May-68	Domestic	New Well
125	264557	8-26-56-22-W4M	Ribbon, T.	NE	3.73	5.49	---	---	---	---	0.00	3.05	---	1-Jan-16	Domestic & Stock	New Well
126	264442	12-20-56-22-W4M	Michaud, A.	W-NW	3.74	18.29	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
127	263952	13-8-56-22-W4M	Lee	W-SW	3.75	57.91	---	---	---	---	0.00	---	---	19-Jun-35	Unknown	New Well
128	263897	-4-56-22-W4M	Vanderbleek, H.	S-SW	3.86	15.24	---	---	---	---	0.00	---	---	31-Mar-83	Domestic	Chemistry
129	1370028	13-28-56-22-W4M	Whaling, Geoff	N-NW	3.89	53.34	---	---	47.24	53.34	30.48	11.34	19.51	26-Nov-02	Domestic	New Well
130	264170	2-13-56-22-W4M	Berwick, C.D.	E-SE	4.00	10.67	---	---	---	---	0.00	7.62	---	1-Jan-16	Domestic & Stock	New Well
131	264844	SW-34-56-22-W4M	Leeuw, Dale	N	4.04	57.91	---	---	51.82	57.91	41.76	18.29	16.76	7-May-82	Domestic	New Well
132	42220	SW-34-56-22-W4M	Gerberski, Grey	N	4.05	79.25	---	---	67.06	73.15	0.00	14.33	29.26	3-Oct-02	Domestic	New Well
133	263867	SW-3-56-22-W4M	Melenka, Alex	S	4.05	54.86	---	---	---	---	0.00	---	---	26-Sep-68	Domestic	Chemistry
134	263948	SW-8-56-22-W4M	Mareau, Dennis	SW	4.07	45.72	---	---	30.48	44.20	30.48	25.91	18.29	7-Apr-75	Domestic	New Well
135	263950	SW-8-56-22-W4M	Moreau, Denis	SW	4.07	73.15	---	---	---	---	0.00	---	---	7-Nov-75	Domestic	Chemistry
136	264193	NE-13-56-22-W4M	Oosterhuis, H.T.	E	4.07	50.29	---	---	---	---	0.00	---	---	5-Aug-88	Unknown	Chemistry
137	264143	SW-12-56-22-W4M	Serink, Mike	SE	4.07	26.82	---	---	---	---	26.82	10.36	7.01	22-Aug-85	Domestic & Stock	New Well
138	264146	SW-12-56-22-W4M	Serink, Mike	SE	4.07	0.00	---	---	---	---	0.00	---	---	25-May-83	Domestic	Chemistry
139	264150	SW-12-56-22-W4M	Serink, Mike	SE	4.07	0.00	---	---	---	---	0.00	---	---	15-Jun-83	Domestic	Chemistry
140	264536	SW-25-56-22-W4M	Sample, L.	NE	4.07	57.91	---	---	51.82	57.91	42.67	0.00	32.00	23-Apr-74	Domestic	New Well
141	264733	NE-29-56-22-W4M	Ferguson, Garth	NW	4.07	47.24	---	---	21.34	45.72	12.80	9.14	12.19	6-Mar-75	Domestic & Stock	New Well
142	264736	NE-29-56-22-W4M	Ferguson, Garth D.	NW	4.07	11.58	---	---	---	---	0.00	---	---	5-Dec-73	Unknown	Chemistry
143	264737	NE-29-56-22-W4M	Smith, Nelson	NW	4.07	48.77	---	---	42.67	48.77	20.42	10.67	16.76	31-Mar-89	Domestic & Stock	New Well
144	1795440	SW-8-56-22-W4M	Holmes, Neil	SW	4.08	80.77	---	---	13.72	62.48	17.98	33.28	9.14	26-Oct-18	Domestic	New Well
145	290972	NE-18-56-22-W4M	Crawford, Guy	W	4.09	23.47	---	---	4.57	21.34	0.00	3.66	16.15	17-Jun-98	Domestic	New Well
146	263863	10-2-56-22-W4M	Mcpike, T.	S-SE	4.11	10.67	---	---	---	---	0.00	1.52	---	1-Jan-00	Domestic & Stock	New Well
147	152160	SE-33-56-22-W4M	Shaw, Albert	N	4.13	45.72	---	---	39.62	45.72	24.99	6.10	16.15	8-Feb-90	Domestic	New Well
148	264837	SE-33-56-22-W4M	Shaw, Thomas	N	4.13	39.62	---	---	33.53	39.62	31.70	6.10	26.21	9-Aug-83	Domestic & Stock	New Well
149	263874	SE-4-56-22-W4M	Larsow, P.	S-SW	4.14	99.06	---	---	86.87	99.06	19.81	25.91	10.67	17-Sep-74	Domestic	New Well
150	263881	SE-4-56-22-W4M	Larsen, Peter	S-SW	4.14	45.72	---	---	38.10	44.20	0.00	14.94	6.10	12-Aug-85	Domestic	New Well
151	240397	SE-4-56-22-W4M	Larsen, Peter	S-SW	4.14	96.93	---	---	39.62	45.72	0.00	32.31	6.10	25-Oct-93	Domestic	New Well
152	264498	SE-24-56-22-W4M	---	E	4.15	23.77	---	---	---	---	0.00	---	---	21-May-70	Domestic	Chemistry
153	264502	SE-24-56-22-W4M	Forster, Bob	E	4.15	23.47	---	---	---	---	4.88	6.10	15.85	23-Sep-78	Stock	New Well
154	264505	SE-24-56-22-W4M	Foster, Bob	E	4.15	19.20	---	---	---	---	19.20	1.83	---	7-Nov-79	Stock	New Well
155	264173	SE-13-56-22-W4M	Dupont Can	E-SE	4.15	35.05	32.00	35.05	---	---	32.00	13.11	16.46	3-Nov-89	Domestic	New Well
156	264168	SE-13-56-22-W4M	Bloom, B.	E-SE	4.15	60.96	---	---	---	---	0.00	---	---	9-Jun-76	Unknown	Chemistry
157	266031	SE-13-56-22-W4M	Schroter, Ron	E-SE	4.15	12.19	---	---	---	---	0.00	---	---	21-Sep-72	Domestic	Chemistry
158	264342	SE-18-56-22-W4M	Hofs, Henry	W	4.17	60.96	---	---	---	---	0.00	---	---	30-Jan-70	Unknown	Chemistry
159	264344	SE-18-56-22-W4M	Hofs, Henry	W	4.17	60.96	---	---	54.86	60.96	40.23	3.05	16.46	27-Nov-73	Stock	New Well
160	163346	SE-18-56-22-W4M	Demers, Pamela	W	4.17	53.34	---	---	---	---	0.00	---	---	11-Mar-92	Domestic	Chemistry
161	1690088	SE-18-56-22-W4M	Doblanco, Glenn & Christina	W	4.19	84.73	---	---	47.55	53.64	29.87	21.34	10.97	12-Jun-04	Domestic	New Well
162	1690089	SE-18-56-22-W4M	Doblanco, Glen & Christina	W	4.19	25.91	---	---	---	---	---	21.34	10.97	12-Jun-04	Domestic	New Well
163	266021	13-1-56-22-W4M	Yanch, J.	SE	4.33	18.29	---	---	---	---	0.00	9.14	---	1-Jan-34	Domestic & Stock	New Well
164	1130420	SW-35-56-22-W4M	Derouin, Marty & Doreen	N-NE	4.35	53.34	38.10	47.24	---	---	38.10	6.10	25.91	6-Sep-07	Domestic	New Well
165	1911957	SW-35-56-22-W4M	Thimer, Greg	N-NE	4.35	30.48	25.30	26.82	---	---	25.30	1.78	28.35	16-Apr-08	Domestic	New Well
166	167989	SW-33-56-22-W4M	Umbach, Terry	N-NW	4.36	53.34	---	---	33.53	51.82	24.99	13.72	18.59	9-Jul-92	Domestic & Stock	New Well
167	263852	SW-2-56-22-W4M	Noel, Maurice	S-SE	4.37	---	---	---	---	---	---	---	---	18-Oct-82	Domestic	Chemistry
168	163418	SW-4-56-22-W4M	Boisjoli, Gerald	S-SW	4.38	60.96	---	---	45.72	57.91	12.19	29.26	9.14	17-Dec-91	Stock	New Well
169	151761	SW-4-56-22-W4M	Boisjoli, Gerry	S-SW	4.38	63.40	---	---	48.77	63.40	63.40	37.95	10.67	20-Nov-89	Domestic	New Well
170	264163	NE-12-56-22-W4M	Puchalik, Nick	E-SE	4.39	76.20	---	---	---	---	0.00	---	---	19-Nov-70	Domestic	Chemistry
171	264410	NE-19-56-22-W4M	Wasylycha, Mike	W-NW	4.40	75.29	---	---	---	---	0.00	30.48	---	4-Feb-74	Domestic	Chemistry
172	264413	NE-19-56-22-W4M	Reed, William	W-NW	4.40	76.20	---	---	---	---	0.00	30.48	---	4-Feb-74	Domestic	Chemistry
173	263935	NE-7-56-22-W4M	Lee	W-SW	4.40	9.14	---	---	---	---	0.00	6.71	---	19-Jun-35	Domestic & Stock	New Well
174	263938	NE-7-56-22-W4M	Petherbridge, Clarence	W-SW	4.40	64.01	---	---	60.96	64.01	18.59	30.48	13.41	29-Jul-83	Domestic	New Well
175	295833	NE-19-56-22-W4M	Reed, William/Ruth	W-NW	4.40	79.25	---	---	67.06	77.72	29.87	16.76	9.45	2-Nov-00	Stock	New Well
176	265303	NW-25-56-22-W4M	Klassen, Jim#Well 1 House Well	NE	4.59	10.36	---	---	---	---	0.00	---	---	27-Apr-60	Domestic	Chemistry
177	265304	NW-25-56-22-W4M	Klassen, J.#Well 2	NE	4.59	12.80	---	---	---	---	0.00	---	---	27-Apr-60	Domestic	Chemistry

TABLE 1a

Water Wells Within a 5 km Radius of NW 15-056-22 W4M

Beacon Data Centers Inc.

Heartland - NW/SW-15-056-22 W4M

Water Well Number	Well ID*	Location	Well Owner	Direction From Site	Distance From Site km**	Total Depth m	Top of Screen m	Bottom of Screen m	Top of Perforation m	Bottom of Perforation m	Bottom of Casing m	Depth to Water m	Bedrock Depth m	Date of Information	Proposed Use For Well	Type of Work
178	264538	NW-25-56-22-W4M	Klassen, J. & A.G.	NE	4.59	14.02	---	---	---	---	0.00	---	---	22-Feb-74	Unknown	Chemistry
179	264539	NW-25-56-22-W4M	Klassen, Jim	NE	4.59	45.72	---	---	39.62	45.72	32.00	6.10	12.19	22-Aug-75	Domestic & Stock	New Well
180	264542	NW-25-56-22-W4M	Klassen, B.	NE	4.59	45.72	---	---	39.62	45.72	24.38	3.66	19.81	16-Mar-76	Domestic	New Well
181	264550	NW-25-56-22-W4M	Richards, Collen	NE	4.59	43.28	---	---	---	---	0.00	---	---	7-May-84	Unknown	Chemistry
182	264552	NW-25-56-22-W4M	Viviane, Daniels	NE	4.59	57.61	---	---	---	---	0.00	---	---	9-Jun-89	Domestic	Chemistry
183	264731	NW-29-56-22-W4M	Lecleric	NW	4.60	6.71	---	---	---	---	5.49	2.44	---	20-May-71	Domestic	New Well
184	297117	NW-29-56-22-W4M	Reid, Rick	NW	4.60	91.44	---	---	67.36	76.50	0.00	24.99	6.10	18-Jul-01	Domestic	New Well
185	263841	NW-1-56-22-W4M	Lamoureux, Renald	SE	4.62	34.44	---	---	---	---	0.00	12.19	7.92	10-Dec-87	Domestic & Stock	New Well
186	1370321	2-30-56-22-W4M	Ouellet, Darcy	W-NW	4.63	80.77	---	---	65.53	79.25	37.49	14.63	12.50	27-Apr-09	Domestic	New Well
187	263888	4-4-56-22-W4M	Boisjuilie	S-SW	4.64	64.01	---	---	---	---	0.00	24.38	---	1-Jan-21	Domestic	New Well
188	261817	16-33-55-22-W4M	Borsjoilie	S	4.72	52.43	---	---	---	---	0.00	---	---	19-Jun-35	Unknown	Federal Well Survey
189	264141	SE-12-56-22-W4M	Serink, Mike	E-SE	4.74	60.96	---	---	---	---	0.00	---	---	29-Sep-59	Unknown	Chemistry
190	263979	4-19-56-21-W4M	Taylor, J	E	4.74	15.24	---	---	---	---	0.00	9.14	---	1-Jan-21	Domestic & Stock	Federal Well Survey
191	263923	SE-7-56-22-W4M	Sprague	W-SW	4.76	10.06	---	---	---	---	0.00	4.57	---	19-Jun-35	Domestic & Stock	New Well
192	1370322	SE-30-56-22-W4M	Ouellet, Charles	W-NW	4.77	79.25	---	---	60.96	79.25	28.04	10.97	14.33	24-Apr-09	Domestic	New Well
193	264744	2-30-56-22-W4M	Ewing, S.	W-NW	4.84	5.49	---	---	---	---	0.00	---	---	19-Jun-35	Domestic & Stock	New Well
194	261844	13-35-55-22-W4M	Leclaire, L	S-SE	4.89	22.86	---	---	---	---	0.00	4.57	---	1-Jan-35	Domestic & Stock	Federal Well Survey
195	263969	NW-18-56-21-W4M	Visscher, H	E	4.90	22.86	---	---	---	---	0.00	---	---	25-Jan-84	Domestic	Chemistry
196	263970	NW-18-56-21-W4M	Visscher, H	E	4.90	12.19	---	---	---	---	0.00	---	---	17-Mar-86	Domestic	Chemistry
197	1888428	NW-18-56-22-W4M	Roberts, Gary	W	4.90	17.37	---	---	11.58	17.37	17.37	6.10	12.50	26-May-03	Domestic	New Well
198	264366	NW-18-56-22-W4M	Hofs, Henry	W	4.90	15.85	---	---	---	---	0.00	---	1.83	2-May-68	Unknown	Chemistry
199	167900	NE-33-56-22-W4M	Shaw, Albert	N	4.92	48.77	---	---	39.93	48.77	39.93	4.27	28.04	14-Jul-92	Domestic & Stock	New Well
200	263944	-7-56-22-W4M	Davis, Ken	W-SW	4.93	17.07	---	---	---	---	0.00	---	---	14-Feb-75	Domestic	Chemistry
201	263920	16-6-56-22-W4M	Prins	SW	4.93	18.29	---	---	---	---	18.29	---	---	18-Jun-67	Domestic	Chemistry
202	261827	NE-34-55-22-W4M	Holmes, S	S	4.94	45.72	---	---	---	---	0.00	36.58	---	22-Apr-82	Domestic	Chemistry
203	261828	NE-34-55-22-W4M	Holmes, R	S	4.94	39.62	---	---	27.43	39.62	28.65	22.86	9.14	25-Jan-85	Domestic	New Well
204	261818	NE-33-55-22-W4M	Goutbeck Farms Ltd	S-SW	4.95	51.82	---	---	45.72	51.82	37.19	0.00	28.96	3-Sep-82	Stock	New Well
205	261819	NE-33-55-22-W4M	Goutbeck, P.	S-SW	4.95	86.87	---	---	71.32	83.52	0.00	34.75	8.53	19-Jun-84	Domestic	New Well
206	261816	NE-33-55-22-W4M	Borsjoli, J.E.	S-SW	4.95	65.23	---	---	---	---	0.00	15.24	42.67	22-Aug-58	Domestic	New Well
207	1888431	SW-18-56-22-W4M	Brad, Neil	W	4.96	18.29	---	---	9.14	16.76	18.29	5.80	---	22-May-03	Domestic	New Well
208	264373	SW-19-56-22-W4M	Forman, D.	W	4.96	85.65	---	---	48.77	57.91	22.86	38.10	15.24	28-Feb-74	Unknown	New Well
209	264350	SW-18-56-22-W4M	Hofs, H.	W	4.96	9.75	---	---	---	---	0.00	---	---	12-Sep-68	Domestic	Chemistry
210	264351	SW-18-56-22-W4M	Hofs, Henry	W	4.96	60.96	---	---	---	---	60.96	35.05	13.72	28-Jun-88	Domestic & Stock	New Well
211	263991	SW-19-56-21-W4M	Smulski, J.	E	4.97	22.86	---	---	---	---	0.00	---	---	20-May-82	Domestic	Chemistry
212	263992	SW-19-56-21-W4M	S V Half Diamond Ranches	E	4.97	18.90	---	---	---	---	18.90	6.40	9.45	20-Jun-84	Domestic	New Well

Notes:

--- - not available

* - Government of Alberta (GoA). 2025. Alberta Water Well Information Database. Provided to Montrose Environmental Solutions Canada Inc. by the Groundwater Information Centre (GIC) October 2025. Uploaded to Prometheus Montrose Field Data Portal October 1, 2025. Accessed on November 1, 2025.

** - When no specific project location available, site location is the centre of the LSD or the centre of the quarter section when LSD is not specified. - the presence and location of these wells were not field verified by Montrose personnel.

TABLE 1b

Active Surface Water and Groundwater Licences Within a 5 km Radius of NW 15-056-22 W4M

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Licence Number	User Number	Applicant	Interim Licence Number	Approval ID	Water Allocation ID	Legal Location	Source	Quantity (m³)	PUMP RATE (Surface Water - m³/sec Ground Water - m³/day)	Consumptive Use (m³)	Specific Purpose	Licence Type	Licensed Date	Expiry Date
Groundwater Users														
1	2002-01-03-0007	Nikiforuk, Blair	00196593 00 00	196593	118236	NE-16-056-22 W4M	Unnamed Stream	311	0	311	Stockwatering	Term Licence	30-Apr-03	29-Apr-28
2	2003-08-01-0001	Five Star Poultry Ltd.	00206885 00 00	206885	131559	SW-26-056-22 W4M	Unnamed Aquifer	5346	5	5346	Stockwatering	Term Licence	26-Mar-04	25-Mar-28
3	1996-09-13-0001	Eklund, Dale Eklund, Virginia	L21177	23875	1918	NW-26-056-22 W4M	Unnamed Aquifer	2470	65.46	2470	Parks & Recreation/Campgrounds	Water Resources Interim Licence	19-Sep-96	19-Sep-99
4	1989-08-22-0006	Vermeer, Johanna Vermeer, Marinus	16400	27473	6749	NW-24-056-22 W4M	Unnamed Aquifer	2470	52.37	2470	Stockwatering	Water Resources Licence	04-Dec-89	---
5	1989-08-22-0007	Vermeer, Johanna Vermeer, Marinus	16400	27473	6750	NW-24-056-22 W4M	Unnamed Aquifer	2470	16.37	2470	Stockwatering	Water Resources Licence	04-Dec-89	---
6	1989-08-22-0008	Vermeer, Johanna Vermeer, Marinus	16400	27473	6751	NW-24-056-22 W4M	Unnamed Aquifer	3700	13.09	3700	Stockwatering	Water Resources Licence	04-Dec-89	---
7	2009-09-01-0001	Access Pipeline Inc.	---	263157	200471	SW-18-56-21 W4M	Unnamed Aquifer - Potable	836	135.8	836	Upstream Hydrostatic Testing & Pipeline Construction & Operation	Term Licence	25-Oct-19	20-Sep-29
Surface Water Users														
1	2025-03-26-0002	Sturgeon County	---	DAUT0022418	DRALOC0024377	SE-17-056-22 W4M	Opal Pit Dugout	1400	0.01083	1400	Public Roads, Civil Infrastructure & Telecom	Term Licence	09-May-25	31-Dec-35
2	20120203002	Evonik Canada Inc.	---	DAUT0016310	DRALOC0012376	SE-13-056-22 W4M	Surface Runoff	50000	0.0038	50000	Petrochemical, Chemical & Fertilizer Plants	Term Licence	23-May-24	18-Apr-32
3	1973-07-19-002	Sturgeon County	---	DAUT0023777	DRALOC0027698	SW-21-056-22 W4M	Tributary to the North Saskatchewan River	111015	0	49340	Irrigation (Private)	Term Licence	25-Jul-25	---
4	---	Sturgeon County	---	DAUT0023777	DRALOC0027765	NW-21-056-22 W4M	---	0	---	0	Irrigation (Private)	Term Licence	25-Jul-25	---

Notes:

- - not available
- Government of Alberta (GoA). 2025. *Environmental Record Viewer (ERV) - Water Act*. Accessed in November 7, 2025.
- this information was extracted directly from an existing database and was not verified by Montrose personnel

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC001 APCA	LC001 Bmgj	LC001 C	LC003 Ap	LC003 Bm	LC003 Cgj	LC005 Ap	LC005 Bm	LC005 C	LC006 Ap	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.37	0.37-0.6	0.6-1	0-0.31	0.31-0.45	0.45-1	0-0.32	0.32-0.55	0.55-1	0-0.26	
Sample Date	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	
MSI Sample Number	41688250930001	41688250930002	41688250930003	41688250930004	41688250930005	41688250930006	41688250930007	41688250930008	41688250930009	41688250930010	
Salinity											
Lab pH CaCl ₂	7.7	7.6	7.4	7.4	7.4	7.5	6.4	7.5	7.6	4.7	6-8.5 ^{ES}
Lab pH 1:2	7.7	7.6	7.4	7.4	7.4	7.5	6.4	7.5	7.6	4.7	6-8.5 ^{ES}
Lab EC dS/m	1.82	1.21	0.75	0.61	0.36	0.3	0.45	0.52	0.62	0.37	*
SAR	2.5	1.7	1.2	0.5	0.9	1.1	0.4	0.1	0.2	0.2	*
Soluble Ions											
Ca:Na Ratio	1.29	1.53	1.61	4.32	1.57	1.01	5.31	17.10	11.23	7.37	NS
Na mg/kg	95	46	24	20	19	15	7	3	4	3	NS
Ca mg/kg	123	71	39	86	30	15	37	51	45	22	NS
Mg mg/kg	34	17	9	17	8	5	6	10	20	4	NS
K mg/kg	<1	<1	1	3	1	1	2	<1	2	5	NS
Cl mg/kg	125	95	48	29	20	10	14	20	32	10	NS
SO ₄ mg/kg	337	154	86	102	42	36	35	43	85	26	NS
Saturation %	63	56	54	91	70	57	66	64	68	57	NS
Physical and Aggregate Properties											
TOC %	3.46	0.53	0.21	6.03	1.8	0.54	0.76	2.19	0.58	1.22	NS
CaCO ₃ Equivalent %	5.25	4.96	---	0.91	0.36	---	0.32	0.88	---	<0.20	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	46	48	70	48	50	50	48	44	40	52	NS
Silt %	35	33	17	41	37	34	37	37	39	33	NS
Clay %	19	19	13	11	13	16	15	19	21	15	NS
Classification (CSCC)	Loam	Loam	Sandy Loam	Loam	Loam	Loam	Loam	Loam	Loam	Loam	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSCC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics* - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC006 Bm	LC006 Ck	LC009 Ap	LC009 Ck	LC010 Ap	LC010 Bm	LC010 C	LC013 Apk	LC013 Bmk	LC013 Ckgj	Alberta Tier 1 - Agricultural*
Depth (m)	0.26-0.53	0.53-1	0-0.29	0.29-1	0-0.29	0.29-0.55	0.55-1	0-0.28	0.28-0.41	0.41-0.9	
Sample Date	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	
MSI Sample Number	41688250930011	41688250930012	41688250930013	41688250930014	41688250930015	41688250930016	41688250930017	41688250930018	41688250930019	41688250930020	
Salinity											
Lab pH CaCl ₂	7.0	7.4	6.9	7.6	5.9	7.3	7.5	7.6	7.7	6.9	6-8.5 ^{ES}
Lab pH 1:2	7.0	7.4	6.9	7.6	5.9	7.3	7.5	7.6	7.7	6.9	6-8.5 ^{ES}
Lab EC dS/m	0.3	0.37	0.5	0.42	0.45	0.46	0.37	0.96	0.92	0.37	*
SAR	0.2	0.2	0.4	0.3	1.3	3.4	2.6	1.2	1.9	1.6	*
Soluble Ions											
Ca:Na Ratio	9.20	11.23	5.18	6.02	1.12	0.35	0.38	2.39	1.25	0.83	NS
Na mg/kg	3	3	8	6	23	39	32	41	42	20	NS
Ca mg/kg	28	34	41	36	26	14	12	98	53	17	NS
Mg mg/kg	5	5	7	9	7	3	4	19	11	4	NS
K mg/kg	2	2	2	2	9	1	1	3	1	2	NS
Cl mg/kg	5	11	17	12	36	10	20	20	32	9	NS
SO ₄ mg/kg	13	10	36	34	49	35	20	78	75	28	NS
Saturation %	63	56	56	62	68	54	63	70	52	52	NS
Physical and Aggregate Properties											
TOC %	0.44	0.41	1.66	0.54	3.88	1.73	0.61	3.83	1.41	0.08	NS
CaCO ₃ Equivalent %	0.23	---	0.35	---	0.47	0.32	---	4.19	5.55	---	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	62	62	50	49	46	57	64	50	68	78	NS
Silt %	27	27	31	30	35	28	21	33	17	13	NS
Clay %	11	11	19	21	19	15	15	17	15	9	NS
Classification (CSCC)	Sandy Loam	Sandy Loam	Loam	Loam	Loam	Sandy Loam	Sandy Loam	Loam	Sandy Loam	Sandy Loam	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Subsoil	Subsoil	Topsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSCC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC015 Ap	LC015 Bm	LC015 BC	LC015 Ck	LC016 Ap	LC016 Bm	LC016 C	LC019 Ap	LC019 Bm	LC019 Cg	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.16	0.16-0.6	0.6-1	1-1.2	0-0.31	0.31-0.65	0.65-1	0-0.45	0.45-0.65	0.65-1	
Sample Date	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	
MSI Sample Number	41688251001021	41688251001022	41688251001023	41688251001024	41688251001025	41688251001026	41688251001027	41688251001031	41688251001032	41688251001033	
Salinity											
Lab pH CaCl ₂	6.4	6.7	7.4	7.7	5.3	5.9	5.9	6.3	6.9	7.4	6-8.5 ^{ES}
Lab pH 1:2	6.4	6.7	7.4	7.7	5.3	5.9	5.9	6.3	6.9	7.4	6-8.5 ^{ES}
Lab EC dS/m	0.41	0.17	0.41	0.4	0.18	0.14	0.12	0.43	0.27	0.33	*
SAR	0.1	0.2	0.2	0.2	0.1	0.3	0.4	0.1	0.5	1.3	*
Soluble Ions											
Ca:Na Ratio	18.55	5.83	8.24	9.58	11.20	3.65	2.33	19.67	2.74	0.89	NS
Na mg/kg	2	3	5	5	1	2	3	3	8	14	NS
Ca mg/kg	37	18	41	48	11	7	7	59	22	13	NS
Mg mg/kg	8	3	5	5	2	2	2	8	8	4	NS
K mg/kg	11	1	2	2	4	<1	1	5	1	1	NS
Cl mg/kg	7	6	6	7	3	6	3	3	4	5	NS
SO ₄ mg/kg	21	10	9	13	19	9	12	15	11	16	NS
Saturation %	65	63	57	63	51	46	55	68	63	41	NS
Physical and Aggregate Properties											
TOC %	2.6	2.09	1.14	1.03	0.86	0.62	0.42	2.33	0.19	0.11	NS
CaCO ₃ Equivalent %	<0.20	0.24	---	---	<0.20	<0.20	---	0.27	0.25	---	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	71	56	59	62	74	72	80	69	70	80	NS
Silt %	18	28	29	27	17	19	11	24	16	13	NS
Clay %	11	16	12	11	9	9	9	7	14	7	NS
Classification (CSCC)	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Topsoil	Subsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSCC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC021 Apk	LC021 Bkg	LC021 Ckg	LC022 Apk	LC022 Ckg	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.38	0.38-0.6	0.6-1	0-0.52	0.52-1.2	
Sample Date	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	
MSI Sample Number	41688251001034	41688251001035	41688251001036	41688251001037	41688251001038	
Salinity						
Lab pH CaCl ₂	7.0	7.4	7.4	7.3	7.8	6-8.5 ^{ES}
Lab pH 1:2	7.0	7.4	7.4	7.3	7.8	6-8.5 ^{ES}
Lab EC dS/m	5.49	4.78	5.08	3.02	2.41	*
SAR	6.9	4.8	5.1	1.1	1.8	*
Soluble Ions						
Ca:Na Ratio	0.70	1.01	0.91	5.15	1.74	NS
Na mg/kg	1080	356	301	145	65	NS
Ca mg/kg	753	358	275	747	113	NS
Mg mg/kg	337	182	140	224	64	NS
K mg/kg	20	10	20	<10	7	NS
Cl mg/kg	25	2	2	15	5	NS
SO ₄ mg/kg	4820	2140	1770	2570	568	NS
Saturation %	141	63	52	125	43	NS
Physical and Aggregate Properties						
TOC %	9.87	0.88	0.34	10.86	0.46	NS
CaCO ₃ Equivalent %	7.12	6.2	---	>25.00	---	NS
CEC meq/100g	---	---	---	---	---	NS
Sand %	52	46	50	52	51	NS
Silt %	39	25	28	43	34	NS
Clay %	9	29	22	5	15	NS
Classification (CSSC)	Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Loam	NS
Soil Quality Guidelines for Salinity*						
Soil Horizon	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	-
Salinity Rating	Poor	Fair	Poor	Fair	Good	-
Sodicity Rating	Fair	Fair	Fair	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSSC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

Appendix E - Soil Quality Results

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC001 Apca	LC001 Bmgj	LC001 C	LC003 Ap	LC003 Bm	LC003 Cgj	LC005 Ap	LC005 Bm	LC005 C	LC006 Ap	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.37	0.37-0.6	0.6-1	0-0.31	0.31-0.45	0.45-1	0-0.32	0.32-0.55	0.55-1	0-0.26	
Sample Date	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	
MSI Sample Number	41688250930001	41688250930002	41688250930003	41688250930004	41688250930005	41688250930006	41688250930007	41688250930008	41688250930009	41688250930010	
Salinity											
Lab pH CaCl ₂	7.7	7.6	7.4	7.4	7.4	7.5	6.4	7.5	7.6	4.7	6-8.5 ^{ES}
Lab pH 1:2	7.7	7.6	7.4	7.4	7.4	7.5	6.4	7.5	7.6	4.7	6-8.5 ^{ES}
Lab EC dS/m	1.82	1.21	0.75	0.61	0.36	0.3	0.45	0.52	0.62	0.37	*
Soluble Ions											
Ca:Na Ratio	1.29	1.53	1.61	4.32	1.57	1.01	5.31	17.10	11.23	7.37	NS
Na mg/kg	95	46	24	20	19	15	7	3	4	3	NS
Ca mg/kg	123	71	39	86	30	15	37	51	45	22	NS
Mg mg/kg	34	17	9	17	8	5	6	10	20	4	NS
K mg/kg	<1	<1	1	3	1	1	2	<1	2	5	NS
Cl mg/kg	125	95	48	29	20	10	14	20	32	10	NS
SO ₄ mg/kg	337	154	86	102	42	36	35	43	85	26	NS
Saturation %	63	56	54	91	70	57	66	64	68	57	NS
Physical and Aggregate Properties											
TOC %	3.46	0.53	0.21	6.03	1.8	0.54	0.76	2.19	0.58	1.22	NS
CaCO ₃ Equivalent %	5.25	4.96	---	0.91	0.36	---	0.32	0.88	---	<0.20	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	46	48	70	48	50	50	48	44	40	52	NS
Silt %	35	33	17	41	37	34	37	37	39	33	NS
Clay %	19	19	13	11	13	16	15	19	21	15	NS
Classification (CSSC)	Loam	Loam	Sandy Loam	Loam	Loam	Loam	Loam	Loam	Loam	Loam	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSSC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC006 Bm	LC006 Ck	LC009 Ap	LC009 Ck	LC010 Ap	LC010 Bm	LC010 C	LC013 Apk	LC013 Bmk	LC013 Ckgj	Alberta Tier 1 - Agricultural*
Depth (m)	0.26-0.53	0.53-1	0-0.29	0.29-1	0-0.29	0.29-0.55	0.55-1	0-0.28	0.28-0.41	0.41-0.9	
Sample Date	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	30-Sep-25	
MSI Sample Number	41688250930011	41688250930012	41688250930013	41688250930014	41688250930015	41688250930016	41688250930017	41688250930018	41688250930019	41688250930020	
Salinity											
Lab pH CaCl ₂	7.0	7.4	6.9	7.6	5.9	7.3	7.5	7.6	7.7	6.9	6-8.5 ^{ES}
Lab pH 1:2	7.0	7.4	6.9	7.6	5.9	7.3	7.5	7.6	7.7	6.9	6-8.5 ^{ES}
Lab EC dS/m	0.3	0.37	0.5	0.42	0.45	0.46	0.37	0.96	0.92	0.37	*
Soluble Ions											
Ca:Na Ratio	9.20	11.23	5.18	6.02	1.12	0.35	0.38	2.39	1.25	0.83	NS
Na mg/kg	3	3	8	6	23	39	32	41	42	20	NS
Ca mg/kg	28	34	41	36	26	14	12	98	53	17	NS
Mg mg/kg	5	5	7	9	7	3	4	19	11	4	NS
K mg/kg	2	2	2	2	9	1	1	3	1	2	NS
Cl mg/kg	5	11	17	12	36	10	20	20	32	9	NS
SO ₄ mg/kg	13	10	36	34	49	35	20	78	75	28	NS
Saturation %	63	56	56	62	68	54	63	70	52	52	NS
Physical and Aggregate Properties											
TOC %	0.44	0.41	1.66	0.54	3.88	1.73	0.61	3.83	1.41	0.08	NS
CaCO ₃ Equivalent %	0.23	---	0.35	---	0.47	0.32	---	4.19	5.55	---	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	62	62	50	49	46	57	64	50	68	78	NS
Silt %	27	27	31	30	35	28	21	33	17	13	NS
Clay %	11	11	19	21	19	15	15	17	15	9	NS
Classification (CSSC)	Sandy Loam	Sandy Loam	Loam	Loam	Loam	Sandy Loam	Sandy Loam	Loam	Sandy Loam	Sandy Loam	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Subsoil	Subsoil	Topsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSSC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12
- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.

Heartland - NW/SW-15-056-22 W4M

Sample Point	LC015 Ap	LC015 Bm	LC015 BC	LC015 Ck	LC016 Ap	LC016 Bm	LC016 C	LC019 Ap	LC019 Bm	LC019 Cg	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.16	0.16-0.6	0.6-1	1-1.2	0-0.31	0.31-0.65	0.65-1	0-0.45	0.45-0.65	0.65-1	
Sample Date	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	
MSI Sample Number	41688251001021	41688251001022	41688251001023	41688251001024	41688251001025	41688251001026	41688251001027	41688251001031	41688251001032	41688251001033	
Salinity											
Lab pH CaCl ₂	6.4	6.7	7.4	7.7	5.3	5.9	5.9	6.3	6.9	7.4	6-8.5 ^{ES}
Lab pH 1:2	6.4	6.7	7.4	7.7	5.3	5.9	5.9	6.3	6.9	7.4	6-8.5 ^{ES}
Lab EC dS/m	0.41	0.17	0.41	0.4	0.18	0.14	0.12	0.43	0.27	0.33	*
Soluble Ions											
Ca:Na Ratio	18.55	5.83	8.24	9.58	11.20	3.65	2.33	19.67	2.74	0.89	NS
Na mg/kg	2	3	5	5	1	2	3	3	8	14	NS
Ca mg/kg	37	18	41	48	11	7	7	59	22	13	NS
Mg mg/kg	8	3	5	5	2	2	2	8	8	4	NS
K mg/kg	11	1	2	2	4	<1	1	5	1	1	NS
Cl mg/kg	7	6	6	7	3	6	3	3	4	5	NS
SO ₄ mg/kg	21	10	9	13	19	9	12	15	11	16	NS
Saturation %	65	63	57	63	51	46	55	68	63	41	NS
Physical and Aggregate Properties											
TOC %	2.6	2.09	1.14	1.03	0.86	0.62	0.42	2.33	0.19	0.11	NS
CaCO ₃ Equivalent %	<0.20	0.24	---	---	<0.20	<0.20	---	0.27	0.25	---	NS
CEC meq/100g	---	---	---	---	---	---	---	---	---	---	NS
Sand %	71	56	59	62	74	72	80	69	70	80	NS
Silt %	18	28	29	27	17	19	11	24	16	13	NS
Clay %	11	16	12	11	9	9	9	7	14	7	NS
Classification (CSSC)	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	NS
Soil Quality Guidelines for Salinity*											
Soil Horizon	Topsoil	Subsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	Subsoil	-
Salinity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
- NS - not specified
- ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
- CSSC - *The Canadian System of Soil Classification* (SCWG 1998)
- * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
- Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
- Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
- Fair topsoil** - EC 2 to 4 dS/m; SAR 4 to 8
- Poor topsoil** - EC 4 to 8 dS/m; SAR 8 to 12
- Unsuitable topsoil** - EC >8 dS/m; SAR >12

- Good subsoil** - EC <3 dS/m; SAR <4
- Fair subsoil** - EC 3 to 5 dS/m; SAR 4 to 8
- Poor subsoil** - EC 5 to 10 dS/m; SAR 8 to 12
- Unsuitable subsoil** - EC >10 dS/m; SAR >12

TABLE 2

Soil Quality Results

Beacon Data Centers Inc.
Heartland - NW/SW-15-056-22 W4M

Sample Point	LC021 Apk	LC021 Bkg	LC021 Ckg	LC022 Apk	LC022 Ckg	Alberta Tier 1 - Agricultural*
Depth (m)	0-0.38	0.38-0.6	0.6-1	0-0.52	0.52-1.2	
Sample Date	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	01-Oct-25	
MSI Sample Number	41688251001034	41688251001035	41688251001036	41688251001037	41688251001038	
Salinity						
Lab pH CaCl ₂	7.0	7.4	7.4	7.3	7.8	6-8.5 ^{ES}
Lab pH 1:2	7.0	7.4	7.4	7.3	7.8	6-8.5 ^{ES}
Lab EC dS/m	5.49	4.78	5.08	3.02	2.41	*
Soluble Ions						
Ca:Na Ratio	0.70	1.01	0.91	5.15	1.74	NS
Na mg/kg	1080	356	301	145	65	NS
Ca mg/kg	753	358	275	747	113	NS
Mg mg/kg	337	182	140	224	64	NS
K mg/kg	20	10	20	<10	7	NS
Cl mg/kg	25	2	2	15	5	NS
SO ₄ mg/kg	4820	2140	1770	2570	568	NS
Saturation %	141	63	52	125	43	NS
Physical and Aggregate Properties						
TOC %	9.87	0.88	0.34	10.86	0.46	NS
CaCO ₃ Equivalent %	7.12	6.2	---	>25.00	---	NS
CEC meq/100g	---	---	---	---	---	NS
Sand %	52	46	50	52	51	NS
Silt %	39	25	28	43	34	NS
Clay %	9	29	22	5	15	NS
Classification (CSSC)	Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Loam	NS
Soil Quality Guidelines for Salinity*						
Soil Horizon	Topsoil	Subsoil	Subsoil	Topsoil	Subsoil	-
Salinity Rating	Poor	Fair	Poor	Fair	Good	-
Sodicity Rating	Good	Good	Good	Good	Good	-

Notes:

- - not analyzed
 - NS - not specified
 - ^{ES} - indicates guideline for Direct Soil Contact (ecological) exposure pathway
 - CSSC - *The Canadian System of Soil Classification* (SCWG 1998)
 - * - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (EPA 2024)
 - Bold** - EC and/or SAR values do not meet the "good" topsoil rating category (EPA 2024)
 - Bold** - EC and/or SAR values do not meet the "good" subsoil rating category (EPA 2024)
 - Italics** - indicates values do not meet applicable guidelines
- Good topsoil** - EC <2 dS/m; SAR <4
Fair topsoil - EC 2 to 4 dS/m; SAR 4 to 8
Poor topsoil - EC 4 to 8 dS/m; SAR 8 to 12
Unsuitable topsoil - EC >8 dS/m; SAR >12
- Good subsoil** - EC <3 dS/m; SAR <4
Fair subsoil - EC 3 to 5 dS/m; SAR 4 to 8
Poor subsoil - EC 5 to 10 dS/m; SAR 8 to 12
Unsuitable subsoil - EC >10 dS/m; SAR >12