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INITIAL PROJECT DESCRIPTION
Flipi Gas-Fired Generation Project

December 23, 2025

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December 23 2025

Andrea Ortega
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Re: Initial Project Description
Flipi Gas-Fired Generation Project

Attached is the Initial Project Description prepared for the Flipi Gas-Fired Generation Project.

We trust this to be satisfactory at this time. If you have any questions, please contact us.

Thank you,

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TABLE OF CONTENTS

page

PART A: GENERAL INFORMATION 1
1.0 PROJECT INFORMATION 1
1.1 Project Location 3
1.1.1 Ancillary Facilities 3
1.1.1.1 Natural Gas Pipeline 3
1.1.1.2 Transmission Line and Substation 4
1.1.2 Alternative Project Locations 4
2.0 PROPONENT INFORMATION 6
3.0 ENGAGEMENT WITH THE PUBLIC, REGULATORY AGENCIES, AND OTHER PARTIES 6
3.1 Participant Involvement Program Materials 8
3.2 List of Regulatory Agencies, Public, & Other Parties Engaged 10
3.3 Regulatory Requirements of Federal, Provincial, & Municipal Jurisdictions 11
3.3.1 Impact Assessment Agency of Canada 11
3.3.2 Environment & Climate Change Canada 12
3.3.3 NAV Canada 12
3.3.4 Transport Canada 12
3.3.5 Alberta Environment & Protected Areas 12
3.3.6 Alberta Utilities Commission 14
3.3.7 Alberta Arts, Culture, & Status of Women 15
3.3.8 Municipalities 15
3.4 Overview of Key Comments & Concerns Expressed by Stakeholders 15
3.4.1 Landowners & Occupants 15
3.4.2 Federal & Provincial Regulators 19
3.4.3 Municipalities 19
3.4.4 Industrial Interest Holders 19
3.5 Ongoing Engagement Activities & Future Engagement Plans 20
4.0 ENGAGEMENT WITH INDIGENOUS COMMUNITIES 20
4.1 Provincial Consultation Office Requirements 20
4.2 Impact Assessment Agency of Canada Requirements 20
4.3 List of Potentially Affected & Interested Indigenous Communities 20
4.4 Engagement Completed by KEC Prior to Purchase by TransAlta 21
4.4.1 Detailed Engagement with Indigenous Communities 22
4.4.2 Comments or Concerns Expressed by Indigenous Communities 26
4.5 Engagement Conducted by TransAlta Following Project Purchase 29
4.5.1 Detailed Engagement with Indigenous Communities 29
4.5.2 Comments or Concerns Expressed by Indigenous Communities 32
4.6 Future Engagement Plan 32
5.0 RELEVANT STUDIES OR REGIONAL ASSESSMENTS CONDUCTED 33
6.0 RELEVANT STRATEGIC ASSESSMENTS CONDUCTED 33
PART B: PROJECT INFORMATION 34
7.0 PURPOSE & NEED FOR THE PROJECT 34
8.0 PHYSICAL ACTIVITY 34

9.0 ACTIVITIES, COMPONENTS, & INFRASTRUCTURE 35
9.1 Infrastructure & Components 35
9.1.1 Size of the Designated Project Footprint 35
9.1.2 Project Area Access 35
9.1.3 Natural Gas Supply 36
9.1.4 Electrical Interconnection 37
9.1.5 Water Supply 37
9.1.6 Project Processes 37
9.1.7 Buildings & Enclosures 39
9.1.8 Equipment 40
9.1.9 Existing Infrastructure 41
9.2 Project Activities 41
9.2.1 Site Preparation 41
9.2.2 Construction 41
9.2.3 Operations & Maintenance 43
9.2.4 Decommissioning & Reclamation 43
9.3 Physical Activities Incidental to the Project Within TransAlta's Control 43
9.4 Physical Activities Associated with the Project Outside TransAlta's Control 44
9.5 Project Expansion 44
10.0 MAXIMUM PRODUCTION CAPACITY 44
11.0 ANTICIPATED CONSTRUCTION, OPERATION, & DECOMMISSIONING SCHEDULES 44
12.0 ALTERNATIVES TO THE PROJECT 45
12.1 Alternative Locations 45
12.2 Alternative Means for Natural Gas Supply 45
12.3 Alternative Technologies 45
12.4 Technical Alternatives to the Project 45
PART C: LOCATION INFORMATION & CONTEXT 47
13.0 PROJECT LOCATION DESCRIPTION 47
13.1 Geographic Coordinates & Description 47
13.2 Site Maps 47
13.3 Legal Land Description 47
13.4 Proximity to Residences 47
13.5 Proximity to Indigenous Lands 47
13.6 Proximity to Federal Lands 48
14.0 PHYSICAL & BIOLOGICAL ENVIRONMENT 49
14.1 Desktop Review 49
14.1.1 Aerial Photography 50
14.1.1.1 Google Earth 50
14.1.1.2 AbaData 50
14.1.2 Ecoregion 51
14.1.2.1 Dry Mixedwood Subregion 51
14.1.3 Alberta Conservation Information Management System Results 51
14.1.4 Fish & Wildlife Internet Mapping Tool Search Results 51
14.1.5 Key Wildlife & Biodiversity Zone 52
14.1.6 Wildlife Sensitivity Ranges 52
14.1.7 Fish & Fish Species 52

14.1.8 Canada Land Inventory 52
14.1.8.1 Waterfowl 52
14.1.8.2 Ungulates 52
14.1.9 Wildlife Sanctuaries 53
14.1.10 Provincial Protected Areas 53
14.1.11 National Parks 53
14.1.12 Critical Wildlife Habitat 53
14.1.13 Environmentally Significant Areas 53
14.1.14 Important Bird Area 54
14.2 Valued Components 54
14.2.1 Air Quality 55
14.2.1.1 Baseline Conditions 55
14.2.1.2 Potential Effects 55
14.2.1.3 Mitigation Measures 55
14.2.2 Noise 56
14.2.2.1 Baseline Conditions 56
14.2.2.2 Potential Effects 56
14.2.2.3 Mitigation Measures 56
14.2.3 Land Use 56
14.2.3.1 Baseline Conditions 56
14.2.3.2 Potential Effects 56
14.2.3.3 Mitigation Measures 56
14.2.4 Vegetation 57
14.2.4.1 Baseline Conditions 57
14.2.4.2 Potential Effects 59
14.2.4.3 Mitigation Measures 59
14.2.5 Soils 59
14.2.5.1 Baseline Conditions 59
14.2.5.2 Potential Effects 61
14.2.5.3 Mitigation Measures 61
14.2.6 Groundwater 64
14.2.6.1 Baseline Conditions 64
14.2.6.2 Potential Effects 64
14.2.7 Wildlife 66
14.2.7.1 Baseline Conditions 66
14.2.7.2 Potential Effects 71
14.2.7.3 Mitigation Measures 72
14.2.8 Watercourses, Waterbodies, & Wetlands 72
14.2.8.1 Baseline Conditions 72
14.2.8.2 Potential Effects 73
14.2.8.3 Mitigation Measures 73
15.0 HEALTH, SOCIAL, & ECONOMIC CONTEXT 74
15.1 Gender Based Analysis Plus 76
PART D: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS, & MUNICIPAL INVOLVEMENT 79
16.0 FEDERAL FINANCIAL SUPPORT 79
17.0 FEDERAL LANDS USED FOR THE PROJECT 79

18.0 FEDERAL, PROVINCIAL, LEGISLATIVE OR OTHER REGULATORY REQUIREMENTS 79
PART E: POTENTIAL EFFECTS OF THE PROJECT 81
19.0 IMPACTS TO ENVIRONMENTAL COMPONENTS 81
19.1 Fish & Fish Habitat 81
19.2 Aquatic Species 81
19.3 Migratory Birds 81
20.0 POTENTIAL ENVIRONMENTAL IMPACTS ON FEDERAL LANDS, IN OTHER PROVINCES, OR OUTSIDE OF CANADA 82
20.1 Federal Lands 82
20.2 Other Canadian Provinces 82
20.3 Outside of Canada 83
21.0 POTENTIAL ENVIRONMENTAL IMPACTS ON INDIGENOUS PEOPLES 83
21.1 Physical & Cultural Heritage 83
21.2 Current Use of Lands & Resources for Traditional Purposes 83
21.2.1 Hunting 84
21.2.2 Plant Gathering 84
21.2.3 Fishing 85
21.2.4 Trapping 85
21.2.5 Use of Navigable Waters 85
21.2.6 Recreational Use 85
21.2.7 Commercial Use of the Lands by Indigenous Communities 85
21.3 Sites & Structures of Historical, Archaeological, Paleontological or Architectural Significance 85
22.0 POTENTIAL HEALTH, SOCIAL, OR ECONOMIC IMPACTS ON INDIGENOUS PEOPLES 86
22.1 Health & Social Impacts on Indigenous Peoples 86
22.2 Economic Impacts on Indigenous Peoples 88
23.0 GREENHOUSE GAS EMISSIONS ESTIMATE 88
24.0 EMISSIONS, DISCHARGE, & WASTE 89
24.1 Atmospheric Emissions 89
24.1.1 Operational Emissions 89
24.1.2 Fugitive Emissions 89
24.1.3 Dust 91
24.1.4 Odour 91
24.1.5 Noise 91
24.2 Surface Runoff 91
24.3 Industrial Wastewater 92
24.4 Domestic Waste 93
24.5 Operational Waste 93
PART F: SUMMARY 94
25.0 INITIAL PROJECT DESCRIPTION SUMMARY 94
26.0 STATEMENT OF QUALIFICATIONS & LIMITATIONS 95
27.0 REFERENCES 97

LIST OF TABLES

Table 2.1: Proponent and Primary Representative Contact Information 6
Table 4.1: Concerns Expressed by Indigenous Communities in Discussions with KEC 26
Table 4.2: Summary of TransAlta Engagement with Indigenous Communities 30
Table 9.1: Buildings and Enclosures 39
Table 9.2: Major Equipment at the Project 40
Table 9.3: Typical Construction Phases 41
Table 11.1: Project Timelines 45
Table 14.1: Vegetation Identified within the Project Area 57
Table 14.2: Sampled Soil Depths in the Project Area 59
Table 14.3: Soil Series and Land Suitability Rating within the Project Area 60
Table 14.4: General Soils Management 62
Table 14.5: Avifauna Identified During the 2023 and 2025 Breeding Bird Surveys 70
Table 24.1: Fugitive Emissions Estimates 90

LIST OF APPENDICES

Appendix A: Concordance Table
Appendix B: Project Location Drawings
Appendix C: Participant Involvement Program & TransAlta's Supplemental Stakeholder and Rights-Holder Engagement Report
Appendix D: Determination of an Environmental Impact Assessment
Appendix E: Air Quality Assessment
Appendix F: Noise Impact Assessment
Appendix G: Historical Resources Act Clearance
Appendix H: Survey Plan
Appendix I: Plot Plan
Appendix J: ACIMS Results
Appendix K: FWMIT Results
Appendix L: Environmental Protection Plan and Conservation and Reclamation Plan (EPP/C&R)
Appendix M: Emergency Response Plan - Preliminary
Appendix N: Environmental Summary Report 2023 & Environmental Summary Report 2025
Appendix O: Emissions Intensity Report

LIST OF ACRONYMS

Acronym	Definition
2S+	Two-Spirit and related identities
2SLGBTQI+	Inclusive acronym that represents Two-Spirit, lesbian, gay, bisexual, transgender, queer, intersex, and additional people who identify as part of sexual and gender diverse communities
AAAQO	Alberta Ambient Air Quality Objective
ABMI	Alberta Biodiversity Monitoring Institute
ACC	Air-Cooled Condenser
ACIMS	Alberta Conservation Information Management System
ACO	Aboriginal Consultation Office
AEPA	Alberta Environment and Protected Areas
AER	Alberta Energy Regulator
AESO	Alberta Electric System Operator
AGRASID	Agricultural Region of Alberta Soil Inventory Database
AHS	Alberta Health Services
AIES	Alberta Interconnected Electric System
AQA	Air Quality Assessment
AUC	Alberta Utilities Commission
BTES	Bear Tracks Environmental Services (2015) Ltd.
CAAQS	Canadian Ambient Air Quality Standards
CEMS	Continuous Emissions Monitoring System
CEO	Chief Executive Officer
cm	Centimetre
CO	Carbon monoxide
CO_2	Carbon dioxide
CTG	Combustion Turbine Generator
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	Canadian Standards Association
dBA	Decibels
ECCC	Environment and Climate Change Canada
EMF	Electromagnetic Fields
ERP	Emergency Response Plan
EPC	Engineering, Procurement, and Construction
EO	Element Occurrences
EPEA	*Environmental Protection and Enhancement Act,* R.S.A. 2000, c. E-12
EPP/C&R	Environmental Protection Plan and Conservation and Reclamation Plan

Acronym	Definition
ESA	Environmentally Significant Area
ft	Feet
FWIMT	Alberta Fish and Wildlife Internet Mapping Tool
GBA Plus	Gender Based Analysis Plus
GHG	Greenhouse gas
GIS	Geographic Information System
ha	Hectares
HP	High Pressure
HRA	*Historical Resources Act,* R.S.A. 2000, c. H-9
HRIA	Historical Resources Impact Assessment
HRSG	Heat Recovery Steam Generator
HV	High voltage
HVAC	Heating, Ventilation, and Air Conditioning
IAA	*Impact Assessment Act,* S.C. 2019, c. 28, s. 1
IAAC	Impact Assessment Agency of Canada
IBA	Important Bird Area
IP	Intermediate Pressure
IWC	Indigenous Wellness Core
KEC	Kiwetinohk Energy Corporation
km	Kilometre
km^2	Square kilometre
kV	Kilovolt
LAIRT	Landscape Analysis Indigenous Relations Tool
LGA	Local Geographic Area
LP	Low-Pressure
LSRS	Land Suitability Rating System
LV	Low Voltage
m	Metres
m^3	Cubic metres
men+	Men (and/or boys), as well as some non-binary persons
MGLC	Maximum ground level concentration
MW	Megawatt
MV	Medium voltage
NH_3	Ammonia
NIA	Noise Impact Assessment
NO_2	Nitrogen dioxide

Acronym	Definition
NO	Nitric oxide
NO_x	Nitrogen oxides
OPaC	Online Permitting and Clearance
O_2	Oxygen
PDC	Power Distribution Center
PIP	Participant Involvement Program
$PM_{2.5}$	Particulate matter
POI	Point of interconnection
PSIP	Project Specific Information Package
PSL	Permissible Sound Level
Q	Quarter
RH	Reheat
ROW	Right of way
RWDI	Rowan Williams Davies & Irwin Inc.
SCR	Selective Catalytic Reduction
STG	Steam Turbine Generator
tCO_2/GWh	Tonnes of carbon dioxide per gigawatt hour
TransAlta	TransAlta Corporation
TSP	Total suspended particulate matter
VC	Valued Component
women+	Women (and/or girls), as well as some non-binary persons
°	Degree
%	Percent

PART A: GENERAL INFORMATION

TransAlta Corporation (TransAlta, or the "Proponent") is proposing to permit, construct, and operate the 460-megawatt (MW) Flipi Gas-Fired Generation Project (the "Project"). The Project is located on private land, approximately 18 kilometres (km) southwest of the Town of Rimbey, Alberta.

This Initial Project Description has been prepared in accordance with the Impact Assessment Agency of Canada (IAAC) Guide to Preparing an Initial Project Description (2025a) under the *Impact Assessment Act*, S.C. 2019, c. 28, s. 1 (IAA). The numbers and titles used as main headings in the document align with the guide for ease of reference; a concordance table of information requirements and corresponding sections is provided in Appendix A. The content of this document meets the information requirements of the Information and Management of Time Limit Regulations, Schedule 1, SOR/2019-283.

1.0 PROJECT INFORMATION

TransAlta is one of Canada's largest publicly traded power generators, with more than 110 years of experience delivering reliable, affordable energy. TransAlta owns and operates a diverse fleet across Canada, the United States, and Western Australia. TransAlta's portfolio includes hydro, wind, solar, battery storage, natural gas, and coal (to be phased out globally by the end of 2025) and is complemented by exceptional asset optimization and energy marketing capabilities. As one of Canada's largest producers of wind and thermal generation and Alberta's largest producer of hydro power, TransAlta remains committed to a balanced, technology-agnostic generation mix.

At the end of September 2025, TransAlta reached an agreement to acquire the Flipi Gas-Fired Generation Project located 18 km southwest of the Town of Rimbey, Alberta. The Project was originally developed by Kiwetinohk Energy Corporation (KEC) as a high-efficiency, natural gas-fired power generation facility. TransAlta plans to advance the Project's development and permitting toward construction and operation.

The Project will generate power using a Combustion Turbine Generator (CTG), a Heat Recovery Steam Generator (HRSG), and a Steam Turbine Generator (STG), which is expected to comprise of the Power Island in a single shaft configuration with a common generator (Figure 1.1).

Additional components of the Project include:

- Control system
- Natural gas system
- Lube oil system
- Engine cooling system

- Ventilation system
- Combustion intake system
- Exhaust gas system
- Compressed air system
- Heating, ventilation, and air conditioning (HVAC) system
- Fire protection system

The Project consists of buildings, which includes the turbine room, mechanical room, electrical room, control room, workshop room, and absorber building.

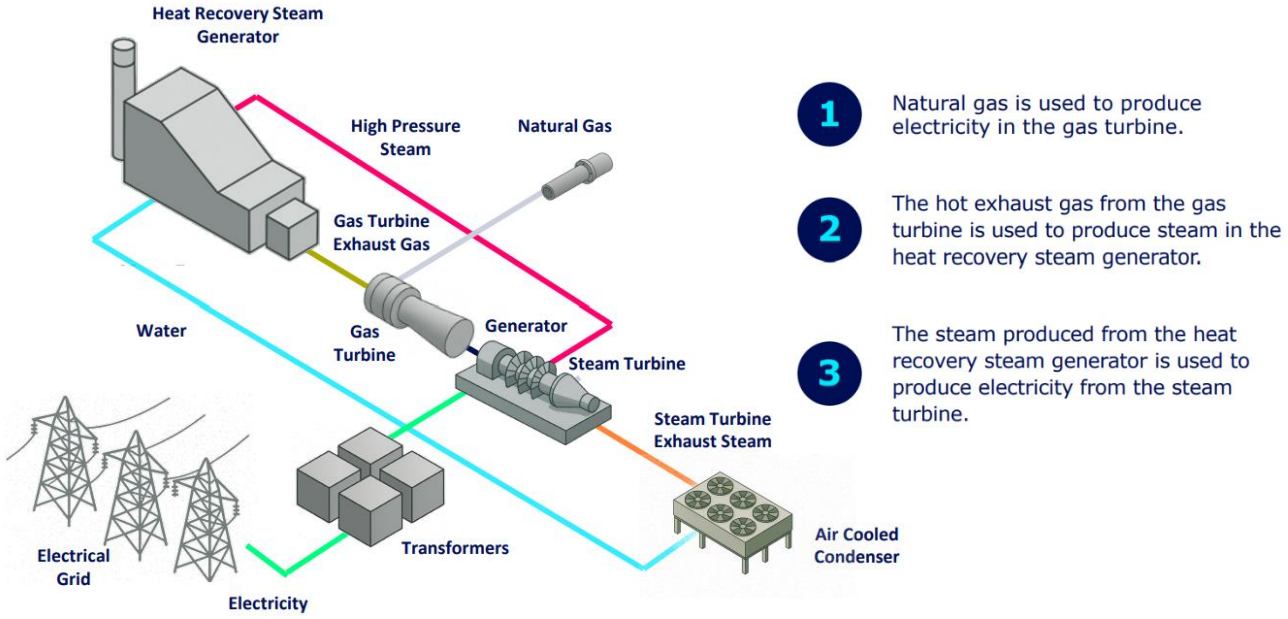

Figure 1.1: Simplistic Overview of the Project's Power Generation Process

The Project will connect to the province's transmission network, which includes a new 240-kilovolt (kV) substation and a short transmission line [approximately 200 metres (m) in length] that will link the power plant to the existing grid. This connection will enable electricity generated by the Project to be safely and reliably delivered to homes, businesses, and industries across Alberta.

Natural gas is anticipated to be supplied from a new third-party pipeline tied into an existing 22-inch natural gas pipeline approximately 1.6 km south of the Project Area.

Within this Initial Project Description and associated appendices, there may be references to carbon capture technology associated with the Project. The Project was initially evaluated and designed to incorporate carbon capture in conjunction with power generation. Design work on the carbon capture component of the Project is currently paused and is not being pursued at this time. The potential integration of carbon capture may be considered in the future if technological advancements render the carbon capture component economically and

technically feasible. If the carbon capture portion of the Project progresses, the appropriate regulatory approvals, permits, and authorizations will be secured.

1.1 Project Location

The Project is in the southwest quarter section of Section 33, Township 41, Range 4, West of the 5th Meridian (SW-33-41-04-W5M), approximately 18 km southwest of the Town of Rimbey, Alberta, within Clearwater County (Drawing 1, Appendix B).

The Project will be constructed within 13.2 hectares (ha) of privately owned (leased), cultivated land, located in the White Area of Alberta, within Clearwater County. The siting of the Project was based on:

- Demand for electricity and available grid interconnection capacity
- Proximity to a transmission line
- Proximity to natural gas supply pipelines
- Adequate acreage
- Reasonable soil conditions
- Topography
- Minimum number of stakeholders to avoid noise disturbance
- Convenient access to site
- Road load capacity
- Environmental factors

The approximate center of the Project Area is at:

- Latitude: 52.569063°
- Longitude: -114.522132°
- Easting (NAD83): 11U 667937 m E
- Northing (NAD83): 11U 5827213 m N

1.1.1 Ancillary Facilities

1.1.1.1 Natural Gas Pipeline

Natural gas is anticipated to be supplied by a third-party from a new pipeline tied into an existing 22-inch natural gas pipeline approximately 1.6 km south of the Project Area (Drawing 2, Appendix B). The point of interconnection (POI) will be at SE-28-041-04-W5M. The natural gas pipeline will be permitted, constructed, owned, and operated by the third-party.

The exact pipeline routing has not yet been surveyed. The route, once surveyed, will be assessed, and permitted as per Alberta Energy Regulator (AER) requirements. This will include an assessment of environmental site conditions. TransAlta intends to follow existing disturbances where practical, and official routing will be submitted through the AER.

1.1.1.2 Transmission Line and Substation

Electricity will be delivered to the existing 240 kV high voltage (HV) transmission line owned and operated by AltaLink Management Ltd. approximately 70 m east of the Project Area (Drawing 2, Appendix B).

TransAlta will be responsible for the transmission interconnection (a 240 kV circuit approximately 200 m in length) between the power plant and AltaLink Management Ltd. substation. The POI is expected to be at 02-33-041-04-W5M, immediately east of the eastern boundary of the Project Area. The 240 kV HV transmission interconnection will be overhead. Assessment and permitting for the transmission line and route is currently underway and an application has been submitted to the Alberta Utilities Commission (AUC) for approval.

1.1.2 Alternative Project Locations

Alternative locations for the Project were identified from aerial photographs and site reconnaissance. Several alternate locations were reviewed prior to further assessment of the Project's final location. Both the selected location and the alternate locations were evaluated to determine which site would have the least impact on operational design, environmental features, existing infrastructure, landowners, and existing land use.

The Proponent evaluated a larger area to identify potential sites that generally met the high-level criteria outlined above. This included identifying multiple potential sites for the Project during a site selection process initiated in early 2021. The landowners of the identified sites were engaged to determine if a there was a general willingness to discuss the potential to host the power plant. During the site selection process, the current Project Area met more criteria than any other; therefore, no further alternative sites were advanced. The following criteria were used to identify the current site in SW-33-041-04-W5M, which was prioritized over other sites for its optimal alignment with Project objectives:

- Proximity to electrical interconnection: In addition to the power plant, the potential for impacts associated with the transmission line interconnection were considered. Shorter distances for the interconnection using primarily agricultural lands were prioritized. Given the size of the generating unit, lower voltage transmission lines were not suitable for the interconnection. As such, sites were evaluated for proximity to grid infrastructure, specifically 240 kV transmission lines capable of supporting the Project's capacity and ensuring reliable connection to the Alberta Interconnected Electric System (AIES). The selected site offers optimal access to an adjacent high-voltage line, minimizing interconnection costs, linear disturbance, and transmission losses.

- Grid capacity: An interconnection assessment was conducted to evaluate local and regional electricity demand and potential export capacity for energy. The selected site aligns with the Alberta Electric System Operator's (AESO) grid capacity requirements, supporting efficient integration and regional energy needs.

- Proximity to natural gas supply: Sites were assessed for access to natural gas infrastructure capable of supplying sufficient volumes and meeting the gas composition requirements (e.g., non-sour gas) for the Project's combined cycle technology. The selected site is located near reliable gas infrastructure, ensuring minimal disturbance during construction, operational efficiency of the power plant, and cost-effectiveness.

- Environmental factors: Sites were assessed for potential environmental impacts, prioritizing locations that avoid disturbance or disruption to sensitive habitats (including wetlands, watercourses, critical habitat for species at risk, protected areas, and native prairie). The site was selected for its low environmental impact, as it is sited on previously disturbed/cultivated land and avoids sensitive habitats. This assessment was confirmed through the completion of field surveys as outlined in the provincial AUC Environmental Evaluation and the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12 (EPEA) Industrial Approval application.

- Adequate acreage (parcel size): Potential sites required sufficient land to accommodate the Project, including the HRSG stack, turbines, and ancillary facilities. The site was selected for its availability of adequate acreage with a willing landowner, facilitating streamlined land agreements.

- Soil conditions: Soil quality was analyzed to ensure suitability for construction and long-term operational stability. The selected site has favourable geotechnical conditions, reducing foundation costs and construction risks.

- Topography: While some site grading is expected, more complex site grading requires additional space for cut and fill activities and more complex surface water plans. Sites were prioritized that were generally flat or had gently sloping terrain to minimize excavation and grading. The selected site's topography supports efficient construction and operational layouts.

- Site accessibility and road access: Sites were evaluated for proximity to major highways and the suitability of local road infrastructure, such as range or township roads, to support transportation of heavy equipment and materials during construction and operation. The selected site is close to multiple highways, with access via range or township roads. A conceptual site access assessment has been conducted, indicating sufficient access for both construction and operational logistics. TransAlta is committed to further evaluating transportation routes through the municipal development permit process in consultation with local authorities and stakeholders to minimize disruptions to residents and landowners.

- Avoidance of historical resources areas: Sites were evaluated for the presence of historical, archaeological, or cultural resources, as required under Alberta's *Historical Resources Act*, R.S.A. 2000, c. H-9 (HRA) to avoid impacts on protected sites. The site selected has no known historical resources, as confirmed by assessments conducted

in compliance with provincial regulations, ensuring no impact on protected areas and simplifying permitting. On November 18, 2024, the Project Area received HRA Approval 4940-24-0092-001.

2.0 PROPONENT INFORMATION

TransAlta is one of Canada's largest publicly traded power generators, with more than 110 years of experience delivering reliable, affordable energy. TransAlta owns and operates a diverse fleet across Canada, the United States, and Western Australia. TransAlta's portfolio includes hydro, wind, solar, battery storage, natural gas and coal (to be phased out globally by the end of 2025) and is complemented by exceptional asset optimization and energy marketing capabilities. As one of Canada's largest producers of wind and thermal generation and Alberta's largest producer of hydro power, TransAlta remains committed to a balanced, technology-agnostic generation mix.

At the end of September 2025, TransAlta reached an agreement to acquire the Project. The Project was originally developed by KEC. TransAlta plans to advance the Project's development and permitting toward construction and operation.

There may be references to KEC conducting studies and collecting information before September 2025. Forward looking, TransAlta will conduct the work required to advance the Project.

Refer to Table 2.1 for the Proponent's contact information.

Table 2.1: Proponent and Primary Representative Contact Information

Name of the Designated Project	Flipi Gas-Fired Generation Project
Name of the Proponent	TransAlta Corporation
Address of the Proponent	1100 1st Street Southeast Suite 1400, Calgary, Alberta T2G 1B1
President and Chief Executive Officer (CEO)	John H. Kousinioris
Primary Representative	Andrea Ortega Manager Environmental Planning & Permitting Andrea_ortega@transalta.com Office: +1.403.267.2099

3.0 ENGAGEMENT WITH THE PUBLIC, REGULATORY AGENCIES, AND OTHER PARTIES

TransAlta is committed to meaningful engagement for the Project to ensure clear and accessible opportunities are available for members of the public, stakeholders, Indigenous peoples, industry, and regulatory bodies to stay informed, raise concerns, and provide input on the Project. Engagement activities are being conducted in accordance with public participation processes through the:

- AUC application process: It is the AUC's responsibility to assess and consider if it is within the public interest to approve the construction of a power plant in Alberta. AUC applications follow a multi-step process that provides opportunities for members of the public, stakeholders, Indigenous peoples, industry, and municipalities to be involved. The application process has notification and engagement requirements which must be documented as part of the Participant Involvement Program (PIP) (Appendix C) and filed with the AUC Application. The AUC also enables participation through a public hearing process (as required) before a decision is made. In addition, funding may be available to affected individuals to hire legal or technical experts to represent their views during AUC proceedings. The public hearing for this Project is scheduled for January 12 to 16, 2026.

- EPEA Industrial Approval application process: As part of the regulatory review process, a public notice is required to be posted, which is then followed by a 30-day comment period. Individuals affected by an application can submit their concerns in writing to Alberta Environment and Protected Areas (AEPA), which are then considered during the review process. Individuals also have the right to appeal approval decisions. The EPEA application for this Project was submitted January 3, 2025, and no comments were received by AEPA during the 30-day comment period.

- Initial Project Description (under IAA) process: Once the Initial Project Description is complete and posted on the public registry, IAAC will engage and consult with provincial, territorial, and Indigenous jurisdictions, Indigenous communities, the public, federal authorities, and other participants. The engagement period typically lasts 20 to 30 days, however, IAAC may adjust the format or timing of engagement to reflect the needs of the public, Indigenous communities, and other jurisdictions.

As per AUC Rule 007 requirements, a PIP (Appendix C) was initiated by the previous owner, KEC, in June 2024 and supplemented by TransAlta in November 2025. The goal of the PIP is to meaningfully engage and equip all potentially affected stakeholders and rights holders with the information about the Project to enable them to ask questions, voice concerns, and provide suggestions through personal consultations and other engagement methods.

TransAlta's Supplemental Stakeholder and Rights-Holder Engagement Report for the Flipi Project (October 20 to November 17, 2025), Post KEC Acquisition (Appendix C) has been submitted and outlines the engagement undertaken since the Project purchase, including:

- Direct correspondence, meetings, and a Project Specific Information Package (PSIP) provided to Indigenous communities.
- Open House invitations and information packages provided to landowners residing within 2,000 m of the Project.
- Reached out to Clearwater County, Ponoka County, and Lacombe County with meetings with Clearwater County and Ponoka County.
- Public advertisements for the Open House in local community papers.

- A public Open House in Rimbey, Alberta on November 13, 2025.
- The development of a Project-specific website (**www.transalta.com/flipi-project/**).

Considering the public and Indigenous engagement undertaken, TransAlta is confident that stakeholders and rights-holders have been:

- Properly and adequately notified about the Project.
- Given the opportunity to ask questions and raise issues and concerns about the Project and have had those questions, issues, and concerns addressed.
- Able to provide initial feedback to the Project design.

A detailed record of engagement completed for the Project is provided in Appendix C, which is summarized in the following sections.

3.1 Participant Involvement Program Materials

Flipi Gas-Fired Generation Project Newsletter #1 – August 27, 2024
The August 2024 PSIP included the following materials:

- Project newsletter containing an introduction to the Project and developer, preliminary design information, Project studies summary, an outline of the engagement process, Project benefits, a preliminary Project schedule, next steps, and contact information for KEC.
- Preliminary Project layout.
- AUC Brochure – Participating in the AUC's Independent Review Process.

The package was sent to stakeholders via regular mail and Indigenous communities via email. Additional packages were sent to stakeholders via email where requested. Notification packages were returned as undeliverable by Canada Post for three stakeholders. Updated mailing addresses were obtained, and the packages were re-sent.

Flipi Gas-Fired Generation Project Update Newsletter #2 – November 2024
The November 2024 PSIP included the following materials:

- Project newsletter containing an overall update on the Project, clarification on carbon dioxide (CO_2) capture, information on site access, responses to common concerns raised (including construction noise, lighting, and Project siting), and contact information for any questions or concerns.
- AUC Brochure – Participating in the AUC's Independent Review Process.

Due to the Canada Post strike, KEC was unable to send out the PSIP by mail. KEC worked diligently to contact all stakeholders within 2,000 m of the Project and obtain email addresses for delivery. All stakeholders and Indigenous communities were sent an electronic copy or hand delivered a copy of the PSIP.

Flipi Gas-Fired Generation Project Newsletter #3 and Open House Invite

On October 23, 2025, TransAlta mailed 66 Open House invitations, including the following materials:

- Open House invitation including an update that TransAlta had recently acquired the Project from KEC.
- Project newsletter including a Project summary, outline of the regulatory process and status, TransAlta contact information, and a Project map.

The Package was sent to local stakeholders via mail and Indigenous communities via email. Packages were sent to stakeholders living within the 2,000 m boundary from the Project and additional recipients included agencies, counties, Members of the Legislative Assembly, and Indigenous communities.

Flipi Gas Fired Generation Project Open House – November 2025

On November 13, 2025, TransAlta hosted a community Open House in Rimbey, Alberta, attended by 20 individuals representing 18 distinct landowners and stakeholders. The purpose of the event was to engage with local residents and gather input on the proposed Project. Discussions at the open house were constructive and informed, providing an opportunity for the Project team to explain technical details, regulatory processes, and mitigation strategies directly with those most affected.

The most prominent topics of concern centered around water use, noise, and traffic impacts. Stakeholders questioned water sourcing and consumption amid existing agricultural and industrial pressures on the Medicine River and local groundwater, emphasizing the need for transparency and local protection. TransAlta explained that the facility would use an air-cooled condenser system designed to minimize water use, with additional studies and any required regulatory approvals to come before any withdrawals. Noise was another recurring issue, with residents concerned about cumulative effects from nearby industrial activity. The Project team committed to sharing detailed Noise Impact Assessment (NIA) data, updating modeling maps to include specific residences, and ensuring compliance with AUC Rule 012 (2024). Transportation safety and road maintenance were also raised by county representatives and residents, prompting commitments to coordinate closely with municipalities on haul routes, dust control, and post-construction repairs.

Other key concerns related to site selection, air quality, and visual impacts. Stakeholders questioned why the Project wasn't located closer to existing industrial sites or on Crown land and requested further evaluation of alternative locations. The Proponent explained the criteria used to select the location, including that the site was close to available interconnection capacity, natural gas infrastructure, on land with a willing landowner, and avoided sensitive environmental features. Air quality and emissions monitoring requirements were clarified, including AEPA's oversight and continuous reporting standards. Concerns about lighting, visibility, and odour were addressed through design measures such as low-profile lighting and screening options. Overall, participants emphasized a desire for ongoing communication, transparency, and opportunities for continued input throughout Project development.

Within two weeks of the event, TransAlta provided follow-up information to stakeholders who had submitted specific questions about the Project via email.

3.2 List of Regulatory Agencies, Public, & Other Parties Engaged

The following lists federal, provincial, and municipal agencies; stakeholders, rights holders, and other industries engaged on the Project.

Federal

- IAAC
- NAV Canada
- Transport Canada

Provincial

- AER
- AEPA
- Alberta Arts, Culture, and Status of Women
- AUC
- Alberta Jobs, Economy and Trade
- Aboriginal Consultation Office (ACO) (informed, not consulted)

Municipal

- Clearwater County, Alberta
- Lacombe County, Alberta
- Ponoka County, Alberta

Public and Stakeholders

As a component of AUC Rule 007 (2025), the Project is required to conduct public and stakeholder engagement. Prior to the TransAlta purchase, Project notifications were sent to all applicable occupants, residents, and landowners within 2,000 m, measured from the edge of the Project Area boundary. Personal engagement was conducted with occupants, residents, and landowners within 800 m, measured from the edge of the Project Area boundary.

Rights Holders

- Sunchild First Nation
- Ermineskin Cree Nation
- Louis Bull First Nation
- Samson Cree Nation
- Foothills Ojibway First Nation
- O'Chiese First Nation
- Paul First Nation
- Montana First Nation
- Enoch Cree Nation
- Alexander Cree Nation
- Otipemisiwak Metis Government, District 3

Details regarding engagement with Indigenous communities are provided in Section 4.0.

Industry

- New North Resources Ltd.
- Tourmaline Oil
- Canlin Energy Corporation
- NOVA Gas Transmission Ltd. (TC Energy)
- Cenovus Energy Inc.
- Gran Tierra Energy
- Plains Midstream Canada ULC
- Entrada Resources Inc.
- Keyera Energy Ltd.
- Pembina Pipelien Corporation
- Taqa North Ltd.
- G.L.D.C Gas Co-op Ltd.
- Freehold Royalties Ltd.

3.3 Regulatory Requirements of Federal, Provincial, & Municipal Jurisdictions

The provincial regulatory processes the Project are subject to provide a comprehensive framework that sufficiently assesses the potential effects of the Project and includes engagement processes in which individuals or groups can participate. The Project is subject to multiple regulatory requirements at the provincial and municipal levels, all designed to identify, manage, and mitigate impacts (including those within federal jurisdiction such as impacts to fish and fish habitat, aquatic species, and migratory birds). Together, the provincial and municipal processes form a robust and integrated system that ensures environmental, social, and jurisdictional concerns are thoroughly considered and managed.

An expanded summary of existing federal, provincial, and municipal regulatory requirements is provided in the sections that follow.

3.3.1 Impact Assessment Agency of Canada

The Project is a “designated project” as defined in Section 30 of the Physical Activities Regulations, SOR/2019-285:

> *“the construction, operation, decommissioning and abandonment of a new fossil fuel-fired electrical generating facility with a production capacity of 200 MW or more.”*

As the Project is anticipated to have a maximum production capacity of 460 MW, the threshold of 200 MW would be exceeded. TransAlta is therefore submitting this Initial Project Description to IAAC to inform the decision as to whether a federal Impact Assessment is required.

The Proponent has engaged IAAC throughout the process of developing and submitting this Initial Project Description, alongside the Initial Project Description Summary documents (in French and English).

3.3.2 Environment & Climate Change Canada

The operation of the Project will be regulated under the Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity, SOR/2018-261. This regulation establishes a regime for limiting CO_2 emissions from electricity generated by the combustion of natural gas.

TransAlta intends for the Project to meet the "planned unit" designation as defined under the Clean Electricity Regulations, SOR/2024-263. The Clean Electricity Regulations, SOR/2024-263 set limits on CO_2 emissions of electricity generated from fossil fuels.

3.3.3 NAV Canada

A Land Use Submission package including Project map and equipment heights was submitted to NAV Canada on September 13, 2024, with the approval received on October 10, 2024. This application package was submitted to assess the potential impacts of the Project on air navigation systems.

3.3.4 Transport Canada

An Aeronautical Assessment form was submitted to Transport Canada on September 13, 2024, to determine if the Project has marking or lighting requirements for potential obstacles to air navigation systems. Transport Canada advised that because the construction start date is more than 18 months in the future, they could not accept the application.

This application is not anticipated to be required as Project equipment will remain below the 90 m above ground level threshold established by Transport Canada. Should an application be required based on the final design, the Proponent will take necessary steps to submit an Aeronautical Assessment form.

3.3.5 Alberta Environment & Protected Areas

Environmental Impact Assessment

Since power plants are not a listed mandatory or exempt activity under the Environmental Assessment (Mandatory and Exempted Activities) Regulation, Alta. Reg. 111/1993, a Project Summary Table was provided to AEPA to determine if a provincial Environmental Impact Assessment would be required for the Project. On February 2, 2025, the Proponent received confirmation from AEPA that the Project does not require an Environmental Impact Assessment report (Appendix D).

Industrial Approval

The construction, operation, and eventual reclamation of power plants in Alberta is regulated by AEPA under EPEA. The Project is captured under the definition of a "power plant" in Schedule 1, Division 2 of the Activities Designation Regulation, Alta. Reg. 276/2003 as an activity requiring an EPEA approval. The EPEA Industrial Approval application was prepared according to requirements of the Guide to Content for Industrial Approval Applications (GOA, 2014), which requires the following at a high level:

- A description of the current setting and condition of the environment.
- The current ambient air quality of the Project Area.
- Current soil information, including land capability, suitability for reclamation and local and regional vegetation, including rare plants.
- Nature and condition of wildlife in the area, including the species and their habitats, and identification of any sensitive species and special habitat description and evaluation of any proposed receiving watercourses.
- Wastewater and runoff treatment and control.
- Completion of an Air Quality Assessment (AQA) report.
- Air treatment and control mechanisms.
- Environmental risks and mitigation during construction.
- Environmental objectives during operation and environmental management systems.
- Reclamation objectives and a conceptual reclamation plan.

As part of the regulatory review process, a public notice is required to be posted, which is then followed by a 30-day comment period. Individuals affected by an application can submit their concerns in writing to AEPA which are considered as part of the approval process. Individuals also have the right to appeal approval decisions.

The Proponent submitted the EPEA Industrial Approval application on January 3, 2025, and no public comments were received by AEPA during the 30-day comment period. The Project received a draft EPEA Approval from AEPA on July 30, 2025. This approval will remain in draft form until the AUC application (discussed in Section 3.3.6) is approved. The draft approval contains pollution abatement and management measures along with compliance thresholds, monitoring, and/or reporting requirements for:

- Air emissions
- Industrial wastewater/runoff
- Waste
- Groundwater
- Soils

Once the EPEA Approval is officially issued for the Project, the approval will have a 10-year approval limit, after which time a renewal application is required. Furthermore, any material changes to the Project, over the lifetime of the Project, require submission and approval of an amendment application.

Water Act Licence

TransAlta will engage AEPA to obtain a water diversion licence (as required) or other approvals (as necessary) under the *Water Act*, R.S.A. 2000, c. W-3 as part of the detailed design phase of the Project. The water source is currently under evaluation with options including groundwater, surface water, or water trucking. If groundwater or surface water are selected for the Project's water souring, a license under the *Water Act*, R.S.A. 2000, c. W-3 will be required.

3.3.6 Alberta Utilities Commission

The Project will be providing electrical energy to the provincial power grid; therefore, the Proponent submitted an application to the AUC on February 4, 2025, pursuant to Section 11 and 19 of the *Hydro and Electric Energy Act*, R.S.A. 2000, c. H-16, as amended. The AUC application requirements for thermal power plants at a high level include the following:

- Details regarding Project information, location/siting, and design details.
- A PIP (Appendix C) to document engagement activities, correspondence, and concerns documented for the Project. The PIP also includes steps and actions taken by the Proponent to address concerns or questions raised during engagement.
- An AQA (Appendix E) to assess impacts on air quality and compliance with regulatory requirements.
- An NIA (Appendix F) to assess noise impacts and compliance with regulatory requirements.
- Visual Impact Assessments (as applicable) to assess potential impacts on the visual landscape. The Project is not within a designated buffer or visual impact assessment zone which requires visual assessments to be completed (as per the Electric Energy Land Use and Visual Assessment Regulation, Alta. Reg. 203/2024); however, as part of public and stakeholder engagement efforts, the Proponent completed visual simulations for nearby landowners who expressed concerns regarding visual impacts.
- HRA Approval/Clearance (Appendix G) to ensure the identification, preservation, and avoidance of historic resources.
- Environmental Evaluation to document baseline conditions and assess the potential environmental effects of the Project using a standardized ecological approach. The Environmental Evaluation includes a combination of desktop and field data to identify and assess potential adverse effects on ecological components (including those under federal jurisdiction such as fish and fish habitat, aquatic species, and migratory birds). Mitigation and monitoring measures that will be implemented to manage and reduce potential Project impacts are also included. Information provided in the Environmental Evaluation completed for the Project is documented in Section 14.0.
- Environmental protection planning, emergency response planning, end of life management, and reclamation security.
- Additional approvals or permits for the Project.

For the Environmental Evaluation specifically, the information requirements under AUC Rule 007 at the time of submission include:

- A description of the existing environmental and land use conditions in the local study area.
- The identification and description of the Project activities and infrastructure that may adversely affect the environment.
- The identification of what specific ecosystem components (i.e., terrain and soils, surface water bodies and hydrology, groundwater, wetlands, vegetation species and communities, wildlife species and habitat, aquatic species and habitat, air quality and

environmentally sensitive areas) within the local study area may be adversely affected by the Project.
- The description of the potential adverse effects of the Project on the ecosystem components during the life of the Project.
- The description of the mitigation measures the applicant proposes to implement during the life of the Project to reduce these potential adverse effects.
- The description of the predicted residual adverse effects of the Project and their significance after implementation of the proposed mitigation.
- The description of any monitoring activities proposed to implement during the life of the Project to verify the effectiveness of the proposed mitigation.
- The description of the methodology used to identify, evaluate, and rate the adverse environmental effects and determine their significance, along with an explanation of the scientific rationale for choosing this methodology.

As part of the AUC application process, a public hearing process has been initiated and is scheduled to begin on January 12, 2026. This formal process brings together interested parties to present views and supporting evidence. Hearings are conducted before a panel of commissioners to ensure the AUC makes a fully informed and balanced decision.

3.3.7 Alberta Arts, Culture, & Status of Women

The Proponent submitted a Historic Resources Application to the Historical Resources Management Branch for review under the HRA, to determine whether a Historical Resources Impact Assessment (HRIA) for archaeology or paleontology is required. The Project received an HRA Approval (Appendix G) on November 18, 2024 (HRA Number: 4940-24-0092-001), and therefore, an HRIA is not required.

3.3.8 Municipalities

A Development Permit will be required from Clearwater County for the Project. The Development Permit application will be submitted to Clearwater County following AUC approval. TransAlta has begun discussing certain aspects of the Development Permit process, including emergency response, visual screening, and road use with Clearwater County, and will be incorporated into the Development Permit application.

3.4 Overview of Key Comments & Concerns Expressed by Stakeholders

A summary of key comments and concerns expressed by the public and stakeholders is provided in the following sections.

3.4.1 Landowners & Occupants

Details of the questions and concerns raised, along with the Proponent's responses are described below. Detailed consultation records for individual stakeholders are available on request.

Project Schedule: Stakeholders inquired about the Project schedule and timeline for AUC submission. The Proponent confirmed that they filed the AUC power plant application in

February 2025. The Proponent confirmed that following submission and initial review of the application, the AUC mails out notices to all stakeholders with details about the Project application and review process.

AEPA Submission Schedule and Process: A stakeholder inquired about the AEPA application submission timeline and the process for intervening on the application. TransAlta provided details about the notice requirements, review period, decision, and appeals process.

Emissions Modelling: Stakeholders inquired about the emissions modelling, and TransAlta provided a copy of the AQA report.

Noise: Stakeholders raised concerns over noise from the Project. TransAlta explained requirements to assess noise and ensure compliance with Permissible Sound Levels (PSL) under AUC Rule 012 (AUC, 2024). The Proponent also provided a copy of the NIA completed for the Project.

Location: Stakeholders inquired about the specific location of the Project within the quarter section, and TransAlta provided a copy of the survey plan.

Environmental: Stakeholders inquired about the environmental surveys completed for the Project. TransAlta advised that surveys were completed in 2023 and included two rounds of raptor nest surveys, two rounds of breeding bird surveys, wetland survey, and a preliminary soil survey. These surveys (with the exception of the preliminary soil survey) were completed again in 2025 during the appropriate seasonal windows as part of the Proponent's due diligence and to ensure environmental findings remained current.

Siting: Several stakeholders inquired about the siting of the Project. TransAlta explained that there are several factors that go into siting a Project, including:

- Proximity to existing 240 kV interconnection
- Proximity to a sufficient natural gas (sweet) supply
- Availability of grid capacity for the Project size
- Proximity to load centers
- Relatively flat area with minimal topographical constraints
- Low environmental impact
- A willing host landowner

Access and Haul Routes: Questions and concerns were raised by several stakeholders with respect to access to the Project, and particularly the haul routes. The Proponent has undertaken an assessment to determine viable routes and solicit feedback from landowners/residents as well as the three impacted municipalities. TransAlta included an update on the potential routes in a newsletter and is committed to keeping stakeholders informed about potential access routes. Haul routes will need to be formally approved by municipalities in the municipal Development Permit application stage. Preliminary access and haul routes are further discussed and presented in Section 9.1.2.

Visual Impacts: Stakeholders raised concerns over visual impacts. TransAlta completed a visual simulation for stakeholders that requested one. One of the stakeholders will not be able to see the Project from their residence, based on the visual simulation, due to other obstructions between the residence and the Project. TransAlta is continuing to discuss mitigation measures with other stakeholders.

Wastewater: One stakeholder inquired about wastewater from the Project. TransAlta advised that no industrial wastewater will be released to the environment. Wastewater will be directed to an on-site aboveground storage tank where it will be stored and monitored, then removed by tanker truck to a third-party certified wastewater disposal/treatment facility, once filled. Haul routes will need to be formally approved by all municipalities in the municipal Development Permit application stage. All tanks used to store wastewater will meet the requirements for design characteristics, and disposal details will be recorded. Reuse and reduction of wastewater will be analyzed for the Project and any wastewater that has potential to be reused in the facility will be stored in separate tanks for further use or treatment.

Water: Stakeholders inquired where the Proponent would obtain water, how much water would be used, and the regulatory process for water sourcing. The Proponent indicated that very little water will be used on the site and water may be sourced from groundwater, surface water, or water trucking. If groundwater or surface water withdrawals are determined to be required during the detailed design phase, separate provincial regulatory approvals/licences will be applied for under the *Water Act*, R.S.A. 2000, c. W-3.

Carbon Capture Questions: Several stakeholders inquired about more details regarding the potential CO_2 capture portion of the Project. Design work on the CO_2 capture component of the Project is paused until the technology advances to be both economically and technically feasible. If the CO_2 capture portion of the Project progresses, the appropriate regulatory approvals, permits, and authorizations will be secured.

Property Value Impacts: Stakeholders raised concerns over the impact of the Project on nearby property values. The Proponent hired Serecon to undertake a property value study to determine whether there is likely to be an impact on nearby property values because of the Project. Serecon's report from December 13, 2024, has been presented to the concerned stakeholders for review and continued discussion.

Alberta Electric System Operator Process: One stakeholder inquired about what stage of the AESO process the Project is in. The Proponent advised that they are in Stage 3 of the AESO legacy process, currently working on the Service Proposal that is part of the AESO requirements. The Proponent advised that the engineering study work is moving forward and should be completed later this year.

Lighting Requirements: Stakeholders inquired about what type of lighting would be required for the facility and raised concern about lighting impacts at night. TransAlta provided information on potential lighting requirements and explained that lighting requirements will be in

accordance with Canadian Aviation Regulations. Potential mitigation options were offered that can be explored after the final design of the power plant is complete. Lighting will be part of municipal Development Permit requirements.

Community Benefits: Stakeholders inquired what benefits the community would receive because of the Project. TransAlta advised of the commitment to support the local communities in which they operate. They explained that due to the early stage of the Project, information is still being gathered on community needs, local initiatives, and potential partnerships. The Proponent thanked the stakeholder for providing input on potential opportunities and will consider these as the Project progresses.

Project Benefits: A stakeholder inquired about the benefits of the Project. The Proponent advised of the following benefits: a reliable, cost-effective source of new electricity supply, enhancing local and regional reliability of power supply, providing employment opportunities during construction as well as operating and maintenance jobs during operations, and generating tax revenue for the municipality.

Project Cost: One stakeholder inquired about the capital cost of the Project. TransAlta advised it was estimated at $900 million based on 2022 data.

Building/Equipment Height: Stakeholders inquired about the height of the buildings and equipment. The tallest structure on the power plant will be the HRSG stack. It is anticipated for the HRSG stack height to be approximately 48.76 m tall. The tallest building expected is the generator building that will be approximately 25 m tall.

Tree Removal: One stakeholder inquired if trees would need to be removed. TransAlta advised that at this time, it does not appear that any tree removal is required as there are no trees in the Project Area.

Dust: Stakeholders raised concerns about dust during construction and dust control. TransAlta advised that they will be required by the County to enter into a dust abatement agreement and ensure that dust is kept to a minimum during construction. It was advised that dust control typically involves applying water or calcium during dusty times but would be determined with Clearwater County.

Electromagnetic Fields: One stakeholder raised concerns over increased electromagnetic fields (EMF) in the area from the Project. Information was emailed to the stakeholder regarding EMF guidelines, examples, and EMF levels from household appliances.

TransAlta continues to engage with stakeholders directly and through their committed email inbox at stakeholderengagement@transalta.com.

3.4.2 Federal & Provincial Regulators

Engagement with federal and provincial regulators primarily involved their respective permitting processes. No specific concerns were raised.

3.4.3 Municipalities

Clearwater County: The Proponent provided Project information, requested clarification on the municipal permitting process, and offered to meet with Clearwater County for discussion. Clearwater County responded by providing details on the municipal permitting process and advising they did not have any concerns with the Project at that time. The Proponent stayed in contact with Clearwater County regarding stakeholder engagement updates and inquiries, questions about new potential new residences, haul routes and bridges, and the Emergency Response Plan (ERP) for the Project. Through engagement efforts, TransAlta and Clearwater County have agreed to a number of commitments related to the municipal permitting process, which have been documented as part of the AUC application. TransAlta intends to complete the municipal Development Permit process closer to construction, as Development Permits are typically valid for a maximum of 12 months.

Lacombe County: KEC reached out to Lacombe County due to potential haul routes utilizing Labome County controlled roads. Lacombe County indicated that they had some concerns and would provide feedback. Lacombe County requested a joint meeting including KEC, Clearwater County, Lacombe County, and Ponoka County. The meeting was held on December 16, 2024, and additional input was provided on potential haul routes. Representatives from Lacombe County attended the November 2025 open house hosted by TransAlta again expressing interest in haul routes used. TransAlta will continue discussions with all impacted municipalities with respect to the haul routes.

Ponoka County: Due to the proximity of the Project to Ponoka County, the Proponent emailed Project information to the Development Officer and the Chief Administrative Officer. The Proponent provided details of the Project, invited any questions or concerns, and offered to meet to discuss the Project. Ponoka County representatives attended the November 2025 open house hosted by TransAlta and requested a follow up meeting which occurred with representatives from TransAlta on December 3, 2025. During the open house and following meeting, Ponoka County raised residents' concerns with the Project's location, haul routes, and opportunities for future economic development in Ponoka County. TransAlta explained why the site was selected and committed to continuing to engage with the three municipalities on haul route options as TransAlta works through the development process.

3.4.4 Industrial Interest Holders

As per AUC requirements industrial interest holders within 2,000 m of the Project boundary were notified, and consultation undertaken with those within 800 m of the boundary. The PSIPs were sent by regular mail on August 27, 2024, as well as email (where available) to ensure receipt. TransAlta also included industry interest holders in the open house invite and newsletter sent in October 2025.

Questions were raised with respect to noise and emissions compliance. The Proponent was able to address all questions and concerns and is not aware of any outstanding issues from industrial interest holders.

3.5 Ongoing Engagement Activities & Future Engagement Plans

The Proponent is committed to ongoing engagement and will continue to engage landowners, stakeholders, rights holders, regulators, and industrial interest holders throughout application review, pre-construction, construction, and operational activities. As the Project proceeds through pending stages of development including the achievement of milestones such as significant regulatory approvals, a final investment decision by the Proponent, or during the construction phase of the Project, the Proponent will update stakeholders and rights holders as necessary through mailed Project update letters, or if preferred through email or face-to-face meetings. The Proponent's email inbox and telephone contact information will remain open to all stakeholders and rights holders at all stages of Project development, including operations.

4.0 ENGAGEMENT WITH INDIGENOUS COMMUNITIES

4.1 Provincial Consultation Office Requirements

Given the Project is on private land, KEC did not consult the ACO. Following the purchase of the Project, TransAlta used Alberta's Landscape Analysis Indigenous Relations Tool (LAIRT), to determine the traditional lands of Indigenous communities where the Project is located. KEC conducted some engagement prior to TransAlta's ownership of the Project. TransAlta began engagement with Indigenous communities immediately post-closure of the transaction with KEC and met with the ACO in October 2025 to introduce the Project.

4.2 Impact Assessment Agency of Canada Requirements

On February 20, 2023, KEC engaged IAAC to inquire about a preliminary review of the Project to determine which Indigenous communities may require engagement as part of the federal IAAC process. On March 6, 2023, IAAC indicated Indigenous communities preliminarily scoped into the Project. On February 3, 2025, IAAC confirmed this preliminary scoping.

Based on IAAC's review of updated Project information, IAAC provided a revised preliminary list of Indigenous communities on December 11, 2025.

4.3 List of Potentially Affected & Interested Indigenous Communities

The results of the LAIRT and engagement with IAAC identified the following Indigenous communities as potentially affected and/or interested communities:

- Alexander Cree Nation
- Enoch Cree Nation
- Ermineskin Cree Nation
- Foothills Ojibway First Nation
- Louis Bull Tribe
- Montana First Nation

- O'Chiese First Nation
- Otipemisiwak Métis Government, District 3
- Paul First Nation
- Samson Cree Nation
- Sunchild First Nation

4.4 Engagement Completed by KEC Prior to Purchase by TransAlta

The following is a detailed description of pre-acquisition engagement activity undertaken by KEC. KEC commenced engagement with the Indigenous communities in September 2024.

On September 4, 2024, the first PSIP (PSIP #1) (Appendix C) was sent to all 11 Indigenous communities which included the following materials:

- Project newsletter containing an introduction to the Project and KEC, preliminary design information, Project studies summary, an outline of the engagement process, Project benefits, a preliminary Project schedule, next steps, and contact information for KEC.
- Preliminary Project layout.
- AUC Brochure – Participating in the AUC's Independent Review Process.

On November 28, 2024, the second PSIP (PSIP #2) (Appendix C) was sent to all 11 Indigenous communities and included the following materials:

- Project newsletter containing an overall update on the Project, clarification on carbon capture and storage, information on-site access, responses to common concerns raised (including construction noise, lighting and Project siting), and contact information for any questions or concerns.
- AUC Brochure – Participating in the AUC's Independent Review Process.
- Letter from KEC regarding IAAC Process ("IAAC Project Information Letter"). The IAAC Project Information Letter informed recipients that given the Project is over 200 MW, it is considered a designated project under the IAA and explained the opportunity to engage in the federal assessment process.

Indigenous communities were asked to contact KEC if they had any questions or wished to coordinate a meeting to review the Project. KEC was contacted by five Indigenous communities:

- Enoch Cree Nation No.440
- Ermineskin Cree Nation
- O'Chiese First Nation
- Otipemisiwak Métis Government, Region 4
- Samson Cree Nation

Of the five communities, KEC met with four: O'Chiese First Nation, Enoch Cree First Nation, Otipemisiwak Métis Government Region 4, and Samson Cree Nation. KEC also attempted to meet with Ermineskin Cree Nation. The presentations contained information about KEC, a brief overview of the Project and potential contracting and employment opportunities, among other topics. A brief overview of the potential for carbon capture and storage capability was provided. Carbon capture and storage is no longer contemplated for the Project. This was clarified in PSIP #2.

KEC committed to ongoing Indigenous engagement for the life of the Project and advised that any revised information about the Project would be available online and as the Project progressed throughout the different stages, Indigenous communities would be notified and encouraged to engage with KEC.

4.4.1 Detailed Engagement with Indigenous Communities

A summary of KEC's engagement with each of the Indigenous communities is provided in the following sections. Continued engagement with Indigenous communities following the Project's purchase by TransAlta is detailed in Section 4.5.

Alexander First Nation

Engagement with Alexander First Nation began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent November 28, 2024. Both emails asked the recipient to reach out to KEC if they had any questions or wished to set up an initial Project meeting. No response was received.

Enoch Cree Nation No. #440

Engagement with Enoch Cree Nation began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent November 28, 2024. Both emails encouraged engagement with KEC if they had any questions or wished to set up an initial Project meeting.

On September 9, 2024, Enoch responded to the email requesting a meeting with KEC. On October 21, 2024, KEC and Enoch Cree Nation held an in-person meeting to discuss the proposed Project. Enoch Cree Nation raised concerns respecting the potential discovery of artifacts during the earthworks portion of the Project and a desire that all work should be ceased in that event, and they would like to be contacted to assess the findings. KEC confirmed all work would be ceased in compliance with the provincial guidelines in the event artifacts were discovered.

Enoch Cree Nation expressed an interest in the contracting and employment opportunities associated with the Project. KEC asked Enoch Cree Nation to share a list of the companies associated with their community or to provide a contract for their procurement division after the meeting to ensure KEC would have the most up-to-date information when the Project began construction. Enoch Cree Nation also requested shapefiles for the Project Area to be provided. On October 30, 2024, a KEC representative emailed a copy of the Project shapefile and requested contact with their procurement division or information on their associated

companies. On January 8, 2025, KEC followed up on the request for additional information on Enoch's associated companies. On May 21, 2025, KEC sent a follow-up letter, via email, outlining additional information and answers to the questions that arose during the initial meeting on October 21, 2024. Enoch responded on May 22, 2025, advising they had a new consultation coordinator, and they would like to set up a meeting to discuss the Project. From May 22 to July 3, 2025, correspondence via email took place but no meeting took place during this period.

Ermineskin Cree Nation

Engagement with Ermineskin Cree Nation began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent November 28, 2024. Both emails extended the opportunity for Ermineskin Cree Nation to engage if they had any questions or wished to set up an initial Project meeting.

On November 28, 2024, Ermineskin Cree Nation emailed expressing interest in meeting with KEC to review the Project and to be part of the IAAC process. Multiple emails were then exchanged between February 21, 2025, and May 6, 2025, attempting to coordinate a time for an in-person meeting. A meeting did not transpire during this period.

Foothills Ojibway First Nation

Engagement with Foothills Ojibway First Nation began on September 4, 2024, when the PSIP #1 was emailed. The PISP #2 was sent on November 28, 2024. Both emails extended the opportunity to engage if Foothills Ojibway Nation they had any questions or wished to set up an initial Project meeting.

On December 5, 2024, Foothills Ojibway First Nation responded, via email, advising they would be reaching out to set up an initial Project meeting. On April 7, 2025, KEC followed up with Foothills Ojibway First Nation to inquire if they had any questions regarding the Project. Foothills Ojibway First Nation emailed on May 29, 2025, indicating they had limited capacity and would like to meet on June 26, 2025. KEC called and emailed to discuss arrangements to meet and review the Project. No meetings transpired during this period.

Louis Bull Tribe

Engagement with Louis Bull Tribe began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent on November 28, 2024. Both emails extended the opportunity for Louis Bull to meet with KEC if they had any questions or wished to set up an initial Project meeting. No response was received during this period.

Montana First Nation

Engagement with Montana First Nation began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent on November 28, 2024. Both emails extended the opportunity to connect on the Project if Montana First Nation had any questions or wished to set up an initial Project meeting. No response was received during this period.

O'Chiese First Nation

Engagement with O'Chiese First Nation began on September 4, 2024, when the PSIP #1 was emailed. On September 17, 2024, O'Chiese First Nation emailed KEC and expressed interest in setting up an initial Project meeting with KEC. A KEC representative called O'Chiese First Nation to set up a meeting, a brief discussion was had discussing dates and times for the initial Project meeting. A follow up email was sent on September 26, 2024, amending the available meeting dates from both parties and emails were exchanged between September 26, 2024, and October 22, 2024, in which it was agreed to meet virtually October 29. A virtual meeting was held on October 29, 2024.

Following the virtual meeting, KEC responded to the O'Chiese First Nation on November 28, 2024, addressing their concerns (Indigenous concerns are summarized in Table 4.1) and enclosing a copy of the PSIP #2 via email.

On December 20, 2024, O'Chiese First Nation replied, expressing interest in participating in the IAAC process and raising additional questions based on the October 29, 2024, meeting and KEC's November 28, 2024, response. The December 20, 2024, letter also contained a request for a consultation capacity support. KEC sent another response to O'Chiese First Nation on March 28, 2025, via email.

During the various exchanges, O'Chiese First Nation expressed a desire for a site visit, which KEC was unable to accommodate with the landowner at the time. On May 26, 2025, O'Chiese First Nation emailed and called KEC to discuss a potential site visit and O'Chiese First Nation advised they would be in communication to arrange next steps. KEC emailed June 26, 2025, as a follow up to discuss a potential site visit. O'Chiese First Nation emailed July 2, 2025, restating their interest to attend a site visit and their interest in a phone discussion. KEC emailed July 2, 2025, with a contact number to arrange for further discussion. On July 3, 2025, O'Chiese called KEC to discuss site visit availability and indicated they would follow up with an email. No meeting transpired during this period.

Otipemisiwak Métis Government, Region 4

Engagement with Otipemisiwak Métis Government, Region 4 began on September 4, 2024, when the PSIP #1 was emailed. The PSIP #2 was sent November 28, 2024. Both emails asked the recipient to reach out to KEC if they had any questions or wished to set up an initial Project discussion.

On September 9, 2024, Otipemisiwak Métis Government expressed an interest in setting up an initial Project meeting with KEC. A KEC representative called Otipemisiwak Métis Government to set up a meeting, a brief discussion was had, discussing dates and times for the initial Project meeting. A follow-up email was sent on September 11, 2024, amending the available meeting dates from both parties. Between September 11, 2024, and December 12, 2024, multiple emails were exchanged prior to the realization that the Project is situated within a different district of the Otipemisiwak Métis Government. Initial advice had been to deal with the Métis Nation of Alberta, Region 4. Following the Métis/Otipemisiwak reorganization, the Project is in Otipemisiwak District 3.

Engagement began with the amended district, District 3, on December 10, 2024. Multiple emails and phone calls were exchanged, and an initial Project meeting date was set for January 29, 2025. A virtual meeting was held on January 29, 2025, between KEC and the Otipemisiwak Métis Government, District 3 where KEC presented an overview of the Project and answered questions.

The questions asked revolved around environmental impacts, construction noise, and impacts on people and animals (particularly moose and migratory birds) in the area. KEC responded that environmental assessments would be completed, providing baseline information on vegetation and animals and that the data would become public as part of the regulatory application process. Otipemisiwak also were interested in potential contracts and future opportunities. On May 30, 2025, KEC sent a follow-up letter, via email, to Otipemisiwak Metis Government, outlining additional information and answers to the questions that came up during the initial meeting on January 29, 2025. No response was received during this time.

Paul First Nation

Engagement with Paul First Nation began on September 4, 2024, when the PSIP #1 Information Package was emailed. The PSIP #2 was sent on November 28, 2024. Both emails asked the recipient to reach out to KEC if they had any questions or wished to set up an initial Project meeting. No response was received during this time.

Samson Cree Nation

Engagement with Samson Cree Nation began on September 4, 2024, when the PSIP #1 Information Package was emailed. The PSIP #2 was sent on November 28, 2024. Both emails asked the recipient to reach out to KEC if they had any questions or wished to set up an initial Project meeting.

On December 17, 2024, Samson Cree Nation requested an initial Project meeting. Various emails were exchanged between December 17, 2024, and February 28, 2025, arranging a time to meet. An in-person meeting was scheduled for April 3, 2025; however, the meeting was postponed, and a new meeting date was scheduled and held virtually, April 15, 2025. Sampson Cree expressed a desire for a site visit, however, KEC was unable to accommodate the request with the landowner at the time.

On May 26, 2025, KEC called Samson Cree Nation leaving a message to discuss a potential site visit. KEC emailed June 26, 2025, as a follow up to discuss a potential site visit. Samson Cree Nation emailed July 15, 2025, to inquire if a site visit on July 16, 2025, could be scheduled. KEC responded that KEC schedules did not permit and asked Samson Cree Nation if any dates in the upcoming two weeks could be arranged. No response was received.

Samson Cree Nation asked about the presence of moose on Project lands, and a response was provided that surveys did not identify evidence of moose, and although not ideal habitat, moose may move through the area. Initial discussions occurred about the potential for contracting and employment opportunities on the Project. KEC generally indicated their interest in exploring Indigenous training and employment opportunities.

Sunchild First Nation

Engagement with Sunchild First Nation began on September 4, 2024, when the PSIP #1 Information Package was emailed. The PSIP #2 was sent on November 28, 2024. Both emails extended the offer to engage further if Sunchild First Nation had any questions or wished to set up an initial Project meeting. No response was received during this period.

4.4.2 Comments or Concerns Expressed by Indigenous Communities

Detailed in Table 4.1 is a summary of comments or concerns that were brought forward by Indigenous communities along with KEC's provided response at the time of engagement. Continued engagement with Indigenous communities following the Project's purchase by TransAlta is detailed in Section 4.5.

Table 4.1: Concerns Expressed by Indigenous Communities in Discussions with KEC

Concern	Indigenous Community	Response from KEC
Effects such as noise, smells, dust, air pollution, increased traffic and people, signs and fences, all migrate off the direct footprint and are not compatible with the exercise of rights in accordance with our Natural Laws. The AUC recognizes the potential for migrating effects to rights, with Rule no. 012 which states that continuous and persistent ceremonial and cultural sites within 1.5 km of a project's boundary may be considered as receptors	O'Chiese First Nation Ermineskin Cree Nation	Noise: The Project is located entirely upon freehold land. The nearest Crown land is approximately ±3.3 km from the center of the Project. Per AUC Rule 012, an NIA was completed and receptors considered from the lease to 1.5 km and 3.0 km. Three residents were identified within 1.5 km of the site, the lands within the 1.5 km radius are privately owned and outside Alberta Crown lands. The NIA determined that the Project is predicted to comply with the PSL as defined by AUC Rule 012, including estimated and predicted cumulative noise levels. Dust: KEC will implement appropriate dust suppression measures (in consultation with applicable Counties) on roads, work areas, or transportation and loading routes, as necessary. The decision to control dust will be made at the field level and will depend upon site conditions, level of activity, and worker health and safety. Air Pollution and Odours: An AQA has been completed and determined the Project to be compliant with Alberta Ambient Air Quality Objectives (AAAQOs). KEC anticipates that on a per MW water use and CO_2 emissions efficiency basis, if built as engineered, the Project will produce electricity that is lower in emissions than the Alberta average today (using the 2023 emissions grid displacement factor). Increased Traffic: The Project will utilize existing roads and infrastructure to access the Project site; the routing has not yet been determined. KEC will engage with interested parties on routing. There will be an increase in traffic during construction.

Concern	Indigenous Community	Response from KEC
		Signs and Fences: KEC anticipates that any signs and fences involved with the Project will be on freehold land or near the road on county land.
Visual impacts of the Project	O'Chiese First Nation Ermineskin Cree Nation	KEC has conducted visual simulations for residences located near the Project that have requested them. The height of the facility is approximately the same height as the existing transmission lines adjacent to the Project.
Site visit of the proposed Project location	O'Chiese First Nation Samson Cree Nation	The Project is located on cultivated, privately owned (freehold) land. The nearest Crown land is located approximately ±3.3 km from the Project. Under the terms of the lease that KEC has with the landowner, KEC did not have the ability to grant third party access to the site. Therefore, landowner consent is required. KEC indicated they were working with the landowner, and with the Indigenous communities, to accommodate the request.
Details on considerations for impacts to Inherent and Treaty rights undertaken to-date and upcoming such as studies, valued components, measures etc.	O'Chiese First Nation Samson Cree Nation	KEC conducted the following studies for the Project: wetland, soil, vegetation, breeding bird, and raptor surveys. KEC indicated that results of the surveys will be filed with the AUC once completed, and at that time, KEC would be happy to share these studies. To further explore and conduct meaningful engagement on this topic, KEC kindly requested a list of the concerns respecting Inherent and Treaty rights. KEC indicated that once the concerns have been identified, KEC would like to collaborate with the group to mitigate any potential effects of the Project. Results of the environmental studies are detailed in the Project's Environmental Evaluation, which is publicly available on the AUC's website, and summarized in Section 14.0.
Details on any mitigation measures already identified to address any effects to Inherent and Treaty rights identified to-date	O'Chiese First Nation Ermineskin Cree Nation	KEC indicated that once they better understand the individual concerns, they can work together with Indigenous communities on potential mitigation measures.
Consultation capacity funding available for Nations to participate in engagement on the Project	O'Chiese First Nation	KEC indicated that funding may become available through IAAC after the Proponent has filed its Initial Project Description. Additional information about the funding and how to apply once the Proponent has filed the Initial Project Description can be found here: https://www.canada.ca/en/impact-assessment-agency/programs/participation-indigenous-peoples.html

Concern	Indigenous Community	Response from KEC
Project consultation plan, or details on any consultation activities planned as part of the Project application	O'Chiese First Nation Ermineskin Cree Nation	KEC indicated that they will continue to engage as necessary and desired by Indigenous communities to further understand specific interests and concerns.
How the location of the Project was selected	O'Chiese First Nation Ermineskin Cree Nation	The location of the Project was selected due to its proximity to the existing AltaLink transmission line, short tie-in point for the proposed gas line, capacity to supply the electrical grid with additional power, low population density, privately held land and pre-existing disturbed land, thereby reducing the overall Project impacts. Additional details regarding alternative Project locations and an overview of the selection criteria/process are detailed in Section 1.1.2.
Additional information on the proposed gas line tie in	O'Chiese First Nation Ermineskin Cree Nation	The proposed natural gas pipeline route is still to be determined and will be finalized as part of the Project's detailed design. The pipeline is anticipated to be located on cultivated, privately held farmland and follow existing disturbances where applicable. Once the routing has been determined a separate application will be filed with the applicable regulatory body.
Environmental studies completed to date	Otipemisiwak Metis Government	KEC has conducted the following studies: wetland surveys, preliminary soil survey, breeding bird surveys, and raptor nest surveys. Results of the environmental studies are detailed in the Project's Environmental Evaluation, which is publicly available on the AUC's website, and summarized in Section 14.0.
Artifacts found during construction phase	Enoch Cree Nation	If artifacts are discovered during the construction phase of the Project, construction will be stopped immediately, and the appropriate resources and regulatory bodies will be contacted.
Noise Impacts to animals	Samson Cree Nation	KEC indicated that the environmental assessments will be completed for the Project, giving KEC baseline information about animals in the area. Once the assessments have been completed KEC will submit them as part of the AUC application which is available to the public. Results of the Project's Environmental Evaluation, which is publicly available on the AUC's website, and summarized in Section 14.0.

Concern	Indigenous Community	Response from KEC
Contract and Employment Opportunities for local Indigenous Communities	Samson Cree Nation Enoh Cree Nation Otipemisiwak Metis Nation	KEC indicated that they are committed to awarding contracts to local and Indigenous companies whenever possible. The organization maintains an internal list of Indigenous and affiliated companies, and Indigenous communities are encouraged to share their vendor lists with KEC. Currently, KEC does not have a defined scope of work for construction. As the Project progresses towards the construction phase, KEC indicated they will have a clearer understanding of the types of vendors required.

Overall, Indigenous communities have expressed some concern over the Project, mostly related to Indigenous Treaty Rights and disturbance associated with construction of the Project.

The intent of the commitments made by KEC as part of engagement with Indigenous communities would be carried forward by TransAlta where practicable. Additionally, TransAlta will aim to partner with Indigenous communities where possible to create social and economic value to Indigenous people. This commitment may include contracting and procurement opportunities for Indigenous business partners.

4.5 Engagement Conducted by TransAlta Following Project Purchase

In the fall of 2025, TransAlta reached out to Indigenous communities to announce the acquisition of the Project, introduce TransAlta, and re-initiate engagement regarding the Project. An introductory email was sent to each Indigenous community's Consultation Office, introducing TransAlta and inviting Indigenous communities to discuss the Project.

In October 2025, after TransAlta's acquisition of the Project, TransAlta sent a third PSIP (PSIP #3) to all 11 Indigenous communities and included the following materials:

- Open House invitation, including an update that TransAlta had recently acquired the Project from KEC.
- Project Newsletter, including a Project summary, outline of the regulatory process and status, TransAlta contact information, and a Project map.

Indigenous communities were extended an opportunity to connect with TransAlta if they had any questions or wished to coordinate a meeting to review the Project.

4.5.1 Detailed Engagement with Indigenous Communities

A summary of TransAlta's engagement with each Indigenous community is provided in Table 4.2 and is detailed in the following sections. Given the relatively short period of time in which TransAlta has had an opportunity to engage Indigenous communities following the acquisition of the Project, discussions about the Project have been preliminary. However, TransAlta remains committed to engaging with Indigenous communities throughout the development and operation of the Project.

Table 4.2: Summary of TransAlta Engagement with Indigenous Communities

Indigenous Community	Information Package & Newsletter	Site Visit(s)	Project Meeting(s)
Alexander First Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	No meeting requested
Enoch Cree Nation No.440	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	November 20, 2025
Ermineskin Cree Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	No meeting requested
Foothills Ojibway First Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	November 17, 2025
Louis Bull Tribe	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	Meeting response was received, however, still determining a date.
Montana First Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	No meeting requested
O'Chiese First Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	November 10, 2025
Otipemisiwak Métis Government, District 3	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	December 3, 2025
Paul First Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	October 21, 2025
Samson Cree Nation	Information package: October 23, 2025 Newsletter: November 6, 2025	No site visit requested to date	No meeting requested
Sunchild First Nation	Information package: October 23, 2025 Newsletter: November 3, 2025	No site visit requested to date	No meeting requested

Alexander First Nation

Introductory emails were sent by TransAlta to Alexander First Nation's Consultation Office in October 2025, followed by a mailed and emailed copy of the PSIP #3. No response was received from Alexander First Nation.

Enoch Cree Nation #440

Introductory emails were sent by TransAlta to Enoch Cree Nation's Consultation Office in October 2025, followed by a registered mail and emailed copy of the PSIP #3. A meeting with Enoch Cree Nation was held on November 20, 2025. No specific Project concerns were identified.

Ermineskin Cree Nation

Introductory emails were sent to Ermineskin Cree Nation's Consultation Office in October 2025, followed by a registered mail and emailed copy of the PSIP #3. Ermineskin Cree Nation responded to TransAlta's invitation to discuss the Project, and a meeting took place on

December 11, 2025. TransAlta and Ermineskin Cree Nation discussed working toward a more collaborative working relationship on the Project with TransAlta taking away and considering several requests by the Ermineskin Cree Nation. TransAlta is currently drafting a communication protocol it will provide to the Ermineskin Cree Nation prior to the end of 2025.

Foothills Ojibway First Nation

Introduction emails were sent to Foothills Ojibway First Nation in October 2025, followed by a mailed and emailed copy of the PSIP #3. In November 2025 TransAlta met in-person with Foothills Ojibway First Nation to review the Project. TransAlta has provided additional engagement materials and are currently conducting ongoing engagement with the Nation.

Louis Bull Tribe

Introductory emails were sent to Louis Bull Tribe's Consultation Office in October 2025, followed by a registered mail and emailed copy of the PSIP #3. TransAlta received a response from Louis Bull Tribe in November and is confirming a meeting date.

Montana First Nation

Introductory emails were sent to Montana First Nation's Consultation Office in October 2025, followed by a mailed and email copy of the PSIP #3. No response was received from Montana First Nation.

O'Chiese First Nation

Introductory emails were sent to O'Chiese First Nation's Consultation Office in October 2025, followed by a mailed and emailed copy of the PSIP #3. TransAlta met with O'Chiese First Nation in November 2025 and continues to engage regarding the Project.

Otipemisiwak Metis Government, District 3

A newsletter was mailed in October to Otipemisiwak Metis Government, District 3. Subsequent guidance from the Consultation Director indicated correspondence should be directed to the Battle River Territory Consultation Office. An information package with a request for engagement with the Battle River Territory was deposited in the Otipemisiwak Metis Government consultation repository on November 3. TransAlta met with a representative of the Otipemisiwak Metis Government in early November 2025 and followed up with an online meeting on December 3, 2025. No specific Project issues were brought forward. During the meeting TransAlta committed to continuing to engage with the Otipemisiwak Metis Government.

Paul First Nation

TransAlta met with Paul First Nation in October 2025 to discuss the Flipi Project, following the submission of a high-level information package to Paul First Nation's Consultation Office. A mailed and emailed copy of the PSIP #3 were both provided to Paul First Nation. TransAlta continues to engage Paul First Nation on Flipi and other TransAlta projects. No specific Project issues were brought forward.

Samson Cree Nation
Introductory emails were sent to Samson Cree Nation's Consultation Office in October 2025, followed by a registered mail and emailed copy of the PSIP #3. No response was received from Samson Cree Nation.

Sunchild First Nation
Introductory emails were sent by TransAlta to Sunchild First Nation's Consultation Office in October 2025, followed by a registered mail and emailed copy of the PSIP #3. No response was received from Sunchild First Nation.

4.5.2 Comments or Concerns Expressed by Indigenous Communities

Since acquiring the Project in fall 2025, TransAlta has reached out to each Indigenous community. Each Indigenous community was provided with PSIP #3 and an invitation to discuss the Project. The majority of Indigenous communities accepted TransAlta's invitation, and meetings have been held or are scheduled in-person or online in the near future, as per the community's preference.

Some meetings between TransAlta and Indigenous communities were outstanding at the time of this Initial Project Description's development and submission. Some Indigenous communities expressed non-Project-specific concern regarding Canada's and Alberta's Indigenous Consultation processes. Another Indigenous community expressed concern with the general development of the area surrounding the Project. Several Indigenous communities expressed interest in pursuing economic opportunities associated with Project development. TransAlta remains committed to ongoing dialogue and engagement with Indigenous communities throughout the life of the Project.

4.6 Future Engagement Plan

TransAlta is committed to regular engagement with Indigenous communities throughout the lifecycle of the Project and responding to issues or concerns raised. Additional opportunities for Indigenous engagement will be identified through direct engagement with Indigenous communities, and may include the following:

- In-person or virtual meetings with Indigenous communities.
- Identifying and communicating opportunities for Indigenous vendors to participate in Project construction.
- Site visits where possible.
- Community meetings and open house engagements.
- Project notifications and ongoing updates of Project information.
- Email and telephone communication.
- Participation in community events to promote informal dialogue regarding the Project.
- Continue to engage with the Indigenous communities who have identified concerns or have requests to discuss concerns.
- Discuss opportunities with Indigenous communities.

Should Indigenous communities not identified by the LAIRT or IAAC, express interest in the Project, TransAlta will engage with those interested groups. Proposed engagement and notification delivery methods would be like those listed above.

Should the Project proceed to development additional regulatory applications will be required that may result in Indigenous engagement/consultation requirements.

5.0 RELEVANT STUDIES OR REGIONAL ASSESSMENTS CONDUCTED

As of November 14, 2025, the Project is not taking place in an area with a previously completed regional assessment, according to the Canadian Impact Assessment Registry (IAAC, 2025b).

As of November 14, 2025, the AEPA, Land-use Framework, Regional Plans website indicated that the North Saskatchewan Region Land Use Plan is currently in the draft phase of the Land Use planning process (GOA, 2025a). Therefore, there are no land use frameworks in place.

No known Traditional Land and Resource Use studies have been conducted in the Project Area.

6.0 RELEVANT STRATEGIC ASSESSMENTS CONDUCTED

According to the Canadian Impact Assessment Registry (IAAC, 2025b), the Strategic Assessment of Climate Change, conducted under Section 95(2) of the IAA is applicable to the Project.

The Strategic Assessment of Climate Change was developed by Environment and Climate Change Canada (ECCC) and has been considered in this Initial Project Description, including potential alternative means of carrying out the Project (refer to Section 12.0) and preliminary estimates of greenhouse gas emissions associated with the Project (refer to Sections 14.2.1, 23.0, and 24.1).

PART B: PROJECT INFORMATION

7.0 PURPOSE & NEED FOR THE PROJECT

The purpose of the Project is to generate electricity from natural gas to provide a reliable source of electricity to meet the growing future demand of the AIES. Demand for electricity in Alberta is expected to grow due to increased electrification and data centers. The Province of Alberta is actively seeking $100 billion of investment in artificial intelligence technology to drive innovation, create jobs and diversify its economy. The Project would support greater electricity demand in the province with reliable, efficient power. Positive effects and benefits of the Project include:

- Reliable, Efficient Power Generation
  - Utilizes combined-cycle technology to provide up to 460 MW of high-efficiency, dependable electricity at lower emissions than simple cycle generation.
  - Enhances grid stability and reliability to support Alberta's growing energy needs.
  - Aligns with Alberta's transition to a cleaner, more resilient energy mix.
- Economic Growth and Local Investment
  - Significant capital investment based on a $900 million estimate, according to 2022 data.
  - Creates hundreds of construction jobs and over a dozen long-term operational roles.
  - Increase to municipal tax revenue.
- Community and Regional Benefits
  - Strengthens regional infrastructure.
  - Commitment to local engagement, environmental stewardship, and safety excellence throughout project development, construction and operations.

8.0 PHYSICAL ACTIVITY

The Project is a "designated project" as defined in Section 30 of the Physical Activities Regulations, SOR/2019-285, as "the construction, operation, decommissioning and abandonment of a new fossil fuel-fired electrical generating facility with a production capacity of 200 MW or more."

As the Project is anticipated to have a maximum production capacity of 460 MW, the threshold of 200 MW would be exceeded. TransAlta is therefore submitting this Initial Project Description to IAAC to inform the decision as to whether a federal Impact Assessment is required.

TransAlta notes that the Project will not take place on federal lands, will not require federal funding, and is not anticipated to require any federal authorizations, licenses, or permits other than what is required through IAAC and NavCanada (as detailed in Section 3.3).

The Project is a standalone project and is not a component of any larger project that is not listed under the Physical Activities Regulations, SOR/2019-285.

9.0 ACTIVITIES, COMPONENTS, & INFRASTRUCTURE

As the purpose of the Project is to generate electricity as required to meet power grid demands, the major process of the facility is electrical power generation. Design details and specifications of the Project are discussed in the following sections and are supported by the Survey Plan (Appendix H) and Plot Plan (Appendix I).

9.1 Infrastructure & Components

9.1.1 Size of the Designated Project Footprint

The Project Area is approximately 13.2 ha in size and will incorporate the footprint of the Project infrastructure.

During construction, the areas proposed to incorporate Project infrastructure will be stripped of soils and vegetation, levelled, and infrastructure put in place. Topsoil and subsoils will be stored separately. The additional lands around the proposed infrastructure are not expected to be impacted following construction.

9.1.2 Project Area Access

Road access to the Project Area was originally proposed to be from the west by Range Road 44, approximately 7.7 km south of the intersection of the Range Road and Highway 53. Through engagement with landowners and municipal counties, it was determined that accessing the site from the east side of the Project Area, instead of the west, may result in a greater reduction of noise disturbance to nearby landowners from construction traffic.

The updated proposed access road from the east side of the Project Area would run east-west and approach the eastern boundary of the Project Area from Range Road 43. Several routes have been proposed but have not been finalized; each are approximately 850 m in length (Figure 9.1). Once surveyed, a final route will be selected, and all applications will be updated with the relevant information (as necessary).

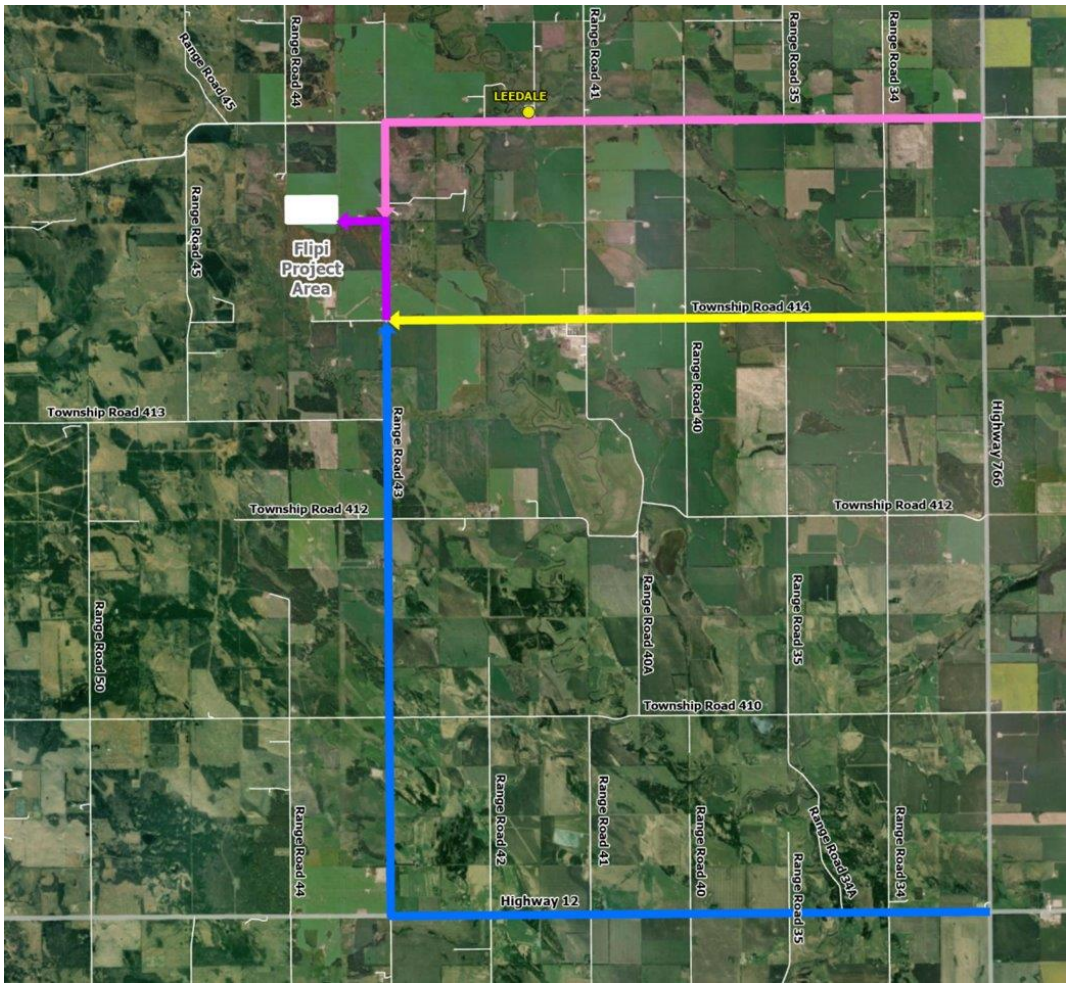

Figure 9.1: Preliminary Access and Haul Route Options Under Consideration

The Project will be laid out with vehicle accessibility by a perimeter road looping the entire Project within the fence line. Numerous vehicle entrances to buildings branch off the main loop. Refer to the Plot Plan provided in Appendix I for the general site arrangement.

9.1.3 Natural Gas Supply

While the Proponent has not finalized natural gas supply at this point, it is anticipated that the Project's natural gas will be supplied by a third-party from a new pipeline tied into an existing 22-inch natural gas pipeline approximately 1.6 km south of the Project Area. The POI will be at SE-28-041-04-W5M. The natural gas pipeline will be permitted, constructed, owned, and operated by the third-party.

The exact pipeline routing has not yet been surveyed. The route, once surveyed, will be assessed, and permitted as per AER requirements. This will include an assessment of environmental site conditions. TransAlta intends to follow existing disturbances where practical, and official routing will be submitted through the AER.

9.1.4 Electrical Interconnection

Electricity will be delivered to the existing 240 kV HV transmission line owned and operated by AltaLink Management Ltd. located approximately 70 m east of the Project Area.

TransAlta will be responsible for the transmission interconnection (a 240 kV circuit approximately 200 m in length) between the power plant and AltaLink Management Ltd. substation. The POI is expected to be at 02-33-041-04-W5M, immediately east of the eastern boundary of the Project Area. The 240 kV HV transmission interconnection will be overhead. Assessment and permitting for the transmission line and route is currently underway and an application has been submitted to AUC for approval.

9.1.5 Water Supply

The Project will require an anticipated initial water volume of 6,000 cubic metres (m^3), which will be recycled throughout power generation. TransAlta is currently evaluating several water source options, including water trucking, surface water sourcing, and groundwater sourcing. The chosen source will be confirmed following AUC Approval as part of the detailed design phase and any water withdrawal (surface or groundwater) will be subject to permitting under the *Water Act*, R.S.A. 2000, c. W-3.

9.1.6 Project Processes

The major process of the plant is electrical power generation. The generation of electrical power requires the implementation of supporting processes, including:

1. Waste heat recovery: A HRSG, utilizing waste heat energy from the combustion turbine to generate steam for expansion in a steam turbine for increased output and efficiency of the Combined Cycle facility.

2. Condenser and air removal system: Steam generated that has expanded from the steam turbine will be condensed utilizing an Air-Cooled Condenser (ACC).

3. Exhaust system: Combustion turbine exhaust will be managed using an exhaust stack and silencer designed to meet exhaust dispersion requirements and to mitigate noise. Emissions will be continuously monitored and recorded.

4. Steam, feedwater, and condensate systems: The steam systems supply high-pressure (HP), reheat (RH), intermediate pressure (IP), and low-pressure (LP) steam to drive the steam turbine. To meet the water demand and maintain the correct water levels in HRSG drums, the feedwater system supplies feedwater to the HP and IP systems. The condensate system likewise provides condensate to the LP system.

5. Closed-cooling system: The closed cooling water system will remove heat from the auxiliary equipment coolers. The heat picked up by the closed loop will be cooled by an auxiliary air-cooled heat exchanger. The system will circulate a propylene glycol water mixture with a freezing point below the design low temperature.

6. Inlet air heating system: For cold startups, a rotor warming system is included in the gas turbine package. A compressor bleed anti-icing system is also provided during low ambient temperature operation. An evaporative cooler is not included due to the expected low site ambient temperatures.

7. Combustion air system: Outside air will enter the combustion turbine through an inlet air filter. The temperature of the air entering the combustion turbine will be adjusted for optimal performance by compressor bleed air for inlet heating and rotor warming.

8. Auxiliary steam generation: A natural gas fired boiler is required to provide start-up steam for the Power Island processes, including steam jet air ejectors, HP evaporative heating, and STG gland sealing. Once the power island is online and running, the auxiliary boiler is no longer required.

9. Compressed air system: An electric drive air compressor and dryer system will provide instrumentation air and high-pressure utility air.

10. Natural gas fuel system: Natural gas will be supplied at the plant boundary, connecting to a nearby pipeline from a natural gas pipeline company. Within the plant, the gas will be filtered, metered, heated to turbine fuel gas specifications, and regulated to the required turbine inlet pressure.

11. Backup generation: One emergency diesel fired generator will be provided as back up to critical systems for safe turn-down.

12. Fire protection system: Water supplied from firewater storage tanks are delivered using an electric motor-driven fire pump or backup diesel pump at the flowrate and pressure required by the power plant fire protection systems. A water mist fire protection system is included for the CTG and auxiliary enclosures. Hydrants, hose stations, fire extinguishers, panels and associated horns and alarms will be located throughout the plant as required by local, provincial, and federal codes.

13. Wastewater discharge system: This system collects, stores, and distributes waste streams produced by the Fire Protection System.

14. Lubricating oil: Lubricating systems shall provide uninterrupted supply of clean, filtered oil to all the bearings of the CTG and STG turbine generator set and the turning gear. Oil level in the tanks will be automatically maintained through a piping system and small electric driven transfer pump from the main lubricating oil tank. The piping system and transfer pump will also supply oil for scheduled oil changes.

15. Hydraulic oil: A Hydraulic Oil Power Unit, complete with pumps, filters, accumulators, and coolers provides high pressure hydraulic oil to operate valves and provides lift on the steam turbine bearings.

16. Used oil: Used oil from routine oil changes will be removed from pumps and oil-lubricated equipment. Used oil will be stored in aboveground storage tanks and will be trucked periodically to an approved recycling/disposal location.

17. Glycol storage: 60/40 percent (%) glycol/water mixture will be used in a closed cooling loop for equipment cooling. Make up volumes will be stored on-site in a small tank and moved to makeup injection points through a piping system utilizing a small electric driven transfer pump. Higher percentage of glycol is needed for the low ambient conditions of the site.

18. Diesel fuel: Diesel fuel for the backup generator will be stored in a day tank inside the backup generator enclosure or in a tank integral to the engine skid. Diesel fuel for the diesel engine driven firewater pump will be stored in a day tank adjacent to, or inside the pump enclosure.

19. Raw water and portable domestic water: The water source for the Project is currently under evaluation, options being considered include groundwater, surface water, and water trucking.

20. Service/Firewater storage tank: Service water and a large reserve of water for emergency firefighting will be stored in an on-site tank.

21. Demineralized water: Service water will be further treated on-site to produce demineralized water for makeup to the HRSG and auxiliary boiler.

22. Sanitary drains storage tank: Sanitary wastewater will be directed to an on-site storage tank and then removed by tanker truck once filled.

23. Water treatment and boiler water chemical storage: Chemicals for water treatment shall be delivered by tote and stored on secondary containment pallets. Chemicals for boiler water treatment shall be delivered by tote and stored on secondary containment pallets.

Other than grey and black water from the sewage system, which will be managed through an approved septic system with truck removal, all waste fluids will be stored behind secondary containment.

9.1.7 Buildings & Enclosures

Table 9.1 lists the expected buildings or enclosures at the Project.

Table 9.1: Buildings and Enclosures

Name	Type
Administration/Warehouse/Control	Building
Generation Building	Building

Name	Type
Water Treatment	Building
Auxiliary Boiler	Building
Boiler Feedwater	Building
Utility Rack	Enclosure
Fuel Conditioning Skid	Building
Fuel Compressor	Building
ACC Electrical PDC	Building
LV and MV PDC	Building
Diesel Engine/Generator	Enclosure
CEMS	Building
HRSG Drum Penthouse	Building
Stormwater pump(s)	Building

PDC = Power Distribution Centre
LV = Low Voltage
MV = Medium Voltage
CEMS = Continuous Emissions Monitoring System
HRSG = Heat Recovery Steam Generator

9.1.8 Equipment

Table 9.2 shows the total quantity of major equipment anticipated for the operation of the Project. In cases where one is operating and one on standby, equipment is identical.

Table 9.2: Major Equipment at the Project

Major Equipment	Quantity
Air Cooled Condenser	1
Auxiliary Boiler	1
Boiler Feedwater Pumps	2
Closed Cooling Water Heat Exchanger	1
Closed Cooling Water Pumps	2
Combustion Turbine Generator	1
Condensate Extraction Pumps	2
Condensate Collection Tank and Deaerator	1
Emergency Diesel Generator	1
Fuel Gas Filter/Separator	2
Fuel Gas Knockout Drum	1
Fuel Gas Performance Heater	1
Fuel Gas Compressor	1
Heat Recovery Steam Generator	1
HRSG Pumps, typically	2
HRSG Blowdown Tank	1
Service/Instrument Air Compressor	2

Major Equipment	Quantity
Steam Jet Air Ejector (Holding)	2
Steam Jet Air Ejector (Hogging)	1
Steam Turbine	1

9.1.9 Existing Infrastructure

There is no existing infrastructure within the Project Area. The only existing infrastructure that is present and adjacent to the Project lands includes five buried oil pipelines east and south directly adjacent to the Project Area boundaries (Appendix H).

9.2 Project Activities

9.2.1 Site Preparation

Site preparation, excavation, backfill, and grading will be performed as per requirements to construct the Project and achieve finished site grades. The Project Area will be cleared of vegetation to the extent necessary to construct the Project. The Engineering, Procurement, and Construction (EPC) contractor will maintain the primary control points and provide all detailed measurements and layout for the Project with qualified survey personnel and certified equipment.

During soil stripping activities, every effort will be made to perform site work, and in particular the salvaging of topsoil in a season and under conditions most suitable for that activity. All topsoil, organic soil, soft or weak native subgrade will be removed from the development and access road areas. Erosion control for wind and water erosion will be implemented as required.

A geotechnical study will be completed, and recommendations from the report with respect to soil depth and handling will be followed. Topsoil stripping equipment will be selected based on suitability for handling the topsoil that is encountered and to reduce the commingling of soil types. Contracts let for site preparation will include clauses limiting activities to times of suitable conditions.

9.2.2 Construction

Guidelines for how the various phases of the work will be executed, including physical construction, erection, and infrastructure interconnection, are currently being developed so that the various assets are constructed as required. A summary of construction activities per phase is provided in Table 9.3.

Table 9.3: Typical Construction Phases

Phase	Details
Civil	• Construction of temporary workspace(s) and access road • Construction of base pads and pilings • Delivery and set up of temporary facilities – construction offices, workers trailers, temporary washroom facilities, etc.

Phase	Details
	• Construction equipment delivery • Installation of erosion and sediment control structures • Site grading • Compaction testing • Excavation of foundations • Installation of site drainage (aka - weeping tile) at foundations • Installation of re-bar at foundations • Installation of below-ground infrastructure • Installation of equipment bases • Pouring of concrete for foundations • Testing of concrete foundations • Backfilling of foundations with previously excavated soils
Buildings and Components	• Component delivery • Crane delivery • Delivery of building materials • Installation of foundation • Installation of building support systems • Installation of building structure • Installation of building equipment, component • Wiring, terminations, connections, etc. • Commissioning
Gas Pipeline (to be completed by third-party)	• Clearing of pipeline right-of-way (ROW) • Salvage of merchantable timber, if feasible • Land clearing, grubbing, stump removal • Soil stripping of ROW • Grading of working surface • Excavation of a trench • Potential blasting of bedrock • Watercourse crossings for equipment and pipeline • Directional drilling of permanent watercourses if required • Welding of pipeline • Laydown of pipeline in trench • Backfilling of trench • Recontouring, restoration of ROW • Pressure testing and commissioning • Completion of tie-in locations
Transmission Line	• Clearing of ROW • Salvage merchantable timber, if feasible • Land clearing, grubbing, stump removal, if required • Soil stripping of ROW • Grading of working surface • Road creation along ROW • Watercourse crossings for equipment • Pile installation • Anchoring of transmission tower foundations • Delivery of transmission towers

Phase	Details
	• Assembly of transmission towers • Erection of transmission towers • Implosion joining of transmission lines • Stringing of transmission lines and towers • Counter-poise installation • Commissioning • Recontouring, restoration of ROW • Completion of tie-in locations
Water Supply	• Construction details to be determined following selection of water supply source (i.e., groundwater, surface water, or water trucking).

9.2.3 Operations & Maintenance

Day-to-day operation, maintenance, safety, and security will be provided by a staff of over a dozen operators, engineers, and support staff (actual numbers to be determined).

Operations management will include managing personnel, energy inputs to the facility from natural gas, operational requirements of the infrastructure, emissions and control monitoring during operations, and energy output to the electrical transmission grid. Within each of these tasks there are detailed design processes that will be developed.

Maintenance management will include regularly scheduled maintenance of infrastructure and the Project Area, including annual plant turnarounds as required, in addition to unscheduled maintenance.

9.2.4 Decommissioning & Reclamation

The design life of the Project is approximately 30 years; however, the actual lifespan is dependent on the Project's continuing economic and technical viability. Decommissioning will adhere to the applicable Alberta regulations, permits, and licenses in place at that time.

Decommissioning and removal of equipment and surface reclamation of soils, vegetation, and wildlife habitat will adhere to the applicable Alberta regulations, permits, and licenses in place at the time. TransAlta will provide Indigenous communities with the opportunity to be involved and provide input and involvement in the eventual restoration and rehabilitation of this land at the end of the Project or as otherwise required by applicable Alberta regulations in place at that time.

9.3 Physical Activities Incidental to the Project Within TransAlta's Control

Activities that are incidental to the Project's construction and operation that are within TransAlta's control include:

1. Construction and operation of the power plant.
2. Construction and maintenance of the transmission interconnection between the power plant and AltaLink Management Ltd. substation.

3. Construction and maintenance of the access road from the power plant to Range Road 43.
4. Water supply for the power plant (to be confirmed upon sourcing option selection).

9.4 Physical Activities Associated with the Project Outside TransAlta's Control

Activities that are incidental to the Project's construction and operation that are outside of TransAlta's control include:

1. Maintenance and upgrading of the existing Range Road 43 (the provincial road that runs north-south approximately 850 m east of the Project Area).
2. General telecommunications in the Project Area.
3. Construction and operation of AltaLink Management Ltd.'s substation and upgrades to the 240 kV HV transmission line that will provide electrical interconnection between the plant and the existing transmission line, located approximately 70 m east of the Project.
4. Construction and operation of the third-party pipeline routed underground to the site that will provide natural gas from an existing underground gas pipeline approximately 1.6 km south of the Project at SE-28-041-04-W5M.

9.5 Project Expansion

The Project is a new facility and neither a component of, nor expansion of, another project.

10.0 MAXIMUM PRODUCTION CAPACITY

When fully operational, the Project will be capable of producing an estimated maximum power output of 460 MW, which is above the threshold of 200 MW set out in the Physical Activities Regulations, SOR/2019-285, Section 30. The Project production process involves producing electricity via a combined cycle power plant consisting of one natural gas-fired combustion turbine, one HRSG, and one steam turbine.

Information regarding production processes associated with the Project is detailed in Sections 1.0 and 9.1.6.

11.0 ANTICIPATED CONSTRUCTION, OPERATION, & DECOMMISSIONING SCHEDULES

Details regarding estimated Project timelines and major milestones are provided in Table 11.1. The Project is expected to have a lifespan of approximately 30 years.

If IAAC deems an Impact Assessment is required, Project timelines are anticipated to extend approximately three to five years beyond the dates provided in Table 11.1.

Table 11.1: Project Timelines

Task	Date
Site Access for Mobilization	Q2 to Q4 2027
Start of Construction	Q3 2027
Start of Commissioning Phase	Q2 2030 to Q4 2030
Construction Completion & Commercial Operations	Q4 2030 to Q1 2031
Decommissioning	2059 to 2060
Surface Reclamation	2061 to 2064

Q = Quarter

12.0 ALTERNATIVES TO THE PROJECT

The goal of the Project is to produce electrical power in an economic and environmentally responsible manner that is suitable for the selected geographic location. In Alberta, the electrical load grows every year and will continue to grow year over year. The main alternatives to gas fired thermal power generation are coal, solar, wind, hydro, nuclear, hydrogen fired generation, and biomass. The generation mix in Alberta is site-specific and driven by economics and market factors. Natural gas is an energy transition fuel that offers reliable, dispatchable, affordable power for Albertans at-scale.

12.1 Alternative Locations

Alternative locations for the Project are discussed in Section 1.1.2.

12.2 Alternative Means for Natural Gas Supply

No alternative fuel source was identified for the Project as natural gas is reliable, cost-effective, and with a potential option to add carbon capture and storage in the future, it is in alignment with TransAlta's energy transition strategy of providing clean, reliable, dispatchable, and affordable energy to Albertans.

12.3 Alternative Technologies

The Proponent undertook a high-level evaluation of several different technologies and processes that were initially considered feasible for Project execution. The study considered several different turbine generators and processes to maximize efficiency and reduce the waste of resources such as water.

The preliminary design study concluded that a 1x1x1 Combined Turbine Generator/HRSG/Steam Generator configuration, with a high efficiency, large scale (HL-class) gas turbine, such as the Siemens STG6-9000HL, would best meet the objectives.

12.4 Technical Alternatives to the Project

TransAlta has not identified any potential alternatives to the Project that are technically or economically feasible in the region. The Project is a standalone project to provide electricity to

the AIES. Capacity access at the electrical grid is the single largest limiting factor to the location and power output design of the Project. In addition, the Project requires both land access to the source gas, and an adequate supply of source gas, to provide energy inputs to the facility. Therefore, through engineering, technology, and financial feasibility analysis, it was determined the Project proposed represents the best technological, technical, and economically feasible option.

PART C: LOCATION INFORMATION & CONTEXT

13.0 PROJECT LOCATION DESCRIPTION

The Project is approximately 18 km southwest of the Town of Rimbey, Alberta, Canada (Drawing 1, Appendix B). The location of the Project was based on demand for electricity and available export grid capacity; proximity to natural gas supply and transmission line; adequate acreage; reasonable soil and topographic conditions; limited number of stakeholders to avoid noise disturbance; convenient access to site; road load capacity; and environmental considerations.

13.1 Geographic Coordinates & Description

The center of the Project Area is located at:

- Latitude: 52.569063°
- Longitude: -114.522132°
- Easting (NAD83): 11U 667937 m E
- Northing (NAD83): 11U 5827213 m N

13.2 Site Maps

Please refer to the Project Location Drawings (Appendix B):

- Drawing 1 Regional Project Location
- Drawing 2 Project Area
- Drawing 3 Soil Polygons
- Drawing 4 Watercourses
- Drawing 5 Wetlands
- Drawing 6 Indigenous Communities
- Drawing 7 Parks and Protected Areas

13.3 Legal Land Description

The Project is located on leased private land in Clearwater County, Alberta. The Project is in Legal Subdivisions 3 and 4, within SW-33-041-04-W5M.

13.4 Proximity to Residences

The Project is located on cultivated lands with the closest seasonal and/or permanent residence located approximately 0.9 km southeast of Project Area. Locations of the nearest residents to the Project are shown in Figure 1 of the NIA (Appendix F).

13.5 Proximity to Indigenous Lands

The Project is located on privately-owned land and is not located on reserve or Indigenous lands. A reserve is defined in subsection 2(1) of the *Indian Act*. First Nation land is defined in subsection 2(1) of the *Framework Agreement on First Nation Land Management Act, as* "reserve land or lands set aside to which a land code applies. It includes all the interests or land rights in, and resources of, the land that are within the legislative authority of Parliament."

The Project is located within the traditional lands of the following Indigenous communities:

Treaty 6 First Nations

- O'Chiese First Nation
- Sunchild First Nation
- Paul First Nation
- Ermineskin Cree Nation
- Louis Bull Tribe
- Montana First Nation
- Samson Cree Nation
- Enoch Cree Nation
- Alexander First Nation

Métis

- Otipemisiwak Métis Government, District 3

Non-Treaty Indigenous Communities

- Foothills Ojibway First Nation

Indigenous communities in proximity to the Project are presented on Drawing 6 (Appendix B). The following provides distances to nearby Indigenous communities:

- Buck Lake First Nation Reserve #133C, located 35 km north-northwest
- O'Chiese First Nation Reserve #203, located 48 km west-northwest
- Sunchild Cree First Nation Reserve #202, located 53 km west-northwest
- O'Chiese Cemetery First Nation Reserve #203A, located 53 km southwest
- Pigeon Lake First Nation Reserve #138A, located 56 km northwest
- Louis Bull First Nation Reserve #138B, located 69 km northeast
- Ermineskin Cree Nation Reserve #138 located 67.5 km east-northeast
- Samson First Nation Reserve # 137/137A, located 73 km east-northeast
- Montana First Nation Reserve # 139, located 72 km east-northeast
- Otipemisiwak Métis Government, District 3 (Project located within District 3)

13.6 Proximity to Federal Lands

No federal protected areas are located adjacent to or within 10 km of the Project Area. The closest national park is Banff National Park, located approximately 125 km southwest of the Project Area (Drawing 7, Appendix B). The nearest federal lands are reserve lands (specifically Buck Lake First Nation Reserve #133C) located 35 km north-northwest.

14.0 PHYSICAL & BIOLOGICAL ENVIRONMENT

The evaluation of physical and biological environment for the Project was completed for the Project through the following processes/steps which are further detailed in Sections 14.1 and 14.2:

- Desktop Review: Conducted to gain an understanding of the Project's location, regional and local landscape, and to inventory available/existing data.
- Identification of Valued Components (VCs): VCs were selected based on the experience of the Project team, results of the desktop review, and regulatory requirements.
- Assessment of VCs: VCs selected underwent additional assessments which consisted of modelling or field verification/studies (as necessary) along with a review of potential Project-related effects and proposed mitigation/monitoring measures.

14.1 Desktop Review

A desktop review was conducted prior to the baseline field surveys to characterize the physical and biological environment within the Project Area. The desktop review included a review of current and historical satellite imagery and regional information (e.g., Ecoregion) to gain an understanding of past and current land use, relative vegetation types, and potential sensitive features within the Project Area. The following databases and resources were also reviewed to determine potential sensitive species in the area and to develop proposed mitigation measures if warranted by a confirmed presence of species of management concern.

- The Alberta Conservation Information Management System (ACIMS) database was searched to identify historical observations of rare plants in the area.
- The Alberta Fish and Wildlife Internet Mapping Tool (FWIMT) was used to identify wildlife species at risk or of concern that have been previously observed within a 2 km radius of the Project.
- The Alberta Key Wildlife and Biodiversity Zone layer was reviewed to determine if the Project Area overlaps with a Key Wildlife and Biodiversity Zone.
- Wildlife Sensitive Ranges spatial mapping data, provided by AEPA to identify if the Project Area overlaps with sensitive species ranges.
- Canada Land Inventory was reviewed to assess land capability within the Project Area for ungulate and waterfowl use.
- Protected area mapping (e.g., wildlife sanctuaries, provincial protected areas, national parks, and critical wildlife habitat) was reviewed to determine if the Project Area is in a protected or managed area.
- The Environmentally Significant Area (ESA) layer was reviewed to determine if the quarter section containing the Project Area is considered an ESA.
- The Important Bird Area (IBA) layer was reviewed to assess the Project's proximity to IBAs.

Additionally, the following resources were reviewed to determine sensitive species inventory protocols and wildlife protection measures that may be applicable to the Project:

- Sensitive Species Inventory Guidelines (ESRD, 2013)
- Alberta Wild Species General Status Listing (GOA, 2020)
- Master Schedule of Standards and Conditions (GOA, 2024a)
- *Wildlife Act*, R.S.A. 2000, c. W-10
- *Species At Risk Act*
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (2023)

Special consideration is given for species that receive regulatory protections and/or are designated as “Endangered,” “Threatened,” or “Special Concern” under the federal *Species at Risk Act*, provincial *Wildlife Act*, R.S.A. 2000, c. W-10, and/or by the COSEWIC. In addition, consideration is given for species listed as “Sensitive,” “May be at Risk,” or “At Risk” under the provincial General Status of Alberta’s Wild Species (GOA, 2022).

14.1.1 Aerial Photography

14.1.1.1 Google Earth

Google Earth historical satellite imagery was searched by year to determine if changes in land use or vegetation cover were evident within the Project Area. Images reviewed were dated 1985, 2003, 2018, and 2023 (Google, n.d.).

Aerial imagery from 1985 is difficult to interpret due to the low resolution of the image; however, the lands appear to be forested. The next available satellite imagery is from 2003 which shows cultivation within the Project Area and adjacent lands. Therefore, the Project Area and adjacent lands were cleared for cultivation sometime between 1985 and 2003. No evidence of significant changes is apparent between the 2003 and 2023 images, except for clearing of vegetation along the road allowance of Range Road 44, approximately 240 m west of the Project Area.

14.1.1.2 AbaData

AbaData provides Geographic Information System (GIS) mapping of oil and gas, municipal information, environmental features, and other GIS data for Alberta, B.C. and Saskatchewan. Satellite images provided through AbaData were available from 2006 to 2022 inclusive for the Project (AbaData, 2024). No evidence of significant land use or vegetation changes is present within the Project Area between the images.

Based on the latest image available on AbaData (2022), and comparing it to the 2023 Google Earth image, clearing of vegetation on the road allowance of Range Road 44 to the west of the Project Area occurred between 2022 and 2023.

14.1.2 Ecoregion

The Project is in the White Area of Alberta, within the Boreal Forest Natural Region. The Project is within the defined Wildlife Management Unit ID 332: the Alder Flats Management Unit, located within the Foothills Wildlife Management Unit (GOA, n.d.).

14.1.2.1 Dry Mixedwood Subregion

The Project is within the Boreal Forest Natural Region, within the Dry Mixedwood Subregion (AEPA, 2014). The topography of the region ranges from level to gently undulated and rolling. There are three separate areas of dry mixedwood subregions, one which is within northwestern Alberta, and the two others being located to the south closer to Edmonton, which includes the Project lands. The ecoregion is known to be the most productive region within the Boreal Forest Natural Region, due to its warm summers and significant solar energy. Vegetation in the subregion is dominated by aspen forests and cultivated areas. Wetland habitats, most notably bogs and fens, are common throughout the Dry Mixedwood Subregion. It is estimated that over 40% to 70% of the Southern Dry Mixedwood Subregion has been cultivated.

14.1.3 Alberta Conservation Information Management System Results

ACIMS is a database that provides biodiversity information on Alberta's species, natural ecological communities and sites. The results of the ACIMS search (conducted November 2025) within 2 km of the Project Area indicated (GOA, 2022):

1. No non-sensitive element occurrences (EO)
2. No sensitive EOs (i.e., rare plants)
3. No protected areas found
4. No Crown reservations/notations found

According to the ACIMS database, an EO is “is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location” (GOA, 2022).

A copy of the ACIMS database results is provided in Appendix J.

14.1.4 Fish & Wildlife Internet Mapping Tool Search Results

The FWIMT search (conducted November 2025) identified five species of management concern have been historically documented within 2 km of the Project (GOA, 2024b):

- Common yellowthroat (*Geothlypis trichas*) and eastern kingbird (*Tyrannus tyrannus*), both listed as ‘Sensitive.’
- Western wood-pewee (*Contopus sordidulus*), which is listed provincially as ‘May Be at Risk.’

A copy of the FWIMT search results is provided in Appendix K.

14.1.5 Key Wildlife & Biodiversity Zone

The nearest Key Wildlife and Biodiversity Zone is approximately 11.6 km west-northwest of the Project Area (AEPA, 2025). Therefore, there are no construction timing restrictions related to the Key Wildlife and Biodiversity Zone proposed for the Project.

14.1.6 Wildlife Sensitivity Ranges

The Project is not within any sensitive species ranges. No known sensitive species regional habitat ranges are within 5 km of the Project Area (AEPA, 2025).

14.1.7 Fish & Fish Species

There are no permanent watercourses within the Project Area; therefore, an assessment for fish and fish habitat was not completed for the Project.

The Medicine River runs north-south approximately 2.2 km east of the Project Area. Welch Creek also runs north-south and is approximately 1.3 km west of the Project Area. No impacts to these watercourses are anticipated due to the distance from the Project Area and no watercourses or fish habitat are present within the Project Area. If TransAlta requires surface water withdrawals to provide the Project's source water, a Licence under the *Water Act*, R.S.A. 2000, c. W-3 will be applied for alongside an authorization application under the *Fisheries Act* (as required). The intake will comply with the Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater (DFO, 2020).

14.1.8 Canada Land Inventory

The Canada Land Inventory is a comprehensive land inventory of rural Canada, covering over 2.5 million square kilometres (km^2) of land and water. Land capability for agriculture, forestry, recreation, and wildlife (i.e., ungulates and waterfowl) was mapped between 1960 to the early 1980s, with over 1,000 map sheets created at the 1:250,000 scale (GOC, 2022). Although the inventory has not been updated since its creation, and better information is available for some areas as part of more recent soil surveys, the interpretations are still largely valid, and many jurisdictions still use them for land use planning purposes. There are seven classes used to rate agricultural land capability: Class 1 lands have the highest capability to support land-use activities, and Class 7 lands have the lowest. Subclasses are also used to identify specific limiting factors for each class.

14.1.8.1 Waterfowl

The lands within the Project are classified as Waterfowl Subset A – Class 6 – 100%. Lands in this class have severe limitations to the production of waterfowl due to adverse topography (Subclass T) and low fertility (Subclass F) (Abadata, 2025).

14.1.8.2 Ungulates

The lands within the Project are classified as Ungulate Subset A – Class 4 – 90%. Lands in this class have moderate limitations to the production of ungulates due to landform [poor distribution or interspersion of landforms necessary for optimum ungulate habitat (Subclass G) and low fertility - lack of nutrients in the soil for optimum plant growth (Subclass F)]. The

remaining portion of the lands are classified as Ungulate Subset B – Class 4 – 10%. Lands in this class have moderate limitations to the production of ungulates due to soil [poor soil moisture either moisture excessive or deficient (Subclass M) and low fertility - lack of nutrients in the soil for optimum plant growth (Subclass F)].

14.1.9 Wildlife Sanctuaries

No wildlife sanctuaries were identified within 10 km of the Project.

14.1.10 Provincial Protected Areas

The Welch Creek Natural Area is the closest protected area to the Project, approximately 6.6 km west-northwest of the Project Area, with the next closest being the Open Creek Natural Area approximately 10 km northwest (GOA, 2025b). The closest Provincial Park to the Project is the Crimson Lake Provincial Park, approximately 33.8 km west-southwest of the Project Area (Drawing 7, Appendix B).

14.1.11 National Parks

The closest National Park to the Project is Banff National Park, located approximately 125 km southwest of the Project Area (Drawing 7, Appendix B).

14.1.12 Critical Wildlife Habitat

Critical habitat is defined under section 2(1) of the *Species at Risk Act* as “habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species.”

There is no designated critical wildlife habitat present within 10 km of the Project (GOC, 2025).

14.1.13 Environmentally Significant Areas

ESAs are defined by Fiera Biological Consulting Ltd., (2014) as:

- Important to the long-term maintenance of biological diversity, soil, water, or other natural processes, at multiple spatial scales.
- Areas that contain rare or unique elements or that include elements that may require special management consideration due to their conservation needs.

It is important to note that ESAs do not (Fiera Biological Consulting Ltd., 2014):

- Consider how these areas are being, or how they should be, managed or conserved.
- Represent natural resource policy, areas requiring specific management objectives, or comprehensive status reporting.
- Represent government policy, and do not necessarily require or confer legal protection.
- Replace other indicator-specific mapping and planning tools, such as wetland inventories, caribou range maps, and species at risk recovery plans.

ESAs are intended as an information tool – not as a regulatory tool:

> Mapped ESAs "*are available for use by provincial and municipal land-use planners, industry, consultants, environmental organizations, academic institutions, and others, as an information tool to support municipal, regional, and provincial scale planning initiatives. The identification of significant areas does not consider how these areas are being, or how they should be, managed or conserved. As such, ESAs do not represent natural resource policy, areas requiring specific management objectives, or comprehensive status reporting. Further, ESAs do not represent government policy and do not necessarily require legal protection. They are intended to be an information tool that complements other information sources to inform land-use planning and policy at local, regional, and provincial scales*" (FIERA Biological Consulting, 2014).

A comprehensive list of criteria, sub-criteria, and indicators were selected to identify ESAs in Alberta. Given that a single criterion is unlikely to be representative of all desired components of an ESA, multiple criteria, sub-criteria, and indicators were incorporated into the ESA framework (FIERA Biological Consulting, 2014).

Once final ESA values were calculated, and a continuous ESA value surface was produced, the distribution of ESA scores was examined, and a variety of methods were explored to objectively assign an ESA cut-off value.

An ESA Value of 0.189 was professionally determined as the cut-off value for designating quarter sections as ESAs in the province (FIERA Biological Consulting, 2014). The ESA map was reviewed, and it was determined that the Project Area has an ESA value of 0.025, which is under the cut-off value.

14.1.14 Important Bird Area

The nearest IBA to the Project is the Bearhills Lake (AB038) IBA, approximately 70.6 km northeast of Project (IBA Canada, 2024).

14.2 Valued Components

VCs were selected based on the experience of the Project team, results of the desktop review, and requirements of AUC Rule 007 – Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations and Hydro Developments and Gas Utility Pipelines (AUC, 2024). The VCs identified and assessed for the Project include:

- Air Quality
- Noise
- Land Use
- Vegetation
- Soils
- Groundwater
- Wildlife (including migratory birds)
- Watercourses, Waterbodies and Wetlands

Details of the desktop review and baseline field surveys, the potential effects of the Project, and the mitigation measures for each VC are summarized in the following sections. Mitigation and management measures are also detailed in the Project's Environmental Protection Plan and Conservation and Reclamation Plan (EPP/C&R Plan), provided in Appendix L.

VCs requiring specific consideration under IAA are described in Part E.

14.2.1 Air Quality

14.2.1.1 Baseline Conditions

An AQA and associated dispersion modelling was completed for the Project in January 2024 by Horizon Compliance Group Inc. to assess the potential air quality effects of the Project on the surrounding environment. The purpose of the air quality dispersion modelling is to ensure the predicted maximum ground level concentrations (MGLCs) comply with the current AAAQOs (AEPA, 2019).

Dispersion modelling was performed using the United States Environmental Protection Agency AERMOD v.22112 dispersion model, in accordance with the requirements outlined within the Air Quality Model Guideline (AEPA, 2021). At the time of the AQA, the updated 2024 Alberta AAAQOs were not yet in effect (AEPA, 2024). However, the updated 2024 values for the MGLCs of the above-mentioned contaminants of concern have not changed since the previous version of the AAAQOs (AEP, 2019; AEPA, 2024).

A copy of the AQA completed for the Project is provided in Appendix E.

14.2.1.2 Potential Effects

The primary contaminant of concern from Project is nitrogen oxides (NO_x) from the combustion of natural gas, composed of nitric oxide (NO) and nitrogen dioxide (NO_2). Secondary substances of concern from natural gas combustion include carbon monoxide (CO), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and total suspended particulate matter (TSP). Potential ammonia (NH_3) resulting from the operation of the selective catalytic reduction (SCR) system was also evaluated.

Project emission sources of the contaminants of concern mentioned above were identified and characterized.

The results of the AQA determined the predicted MGLCs of NO_2, CO, $PM_{2.5}$, TSP, and NH_3 associated with various operating conditions of the Project comply with the applicable AAAQOs.

14.2.1.3 Mitigation Measures

No targeted mitigation measures in relation to air quality are proposed as the Project complies with applicable AAAQOs. During operations, the Project will track key air quality parameters through continuous air-quality monitoring. General mitigation measures and best management practices for the control of dust are also detailed in the Project's EPP/C&R Plan (Appendix L).

14.2.2 Noise

14.2.2.1 Baseline Conditions

An NIA and associated modelling was completed in October 2023 (revised in May 2025) by Rowan Williams Davies & Irwin Inc. (RWDI) to assess the potential noise effects of the Project on the surrounding environment. The NIA was prepared as per requirements under AUC Rule 012 (2024). AUC Rule 012 (2024) requires that a cumulative assessment be considered for the development of any energy related facilities (regulated through AUC or AER) in Alberta. The cumulative assessment includes contributions from both existing and approved (but not yet built) facilities.

A copy of the NIA completed for the Project is provided in Appendix F.

14.2.2.2 Potential Effects

Three dwellings were identified within 1.5 km from the Project; therefore, the predicted sound levels at those receptors were assessed for compliance with the PSLs established within AUC Rule 012.

The Project is predicted to comply with AUC Rule 012 PSLs at all receptors with the implementation of noise control recommendations on select equipment.

14.2.2.3 Mitigation Measures

Implementation of noise control recommendations on select equipment was advised and is further detailed in the Project's NIA (Appendix F). A pre-construction NIA will be updated once detailed mitigation designs are finalized for the Project. The Proponent has also committed to completing a post-construction noise survey at the identified dwelling receptors.

14.2.3 Land Use

14.2.3.1 *Ba*seline Conditions

The Project Area is on privately-owned and disturbed (i.e., cultivated) land. Historic satellite imagery (Google Earth) reveals the lands have been cultivated since at least 2003, with the lands being cleared of vegetation between the years of 1985 and 2003.

14.2.3.2 *Potential Effects*

Potential effects include loss of cultivated land use within the Project Area, as it transitions from agricultural to industrial during the Project's lifespan. Following decommissioning, lands will be restored to equivalent land capability as per reclamation standards in place at that time and in consultation with the landowner. Land use changes from the development of the Project would be restricted to the Project Area.

14.2.3.3 *Mitigation Measures*

No mitigation measures are proposed.

14.2.4 Vegetation

14.2.4.1 Baseline Conditions

The Project Area is sited within disturbed (i.e., cultivated) land, and no record of EOs (i.e., rare plants) were recorded on the ACIMS database within the Project Area. Vegetation within the Project Area was recorded parallel to the soils assessment completed by Bear Tracks Environmental Services (2015) Ltd. (BTES) on July 12, 2023.

No rare plants or rare plant communities or weeds governed under the *Weed Control Act*, S.A. 2008, c. W-5.1 were identified during the 2023 soil assessment. Four cultivated vegetation species were observed (Table 14.1), and therefore, the Project Area does not meet the requirements to be considered native grassland (i.e., >30% native species).

Table 14.1: Vegetation Identified within the Project Area

Vegetation Species	Percentage (%) of Vegetation
Cereal	75
Canola	12.5
Lentil	6.25
Peas	6.25

Photos of the vegetation within the Project Area are provided as Photos 1 and 2.

Photo 1: Project lands facing north from the southeast corner of the Project Area.

Photo 2: Project lands facing west from the southwest corner of the Project Area.

14.2.4.2 *Potential Effects*

All vegetation will be removed from those areas required for construction and operations (i.e., the Project Area).

14.2.4.3 *Mitigation Measures*

Mitigation measures and best management practices for vegetation removal/management and weed control are detailed in the site-specific EPP/C&R (Appendix L). Key mitigation measures and best management practices include:

- Restrict vegetation clearing to the Project Area. The boundaries of the Project Area should be flagged or staked to indicate where Project activities can occur.
- Maximize the use of existing roads and areas with existing disturbance.
- Inspect all construction equipment for attached vegetative matter to prevent the introduction of weeds.
- Clean construction equipment of soil and plant material prior to entering site and when leaving site.
- Manage weeds according to the *Weed Control Act*, S.A. 2008, c. W-5.1.
- Educate Project personnel on identification and management of weeds.

No woody vegetation (including salvageable timber) is present within the Project Area, and therefore, mitigation measures for woody vegetation management are not applicable.

14.2.5 Soils

14.2.5.1 Baseline Conditions

The Project is located on privately-owned land that has undergone cultivation for over 20 years (the exact timeframe is unknown but historical aerial imagery indicates cultivation within the Project Area occurring before 2003).

A soil assessment was conducted by BTES on July 12, 2023, to record soil depths within the Project Area (Table 14.2). A total of six soil pits were surveyed. Soils were classified according to Canadian System of Soil Classification 3rd Edition (Agriculture and Agri-Food Canada, 1998). Shallow inspection locations were completed to the total depth of the column (topsoil and subsoil), or topsoil plus 0.3 m of subsoil (whichever is less). In most instances, the profile is completed to the depth of the parent material.

Table 14.2: Sampled Soil Depths in the Project Area

Site ID	Horizon A	Depth (cm)	Horizon B	Depth (cm)	Horizon C	Depth (cm)
FP1	Ap	0 to 15	Bm	15 to 24	BC	24 to 42
FP2	Ap	0 to 12	AB	12 to 31	C	31+
FP3	Ap	0 to 10	AB; BC	10 to 23; 23 to 34	C	34+

Site ID	Horizon A	Depth (cm)	Horizon B	Depth (cm)	Horizon C	Depth (cm)
FP4	Ap	0 to 17	AB; BC	17 to 24; 24 to 34	C	34+
FP5	Ap	0 to 19	BC1	19 to 30	BC2	30+
FP6	Ap	0 to 23	BC1	23 to 44	C	44+

cm = centimetre

Agricultural Region of Alberta Soil Inventory Database Information

The Agricultural Region of Alberta Soil Inventory Database (AGRASID) was reviewed to provide data on soils in the Project Area (GOA, 2025c). Two mapped soil polygons are present within the Project Area (Table 14.3). Polygon 18276 encompasses the majority of the Project Area while polygon 18266 only slightly intersects with the southwestern corner of the Project Area.

Table 14.3: Soil Series and Land Suitability Rating within the Project Area

Polygon ID	Map Unit Name	LSRS Classification	Soil Subgroup	Drainage	Amount of Area for each LSRS Class Impacted by the Project (ha)
18276[(a)]	HGV16/U1h	3H(10)[(c)]	Orthic Gray Luvisol	Well	13.18
18266[(b)]	DEV1/O1	7WV(10)[(d)]	Typic Mesisol	Very Poorly	0.02[(e)]

[(a)]18276: Orthic Gray Luvisol on moderately fine textured (CL, SCL, SiCL) sediments deposited by water (HGV). The polygon includes Chernozemic soils (16). Undulating, high relief landform with a limiting slope of 4% (U1h).
[(b)]18266: Typic Mesisol on Sphagnum Peat (DEV). The polygon may include soils that are not strongly contrasting from the dominant or co-dominant soils (1). Level organic landform with a limiting slope of 1% (O1).
[(c)]3H(10): 3 = Moderate Limitations to growth; H = Temperature (inadequate heat units for the optimal growth); 10 = Proportion of Area (100%).
[(d)]7WV(10): 7 = Unsuitable for growth; W = Drainage [soils in which excess water (not due to inundation) limits the production)] V = Soil reaction (soils with a pH value either too high or too low for optimal growth); 10 = Proportion of Area (100%).
[(e)]Intersects slightly with the southwestern corner of the Project Area.
ha = hectares
LSRS = Land Suitability Rating System

The soils information provided from AGRASID indicate generally silty loam or clay loam in the upper soil layers, while deeper layers indicate a dominance of silty loam, silty clay, or clay loam. The lower percentages of clay in the soil layers also suggest there is a low risk of compaction as a result of the Project.

Clubroot Management

The cumulative clubroot infestations shown on the Alberta clubroot website and associated map (2023) shows low clubroot infestations between the years of 2005 to 2023 within Clearwater County (GOA, 2024c).

Salinity

No salinity mapping has been completed for Clearwater County (GOA, 2024d).

Potential for Contamination

No evidence of contamination was observed during the baseline field surveys within the Project Area; however, further consultation with the landowner would be required to determine if the site has been previously contaminated.

A brief desktop review using AbatData (2025) was completed. AbaData is a web-based oilfield mapping program that also provides information on published oil and gas regulatory non-compliance and spills. A search of the AbaData online database indicated that no reported spills or incidents associated with oil and gas infrastructure has occurred within the Project Area (Abadata, 2025).

The review of desktop resources should not be considered as containing all relevant information to determine the likelihood of contamination. The potential presence/absence of contamination cannot be based upon this desktop review only.

14.2.5.2 Potential Effects

Soils and terrain will be disturbed within the Project Area primarily during the site preparation and construction phase (e.g., grading and infrastructure installation), and again during infrastructure removal and reclamation. Activities identified as having the greatest potential impact upon soils and terrain are predominantly associated with the following:

- Earthworks (e.g., stripping and grading of surface soils).
- Use of construction equipment.
- Installation and subsequent removal of Project infrastructure.

During the above activities, soils have the potential to be affected through compaction or rutting from equipment use, erosion and sedimentation of exposed soils, and admixing of the topsoil and subsoil. In addition, there is the potential for soil contamination as a result of clubroot and equipment accidents/malfunctions.

The soils information provided in the online soil map unit characteristics, as well as the results of the soil assessment, indicates that construction activities would be anticipated to operate inside normal parameters with no special mitigation measures required.

14.2.5.3 Mitigation Measures

The soil assessment, along with the experience of the EPC contractor on-site at the time of construction, will be used to determine soil characteristics of the Project Area to guide effective construction methods to reduce impacts to soils where possible. In addition, a site-specific EPP/C&R Plan (Appendix L) has been developed for the Project which includes mitigation measures and best management practices related to soil handling, storage, and management during Project activities. Also included in the EPP/C&R Plan is a protocol for assessing clubroot within the Project Area; should clubroot be identified, additional mitigation, monitoring, and best management measures will be developed and implemented for the Project.

Stockpiling

For soils that are stripped on the site, two-lift stripping will be implemented. The topsoil layer will be stripped and stockpiled separately from the subsoil layers. Stockpiles will be managed as follows:

- Stockpiles in place for more than 30 days on or off-site need to be labelled on construction drawings.
- Stockpiles that are in place for more than 30 days need to be covered and stabilized with mulch, seeded vegetative cover, or other suitable measures.
- Erosion control measures should be implemented, if necessary, although permanent erosion control is recommended for areas that cannot be leveled right away.
- Erosion control tools such as silt fencing, fibre rolls, or compost socks must be used where soils are likely to migrate downslope.
- Additional erosion control measures are required for areas within 100 m upstream of a waterbody or areas that contain steep slopes.

Erosion Control

Erosion and sediment controls will follow current best management practices and guidelines at the time of construction, which may be determined by the construction personnel at the time based on their relevant experiences. The Project will rely on the expertise of professionals that will be on-site at the time of construction.

Accidents and Malfunctions

To reduce and prevent potential spills and leaks, a site-specific ERP will be developed and made available on-site. Emergency spill kits will be on-site, and hazardous waste will be disposed in a safe manner. Fueling of equipment will occur more than 100 m from any wetland, and fuel and/or other potential hazardous material will be stored within appropriate containers in a designated area.

A preliminary copy of the Project's ERP is provided in Appendix M.

General Soils Management

A summary of general soil management and mitigation measures is provided in Table 14.4.

Table 14.4: General Soils Management

Activity/Concern	Mitigation
Wet/Thawed Soil Conditions	• Avoid use of heavy machinery in wet or thawed soil conditions to reduce terrain disturbance and soil structure damage. • Initiate contingency measures once one of the following indicators occurs: excessive rutting, wheel slip, build-up of mud on tires and cleats, formation of puddles, and/or tracking of mud down the road as vehicles leave the site. • Limit equipment traffic to the late afternoon or early morning when ground conditions are frozen or delay construction until soils dry or become frozen (where feasible).

Activity/Concern	Mitigation
	• Restrict construction vehicle traffic to equipment with low-ground-pressure tires or wide pad tracks.
Topsoil Salvage Schedule	• Prioritize pre-stripping topsoil prior to freeze-up (where feasible) if construction is scheduled to occur during frozen ground conditions. • Prioritize topsoil salvage prior to October 31, where possible. • Avoid topsoil salvage during excessively wet conditions (i.e., wait until after sprint break-up).
Topsoil Salvage - Frozen Conditions	• Reduce the area of land subject to topsoil salvage during frozen conditions to areas that will be subject to grading. • Limit topsoil stripping activities to specialized equipment capable of accurately separating variable depths of topsoil from subsoil (e.g., frozen topsoil cutter, if available). If a frozen topsoil cutter/mulcher is not available, rip frozen topsoil to the same depth as the salvage requirements.
Wind Erosion of Topsoil Windthrow	• Tackify or apply water or pack the topsoil windrow (where necessary) with approved equipment. Application of a tackifier following topsoil removal can be more cost effective than repeated watering of topsoil windrows and piles.
Grading	• Salvage topsoil from areas to be graded and store in a location that will not allow for mixing of topsoil with excavated subsoil and graded material. The area stripped is to correspond to the area to be graded.
Trenching	• Notify the Environmental Manager if plough-in of pipelines or utilities are not possible due to site-specific conditions (e.g., excessive rocks) and trenching is required, • Salvage the topsoil/root system on the work side of the trench. • Excavate the trench to depth, storing the subsoil as close as practical to the trench on the travel side of the right-of-way. • Ensure enough workspace is available to allow for sufficient distance to be left in place between the soil and the excavation to reduce the risk of soil material sloughing into the excavation of open trenches. • Place a sand or gravel bed along the bottom of the trench if necessary for electrical safety and reliability. • Backfill trench with excavated material (parent materials) using the first out, last in method. • Replace subsoils and de-compact, using a reverse rototiller, on light tracked equipment such as a skid steer or a bobcat. • Replace topsoil/root system to match adjacent profiles to promote natural regeneration and retain hydrology. • Reseed based on erosion potential, if and as appropriate [e.g., large areas (>10 m^2) of exposed soil]. • Implement erosion and sediment controls as required.
Compaction Prevention	• Use well marked access routes consistently. • Constrict vehicle and machinery traffic to those access routes only. • Mirror future access routes to past or future travel areas. • Be aware of weather, season fluctuations, and possible weather extremes.

Activity/Concern	Mitigation
	• Use proposed infrastructure locations for staging areas, turn-around areas, stockpile locations, equipment storage. • Reduce travel by optimally planning access and egress routes. • Use methods other than equipment to distribute weight over maximum surface area (e.g., rubber rig matting for staging and storage areas).
Backfilling	• Prioritize scheduling deliveries of imported fill (if required) so it can be installed directly into the excavation upon arrival rather than being temporarily stored prior to being backfilled. • Avoid mixing snow into backfill material. • Feather out excess spoil material across the area that has been stripped of topsoil. Avoid mixing topsoil and feathered subsoil material. Blend feathered material into the natural grade of the area to not change local surface drainage patterns.
Excess Spoil	• Dispose of excess spoil material on-site.

14.2.6 Groundwater

14.2.6.1 *Baseline Conditions*

Groundwater levels are expected to rise and fall with the seasons and after prolonged rain events or snowmelt. Perched groundwater may be found in sandy layers between clay deposits above the groundwater table, which will dissipate after wet periods as groundwater infiltrates down to the static groundwater level during drier periods.

A detailed geotechnical study to assess subsurface conditions has not been completed for the Project location at this stage. The Proponent is committed to initiating a geotechnical study as part of detailed engineering following AUC approval and to support foundation design and construction planning, which would include an assessment of groundwater conditions and levels within the Project Area. Based on available groundwater well data (through the Alberta Water Well Information Database), the section containing the Project (i.e., 33-041-04-W5M) has recorded water depths between 8 feet (ft) and 20 ft (approximately 2.4 m and 6.1 m).

14.2.6.2 Potential Effects

Groundwater can be broadly evaluated through two characteristics: groundwater quantity and quality. Groundwater quantity refers to the availability of groundwater at a given rate for production and use and can vary widely depending on local geology and past/current use. Groundwater quality refers to the chemical composition of groundwater and its suitability for different uses and varies widely based on the local geology and past/current land uses. In evaluating potential effects on groundwater resources, both quantity and quality are considered.

The Project will interact with groundwater during the construction phase, operational phase, and decommissioning/reclamation phase. Interactions between the Project and groundwater may occur during the installation of permanent sub-surface infrastructure (e.g., buried electrical lines, building foundations) along with subsequent removal during reclamation.

Interactions between the Project and groundwater quantity can include:

- Groundwater withdrawals during construction (if required).
- Groundwater withdrawals for Project water supply during operations (if required; the water source for the Project is under evaluation and will be determined as part of detailed engineering). Water withdrawals (if required) will adhere to provincial requirements and guidelines, including the *Water Act*, R.S.A. 2000, c. W-3, the Water (Ministerial) Regulation, Alta Reg. 205/1998, and the AEPA Guide to Groundwater Authorization (GOA, 2023).
- Changes to how water recharges into the ground due to new Project infrastructure or drainage systems.

Interactions between the Project and groundwater quality can include:

- Changes to groundwater flow patterns during construction and/or operations that can in turn affect groundwater quality.
- Accidental groundwater contamination related to construction activities.
- Accidental groundwater contamination related to Project operations.

Groundwater information assessed as part of the desktop review indicates that general construction, operation, and reclamation activities at grade are not anticipated to interact with groundwater as a result of the measured depth below surface (ranging from 8 ft to 20 ft, or approximately 2.4 m and 6.1 m). Permanent subsurface infrastructure (i.e., utilities, foundations/pilings, etc.) may interact with the groundwater table as pilings are anticipated to be required to a maximum depth of 11 m.

14.2.6.3 Mitigation Measures

A site-specific EPP/C&R (Appendix L) has been developed for the Project and will be used to guide construction, operations, and reclamation to further reduce the Project's effects on groundwater. If groundwater is encountered during construction, measures such as conventional pumping may be required and are expected to be effective.

During construction, mitigation may include:

- Follow waste management procedures.
- Implement and follow procedures to manage the risk of spills (i.e., ERP).
- Reduce the amount of time that excavations are open during construction.
- Develop and install a groundwater monitoring network as required by AEPA.

Accidents and malfunctions that have the potential to affect groundwater will be mitigated through the following:

- The Project's ERP (preliminary provided in Appendix M) will detail protocols for spill prevention and response planning, such that incidental spills are quickly identified, reported, and remediated.

- A groundwater monitoring network and a groundwater monitoring program may be implemented in accordance with the terms and conditions of the EPEA Approval. The groundwater monitoring network would be designed to provide adequate characterization of baseline groundwater quality and ongoing characterization of groundwater quality during construction and operation of the Project for potential sources of contamination.

- Secondary containment and leak detection incorporated in the Project's design will mitigate the potential for process liquids or wastes to be released into the environment (where they could migrate into groundwater). Routine maintenance inspections will be scheduled.

If groundwater is selected as the source for the Project's water supply during operations, withdrawals will adhere to mitigation and monitoring stipulated in the Licence terms and conditions along with requirements under the *Water Act*, R.S.A. 2000, c. W-3, the Water (Ministerial) Regulation, Alta Reg. 205/1998, and the AEPA Guide to Groundwater Authorization (GOA, 2023).

14.2.7 Wildlife

14.2.7.1 Baseline Conditions

Habitat

The ecological impacts of the Project will depend on the nature and extent of the existing disturbance, and the degree to which natural and semi-natural habitats are already fragmented and isolated by intervening land use. The existing disturbance around this Project is related to existing cultivation and pasture land, as well as oil and gas facilities (i.e., pipelines, wellsites) located approximately 460 m northwest, 640 m north, 400 m east, and 1.2 km south of the Project Area. The nearest forest stands are isolated mixedwood forests located approximately 450 m north and 460 m west of the Project Area.

Observation of the vegetation and lack of natural waterbodies within the Project Area indicates wildlife habitat of poor quality. Due to the lands being cultivated, there is no longer adequate cover for thermal and security requirements, and adequate under-story vegetation and food availability for small and large ungulates are not present. In addition, the existence of additional surrounding cultivated and pasture lands and oil and gas infrastructure likely limit wildlife use of the lands within the Project Area.

Impacts of the Project include a permanent displacement of wildlife species utilizing the Project Area during construction and operations. Complete loss of cultivated habitat within the Project Area will occur as the entire Project Area (13.2 ha) will be enclosed in a fence for safety and security purposes. Habitat impacted by the Project is considered to of low quality as it is subject to frequent disturbance associated with agricultural activities and vegetation present is dominated by non-native crop species (with no shrub or treed habitat present). Further, given

the amount of remaining available habitat of equal quality (i.e., cultivated field) or improved quality (e.g., vegetated cover to the east) surrounding the Project, there appears to be adequate habitat to continue to support wildlife in the local and regional area.

Ungulates

Ungulate species expected to inhabit the vicinity of the Project were identified through an examination of distribution maps, review of the Canada Land Inventory (GOC, 2022), and comparison of preferred habitat with that in the vicinity of the Project Area.

- Moose (*Alces alces andersoni*)
- Mule Deer (*Odocoileus hemionus*)
- White-tailed Deer (*Odocoileus virginianus*)

Moose

Of the ungulates known to occur, moose is expected to be found in the regional area of the Project. Optimal moose habitat occurs within the early successional mixedwood forest stands with willows (*Salix spp.*), aspen (*Populus tremuloides*), and poplars (*Populus spp.*). Moose are also expected within riparian and shoreline areas in the local region including Welch Creek approximately 1.3 km to the west and Medicine River approximately 2.2 km to the east.

The cultivated lands of the Project Area are not expected to meet the observed security and thermal requirements of the species, suggesting that the Project will not significantly impact moose habitat.

Mule Deer

During spring and summer, grass and forbs make up a substantial part of the diet of the mule deer. In fall and throughout winter, mule deer primarily browse on shrubs (Buckmaster et al., 1999). Important shrubs during the winter include willow, saskatoon (*Amalanchier alnifolia*), red-osier dogwood (*Cornus stolonifera*), rose (*Rosa spp*.), chokecherry (*Prunus pennsylvanica*), snowberry (*Symphoricarpos albus*), silverberry (*Eleagnus commutata*), and young aspen trees (Buckmaster et al., 1999).

In forested areas, mule deer are associated with hiding cover year-round and thermal cover (>1.5 m tall, >70% canopy closure) for protection and snow interception during winter (Buckmaster et al., 1999). In forested habitat, deer are usually found within 180 m of the cover/forage edge (Buckmaster et al., 1999). Based upon the results indicated by Buckmaster et al. (1999), the cultivated lands of the Project Area are not expected to meet the observed security and thermal requirements of the species, suggesting that the Project will not significantly impact mule deer habitat as they are expected to generally avoid the open cultivated lands of the Project Area in pursuit of a more suitable habitat.

White-tail Deer

White-tailed deer forage on grasses, forbs, and shrubby browse. They require large amounts of easily digested food (Buckmaster et al., 1999). During spring and summer, forbs, grasses, and

sedges are common in their diet (Buckmaster et al., 1999). Forbs are eaten more than other forage during spring. White-tailed deer use forbs almost exclusively during summer; especially legumes (clover, pea-vine, vetch). In early fall, the deer begin to utilize more grasses and some browse, but forbs are still the main food. In late fall and throughout the winter, white-tailed deer browse on numerous species of deciduous trees and shrubs and coniferous trees (Buckmaster et al., 1999).

White-tailed deer are an edge species. Suitable habitats have an intersection of untreed grassy or shrubby areas for feeding and treed areas for cover (Buckmaster et al., 1999). Areas of >75% canopy closure that is >1.5 m in height provide thermal and hiding cover, and reduce snow accumulation, which can limit movements of white-tailed deer (Buckmaster et al., 1999). Most white-tailed deer habitat use is within 180 m of cover/open area edges (Buckmaster et al., 1999). Thermal cover is important in winter during periods of extreme wind chill. Mature coniferous stands may be used for protection since the branches provide wind protection and the ground tends to accumulate less snow. Cover is also required for protection from predators (Buckmaster et al., 1999). Areas with conifers and aspens may be among the best habitat for providing a mixture of food and cover. In mixedwood forests, white-tailed deer were more often in old (120+ year) stands versus mature (50 to 65 year) or young stands (20 to 30 year) during the winter (Buckmaster et al., 1999). Tall, large trees, gaps in the tree canopy, higher densities of conifer and abundant shrubs in old stands provided a good combination of winter food and thermal cover (Buckmaster et al., 1999). Winter deer abundance increased with distance from roads and cutblocks and decreased with distance from small conifer patches. During the summer, deer were found in all stand ages and showed no relationship between distance to roads or cutblocks (Buckmaster et al., 1999).

Based upon the results indicated by Buckmaster et al. (1999) there is not adequate cover or under-story vegetation and limited food availability for ungulates in the Project Area, in addition to poor security and thermal cover. The key browse species used by deer are not found within the Project Area or adjacent lands due to cultivation; however, it is expected that surrounding forest systems in the local and regional area will maintain adequate thermal and security requirements of the species.

Carnivores

Carnivore species expected to inhabit the vicinity of the Project were identified through an examination of distribution maps and comparison of preferred habitat with that in the vicinity of the Project Area.

- American marten (*Martes Americana)*: Prefers mature, particularly coniferous forests that contain numerous dead trunks, branches, and leaves and is not expected within the Project Area.

- Striped skunk (*Mephitis mephitis*): Prefers groves of hardwood trees and semi-open areas. Suitable habitat characteristics are found in the local area, however, are not present within the Project Area.

- Canada lynx (*Lynx canadensis)*: Occupies coniferous and deciduous forests with numerous fallen trees and dense thickets and is not expected within the Project Area.

- Cougar (*Puma concolor*): Cougar habitat coincides with that of their prey. Within this habitat, cougars tend to prefer rocky cliffs, ledges, vegetated ridgetops, or other areas that provide cover for undetected surveillance of prey. Stream courses and ridgetops are frequently used as travel corridors and hunting routes. Riparian vegetation along streams provides cover for cougars traveling in open areas (Tesky, 1995). Deer dominate the diet of cougars in most areas (Tesky, 1995). Other prey species include white-tailed deer, elk (*Cervis canadensis*), moose (*Alces alces*), bighorn sheep (*Ovis canadensis*), porcupines (*Erthizon dorsatum*), American beavers (*Castor canadensis*), snowshoe hares (*Lepus californicus*), ground squirrels (*Citellus spp*.), marmots (*Marmota spp*.), smaller rodents (*Rodentia*), other carnivores, and domestic livestock (Tesky, 1995). As the prey requirements for the cougar appear within the region, cougar is expected within the region; however, cougars rarely occupy expansive open areas (AEPA, 2012) (such as cultivation) so it is unlikely they will be found in the Project Area.

- Short-tailed weasel (*Mustela erminea*): Most abundant in coniferous or mixed forests and streamside woodlands and is expected in the forest systems, but lack of cover suggests limited use within the Project Area.

- Black bear (*Ursus americanus*): Primarily a forest species but is often forage in natural or artificial clearings. A mosaic of forest cover and clearings or early successional habitat represents the most suitable habitat for black bears (Buckmaster et al., 1999). As distance from cover to open area edge increases to 180 to 200 m, use by black bears decreases (Buckmaster et al., 1999). Because black bears den during the winter, they do not have the thermal cover requirements of species active year-round. Nevertheless, escape cover is required during a bear's active months against potential predators (Buckmaster et al., 1999). Black bears will use dense cover and/or trees to escape from predators, and commonly bed in dense shrub communities (Buckmaster et al., 1999). Male black bears have very large home ranges, and females have smaller, more defined home ranges (Buckmaster et al., 1999). Based upon the vegetation characteristics in adjacent areas and the high potential for forage capabilities, in addition to prey species, black bears are expected within the regional area but unlikely to be found within the Project Area due to the lack of wooded/forested habitat.

- Coyote (*Canis latrans)*: Very common in the local study area. Adapts easily to human disturbance.

Avifauna

Breeding Bird Surveys

Breeding bird surveys were completed by BTES on June 9 and 30, 2023 and again on June 5 and 26, 2025, in accordance with the Alberta Sensitive Species Inventory Guidelines. During the surveys, breeding bird activity was observed throughout the Project Area and in adjacent habitats, with species associated with both grassland and arboreal habitats detected during the assessments. Detailed methods and results of the 2023 and 2025 breeding bird surveys are provided in Appendix N.

Three species of management concern were identified during the surveys: common yellowthroat, eastern kingbird, and American kestrel (*Falco sparverius*) all of which are listed as 'Sensitive' in Alberta. Two species observed were listed as 'Exotic/Alien' in Alberta: European starling (*Sturnus vulgaris*) and rock pigeon (*Columba livia*). All other species observed have a 'Secure' management status under provincial legislation. No species at risk, as defined under the federal *Species at Risk Act* and provincial *Wildlife Act*, R.S.A. 2000, c. W-10 were identified. A complete list of species observed during the assessment, along with their provincial and federal status, is presented in Table 14.5.

Table 14.5: Avifauna Identified During the 2023 and 2025 Breeding Bird Surveys

Common Name	Latin Name	Species Status			
		Alberta General Status	*Wildlife Act,* R.S.A. 2000, c. W-10	COSEWIC	*Species at Risk Act*
Alder Flycatcher	*Empidonax alnorum*	Secure	-	-	-
American Crow	*Corvus brachyrhynchos*	Secure	-	-	-
American Goldfinch	*Spinus tristis*	Secure	-	-	-
American Kestrel	***Falco sparverius***	**Sensitive**	**-**	**-**	**-**
American Robin	*Turdus migratorius*	Secure	-	-	-
Black-billed Magpie	*Pica hudsonia*	Secure	-	-	-
Brewer's Blackbird	*Euphagus cyanocephalus*	Secure	-	-	-
Brown-headed Cowbird	*Molothrus ater*	Secure	-	-	-
Canada Goose	*Branta canadensis*	Secure	-	-	-
Clay-colored Sparrow	*Spizella pallida*	Secure	-	-	-
Common Yellowthroat	***Geothlypis trichas***	**Sensitive**	-	-	-
Eastern Kingbird	***Tyrannus tyrannus***	**Sensitive**	-	-	-
European Starling	*Sturnus vulgaris*	Exotic/Alien	-	-	-
Horned Lark	*Erempphila alpestris*	Secure	-	-	-
House Wren	*Troglodytes aedon*	Secure	-	-	-
Killdeer	*Charadrius vociferus*	Secure	-	-	-
Least Flycatcher	*Empidonax minimus*	Secure	-	-	-

Common Name	Latin Name	Species Status			
		Alberta General Status	*Wildlife Act,* R.S.A. 2000, c. W-10	COSEWIC	*Species at Risk Act*
Mourning Dove	*Zenaida macroura*	Secure	-	-	-
Mallard	*Anas platyrhynchos*	Secure	-	-	-
Northern Flicker	*Colaptes auratus*	Secure	-	-	-
Red-tailed Hawk	*Buteo jamaicensis*	Secure	-	Not at Risk	-
Red-winged Blackbird	*Agelaius phoeniceus*	Secure	-	-	-
Rock Pigeon/Dove	*Columba livia*	Exotic/Alien	-	-	-
Savannah Sparrow	*Passerculus sandwichensis*	Secure	-	-	-
Song Sparrow	*Melospiza melodia*	Secure	-	-	-
Vesper Sparrow	*Pooecetes gramineus*	Secure	-	-	-
Western Meadowlark	*Sturnella neglecta*	Secure	-	-	-
White-crowned Sparrow	*Zonotrichica leucophrys*	Secure	-	-	-
White-throated Sparrow	*Zonotrichia leucophrys*	Secure	-	-	-
Wilson's Snipe	*Gallinago delicata*	Secure	-	-	-
Yellow Warbler	*Setophaga petechia*	Secure	-	-	-
Yellow-rumped Warbler	*Dendroica coronata*	Secure	-	-	-

Bold = Sensitive species
COSEWIC = Committee on the Status of Endangered Wildlife in Canada

Raptor Nest Surveys

Raptor nest surveys were completed by BTES in conjunction with the breeding bird surveys on June 9 and 30, 2023, and again on June 5 and 26, 2025, within 1,000 m of the Project Area. Detailed methods and results of the 2023 and 2025 raptor nest surveys are provided in Appendix N.

The nearest suitable raptor nesting habitat is tree stands approximately 450 m from the boundary of the Project Area. However, suitable raptor hunting habitat exists within and in proximity to the Project Area. Red-tailed hawk (*Buteo jamaicensis*) and American kestrel were the only raptor species observed during the baseline field surveys. Red-tailed hawk is listed as 'Secure' in Alberta while American kestrel is listed as 'Sensitive'.

No raptor nests were identified within 1,000 m of the Project Area during the 2023 and 2025 field surveys. As no nests were identified within 1,000 m of the Project Area, no mitigation is currently required with respect to this species group.

14.2.7.2 Potential Effects

Disturbance and displacement of wildlife is expected during construction and operations as a result of physical disturbance (e.g., vegetation removal, infrastructure installation) and sensory disturbance (e.g., noise, light). Loss of habitat will be restricted to the Project Area as the

Project will be fully fenced. The footprint of the Project Area has been minimized to the extent possible (13.2 ha), and the Project has been sited in cultivated habitat (low quality habitat) to reduce impacts to wildlife and associated habitat.

The Project's potential effect on ungulate and carnivore species is anticipated to be minor as suitable habitat for these species was not identified within the Project Area. Potential effects associated with sensory disturbance may occur; however, effects are anticipated to be localized.

Some migratory and non-migratory bird species may also be affected during construction and operation of the Project. Specifically, removal of cultivated vegetation from the Project Area (13.2 ha) and ground disturbance could reduce bird habitat for select species who utilize crops for vegetative cover. Potential sensory disturbance (e.g., noise, light) may also cause birds to avoid the localized area. The risk of bird mortality from collisions with equipment during construction and operations is anticipated to be low as it is expected that bird species will avoid the Project Area due to physical and sensory disturbance. Dust and emissions from vehicles and equipment may make the area temporarily less suitable for birds by reducing food or nesting site availability.

Wildlife habitat remains available outside the Project Area. Further, following Project decommissioning, the Project Area will be reclaimed to equivalent land capability.

14.2.7.3 Mitigation Measures

No species requiring construction timing restrictions or nest protection were found or are expected in the Project Area. Therefore, no mitigation is proposed at this time.

14.2.8 Watercourses, Waterbodies, & Wetlands

14.2.8.1 Baseline Conditions

Potential watercourses, ephemeral waterbodies, and wetlands within and adjacent to the Project Area were identified and preliminarily classified using current and historic satellite imagery, as well as reviewing the Alberta Biodiversity Monitoring Institute (ABMI) Wetland Inventory Data (2021). Subsequent field surveys were completed by BTES on July 12, 2023, and again on May 27, 2025, within 100 m of the Project Area to field-verify watercourse, ephemeral waterbody, and wetland features. Wetland boundaries were classified according to the Alberta Wetland Classification System (GOA, 2015) using an evaluation of soil conditions, dominant wetland vegetation species, and a determination of water permanency. All wetlands encountered were also visually inspected for evidence of amphibian presence (i.e., eggs, tadpoles, frogs/toads and froglets/toadlets).

Detailed methodology and results of the 2023 and 2025 surveys for freshwater features are provided in Appendix N.

Watercourses

No mapped watercourses are present within or adjacent to the Project Area. A review of historical aerial photos between 2003 and 2022 did not reveal the presence of watercourses across the Project Area. The nearest named watercourses to the Project Area are the Medicine River, approximately 2.2 km to the east, and Welch Creek, approximately 1.3 km to the west (Drawing 4, Appendix B).

The 2023 and 2025 baseline field surveys confirmed there are no watercourses with defined bed or banks, or aquatic vegetation within the Project Area.

Wetlands

Potential wetlands occurring in the Project Area were identified and preliminarily classified using current and historic satellite imagery along with a review of the ABMI Wetland Inventory Data (2021). No wetlands were identified within the Project Area based on the desktop review, which was subsequently confirmed during the 2023 and 2025 surveys.

Outside of the Project Area, two seasonal marsh wetlands were identified. One is located immediately adjacent to the western boundary of the Project Area and the other is approximately 160 m north of the Project Area (Drawing 5, Appendix B).

Ephemeral Water Features

One ephemeral drainage feature, which undergoes annual cultivation, was identified during field surveys within the northeastern corner of the Project Area. The ephemeral drainage feature does not meet the definition of a watercourse and does not require a setback as it undergoes annual cultivation; however, a Code of Practice Notification will be required 10 days prior to direct disturbance. No other ephemeral water features were identified within 100 m of the Project Area during the field surveys.

14.2.8.2 Potential Effects

No direct impacts to watercourses, waterbodies, and wetlands are anticipated at this time as these freshwater features have been avoided by the Project. The one ephemeral drainage located within the northeastern portion of the Project Area will be impacted by Project construction.

14.2.8.3 Mitigation Measures

No mitigation is proposed as watercourses, waterbodies, and wetlands are not proposed to be impacted by Project. A setback is not required for the ephemeral drainage feature identified within the northeast corner of the Project Area as it undergoes annual cultivation; however, a Code of Practice Notification will be submitted 10 days prior to direct disturbance.

15.0 HEALTH, SOCIAL, & ECONOMIC CONTEXT

Clearwater County encompasses approximately 18,691 km^2 and includes the Project as well as the Town of Rocky Mountain House. The next nearest town to the Project is the Town of Rimbey, located in Ponoka County, Alberta. The Town of Rocky Mountain House is approximately 33 km southwest of the Project Area, while Rimbey is approximately 18 km northwest of the Project Area. The next nearest municipalities of adequate size include the Town of Sylvan Lake, approximately 40 km southeast, and the City of Red Deer, approximately 53 km southeast of the Project Area.

In 2021, the Town of Rimbey had a population of 2,470, a 3.8% decrease since 2016 (Statistics Canada, 2024). About 160 residents (6.5%) identified as Indigenous, which is close to the provincial average of 6.7%. According to Statistics Canada (2024), the median total income in 2020 for the Town of Rimbey was $33,200.

Rocky Mountain House had a population of 6,765 people in 2021, showing a 2% increase since 2016. Around 750 people (11.1%) identified as Indigenous, which is higher than both Rimbey and the Alberta average (Statistics Canada, 2024). According to Statistics Canada (2024), the median total income in 2020 for the Rocky Mountain House was $41,600.

From 2016 to 2021, Clearwater County's population declined slightly by 0.7%. In 2021, the median age was 46.4 years, and the median individual income was $37,600. In 2023, the County collected about $52.8 million in net municipal taxes (Statistics Canada, 2024). According to Statistics Canada (2024), the median total income in 2020 for the Clearwater County was $37,600.

Alberta Health Services (AHS) is the provincewide integrated health system, responsible for delivering health services to the residents of Alberta. AHS operates both the Rimbey Community Health Centre and the Rimbey Hospital and Care Centre in the Town of Rimbey, as well as the Rocky Mountain House Health Centre in the Town of Rocky Mountain House. Facilities in each town provide access to several health services, such as emergency services, addiction and mental health services, occupational therapy services, as well as sexual health and social work services.

AHS publishes community health profiles with a health data summary for towns across the province every two to three years to provide a broad range of demographic, socio-economic population health statistics that are considered relevant to primary health care for communities. These community profiles provide information at the Zone and Local Geographic Area (LGA) level for each of the 132 LGAs in Alberta. Each community profile offers an overview of the current health status of the residents of the LGA, with the intention of highlighting areas of need and providing relevant information to support planning of primary health services. The Town of Rimbey LGA includes the town as well as the surrounding area where residents would use the health services of the town. Similarly, the Town of Rocky Mountain House LGA includes the town as well as the surrounding area where residents would use the health services of the town (GOA, 2025e; GOA, 2025f).

Life expectancy at birth is often recognized as a strong determinant of health status and a good predictor of future health-related costs. Between 2014 and 2023, people in the Rimbey LGA had an average life expectancy of about 79 years, which is slightly lower than Alberta's average of about 81 years over the same period (GOA, 2025e). In the Rocky Mountain House LGA, life expectancy between 2014 and 2023 was about 77 years, also slightly below the provincial average of about 81 years over the same period (GOA, 2025f).

Patients with multiple chronic conditions typically require interdisciplinary care and coordination of health services. As such, the indicator of three or more chronic conditions was used as a health indicator for the LGA. The indicator tracks the proportion of patients with three or more chronic conditions which may include: asthma, congestive heart failure, chronic obstructive pulmonary disease, dementia, diabetes, hypertension, and/or ischemic heart disease. In the Town of Rimbey LGA, the rate of people with three or more chronic diseases (per 100 population) was 3.9 between 2023 and 2024, slightly below the provincial average of 4.0 over the same period (GOA, 2025e). The rate of people with three or more chronic diseases per 100 population in the Town of Rocky Mountain house was 4.2 between 2023 and 2024, slightly above the provincial average of 4.0 over the same period (GOA, 2025f).

The mortality rate (per 100,000 population) due to all causes was higher in the Rimbey LGA between 2022 and 2024, compared to the province (898.4 vs. 745.6) (GOA, 2025e). Between 2022 and 2024, the mortality rate due to all causes was higher in the Rocky Mountain House LGA, compared to the province (1,063.9 vs. 745.6) (GOA, 2025f). The most frequent cause of death for both LGAs was diseases of the circulatory system.

Specific information regarding the health of Indigenous peoples within the towns of Rimbey and Rockey Mountain House is not readily available, but there are several resources that are available for Indigenous peoples to access in the region. An example is the Indigenous Health Program, now called Indigenous Wellness Core (IWC), developed by AHS, which is a combination of the Provincial Indigenous Health Program and the Indigenous Health Strategic Clinical Network. The program partners with Indigenous peoples, communities, and key stakeholders to provide accessible, culturally appropriate health services for First Nations, Métis, and Inuit people in Alberta (Alberta Health Services, 2024b). The Rocky Mountain House Health Centre is the closest facility to the Project that offers services offered by IWC. The vision of the IWC is to achieve health equity with and for Indigenous peoples in Alberta.

Although there is limited information regarding specific Indigenous physical health of the region, a report completed by Health Canada, titled Health Determinants for First Nations in Alberta (2016), outlines some of the disparities between the health, social, and economic aspects experienced by Indigenous peoples of the province. This report is designed to provide information which can be used as a resource by decision makers and program managers for program and service delivery planning aimed at addressing differences in determinants of health and improving the health and well-being of Indigenous individuals and communities in Alberta. It is the goal of Health Canada that this report will contribute to the discussion and awareness of differences in Indigenous health outcomes and determinants in Alberta and lead to actions to decrease the differences.

There is likely limited potential population growth and activity associated with the Project. Day-to-day operations, maintenance, safety, and security will be provided by a staff of operators, engineers, and support staff totaling over a dozen people (actual numbers to be determined). This would increase the population in the towns of Rimbey and Rocky Mountain House by a negligible amount. Therefore, there would be minimal increased pressure for social and medical services, or other local health care service providers.

However, there is a lack of data from which to make final conclusions, and there are many variables that could impact health care services. For example, if another doctor is recruited to the area, and the labour force associated with the Project lives in the area. Health care service providers and infrastructure may be vulnerable if increased population growth occurs. However, the potential impact on the health and social services to the surrounding communities, including potential impacts to Indigenous peoples, Indigenous youth, women+, and members of the Two-Spirit, lesbian, gay, bisexual, transgender, queer, intersex, and additional people who identify as part of sexual and gender diverse communities (2SLGBTQI+) community, is not anticipated as the Project is expected to have a minimum impact on population growth.

15.1 Gender Based Analysis Plus

Gender Based Analysis Plus (GBA Plus) is a tool used to assess how a project may affect different groups of people, including potentially vulnerable populations such as the 2SLGBTQI+ community. It looks at various identity factors such as gender, age, disability, race, income, and where people live to ensure policies and projects are inclusive and responsive to the needs of diverse groups. GBA Plus is used as a process for understanding who is impacted by the issue being addressed and how, and the steps to reduce those impacts.

GBA Plus is defined by the Government of Canada as follows (GOC, 2024):

> *"Gender-based Analysis Plus is an analytical tool used to support the development of responsive and inclusive policies, programs, and other initiatives. GBA Plus is a process for understanding who is impacted by the issue or opportunity being addressed by the initiative; identifying how the initiative could be tailored to meet diverse needs of the people most impacted; and anticipating and mitigating any barriers to accessing or benefitting from the initiative. GBA Plus is an intersectional analysis that goes beyond biological (sex) and socio-cultural (gender) differences to consider other factors, such as age, disability, education, ethnicity, economic status, geography (including rurality), language, race, religion, and sexual orientation.*
>
> *Using GBA Plus involves taking a gender- and diversity-sensitive approach to our work. Considering all intersecting identity factors as part of GBA Plus, not only sex and gender, is a Government of Canada commitment."*

The 2SLGBTQI+ community is comprised of people who identify as two-spirited, lesbian, gay, bisexual, transgender and/or gender expansive, queer and/or questioning, intersex, as well as

people who identify as part of (+) sexual and gender diverse communities who use additional terminologies (GOA, 2024). It is important to note that members of the 2SLGBTQI+ community are members of every community.

The Project is not within any known pride network areas. The closest pride network to the Project, Rocky Pride, is based in the Town of Rocky Mountain House and was created to give 2SLGBTQI+ people in Rocky Mountain House and the surrounding area a safe space to socialize, access services, and build a community of 2SLGBTQI+ and allies. Rocky Pride strives to provide external educational opportunities to Rocky Mountain House and the surrounding communities with the goal of making rural Alberta a safe space. The vision of the group is to become a Non-Profit Organization with a permanent location for drop ins and programming as a result of community and group member participation (Rocky Pride, 2025).

The Central Alberta Pride Society, based in the City of Red Deer, was founded in 2012 to bring 2SLGBTQI+ awareness and community to Red Deer and surrounding areas, with the name chosen intentionally to be inclusive of urban and rural areas surrounding Red Deer, recognizing that 2SLGBTQI+ people exist beyond city limits. The society's mission is to strengthen community and cultivate social change through support awareness and education. The society's vision is to create a safe community that values, embraces and celebrates Central Alberta's diversity (Central Alberta Pride Society, 2025).

The Red Deer Queer Community Association, also known as the Queer Neighbours Society of Red Deer, is also based in the City of Red Deer and has a mission to strongly advocate for all members of the 2SLGBTQI+ community in Red Deer and Central Alberta. The society is dedicated to addressing and raising awareness about the issues that impact the community through engagement in active dialogue through events and other activities to promote inclusivity and striving for positive change. This includes collaborating with other community organization to help promote access to education, support on issues such as gender-based violence, addition, mental health, housing, and employment (QNSRD, 2024).

In addition, there are several resources provided by AHS, including the Sexual Orientation, Gender Identity & Gender Expression Safer Places Toolkit (Alberta Health Services, 2024c). The Safer Places toolkit is an introductory and practical tool for AHS healthcare teams to increase awareness, promote education, encourage self-reflection and build skills to create more welcoming and safer care for 2SLGBTQI+ people and their families. One of the biggest challenges trans, non-binary, and gender diverse individuals face when it comes to health care is finding providers who are both welcoming and knowledgeable about their unique health needs. AHS is working to fill this gap by delivering accessible services to members of the 2SLGBTQI+ community throughout every stage of their personal journey.

The proportion of the total population who identified as men+ and women+ in the Town of Rimbey was approximately 47% and 53%, respectively (Statistics Canda, 2024). The proportion is more evenly distributed in the Town of Rocky Mountain House, with approximately 49% and 51% of the population identifying as men+ or women+ respectively

(Statistics Canada, 2024). The proportion of people identifying as men+ and women+ in the towns of Rimbey and Rocky Mountain House is slightly different than the rest of the province, with approximately 49.9% of the population identified as men+ and 50.1% of the population identifying as women+ (Statistics Canada, 2024).

When looking at the Town of Rimbey, people aged 0 to 14 had a higher proportion of individuals who identified as men+ (210) than women+ (195), approximately 51% and 48% of the population, respectively. Of those aged 15 to 64, approximately 48% of the population identified as men+ (615) and 52% of the population identified as women+ (655). Of those aged over 65, approximately 42% of the population identified as men+ (335) and 58% identified as women+ (455) (Statistics Canada, 2024).

In the Town of Rocky Mountain House, approximately 51% of the population aged 0 to 14 identified as men+ (710) and 49% identified as women+ (675), a more even distribution than the same age group in the Town of Rimbey. Of those aged 15 to 64, 49.7% of the population identified as men+ (2,105) and 50.2% identified as women+ (2,125), a slightly more even distribution than the same age group in the Town of Rimbey. Of those aged over 65, approximately 43% of the population identified as men+ (490) and 58% identified as women+ (660) (Statistics Canada, 2024).

Indigenous communities and the public did not identify any gender gap issues or other disparities during the engagement process. Indigenous and public engagement was open to all stakeholders, including individuals, Indigenous communities, women+, unemployed, low income, seniors, disabled, and other marginalized groups.

TransAlta is committed to creating an environment that fosters diversity and inclusion and has several policies in place to achieve this goal. TransAlta developed a five-year equity, diversity and inclusion strategy that invests in local communities and employees – supporting an inclusive workplace and operational site environment.

TransAlta policies that support inclusiveness include:

- Workplace Violence and Harassment Policy
- Health, Safety, and Environment Policy
- Equity, Diversity, and Inclusion Strategy

PART D: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS, & MUNICIPAL INVOLVEMENT

16.0 FEDERAL FINANCIAL SUPPORT

The Project does not include any proposed or anticipated federal financial support.

17.0 FEDERAL LANDS USED FOR THE PROJECT

No federal lands will be used for the Project or associated activities for the purposes of carrying out the Project, nor will there be any granting of interest in federal land required.

18.0 FEDERAL, PROVINCIAL, LEGISLATIVE OR OTHER REGULATORY REQUIREMENTS

The Project is a "designated project" under Section 30 of the federal Physical Activities Regulations, SOR/2019-285, and the operation of the Project will also be regulated under the Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity, SOR/2018-261. TransAlta intends the Project to meet the "planned unit" designation as defined under the Clean Electricity Regulations, SOR/2024-263.

While no permits or approvals are expected to be required under the following federal legislation, general compliance legislation may apply to the Project:

- *Fisheries Act*
- *Species at Risk Act*
- *Migratory Birds Convention Act, 1994*

Other regulatory requirements are summarized in Section 3.3. The provincial regulatory processes the Project are subject to provide a comprehensive framework that sufficiently assesses the potential effects of the Project and includes engagement processes in which individuals or groups can participate in. The Project is subject to multiple regulatory requirements at the provincial and municipal levels, all designed to identify, manage, and mitigate impacts, including those within federal jurisdiction such as impacts to:

- Fish and fish habitat: There is currently no interaction between the Project and fish/fish habitat as the Project will not impact any surface water features. If TransAlta requires surface water withdrawals to provide the Project's source water, an authorization application will be applied for under the *Fisheries Act* (as required) and the intake will comply with the Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater (DFO, 2020).

- Aquatic species: There is currently no interaction between the Project and aquatic species as the Project will not impact any freshwater or marine environments.

- Migratory birds: Potential impacts to migratory birds have been assessed as part of the Project's AUC Application (specifically the Environmental Evaluation), which are also summarized in Sections 14.2.7 and 19.3. The Project will comply with provisions of the *Migratory Birds Convention Act*, 1994.

Together, the provincial and municipal processes form a robust and integrated system that ensures environmental, social, and jurisdictional concerns are thoroughly considered and managed.

PART E: POTENTIAL EFFECTS OF THE PROJECT

19.0 IMPACTS TO ENVIRONMENTAL COMPONENTS

19.1 Fish & Fish Habitat

The Project is not anticipated to impact fish and fish habitat (as defined under section 2 of the *Fisheries Act*) as no fish habitat was identified within the Project Area or within the immediate vicinity.

The Project will require an anticipated initial water volume of 6,000 m^3, which will be recycled throughout power generation. The Proponent is currently investigating water supply sources, including groundwater, surface water, and water trucking. If groundwater or surface water withdrawals are required for the Project, a diversion license under the *Water Act*, R.S.A. 2000, c. W-3 will be obtained. If surface water withdrawals are required, an authorization application will be applied for under the *Fisheries Act* (as required) and the intake will comply with the Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater (DFO, 2020).

19.2 Aquatic Species

The *Species at Risk Act* defines aquatic species under subsection 2(1) as “wildlife species that are fish as defined in section 2 of the *Fisheries Act,* or a marine plant, as defined in section 47 of that Act*”*. Potential effects to aquatic species are not anticipated as the Project is over 800 km from any marine environment and no habitat for aquatic species was identified within the Project Area.

19.3 Migratory Birds

The Project Area has limited potential to support tree nesting migratory birds as the Project is on cultivated land with no trees or native vegetation present. The lands have undergone cultivation since at least 2003.

Some migratory birds may be affected during construction and operation of the Project. Specifically, removal of cultivated vegetation from the Project Area (13.2 ha) and ground disturbance could reduce migratory bird habitat for select songbird species who utilize crops for vegetative cover. Potential sensory disturbance (e.g., noise, light) may also cause migratory birds to avoid the localized area. The risk of bird mortality from collisions with equipment during construction and operations is anticipated to be low as it is expected that bird species will avoid the Project Area due to physical and sensory disturbance. Dust and emissions from vehicles and equipment may make the area temporarily less suitable for birds by reducing food or nesting site availability.

Some of the species documented on-site are protected under the *Migratory Bird Convention Act, 1994*, which prohibits the destruction of nests of specific bird species. If vegetation clearing is required during the breeding season (April 15 to August 31; AEP 2018) or within the

migratory bird nesting period for nesting Zone B4 (mid-April to Late August; ECCC, 2018), a nest sweep will be required beforehand. The nest sweep will be completed in accordance with the Wildlife Sweeps Protocol: Sensitive Species Inventory Guidelines (GOA, 2021). Nest sweeps will be performed by an experienced wildlife biologist within 100 m of the proposed construction area to identify potential breeding birds or their nests. The nest sweeps should be undertaken no more than seven days prior to construction. If breeding activity is identified, a minimum setback buffer of 50 m will be clearly marked to protect the suspected nest locations. The protective buffer will remain in place until young fledge to minimize the risk of disturbing birds, nests, or eggs, in accordance with the *Migratory Bird Convention Act, 1994* and the *Wildlife Act*, R.S.A. 2000, c. W-10.

The Project is not expected to directly harm any sensitive wildlife species or rare plants. The Project Area is currently used for cultivation and does not contain important wildlife habitats such as mature forests, wetlands, or watercourses. Any impacts to migratory birds can be minimized by clearing vegetation outside of the breeding season when birds are not nesting, and by using best management practices during construction to avoid and minimize disturbance or interaction.

20.0 POTENTIAL ENVIRONMENTAL IMPACTS ON FEDERAL LANDS, IN OTHER PROVINCES, OR OUTSIDE OF CANADA

20.1 Federal Lands

The Project will not to be carried out on federal land and is not a federal work or undertaking, as defined in subsection 3(1) of the *Canadian Environmental Protection Act*, 1999. The Project has no potential to cause any non-negligible adverse changes to the marine environment that are caused by pollution.

No federal lands will be used for the Project, nor will there be any granting of interest in federal land required. No federal protected areas are located within 10 km of the Project boundaries. Due to the distance of federal land from the Project, no direct changes to the environment will occur on federal lands because of the Project.

Potential air emissions from the Project will be monitored continuously and were evaluated to comply with requirements of the AAAQO. In addition, noise from the Project was evaluated to meet the standards of AUC Rule 012 (2024). Therefore, indirect changes to the environment on federal lands, such as through increased noise or reduced air quality, will not occur due to the distance of the Project from federal lands.

20.2 Other Canadian Provinces

The Project will not have any environmental impacts on any other Canadian provinces as the Project Area is located approximately 172 km northeast of the Alberta – British Columbia border and 306 km west of the Alberta – Saskatchewan border. The Project has no potential to

cause any non-negligible adverse changes to interprovincial waters that are caused by pollution.

Given the size of the Project, the localization of effects to environmental components, and the expected lack of effects on aquatic resources, the Project is not anticipated to have any adverse environmental effects outside of Alberta.

20.3 Outside of Canada

The Project will not have any environmental impacts outside of Canada as the Project Area is located approximately 400 km north of the Canada (Alberta) – United States (Montana) border. The Project has no potential to cause any non-negligible adverse changes to the boundary waters or international waters that are caused by pollution and that would occur outside Canada.

Given the size of the Project and the localization of effects environmental components, and the expected lack of effects on aquatic resources, the Project is not anticipated to have any adverse environmental effects outside of Canada.

21.0 POTENTIAL ENVIRONMENTAL IMPACTS ON INDIGENOUS PEOPLES

Discussion on potential Project effects to human health, social factors, and economic factors for Indigenous communities are presented in the following sections.

21.1 Physical & Cultural Heritage

The environmental effects of the Project's construction and operation are expected to be minimal and localized. Changes to the environment, including air quality, noise, land use, vegetation, soil, wildlife, and heritage resources are expected to be localized in or near the Project Area, and therefore, potential impacts to Indigenous peoples are anticipated to be localized to the Project Area.

Access to the proposed Project Area without landowner permission is restricted and there are currently no public or private access roads within the land parcel containing the Project. As such, public access to the Project Area is currently restricted and will continue to be restricted during the construction and operation of the Project. Based on existing access restrictions associated with private land, use of the land within the Project Area for cultural practices is currently not occurring.

21.2 Current Use of Lands & Resources for Traditional Purposes

The Project is located on freehold lands without access granted to the public.

21.2.1 Hunting

Current land use in and immediately adjacent to the Project is agricultural land, most notably cultivated land, with some industrial uses in the area (e.g., oil and gas facilities, transmission lines). The Project is located within the Alberta Wildlife Management Unit 332, which allows hunting for bear, cougar, moose, elk, and deer (GOA, 2025; Alberta Hunt Map, 2025); therefore, hunting is expected within the regional area but is restricted to:

- Crown land.
- Private land with permission only.
- Areas outside a 183 m radius of occupied buildings for hunting with the use of firearms (as per provincial restrictions regarding the discharge of firearms) (GOA, 2024e).
    - The Project is expected to be considered an occupied building, and therefore, use of a firearm will be prohibited within 183 m of the Project.

Public access within the Project Area is restricted as the Project is located on private land, and therefore, Indigenous hunting activities are not known to currently occur within the Project Area. Based on information provided by Indigenous communities through the AUC application process, Indigenous harvesters have been granted permission to harvest deer, elk, and moose on agricultural lands surrounding the Project (at the request or invitation of landowners), in areas near Highway 53, in areas immediately north of the Project and southeast of Buck Lake, along with privately held lands northwest of the town of Rimbey near Highway 20. Indigenous communities have documented traditional practices, including hunting, throughout Indigenous Ancestral Territory on the boundaries of agricultural lands and timberlands.

During construction of the Project, there will be heavy traffic and noise that may displace local wildlife. Displacement or disturbance of wildlife associated with construction will be temporary and the Project will implement construction related mitigations and best management practices as per the EPP/C&R Plan (Appendix L). In addition, the Project is located in an area that is subject to existing disturbance associated with agricultural activities and traffic noise from Township Road 420 and Range Road 43.

During operation of the Project, noise and light will be generated by the Project, which may deter wildlife from the localized area; however, noise generated by the Project will be within regulatory requirements and light will be minimized to the extent possible (except what is required for safety purposes). Vehicle traffic will be minimal during operations, limited to plant operations and maintenance staff (approximately 30 people), plus commercial traffic associated with supplies and removal of waste. In addition, the Project Area will be fenced for security and safety of people and wildlife.

21.2.2 Plant Gathering

The Project Area is located on cultivated land; vegetation identified within the Project Area consists of four non-native cultivated plant species (i.e., cereal, canola, lentil, peas). It is the Proponent's experience that the immediate Project Area is not currently used by Indigenous communities for plant gathering; however, the wider regional area does contain Crown land

where gathering may occur. It is also recognized that plant gathering may occur on private lands with permission.

Based on information provided by Indigenous communities through the AUC application process, Indigenous communities have documented traditional use in relation to the harvesting of plants and medicines in undisturbed areas near Highway 53 extending westward from Rimbey, Alberta; Indigenous communities noted that this corridor is used extensively by members to practice Inherent and Treaty rights.

21.2.3 Fishing

There are no watercourses within the Project Area. The Project and associated infrastructure will not have an effect on fish or fish habitat. Continued use of fisheries resources by Indigenous communities in surrounding areas will not be affected.

21.2.4 Trapping

During Project engagement, no registered trappers were identified as using the immediate Project Area, nor was evidence of trapping observed during the field surveys. The wider regional area does contain Crown land where trapping may occur, and it is also recognized that trapping may occur on private lands with permission. It is the Proponent's experience that the immediate Project Area is not currently used by Indigenous communities for trapping; therefore, impacts to Indigenous peoples' ability to trap is not anticipated as a result of the Project.

21.2.5 Use of Navigable Waters

The Project and associated infrastructure will not interact with navigable waters.

21.2.6 Recreational Use

The Project is located on private land with no current recreational use documented.

21.2.7 Commercial Use of the Lands by Indigenous Communities

The Project is located on private agricultural land with no commercial outfitting or other commercial use in place.

21.3 Sites & Structures of Historical, Archaeological, Paleontological or Architectural Significance

The identification of sites and potential risk to historical resources is first searched through the Alberta Listing of Historic Resources interactive map (GOA, 2025d). The listing is a tool that may assist landowners, developers, industry representatives, and municipalities in determining if a proposed development might affect historic resources, including:

- Archaeological sites
- Paleontological sites
- Indigenous traditional use sites of a historic resource nature (e.g., burials, ceremonial sites, etc.)
- Historic structures

The Listing provides proponents with advance notification of possible historic resource concerns, may be used as a tool in planning projects, and helps to determine if a proposed development needs approval under the HRA. The Listing indicates the Historic Resource Value, if any, that has been assigned to lands in the Project Area, and the Instructions for Use and the procedures bulletins explain the required action. In many cases, the required action is to submit a Historic Resources Application through the Online Permitting and Clearance (OPaC) system (GOA, 2023).

According to the database, there are no previously recorded sites or structures of historical, archaeological, paleontological, or architectural significance in the Project Area. Approximately 5 km west of the Project Area (16-26-041-05-W5M) is identified as having a "high potential to contain a historic resource". Approximately 400 m west of that location (15-26-041-05-W5M), the database identifies a historic resource that "may require avoidance or assessment" (GOA, 2025d).

Although no listings are present within the Project Area, as per AUC requirements, an application through OPaC was submitted to the Historical Resources Branch for review. On November 18, 2024, the Project received a HRA Approval/Clearance to proceed (HRA Number: 4940-23-0013-001, OPaC Application Number: 028637711).

If undocumented historical resources are discovered during construction, salvage operations will be completed according to the Reporting Incidental Historic Resource Discoveries in Development Context (Province of Alberta, 2025), along with regulatory requirements, including the HRA and the Archaeological and Paleontological Research Permit Regulation, Alta. Reg. 254/2002.

22.0 POTENTIAL HEALTH, SOCIAL, OR ECONOMIC IMPACTS ON INDIGENOUS PEOPLES

22.1 Health & Social Impacts on Indigenous Peoples

The Project is not expected to have adverse effects to the health, social conditions, or overall well-being of Indigenous communities, including women, LGBTQ+, Indigenous youth, and other marginalized groups. Indigenous communities and the public did not identify any gender gap issues or other disparities during the consultation and engagement process.

An AQA and associated dispersion modelling was completed to assess the potential for air quality effects of the Project on the surrounding environment along with compliance with regulatory thresholds (Appendix E). Results of the AQA and associated dispersion modelling determined the Project will operate below provincial air quality regulations.

An NIA was also conducted for the Project (Appendix F) as per requirements of AUC Rule 012 – Noise Control, which are applicable to noise emitted from the construction and operation of energy related facilities in Alberta (AUC, 2024). The purpose of the NIA is to ensure that the

noise from the Project, measured cumulatively with noise from other energy-related facilities, does not exceed regulatory thresholds. Three dwellings were identified within 1.5 km of the Project Area which were all assessed for compliance. The Project was determined to be in compliance with regulatory requirements with the implementation of noise control recommendations on select equipment.

No ingestion or inhalation pathways that could trigger the need for a Human Health Risk Assessment are anticipated. The emissions (air and noise) from the Project during operations will be compliant with provincial regulations and will decrease with distance from the Project.

There is the potential for population growth and activity associated with the Project; however, pressures for social or medical services, or other local health care service providers are not anticipated to significantly increase as a direct result of the Project. There is a lack of data from which to make final conclusions and there are many variables that could impact health care services, such as if another doctor is recruited to the area and if the labour force associated with the Project lives in the area.

At this time, there are no anticipated worker camps proposed for the Project. Non-local workers will likely stay at hotels within the towns of Rimbey or Rocky Mountain House, or possibly within the Town of Sylvan Lake or the City of Red Deer, where there is established infrastructure, access to health and social services, and an RCMP station. With local employment opportunities, there may be slight increases in population due to non-local personnel coming to the communities within the area. This may create temporary pressure on local housing markets to accommodate new workers. Given the prevalent oil and gas industry in the region, Rimbey, Rocky Mountain House, Sylvan Lake and Red Deer have been proven to be able to accommodate non-local workers to the area with the current infrastructure and health and social services available.

Overall, the construction, operation, and decommissioning/reclamation of the Project is not anticipated to impact the health, social conditions, or overall well-being of Indigenous communities and peoples, including women+, Indigenous youth, and other marginalized groups.

TransAlta will continue the engagement process with the Indigenous communities identified in Section 4.0, and will provide updates regarding the Project's permitting, construction, operation, and decommissioning schedules and related activities. If Project activities are found to produce negative impacts to the health and social well-being of Indigenous communities and peoples, TransAlta will provide an opportunity for the identified Indigenous communities to engage in the mitigation process. Future engagement with Indigenous communities and the public will be inclusive to all stakeholders, including individuals, Indigenous communities, women+, unemployed, low income, seniors, disabled, and other marginalized groups.

22.2 Economic Impacts on Indigenous Peoples

As stated in Section 7.0, the Project will have positive impacts on the local and regional employment market. The Proponent is committed to promoting these opportunities to Indigenous communities, including:

- Contract opportunities: TransAlta will identify potential professional services and contract opportunities that will be required to construct the Project. Once known, TransAlta will engage with Indigenous businesses to determine interest in accessing those opportunities. It is expected that this work will adapt as the Project moves through various phases in the future.

- TransAlta's Supply Chain Management team maintains an Indigenous Vendor List: As Indigenous communities are engaged for the Project, TransAlta will actively seek out Indigenous vendor information for existing TransAlta operations and potential new opportunities.

The Project is not anticipated to have any negative economic impacts on Indigenous communities and peoples, including Indigenous youth, women, and Two-Spirit and related identities (2S+), during planning, permitting, construction, operation, decommissioning, and reclamation.

Throughout the Project, TransAlta will work with Indigenous communities to understand workforce needs and, where possible, create opportunities for training, contracts, and job programs. All workers will receive mandatory safety training before working on-site.

23.0 GREENHOUSE GAS EMISSIONS ESTIMATE

An Emissions Intensity Report was completed by Horizon Compliance Group Inc. (Appendix O) for the Project to assess greenhouse gas (GHG) estimates and compliance with federal regulatory requirements.

Current GHG regulations applicable to the Project include the federal Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity, SOR /2018-261. These regulations specify how carbon intensity emissions are to be calculated. The results of the calculations predict that the Project's CO_2 Emission Intensity of 365 tonnes of carbon dioxide per gigawatt hour (tCO_2/GWh) will comply with the federal emissions intensity limit of 420 tCO_2/GWh during operation.

Additionally, the Canadian Ambient Air Quality Standards (CAAQS) (CCME, 2023) are applicable to the Project. To understand the potential impact on local air quality, a Project-specific AQA (Appendix E) was completed, which confirmed that the predicted MGLCs comply with the applicable CAAQS.

TransAlta remains committed to continuous evaluations of technological advancements and alternative solutions to further reduce or achieve net-zero emissions by 2050.

24.0 EMISSIONS, DISCHARGE, & WASTE

The construction and operation of the Project will result in atmospheric emissions, surface runoff discharges, industrial wastewater, and general domestic and operational waste.

24.1 Atmospheric Emissions

24.1.1 Operational Emissions

Horizon Compliance Group Inc. completed an AQA (Appendix E) and Emissions Intensity Report (Appendix O) for the Project. The results of the AQA modelling predict that MGLC of contaminants of concern resulting from the addition of the Project to existing emissions sources were less than their corresponding AAAQOs for all averaging periods. The Emissions Intensity Report determined the Project would be compliant with federal emissions intensity limits and the CAAQS.

To maintain the lowest possible air emissions associated with the Project's processes, all equipment will be designed in accordance with the latest codes and regulations. The Project will also be equipped with a Continuous Emission Monitoring System (CEMS) used for monitoring CO, NO_x, oxygen (O_2), and opacity. Additional parameters may need to be monitored based on the conditions of the EPEA Industrial Approval issued by AEPA. A Data Acquisition and Report Generating System will also be provided.

24.1.2 Fugitive Emissions

Construction, operations, and reclamation activities can affect air quality by producing dust and fugitive emissions (i.e., tailpipe exhaust emitting CO_2 and nitrogen and sulphur oxides), mainly due to heavy machinery use and transportation. Fugitive emissions will be limited to tailpipe emissions from vehicle use during construction and operations, and dust associated with construction and operation equipment.

Emissions generated during construction are similar to those produced for similar small-scale construction projects (which will be repeated for reclamation activities). During operations, fugitive emissions are associated with maintenance activities which require the use of light trucks. These emissions are considered negligible and not considered further in this assessment.

Fugitive emissions associated with the Project were estimated as part of the AUC Application (submitted in February 2025) using the Road Construction Emissions Model, version 7.1.1. The model uses built in assumptions along with Project-specific information such as preliminary equipment lists, numbers of workers, area of activity and duration of activities. The estimated construction-related emissions, with maximum daily estimates based on all equipment in use for the full workday are summarized in Table 24.1.

Table 24.1: Fugitive Emissions Estimates

Project Phases (Metric Units)	ROG (kg/day)	CO (kg/day)	NOx (kg/day)	Total PM_{10} (kg/day)	Exhaust PM_{10} (kg/day)	Fugitive Dust PM_{10} (kg/day)	Total $PM_{2.5}$ (kg/day)	Exhaust $PM_{2.5}$ (kg/day)	Fugitive Dust $PM_{2.5}$ (kg/day)	CO_2 (kg/day)
Grubbing/Land Clearing	0.8	7.7	1.1	18.6	0.4	18.2	3.9	0.2	3.8	3,617.1
Grading/Excavation	0.9	9.2	2.0	68.6	0.4	68.2	14.4	0.2	14.2	3,902.7
Drainage/Utilities/Sub-Grade	0.1	1.1	0.3	68.2	0.4	68.2	14.2	0.2	14.2	433.4
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kg/day)	0.9	9.2	2.0	68.6	0.4	68.2	14.4	0.2	14.2	3,902.7
Total (megagrams/construction project)	0.2	2.4	0.6	33.5	0.1	33.3	7.0	0.1	6.9	1,062.3
Total (kg/construction project)										1,062,300
Additional Information										
Project Start Year										2026
Project Length (months)										29
Total Project area (ha)										15
Maximum Area Disturbed/Day (ha)										0
Total Soil Imported/Exported (m^3/day										0
PM_{10} and $PM_{2.5}$ estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.										
Total PM_{10} emissions shown in column Total are the sum of exhaust and fugitive dust emissions shown in columns Exhaust (PM_{10}) and Fugitive Dust (PM_{10}). Total $PM_{2.5}$ emissions shown in Column Total are the sum of exhaust and fugitive dust emissions shown in columns Exhaust ($PM_{2.5}$) and Fugitive Dust ($PM_{2.5}$).										
Estimates do not include emissions associated with truck deliveries to the Project, which are expected to average 423 trips / month based on chronic truck traffic (FedEx, toilet service, town runner, etc.) of approximately 6-8 trucks per day. Permanent Plant deliveries during the 3rd to 4th month of the OEM build window will cause the truck count to spike peaking at about 25 trucks per day.										

Note: This estimate was prepared for the AUC Application submitted in February 2025. Although construction timelines and durations have shifted for the Project, fugitive emission estimates are still considered to be representative of the Project.

The key elements for effective long-term control of fugitive emissions are the application of best available technology and standards, implementation of management systems, and corporate commitment. Reliable fugitive emissions control requires the development of monitoring programs, operating procedures, and performance objectives for controlling fugitive emissions along with management's commitment to the implementation and maintenance of an inspection and maintenance program.

As a component of successful and profitable operation of the Project, necessary components are subjected to regular screening for leaks as part of regular and scheduled maintenance. The objective is to reduce the potential for leaks in the most practicable manner possible. This is done by focusing efforts on the types of components and service applications and maintenance requirements, most likely to offer significant cost-effective control opportunities.

If a leak is detected and is determined to need fixing, this will be done within a reasonable period of time or at the next facility turnaround if a major shutdown is required.

24.1.3 Dust

The Project will implement appropriate dust suppression measures on roads, work areas, transportation and loading routes, or on soil piles or exposed soil surfaces prone to wind and water erosion, as necessary. The decision to control dust will be made at the field level and will depend upon site conditions, level of activity, and worker health and safety.

24.1.4 Odour

If an adverse odour event occurs on-site that has potential to impact surrounding areas the following steps will be undertaken to address the situation:

1. The source of the odour will be investigated and identified.
2. The contributing process/substance will be relocated, removed or otherwise managed as deemed appropriate.
3. If the odour is indicative of a potentially hazardous event, the appropriate regulatory agency will be contacted immediately for assistance. Such assistance may include guidance on notification to nearby residents, business or other land users. The Proponent will mitigate odours from potential ammonia leaks.
4. If the odour event is deemed to be unhazardous but substantially offensive and objectionable, nearby public will be contacted and provided with information regarding the odour.

24.1.5 Noise

RWDI completed an NIA (Appendix F) for the Project as per requirements of AUC Rule 012 (2024). The results of the NIA determined the Project will be compliant with AUC Rule 012 requirements for noise with the implementation of noise control recommendations on select equipment. Additional information regarding the NIA is provided in Section 14.2.2.

In addition, the Project will:

- Comply with requirements under the *Occupational Health and Safety Act,* S.A. 2020, c. O-2.2 and the Occupational Health and Safety Code 2021, Alta. Reg. 191/2021
- Use approved hearing protection devices [recommended Canadian Standards Association (CSA) Class A or CSA Grade 4] at all times where noise levels exceed 85 decibels (dBA). These areas are typically marked with signage stating that hearing protection is required.

24.2 Surface Runoff

Surface water from the Project Area will be collected to keep the operational areas as dry as possible. Site drainage, soil erosion, and sediment control will be reviewed and implemented during construction and included into the final grading, drainage, and landscape design.

Drainage work will be limited to within the Project Area. Surface runoff from the operational area will be collected and managed by ditches, swales, and grading which will be directed to a stormwater pond located within the southwestern portion of the Project Area. Dikes and berms will be installed along the plant perimeter as required to keep runoff within the operational area.

The purpose of the stormwater pond is to hold runoff from major events and allow any solids to settle before being released. The Project is not allowed to use water collected in the stormwater ponds for operation purposes. Once stormwater reaches the pond, water will be tested to meet AEPA discharge criteria before being released back to the surrounding environment.

The Project is proposing an excavated Stormwater Detention Pond, sized to accommodate a storage capacity for up to the 100 year 24-hour storm, and with an emergency spillway. The pond depth will be 2.95 m including approximately 1.85 m of freeboard, providing the additional capacity to store two additional 100 year 24-hour storms on-site if necessary. The required 100 year 24-hour storm volume required for the site is 7,465 m^3. The expected capacity at the detention storage freeboard is 27,737 m^3.

TransAlta will have a site-specific ERP (preliminary provided in Appendix M) available, and any spills or leaks will be immediately handled to ensure no effects to surface water or runoff.

Any stormwater from the pond will be emptied via a mobile pumped system discharging to an existing open drainage swale located approximately 230 m west of the proposed stormwater pond. Details of the pump, its enclosure, and the exact discharge location will be determined as part of the detailed design. Stormwater will be discharged in a manner that mitigates erosion (i.e., erosion controls will be provided at the discharge point). Discharge events will be monitored to ensure equipment remains operational and erosion/sediment controls remain effective, and to terminate equipment if necessary. Any water that is not suitable for release to the environment will be trucked out to a third-party certified wastewater disposal/treatment facility.

The fire department, may, at their discretion, utilize the pond water for emergency firefighting. At this time, all water collected will be discharged back to the surrounding environment. Any water that is not suitable for release will be trucked out to a third-party certified wastewater disposal/treatment facility.

24.3 Industrial Wastewater

Industrial wastewater will not be released to the environment. All industrial wastewater and process liquids will be collected, stored, and monitored in aboveground tanks and wastewater will be trucked off-site to an approved wastewater collection facility. All tanks used for storage of industrial wastewater will meet requirements for design characteristics. Industrial wastewater disposal details will be recorded.

Sewage will also be generated during construction, operations, and reclamation of the Project. Construction and reclamation sewage will be managed with portable toilets. Sewage generated during operations will be contained within an on-site septic system including water and solids flowing to an underground tank within the Project Area. As required, domestic bio-solids will be vacuumed from the septic tanks and hauled to the nearest sewage treatment facility for disposal.

24.4 Domestic Waste

All domestic and industrial garbage is disposed using approved refuse containers for hauling and disposal at an approved landfill. Bear proof containers will be used on location for holding domestic and industrial garbage as necessary.

24.5 Operational Waste

Operational wastes from the Project may include:

- Used oil and/or grease
- Process wastewater
- Oily wastewater
- Relief valve discharges
- Domestic grey water, black water
- Solid wastes
- Exhausted resin

PART F: SUMMARY

25.0 INITIAL PROJECT DESCRIPTION SUMMARY

A Summary of this Initial Project Description has been provided (under separate cover) in both English and French and has been submitted to the Impact Assessment Agency of Canada.

26.0 STATEMENT OF QUALIFICATIONS & LIMITATIONS

This Report (the "Report") was initially prepared by Strum Consulting ("Consultant") for the benefit of Kiwetinohk Energy Corp. ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement"). TransAlta Corporation subsequently acquired the Project on September 29, 2025, and TransAlta and the Consultant have worked together to finalize the Report for submission to IAAC.

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental, or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss, or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations forms part of the Report and any use of the Report is subject to the terms hereof.

Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report. This report was prepared by Destin Gardner, MREM, Project Coordinator & Environmental Scientist and Lyndsay Eichinger, MREM, Project Manager & Environmental Scientist and was reviewed by Melanie Smith, MES, Vice President Environmental Assessment & Approvals.

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Wildlife Act, R.S.A. 2000, c. W-10

APPENDIX A
CONCORDANCE TABLE

Required information as per Schedule 1 of the Information and Management of Time Limits Regulations, S.O.R./2019-283	Initial Project Description Section Reference
PART A – GENERAL INFORMATION	
1. The project's name, type or sector and proposed location.	Section 1.1, Section 13.0
2. The proponent's name and contact information and the name and contact information of their primary representative for the purpose of the description of the project.	Section 2.0
3. A summary of any engagement undertaken with any jurisdiction or other party, including a summary of the key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	Section 3.0
4. A list of the Indigenous groups that may be affected by the carrying out of the project, a summary of any engagement undertaken with the Indigenous peoples of Canada, including a summary of key issues raised and the results of the engagement, and a brief description of any plan for future engagement.	Section 4.0
5. Any study or plan, relevant to the project, that is being or has been conducted in respect of the region where the project is to be carried out, including a regional assessment that is being or has been carried out under section 92 or 93 of the Act or by any jurisdiction, including by or on behalf of an Indigenous governing body, if the study or plan is available to the public.	Section 5.0
6. Any strategic assessment, relevant to the project, that is being or has been carried out under section 95 of the Act.	Section 6.0
PART B: PROJECT INFORMATION	
7. A statement of the purpose of and need for the project, including any potential benefits.	Section 7.0
8. The provisions in the schedule to the Physical Activities Regulations describing the project, in whole or in part.	Section 8.0
9. A list of all activities, infrastructure, permanent or temporary structures and physical works to be included in and associated with the construction, operation and decommissioning of the project.	Section 9.0
10. An estimate of the maximum production capacity of the project and a description of the production processes to be used.	Section 10.0
11. The anticipated schedule for the project's construction, operation, decommissioning and abandonment, including any expansions of the project.	Section 11.0
12. A list of a) potential alternative means of carrying out the project that the proponent is considering and that are technically and economically feasible, including through the use of best available technologies; and b) potential alternatives to the project that the proponent is considering and that are technically and economically feasible and directly related to the project.	Section 12.0
PART C: LOCATION INFORMATION	
13. Provide a description of the designated project's proposed location including: a) its proposed geographic coordinates, including, for linear development projects, the proposed locations of major ancillary facilities that are integral to the project and a description of the spatial boundaries of the proposed study corridor;	Section 13.0 Appendix B for Project Location Drawings

Required information as per Schedule 1 of the Information and Management of Time Limits Regulations, S.O.R./2019-283	Initial Project Description Section Reference
b) site maps produced at an appropriate scale in order to determine the project's proposed general location and the spatial relationship of the project components; c) the legal description of land to be used for the project, including, if the land has already been acquired, the title, deed or document and any authorization relating to a water lot; d) the project's proximity to any permanent, seasonal or temporary residences and to the nearest affected communities; e) the project's proximity to land used for traditional purposes by Indigenous peoples of Canada, land in a reserve as defined in subsection 2(1) of the *Indian Act*, First Nation land as defined in subsection 2(1) of the *First Nations Land Management Act*, land that is subject to a comprehensive land claim agreement or a self-government agreement and any other land set aside for the use and benefit of Indigenous peoples of Canada; and, f) the project's proximity to any federal lands	
14. A brief description of the physical and biological environment of the project's location, based on information that is available to the public.	Section 14.0
15. A brief description of the health, social and economic context in the region where the project is located, based on information that is available to the public or derived from any engagement undertaken.	Section 15.0
PART D: FEDERAL, PROVINCIAL, TERRITORIAL, INDIGENOUS, AND MUNCIPAL INVOLVEMENT	
16. A description of any financial support that federal authorities are, or may be, providing to the project.	Section 16.0
17. A list of any federal lands that may be used for the purpose of carrying out the project.	Section 17.0
18. A list of any jurisdictions that have powers, duties or functions in relation to an assessment of the project's environmental effects	Section 18.0
PART E: POTENTIAL EFFECTS OF THE PROJECT	
19. A list of any non-negligible adverse changes — to the following components of the environment that are within the legislative authority of Parliament — that may be caused by the carrying out of the project: a) fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*; b) aquatic species, as defined in subsection 2(1) of the *Species at Risk Act*; and c) migratory birds, as defined in subsection 2(1)of the *Migratory Birds Convention Act*, 1994.	Section 19.0
20. A list of any non-negligible adverse changes to the environment — that would occur on federal lands — that may be caused by the carrying out of the project. 20.1. A list of any non-negligible adverse changes to the marine environment — that are caused by pollution and that would occur outside Canada — that may be caused by the carrying out of the project.	Section 20.0

Required information as per Schedule 1 of the Information and Management of Time Limits Regulations, S.O.R./2019-283	Initial Project Description Section Reference
20.2. A list of any non-negligible adverse changes to interprovincial waters or to boundary waters or international waters, as those terms are defined in subsection 2(1) of the *Canada Water Act*, — that are caused by pollution — that may be caused by the carrying out of the project.	
21. With respect to the Indigenous peoples of Canada, a brief description of any non-negligible adverse impacts on physical and cultural heritage, the current use of lands and resources for traditional purposes or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance — occurring in Canada and resulting from any change to the environment — that may be caused by the carrying out of the project, based on information that is available to the public or derived from any engagement undertaken with the Indigenous peoples of Canada.	Section 21.0
22. A brief description of any non-negligible adverse changes occurring in Canada to the health, social or economic conditions of the Indigenous peoples of Canada, that may be caused by the carrying out of the project, based on information that is available to the public or derived from any engagement undertaken with the Indigenous peoples of Canada. 22.1 If the project is to be carried out on federal lands or is a federal work or undertaking, as defined in subsection 3(1) of the *Canadian Environmental Protection Act,* 1999, a list of any non-negligible adverse effects that may be caused by the carrying out of the project.	Section 22.0
23. An estimate of any greenhouse gas emissions associated with the project.	Section 23.0
24. A list of the types of waste and emissions that are likely to be generated — in the air, in or on water and in or on land — during any phase of the project.	Section 24.0
PART F: SUMMARY	
25. A plain-language summary of the information in parts A to E is required in English and in French.	Referenced in Section 25.0. An Initial Project Description Summary is provided in both English and French under separate cover

APPENDIX B
PROJECT LOCATION DRAWINGS

Flipi Gas-Fired Generation Project

Regional Project Location

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Project Area

Municipal District

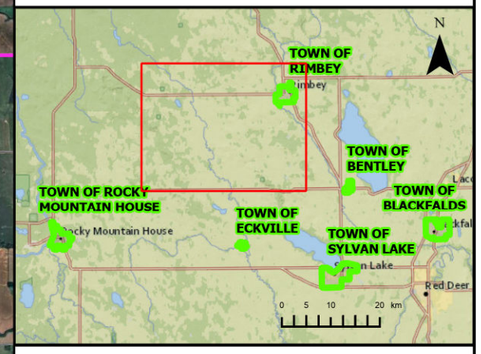
Hamlet of Leedale

Town of Rimbey

Transportation

Highway

Road



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Sources: Google Imagery (Maxar), HERE, Garmin, USGS, NRCan, Canvec

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Scale: 1:100,000	Drawing #: 1
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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Flipi Gas-Fired Generation Project

Project Area

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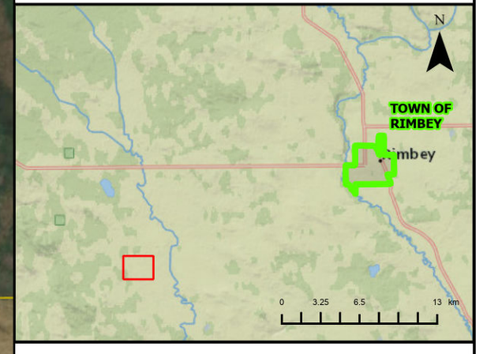
- Project Area
- Quarter Section
- Preliminary Gas Supply Interconnection Point
- AltaLink Substation
- TransAlta Transmission Interconnection
- AltaLink Transmission Line
- Project Plot Plan
- AltaLink Existing 240 kV Transmission Line
- Road



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Scale: 1:7,500	Drawing #: 2
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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Flipi Gas-Fired Generation Project

AGRASID Soil Polygons

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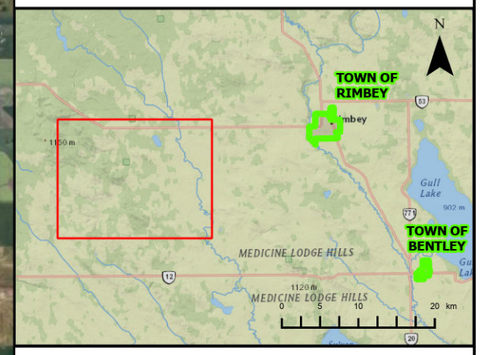
Project Area

AGRASID - Agricultural Region of Alberta Soil Inventory Database

Poly ID: 18276 LSRS: 3H(10)

Poly ID: 18266 LSRS: 7WV(10)

0 1 2 4 km



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Scale: 1:60,000	Drawing #: 3
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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Flipi Gas-Fired Generation Project

Watercourses

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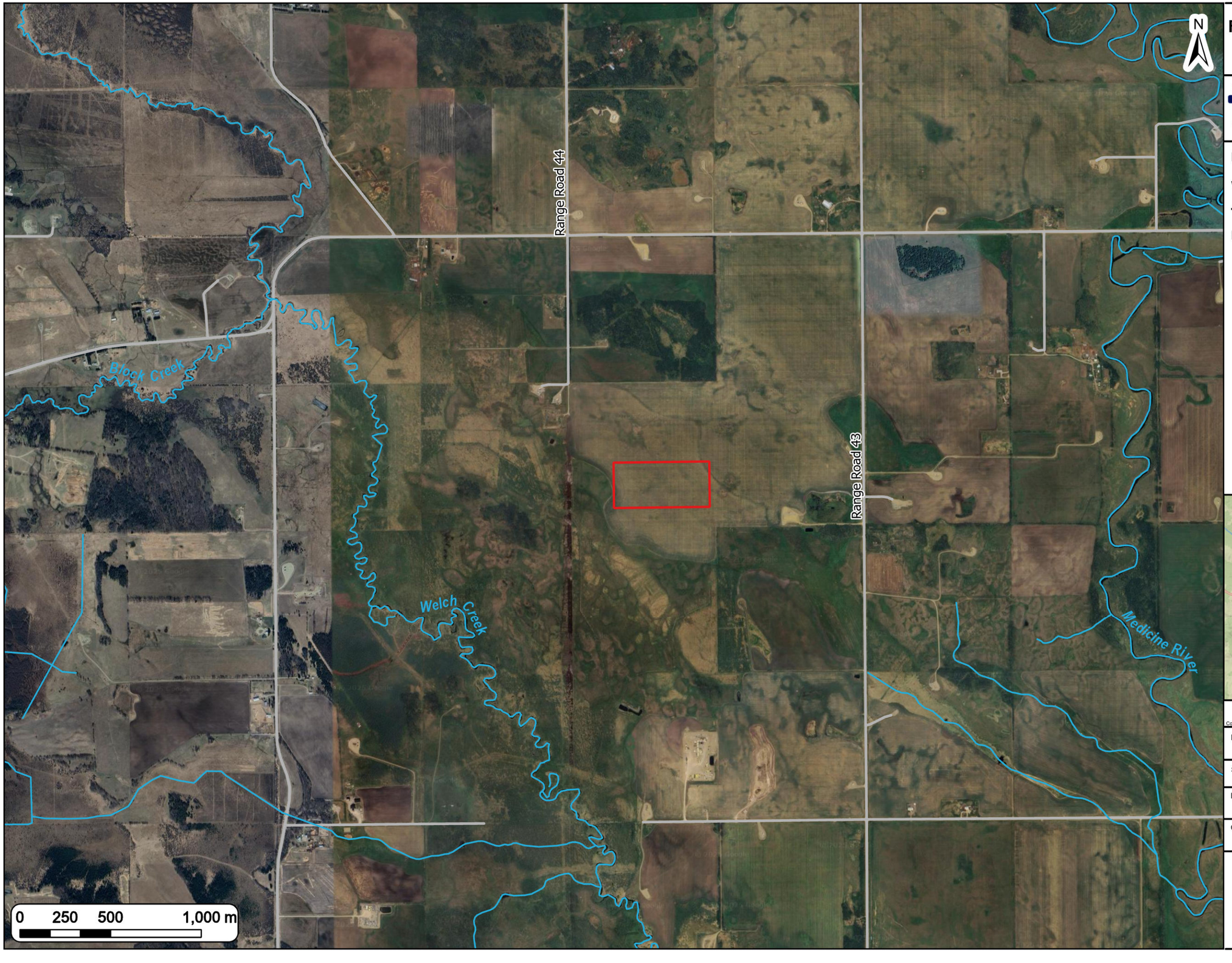
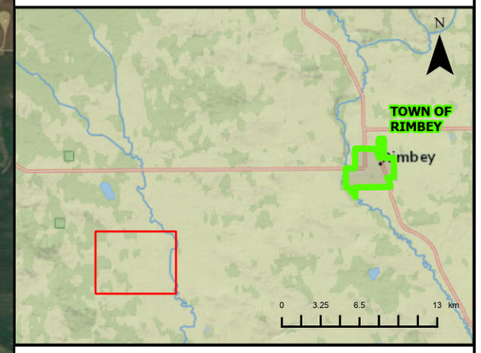
Project Area

Watercourse

Transportation

Road





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Drawn By: E. Johnson	
Checked By: L. Eichinger	

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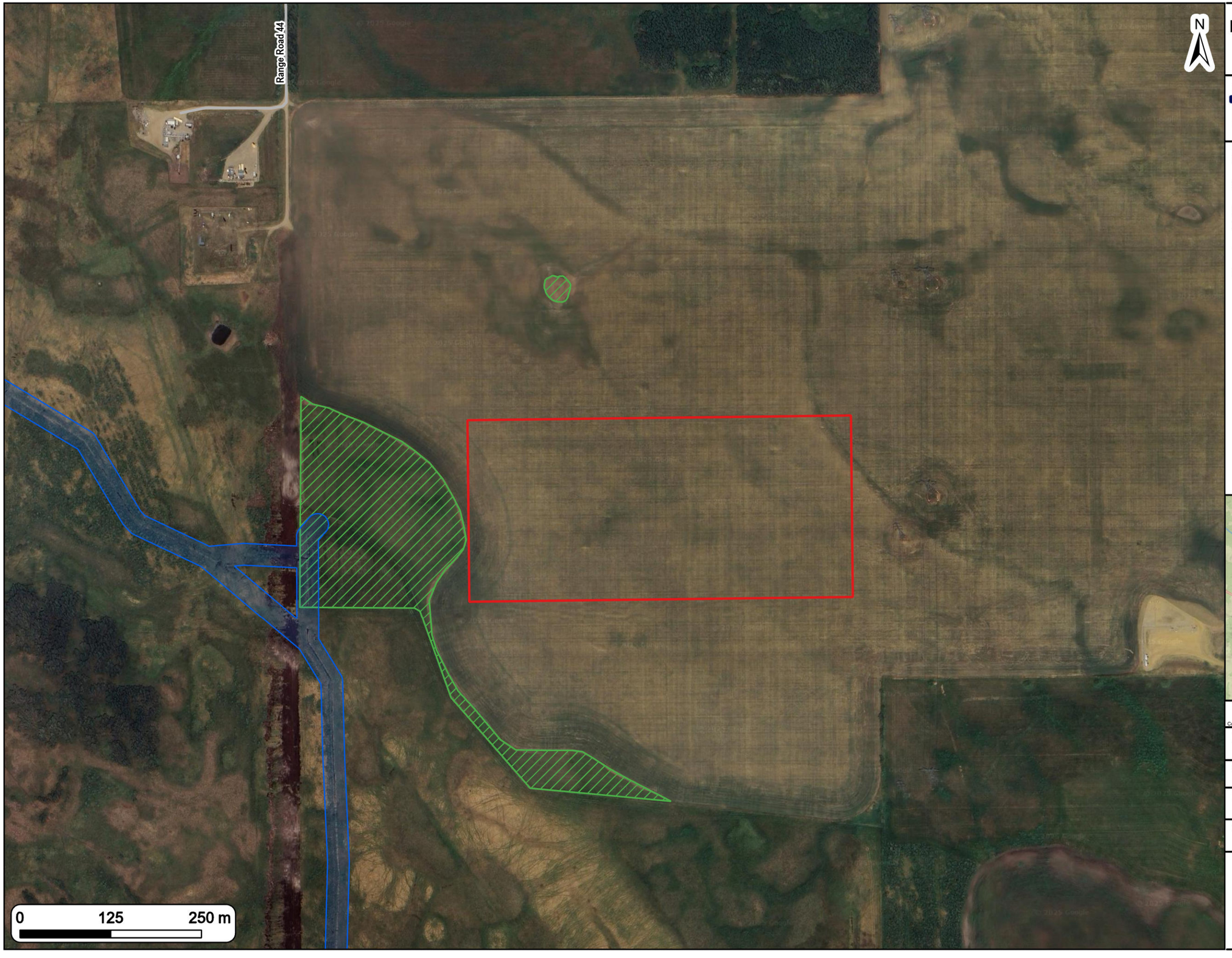

Flipi Gas-Fired Generation Project

Wetlands

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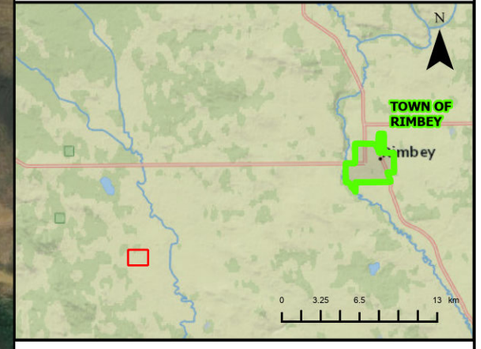
Project Area

Seasonal Marsh Wetlands

Existing Open Drainage / Constructed Drainage Swale

Transportation

Road



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Sources: Google Imagery (Maxar), HERE, Garmin, USGS, NRCan, Carvec

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Scale: 1:5,000	Drawing #: 5
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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Flipi Gas-Fired Generation Project

Indigenous Reserves

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Project Centre

Indigenous Communities

Coordinate System: NAD1983 CSRS 10TM AEP Forest

Sources: Google Imagery (Maxar), HERE, Garmin, USGS, NRCan, Canvec

Date: 2025-12-16	Project #: 24-9987
Scale: 1:650,000	Drawing #: 6
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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0 10 20 40 km

Flipi Gas-Fired Generation Project

Parks and Protected Areas

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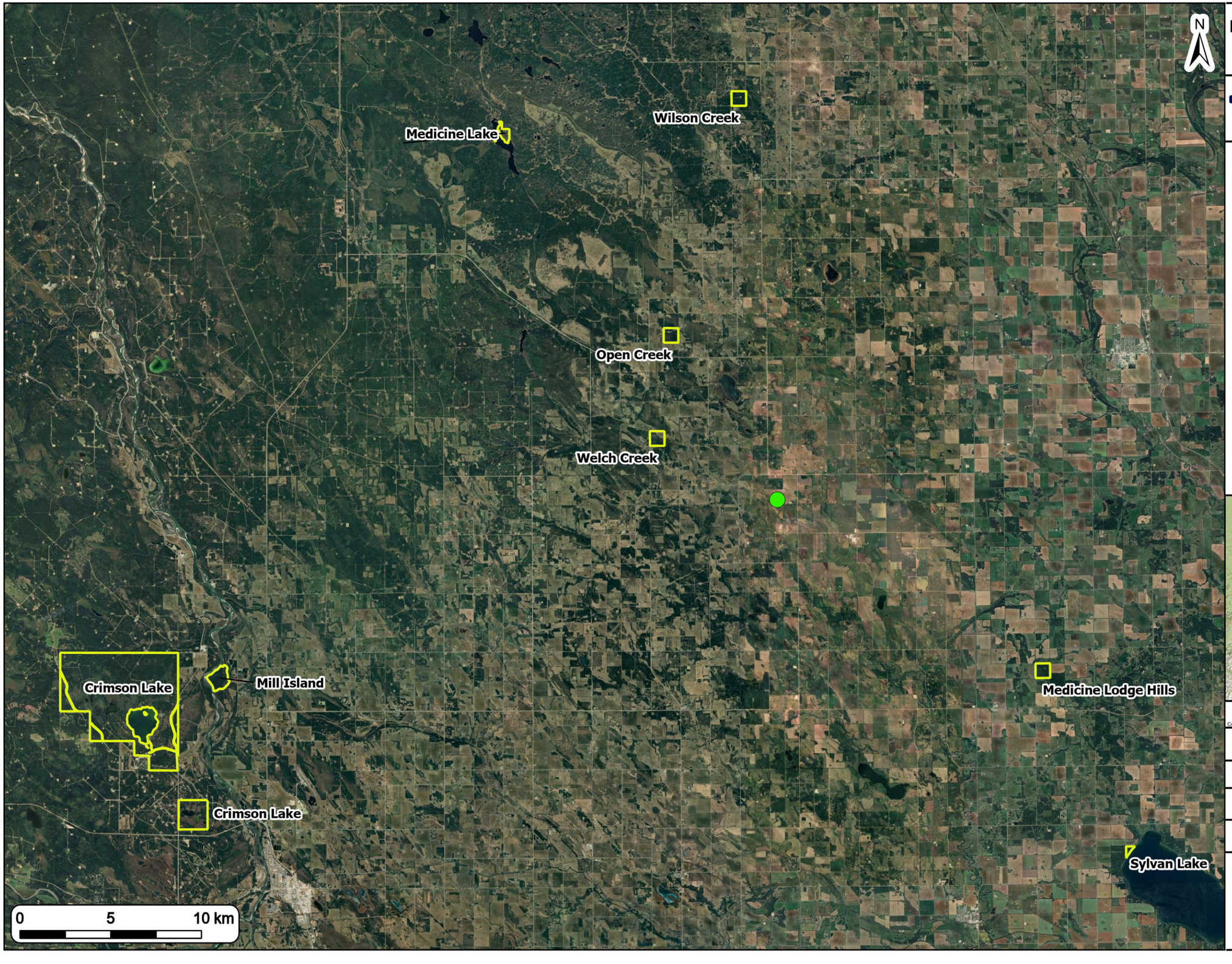
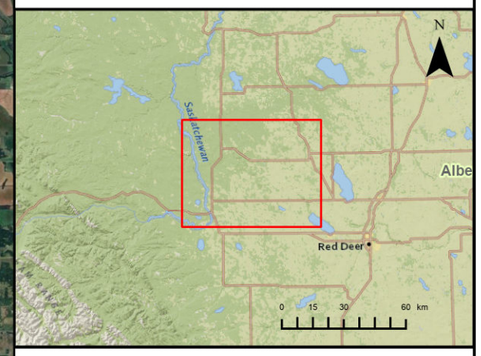
Project Centre

Parks and Protected Areas





Coordinate System: NAD1983 CSRS 10TM AEP Forest

Sources: Google Imagery (Maxar), HERE, Garmin, USGS, NRCan, Canvec

Date: 2025-12-16	Project #: 24-9987
Scale: 1:200,000	Drawing #: 7
Drawn By: E. Johnson	
Checked By: L. Eichinger	

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APPENDIX C
PARTICIPANT INVOLVEMENT PROGRAM & TRANSALTA'S SUPPLEMENTAL STAKEHOLDER AND RIGHTS-HOLDER ENGAGEMENT REPORT

Flipi Gas-Fired Generation Project

Participant Involvement Program

Prepared for:
Dobromir Filip, Director, Development and Engineering, Power Division
Kiwetinohk Energy Corp.

Prepared by:
Samantha Brown, MBA, PMP
SABR Energy Consulting Inc.

February 3, 2025

CONTENTS

List of Appendices 2
Participant Involvement Overview 3
Stakeholder and indigenous group Identification 3
Participant Involvement Program Materials 4
Flipi Gas Fired Generation Project Newsletter #1 – August 27, 2024 4
Flipi Gas Fired Generation Project Update Newsletter #2 – November 2024 4
Consultation with landowners and Occupants 4
One-on-One Consultation 4
Indigenous Engagement 7
Consultation with Government Agencies 10
Clearwater County 10
NAV Canada 11
Transport Canada 11
Consultation with Industrial Interest Holders 11

LIST OF APPENDICES

Appendix A: Consultation/Notification Radius Map

Appendix B: Landowner Map

Appendix C: Stakeholder Line List

Appendix D: Overview Map

Appendix E: August 2024 Project Specific Information Package

Appendix F: November 2024 Update Package

Appendix G: Indigenous Groups Mailing List

Appendix H: NAV Canada Approval

PARTICIPANT INVOLVEMENT OVERVIEW

The Flipi Gas-Fired Generation Project (the Project) is being developed by Kiwetinohk Energy Corp. (the Proponent). The proposed Project is a 460 megawatt (MW) combined cycle power plant and a 240 kV substation known as the Wapos 1077S substation on privately owned, cultivated land approximately 18 km southwest of the Town of Rimbey, Alberta. The project is designed to enable a separate addition of future CO2 capture. A future decision on the addition of CO2 capture facilities and equipment would be subject to separate regulatory processes, commercial and technical considerations.

In June 2024, SABR Energy Consulting Inc. (SABR Energy), in collaboration with the Proponent, undertook a Participant Involvement Program (PIP) in accordance with Alberta Utilities Commission (AUC) Rule 007: Applications for Power Plants, Substations, Transmission Lines, Industrial System Designations, Hydro Developments and Gas Utility Pipelines (Rule 007), effective March 28, 2024. The PIP included notification to stakeholders and the general public, personal consultation with landowners, occupants, industrial interest holders, Indigenous Groups and government agencies. Stakeholder engagement activities are ongoing and will continue throughout construction and operation activities, for the life of the Project.

The objectives of the PIP were:

- To identify stakeholders and Indigenous Groups that may be directly and/or adversely impacted by or interested in the proposed Project.
- Provide these stakeholders and Indigenous Groups with project-specific information so they can understand the scope of the Project and any potential impacts of it.
- Understand stakeholder's and Indigenous Groups' preferred method of communication and provide them with opportunities to engage appropriately.
- Provide an opportunity for stakeholders and Indigenous Groups to ask questions, identify any concerns and discuss the Project.
- Discuss options, alternatives and mitigation measures, resolving issues wherever possible.
- Share how feedback has been considered in Project design.
- Develop mitigation strategies to address the concerns of stakeholders and provide timely feedback about how issues will be addressed.
- Establish and strengthen relationships with community members and Indigenous Groups.

STAKEHOLDER AND INDIGENOUS GROUP IDENTIFICATION

As per AUC Rule 007, the Project is categorized under "thermal, hydro or other power plants, 10 megawatts or greater, urban and rural" which requires personal notification to occupants, residents, landowners, First Nation reserves and Metis Settlements within 2,000 metres (m) measured from the edge of the proposed power plant site boundary and personal consultation with occupants, residents, landowners, First Nation reserves and Metis Settlements within 800m, measured from the edge of the proposed power plant site boundary, at a minimum.

Consultation and notification line lists were generated using various sources of information including land titles searches, publicly available mapping systems and discussions with Project area landowners. Stakeholders identified include landowners, occupants, residents, Indigenous Groups, government agencies and industrial interest holders. A map showing the preliminary project boundary, 800m

consultation radius and 2,000m notification radius is included as **Appendix A**. A map showing the land ownership and residences within 2,000m of the Project boundary is included as **Appendix B**. A stakeholder list including legal locations, where applicable, is included as **Appendix C**. A map showing neighbouring municipalities, First Nations Reserves and Metis Settlements is included as **Appendix D**.

PARTICIPANT INVOLVEMENT PROGRAM MATERIALS

Flipi Gas Fired Generation Project Newsletter #1 – August 27, 2024

The August 2024 Project Specific Information Package (PSIP) provided in **Appendix E**, included the following materials:

- Project newsletter containing an introduction to the Project and developer, preliminary design information, Project studies summary, an outline of the engagement process, Project benefits, a preliminary Project schedule, next steps and contact information for the Proponent
- Preliminary Project layout
- AUC Brochure – Participating in the AUC's Independent Review Process

The package was sent to stakeholders listed in **Appendix C** via regular mail and Indigenous Groups via email. Additional packages were sent to stakeholders via email where requested. Notification packages were returned as undeliverable by Canada Post for three stakeholders. Updated mailing addresses were obtained, and the packages were resent.

Flipi Gas Fired Generation Project Update Newsletter #2 – November 2024

The November 2024 Project Specific Information Package (PSIP) provided in **Appendix F**, included the following materials:

- Project newsletter containing an overall update on the Project, clarification on CO_2 capture, information on site access, responses to common concerns raised including construction noise, lighting and Project siting and contact information for any questions or concerns
- AUC Brochure – Participating in the AUC's Independent Review Process

Due to the Canada Post strike, the Proponent was unable to send out the notification packages by mail. The Proponent worked diligently to contact all stakeholders within 2,000m of the Project and obtain email addresses for delivery. All stakeholders and Indigenous Groups were sent an electronic copy or hand delivered a copy of the notification package. The Proponent will follow up with hard copy notification packages once the Canada Post strike end but is confident that all potentially impacted stakeholders and Indigenous Groups have been contacted with respect to newsletter #2.

CONSULTATION WITH LANDOWNERS AND OCCUPANTS

One-on-One Consultation

Personal consultation was carried out with all landowners and occupants within 800m of the Project boundary by phone, email and in-person, as requested by stakeholders.

Details of the questions and concerns received, and the Proponent's responses are discussed further below. Detailed consultation records for individual stakeholders are available upon request.

Project Schedule: A stakeholder inquired about the Project schedule and timeline for AUC submission. The Proponent confirmed they intend to file a power plant application in December 2024. The Proponent confirmed that following submission and initial review of the application, the AUC will mail out notices to all stakeholders with details about the Project application and review process.

AEPA Submission Schedule and Process: A stakeholder inquired about the Alberta Environment and Protected Areas application submission timeline and the process for intervening on the application. The Proponent provided details about the notice requirements, review period, decision and appeals process.

Emissions Modelling: Stakeholders inquired about the emissions modelling and the Proponent provided a copy of the air quality assessment report.

Noise: Stakeholders raised concerns over noise from the Project and the Proponent explained AUC Rule 012 and provided a copy of the noise impact assessment.

Location: A stakeholder inquired about the specific location of the Project on the quarter section and the Proponent provided a copy of the survey plan.

Environmental: Stakeholders inquired about the environmental surveys completed for the Project. The Proponent advised that surveys completed to date include: two rounds of raptor nest surveys, two rounds of breeding bird surveys and wetland surveys. These surveys will be completed in the 2025 season, along with pre-disturbance soils assessment prior to construction of the project.

Siting: Several stakeholders inquired about the siting of the Project. The Proponent explained that there are several factors that go into siting a Project like this including:

- Proximity to existing 240KV interconnection
- Proximity to a sufficient natural gas (sweet) supply
- Availability of grid capacity for the project size
- Proximity to load centers
- Relatively flat area with minimal topographical constraints
- Low environmental impact including wetlands and wildlife
- A willing host landowner

As this question was raised by several stakeholders, the Proponent added these details to newsletter #2 which was provided to all stakeholders within 2km of the Project boundary.

Access and Haul Routes: Questions and concerns were raised by several stakeholders with respect to access to the Project, and in particular, the haul routes. The Proponent has undertaken an assessment to determine viable routes and solicit feedback from landowners/residents as well as the three impacted municipalities. The Proponent included an update on the potential routes in newsletter #2 and is committed to keeping stakeholders informed about potential access routes.

Visual Impacts: Two stakeholders raised concerns over visual impacts. The Proponent completed a visual simulation for each stakeholder. One of the stakeholders will not be able to see the project from their residence, based on the visual simulation, due to other obstructions between the residence and the power plant. The Proponent is continuing to discuss mitigation measures with one stakeholder.

Waste Water: One stakeholder inquired about wastewater from the Project. The Proponent advised that no industrial wastewater will be released to the environment. Wastewater will be directed to an on-site above ground storage tank where it will be stored and monitored, then removed by tanker truck to a 3rd party certified wastewater disposal/treatment facility, once filled. All tanks used for storage of wastewater will meet the requirements for design characteristics and disposal details will be recorded. Re-use and minimization of wastewater will be analyzed for the project and any wastewater that has potential to be reused in the facility will be stored in separate tanks for further use or treatment.

Water: Stakeholders inquired where the Proponent would obtain water from for use at the Project site and how much water would be used. The Proponent explained that the CO_2 capture portion of the project is only an option in the future, if economically and technically feasible, that may produce extra water. The Proponent indicated that very little water will be used on site and may be trucked in, drawn from the river, or possibly a drilled well on site, to supply the plant with domestic water for washrooms, etc. If water is needed to be drawn from the river or the aquifer, separate provincial regulatory approvals will be needed.

CO_2 Capture Questions: Several stakeholders inquired about more details regarding the potential CO_2 capture portion of the Project. The Proponent clarified that they are not currently applying for the CO_2 capture portion of the Project at this time, because design has not progressed sufficiently to do so. As several stakeholders inquired about this topic, the Proponent included an update in newsletter #2, indicating that the design has been paused until the CO_2 capture component is both economically and technically feasible.

Property Value Impacts: Stakeholders raised concerns over the impact of the Project on nearby property values. The Proponent hired Serecon to undertake a property value study to determine whether there is likely to be an impact on nearby property value as a result of the Project. Serecon's memo was created and dated December 13, 2024. It will be presented to the concerned stakeholders for review and continued discussion.

AESO Process: One stakeholder inquired about what AESO stage the Project is in. The Proponent advised that we are in Stage 3 of the AESO legacy process, currently working on the Service Proposal that is part of the AESO NID requirements. Our engineering study work is moving along and should be completed later this year.

Lighting Requirements: One stakeholder inquired about what type of lighting would be required for the facility and raised a concern about lighting impacts at night. The Proponent provided information on potential lighting requirements and explained that lighting requirements will be in accordance with Canadian Aviation Regulations. Potential mitigation options were offered that can be explored after final design of the power plant is complete.

Community Benefits: Stakeholders inquired what benefits the community would receive as a result of the Project. The Proponent advised that they support the local communities in which they operate. They explained that due to the early stage of the Project, they have not yet identified local initiatives, programs or facilities that require our support. They thanked the stakeholder for providing input on potential opportunities and will consider these as the Project progresses.

Project Benefits: A stakeholder inquired about the benefits of the Project. The Proponent advised of the following benefits; a clean, reliable, cost-effective source of new electricity supply, enhancing local and regional reliability of power supply, providing employment opportunities during construction as well as operating and maintenance jobs during operations, generating tax revenue for the municipality, highest efficiency and lowest emission gas fired thermal plant in Alberta.

Project Cost: One stakeholder inquired about the capital cost of the Project. The Proponent advised it was estimated at $900 million.

Building/Equipment Height: One stakeholder inquired about the height of the buildings and equipment. The Proponent advised that currently they are seeking an AUC permit for a power plant (combined cycle) only from the AUC and in the future we may/may not consider adding (under the AEP) a CO_2 capture. The tallest structures on the power plant will be the Heat Recovery Steam Generator (HRSG) stack. It is anticipated for the HRSG stack height to be approximately 50m tall. The tallest building expected is the generator building that will be approximately 30m tall. Currently, there is no plan to build this power plant with the CO_2 capture in it, however, there is an option to add the CO_2 capture in the future. If the CO_2 capture is added in the future, the highest structure would the CO_2 absorption column, at approximately 80m tall.

Tree Removal: One stakeholder inquired if trees would need to be removed. The Proponent advised that at this time, it does not appear that any tree removal is required as there are no trees on the Project lands.

Dust: Stakeholders raised concerns about dust during construction and dust control. The Proponent advised that they will be required by the County to enter into a dust abatement agreement and ensure that dust is kept to a minimum during construction. Advised that dust control typically involves applying water or calcium during dusty times but would be determined with the County.

Electromagnetic Fields (EMF): One stakeholder raised concerns over increased EMF in the area as a result of the Project. Information was emailed to the stakeholder regarding EMF guidelines, examples, and EMF levels from household appliances.

INDIGENOUS ENGAGEMENT

As a result of the Project falling under the Federal Impact Assessment Act, the Proponent will be filing an Initial Project Description with the Impact Assessment Agency of Canada (IAAC). IAAC provided the Proponent with a preliminary view of 11 Indigenous Groups that would be scoped into the Project. In anticipation of filing the Initial Project Description with IAAC, newsletters were sent to all eleven (11) Indigenous Groups on September 4, 2024 (newsletter 1) and November 28, 2024 (newsletter 2).

The proposed project is located on privately held farmland; therefore, no site visits have been conducted to date.

The proponent met with and been corresponding with: Enoch Cree Nation, Otipemisiwak Metis Nation and O'Chiese First Nation, to present information about the Project. Ermineskin Cree Nation has requested a meeting with the Proponent to review the Project. As part of ongoing engagement, the Proponent is scheduling a meeting with Ermineskin Cree Nation. The Proponent continues to be available to meet as desired by any Indigenous Groups or stakeholders.

The table below summarizes the questions and concerns raised thus far by the Indigenous Groups and the Proponent's Response:

Concern	Responses
Effects such as noise, smells, dust, air pollution, increased traffic and people, signs and fences, all migrate off the direct footprint and are not compatible with the exercise of rights in accordance to our Natural Laws. The AUC recognizes the potential for migrating effects to rights, with Rule no. 012 which states that continuous and persistent ceremonial and cultural sites within 1.5km of a project's boundary may be considered as receptors	**Noise**: The project is located entirely upon freehold land. The nearest crown land is approximately ±3.3 kms from the center of the proposed Flipi plant site. Per AUC Rule 012 a Noise Impact Assessment (NIA) was completed and receptors considered from the lease to 1.5km and 3.0km. Three (3) residents were identified within 1.5km of the site, the lands within the 1.5km radius are privately owned and outside Alberta Crown lands. The NIA determined that the project is predicted to comply with the Permissible Sound Level (PSL) as defined by AUC Rule 012, including estimated and predicted cumulative noise levels. The nearest Crown lands are greater than 1.5 km from the proposed Flipi project area, we do not predict the Permissible Sound Level from the Flipi project would be exceeded at distances of greater than 1.5km from the project. **Dust**: Kiwetinohk will implement appropriate dust suppression measures (in consultation with Clearwater County) on roads, work areas, or transportation and loading routes, as necessary. The decision to control dust will be made at the field level and will depend upon site conditions, level of activity, and worker health and safety **Air Pollution and Odours**: Air quality assessments have been completed and found to be compliant with Alberta Ambient Air Quality Objectives (GOA: AEPA, 2024). Kiwetinohk anticipates that on a per megawatt water use and carbon dioxide emissions efficiency basis, if built as engineered, the Flipi Power Plant will be one of the most efficient natural gas-fired power generation facilities in Alberta and will produce electricity that is lower in emissions than the Alberta average today (using the 2023 emissions grid displacement factor). **Increased Traffic**: The project will utilize existing roads and infrastructure to access the project site; the routing has not yet been determined. Kiwetinohk will engage with interested parties on routing. There will be an increase in traffic during construction, but when complete and operating, any increase in traffic would be minimal.

	Signs and Fences: Kiwetinohk anticipates that any signs and fences involved with the Flipi project will be on freehold land or near the road on county land.
The AUC also recognizes visual impact assessment requirements with Rule no. 007 which states that visual impacts need to be taken into consideration during project development	Kiwetinohk has conducted a visual impact assessment for residences located near the project that have requested the assessment. The proposed project location is located on cultivated, privately owned (Freehold) land. The nearest Crown land is located approximately ±3.3km from the proposed plant site. The height of the facility is approximately the same height of the existing transmission lines adjacent to the project, therefore visual impacts should be minimal.
Site visit of the proposed project location	The proposed power plant is located on cultivated, privately owned (Freehold) land. The nearest Crown land is located approximately ±3.3km from the proposed plant site. As the proposed power plant is on privately owned (Freehold) land, Kiwetinohk would not be authorized to grant a site visit.
Details on considerations for impacts to Inherent and Treaty rights undertaken to-date and upcoming such as studies, valued components, measures etc.	To date Kiwetinohk has conducted the following studies: wetland, soil, vegetation and breeding bird and raptor surveys. When completed and filed with the regulatory body, Kiwetinohk would be happy to share these studies. To further explore and conduct meaningful engagement on this topic, Kiwetinohk kindly requests a list of the concerns respecting your Inherent and Treaty rights. Once the concerns have been identified, Kiwetinohk would like to collaborate with the group to mitigate any potential effects of the power plant.
Details on any mitigation measures already identified to address any effects to Inherent and Treaty rights identified to-date	Once Kiwetinohk better understands the individual concerns we can work together on potential mitigation measures.
Available consultation capacity funding available for Nations to participate in engagement on the project	Funding may become available through the Impact Assessment Agency of Canada (IAAC) only after Kiwetinohk has filed its Initial Project Description which is anticipated in Q1 2025. Additional information about the funding and how to apply once Kiwetinohk has filed the Initial Project Description can be found here: https://www.canada.ca/en/impact-assessment-agency/programs/participation-indigenous-peoples.html

Project consultation plan, or details on any consultation activities planned as part of the project application	Kiwetinohk will continue to engage as necessary and desired by Indigenous Groups to further understand specific interests and concerns.
How the location of the project was selected	The location of the proposed power plant was chosen due to its proximity to the existing AltaLink transmission line, short tie-in point for the proposed gas line, capacity to supply the electrical grid with additional power, low population density, privately held land and pre-existing disturbed land, thereby reducing the overall project impacts.
Additional information on the proposed gas line tie in	The proposed natural gas pipeline route is still to be determined and will be finalized at a later date. Kiwetinohk anticipates the pipeline will be located on cultivated, privately held farmland and follow existing disturbances where applicable. Once the routing has been determined a separate application will be filed with the applicable regulatory body.
Environmental studies completed to date	To date Kiwetinohk is conducting the following studies: wetland, soil, vegetation and breeding bird and raptor surveys. When completed and filed with the regulatory body, Kiwetinohk would be happy to share these studies.
Artifacts found during construction phase	If artifacts are discovered during the construction phase of the project, construction will be stopped immediately, and the appropriate resources and regulatory bodies will be contacted immediately.

The proponent is committed to fully engaging with all Indigenous Groups throughout the lifecycle of this Project and responding to any issues or concerns raised.

A mailing list for the Indigenous Groups is included as **Appendix G**.

CONSULTATION WITH GOVERNMENT AGENCIES

All agencies that were notified or consulted are included in **Appendix C**. This section details the consultation undertaken with key agencies from which the Project requires approvals.

Clearwater County

The Proponent mailed a copy of newsletter #1 on August 27, 2024 and followed up via email with an electronic copy of on August 31, 2024. The Proponent provided Project information, requested clarification on the municipal permitting process and offered to meet with Clearwater County for discussion. Clearwater County responded on September 3, 2024 providing details on the municipal permitting process and advising they do not have any concerns with the Project currently. The Proponent has stayed in contact with Clearwater County regarding stakeholder engagement updates

and inquiries, questions about new potential new residences, haul routes and bridges and the emergency response plan for the Project. As of the date of this report, no questions or concerns have been raised by Clearwater County and the Proponent intends to complete the municipal development process closer to construction, as development permits are typically valid for 12 months.

Lacombe County

The Proponent reached out to Lacombe County due to potential haul routes utilizing Labome County controlled roads. Lacombe County indicated on November 14, 2024 that they have some concerns and would provide feedback at the end of the month. Lacombe County requested a joint meeting including the Proponent, Clearwater County, Lacombe County and Ponoka County. The meeting was held on December 16, 2024 and additional input was provided on potential haul routes. The Proponent will continue discussions with all impacted municipalities with respect to the haul routes.

Ponoka County

Due to the proximity of the Project to Ponoka County, the Proponent emailed a copy of newsletter #1 to the Development Officer and the CAO. The Proponent provided details of the Project, invited any questions or concerns and offered to meet to discuss the Project. No questions or concerns have been raised by the County. The Proponent subsequently reached out to Ponoka County for feedback on potential haul routes. Feedback was received on potential route issues and will be considered for haul route planning.

NAV Canada

A Land Use Submission package including Project map and equipment heights was submitted to NAV Canada on September 13, 2024. Approval was received on October 10, 2024 and a copy is included as **Appendix H**.

Transport Canada

An Aeronautical Assessment form was submitted to Transport Canada on September 13, 2024. Transport Canada advised that because the construction start date is more than 18 months in the future, they could not accept the application. The application will be resubmitted at least 90 days prior to construction, however the Proponent does not expect any issues in obtaining this approval.

CONSULTATION WITH INDUSTRIAL INTEREST HOLDERS

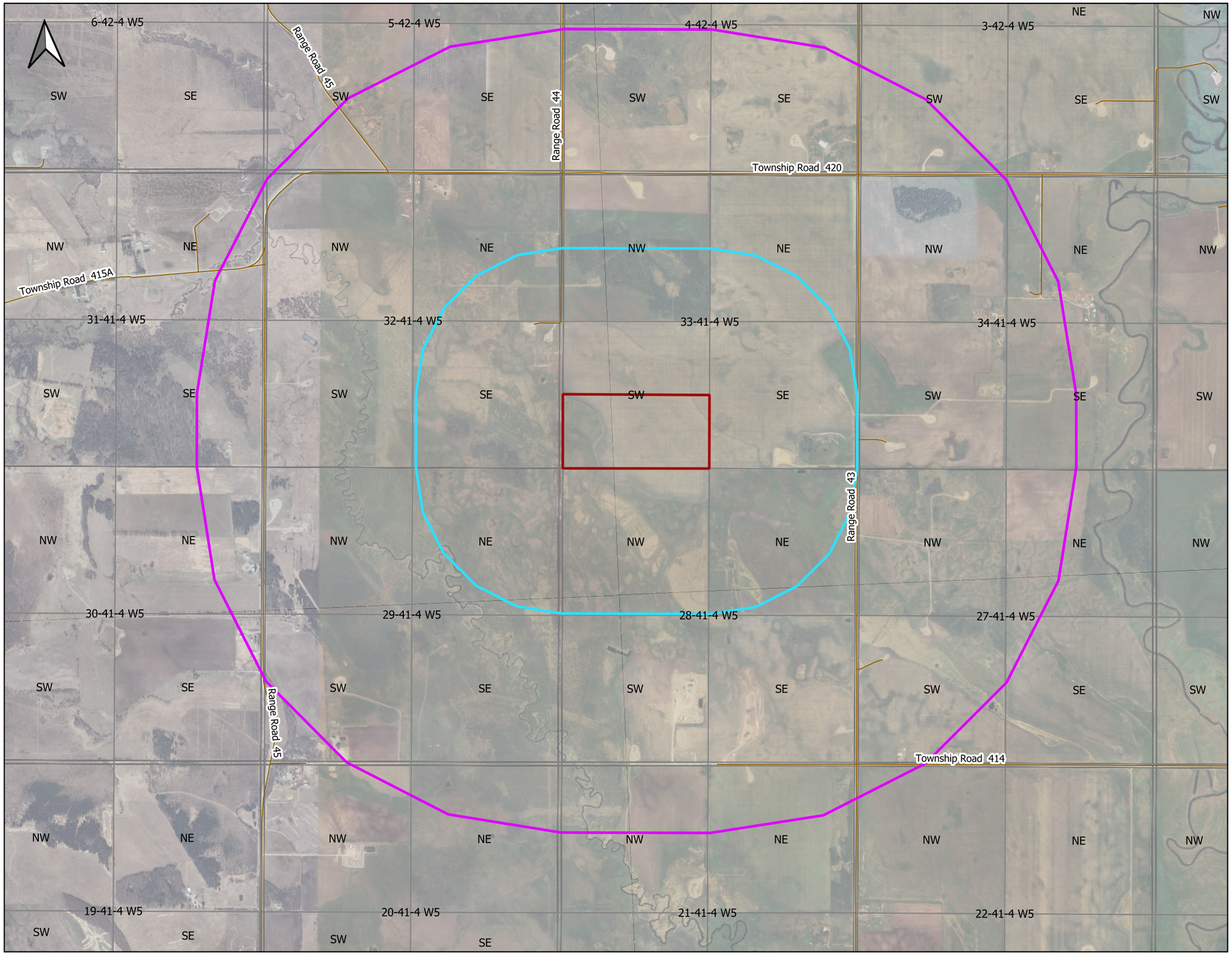
Consultation was undertaken with industrial interest holders potentially impacted by the Project and additional industrial interest holders within 2,000m of the Project boundary were notified. Industrial interest holders are included in **Appendix C**. PSIPs were sent by regular mail on August 27, 2024 as well as email (where available) to ensure receipt by the appropriate department.

Questions were raised with respect to noise and emissions compliance. The Proponent was able to address all questions and concerns and is not aware of any outstanding issues from industrial interest holders.

A spreadsheet with mailing addresses to be used for mailing labels is included as an attachment to the power plant application, in spreadsheet format. Please note, NAV Canada and Transport Canada have been removed from this list as they do not wish to receive AUC notifications.

Appendix A

Consultation/Notification Radius Map

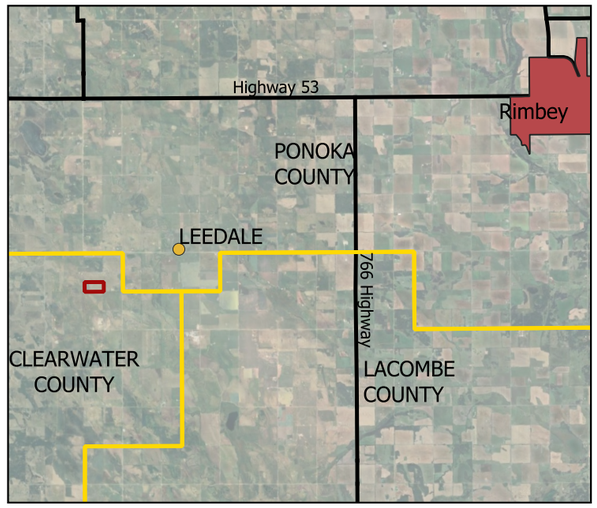


0 400 800 1,200 1,600 2,000 m

Municipality: Clearwater County

Legend

- Project Area
- 800m Radius
- 2000m Radius



Coordinate System: WGS 84 UTM Zone 12N
Scale: 1:22,000
Prepared by: SABR Energy Consulting Inc.
Source: AltaLis, Abadata, OpenStreetMap, SPIN II

SABR Energy Consulting Inc.

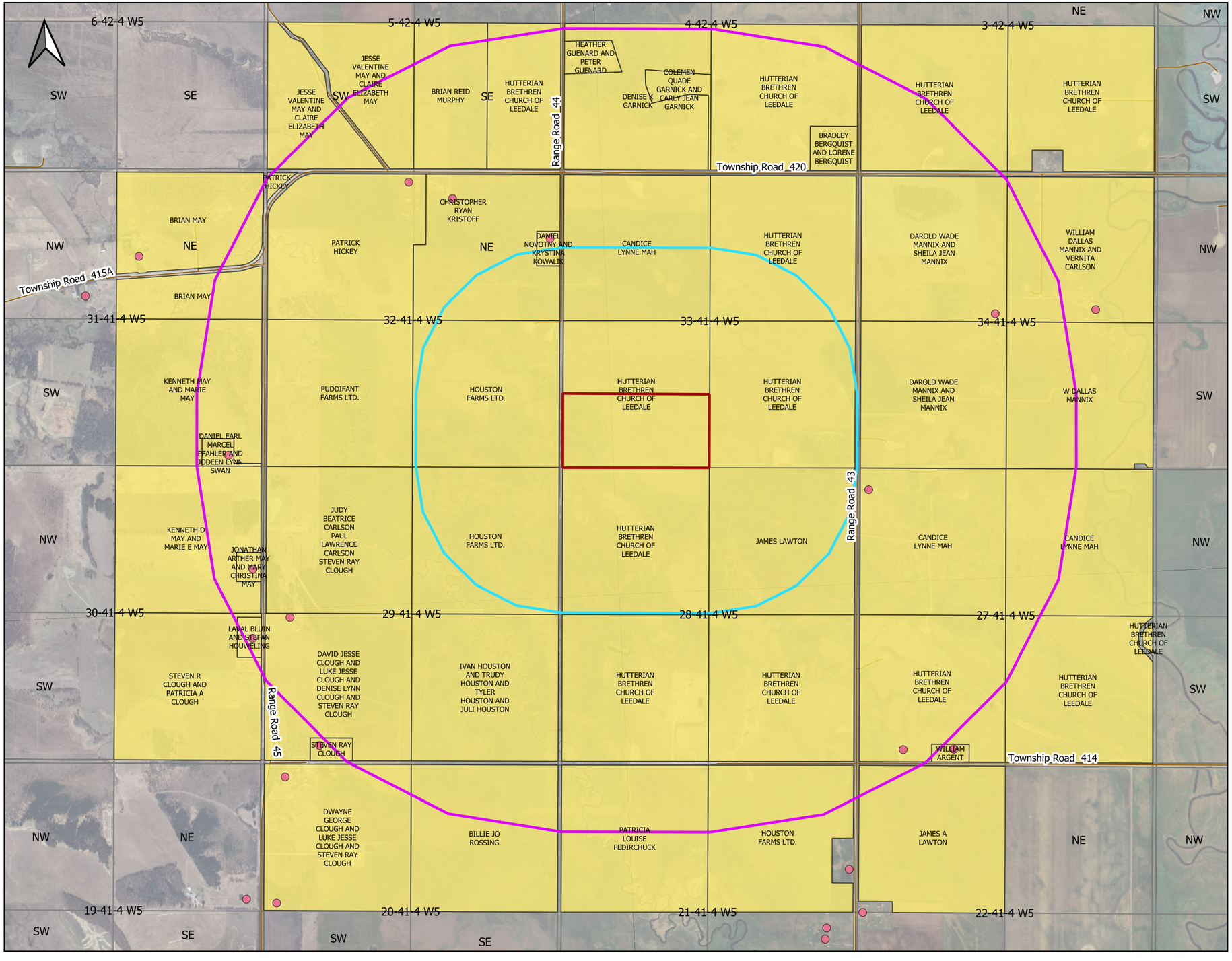
Consultation Radius Map

Flipi Thermal Project

Date: December 3, 2024

Appendix B

Landowner Map



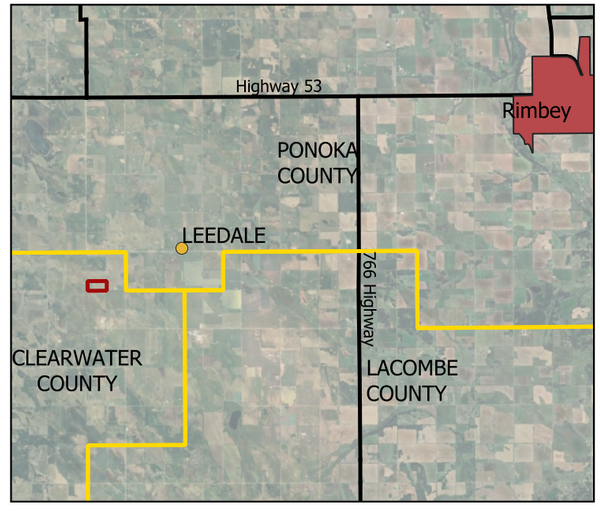
0 400 800 1,200 1,600 2,000 m

Municipality: Clearwater County

Coordinate System: WGS 84 UTM Zone 12N
Scale: 1:22,000
Prepared by: SABR Energy Consulting Inc.
Source: AltaLis, Abadata, OpenStreetMap, SPIN II

Legend

- Project Area
- 800m Radius
- 2000m Radius
- Parcels
- Residences (Unverified)



SABR Energy Consulting Inc.

Landowner Map

Flipi Thermal Project

Date: December 3, 2024

Appendix C

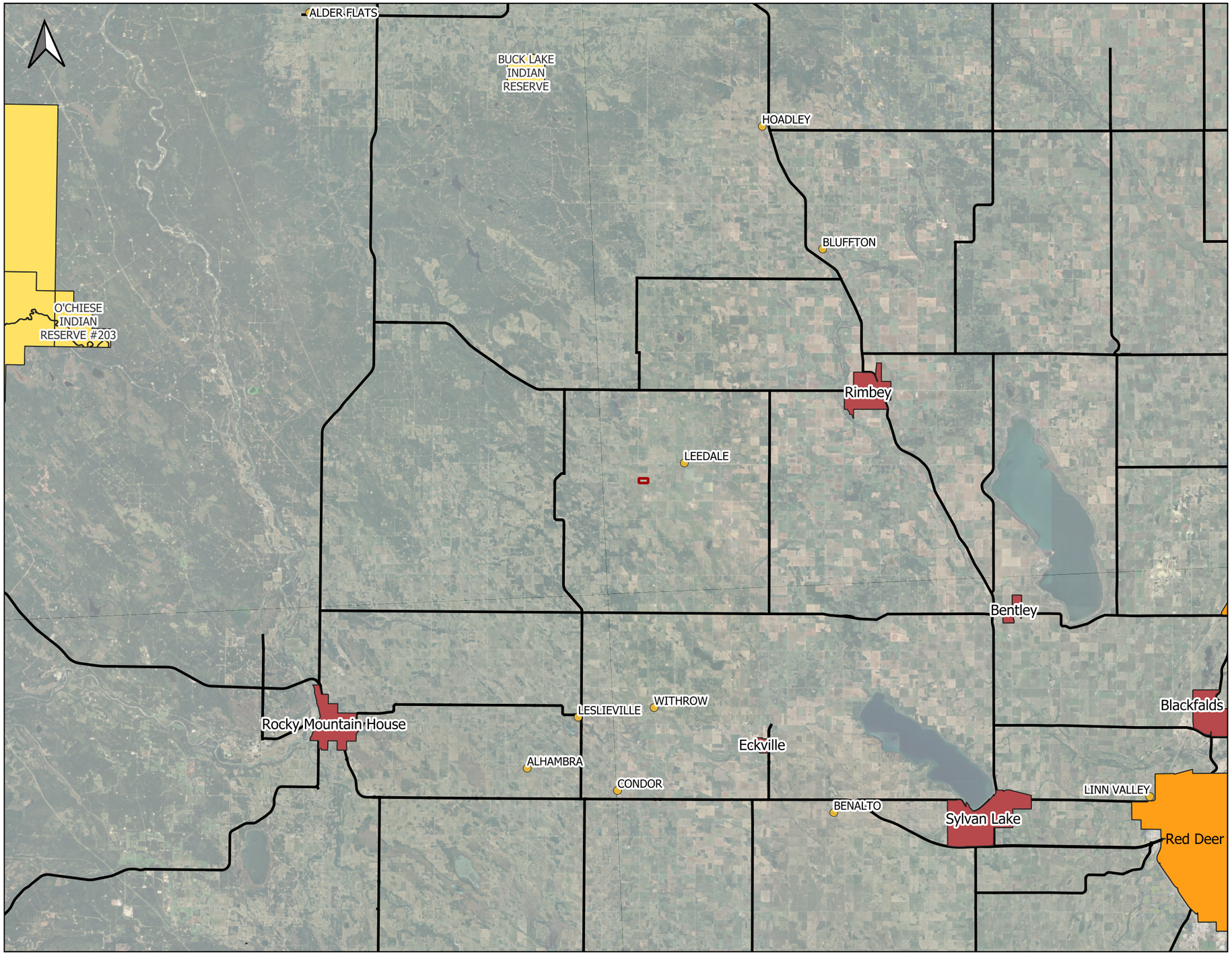
Stakeholder Line List

Title Number	LINC Number	Short Legal	Radius	Stakeholder Type	Name	Contact Info	Address	City	Province	Postal Code
152 186 057	0017731993	5;4;42;4;SE	2000m	Landowner	BRADLEY BERGQUIST AND LORENE BERGQUIST		R.R.#4	RIMBEY	Alberta	T0C2J0
		5;5;41;27;SE	N/A	Landowner	BRADLEY VANNIEUWKERK		Unknown			
222 188 513 +2	0020474201	5;4;41;31;NE	2000m	Landowner	BRIAN MAY		PO BOX 489	THREE HILLS	Alberta	T0M2A0
082 397 761	0032080153	5;4;42;5;SE	2000m	Landowner	BRIAN REID MURPHY		BOX 972	CAROLINE	Alberta	T0M0M0
222 281 684 +1	0022728737	5;4;41;33;NW	800m	Landowner	CANDICE LYNNE MAH		5373 CRABAPPLE LOOP SW	EDMONTON	Alberta	T6X1S5
222 281 684	0015581152	5;4;41;27;NW	2000m							
222 281 684	0015581169	5;4;41;27;NE	2000m							
242 157 705	0032074445	0627569;2;2A	2000m	Landowner	PATRICK HICKEY		RR 4	RIMBEY	ALBERTA	T0C2J0
142 432 677	0032074429	5;4;41;32;NE	800m	Landowner	CHRISTOPHER RYAN KRISTOFF		BOX 1694	ROCKY MOUNTAIN HOUSE	Alberta	T4T1B3
222 273 550	0039329198	2222396;2;1	2000m	Landowner	COLEMEN QUADE GARNICK AND CARLY JEAN GARNICK		R4, SITE 4, BOX 2	RIMBEY	ALBERTA	T0C 2J0
162 063 000	0031797210	0623662;1;1	2000m	Landowner	DANIEL EARL MARCEL PFAHLER AND JODEEN LYNN SWAN		RR4	RIMBEY	Alberta	T0C2J0
242 122 992	0017490822	5;4;41;20;NE	2000m	Landowner	BILLIE JO ROSSING		PO BOX 121	CONSORT	ALBERTA	T0C1B0
222 271 359	0027365270	9820495;1;1	800m	Landowner	DANIEL NOVOTNY AND KRYSTINA KOWALIK		RR 4, SITE 3, BOX 13	RIMBEY	Alberta	T0C2J0
982 397 682	0018138933	5;4;41;34;NW	2000m	Landowner	DAROLD WADE MANNIX AND SHEILA JEAN MANNIX		BOX 7, SITE 3, R.R. 4	RIMBEY	Alberta	T0C2J0
062 236 323	0018138941	5;4;41;34;SW	2000m							
242 126 828	0037805893	1723589;1;1	2000m	Landowner	HEATHER GUENARD AND PETER GUENARD		RR 4 SITE 4 BOX 11	RIMBEY	ALBERTA	T0C2J0
212 207 558	0033810649	5;4;41;29;SW	2000m	Landowner	DAVID JESSE CLOUGH AND LUKE JESSE CLOUGH AND DENISE		RR 4	RIMBEY	Alberta	T0C2J0
212 199 036	0019598409	5;4;41;20;NW	2000m	Landowner	LYNN CLOUGH AND STEVEN RAY CLOUGH					
212 199 036	0019598409	5;4;41;20;NW	2000m	Landowner	DWAYNE GEORGE CLOUGH AND LUKE JESSE CLOUGH AND STEVEN RAY CLOUGH		RR 4	RIMBEY	Alberta	T0C2J0
222 273 502 +1	0039329180	5;4;42;4;SW	2000m	Landowner	DENISE K GARNICK		59 CAMERON CLOSE	SYLVAN LAKE	Alberta	T4S 0N5
222 281 684 +1	0022728737	5;4;41;33;NW	800m	Occupant	HOUSTON FARMS LTD.		RR 1	ECKVILLE	Alberta	T0M0X0
222 281 684	0015581152	5;4;41;27;NW	2000m							
222 281 684	0015581169	5;4;41;27;NE	2000m							
082 110 030	0026656231	5;4;41;21;NE	2000m	Landowner	HOUSTON FARMS LTD.		RR 1	ECKVILLE	Alberta	T0M0X0
202 129 426	0016848962	5;4;41;29;NE	800m							
162 112 868	0016848970	5;4;41;32;SE	800m							
822 029 985	0022409304	5;4;42;4;SE	2000m	Landowner	HUTTERIAN BRETHREN CHURCH OF LEEDALE		R.R. #4	RIMBEY	Alberta	T0C2J0
792 203 403	0015734437	5;4;41;33;NE	800m							
762 188 109 A	0021254149	5;4;41;33;SW	Project Area							
882 038 530	0015734411	5;4;41;28;SE	2000m							
762 188 109 B	0014924484	5;4;41;33;SE	800m							
172 334 800	0032080160	0627637;1;1	2000m							
882 038 530 A	0021254123	5;4;41;28;SW	2000m							
762 188 109	0016500598	5;4;41;28;NW	800m							
892 074 086 B	0021254157	5;4;41;27;SE	2000m							
812 012 738	0022478895	5;4;42;3;SW	2000m							
812 012 738	0022478903	5;4;42;3;SE	2000m							
142 326 127	0015163546	5;4;41;27;SW	2000m							
		5;4;41;27;SW	2000m	Occupant	CODY RUMBOLT		42072 TWP RD 414	RIMBEY	ALBERTA	T0C 2J0
012 240 074	0010541135	5;4;41;29;SE	2000m	Landowner	IVAN HOUSTON AND TRUDY HOUSTON AND TYLER HOUSTON AND JULI HOUSTON		R.R. 1	ECKVILLE	Alberta	T0M0X0
992 352 491	0015695399	5;4;41;22;NW	2000m	Landowner	JAMES A LAWTON		R.R. 1	ECKVILLE	Alberta	T0M0X0
822 177 301	0016402919	5;4;41;28;NE	800m	Landowner	JAMES LAWTON		R.R. #1	ECKVILLE	Alberta	T0M0X0
162 047 102	0017448812	5;4;42;5;SW	2000m	Landowner	JESSE VALENTINE MAY AND CLAIRE ELIZABETH MAY		R.R. 4	RIMBEY	Alberta	T0C2J0
082 495 881	0033519720	0828360;1;1	2000m	Landowner	JONATHAN ARTHER MAY AND MARY CHRISTINA MAY		RR4	RIMBEY	Alberta	T0C2J0
242 033 887	0019975664	5;4;41;29;NW	2000m	Landowner	JUDY BEATRICE CARLSON		115 OAK ST	RED DEER	ALBERTA	T4P1S2
					PAUL LAWRENCE CARLSON		55 OTTERBURY AVE	RED DEER	ALBERTA	T4N4Z8
					STEVEN RAY CLOUGH		RR 4	RIMBEY	ALBERTA	T0C2J0
082 440 706 +1	0033519712	5;4;41;30;NE	2000m	Landowner	KENNETH D MAY AND MARIE E MAY		RR 4	RIMBEY	Alberta	T0C2J0
102 097 923	0031779093	5;4;41;31;SE	2000m							

Title Number	LINC Number	Short Legal	Radius	Stakeholder Type	Name	Contact Info	Address	City	Province	Postal Code
222 291 875	0029842499	0224901;1;1	2000m	Landowner	LAVAL BLUIN AND STEFAN HOUWELING		RR 4	RIMBEY	ALBERTA	T0C 2J0
232 142 474	0011540722	5;4;41;21;NW	2000m	Landowner	PATRICIA LOUISE FEDIRCHUCK		BOX 6, SITE 3, R.R. #1	ECKVILLE	ALBERTA	T0M 0X0
232 142 474	0011540722	5;4;41;21;NW	2000m	Landowner	PAMELA GAY FEDIRCHUCK		BOX 9, SITE 3, R.R. #1	ECKVILLE	ALBERTA	T0M 0X0
132 242 569	0022719249	5;4;41;32;SW	2000m	Landowner	PUDDIFANT FARMS LTD.		SITE 1, BOX 6, RR 3	ECKVILLE	Alberta	T0M0X0
212 100 577 092 085 580	0029448800 '0033810657	5;4;41;30;SE 0922481;1;1	2000m 2000m	Landowner Landowner	STEVEN R CLOUGH AND PATRICIA A CLOUGH		RR4	RIMBEY	Alberta	T0C2J0
092 085 580	0033810657	0922481;1;1	2000m	Landowner	STEVEN RAY CLOUGH		RR #4	RIMBEY	Alberta	T0C2J0
162 225 078	0013785705	7821446;;A	2000m	Landowner	WILLIAM ARGENT		RR 4	RIMBEY	Alberta	T0C2J0
062 236 322	0017496373	5;4;41;34;SE	2000m	Landowner	W DALLAS MANNIX		RR #4, SITE 4, BOX 5	RIMBEY	Alberta	T0C2J0
052 353 438 +1	0018138917	5;4;41;34;NE	2000m	Landowner	WILLIAM DALLAS MANNIX AND VERNITA CARLSON		R.R. 4, SITE 4, BOX 4	RIMBEY	Alberta	T0C2J0
			800m	Industry	New North Resources Ltd.	Attn: Elizabeth Burke-Gaffney	320, 700 - 4 Ave SW	Calgary	Alberta	T2P 3J4
			800m	Industry	TOURMALINE OIL	Attn: Andrew Evans	2900, 250 - 6 AVENUE	Calgary	Alberta	T2P 3H7
			800m	Industry	Canlin Energy Corporation	Attn: Janine Acker	PO Box 4335, Station C 2600, 237 - 4th Ave SW	Calgary	Alberta	T2T 5N2
			2000m	Industry	NOVA Gas Transmission Ltd. (TC Energy)		450 - 1 Street SW	Calgary	Alberta	T2P 5H1
			2000m	Industry	Cenovus Energy Inc.		225, 6 Ave Sw PO Box 766	Calgary	Alberta	T2P 0M5
			800m	Industry	GRAN TIERRA ENERGY	Attn: Rhonda Heim	Suite 500, 207 9th Ave SW	Calgary	Alberta	T2P 1K3
			2000m	Industry	PLAINS MIDSTREAM CANADA ULC		1400, 607 - 8 Ave SW	Calgary	Alberta	T2P 0A7
			2000m	Industry	ENTRADA RESOURCES INC.		1200, 717 7th Ave S.W.	Calgary	Alberta	T2P 0Z3
			2000m	Industry	KEYERA ENERGY LTD.		200, 144 - 4 Ave SW	Calgary	Alberta	T2P 3N4
			2000m	Industry	PEMBINA PIPELINE CORPORATION		4000 - 585 8 Ave SW	Calgary	Alberta	T2P 1G1
			2000m	Industry	TAQA NORTH LTD.		2100 - 308 4 Ave SW	Calgary	Alberta	T2P 0H7
			2000m	Industry	G.L.D.C. Gas Co-op Ltd.		Box 1909	RIMBEY	Alberta	T0C 2J0
			2000m	Industry	FREEHOLD ROYALTIES LTD.		1000, 517-10th Avenue S.W.	Calgary	Alberta	T2R 0A8
				Agency	LACOMBE COUNTY - PLANNING & DEVELOPMENT	Attn: Daniella Gonzalez	RR 3	Lacombe	Alberta	T4L 2N3
				Agency	LACOMBE COUNTY - PLANNING & DEVELOPMENT	Attn: Dale Freitag, Director of Planning Services	RR 3	Lacombe	Alberta	T4L 2N3
				Agency	CLEARWATER COUNTY	Attn: Kimberly Gilham, RPP, MCIP Manager, Planning and Development	P.O. Box 550 4340 -47 Avenue	Rocky Mountain House	Alberta	T4T 1A4
				Agency	PONOKA COUNTY	Attn: Peter Hall, CAO	4205 Highway #2A	Ponoka	Alberta	T4J 1V9
				Agency	PONOKA COUNTY	Attn: Robin Dubitz, Development Officer	4205 Highway #2A	Ponoka	Alberta	T4J 1V9
				Agency	NAV Canada	landuse@navcanada.ca	N/A - Email Only			
				Agency	Transport Canada	aviation.pnraaf-rpnfea@tc.gc.ca	N/A - Email Only			

Appendix D

Overview Map



Legend

- Project Area
- Hamlet
- Reserve Lands
- City
- Town
- Highways

0 10 20 30 40 km

Municipality: Clearwater County

Coordinate System: WGS 84 UTM Zone 12N
Scale: 1:350,000
Prepared by: SABR Energy Consulting Inc.
Source: AltaLis, Abadata, OpenStreetMap

SABR Energy Consulting Inc.

Overview Map

Flipi Thermal Project

Date: December 3, 2024

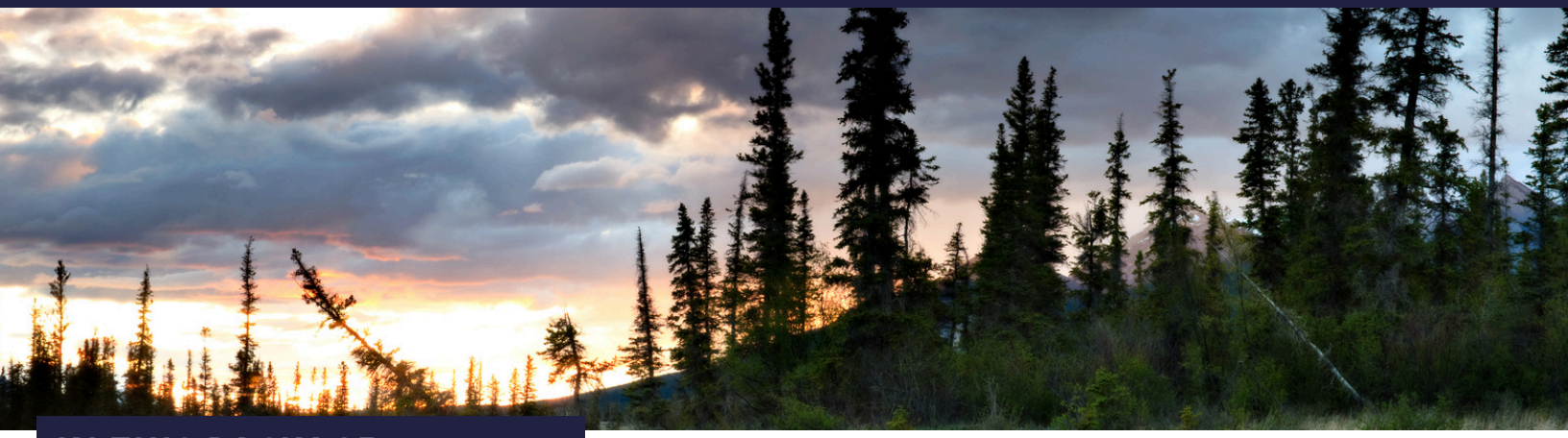
Appendix E

August 2024 Project Specific Information Package

August 2024 | Newsletter #1

FLIPI GAS FIRED GENERATION PROJECT

KIWETINOHK ENERGY CORP.



IN THIS PACKAGE:

- Project Introduction
- Who is Kiwetinohk?
- Who is the AUC?
- Project Location
- Privacy Policy
- Project Details
- Project Assessments
- Engagement Process
- Regulatory Process
- Project Benefits
- Preliminary Schedule
- Need for the Project

INSERTS:

- Preliminary Site Layout
- AUC Public Involvement Brochure

PROJECT INTRODUCTION

You are receiving this letter and attached information as a courtesy because you may be interested in the proposed Flipi Gas Fired Generation Project. Kiwetinohk Energy Corp. (Kiwetinohk) is proposing to construct and operate a 460 megawatt (MW) combined cycle power plant with carbon capture capability and a 240 kV substation known as the Wapos 1077S substation (the Project) on privately owned, cultivated land approximately 18 km southwest of the Town of Rimbey, Alberta. The Project will be connected to the Alberta Interconnected Electric System (AIES) via the existing transmission line that runs north-south on the east side of the Project. The Project will occupy approximately 33 acres of privately owned land. The Project will create water while generating electricity.

Major components of the Project include one natural gas fired combustion turbine, one steam turbine, one carbon capture package, one heat recovery steam generator (HRSG), one new 240 kV substation (consisting of one 500 MVA main power transformer) and a control building. The Project may also include one standby diesel generator.

WHO IS KIWETINOHK ENERGY CORP?

Kiwetinohk is an energy transition company targeting the conversion of renewable energy resources, natural gas into zero and low-emissions power and hydrogen creation. Kiwetinohk, pronounced "Key-Wheat-In-Oh", means north in Cree, a widely-spoken indigenous language in Canada. The name, bestowed upon the company by Indigenous friends, reflects the Canadian values of love for and protection of the natural environment and the need for Indigenous and stakeholder engagement in business. For further information see the Kiwetinohk website at: kiwetinohk.com.

kiwetinohk energy

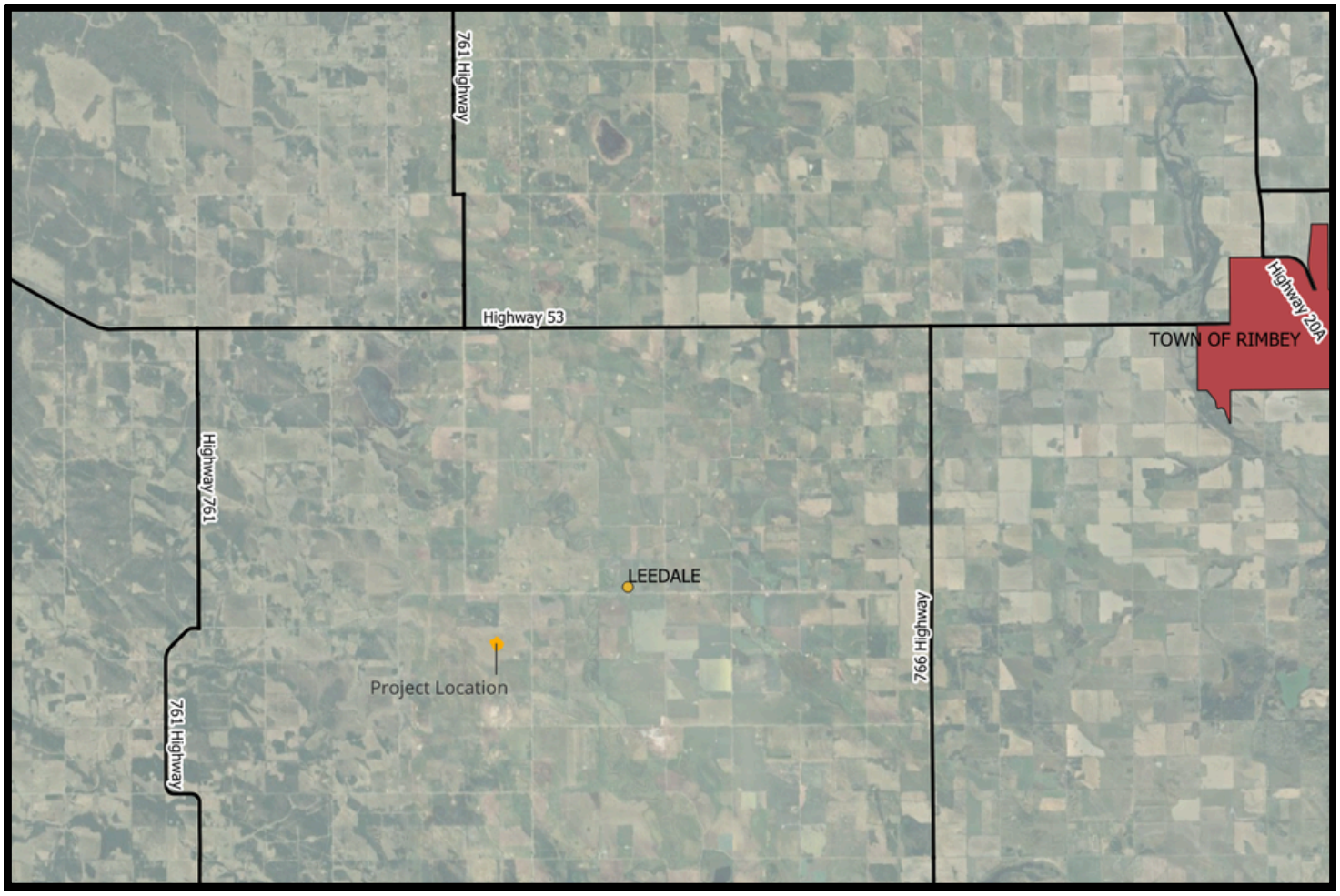
WHO IS THE ALBERTA UTILITIES COMMISSION?

The Alberta Utilities Commission (AUC) is a quasi-judicial independent agency established by the Government of Alberta, responsible to ensure that the delivery of Alberta's utility service takes place in a manner that is fair, responsible and in the public interest. They regulate investor - owned natural gas, electric and water utilities, and certain municipally-owned electric utilities to protect social, economic and environmental interests of Alberta where competitive market forces do not.

To learn more about the AUC application and review process, please contact:
Alberta Utilities Commission (AUC)
Phone: (780) 427-4903
Toll-Free by dialing 310-000 before the number
Email: consumer-relations@auc.ab.ca

PROJECT LOCATION

The Project is located on SW 33-41-4 W5M, approximately 18 km south west of the Town of Rimbey, Alberta, as shown on the map below.



PRIVACY POLICY

Kiwetinohk is committed to protecting your privacy. Collected personal information will be protected under the provincial Personal Information Protection Act. As part of the regulatory process for new generation projects, Kiwetinohk may be required to provide your personal information to the AUC. For more information about how Kiwetinohk protects your personal information, contact us at lwong@kiwetinohk.com or via mail at 1700, 250 - 2 Street SW, Calgary, AB T2P 0C1, Attention: Privacy Officer.

PROJECT DETAILS

The Project will consist of one natural gas fired combustion turbine, one steam turbine, one carbon capture package, one CO2 compression and dehydration package, one new 240 kV substation (consisting of one 500 MVA main power transformer) and a control building. The Project may also include standby diesel generator (approximately 3 MW). The Project is capable of exporting 460 MW to the Alberta electricity grid.

Additional components (as shown on the enclosed site plan) of the Project include:

- Power island: gas turbine (STG6-9000HL), steam turbine (SST-5000) and heat recovery steam generator (HRSG)
- CO2 capture plant
- Fuel conditioning skid
- Compressor/dehydration package
- Waste water system
- Fire protection/service water systems
- Water treatment facility
- Two auxiliary boilers
- 240kV switchyard and substation
- Switchgear MV and LV
- Air cooled condenser
- Cooling fans system
- Buildings: generation, compressor, administration

PROJECT ASSESSMENTS

Air Emissions

Air emissions modelling has been completed for the Project and a copy of the modelling report will be included in the application to the Alberta Utilities Commission. The Project will meet the Alberta Air Emission Standard for Electricity Generation and Alberta Emission Guidelines for Electricity Generation and the Alberta Ambient Air Quality Objectives and Guidelines, as required.

Noise Impact Assessment

A detailed Noise Impact Assessment (NIA) has been completed to ensure the Project adheres to AUC Rule 012: Noise Control during both the construction and operation phases. A copy of the NIA will be included in the application to the Alberta Utilities Commission.

Environmental Assessments

A variety of wildlife assessments, wetland/watercourse assessments, vegetation and rare plants surveys and soils assessment have been completed as required by Alberta Environment and Protected Areas (AEPA). Environmental assessment information and proposed mitigation measures are planned for submission to AEPA in October 2024 as part of the Industrial Designation application process. An application will be completed pursuant to the Historical Resources Act and clearance will be obtained prior to construction.

In addition, the Project will include a CO2 capture plant approximately 5 acres (100m x 200m) which is intended to capture 95% of the CO2 from from the HRSG. The estimated captured CO2 amount will be approximately 1.3 Mega tonnes per year and is expected to be compressed, dehydrated, and safely sequestered in a nearby site.

ENGAGEMENT PROCESS

Kiwetinohk is undertaking a Participant Involvement Program (PIP), as part of the Alberta Utilities Commission (AUC) Rule 007 application process. The process is intended to inform and engage landowners, occupants, residents, Indigenous communities, and other potentially impacted stakeholders near the proposed power plant. The PIP includes this mailed notice to stakeholders within 2 kilometres of the project and one-on-one discussions with stakeholders within 800m of the Project.

Stakeholders with questions or concerns are encouraged to contact us. Please see the enclosed document prepared by the AUC, called “Public Involvement in a Proposed Utility Development”, for further information on the PIP.

Should you have any questions, please contact us:

Samantha Brown
SABR Energy Consulting Inc.
(587) 434-7547
sbrown@sabrenergyconsulting.com

SABR Energy Consulting Inc.

REGULATORY PROCESS

Kiwetinohk must obtain several approvals for the Project including an industrial designation from AEPA, a power plant and substation approval from the AUC and a development permit or exemption from Clearwater County. Kiwetinohk plans to submit the industrial application to AEPA in October 2024 and expects to submit applications to the AUC in December 2024 and Clearwater County in May 2025.

PROJECT BENEFITS

The Project will offer a number of benefits including:

- A clean, reliable, cost-effective source of new electricity supply
- The Project will be a net creator of water
- Enhancing local and regional reliability of power supply
- Provide employment opportunities during construction and operating and maintenance jobs during operations
- Generate tax revenue for the municipality
- Highest efficiency and lowest emission gas fired thermal plant in Alberta

PRELIMINARY SCHEDULE

Public Notification	August 2024
Stakeholder Consultation	Fall 2024
AEPA Industrial Application	October 2024
AUC Applications	December 2024
Anticipated AUC Approval	April 2025
Development Permit Application	May 2025
Construction Start	Q2 2027
In-service Date	Q4 2029

NEED FOR THE PROJECT

The Province of Alberta has established a target of at least 30% of the electric energy produced in Alberta, (measured on an annual basis), will be produced from renewable energy resources by the end of 2030. While several renewable energy projects are underway to meet this target, other sources of reliable and clean baseload electricity are needed to support the province's future energy requirements. Natural gas is one of the most affordable, reliable energy resources and Alberta has an abundance of it. Subject to regulatory approvals, this power plant will be the highest efficiency and lowest emission natural gas-fired power plant in Alberta once built.

ITEM NO.	EQUIPMENT NAME
121	LEAN PUMP
122	2ND WASH WATER PUMP
123	STEAM CONDENSATE PUMP
124	QUENCHER BLOWDOWN PUMP
125	STEAM CONDENSATE DRUM
126	SOLVENT TANK & SUMP UNIT
127	CO2 GAS CONDENSING UNIT
128	CAUSTIC SODA INJECTION UNIT
129	ENERGY SAVING UNIT
130	ANT-FOAM INJECTION UNIT
131	HYDROGEN STORAGE UNIT
132	HRSG DRUM PENTHOUSE
133	FUEL GAS COMPRESSOR BUILDING

ITEM NO.	EQUIPMENT NAME
91	SECOND STAGE COOLER (TRAIN-2)
92	THIRD STAGE SUCTION SCRUBBER (TRAIN-2)
93	THIRD STAGE COOLER (TRAIN-2)
94	FOURTH STAGE SUCTION SCRUBBER (TRAIN-2)
95	FIFTH STAGE COOLER (TRAIN-2)
96	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-2)
97	EIGHTH STAGE COOLER (TRAIN-2)
98	SIXTH STAGE SUCTION SCRUBBER (TRAIN-2)
99*	CO2 DEHYDRATION PACKAGE (TRAIN-2)
100	LOW VOLTAGE MCC BUILDING
101	STILL VENT CONDENSING TANK
102	GLYCOL MAKE-UP TANK
103	240 KV CIRCUIT BREAKER
104	240 KV LINE DISCONNNECT
105	240 KV CCVT
106	240 KV SURGE ARRESTOR
107	240 KV H - FRAME
108	BOILER FEEDWATER PUMP BUILDING
109	QUENCHER
110	ABSORBER
111	REGENERATOR
112	LEAN RICH EXCHANGER
113	REGENERATOR REBOILER
114	SOLVENT CIRCULATION FILTER
115	QUENCHER BLOWDOWN FILTER
116	FLUE GAS BLOWER
117	QUENCHER CIRCULATION PUMP
118	1ST WASH WATER PUMP
119	RICH PUMP
120	REFLUX DISTRIBUTION PUMP

ITEM NO.	EQUIPMENT NAME
61	MV PDC
62*	ABSORBER STACK
63	UTILITY RACK
64	GT/ST/AUXILIARY POWER CONTROL CENTER
65	240KV CONTROL BUILDING
66	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-1)
67	9.7 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-1)
68	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-1)
69	COMPRESSOR LUBE OIL SKID (TRAIN-1)
70	COMPRESSOR LUBE OIL COOLER (TRAIN-1)
71	FIRST STAGE SUCTION SCRUBBER (TRAIN-1)
72	FIRST STAGE COOLER (TRAIN-1)
73	SECOND STAGE SUCTION SCRUBBER (TRAIN-1)
74	SECOND STAGE COOLER (TRAIN-1)
75	THIRD STAGE SUCTION SCRUBBER (TRAIN-1)
76	THIRD STAGE COOLER (TRAIN-1)
77	FOURTH STAGE SUCTION SCRUBBER (TRAIN-1)
78	FIFTH STAGE COOLER (TRAIN-1)
79	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-1)
80	EIGHTH STAGE COOLER (TRAIN-1)
81	SIXTH STAGE SUCTION SCRUBBER (TRAIN-1)
82*	CO2 DEHYDRATION PACKAGE (TRAIN-1)
83	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-2)
84	11.2 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-2)
85	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-2)
86	COMPRESSOR LUBE OIL SKID (TRAIN-2)
87	COMPRESSOR LUBE OIL COOLER (TRAIN-2)
88	FIRST STAGE SUCTION SCRUBBER (TRAIN-2)
89	FIRST STAGE COOLER (TRAIN-2)
90	SECOND STAGE SUCTION SCRUBBER (TRAIN-2)

ITEM NO.	EQUIPMENT NAME
31*	AUXILIARY BOILER STACK
32	MOBILE COMPRESSED CLEANING SKID
33	THERMAL MANAGEMENT BLOWER SKID
34	INST. AIR COMPRESSOR & AIR RECEIVER TANK
35	LUBE OIL & HYDRAULIC SKID
36	MOBILE LUBE OIL PURIFIER
37	BEARING EXHAUSTER SKID & SEAL OIL STORAGE TANK
38	SEAL OIL SKID
39	STEAM TURBINE HYDRAULIC SKID
40	H2 GAS DRYER
41	H2 GAS SKID
42	STATOR WATER COOLING SKID
43	GLAND STEAM CONDENSER
44	GENERATOR NEUTRAL GROUNDING CUBICLE
45	FUEL GAS PURGE AIR COMPRESSOR AND TANK
46	FUEL GAS FINAL FILTER & PREHEATER SKID
47	FUEL GAS FINAL FILTER & PREHEATER ENCLOSURE
48	HOT BOX
49	ACC MAIN STEAM DUCT
50	CONDENSATE RECIRC. PUMP
51	LAYDOWN AREA (APPROX 20 ACRES)
52	RAW WATER STORAGE TANK
53	WASTEWATER STORAGE TANK
54	CEMS
55	CONDENSATE EXTRACTION PUMPS
56	CONDENSATE COLLECTION TANK
57*	EMERGENCY DIESEL GENERATOR
58	OIL WATER SEPARATOR (BELOW GRADE)
59	FUEL GAS YARD
60	GENERATOR BREAKER

ITEM NO.	EQUIPMENT NAME
1	COMBUSTION TURBINE GENERATOR
2	TURBINE GENERATOR
3	STEAM TURBINE
4	INLET AIR FILTER
5	GENERATION BUILDING
6	AUXILARY TRANSFORMER
7	GENERATOR STEP-UP TRANSFORMER
8	AIR COOLED CONDENSER
9	LV CCS PDC
10	HEAT RECOVERY STEAM GENERATOR
11	H2 GAS SKID
12	FIREWATER / SERVICE WATER STORAGE TANKS
13	DEMINERALIZED WATER TANK
14	ADMIN BUILDING
15	WATER TREATMENT BUILDING
16	AUXILIARY COOLING HEAT EXCHANGER
17	BOILER FEEDWATER PUMPS
18	REAGENT STORAGE BUILDING
19	MAIN CO2 COMPRESSION BUILDING (48m X 35m)
20	CORBON CAPTURE BUILDING
21	THERMAL RECLAIMER BUILDING
22	CARBON CAPTURE AIR COOLERS
23	CEMS
24	STORMWATER PUMP BUILDING
25	STORM DETENTION POND
26	LV ACC PDC
27	240 KV SWITCHYARD
28	240 KV OVERHEAD LINES
29*	HRSG STACK
30	AUXILIARY BOILER

T1 FUEL GAS
T2 RAW WATER FROM MEDICINE RIVER
T3 PLANT ACCESS ROAD
T4 POTABLE WATER FROM MEDICINE RIVER
T5 240kV TRANSMISSION LINES
T6 WASTEWATER (HAUL BY TRUCK)

POWER ISLAND (67.9100)

CO2 COMPRESSION AND DEHYDRATION (60.0100)

CARBON CAPTURE EQUIPMENT (60.1200)

NOTES

1. SITE PLAN IS CONCEPTUAL IN NATURE. NOT ALL EQUIPMENT IS REPRESENTED OR OF ACTUAL SIZE.
2. ALL EMISSION SOURCES ON THE SITE ARE DENOTED IN THE LEGEND WITH AN ASTERISK (*).

SYMBOLS

- PROJECT BOUNDARY
- CO2 COMPRESSION AND DEHYDRATION (61.0100)
- CARBON CAPTURE EQUIPMENT (60.1200)
- POWER ISLAND (67.9100)

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

TERMINAL POINTS

T1	FUEL GAS	T5	240kV TRANSMISSION LINES
T2	RAW WATER FROM MEDICINE RIVER	T6	WASTEWATER (HAUL BY TRUCK)
T3	PLANT ACCESS ROAD		
T4	POTABLE WATER FROM MEDICINE RIVER		

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
0	17/FEB/23	ISSUED FOR PERMITTING	NSK	JSH		GMT	JEB

1:500 SCALE IN METERS 0 10 20 30 40

BLACK & VEATCH

DESIGNER	DRAWN
JSH	NSK
CHECKED	DATE

KIWETINOHK ENERGY CORP
FLIPI COMBINED CYCLE WITH CCS
GENERAL
SITE ARRANGEMENT

PROJECT	DRAWING NUMBER	REV
412155	00AAA-G1001	0

CODE
AREA

MicroStation v10.11.0.36
Full Size 1:1
sam55714
Admin

VISUAL REPRESENTATION

The image below is of a similar project by Siemens Energy and is similar in size and type as the proposed Flipi Gas Fired Generation Plant Project.

AUC
Alberta Utilities Commission

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 60 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.

Updated March 2022

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.

AUC
Alberta Utilities Commission

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

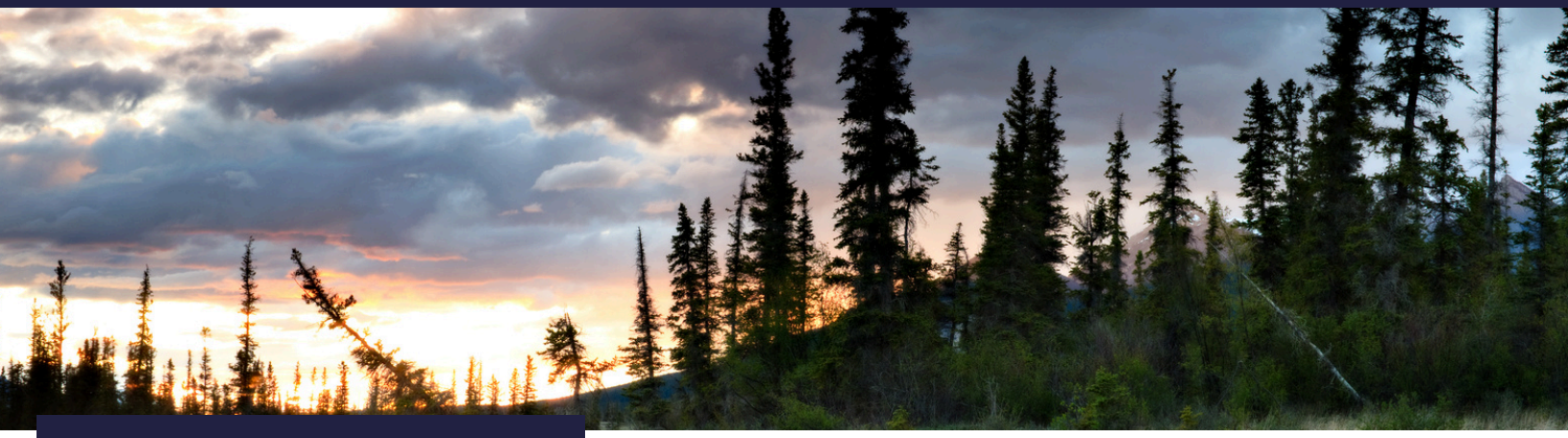
Appendix F

November 2024 Update Package

November 2024 | Newsletter #2

FLIPI GAS FIRED GENERATION PROJECT

KIWETINOHK ENERGY CORP.



IN THIS PACKAGE:

- Project Update
- CO2 Capture & Storage
- Access to Site
- Construction Noise
- Lighting
- Project Siting
- Public Outreach
- Contact Us

Newsletter #1 introducing the Flipi Gas Fired Generation Project (the Project) was mailed out to stakeholders on August 27, 2024. This introductory newsletter included details of the Project location, equipment, required assessment, the engagement and regulatory processes, Project benefits and a preliminary schedule. A preliminary site layout was also included in this package.

Since sending out this information, Kiwetinohk Energy Corp. (KEC) has been meeting one-on-one with stakeholders to answer questions and solicit feedback. We are writing to you today to share additional information on common questions received and amendments to the Project as a result of feedback received.

CO2 CAPTURE AND STORAGE

We have received several questions from stakeholders regarding the potential CO2 capture and storage for the Project. At this time, KEC is not going to submit an application for this portion of the Project, as design has not progressed enough to respond to in-depth stakeholder inquiries. The design has been paused until the CO2 capture component is both economically and technically feasible. KEC commits to contacting stakeholders for further discussion prior to adding the CO2 capture component to Project.

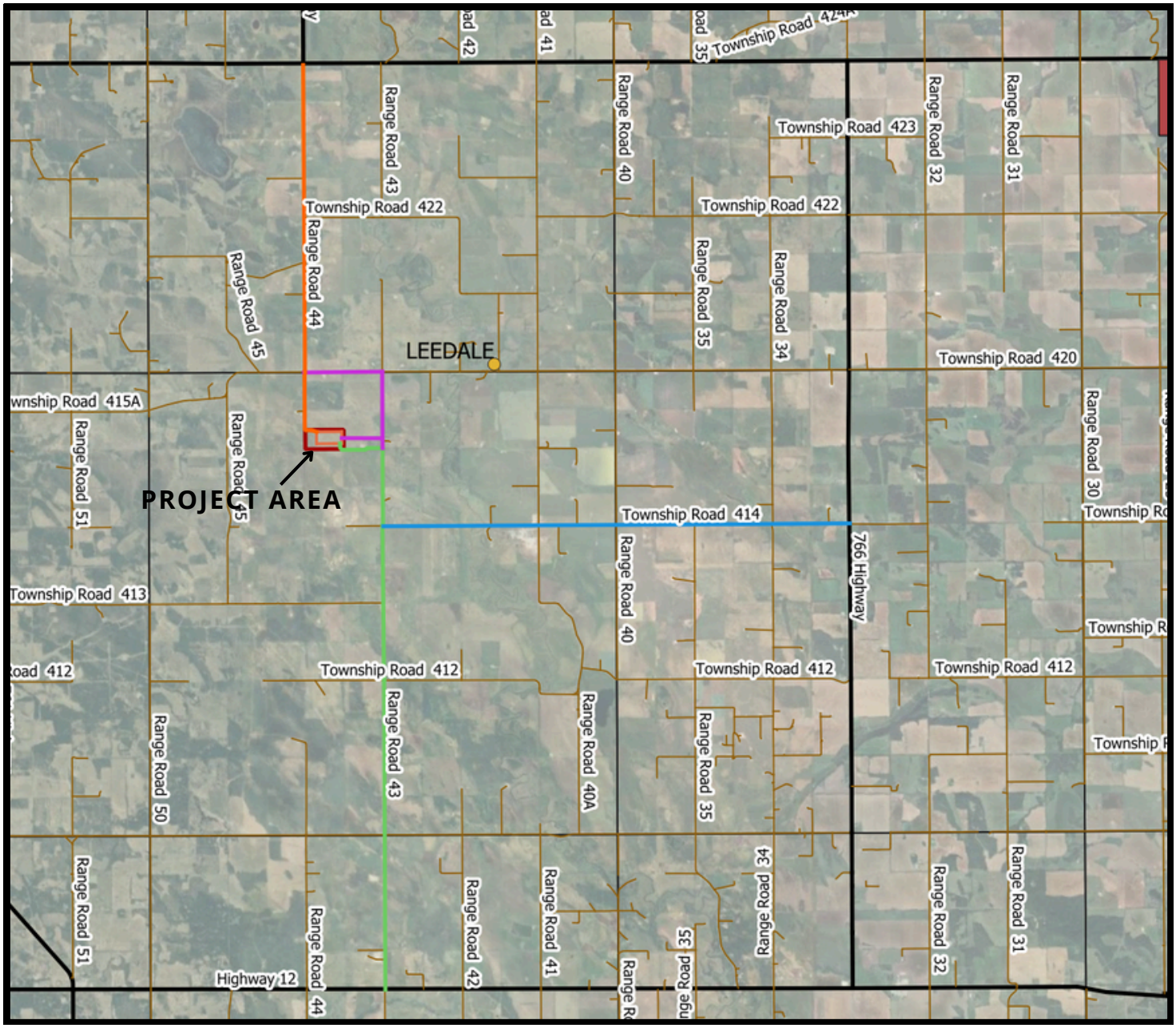
Should you have any questions, please contact us:

Samantha Brown
SABR Energy Consulting Inc.
(587) 434-7547
sbrown@sabrenergyconsulting.com

SABR Energy Consulting Inc.

ACCESS TO SITE

We have received feedback regarding the proposed access to the site and potential alternatives. As a result, KEC is considering four route options into the site, as shown here:



Throughout the stakeholder engagement to date, feedback has been received from landowners and residents, as well as Clearwater County and Ponoka County. Additionally, KEC has undertaken a Traffic Accommodation and Safety Plan to assess the viability of these accesses as well as overall haul routes. The above proposed options are all viable options at this time.

PRIVACY POLICY

Kiwetinohk is committed to protecting your privacy. Collected personal information will be protected under the provincial Personal Information Protection Act. As part of the regulatory process for new generation projects, Kiwetinohk may be required to provide your personal information to the AUC. For more information about how Kiwetinohk protects your personal information, contact us at lwong@kiwetinohk.com or via mail at 1700, 250 - 2 Street SW, Calgary, AB T2P 0C1, Attention: Privacy Officer.

CONSTRUCTION NOISE

We have heard questions and concerns regarding construction noise and want to provide additional information on how noise can be mitigated during construction. This includes:

- Notify nearby stakeholders with construction plans/timing, such as during piling activities
- Avoid nighttime activity that may produce larger amounts of noise
- Include clauses identifying the need to manage or limit noise in the construction tenders or subcontractor agreements
- Develop a traffic plan that is mindful of all users' needs of the roads. (e.g. dust, large hauls, residence proximity, outside of school bus times).
- Use portable temporary barriers around stationary equipment (e.g., generators, welders)
- Use excess material as a berm or barrier between the Project and stakeholders' residences

In addition to these potential mitigation measures, KEC must adhere to Alberta Utilities Commission (AUC) Rule 012: Noise Control, with respect to both construction and operations. These requirements include:

- Conduct construction activity between the hours of 7 a.m. and 10 p.m. to reduce the duration impact from construction noise unless there are extenuating circumstances
- Advise nearby residents of significant noise-causing activities and schedule these events to reduce disruption to them
- Ensure that all internal combustion engines are well maintained with muffler systems where possible.

LIGHTING

Stakeholders have inquired about the use of lights on the Project stacks. Lighting requirements for aviation safety are the jurisdiction of Transport Canada and an application was submitted for review on September 12, 2024. KEC is expecting that lighting requirements will be in accordance with Transport Canada's Standard 621 – Obstruction Marking and Lighting, and that lighting will be required at the top of the stack. KEC will explore opportunities to reduce the impact of any Project lighting on surrounding residents.

PROJECT SITING

We have received inquiries as to why the Project is sited where it is currently proposed. There are several factors that are considered when siting a Project of this nature:

- Proximity to existing 240KV interconnection
- Proximity to a sufficient natural gas (sweet) supply
- Availability of grid capacity for the project size
- Proximity to load centers
- Relatively flat area with minimal topographical constraints
- Low environmental impact including wetlands and wildlife
- A willing host landowner

PUBLIC OUTREACH

In order to reach the broader public for questions and comments, KEC advertised the Project in three local newspapers: the Rimbey Review, the Western Star and the Mountaineer. Stakeholders are encouraged to contact us with any questions or concerns.

Currently, there are no changes to the preliminary Project schedule, and KEC intends to file a power plant application with the AUC in December 2024.

AUC
Alberta Utilities Commission

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 60 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.

Updated March 2022

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.

AUC
Alberta Utilities Commission

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

Indigenous Communities Mailing List

Flipi Indigenous Communities Mailing List
Alexander First Nation PO Box 3480 Morinville, AB T8R 1S3 Attention: Ken Arcand Email: ken@afnirc.ca
Enoch First Nation Po Box 29 Enoch, AB T7X 3Y3 Attention: Stephana Morin Email: stephana.morin@enochnation.ca, shailley.peacock@enochnation.ca
Ermineskin Cree Nation Box 219 Maskwacis, AB T0C 1N0 Attention: Carol M. Wildcat Email: carol@ermineskin.ca, dannyb@ermineskin.ca & marianne@ermineskin.ca
Foothills Ojibway First Nation 51111, Highway 40 Lots A,B,C Hinton, AB T7Y 1X5 Attention: Jim O'Chiese Email: fos1865@gmail.com, k_i_kiss@icloud.com, foothills.lands@gmail.com
Louis Bull Tribe PO Box 130 Maskwacis, AB T0C 1N0 Attention: Shaleigh Raine Email: consultation@louisbulltribe.ca
Otipemisiwak Metis Government11724-95th Steet Edmonton, AB T5G 1L9 Attention: Alfred L'Hirondelle Email: ArLHirondelle@metis.org, MNAR4notifications@metis.org
Montana First Nation PO Box 70 Maskwacis, AB T0C 1N0 Attention: Kyra Northwest Email: kyranorthwest@montanafirstnation.com, jocelynrabbit@montanafirstnation.com
O'Chiese First Nation PO Box 2127 Rocky Mountain House, AB T4T 1B6 Attention: Andrew Scott Email: Andrew.scott@ochiesebc.ca & consultationoffice@ochiesebc.ca
Paul First Nation PO Box 66 Duffield AB T0E 0N0 Attention: Donald Rain Email: df_rain@hotmail.com & irc.executivesecretary@gmail.com
Samson Cree Nation PO Box 159

Maskwacis, AB T0C 1N0 Attention: Kaylyn Buffalo Email: kaylyn.b@samsoncree.com
Sunchild First Nation Box 747 Rocky Mountain House, AB T4T 1A5 Attention: Viola Francheater, Consultation Coordinator Email: violafefn@outlook.com

Appendix H

NAV Canada Approval

Serving a world in motion
Au service d'un monde en mouvement
navcanada.ca

October 10, 2024

Your file
SW 33-41-4 W5M - Flipi Gas Fired Generation Project
Our file
24-3460

Dobromir Flilip
Kiwentinohk Energy Corp
1700, 250 - 2 Street SW
Calgary, AB
T2P 0C1

RE: Building(s): Plant - Rimbey, AB
(See attached document(s))

D. Flilip,

NAV CANADA has evaluated the captioned proposal and has no objection to the project as submitted. Our assessment does not constitute an approval and/or permit from other agencies.

Any construction equipment exceeding the height of this submission must be submitted at least 30 business days prior to usage.

The subject proposal data have been distributed to External Design Organizations (EDOs) for their assessment of possible effects on procedures they maintain. They will contact you directly if any concerns arise during their evaluation. If you have any questions or concerns pertaining to their assessment, please contact the EDO directly.

In the interest of aviation safety, it is incumbent on NAV CANADA to maintain up-to-date aeronautical publications. To assist us in that end, we ask that you notify us at least 10 business days prior to the start of construction. This notification requirement can be satisfactorily met by returning a completed, signed copy of the attached form and an Excel copy of the attached spreadsheet by email at landuse@navcanada.ca or fax at 613-248-4094. In the event that you should decide not to proceed with this project or if the structure is dismantled, please advise us accordingly so that we may formally close the file.

If you have any questions, contact the Land Use Department by email at landuse@navcanada.ca.

NAV CANADA's land use evaluation is based on information known as of the date of this letter and is valid for a period of 18 months, subject to any legislative changes impacting land use submissions. Our assessment is limited to the impact of the proposed physical structure on the air navigation system and installations; it neither constitutes nor replaces any approvals or permits required by Transport Canada, other Federal Government departments, Provincial or Municipal land use authorities or any other agency from which approval is required. Innovation, Science and Economic Development Canada addresses any spectrum management issues that may arise from your proposal and consults with NAV CANADA engineering as deemed necessary.

This document contains information proprietary to NAV CANADA. Any disclosure or use of this information or any reproduction of this document for other than the specific purpose for which it is intended is expressly prohibited except as NAV CANADA may otherwise agree in writing.

Regards,

Land Use Office
NAV CANADA

cc NOPR - Northern and Prairie Region, Transport Canada
Air Navigation Data
C. Cormier
JetPro

TRANSALTA CORP. ("TRANSALTA") RESPONSE TO
ALBERTA UTILITIES COMMISSION ("AUC") NOVEMBER 3, 2025 IR 1(C)
ATTACHMENT A

Supplemental Stakeholder and Rights-Holder Engagement Report for the Flipi Project (October 20 – November 17, 2025), Post KEC Acquisition

STAKEHOLDER AND RIGHTS-HOLDER ENGAGEMENT FOR THE FLIPI PROJECT (OCTOBER 20 – NOVEMBER 17, 2025), POST KEC ACQUISITION

INDIGENOUS ENGAGEMENT

Sunchild First Nation:
Introduction and follow up emails were sent during the weeks of October 20 and 27; no response was received. An information package was subsequently emailed with an offer to connect. The initial meeting request was sent October 27. A newsletter package was mailed October 28, and an email newsletter package including a meeting request was sent November 3. No response has been received at the time of the filling.

Ermineskin First Nation:
Introduction and follow-up emails were sent during the weeks of October 20 and 27; no response was received. The initial meeting request was sent October 22. A newsletter package was mailed October 28, and a follow-up email including a meeting request was sent October 29. The email newsletter package including a meeting request was sent November 6. No response has been received to date directly from the Nation, however engagement efforts are ongoing.

Louis Bull First Nation:
An email introduction was sent during the week of October 21; no response was received. An information package was emailed with an offer to connect on October 27. A newsletter package was mailed October 28, and an email newsletter package including a meeting request was sent November 6. A response was received November 7, requesting potential meeting dates during the week of December 1. The meeting date is not yet confirmed.

Samson Cree Nation:
An initial meeting request was sent October 16. Additional email communication was sent during the week of October 21; no response was received. A newsletter package was mailed October 28, and an email newsletter package including a meeting request was sent November 6. No response has been received to date.

Foothills Ojibway First Nation:
An email introduction was sent during the week of October 21. The initial meeting request was sent October 27, and a newsletter package was mailed October 28. A phone conversation occurred November 3, followed by a subsequent phone conversation with a meeting request on November 6. A meeting is confirmed for November 17 in Edmonton.

Otipemisiwak Metis Government, District 3:
An initial meeting request was sent October 27 to the contact given to KEC in 2024. A newsletter package was mailed October 28 to Otipemisiwak Metis Government, District 3.

Subsequent guidance from the Consultation Director indicated correspondence should be directed to the Battle River Consultation Territory Office. An information package with a request for engagement with the Battle River Consultation Territory was deposited in the OMG consultation repository on November 3. A meeting occurred November 6 in St. Albert, AB. An email newsletter package including a meeting request was sent November 6 to the Battle River Consultation Territory Office. A meeting with the Battle River OMG office is scheduled for the week of December 1.

O'Chiese First Nation:
Initial contact was made with the Consultation Director on October 22. Following the request for meeting dates, TransAlta provided options. An information package was mailed on October 28. Additionally, a newsletter package was emailed October 28. A virtual meeting occurred on November 10 to discuss outstanding matters with TransAlta and OCFN. OCFN and the Calliou Group requested capacity funding prior to engagement regarding Flipi. Follow-up is scheduled for the week of November 17.

Paul First Nation:
A meeting with PFN occurred October 21 to discuss Flipi after an information package was emailed with an offer to connect. No further meetings are currently scheduled. An information package was emailed with an offer to connect. other TransAlta projects. No further meetings are currently scheduled.

Montana First Nation:
An initial meeting request was sent October 16. Follow-up communications were sent during the weeks of October 20 and 27; no response was received. A newsletter package was mailed October 28. A follow-up email including a meeting request was sent October 29, and an email newsletter package with a meeting request was sent November 6. No response has been received to date.

Enoch Cree Nation:
On October 22, initial contact was made via text with the Consultation Coordinator, and a call was scheduled for October 25; the meeting did not occur. Follow-up emails were sent with no response. An information package was emailed with an offer to connect. The initial meeting request was sent October 22, and a follow-up email with a meeting request was sent October 27. A newsletter package was mailed October 28. An email newsletter package including a meeting request was sent November 6. Enoch Cree Nation responded, and a meeting was set for November 12. On November 9, a death in the community required postponement of the scheduled meeting. A new meeting date has not yet been determined.

Alexander Cree Nation:
An information package was emailed on October 27 with an offer to connect. A newsletter package was mailed October 28, and a follow-up email with a meeting request was sent

October 29. An email newsletter package including a meeting request was sent November 6. No response has been received to date.

COUNTY ENGAGEMENT

Clearwater County:

On October 10, 2025, TransAlta notified the County that it had acquired the Flipi Project. On October 28, 2025, TransAlta mailed the Open House invitation, along with a Flipi Project newsletter and map to Clearwater County. On the same day TransAlta emailed a newsletter, map of project location and Open House date. On November 6, TransAlta attended a meeting with Clearwater County and discussed the project. Clearwater County did not attend the Open House on November 13, 2025.

Ponoka County:

On October 10, 2025, TransAlta notified the County that it had acquired the Flipi Project. On October 28, 2025, TransAlta mailed the Open House invitation, along with a Flipi Project newsletter and map to Ponoka County. On the same day, TransAlta emailed a newsletter, map of project location and Open House date. Ponoka County attended the Open House on November 13, 2025 and asked questions about road use, visual impacts, and water use.

Lacombe County:

On October 10, 2025, TransAlta notified the County that it had acquired the Flipi project. On October 28, 2025, TransAlta mailed the Open House invitation, along with a Flipi Project newsletter and map to Lacombe County. Additionally, on October 28, TransAlta emailed a newsletter, map of project location, and Open House invite. Lacombe County attended the Open House on November 13, 2025, and asked questions about benefits, road use, and continued communication with the County members through newsletters.

OPEN HOUSE

On October 23, 2025, TransAlta mailed 66 Open House invitations, along with a Flipi Project newsletter and map, to local stakeholders living within the 2000 metre boundary from the project location. Recipients included landowners, agencies, counties, MLAs, and Indigenous communities.

On November 13, 2025, TransAlta held an Open House in Rimbey, Alberta to engage with local community members and landowners. 20 Individuals attended.

The event documented engagement with 18 distinct individuals or representatives, in addition to conversations between attendees and TransAlta staff and subject matter experts directly involved in the project. Stakeholders raised project-related topics, resulting in 73 distinct questions and requests.

Stakeholder communications focused primarily on potential environmental and socio-economic impacts of the proposed facility. The most common themes—particularly related to water, air, location, and noise—are summarized below.

Water Usage and Sourcing

Concerns regarding water consumption and allocation were commonly raised. Many of the stakeholders hold agricultural interests indicated that the lack of precipitation and existing industrial uses are an ongoing concern. They stated their opinions that the Medicine River and groundwater in the area is already overallocated and that the energy industry is drawing excessive volumes—making any additional use concerning for the community. Participants were informed that the project plans to use air-cooled condensers (ACC) in a "closed loop system" to significantly reduce water consumption, resulting in expected water volumes that are substantially lower than typical industry benchmarks, while also improving overall efficiency.

Volume and Potential Contamination:

Stakeholders raised concerns about projected water-use volumes and potential contamination, requesting specifics on initial fill requirements, ongoing make-up needs, and blowdown volumes. Participants were informed that the Project will use air-cooled condensers (ACC) to minimize water consumption, resulting in an expected initial fill of approximately 6,000 m^3—substantially lower than typical oil and gas operations or many Alberta thermal plants—with blowdown losses anticipated to require 3–5% hourly make-up water. These preliminary estimates may be refined as detailed engineering and final equipment selection are completed.

Once volumes are confirmed, the Project team will evaluate all feasible water-sourcing options, including surface water, groundwater, trucking, municipal or county supply agreements, transfers of underused Temporary Diversion Licenses (TDLs) in the area, recycled or reclaimed water, rainwater harvesting (where practicable), and other alternatives. Any required hydrological, hydrogeological, water-quality, or related technical studies will be conducted for each viable option.

If a Water Act diversion licence—new, amended, or transferred—is required, an application will be submitted to Alberta Environment and Protected Areas (AEPA) following AUC approval. Under the AEPA process, a public notification period will be initiated, providing stakeholders an opportunity to review the proposed water-sourcing option(s) and submit formal feedback

or statements of concern. At this time, no water withdrawal or licensing application is before the AUC.

Water Source:
Multiple stakeholders asked direct questions about whether the facility would use freshwater, the specific source, and expressed concern that water might be "drawn out of Medicine River." Options being assessed for the initial fill include trucked supply, municipal sources, existing Temporary Diversion License infrastructure, or surface/subsurface sources. Some stakeholders expressed concern that the Project might source water from a nearby colony's dugout, noting that past water withdrawals by the colony had affected their private wells. Additional concerns were raised regarding potential impacts on the colony's dugout and overall water supply

Regulatory Process for water sourcing:
Stakeholders sought clarity on whether landowners outside the formal notification radius would be informed during the Water Act approval process, and what specific testing and regulatory requirements must be met. Strum Consulting will provide details to be shared with the Stakeholders after the Open House.

Noise Impacts and Modeling

Noise was identified as a major concern, influenced in part by existing industrial noise from nearby operations.

Cumulative Impact:
Landowners asked how much additional noise the proposed facility would contribute on top of current industrial activity, noting they can already hear nearby facilities and fracking operations.

Character and Effects:
The anticipated noise was described by the subject matter expert, Teresa Drew, as falling "between a hum and a rumble," much like the sound of a fridge when sitting at the kitchen table. Stakeholders emphasized that increased noise contributes to stress, which may negatively affect the wellbeing of nearby residents, wildlife, and livestock—raising concerns that prolonged exposure could significantly disrupt or reduce herd populations.

Mapping and Data Access:
One project stakeholder requested that their residence be included on the noise-modeling map and that the associated predicted noise data be shared with them. The project team explained that the Noise Impact Assessment (NIA), completed in accordance with AUC Rule 012, identifies receptors based on predicted noise impacts within a 1.5 km radius. The stakeholder's residence, located near the edge of the study area, was not initially labeled

because anticipated project noise at that location is low—within acceptable limits and below typical receptor thresholds.

For transparency, the project team committed to providing the stakeholder with the specific predicted noise level and adding the residence to the final noise-modeling map. These details will be shared directly with the stakeholder prior to or at the time of the application submission.

Transportation Routes and Road Infrastructure Concerns

Stakeholders, including Ponoka and Lacombe County Representatives, expressed concern regarding the selection, maintenance, and impact of haul routes.

Road Preference and Suitability:

- A representative from Lacombe County stated he doesn't like Range Road 414 because it has two bridge structures and is generally not a great road. He indicated he would prefer the 'blue line' route 4-3 to be used or Township Road 420. Lacombe County expressed a preference for access using HWY 12.
- Ponoka County indicated they were not in favor of using Township Road 420.
- One stakeholder indicated a preference for access on Township Road 420.

Traffic Impact:

- A landowner asked how much the traffic will increase, noting there were 6200 trucks down their road this summer for Spartan.
- Haul routes are a concern for the municipalities.

Road Maintenance:

- Landowners asked who is going to pave and maintain the road.
- A representative from Ponoka County stated he wants the roads to be paved.
- One landowner noted that if the roads were paved, TransAlta would have zero opposition.
- Another stakeholder noted that while there has long been pressure for the three counties to pave Range Road 43, it would increase speeding on the road.

Traffic and Road Safety:

An attendee raised concerns about the potential for reckless driving on newly paved access roads following construction. The project team explained that any required road upgrades will meet Alberta Transportation standards and local municipal requirements. To support safety, appropriate speed limits, signage, and dust-control measures will be implemented during both construction and operations. Ongoing coordination with the county will ensure effective traffic management, and responsibility for post-construction road maintenance will transition to the municipality in accordance with standard practice. Detailed traffic and safety

measures are expected to be formalized in the county development permit and Road Use Agreement (RUA), as applicable.

Facility Site Location and Alternatives

Stakeholders questioned the selection of the current site. They expressed concerns consistent with the other topics of discussion (water, visibility, noise, traffic) in additional to general proximity, and property values. A general preference for “further away” was common. In some cases, stakeholder proposed alternative locations closer to existing facilities. The siting considerations were generally discussed and the challenges with balancing trade-offs.

Proximity to Existing Industry:

- A Landowner asked, "Can you move closer to the Tourmaline plant? There's already industry there".
- A Landowner asked, "Why didn't we build this adjacent to the Genesis facility?".

Use of Crown Land:

- A Landowner asked, "How come Crown land has not be assessed as a potential location?". TransAlta stated that both crown and freehold land were evaluated using the site selection criteria.

Geographic Shift:

- A landowner asks to shift the project south, citing the need to address visual impacts (lighting and smog), a shorter pipeline tie, road use, and land use.
- A stakeholder would prefer if a location was selected by Leedale or Highway 12.

Local Proximity:

- Questions were raised regarding the distance to a nearby Hutterite colony.

Site Size and Meeting Location

Concerns were also raised about the scale of the physical site and the choice of the public meeting venue:

Facility Size:

- Landowners asked how many football fields the facility would cover.
- Landowners also asked how many acres are included in the project.

Meeting Location:

- A landowner queried about the location of the Open House in Rimbey versus Leedale; another suggested it be held in Rocky Mountain House.

Air Quality and Emissions

Stakeholders requested clarity and assurances regarding air monitoring practices and the impacts of atmospheric emissions.

Monitoring and Compliance:
A landowner asked what types of continuous monitoring would be conducted and what actions would be taken if air quality exceeded allowable thresholds. The project team indicated that any exceedance is required to be reported immediately to Alberta Environment and that Alberta Environment has a24-hour reporting hotline. It was confirmed that continuous emissions monitoring (in stack) and continuous ambient air quality monitoring is required by Alberta Environment.

Access to Data and Equipment:
A landowner requested access to air quality monitors on his property. In response, it was discussed that the placement of the continuous monitoring trailer is to ultimately approve by Alberta Environment, and not up to the Proponent. It was also noted that the regional airshed may be able to provide temporary monitoring equipment.

Odour:
Questions were raised about potential odours from the facility. The project team indicated that minimal to no odour is expected due to the gas-fired boiler. Additional concerns included dust control measures and the handling of steam plumes.

Location, Visual Impact, and General Operations
Landowners raised questions about site selection, potential visual impacts, and general operational considerations that may affect property value and community wellbeing.

Visual Impact:
Questions were asked about lighting, smog, and overall visual impact, including potential effects on the “sellability” of nearby properties. Stakeholders asked whether TransAlta would consider screening the facility with trees.

Power Destination:
A question expressed by multiple stakeholders was where the power generated “was going”. It was asked if the facility’s power would be sold to the United States. TransAlta confirmed that the power is expected to remain in Canada as Alberta is a relatively islanded electricity grid with only limited connectivity to B.C., Saskatchewan, and Montana.

Labour:
A request was made that the project prioritize the use of local labour during construction. Stakeholders expressed positivity around the jobs that would be created during construction and operations and the increased tax revenue that the County would receive.

Action Items and Follow-up Commitments

The following actions and commitments were documented by TransAlta and its consultants during the Open House:

Commitment/Action Item	Responsible Party
Follow up on the exact amount of water that will be affected in the combined cycle process. (See Appendix A)	Strum
Follow up on the benefit for those who are on the edge of Ponoka County.	TransAlta
Model and follow up to include Bradley Berquist's property on the noise modeling map (NOI) and provide the data.	Nexilon and RWDI
Follow up to provide noise results for the current NIA boundary receptor.	TransAlta
Follow up with more information on noise levels at a specific Landowner's location.	RWDI
Follow up with a specific Landowner including more information on the Boiler function and when it will run.	Nexilon
Provide Landowner with a copy of the noise model showing the increased impact (after turning off the existing noise model).	Nexilon and RWDI
Explore hosting a future Open House in other locations for future engagement.	TransAlta
Several landowners expressed interest in an in-person meeting follow up on the project.	Nexilon
Provide copies of newsletter and add new stakeholders to email distribution list.	TransAlta

TransAlta remains committed to ongoing engagement with local communities and Indigenous Nations beyond the Open House. We will continue to provide updates, respond to stakeholder questions, and ensure open lines of communication throughout the project lifecycle.

APPENDIX A
Water Act Applications

- Applications for water diversions/licences (surface water or groundwater) will follow regulatory requirements under the *Water Act*, R.S.A. 2000, c. W-3 (*Water Act*) and Water (Ministerial) Regulation, Alta. Reg. 205/1998. Provincial guidance documents are also available which detail information requirements of the application types including (note: applicable guidance depends on the application type/proposed water source):Guide to Groundwater Authorization (EPA, 2023)
- Guide to Preparing a Complete Water Act Application for a Licence or Approval (GOA, 2024a)
- Surface Water Allocation Directive (EPA, 2019)
- Water Act Licences (GOA, 2024b)

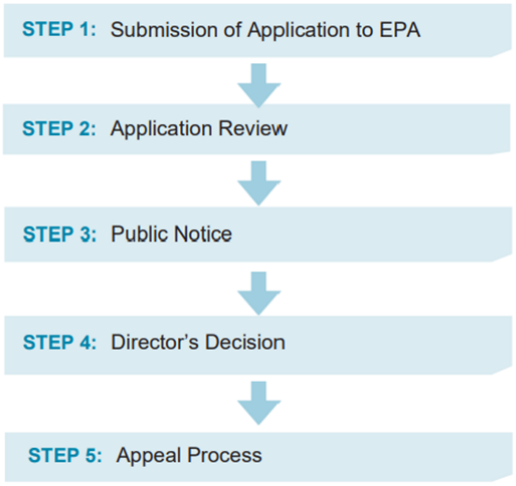
Typical information requirements of licence applications (which vary depending on the application type/water source) include (EPA; 2023; GOA, 2024a):

- Maximum and minimum rate of flow
- Operating plan with power generation station
- Hydrological analysis
- Hydraulic analysis
- Risk to instream flow objectives
- Water quality of return flow
- Quality of water to be returned
- Point of diversion
- Point of use
- Water well drilling report
- Timing of diversion
- Water requirements
- Maximum pumping rate
- Field-verified survey

For groundwater withdrawal applications, a field-verified survey is completed within 1.6 km or more (depending on hydrogeological/geological conditions). If it is not possible to contact landowner(s) during the in-person survey, it is recommended that the applicant provide an explanatory letter. Details of efforts to contact landowners must be documented in the licence application. This field survey provides an opportunity for the applicant to inform landowners and take note of concerns that may be addressed in the application (EPA, 2023).

Once a *Water Act* application is submitted, AEPA undertakes a review to ensure that the requested quantity of water can be diverted without adversely affected registered, licensed, and household water users. Public notice requirements for *Water Act* applications are determined by Alberta Environment and Protected Areas (AEPA). This process provides directly affected parties with the opportunity to submit statements of concern (SOC) within a period specified in the notice. All parties who are directly affected and have submitted a SOC will have their statements considered prior to the authorization being administered. The applicant (or their representative) is required to respond to directly affected SOCs in writing. A summary of the Water Act application process is provided in Figure 1 below (EPA, 2023). In addition, consultation with First Nations and/or Métis settlements may be required. If AEPA determines that consultation with First Nations and/or Métis settlements is required, further direction will be provided by AEPA as to the consultation requirements (GOA, 2024a).

FIGURE 1: EPA APPLICATION PROCESS



Source: Environment and Protected Areas (EPA). (2023). *Guide to Groundwater Authorization.* Retrieved from https://open.alberta.ca/publications/guide-to-groundwater-authorization

References:

Environment and Protected Areas (EPA). (2019). *Surface Water Allocation Directive*. Retrieved from https://open.alberta.ca/publications/9781460143339

Environment and Protected Areas (EPA). (2023). *Guide to Groundwater Authorization.* Retrieved from https://open.alberta.ca/publications/guide-to-groundwater-authorization

Government of Alberta (GOA). (2024a). *Guide to Preparing a Complete Water Act Application for a Licence or Approval.* Retrieved from https://open.alberta.ca/publications/guide-preparing-water-act-application-for-licence-or-approval

Government of Alberta (GOA). (2024b). *Water Act Licences*. Retrieved from https://open.alberta.ca/dataset/848d7389-a332-4e8c-9055-

1bc36bc24fe5/resource/4edc6061-013f-4367-94cc-f4c350b014a6/download/epa-water-act-licences-2024-02.pdf

Water Act, R.S.A. 2000, c. W-3 (*Water Act*)

Water (Ministerial) Regulation, Alta. Reg. 205/1998 ships with all affected communities.

APPENDIX B
FLIPI OPEN HOUSE POSTER BOARDS

Flipi Open House

Thursday, November 13th

Welcome to TransAlta's Flipi Combined Cycle Power Plant Open House

Please sign in at the reception table and explore the Project through our display boards.

Here with us today:

- Project Team from TransAlta
- Technical Consultants including:
  - Nexilon Power Inc.
  - Horizon Compliance Group Inc.
  - Maskwa Environmental Consulting Inc.
  - Strum Consulting
  - Green Cat
  - RWDI Inc.
  - Neighbourly Advisory

Have questions? Ask our team members here today, fill out a feedback form available at the reception table, or reach out via:

stakeholderengagement@transalta.com
1-877-547-3365, Ext 1

Who is TransAlta?

- TransAlta Corporation is one of Canada's largest publicly traded power generators, owning and operating a diverse fleet across Canada, the United States and Western Australia.
- At TransAlta, the only production is safe production. Safe, reliable and incident-free operations are critical to our success.
- With a history of over 100 years, our portfolio includes hydro, wind, solar, battery storage and natural gas generation, complemented by our world-class asset optimization and energy marketing capabilities.
- We are committed to providing the energy needed for today and the future – a balanced, technology-agnostic approach that includes renewable and gas-fired generation.

TransAlta's South Hedland Facility

Land Acknowledgement

We are privileged and grateful to be able to conduct our business on these lands today. We recognize and acknowledge these lands are stewarded by the Sioux, Cree and Saulteaux speaking Nations of the area and the Otipemisiwak Metis Government. We acknowledge the many First Nations, Métis and Inuit peoples whose footsteps have marked these lands for generations, including the many places that we are joining from. We are grateful for the traditional Knowledge Keepers and Elders who are still with us today and those who have gone before us. We recognize the Lands as an act of reconciliation and gratitude to those whose territory we reside on or are visiting.

Project land at Flipi Site

Addressing Alberta's Evolving Electricity Demand

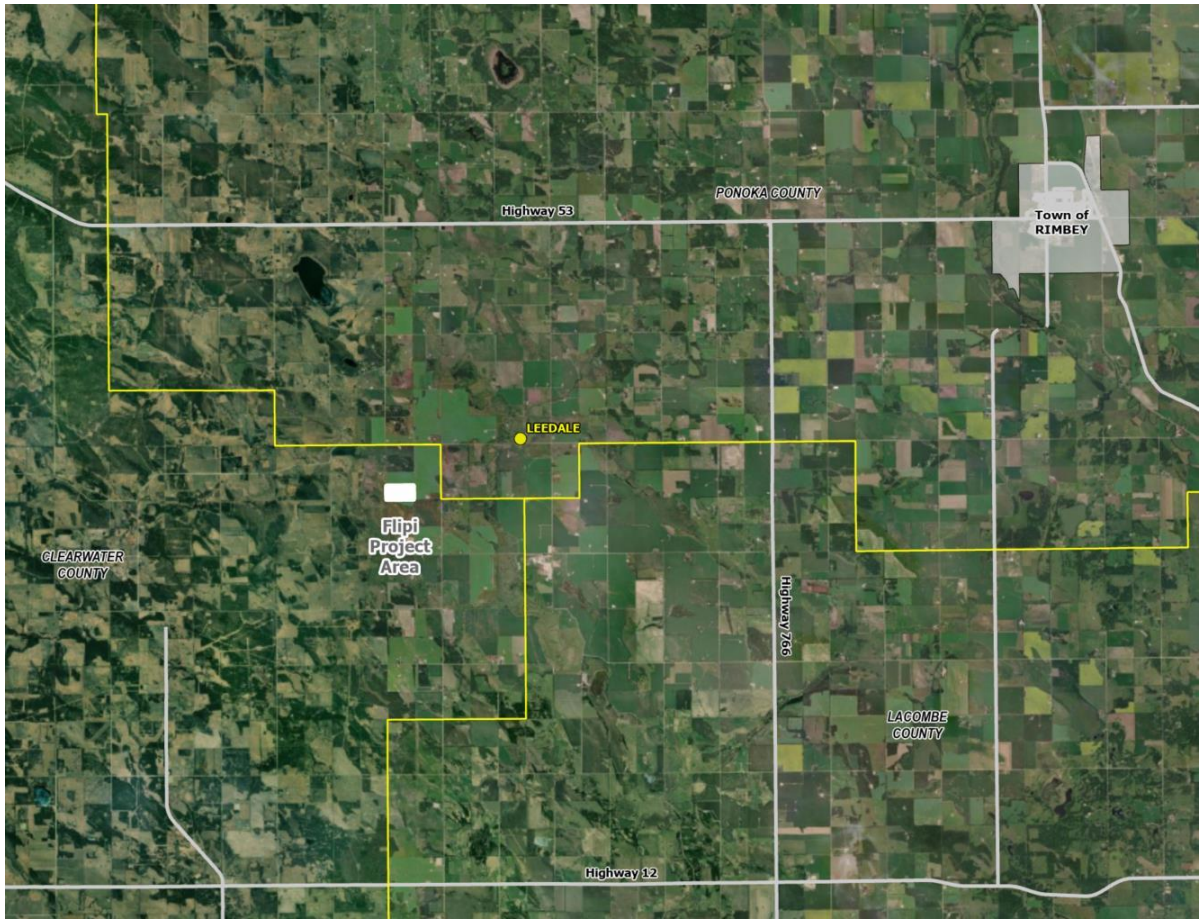
Alberta requires new resources to support **growing electricity needs** and **grid reliability**.

In response, TransAlta is developing the Flipi Power Plant Project, a Natural Gas Combined Cycle Power Plant in Clearwater County, providing lower-emitting **baseload** and **reliable** electricity generation.

Status of key regulatory approvals:

- **Power Plant, Substation & Transmission Line:**
  Applications submitted to the Alberta Utilities Commission (AUC).
- **Industrial Approval:**
  Application submitted to Alberta Environment and Protected Areas (AEPA); draft approval received.
- **Development Permit (Clearwater County):**
  Municipal development permit application forthcoming.

Flipi Power Plant Project Description



Map of project location

Project Location

Southwest corner of Section 33, Township 41, Range 4, West of the 5th Meridian (SW-33-41-04 W5M), approximately 18 km southwest of the Town of Rimbey, within **Clearwater County, Alberta.**

Project Footprint

13.2 hectares on site **compliant** with AUC land use requirements.

Interconnection

Electricity will be delivered to an existing **240 kV high-voltage** transmission line located just east of the Project's eastern boundary.

Security

Secure and enclosed site perimeter.

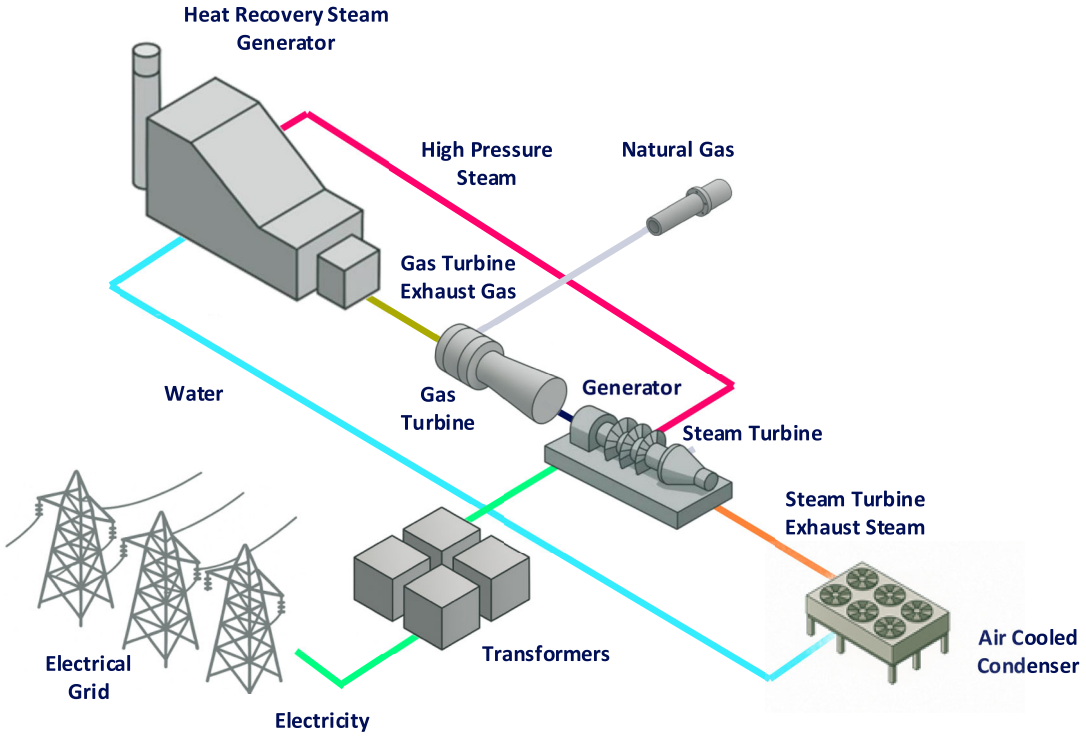
The **Emergency Response Plan** will be prepared in collaboration with first responders, Clearwater County and other impacted stakeholders.

How a Combined-Cycle Power Plant Works

1. Natural gas is used to produce electricity in the gas turbine.

2. The hot exhaust gas from the gas turbine is used to produce steam in the heat recovery steam generator.

3. The steam produced from the heat recovery steam generator is used to produce electricity from the steam turbine.



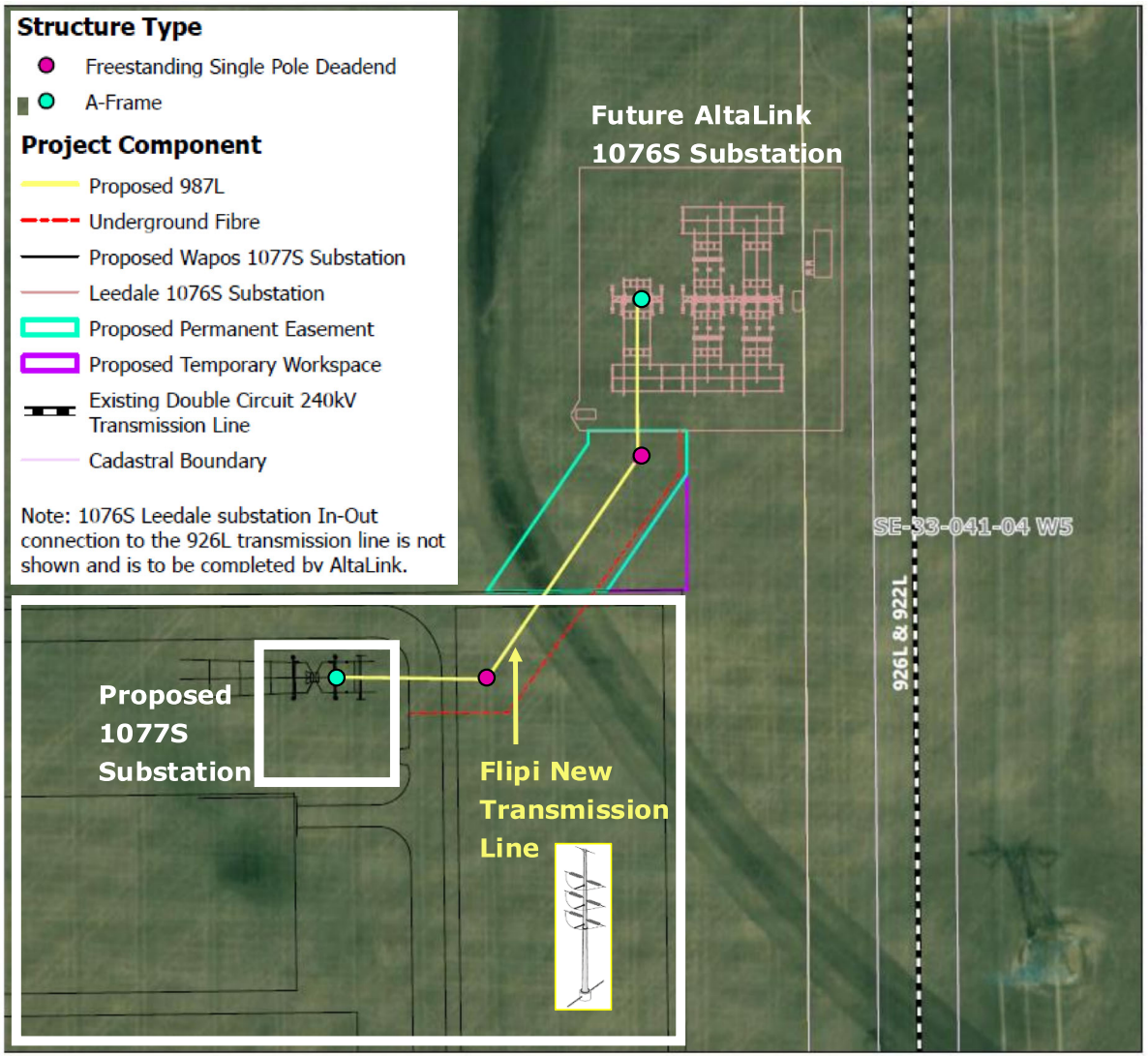
Transmission

Project Details

The proposed Wapos 1077S Substation is located adjacent to the existing AltaLink 240 kV transmission line, requiring only a **short 175 m interconnection**.

Structure Information

- **Structure Type:** Freestanding Steel Single Pole Structures
- **Height:** 19.8 – 39.6 m
- **Span Length:** 40 – 110 m
- Structures will be located within a ~30 m right-of-way



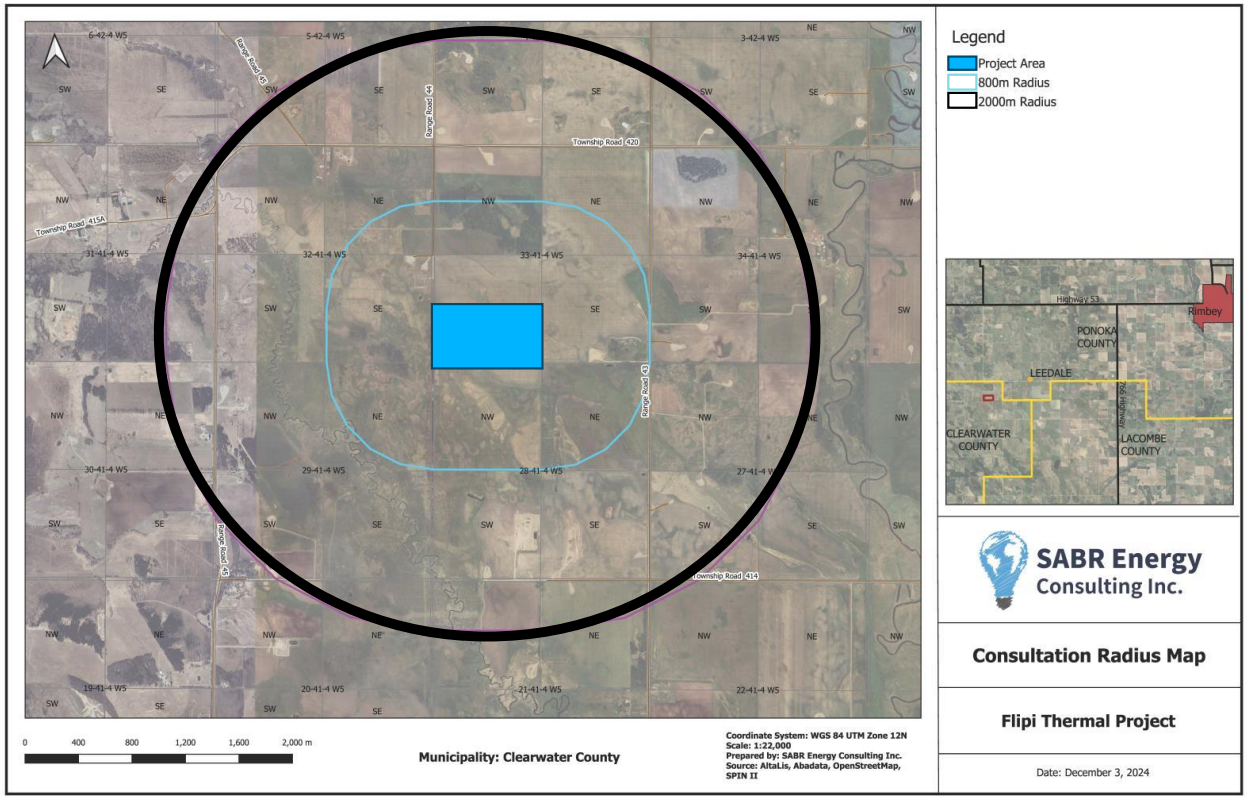
Location Selection Process

The Project will be located on privately owned land approximately 18 km southwest of Rimbey in Clearwater County.

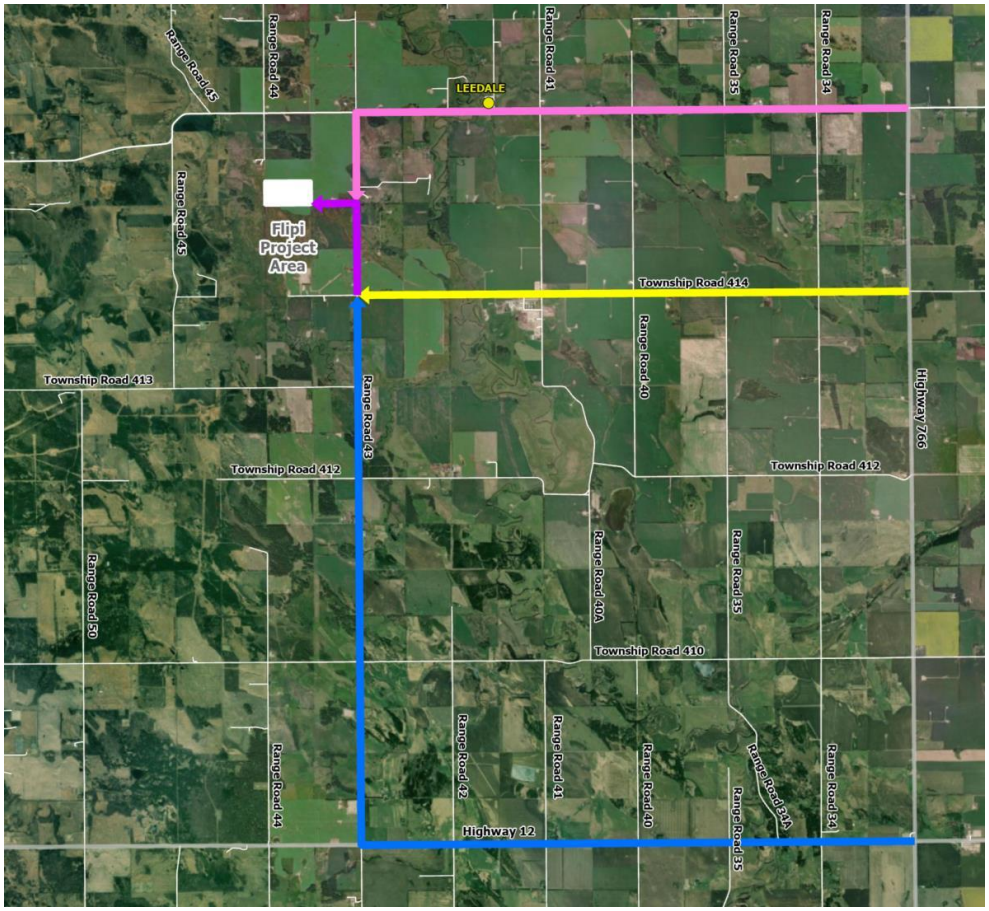
The Project site was chosen carefully, evaluating several key factors, including:

- Electricity demand and available grid capacity
- Proximity to existing transmission lines
- Access to natural gas supply
- Environmental considerations
- Adequate land area and zoning
- A supportive landowner partnership
- Favorable topography
- Low population density
- Favorable permitting pathway
- Road access

These factors together help ensure the site is both technically suitable and environmentally responsible.



Proposed Access Routes



Map of proposed access routes

Route Selection

- **Traffic accommodation & safety plan study was completed**: Comprehensive analysis to prioritize public safety and minimize disruption.
- **Identified four routes to site**: Balanced for efficiency, road capacity, stakeholder feedback, and weather resilience.
- **Additional analysis ongoing**: Incorporating stakeholder feedback, including local resident's and Clearwater County inputs.

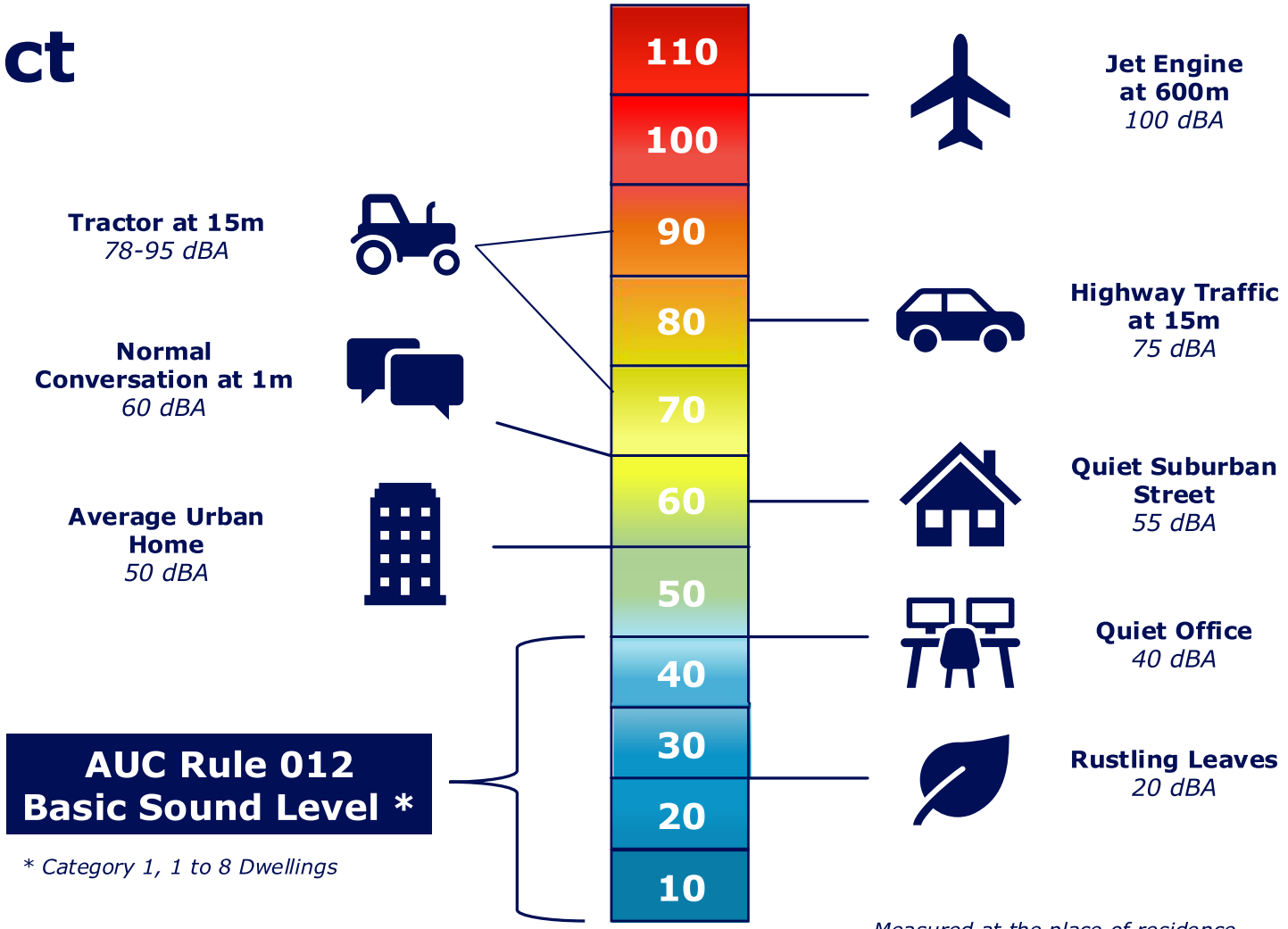
Road Maintenance and Permits

- **Traffic Impact Assessment (TIA):** Consideration for safety and road conditions will be included with TransAlta's application to Clearwater County for a Municipal Development Permit.
- **Road Use Agreement (RUA):**
  - Post-route selection
  - Will comply with all Clearwater County requirements
  - Includes haul limits, dust control, seasonal restrictions and maintenance obligations

Noise Impact

The Flipi project will comply with Alberta Utilities Commission **Rule 012: Noise Control** which sets out thresholds for compliant noise levels.

A pre-construction Noise Impact Assessment (NIA) will be updated once detailed mitigation designs are finalized, as well as a post-construction noise survey at the dwelling receptors.



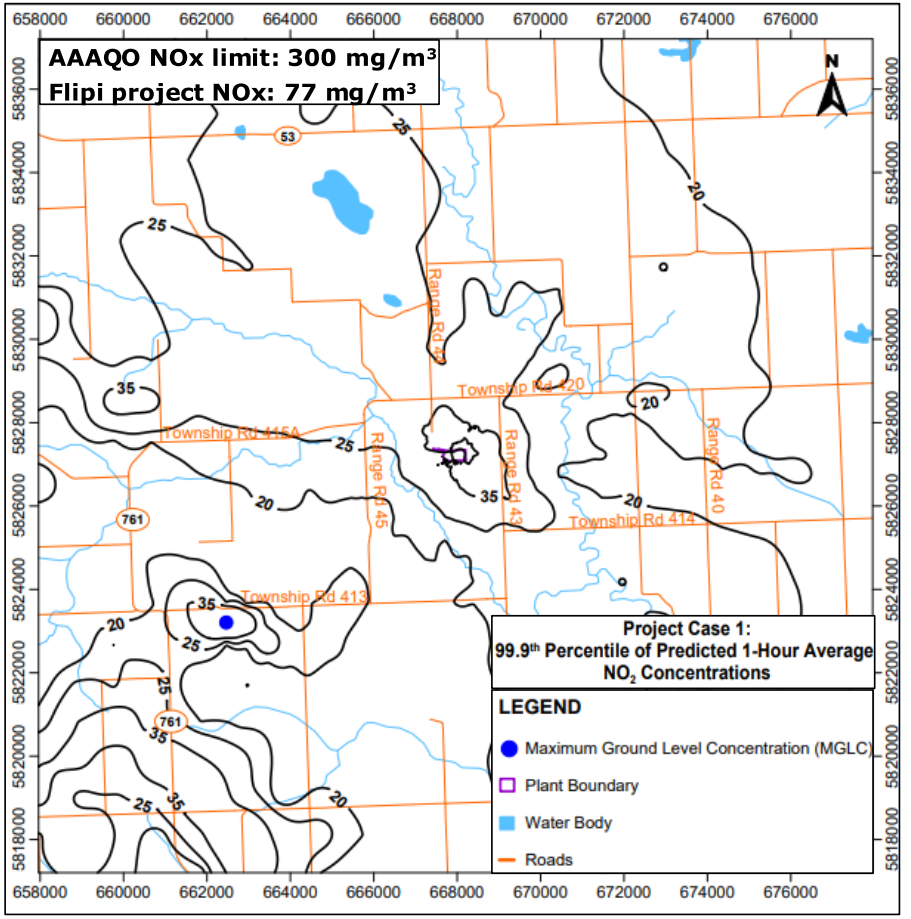
Air Quality and Emissions

Air Quality

- The Project will be fully compliant with **Alberta Ambient Air Quality Objectives (AAQO)** and **Alberta Electricity Generation Air Emission Standards**.
- Emissions are significantly below limits of allowable thresholds, provincial and federal.

Emissions Control

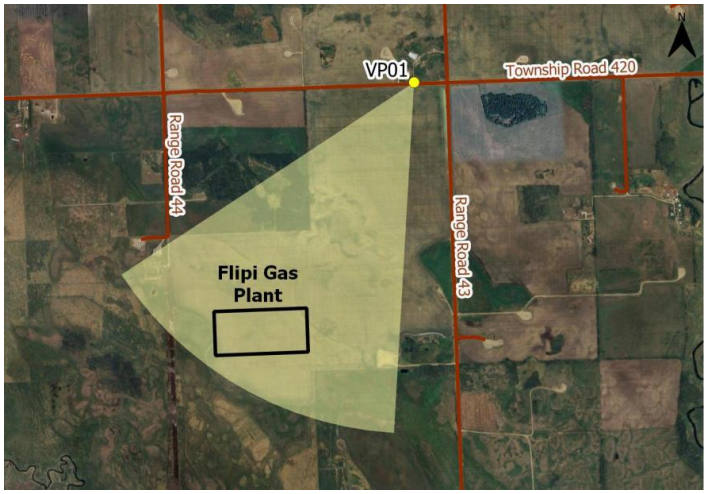
- Exhaust stack on Heat Recovery Steam Generator (HRSG) has a Selective Catalytic Reduction (SCR) system which uses ammonia to convert NOx into nitrogen and water vapor.
- **Continuous Emissions Monitoring Systems** for real-time stack emission tracking and Continuous Ambient Monitoring Systems for continuous ambient air quality monitoring.



Visual Impact

The visual rendering below was captured along Township Road 420 looking southwest towards the Project.

The photo is representative of a person's typical field of view when looking in the direction of the Project.



Viewpoint Location:	E668812 N5828632	Field of View:	53.5° (planar)	Camera:	Nikon D3000	Author:	SF
Viewpoint Elevation:	952m AOD	Principal Distance:	812.5mm	Lens:	35mm	Checked by:	JG
View Direction:	210°	Paper Size:	841 x 297mm	Camera Height:	1.5 AGL	Approved by:	SW
Nearest Gas Plant Component:	1.4km	Printed Image Size:	820 x 260mm	Date and Time:	04/11/2024 11:35	Issued Date:	29/11/2024

Viewpoint 01: Township Road 420

Environmental & Water

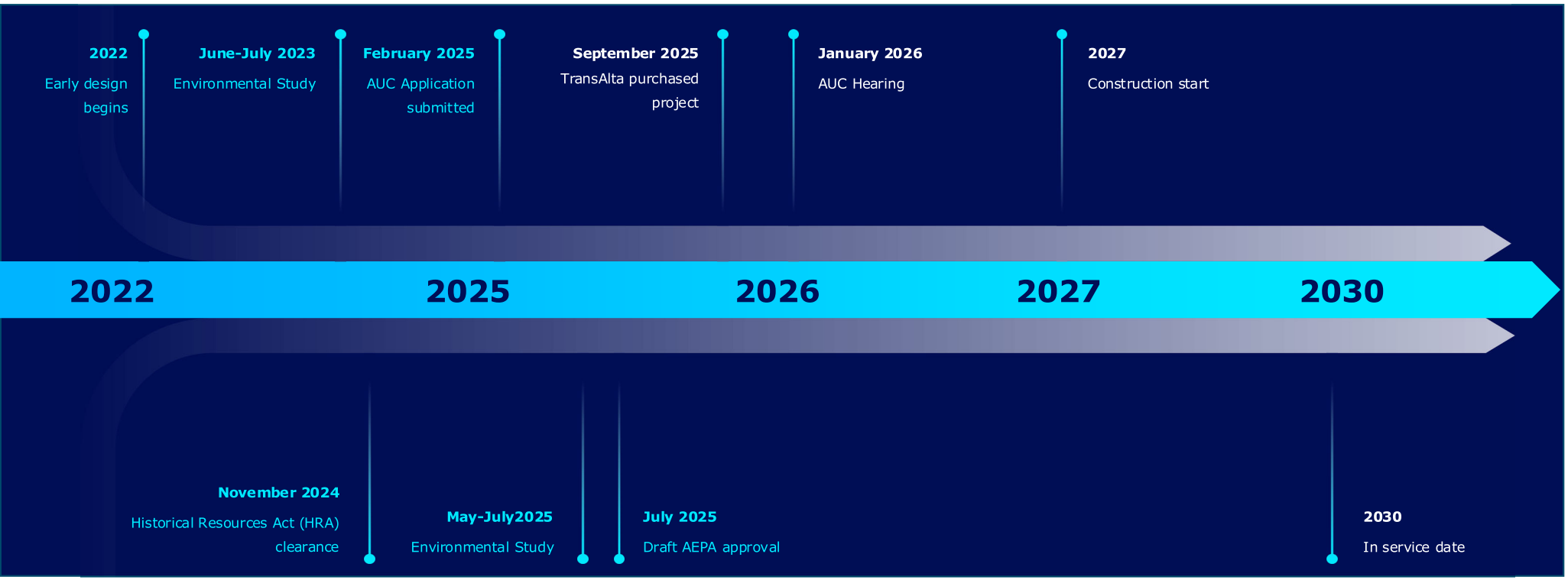
Environmental Impacts

- The Project will be built on privately owned, cultivated lands minimizing new impacts.
- **Environmental assessments have been conducted for the AUC and EPA applications** to confirm that air, water, and soil quality impacts are limited.
- **No significant impacts** to wildlife or sensitive habitats are expected.
- Potential effects on wildlife will be minimized through environmental sweeps.

Water

- The Project is currently evaluating several water sources.
- Hydrological assessments will be completed post AUC approval.
- It is anticipated the Project will require an initial water volume of 6,000 m^3, which will be recycled through the facility.
- TransAlta is committed to **open and transparent engagement** as part of the ***Water Act*** permitting process.

Project Timeline



Project Benefits

Reliable, Efficient Power Generation

- Utilizes combined-cycle technology to provide up to **460 megawatts** of high-efficiency, dependable electricity at lower emissions than simple cycle generation.
- Enhances **grid stability** and **reliability** to support Alberta's growing energy needs.
- Aligns with Alberta's transition to a cleaner, more resilient energy mix.

Economic Growth and Local Investment

- Significant capital investment into the region.
- Creates **hundreds of construction jobs** and **over a dozen long-term operational roles**.
- Increase to municipal tax revenue.

Community and Regional Benefits

- **Strengthens regional infrastructure**.
- Commitment to **local engagement**, **environmental stewardship**, and **safety excellence** throughout project development, construction and operations.

Thank you for attending TransAlta's Flipi Combined Cycle Power Plant Open House

We're listening—contact us at:

Email: stakeholderengagement@transalta.com

Phone: 1-877-547-3365, Ext 1

Need more information?

For more project details and future updates, visit our project website at www.transalta.com/flipi-project/ or scan the QR code below:

APPENDIX D
DETERMINATION OF AN ENVIRONMENTAL IMPACT ASSESSMENT

Regulatory Assurance Division
Regulatory Programs Branch
2nd Floor, Petroleum Plaza, South Tower
9915 – 108 Street
Edmonton, Alberta T5K 2G8
Canada
Telephone: 780-427-5828
http://www.ea.alberta.ca

Feb 2, 2025

Dobromir Filip
Director of Engineering, Green Energy Division
Kiwetinohk Energy Corp. (KEC)
Via E-mail: dfilip@kiwetinohk.com

Dear Dobromir Filip:

Further to your email of January 16, 2025, I wish to advise you that pursuant to Section 44 of the *Environmental Protection and Enhancement Act* (EPEA), I have considered the application of the environmental assessment process to your proposed Flipi Power Plant. This activity is not a mandatory activity for the purposes of environmental assessment. Having regard to the consideration set out in Section 44(3) of EPEA, I have decided that further assessment of the activity is not required. Therefore, a screening report will not be prepared and an environmental impact assessment report is not required.

Please note that this decision is based on the current information about the project and that I reserve the ability to review this decision should different and/or new information come to light. Kiwetinohk Energy Corp. (KEC) should also note that Section 47 of EPEA gives the Minister of Environment and Protected Areas the authority to order the preparation of an environmental impact assessment report under appropriate circumstances, notwithstanding a director's decision to not require an environmental impact assessment report.

Kiwetinohk Energy Corp. (KEC) should be advised that although an environmental impact assessment report is not required for this project, Alberta Environment and Protected Areas (EPA) may have other regulatory requirements under EPEA and/or the *Water Act.* For more information about regulatory requirements under EPEA and/or the *Water Act*, please contact Todd Aasen (todd.aasen@gov.ab.ca).

Kiwetinohk Energy Corp. (KEC) should also note that the Government of Alberta's Indigenous consultation policies and guidelines may apply to this project. For more information, please contact the Aboriginal Consultation Office https://www.alberta.ca/indigenous-consultations-in-alberta.aspx.

There is the potential requirement for a review under the *Historical Resources Act.* Contact the Historic Resources Management Branch, Alberta Culture at Historical.LUP@gov.ab.ca.

At this time, I recommend that you review the contents of the Alberta Utilities Commission's Rule 007 (https://www.auc.ab.ca/rules/rules-home/) to inform yourselves about the application and environmental evaluation requirements of the AUC.

Kiwetinohk Energy Corp. (KEC) should also contact the Impact Assessment Agency of Canada (IAAC) (pnr-rpn@iaac-aeic.gc.ca) to discuss the potential submission of a federal project description and any federal environmental assessment requirements under the *Impact Assessment Act*.

If you have any questions or need further information please contact me at 780-644-4983.

Sincerely,

Lori Havanka
Approvals Program Manager
Regulatory Assurance Section
Environment and Protected Areas
(Designated Director, *Environmental Protection and Enhancement Act*)

cc: K. Macnab (AUC)
D. Glover (AUC)
aerenvironmental.assessment@aer.ca
pnr-rpn@iaac-aeic.gc.ca (IAAC)
T. Aasen (EPA)
ACSW.HistoricalLup@gov.ab.ca (ACSW)
T. Holden (IR)
environmental.assessment@gov.ab.ca (EPA)

Classification: Protected A

APPENDIX E
AIR QUALITY ASSESSMENT

Kiwetinohk Energy Corp.
Flipi Power Plant
Air Quality Assessment

Prepared By: Horizon Compliance Group Inc.
Author: Ms. Annie Sun, PhD
Date: January 2024
Revision: 1

HORIZON
COMPLIANCE

Executive Summary

Kiwetinohk Energy Corp. (KEC) is proposing to construct and operate the Flipi Combined Cycle Power Plant (the Plant), which will be located at LSD SW-33-041-04 W5M in Clearwater County, AB, approximately 19 km southwest of Rimbey, Alberta. Horizon Compliance Group Inc. (Horizon Compliance) has been retained to prepare and submit this Air Quality Assessment (AQA) report for the proposed Plant in support of the *Environmental Protection and Enhancement Act* (*EPEA)* Approval Application and the Alberta Utilities Commission (AUC) Rule 007 filings.

The Plant is a combined cycle power plant with carbon capture consisting of one natural gas fired combustion turbine generator (CTG), one steam turbine (ST), one carbon capture package with one carbon dioxide (CO_2) compression and dehydration package. High temperature exhaust from the CTG is vented to a heat recovery steam generator (HRSG) to produce steam for the ST. The HRSG will be equipped with selective catalytic reduction (SCR) to reduce nitrogen oxide (NO_X) emissions. Once carbon capture system (CCS) is commissioned, the HRSG outlet flue gas will be directed to a series of CCS packages to remove CO_2 from the flue gases, dehydrate the CO_2 gas stream and compress the CO_2 for injection. Dehydration will include the use of two natural gas fired triethylene glycol (TEG) heaters.

An auxiliary natural gas fired boiler will intermittently provide supplemental heat during start-up, maintenance or emergency operating conditions. The Plant will have an emergency diesel generator (EDG) for onsite utilities.

The primary substance of concern from the Plant is NO_x from the combustion of natural gas. Secondary substances of concern from natural gas combustion in the emission sources include carbon monoxide (CO), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and total suspended particulate matter (TSP). Potential ammonia (NH_3) resulting from operation of the SCR system has also been evaluated. Air quality modelling has been completed to assess the potential air quality effects of Plant on the surrounding environment to ensure the predicted maximum concentrations comply with the current *Alberta Ambient Air Quality Objectives* (*AAAQOs*; AEP, 2019).

Dispersion modelling was performed using the United States Environmental Protection Agency (U.S. EPA) AERMOD v.22112 dispersion model, in accordance with the requirements outlined within the Alberta Environment and Parks (AEP) *Air Quality Model Guideline* (*AQMG*; AEP 2021a). In total, five modelling cases have been assessed. The results of the dispersion modelling, summarized in Tables 1 and 2, respectively, indicate that the predicted maximum ground-level concentrations (MGLCs) of nitrogen dioxide (NO_2), CO, $PM_{2.5}$, TSP and NH_3 associated with various operating conditions comply with the applicable *AAAQOs*.

Table 1 NO_2 Dispersion Modelling Results

Modelling Case	Description of Modelling Case	NO_2 MGLC	
		1-Hour ($\mu g/m^3$)	Annual ($\mu g/m^3$)
Baseline Case (B1)	Existing background industrial emission sources only	162.3	13.2
Project Case 1 (P1)	Emissions from proposed Plant without CCS	77.0	7.0
Project Case 2 (P2)	Emissions from proposed Plant with CCS	49.4	6.8
Project Case 3 (P3)	Emissions from proposed Plant without CCS	48.6	6.9
Project Case 4 (P4)	Emissions from proposed Plant with CCS	48.6	6.8
Cumulative Case 1 (C1)	Emission sources included in B1 and P1	162.3	13.5
Cumulative Case 2 (C2)	Emission sources included in B1 and P2	162.3	13.4
Cumulative Case 3 (C3)	Emission sources included in B1 and P1	162.7	13.5
Cumulative Case 4 (C4)	Emission sources included in B1 and P2	162.3	13.4
	AAAQO	**300**	**45**

Table 2 Dispersion Modelling Results for Other Substances

Modelling Case	CO MGLC		$PM_{2.5}$ MGLC		TSP MGLC		NH_3 MGLC
	1-Hour ($\mu g/m^3$)	8-Hour ($\mu g/m^3$)	1-Hour ($\mu g/m^3$)	24-Hour ($\mu g/m^3$)	24-Hour ($\mu g/m^3$)	Annual ($\mu g/m^3$)	1-Hour ($\mu g/m^3$)
B1	569.0	484.2	31.1	22.4	40.0	12.3	-
P1	412.7	404.2	18.4	16.7	34.3	12.0	-
P2	-	-	-	-	-	-	6.0
P3	412.2	403.7	18.3	16.7	34.3	12.0	-
P4	-	-	-	-	-	-	10.7
C1	569.0	484.2	31.1	22.4	40.0	12.3	-
C3	569.0	484.2	31.1	22.4	40.0	12.3	-
AAAQO	**15000**	**6000**	**80**[(a)]	**29**	**100**	**60**	**1400**

[(a)] *Alberta Ambient Air Quality Guidelines Summary* (*AAAQO*, AEP 2019).

1 INTRODUCTION 1
2 DISPERSION MODELLING APPROACH 1
2.1 Meteorological Data 1
2.2 Terrain Data 1
2.3 Modelling Receptor 2
2.4 Building Downwash 2
2.5 Air Quality Criteria 3
2.6 NO_x to NO_2 Conversion Method 4
3 EMISSIONS 4
3.1 Plant Emission Sources 4
3.2 Background Industrial Emission Sources 5
3.3 Ambient Baseline Concentrations 8
4 DISPERSION MODELLING RESULTS 8
4.1 NO_2 Modelling Results 9
4.2 CO Modelling Results 10
4.3 $PM_{2.5}$ and TPM Modelling Results 11
4.4 NH_3 Modelling Results 12
5 CONCLUSION 12
6 REFERENCES 14

List of Tables

Table 1 NO_2 Dispersion Modelling Results iii
Table 2 Dispersion Modelling Results for Other Substances iii
Table 3 Building Heights 2
Table 4 Applicable Ambient Air Quality Criteria 3
Table 5 Proposed Plant Emission Sources 6
Table 6 Background Industrial Emission Sources 6
Table 7 Ambient Baseline Concentrations Used in this Assessment 8
Table 8 Predicted Maximum Ground-Level NO_2 Concentrations Using TCM 9
Table 9 Predicted Maximum Ground-Level NO_2 Concentrations Using PVMRM 10
Table 10 Predicted Maximum Ground-Level CO Concentrations 10
Table 11 Predicted Maximum Ground-Level $PM_{2.5}$ Concentrations 11
Table 12 Predicted Maximum Ground-Level TPM Concentrations 11
Table 13 Predicted Maximum Ground-Level NH_3 Concentrations 12

List of Figures

Figure 1 Project Area Map
Figure 2 Topographical Map
Figure 3 Wind Rose Plot
Figure 4 Wind Class Frequency Distribution
Figure 5 1-Hour NO_2 Concentrations – Baseline Case
Figure 6 Annual NO_2 Concentrations – Baseline Case
Figure 7 1-Hour NO_2 Concentrations – Project Case 1
Figure 8 Annual NO_2 Concentrations – Project Case 1
Figure 9 1-Hour NO_2 Concentrations – Project Case 2
Figure 10 Annual NO_2 Concentrations – Project Case 2
Figure 11 1-Hour NO_2 Concentrations – Project Case 3
Figure 12 Annual NO_2 Concentrations – Project Case 3
Figure 13 1-Hour NO_2 Concentrations – Project Case 4
Figure 14 Annual NO_2 Concentrations – Project Case 4
Figure 15 1-Hour NO_2 Concentrations – Cumulative Case 1
Figure 16 Annual NO_2 Concentrations – Cumulative Case 1
Figure 17 1-Hour NO_2 Concentrations – Cumulative Case 2
Figure 18 Annual NO_2 Concentrations – Cumulative Case 2
Figure 19 1-Hour NO_2 Concentrations – Cumulative Case 3
Figure 20 Annual NO_2 Concentrations – Cumulative Case 3
Figure 21 1-Hour NO_2 Concentrations – Cumulative Case 4
Figure 22 Annual NO_2 Concentrations – Cumulative Case 4
Figure 23 1-Hour $PM_{2.5}$ Concentrations – Baseline Case
Figure 24 24-Hour $PM_{2.5}$ Concentrations – Baseline Case
Figure 25 1-Hour $PM_{2.5}$ Concentrations – Project Case 1
Figure 26 24-Hour $PM_{2.5}$ Concentrations – Project Case 1
Figure 27 1-Hour $PM_{2.5}$ Concentrations – Cumulative Case 1

Figure 28 24-Hour $PM_{2.5}$ Concentrations – Cumulative Case 1

List of Appendices

Appendix A Figures
Appendix B Plot Plan
Appendix C Modelling Input and Output Files

1 INTRODUCTION

Kiwetinohk Energy Corp. (KEC) is proposing to construct and operate the Flipi Power Plant (the Plant). Horizon Compliance Group Inc. (Horizon Compliance) has been retained to prepare and submit this Air Quality Assessment (AQA) report for the proposed Plant in support of the *Environmental Protection and Enhancement Act* (*EPEA)* Approval Application and the Alberta Utilities Commission (AUC) Rule 007 filings.

The Plant will be located LSD SW 33-041-04 W5M in Clearwater County, AB, approximately 19 km southwest of Rimbey, Alberta. It will be located to the west of Range Rd 43, to the East of Range Rd 44, between Township Rd 414 and 415A, and can be accessed by Range Rd 44. A Project Area Map is included in Figure 1 within Appendix A.

2 DISPERSION MODELLING APPROACH

In accordance with the requirements outlined within the Alberta Environment and Parks (AEP) *Air Quality Model Guideline* (*AQMG*; AEP, 2021a), dispersion modelling was performed using the United States Environmental Protection Agency (U.S. EPA) AERMOD v.22112 dispersion model, five years of meteorological data, elevated terrain, and other modelling methods as described in the following sections.

2.1 Meteorological Data

Five years of meteorological data were extracted from the Weather Research Forecast (WRF) v4.2.1 Meteorological Dataset from the Alberta Environment and Parks for 2015-2019 (AEP, 2021b), using *Multi-model Extraction Utility 2* (*MMEU2*; AEP, 2021c). The extracted data are centred on the geographical point 52.569° N and 114.522°W. Five years of the data were processed in AERMET v.22112 to produce meteorological files suitable for use in AERMOD.

The Wind Rose Plot and a Wind Class Frequency Distribution figure are presented in Figures 2 and 3, respectively, within Appendix A. The Wind Rose Plot indicates that the prevailing surface wind direction in this region is from Northwest and southwest. Wind speeds between 0.5 and 4 m/s occurred for 77% of all 43,824 observations, while calm wind speeds (i.e., when values are less than 0.5 m/s) were reported 1.91% of the time. The average wind speed at this site is approximately 2.64 m/s.

2.2 Terrain Data

Terrain data in USGS DEM type data for a 1:50,000 scale maps (NAD83) were downloaded from the Government of Canada, Department of Natural Resources Geobase online portal (NRC, 2023), which provides public access to a base of quality geospatial data for all of Canada. The domain used for this assessment incorporates topographic data from map tiles identified as 083b07, 083b08, 083b09, and 083b10. The data were processed by AERMAP, the terrain pre-processor for the AERMOD model. Figure 4 in Appendix A presents the terrain elevations above sea-level for the 10 km radius surrounding the Plant. Within the modelled domain, terrain is mainly flat, and elevations range from approximately 929 m ASL to 1076 m ASL. The Plant elevation is approximately 948 m ASL.

2.3 Modelling Receptor

The following receptor grids were used in the modelling as per the latest revision of the *AQMG*:

- 20 m receptor spacing in the general area of maximum impact and the plant boundary;
- 20 m receptor spacing within 0.5 km from the centroid of sources;
- 250 m receptor spacing within 2 km from the centroid of sources;
- 500 m spacing within 5 km from the centroid of sources; and,
- 1,000 m spacing beyond 5 km.

2.4 Building Downwash

The U.S. EPA Building Profile Input Program (BPIP) was used to determine the effects of building downwash on dispersion of emissions. The peak roof height for the buildings is provided in Table 3. The detailed BPIP input and output files are provided in Appendix B while the Plot Plan indicating the source and building locations is provided in Appendix C.

Table 3 Building Heights

Building ID	Building Height (m)
20	30.0
30	10.0
63	20.0
59	10.0
133	5.0
22L	5.0
22M	5.0
22R	5.0
14	10.0
53	10.0
52	10.0
12A	10.0
12B	10.0
13	10.0
8	10.0
15	15.0
64LM	5.0
64R	5.0
61	7.5
4	30.0
65	5.0
66	5.0
67	5.0
69	5.0
100	5.0
83	5.0

Building ID	Building Height (m)
84	5.0
86	5.0
87	5.0
70	5.0
61L	7.5
74	5.0
76	5.0
78	5.0
80	5.0
89	5.0
91	5.0
93	5.0
95	5.0
97	5.0
82	3.5
99	3.5
111	5.0
127	5.0
9	5.0
21	7.5
21B	7.5
6	5.0
7	5.0
60	5.0
48	10.0
18	3.5
10	24.0

2.5 Air Quality Criteria

To protect human and the environmental health, governments have been working collaboratively to improve air quality by implementing the Air Quality Management System (AQMS). One of key elements is that ambient air quality standards/criteria - maximum ambient air concentration limits have been established. For the purposes of this assessment, all ambient air quality concentrations are compared against the AAAQOs in Table 4.

Table 4 Applicable Ambient Air Quality Criteria

Substance	Averaging Period	Rank	Air Quality Criteria (µg/m^3) [(a)]
NO_2	1-Hour	9th Highest	300
	Annual	Overall maximum prediction	45
CO	1-Hour	9th Highest	15,000
	8-Hour	2nd-Highest	6,000

Substance	Averaging Period	Rank	Air Quality Criteria (µg/m^3) [(a)]
$PM_{2.5}$	1-Hour	9th Highest	80
	24-Hour	Overall maximum prediction	29
NH_3	1-Hour	9th Highest	1,400

[(a)] *Alberta Ambient Air Quality Objectives and Guidelines Summary* (*AAAQO*, AEP 2019).

2.6 NO_x to NO_2 Conversion Method

In accordance with the *AQMG*, the conversion of nitrogen oxide (NO_X) to nitrogen dioxide (NO_2) in the atmosphere must be considered in all the NO_2 modelling (AEP, 2021a). The Alberta *AQMG* recommends four methods for converting NO_x to NO_2, including the total conversion method (TCM), the ambient ratio method (ARM/ARM2), the plume volume molar ratio method (PVMRM), and the ozone limiting method (OLM). The results from the TCM must be presented as part of the assessment. The MGLCs of NO_2 in this assessment were evaluated using the TCM and PVMRM, respectively.

TCM assumes that NO_x emissions are converted entirely to NO_2 in the atmosphere. The actual quantity of NO_x converted to NO_2 in an equilibrium state is dependent on numerous factors, including ozone (O_3) concentrations and baseline NO_2 concentrations. This method provides a conservative estimate of predicted NO_2 concentrations and often serves as an initial screening approach.

The PVMRM approach limits the conversion of NO_x to NO_2 based on the amount of O_3 available in the plume as well as the initial NO_2/NO_x in-stack ratios (ISRs) of the sources contributing to the emitted plume. The recommended ratio values and hourly O_3 concentrations provided within the AQMG were used for this assessment.

3 EMISSIONS

3.1 Plant Emission Sources

The Plant is a combined cycle power plant with carbon capture consisting of one natural gas fired CTG, one ST, one carbon capture package with one carbon dioxide (CO_2) compression and dehydration package. High temperature exhaust from the CTG is vented to a heat recovery steam generator (HRSG) to produce steam for the ST. The HRSG will be equipped with selective catalytic reduction (SCR) to reduce nitrogen oxide (NO_X) emissions. Once carbon capture system (CCS) is commissioned, the HRSG outlet flue gas will be directed to a series of CCS packages to remove CO_2 from the flue gases, dehydrate the CO_2 gas stream and compress the CO_2 for injection. Dehydration will include the use of use two natural gas fired triethylene glycol (TEG) heaters. An auxiliary natural gas fired boiler will intermittently provide supplemental heat during start-up, maintenance or emergency operating conditions. The Plant will have an emergency diesel generator (EDG) for onsite utilities.

It is possible that the carbon capture, utilization, and storage (CCUS) hub may not be operational when the Plant is commissioned. As such, the Plant may operate for a period without CCS. Similarly, in the event that the CCUS hub is down for maintenance or experiences and unplanned outages, the Plant will operate without CCS. The number of emission sources and release points change when operating with and without CCS. Horizon Compliance has modelled the Plant under continuous operations, with

and without CCS, to ensure that all MGLCs of ambient air quality are compliant regardless of the operational configuration.

The primary substance of concern from the Plant is NO_x from the combustion of natural gas. Secondary substances of concern from natural gas combustion in the emission sources include carbon monoxide (CO), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and total suspended particulate matter (TSP). Potential ammonia (NH_3) resulting from operation of the SCR system has also been evaluated. Table 5 lists the release parameters for the proposed sources associated with these sources.

3.2 Background Industrial Emission Sources

In accordance with the *AQMG*, the cumulative air quality conditions expected to result from the existing and approved industrial developments, especially those near the plant, should be assessed at the same time with the plant for a more accurate representation of predicted impacts within the modelling domain (AEP, 2021a).

The existing and approved industrial facilities within a 5 km radius of the Plant were identified and listed in Table 6 and shown in Figure 1. Their emission sources were included in the dispersion modelling. The facilities and their emission sources are based on Directive 056 Facility Licenses, the National Pollutant Release Inventory (NPRI) database, and Alberta's 2018 annual emissions inventory database. Stack parameters and emission rates associated with these emission sources are also presented in Table 6.

Table 5 Proposed Plant Emission Sources

Operational Configuration	Source Type	ID	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (°C)	NO_x Emission Rate (kg/h)	CO Emission Rate (kg/h)	$PM_{2.5}$ Emission Rate (kg/h)	NH_3 Emission Rate (kg/h)
No CCS	HRSG	HRSG	48.76	6.6	14.7	70.9	141.6	31.7	4.6	11.6
No CCS	HRSG Stack with SCR						46.0			
Both	Auxiliary Boiler Stack	ABS	18.3	0.965	16.7	272.0	2.127	1.787	0.162	0.000
CCS Only	CCS Absorber Stack	CCSAS	80.25	5.5	28.1	43.0	141.6	37.04	5.37	11.6
CCS Only	CCS Absorber with SCR						46.0			
CCS Only	TEG Train 1 Stack	TEG1	4.0	0.457	6.0	350.0	0.057	0.048	0.004	0.000
CCS Only	TEG Train 2 Stack	TEG1	4.0	0.457	6.0	350.0	0.057	0.048	0.004	0.000

Table 6 Background Industrial Emission Sources

Source Type	Source ID	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temp (K)	NO_x Emission Rate (g/s)	CO Emission Rate (g/s)	$PM_{2.5}$ Emission Rate (g/s)
Conocophillips Canada Operations Ltd. Compressor Station at LSD 05-02-042-04 W5M (Facility Licence No. F33159) [(a)]								
Compressor	F33159	7.620	0.250	26.8	721.15	0.2925	0.2023	0.0201
Bonavista Petroleum Ltd. Gas Processing Plant at LSD 03-28-041-04 W5M (F42265) [(a)]								
Compressor	COM1	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM2	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM3	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM4	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM5	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM6	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM7	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Compressor	COM8	9.100	0.460	42.2	725.15	0.329	0.8151	0.0810
Bonavista Petroleum Ltd. Gilby 102/03-28-041-04W5 Multi (F43534) [(a)]								
Compressor	F43534	5.500	0.130	8.5	795.15	1.5226	0.0895	0.0089

ConocoPhillips Canada (BRC) Ltd. Gas Multiwell Battery at LSD 08-16-041-04 W5M (F40072) [a]								
Compressor	F40072	3.730	0.200	27.1	792.15	1.8333	0.1630	0.0162
Harvest Operations Corp. Newport Open Crk 11-1 [b]								
Compressor	HARCOM1	11.430	0.168	35.0	773.15	1.1806	0.2727	0.0040
Compressor	HARCOM2	11.430	0.168	35.0	773.15	1.1806	0.2727	0.0040
Compressor	HARCOM3	9.100	0.460	42.2	693.15	0.3704	0.0857	0.0012
Cenovus Energy Inc. Gilby Comp Station 14-17 [b]								
Compressor	C1417	10.300	0.560	30.5	743.15	0.7236	0.3716	0.0010
Cenovus Energy Inc. Gilby Comp Station 06-25 [b]								
Compressor	C625C1	11.430	0.168	35.0	773.15	1.1806	0.6491	0.0050
Compressor	C625C2	9.100	0.460	42.2	693.15	0.3116	0.1713	0.0013
Compressor	C625C3	9.100	0.460	42.2	693.15	0.3116	0.1713	0.0013
Cenovus Energy Inc., Gilby West Sour Comp Station 11-20 [c]								
Compressor Engine Exhaust	K100	11.430	0.168	35.0	773.15	1.0648	0.7002	0.0001
Compressor Engine Exhaust	K101	9.800	0.324	49.0	861.15	1.0648	0.7002	0.0001
Compressor Engine Exhaust	K102	9.800	0.337	10.7	650.15	1.0648	0.7002	0.0001
Natural Gas Incinerator Stack	INC401	9.144	0.914	7.0	1100.0	0.0051	0.0043	0.0001
Glycol Reboiler Exhaust Stack	H771	4.600	0.220	9.5	473.2	0.0074	0.0063	0.0001

[a] Alberta Energy Regulator (AER). 2023. Integrated Application Registry/Query. Emissions were calculated based on facility licence and release parameters have been estimated based on similar compressors or units.

[b] Emissions were calculated based on 2021 NPRI Database and release parameters have been estimated based on similar compressors or units.

[c] Alberta Environment and Parks (AEP). 2018 Annual Emissions Inventory Report Database. 2020.

3.3 Ambient Baseline Concentrations

In accordance with the *AQMG*, ambient baseline concentrations must be added to the concentrations predicted by the model for a more accurate representation of cumulative effects (AEP, 2021a). Ambient baseline concentrations are assumed to represent the air quality contribution of both natural and human-caused sources that are not included in the modelling. Baseline concentrations are calculated using representative ambient monitoring data.

The Plant is located within the Parkland Airshed Management Zone (PAMZ). The nearest continuous ambient air monitoring stations that contain publicly available data for NO_2, CO, NH_3 and $PM_{2.5}$ are presented in Table 6. No available data for TSP meet data completeness criteria. Measured 1-Hour PM_{10} data from Bruderheim air monitoring station were used to calculate baseline concentrations for TSP. Measured 1-Hour NO_2, CO, $PM_{2.5}$, PM_{10} and NH_3 from these stations were used to estimate the 90th percentile concentrations for each averaging period as per the *AQMG*. The calculated 90th percentile baseline concentrations of NO_2, CO, $PM_{2.5}$, PM_{10} and NH_3 are shown in Table 7. The calculated baseline concentrations were added to the ground-level concentrations predicted by the dispersion modelling to calculate the MGLC. The MGLC is defined as the sum of the predicted and the baseline concentration.

Table 7 Ambient Baseline Concentrations Used in this Assessment

Substance	Air Monitoring Station	Distance between Air Monitoring Station and Plant (km)	Data Period Used in this Assessment	Averaging Period	Ambient Baseline Concentration (µg/m^3)
NO_2	Breton	61	September 1, 2020 to August 31, 2023	1-Hour	10.6
				Annual	4.2
CO	Red Deer-Riverside	58	October 1, 2020 to September 30, 2023	1-Hour	378.1
				8-Hour	378.1
$PM_{2.5}$	Caroline	70	October 1, 2020 to September 30, 2023	1-Hour	15.2
				24-Hour	15.0
PM_{10}	Bruderheim	175	May 1, 2012 to April 30, 2015	24-Hour	32.6
				Annual	11.8
NH_3	Fort Saskatchewan	153	September 1, 2020 to August 31, 2023	1-Hour	3.0

4 DISPERSION MODELLING RESULTS

Dispersion modelling has been completed for the following cases:

- **Baseline Case (B1):** This case assessed NO_x, CO, $PM_{2.5}$ and TSP emissions from nearby background industrial emission sources only.
- **Project Case 1 (P1):** This case assessed NO_x, CO, $PM_{2.5}$, and TSP emissions from HRSG when the SCR system is offline, and emissions from the auxiliary boiler.
- **Project Case 2 (P2):** This case assessed NO_x emissions only from HRSG when the SCR system is in operation, and emissions from the auxiliary boiler.

- **Project Case 3 (P3):** This case assessed NO_x, CO, $PM_{2.5}$, and TSP emissions from the CCS absorber when CCS is commissioned and the SCR system is offline, and emissions from the auxiliary boiler and two TEG reboilers.
- **Project Case 4 (P4):** This case assessed NO_x emissions only from the CCS absorber when CCS is commissioned and the SCR system is in operation, and emissions from the auxiliary boiler and two TEG reboilers.
- **Cumulative Case 1 (C1):** This case assessed NO_x, CO, $PM_{2.5}$, and TSP emissions from HRSG when the SCR system is offline, and emissions from the auxiliary boiler, as well as the emission sources included in the Baseline Case.
- **Cumulative Case 2 (C2):** This case assessed NO_x emissions only from HRSG when the SCR system is in operation, and emissions from the auxiliary boiler, as well as the emission sources included in the Baseline Case.
- **Cumulative Case 3 (C3):** This case assessed NO_x, CO, $PM_{2.5}$, and TSP emissions from the CCS absorber when CCS is commissioned and the SCR system is offline, and emissions from the auxiliary boiler and two TEG reboilers, as well as the emission sources included in the Baseline Case.
- **Cumulative Case 4 (C4):** This case assessed NO_x emissions only from the CCS absorber when CCS is commissioned and the SCR system is in operation, and emissions from the auxiliary boiler and two TEG reboilers, as well as the emission sources included in the Baseline Case.

It should be noted that there are no significant background NH_3 emission sources within the 5 km of Plant and only NH_3 emissions resulting from the operation of the SCR system were assessed.

4.1 NO_2 Modelling Results

The predicted NO_2 concentrations using the TCM, including baseline NO_2, are provided in 8. As indicated, the predicted annual MGLCs of NO_2 for all the cases considered and the predicted one-hour MGLCs of NO_2 associated with project cases comply with the applicable *AAAQOs* for NO_2. However, the predicted one-hour MGLCs of NO_2 for the baseline and cumulative cases exceed the applicable *AAAQOs.*

Table 8 Predicted Maximum Ground-Level NO_2 Concentrations Using TCM

Case	Averaging Period	UTM Coordinates (m E)	UTM Coordinates (m N)	Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
B1	1-hour	668462.00	5825706.00	528.2	10.6	538.8	**300**
	Annual	668212.00	5825956.00	21.4	4.2	25.6	**45**
P1	1-hour	662462.00	5823206.00	66.4	10.6	77.0	**300**
	Annual	668089.53	5827093.26	2.8	4.2	7.0	**45**
P2	1-hour	668069.90	5827092.50	38.8	10.6	49.4	**300**
	Annual	668089.53	5827093.26	2.6	4.2	6.8	**45**
P3	1-hour	668069.90	5827092.50	38.0	10.6	48.6	**300**
	Annual	668089.53	5827093.26	2.7	4.2	6.9	**45**
P4	1-hour	668069.90	5827092.50	38.0	10.6	48.6	**300**
	Annual	668089.53	5827093.26	2.6	4.2	6.8	**45**
C1	1-hour	668462.00	5825706.00	528.2	10.6	538.8	**300**

	Annual	668212.00	5825956.00	21.9	4.2	26.1	**45**
C2	1-hour	668462.00	5825706.00	528.2	10.6	538.8	**300**
	Annual	668212.00	5825956.00	21.7	4.2	25.9	**45**
C3	1-hour	668462.00	5825706.00	528.2	10.6	538.8	**300**
	Annual	668212.00	5825956.00	22.0	4.2	26.2	**45**
C4	1-hour	668462.00	5825706.00	528.2	10.6	538.8	**300**
	Annual	668212.00	5825956.00	21.7	4.2	25.9	**45**

As the TCM is a conservative estimate of predicted NO_2 concentrations, and often serves as an initial screening approach, the PVMRM was applied to evaluate NO_2 concentrations as per the *AQMG*. The predicted NO_2 concentrations using the PVMRM, including baseline NO_2, are provided in Table 9. As indicated, both the 1-hour average and annual MGLCs of NO_2 for the baseline and cumulative cases considered in this AQA comply with the applicable *AAAQOs*. The isopleths presenting the modelling results associated are shown in Figures 5 through 22 within Appendix A, while modelling output file are provided in Appendix B.

Table 9 Predicted Maximum Ground-Level NO_2 Concentrations Using PVMRM

Case	Averaging Period	UTM Coordinates (m E)	UTM Coordinates (m N)	Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
B1	1-hour	667962.00	5825706.00	151.7	10.6	162.3	**300**
	Annual	668462.00	5825456.00	9.0	4.2	13.2	**45**
C1	1-hour	667962.00	5825706.00	151.7	10.6	162.3	**300**
	Annual	668462.00	5825456.00	9.3	4.2	13.5	**45**
C2	1-hour	667962.00	5825706.00	151.7	10.6	162.3	**300**
	Annual	668462.00	5825456.00	9.2	4.2	13.4	**45**
C3	1-hour	667962.00	5825706.00	152.1	10.6	162.7	**300**
	Annual	668462.00	5825456.00	9.3	4.2	13.5	**45**
C4	1-hour	667962.00	5825706.00	151.7	10.6	162.3	**300**
	Annual	668462.00	5825456.00	9.2	4.2	13.4	**45**

4.2 CO Modelling Results

The predicted CO concentrations, including baseline CO, are provided in 10. As indicated, both the 1-hour and 8-hour average MGLCs of CO associated with all the modelled cases are predicted to comply with the applicable *AAAQOs*. The isopleths presenting the modelling results are not provided as the predicted MGLCs are less than 10% of the AAAQO for CO, while modelling output file are provided in Appendix B.

Table 10 Predicted Maximum Ground-Level CO Concentrations

Case	Averaging Period	UTM Coordinates (m E)	UTM Coordinates (m N)	Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
B1	1-hour	663962.00	5823706.00	190.9	378.1	569.0	**15000**
	8-hour	668462.00	5825706.00	106.1	378.1	484.2	**6000**
P1	1-hour	668062.00	5827086.00	34.6	378.1	412.7	**15000**
	8-hour	668069.90	5827092.50	26.1	378.1	404.2	**6000**

P3	1-hour	668062.00	5827086.00	34.1	378.1	412.2	**15000**
	8-hour	668069.90	5827092.50	25.6	378.1	403.7	**6000**
C1	1-hour	663962.00	5823706.00	190.9	378.1	569.0	**15000**
	8-hour	668462.00	5825706.00	106.1	378.1	484.2	**6000**
C3	1-hour	663962.00	5823706.00	190.9	378.1	569.0	**15000**
	8-hour	668462.00	5825706.00	106.1	378.1	484.2	**6000**

4.3 $PM_{2.5}$ and TPM Modelling Results

The predicted $PM_{2.5}$ concentrations, including baseline $PM_{2.5}$, are provided in 11. As indicated, both the 1-hour and 24-hour average MGLCs of $PM_{2.5}$ associated with all the cases are predicted to comply with the applicable *AAAQOs*. There are little differences in the concentrations associated P1 and P2 cases for each average period. Also, little differences are in the concentrations among the baseline and cumulative cases for each average period. As such, only the isopleths presenting the modelling results associated with cases B1, P1 and C1 are shown in Figures 23 through 28 within Appendix A, while modelling output file are provided in Appendix B.

Table 11 Predicted Maximum Ground-Level $PM_{2.5}$ Concentrations

Case	Averaging Period	UTM Coordinates (m E)	UTM Coordinates (m N)	Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
B1	1-hour	668462.00	5825706.00	15.9	15.2	31.1	**80**[(a)]
	24-hour	667962.00	5825956.00	7.4	15.0	22.4	**29**[(b)]
P1	1-hour	668062.00	5827086.00	3.2	15.2	18.4	**80**[(a)]
	24-hour	668082.00	5827086.00	1.7	15.0	16.7	**29**[(b)]
P3	1-hour	668062.00	5827086.00	3.1	15.2	18.3	**80**[(a)]
	24-hour	668082.00	5827086.00	1.7	15.0	16.7	**29**[(b)]
C1	1-hour	668462.00	5825706.00	15.9	15.2	31.1	**80**[(a)]
	24-hour	667962.00	5825956.00	7.4	15.0	22.4	**29**[(b)]
C3	1-hour	668462.00	5825706.00	15.9	15.2	31.1	**80**[(a)]
	24-hour	667962.00	5825956.00	7.4	15.0	22.4	**29**[(b)]

[(a)] *Alberta Ambient Air Quality Guideline*
[(b)] *Alberta Ambient Air Quality Objective*

The predicted TPM concentrations, including baseline PM_{10}, are provided in 12. The 24-hour average and annual MGLCs associated with all the modelling cases are predicted to comply with the applicable *AAAQOs*. It is noted that as mentioned in Section 3.3, no air monitoring data for TSP is available and measured 1-Hour PM_{10} data was used to calculate baseline concentrations for TSP. All particulate matter emitted from the Plant and background facilities was $PM_{2.5}$. As such, TPM and $PM_{2.5}$ will have the same spatial distributions for 24-hour average concentrations, and the predicted annual TPM concentrations are negligible. No isopleths presenting TSP modelling results are needed.

Table 12 Predicted Maximum Ground-Level TPM Concentrations

Case	Averaging Period	UTM Coordinates (m E)	UTM Coordinates (m N)	Predicted (µg/m³)	Baseline PM_{10} (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
B1	24-hour	667962.00	5825956.00	7.4	32.6	40.0	**100**
	Annual	668462.00	5825456.00	0.5	11.8	12.3	**60**

P1	24-hour	668082.00	5827086.00	1.7	32.6	34.3	**100**
	Annual	668089.53	5827093.26	0.2	11.8	12.0	**60**
P3	24-hour	668082.00	5827086.00	1.7	32.6	34.3	**100**
	Annual	668089.53	5827093.26	0.2	11.8	12.0	**60**
C1	24-hour	667962.00	5825956.00	7.4	32.6	40.0	**100**
	Annual	668462.00	5825456.00	0.5	11.8	12.3	**60**
C3	24-hour	667962.00	5825956.00	7.4	32.6	40.0	**100**
	Annual	668462.00	5825456.00	0.5	11.8	12.3	**60**

4.4 NH_3 Modelling Results

As previously mentioned, there are no significant background NH_3 emission sources within the 5 km of Plant and only NH_3 emissions resulting from operation of the SCR system were assessed. The predicted NH_3 concentrations, including baseline NH_3, are provided in 13. As indicated, the predicted 1-hour average MGLCs of NH_3 associated with project cases comply with the applicable *AAAQO*. The isopleths presenting the modelling results are not provided as the predicted 1-hour average MGLCs are less than 10% of the AAAQO for NH_3, while modelling output file are provided in Appendix B.

Table 13 Predicted Maximum Ground-Level NH_3 Concentrations

Case	Averaging Period	UTM Coordinates		Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*AAAQO* (µg/m³)
		(m E)	(m N)				
P2	1-hour	662462.00	5823206.00	7.7	3.0	10.7	**1400**
P4	1-hour	662462.00	5823206.00	3.0	3.0	6.0	**1400**

5 CONCLUSION

At the request of KEC, Horizon Compliance has completed an AQA for the proposed Flipi Power Plant. The results of the dispersion modelling indicate that the predicted maximum ground-level concentrations of NO_2, CO, $PM_{2.5}$, TSP and NH_3 associated with various operating conditions comply with the applicable *AAAQOs*.

Horizon Compliance appreciated the opportunity to work on this project. If we can provide clarification of any part of this report, please contact the undersigned at (587) 885-0863.

This report was prepared by:

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Senior Air Quality Specialist

Reviewed By:

Cody Halleran, B.Sc., EP Manager
Co-Founder & Managing Partner
Air Quality & Regulatory Services

6 REFERENCES

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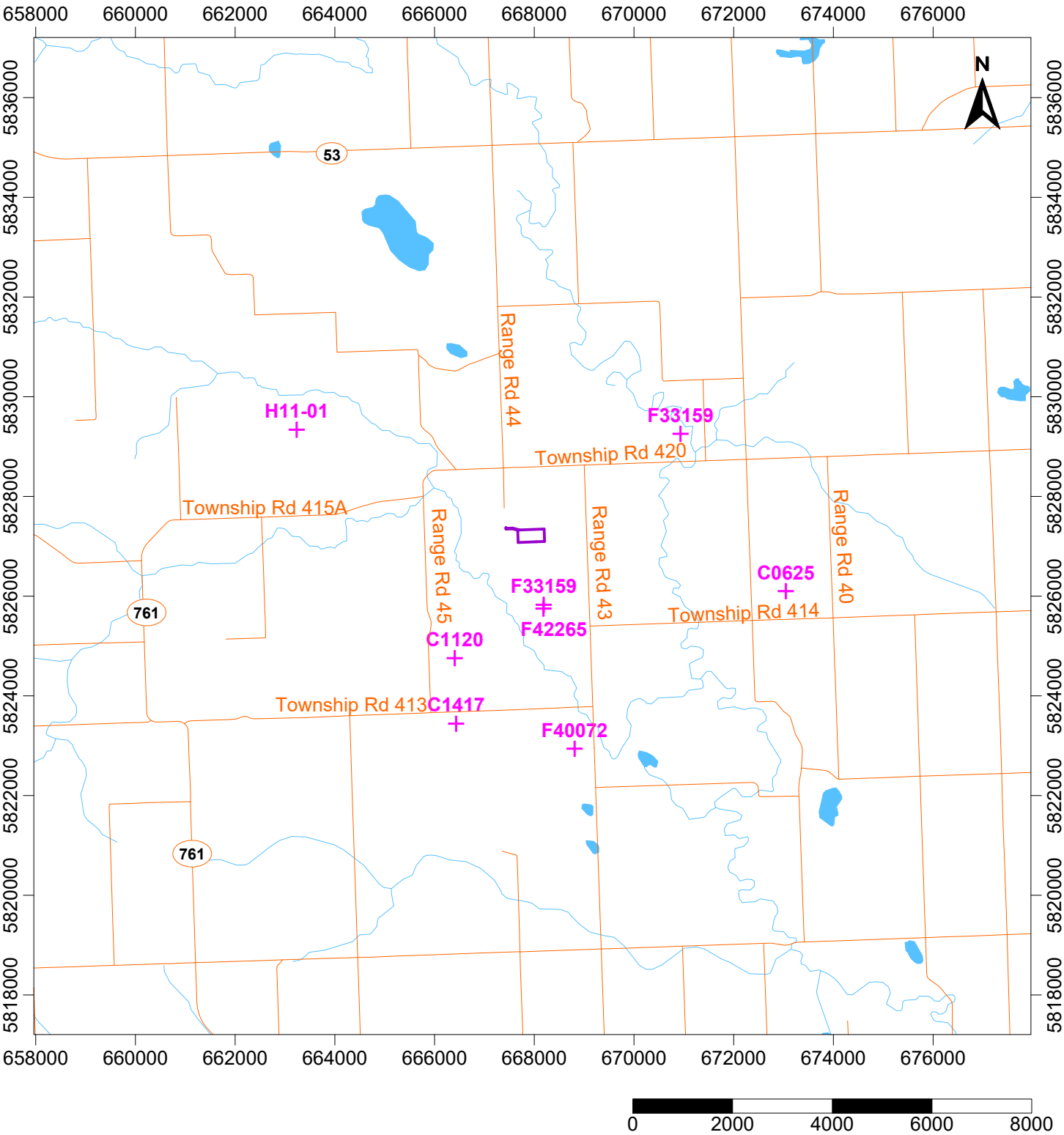
APPENDIX A

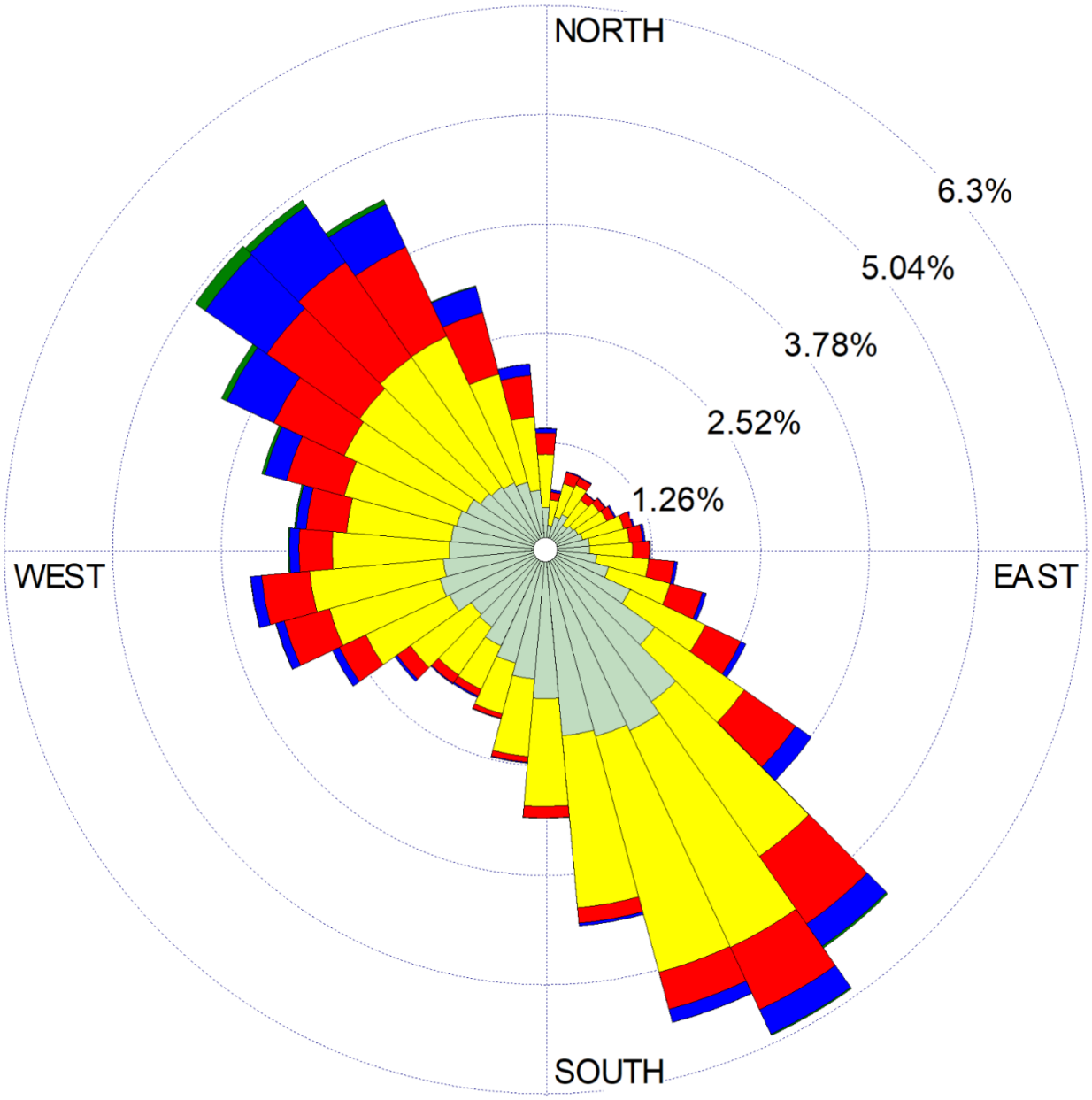
FIGURES



LEGEND

- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Area Map**
DATE	November 22, 2023
	FIGURE 1

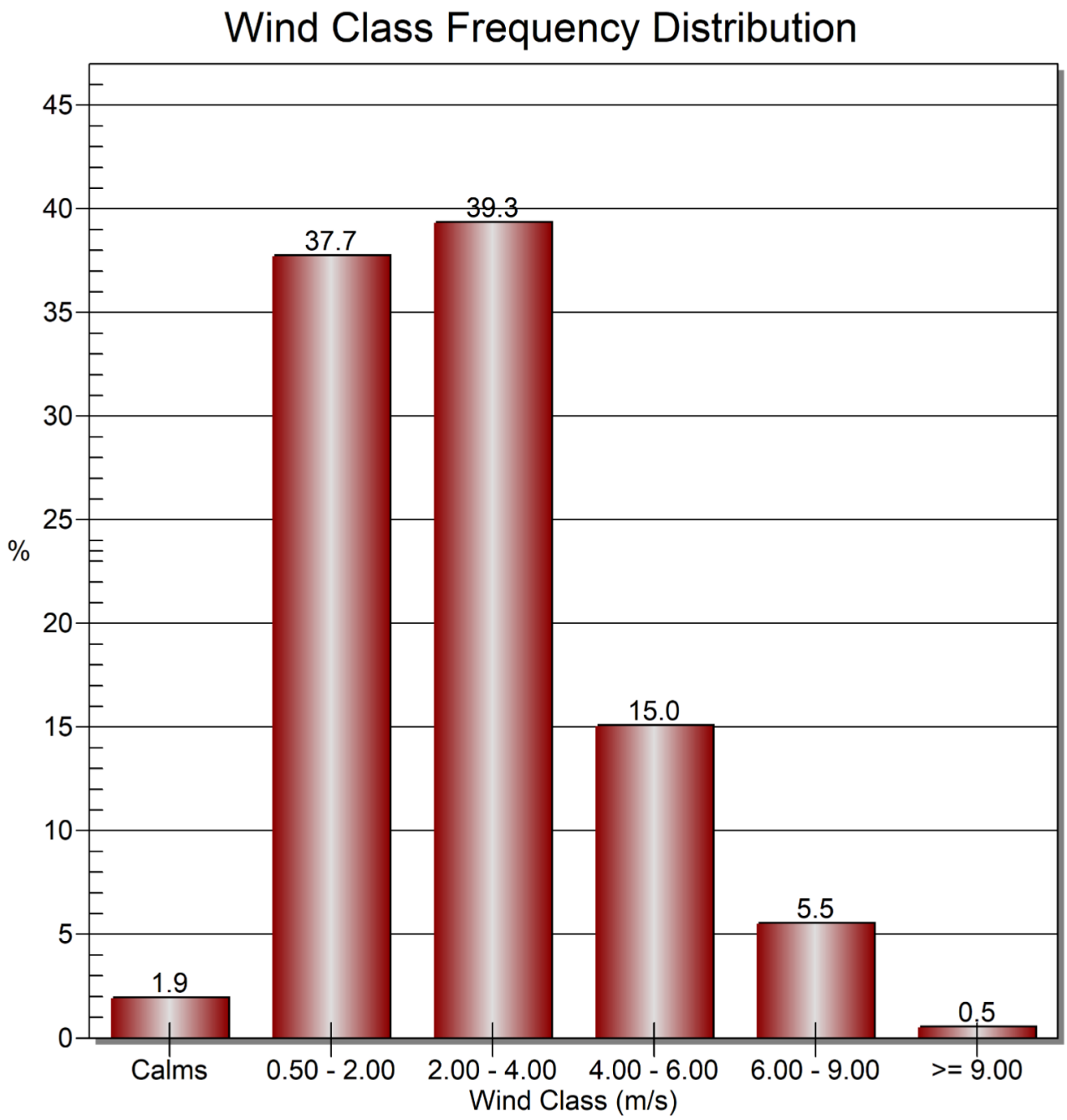


WIND SPEED
(m/s)

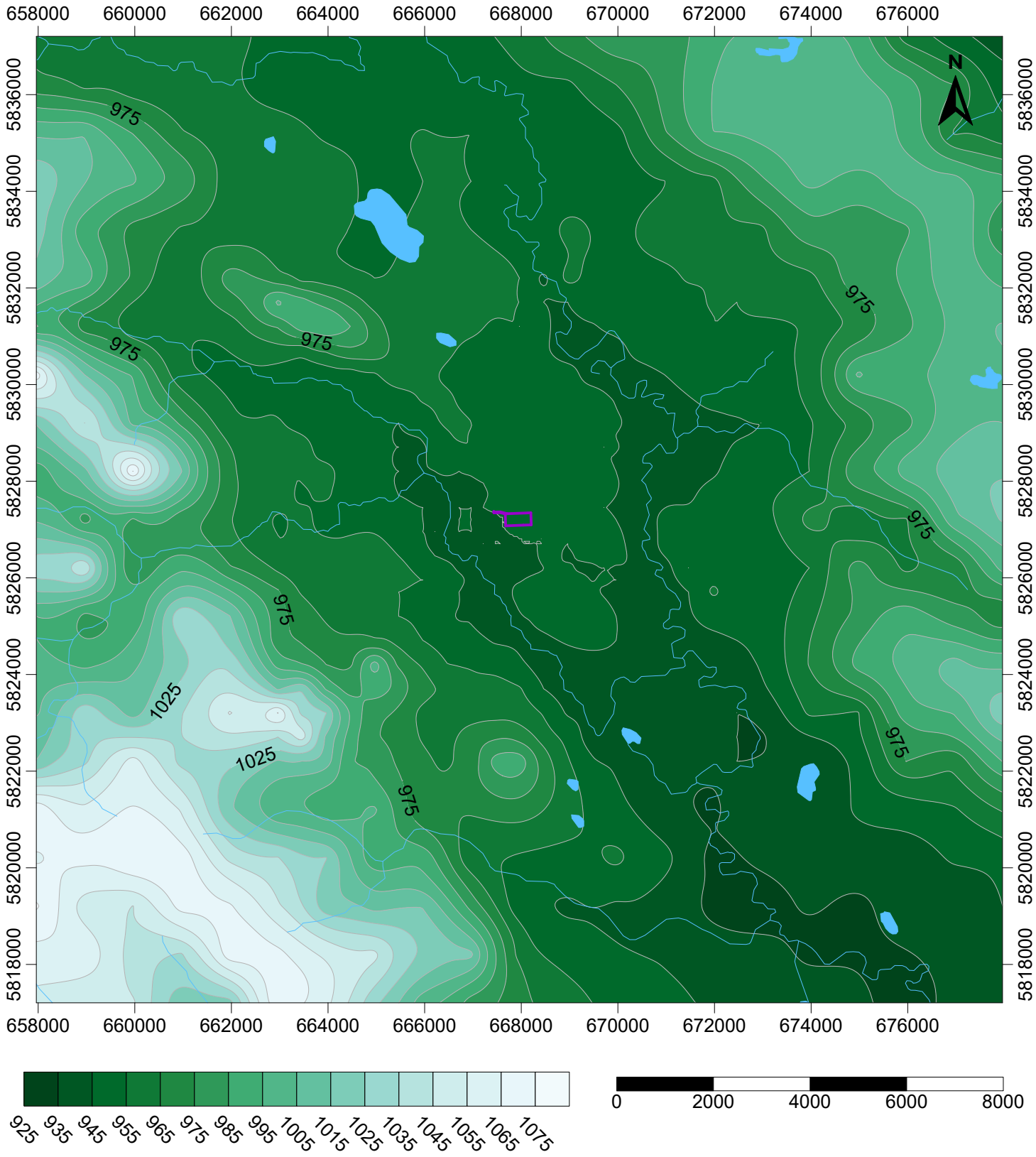
- >= 9.00
- 6.00 - 9.00
- 4.00 - 6.00
- 2.00 - 4.00
- 0.50 - 2.00

Calms: 1.91%

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Wind Rose Plot at the Project Area (2015 to 2019)**
HORIZON COMPLIANCE	DATE: November 22, 2023
	FIGURE 2



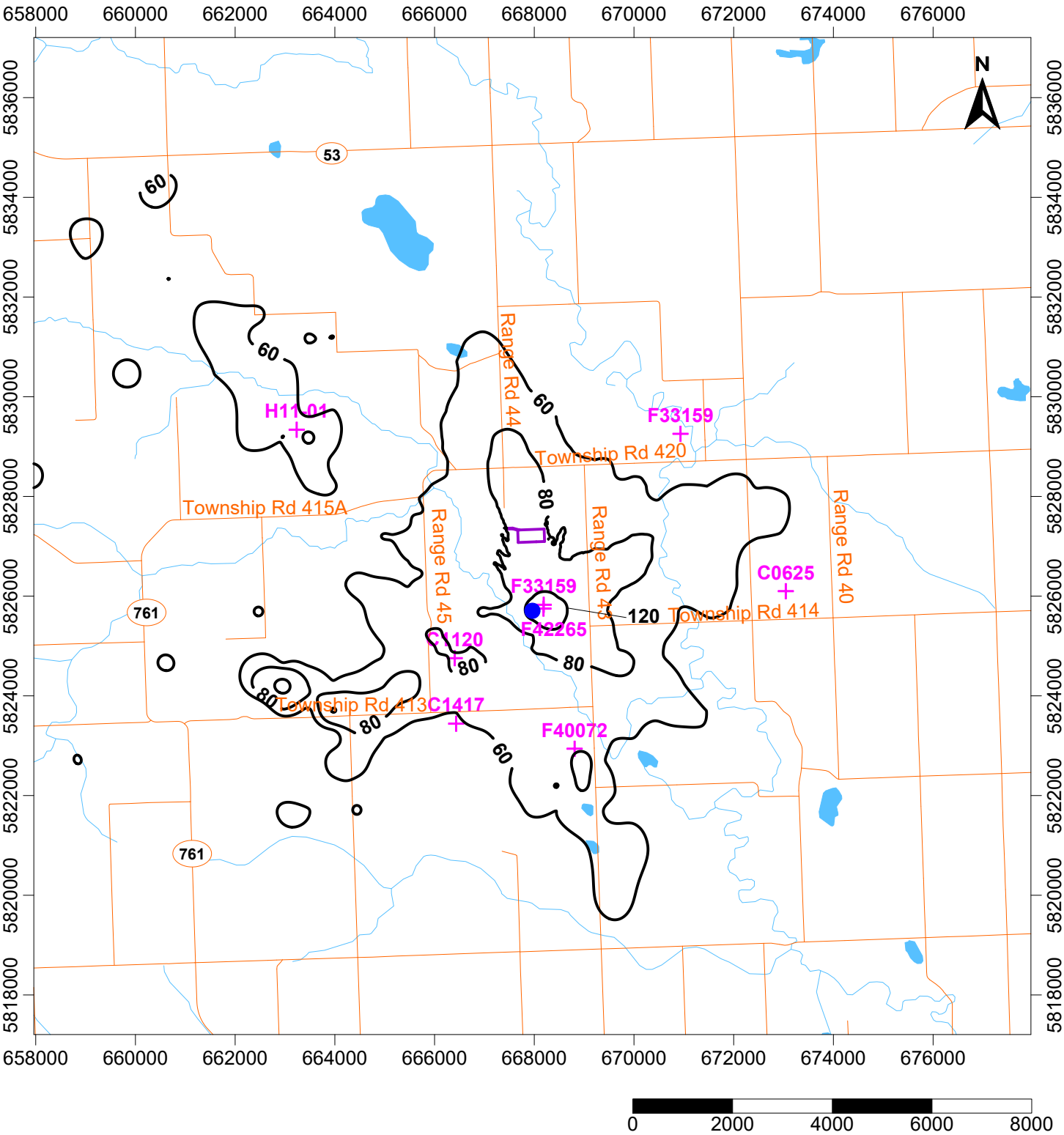
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Wind Class Frequency Distribution at the Project Area (2015 to 2019)**
HORIZON COMPLIANCE	DATE: November 22, 2023
	FIGURE 3



LEGEND

- Plant Boundary
- Water Body

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Topographical Map**
DATE	November 22, 2023
	FIGURE 4



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT

Kîwetinohk Energy Corp.
Flipi Power Plant

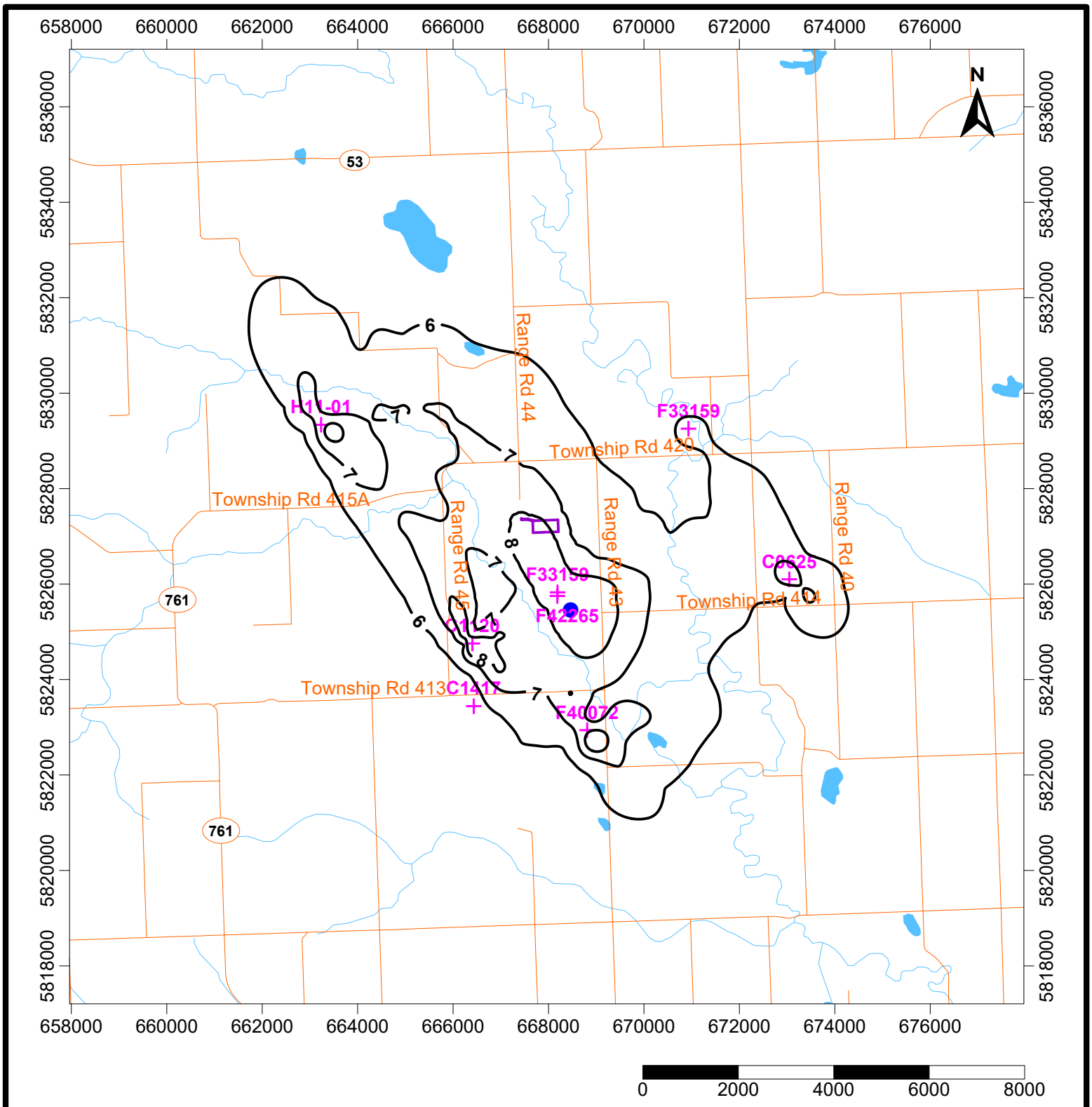
TITLE

Baseline Case:
99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations

HORIZON COMPLIANCE

MGLC: NO_2 = 162.3 (µg/m³)

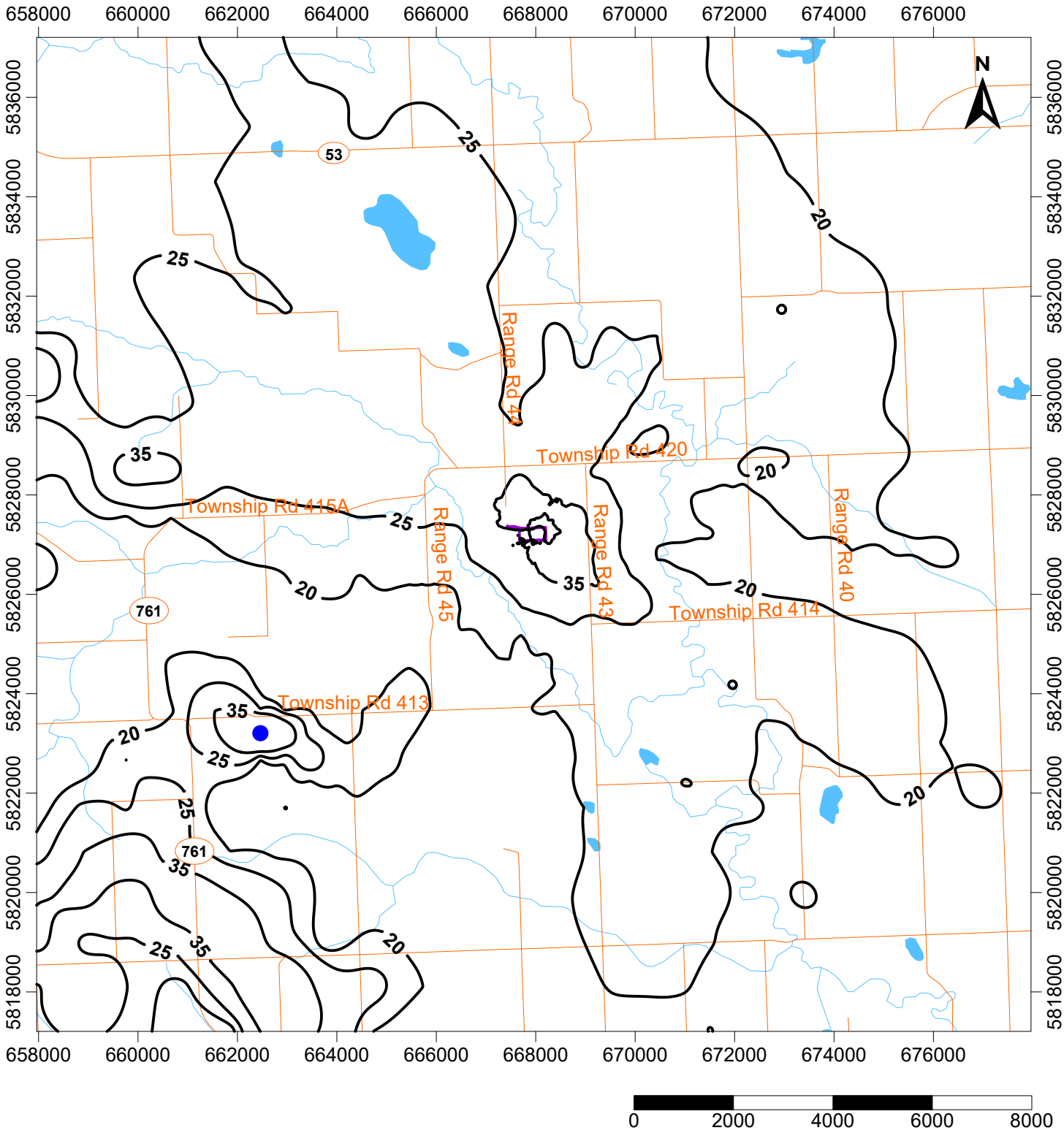
FIGURE 5



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

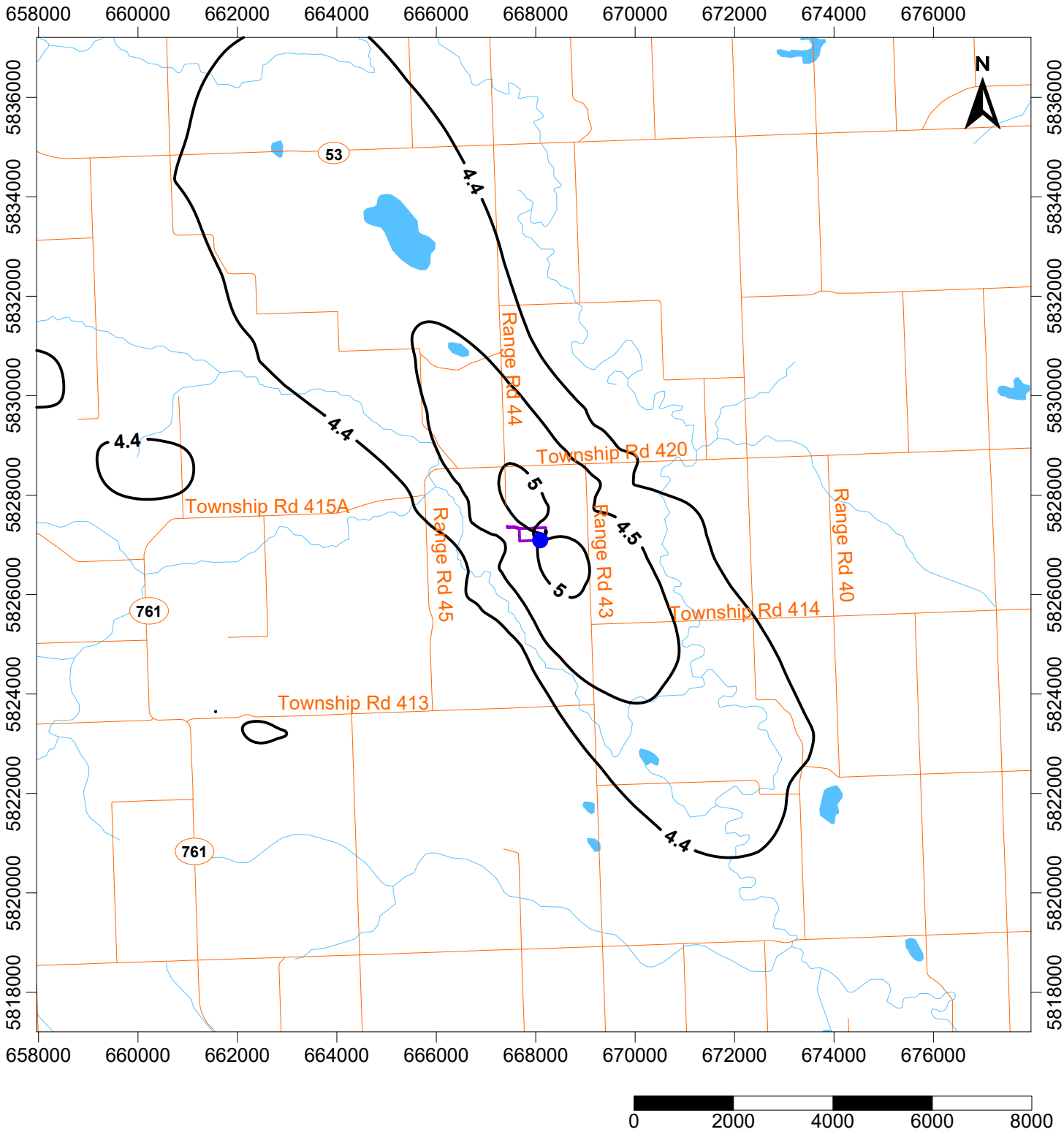
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Baseline Case:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 13.2 (µg/m³)
	FIGURE 6



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 1:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 77.0 (µg/m³)
	FIGURE 7



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

PROJECT

Kîwetinohk Energy Corp.
Flipi Power Plant

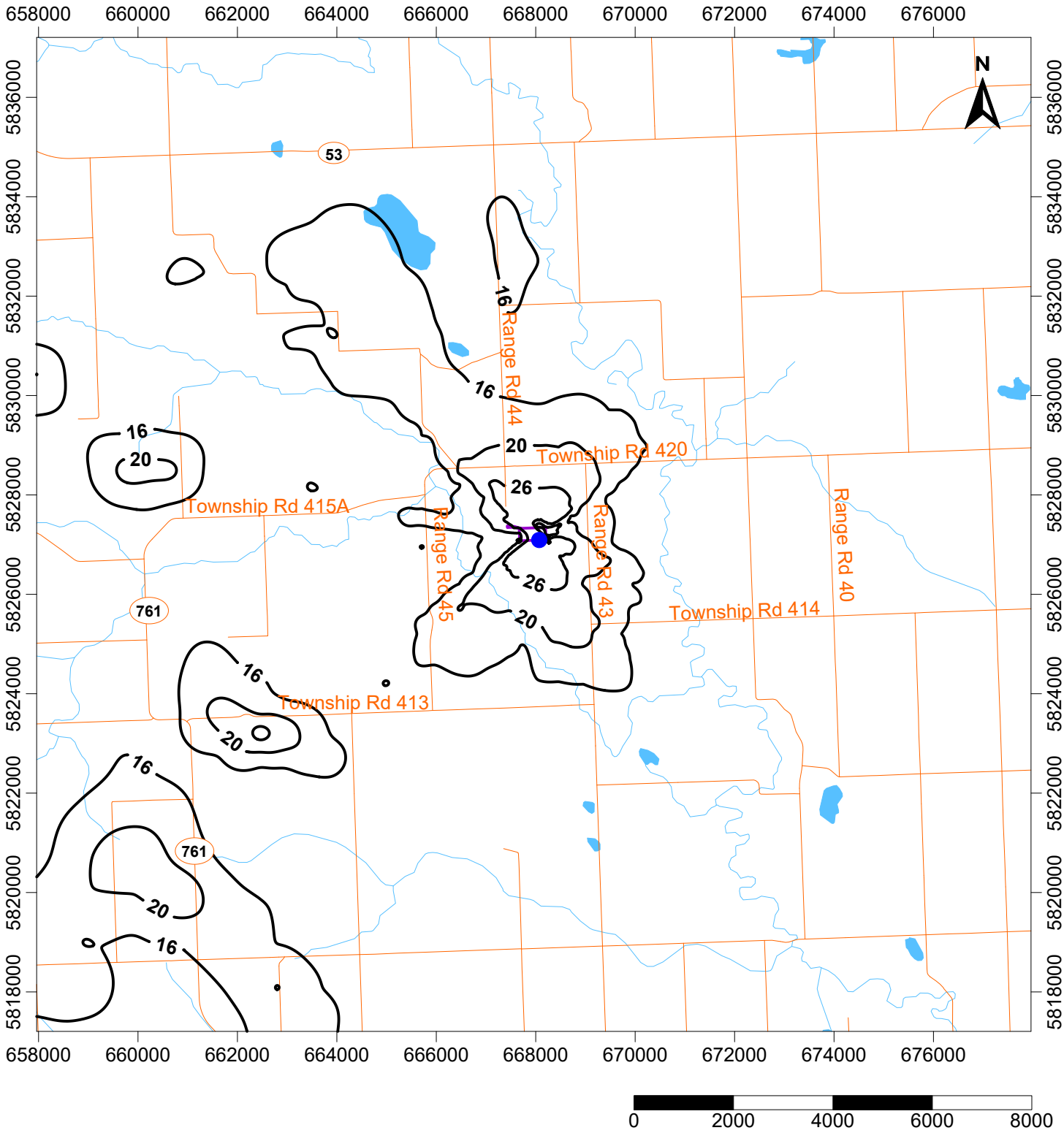
TITLE

Project Case 1:
Maximum Predicted Annual NO_2 Concentrations

HORIZON COMPLIANCE

MGLC: NO_2 = 7.0 (µg/m³)

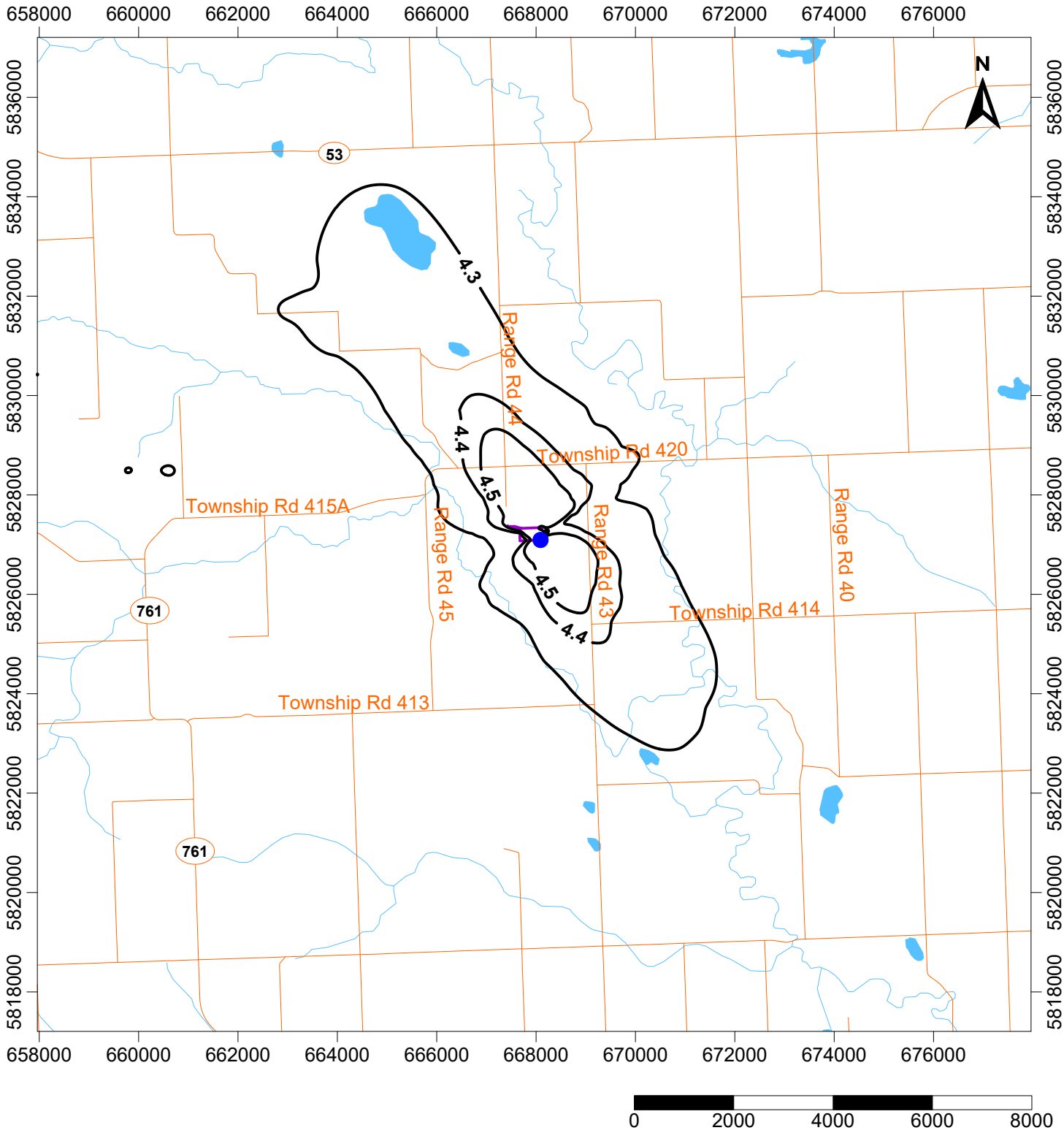
FIGURE 8



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

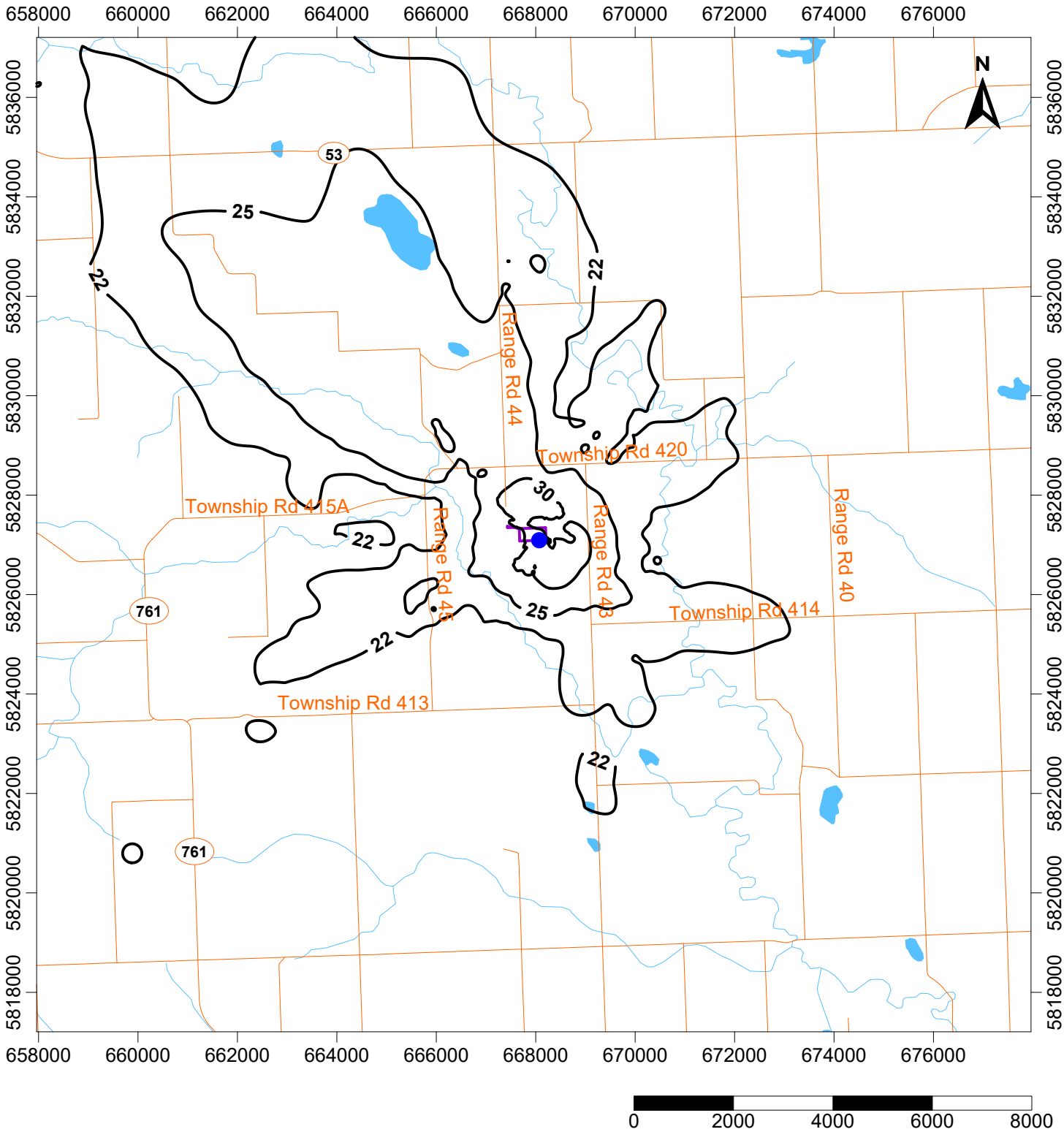
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 2:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 49.4 (µg/m³)
	FIGURE 9



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

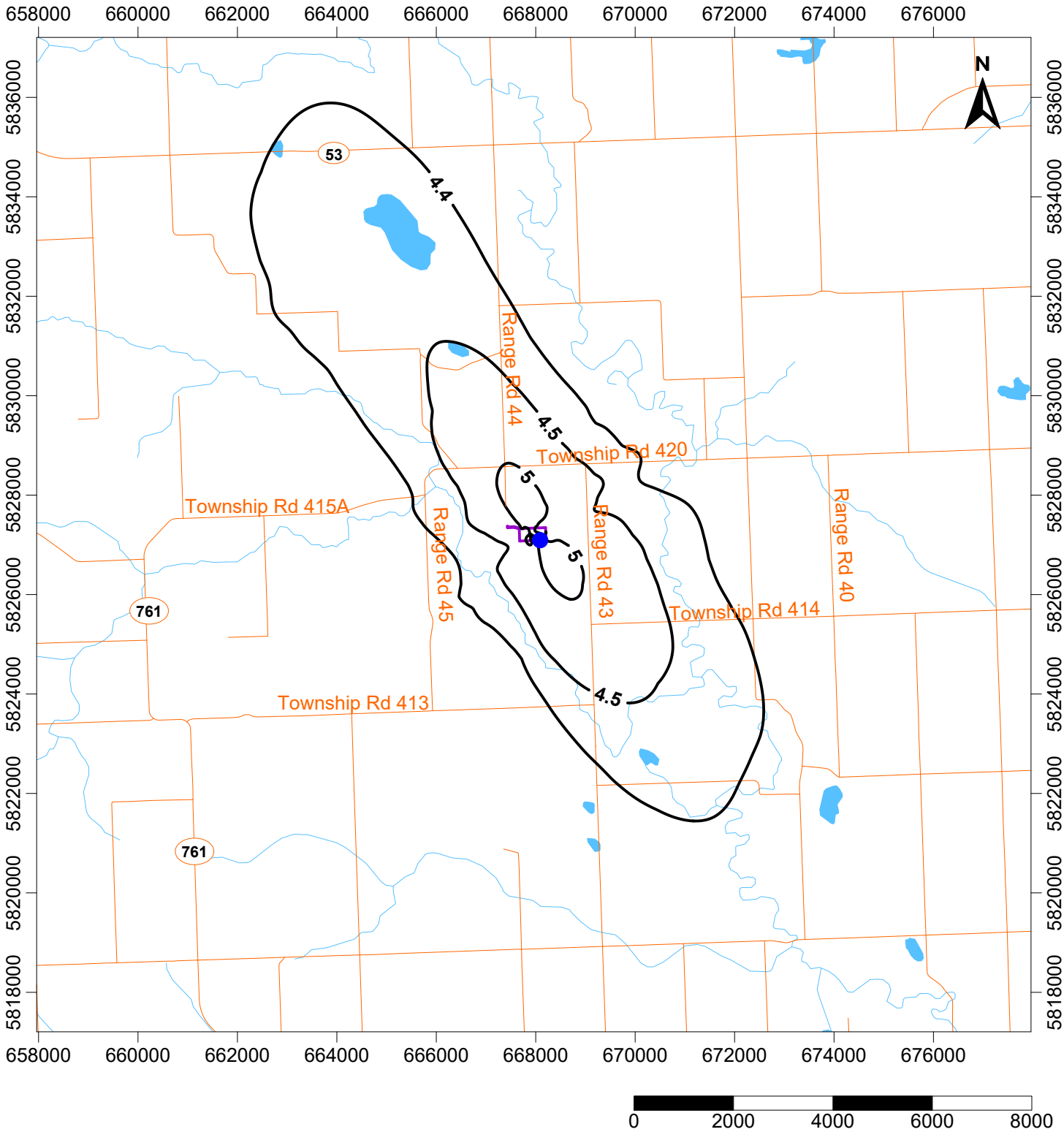
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 2:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 6.8 (µg/m³)
	FIGURE 10



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

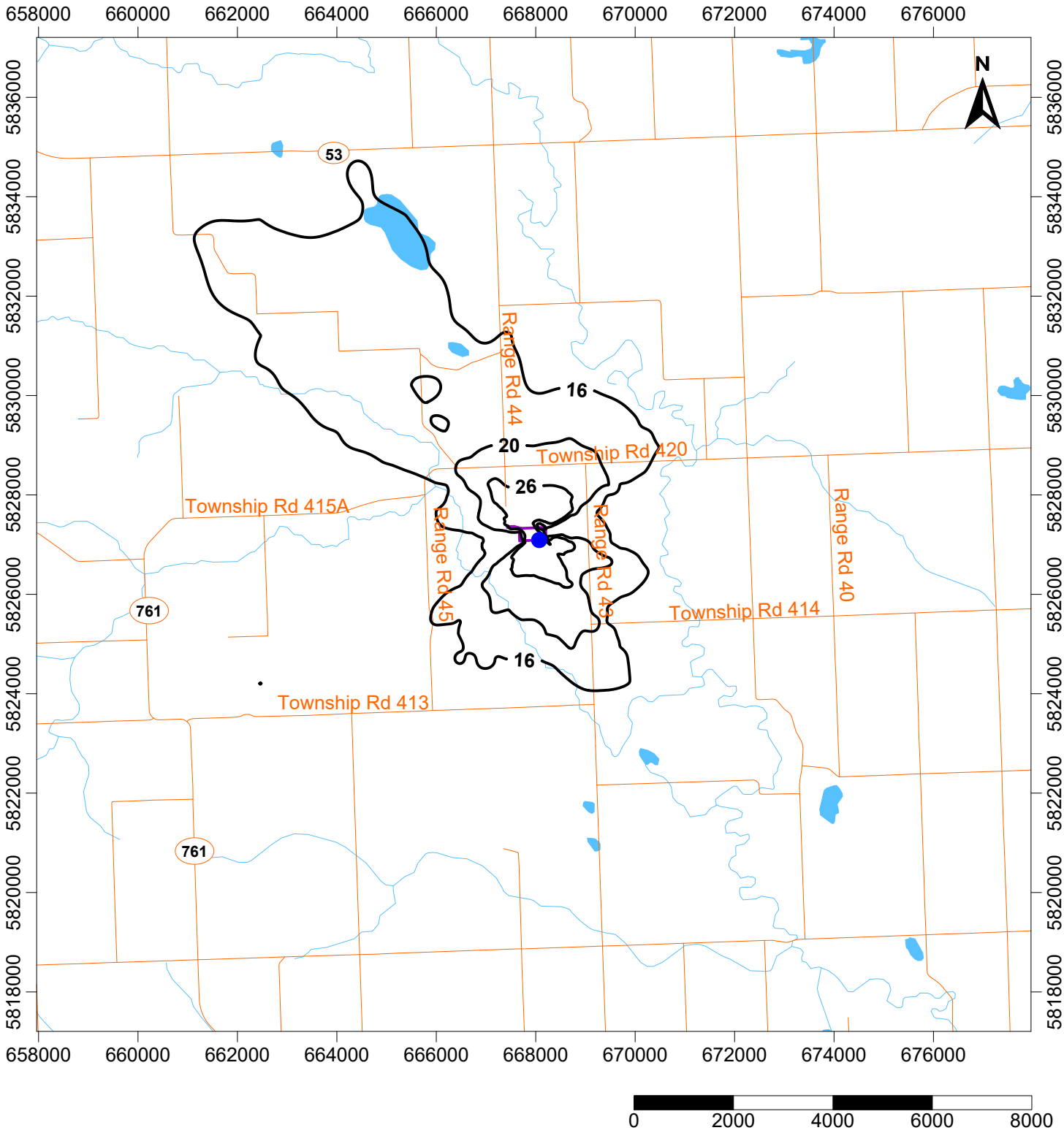
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 3:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 48.6 (µg/m³)
	FIGURE 11



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

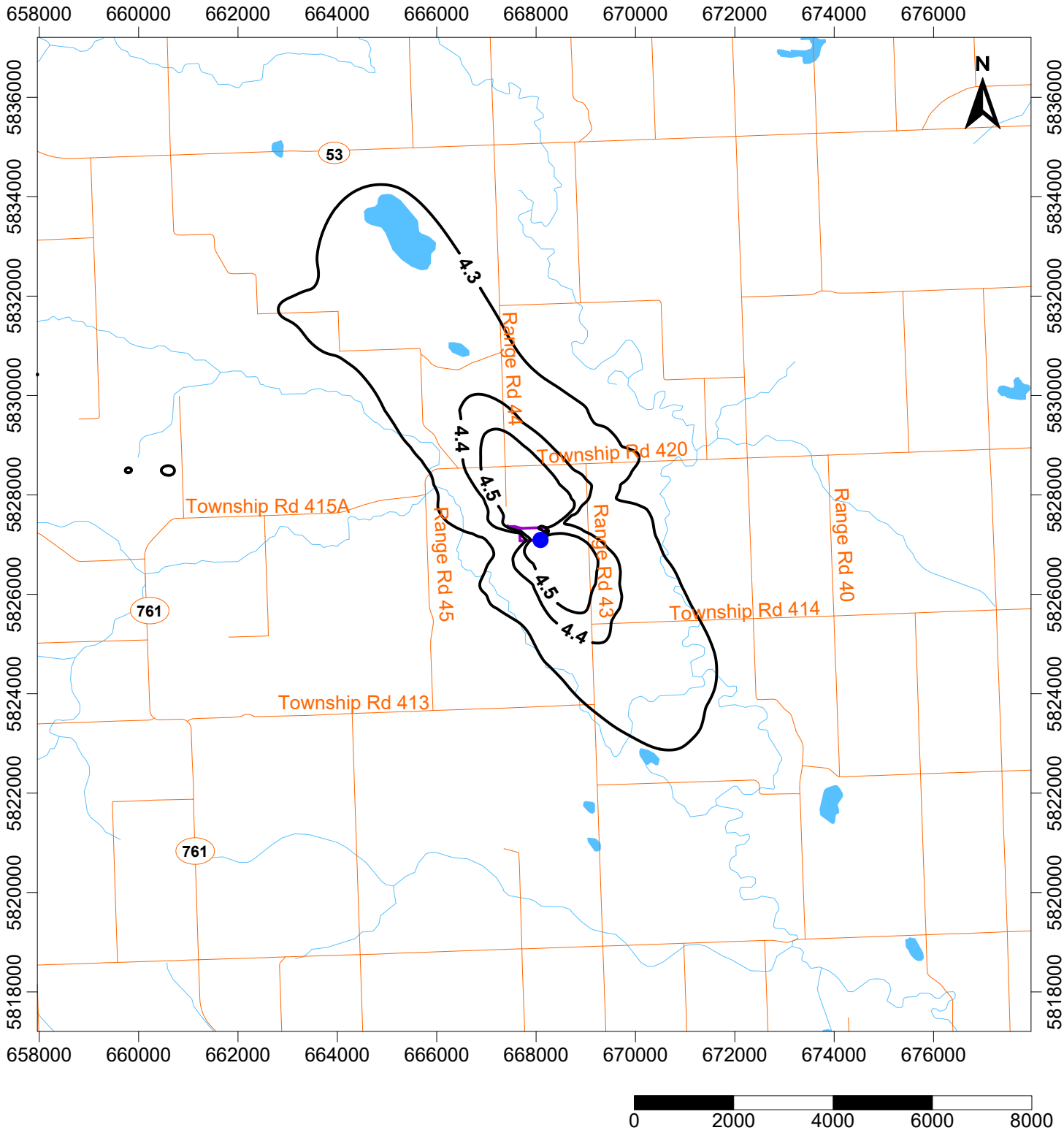
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 3:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 6.9 (µg/m³)
	FIGURE 12



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

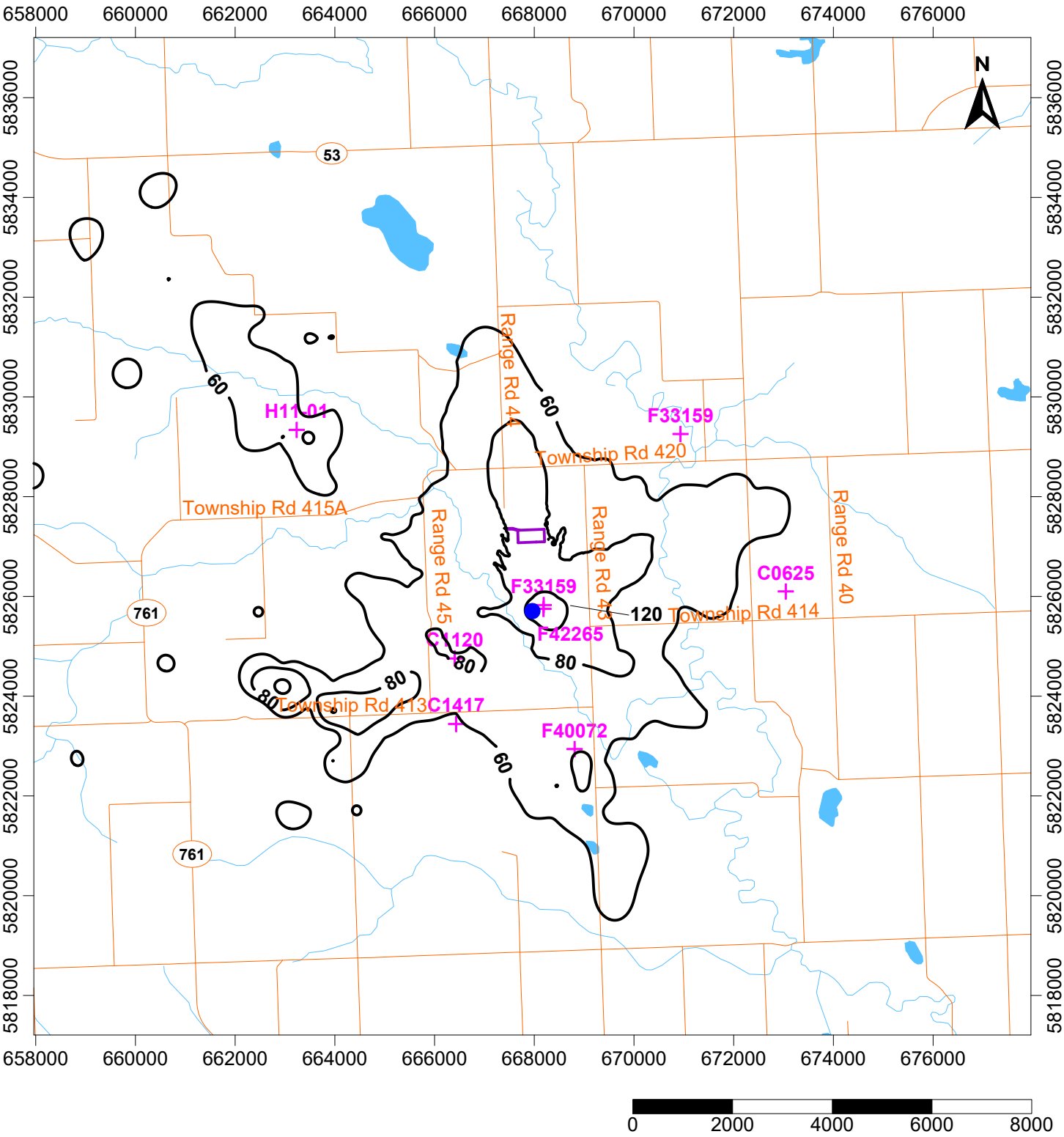
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 4:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 48.6 (µg/m³)
	FIGURE 13



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

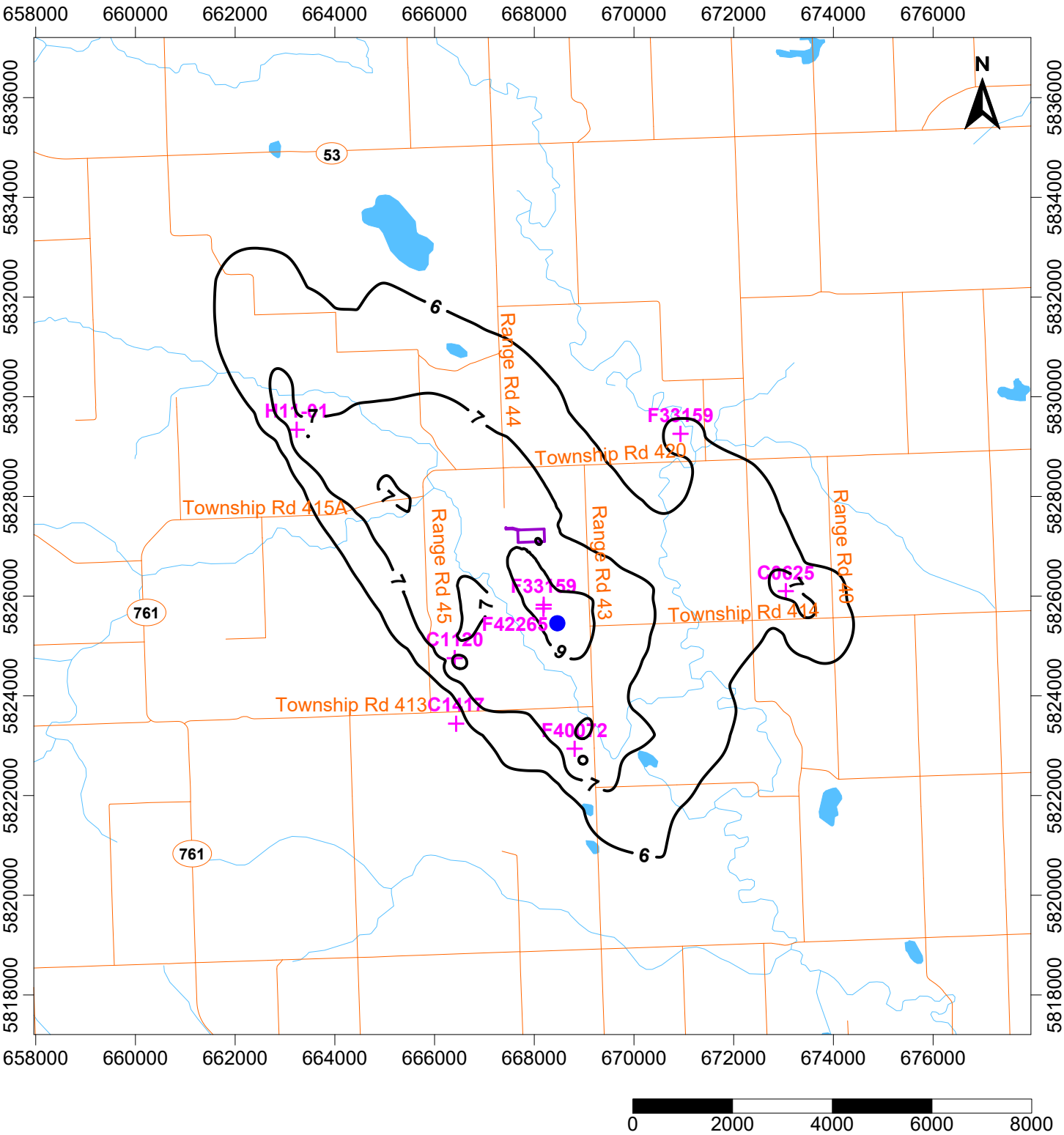
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 4:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 6.8 (µg/m³)
	FIGURE 14



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

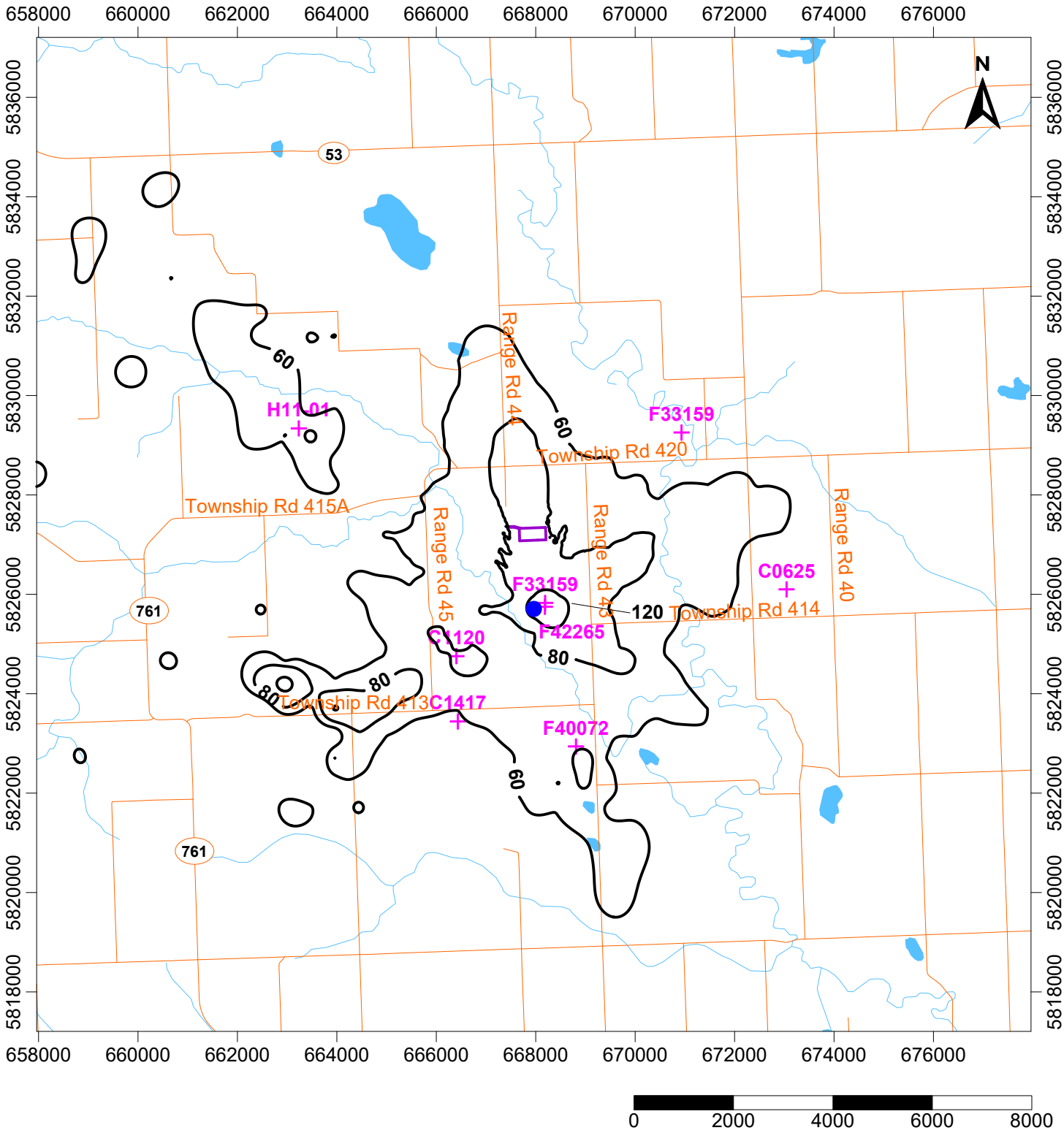
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 1:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 162.3 (µg/m³)
	FIGURE 15



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

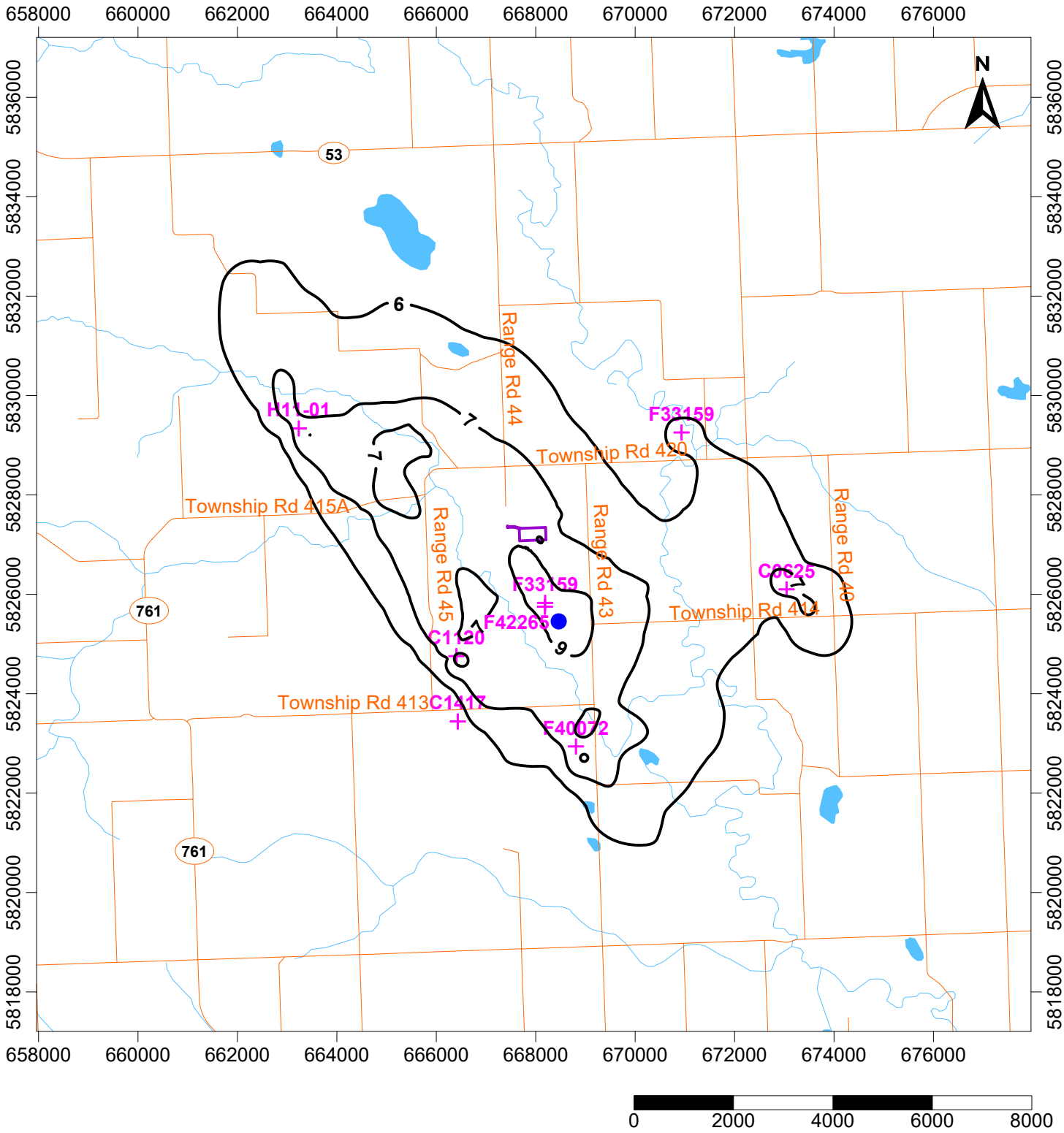
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 1:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 13.5 (µg/m³)
	FIGURE 16



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 2:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 162.3 (µg/m³)
	FIGURE 17



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT

Kîwetinohk Energy Corp.
Flipi Power Plant

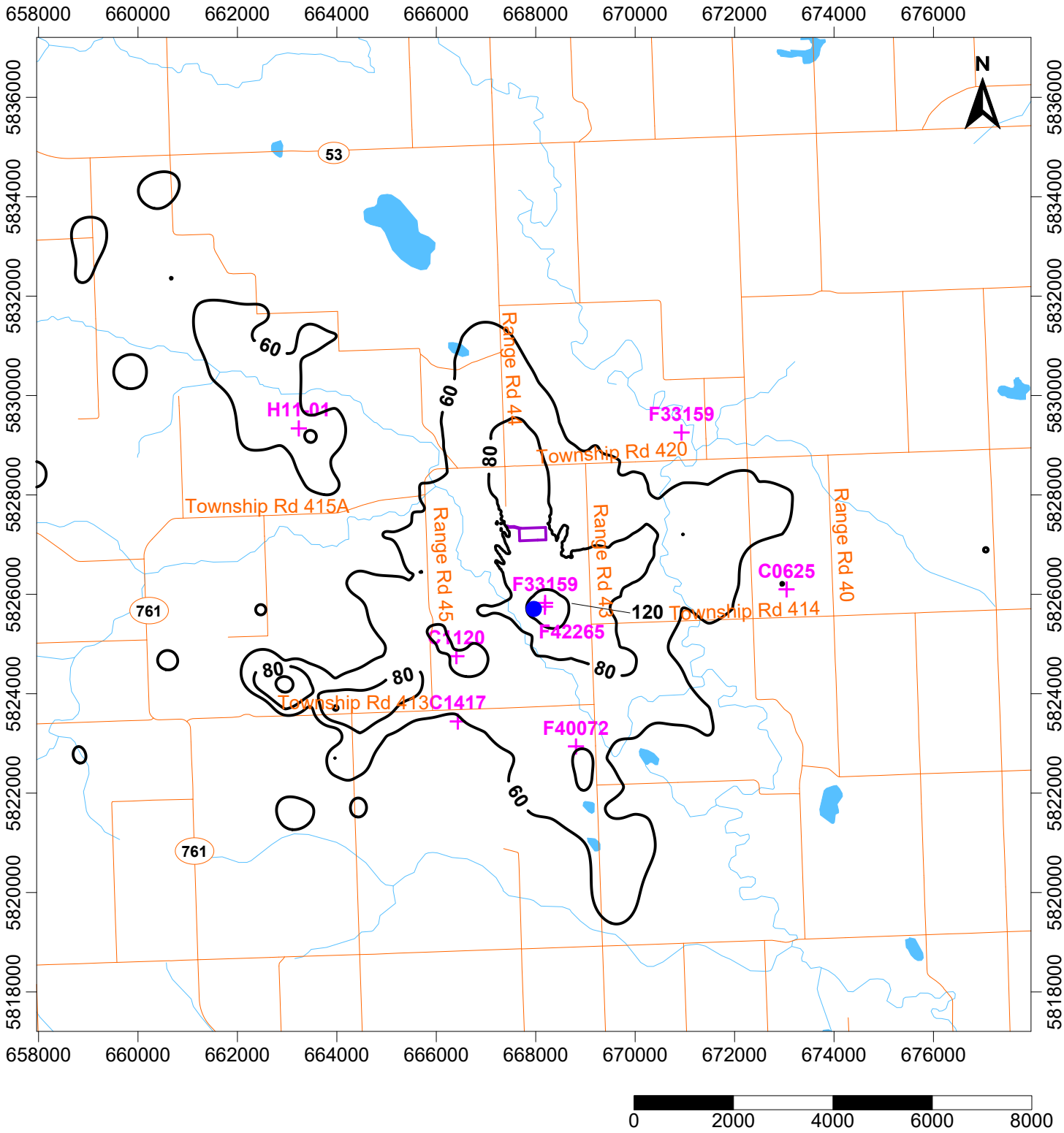
TITLE

Cumulative Case 2:
Maximum Predicted Annual NO_2 Concentrations

HORIZON COMPLIANCE

MGLC: NO_2 = 13.4 (µg/m³)

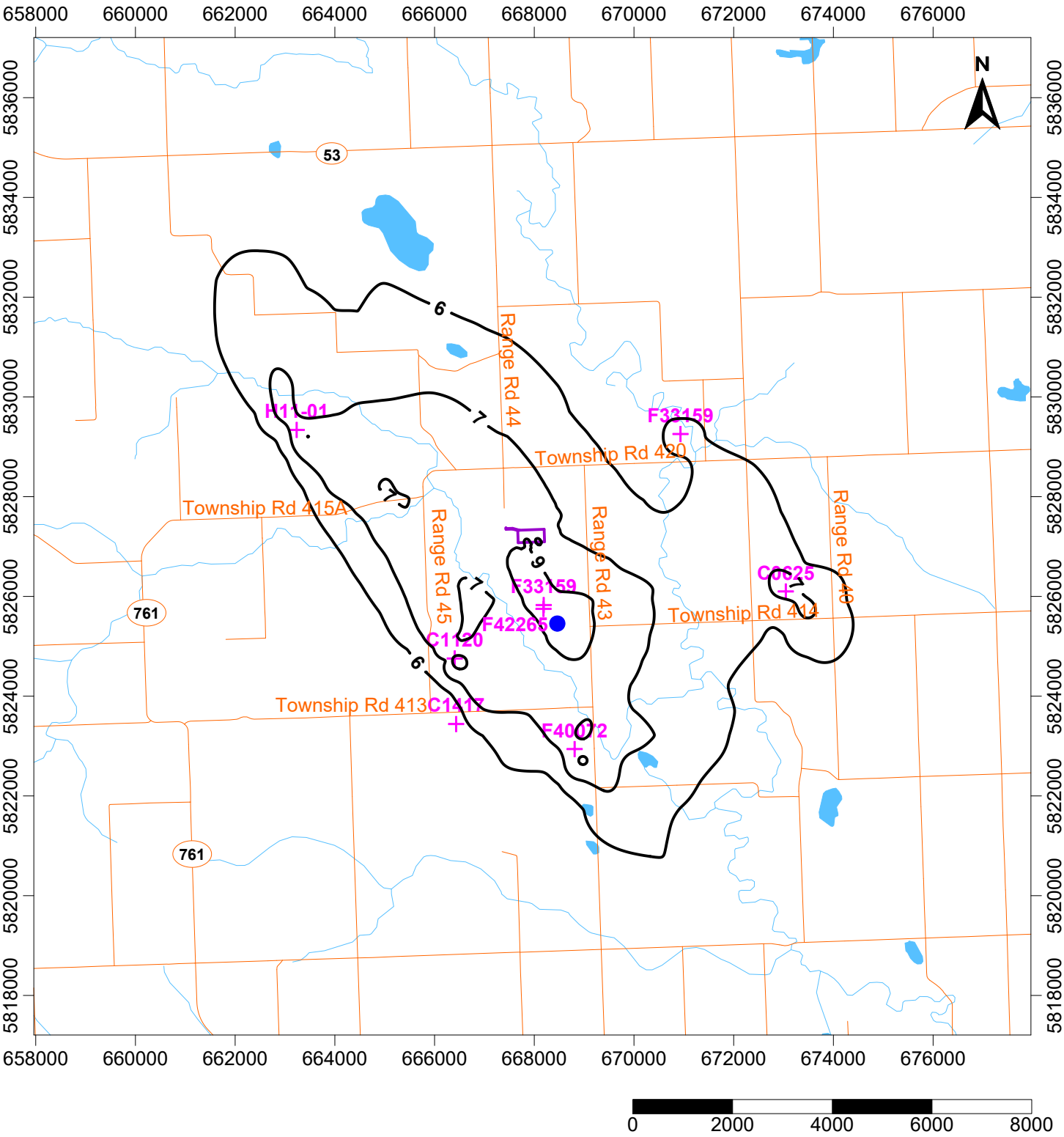
FIGURE 18



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

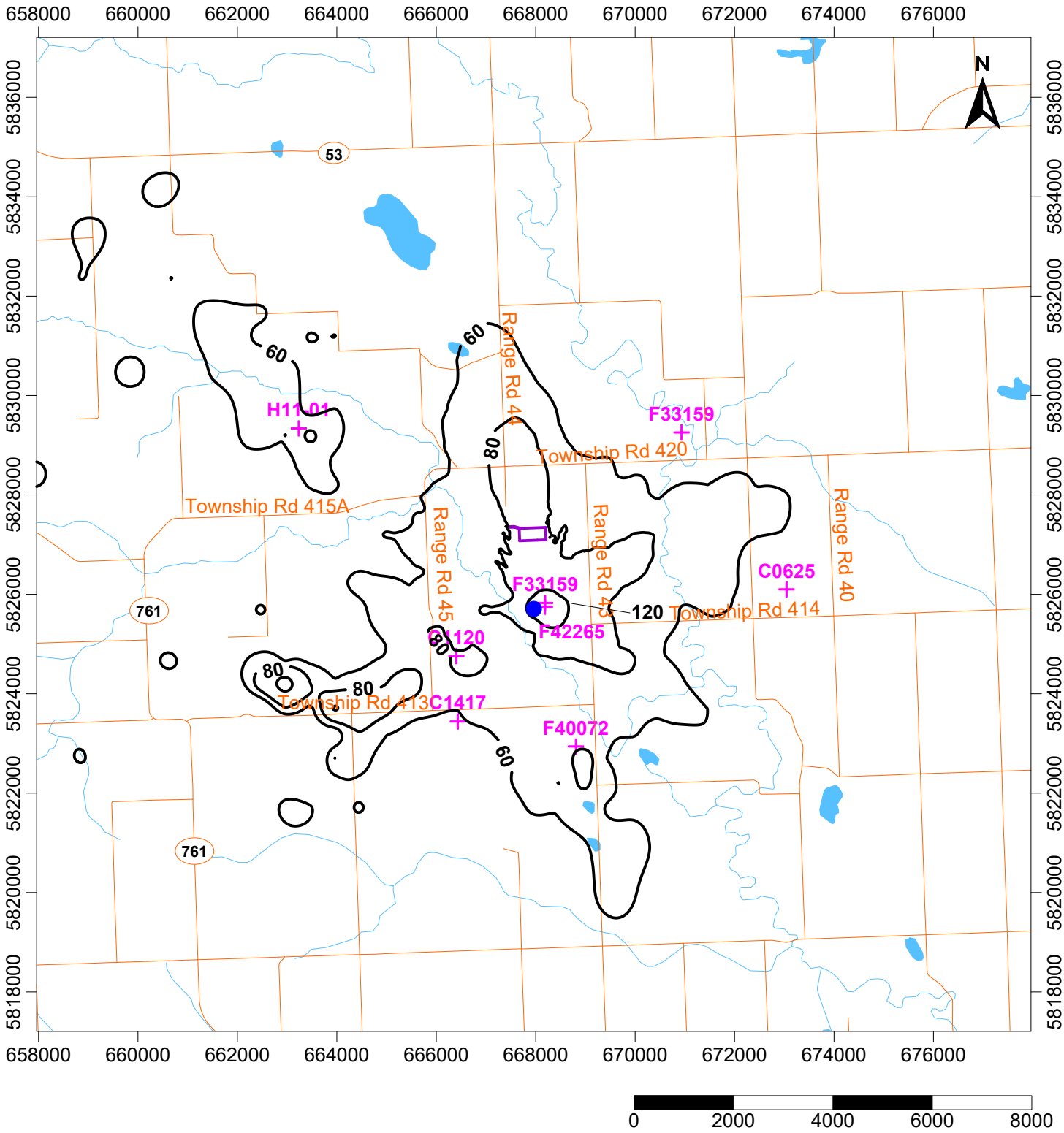
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 3:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 162.7 (µg/m³)
	FIGURE 19



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

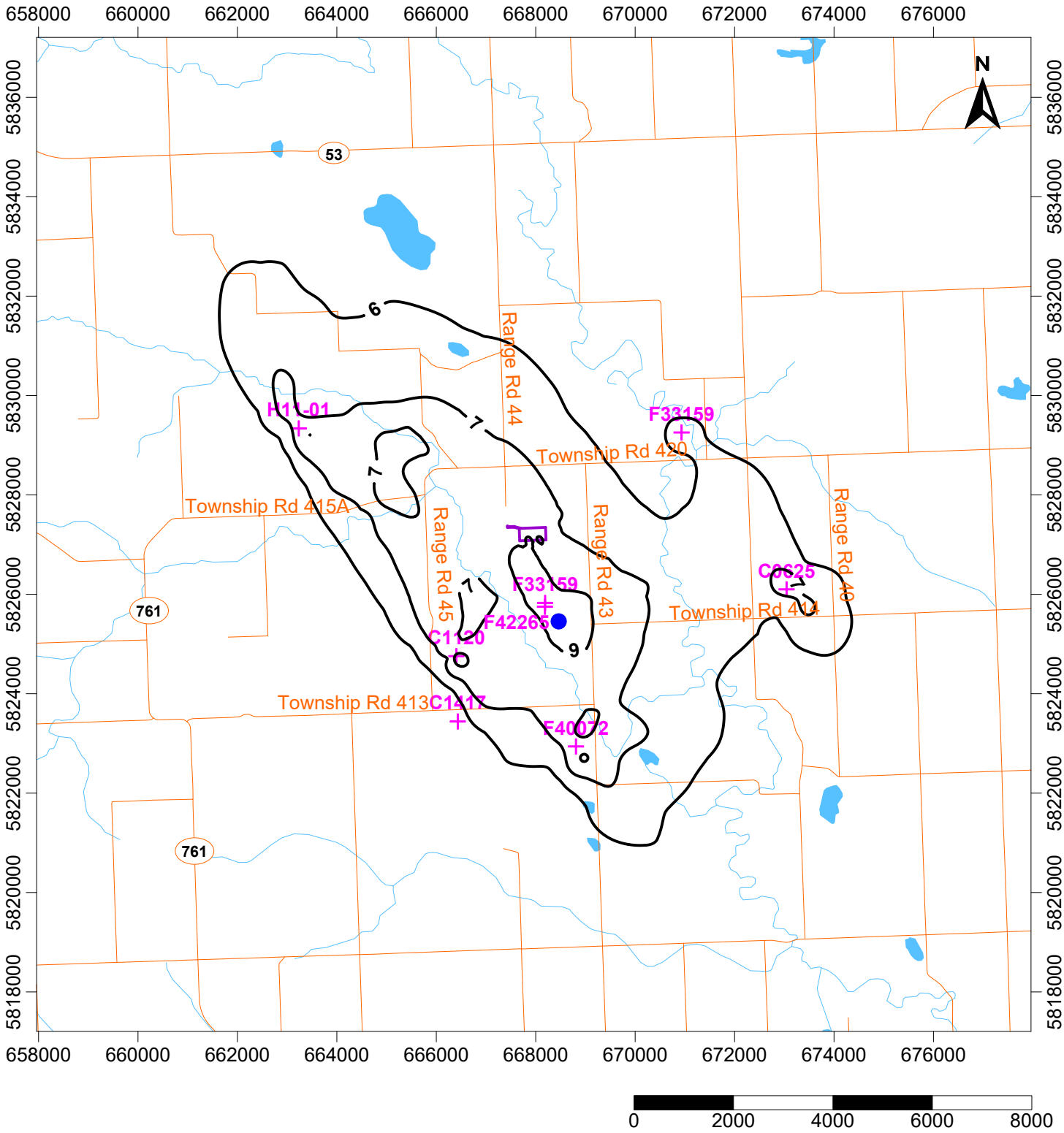
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 3:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 13.5 (µg/m³)
	FIGURE 20



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

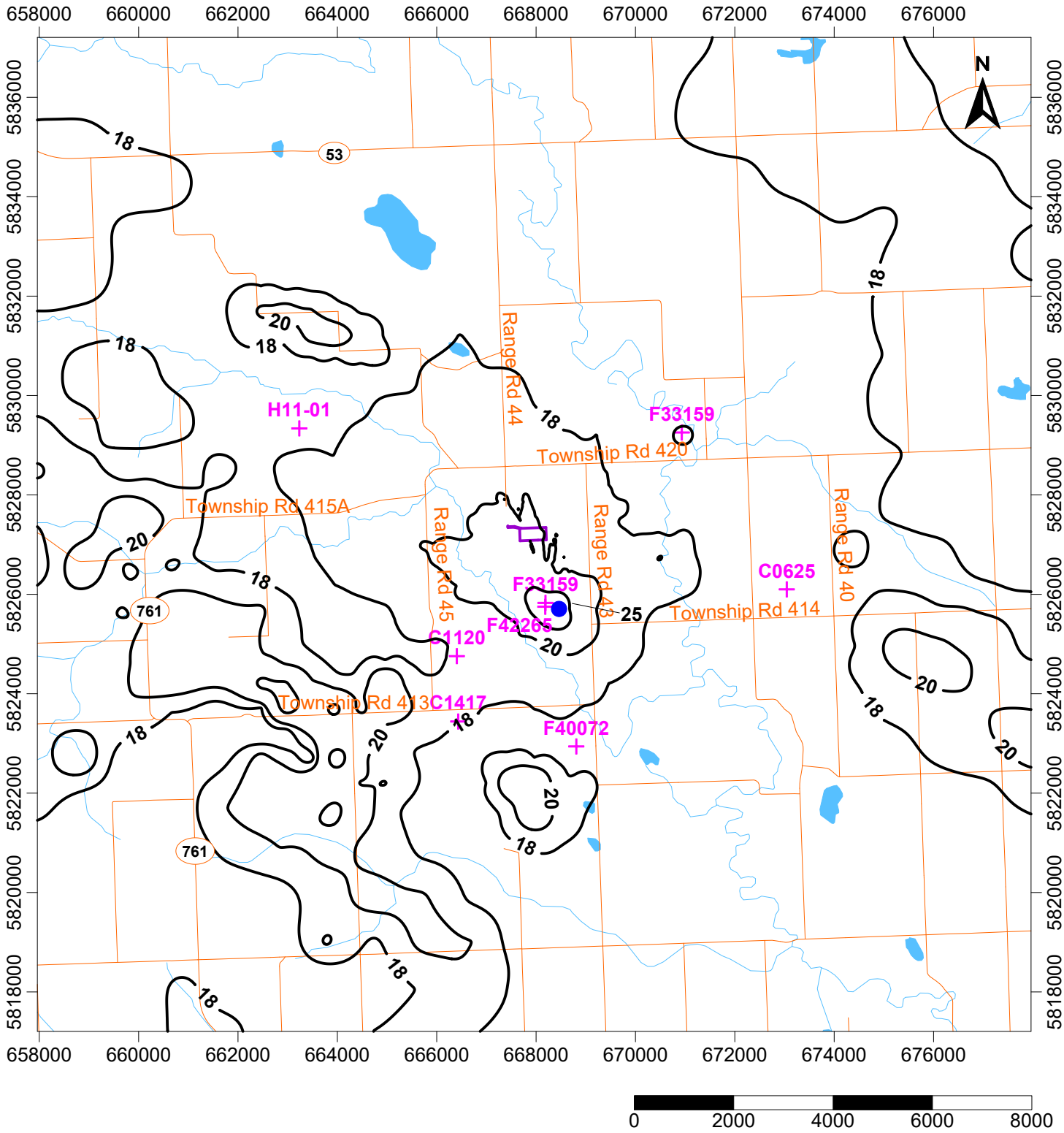
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 4:** **99.9th Percentile of Predicted 1-Hour Average NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 162.3 (µg/m³)
	FIGURE 21



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

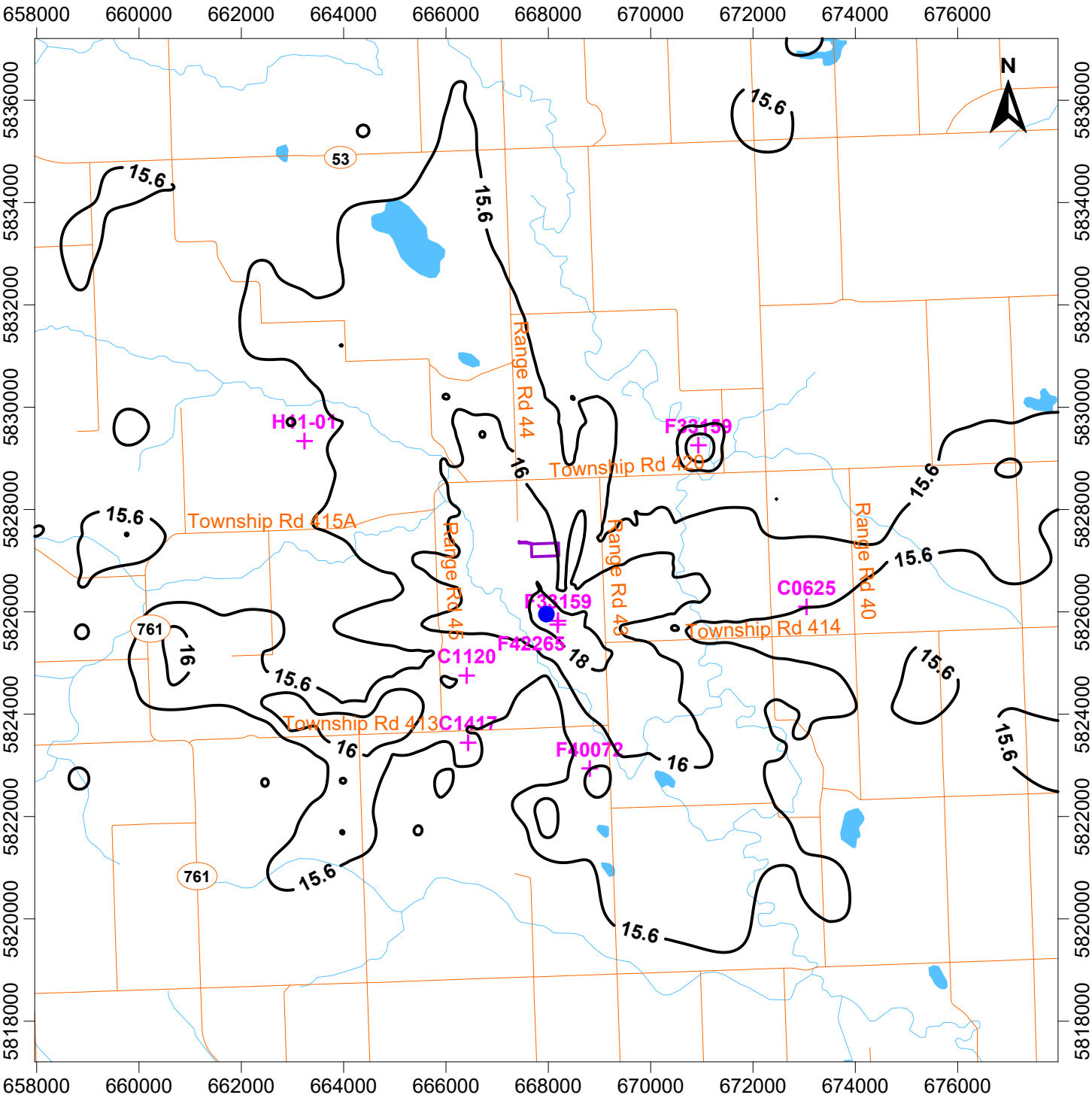
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 4:** **Maximum Predicted Annual NO_2 Concentrations**
HORIZON COMPLIANCE	MGLC: NO_2 = 13.4 (µg/m³)
	FIGURE 22



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

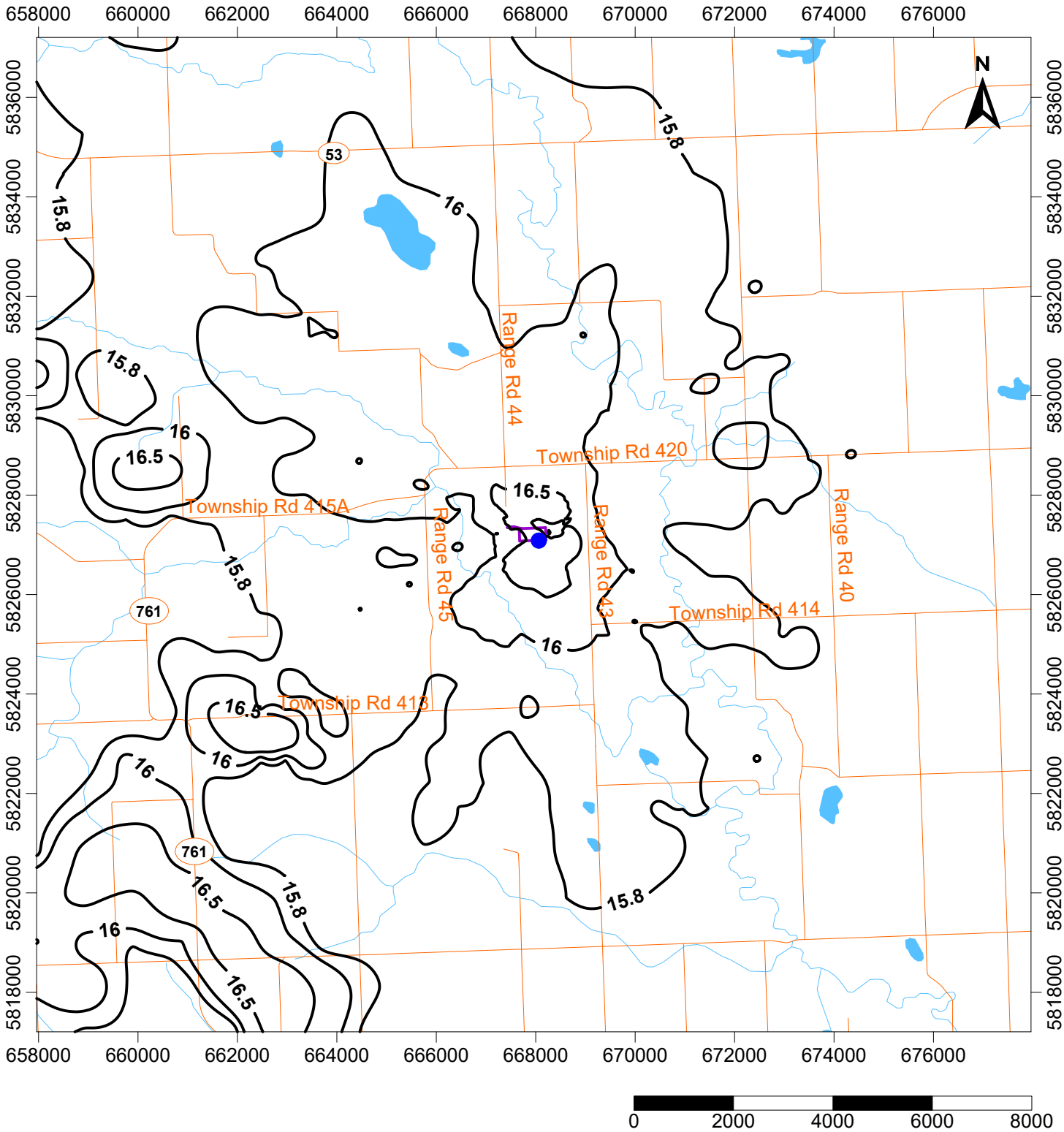
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Baseline Case:** **99.9th Percentile of Predicted 1-Hour Average $PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 31.1 (µg/m³)
	FIGURE 23



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

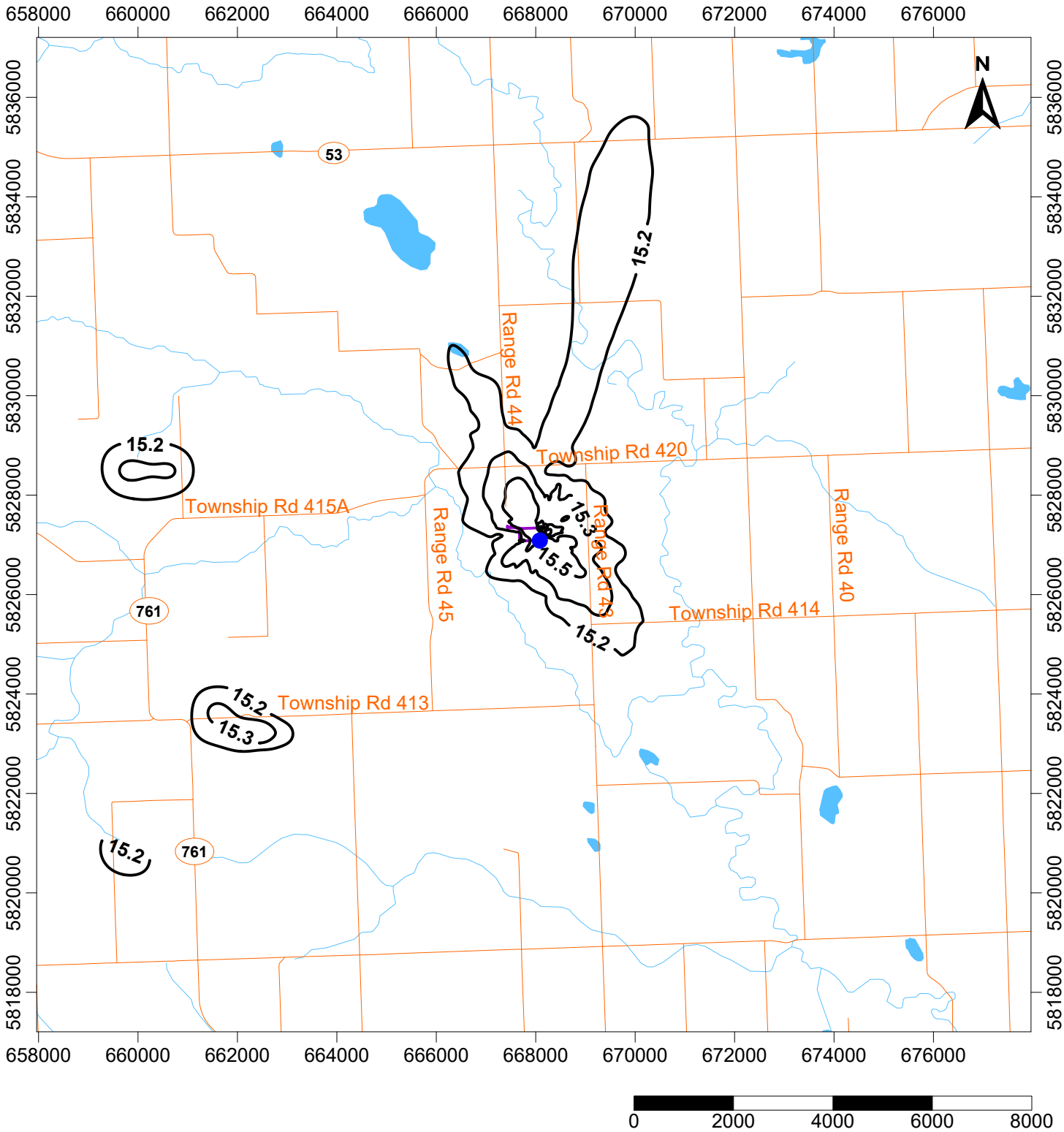
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Baseline Case:** **Maximum Predicted 24-Hour Average** **$PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 24.4 (µg/m³)
	FIGURE 24



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

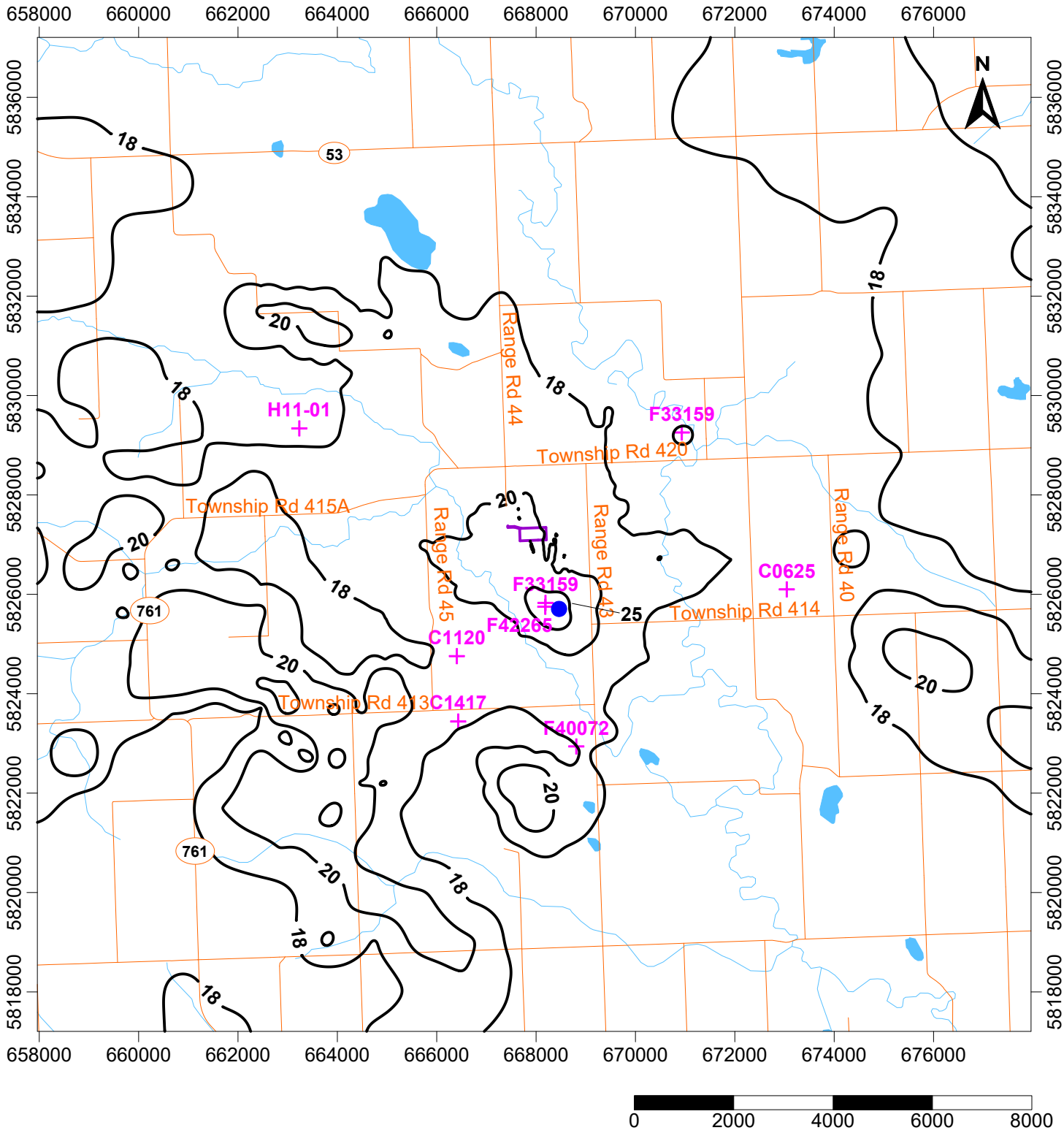
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 1:** **99.9th Percentile of Predicted 1-Hour Average $PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 18.4 (µg/m³)
	FIGURE 25



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

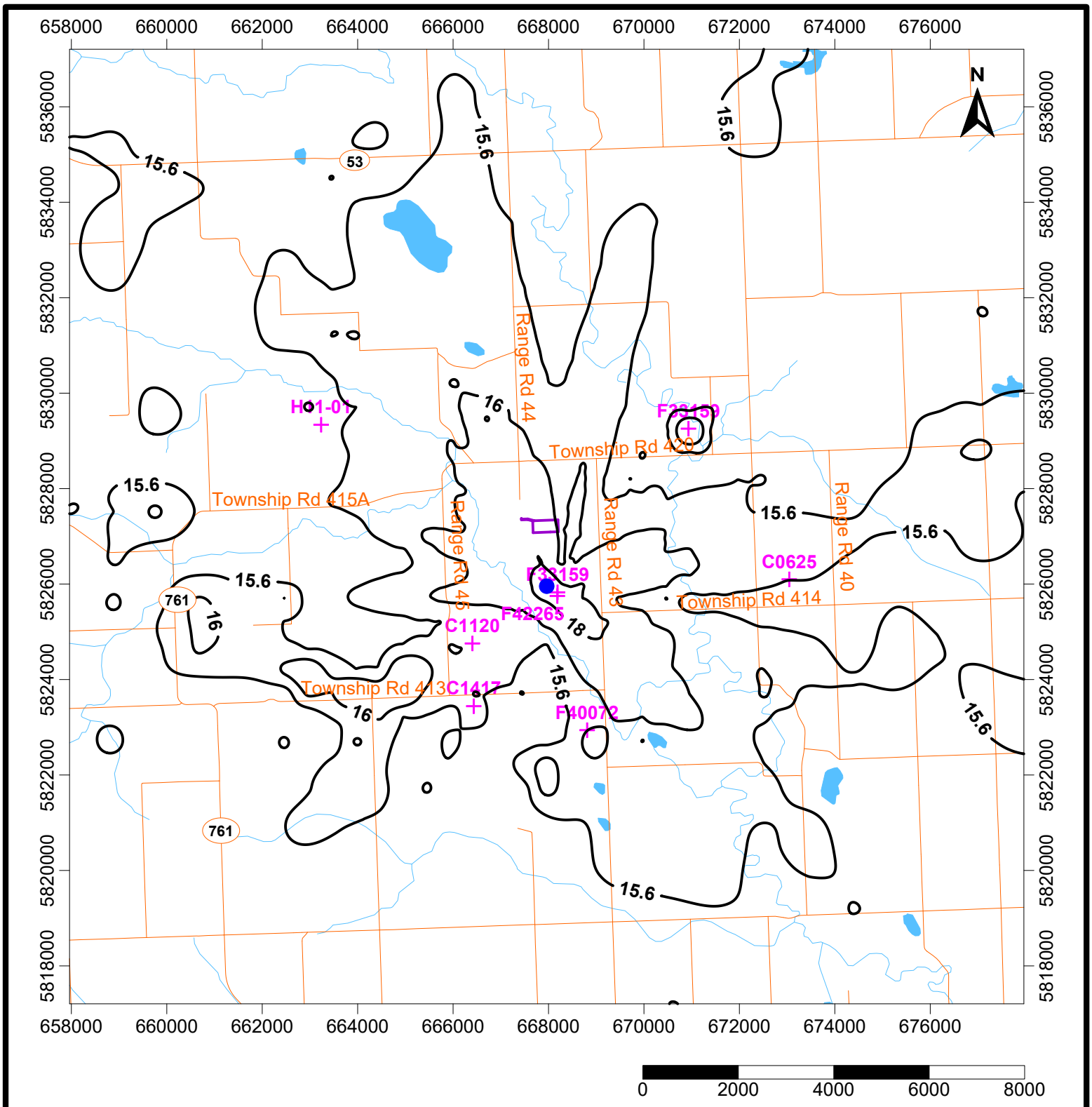
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Project Case 1:** **Maximum Predicted Annual $PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 16.7 (µg/m³)
	FIGURE 26



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 1:** **99.9th Percentile of Predicted 1-Hour Average $PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 31.1 (µg/m³)
	FIGURE 27



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Background Industrial Facilities
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	**Cumulative Case 1: Maximum Predicted 24-Hour Average $PM_{2.5}$ Concentrations**
HORIZON COMPLIANCE	MGLC: $PM_{2.5}$ = 24.4 (µg/m³)
	FIGURE 28

APPENDIX B

PLOT PLAN

ITEM NO.	EQUIPMENT NAME
121	LEAN PUMP
122	2ND WASH WATER PUMP
123	STEAM CONDENSATE PUMP
124	QUENCHER BLOWDOWN PUMP
125	STEAM CONDENSATE DRUM
126	SOLVENT TANK & SUMP UNIT
127	CO2 GAS CONDENSING UNIT
128	CAUSTIC SODA INJECTION UNIT
129	ENERGY SAVING UNIT
130	ANT-FOAM INJECTION UNIT
131	HYDROGEN STORAGE UNIT
132	HRSG DRUM PENTHOUSE
133	FUEL GAS COMPRESSOR BUILDING

ITEM NO.	EQUIPMENT NAME
91	SECOND STAGE COOLER (TRAIN-2)
92	THIRD STAGE SUCTION SCRUBBER (TRAIN-2)
93	THIRD STAGE COOLER (TRAIN-2)
94	FOURTH STAGE SUCTION SCRUBBER (TRAIN-2)
95	FIFTH STAGE COOLER (TRAIN-2)
96	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-2)
97	EIGHTH STAGE COOLER (TRAIN-2)
98	SIXTH STAGE SUCTION SCRUBBER (TRAIN-2)
99*	CO2 DEHYDRATION PACKAGE (TRAIN-2)
100	LOW VOLTAGE MCC BUILDING
101	STILL VENT CONDENSING TANK
102	GLYCOL MAKE-UP TANK
103	240 KV CIRCUIT BREAKER
104	240 KV LINE DISCONNNECT
105	240 KV CCVT
106	240 KV SURGE ARRESTOR
107	240 KV H - FRAME
108	BOILER FEEDWATER PUMP BUILDING
109	QUENCHER
110	ABSORBER
111	REGENERATOR
112	LEAN RICH EXCHANGER
113	REGENERATOR REBOILER
114	SOLVENT CIRCULATION FILTER
115	QUENCHER BLOWDOWN FILTER
116	FLUE GAS BLOWER
117	QUENCHER CIRCULATION PUMP
118	1ST WASH WATER PUMP
119	RICH PUMP
120	REFLUX DISTRIBUTION PUMP

ITEM NO.	EQUIPMENT NAME
61	MV PDC
62*	ABSORBER STACK
63	UTILITY RACK
64	GT/ST/AUXILIARY POWER CONTROL CENTER
65	240KV CONTROL BUILDING
66	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-1)
67	9.7 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-1)
68	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-1)
69	COMPRESSOR LUBE OIL SKID (TRAIN-1)
70	COMPRESSOR LUBE OIL COOLER (TRAIN-1)
71	FIRST STAGE SUCTION SCRUBBER (TRAIN-1)
72	FIRST STAGE COOLER (TRAIN-1)
73	SECOND STAGE SUCTION SCRUBBER (TRAIN-1)
74	SECOND STAGE COOLER (TRAIN-1)
75	THIRD STAGE SUCTION SCRUBBER (TRAIN-1)
76	THIRD STAGE COOLER (TRAIN-1)
77	FOURTH STAGE SUCTION SCRUBBER (TRAIN-1)
78	FIFTH STAGE COOLER (TRAIN-1)
79	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-1)
80	EIGHTH STAGE COOLER (TRAIN-1)
81	SIXTH STAGE SUCTION SCRUBBER (TRAIN-1)
82*	CO2 DEHYDRATION PACKAGE (TRAIN-1)
83	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-2)
84	11.2 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-2)
85	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-2)
86	COMPRESSOR LUBE OIL SKID (TRAIN-2)
87	COMPRESSOR LUBE OIL COOLER (TRAIN-2)
88	FIRST STAGE SUCTION SCRUBBER (TRAIN-2)
89	FIRST STAGE COOLER (TRAIN-2)
90	SECOND STAGE SUCTION SCRUBBER (TRAIN-2)

ITEM NO.	EQUIPMENT NAME
31*	AUXILIARY BOILER STACK
32	MOBILE COMPRESSED CLEANING SKID
33	THERMAL MANAGEMENT BLOWER SKID
34	INST. AIR COMPRESSOR & AIR RECEIVER TANK
35	LUBE OIL & HYDRAULIC SKID
36	MOBILE LUBE OIL PURIFIER
37	BEARING EXHAUSTER SKID & SEAL OIL STORAGE TANK
38	SEAL OIL SKID
39	STEAM TURBINE HYDRAULIC SKID
40	H2 GAS DRYER
41	H2 GAS SKID
42	STATOR WATER COOLING SKID
43	GLAND STEAM CONDENSER
44	GENERATOR NEUTRAL GROUNDING CUBICLE
45	FUEL GAS PURGE AIR COMPRESSOR AND TANK
46	FUEL GAS FINAL FILTER & PREHEATER SKID
47	FUEL GAS FINAL FILTER & PREHEATER ENCLOSURE
48	HOT BOX
49	ACC MAIN STEAM DUCT
50	CONDENSATE RECIRC. PUMP
51	LAYDOWN AREA (APPROX 20 ACRES)
52	RAW WATER STORAGE TANK
53	WASTEWATER STORAGE TANK
54	CEMS
55	CONDENSATE EXTRACTION PUMPS
56	CONDENSATE COLLECTION TANK
57*	EMERGENCY DIESEL GENERATOR
58	OIL WATER SEPARATOR (BELOW GRADE)
59	FUEL GAS YARD
60	GENERATOR BREAKER

ITEM NO.	EQUIPMENT NAME
1	COMBUSTION TURBINE GENERATOR
2	TURBINE GENERATOR
3	STEAM TURBINE
4	INLET AIR FILTER
5	GENERATION BUILDING
6	AUXILARY TRANSFORMER
7	GENERATOR STEP-UP TRANSFORMER
8	AIR COOLED CONDENSER
9	LV CCS PDC
10	HEAT RECOVERY STEAM GENERATOR
11	H2 GAS SKID
12	FIREWATER / SERVICE WATER STORAGE TANKS
13	DEMINERALIZED WATER TANK
14	ADMIN BUILDING
15	WATER TREATMENT BUILDING
16	AUXILIARY COOLING HEAT EXCHANGER
17	BOILER FEEDWATER PUMPS
18	REAGENT STORAGE BUILDING
19	MAIN CO2 COMPRESSION BUILDING (48m X 35m)
20	CORBON CAPTURE BUILDING
21	THERMAL RECLAIMER BUILDING
22	CARBON CAPTURE AIR COOLERS
23	CEMS
24	STORMWATER PUMP BUILDING
25	STORM DETENTION POND
26	LV ACC PDC
27	240 KV SWITCHYARD
28	240 KV OVERHEAD LINES
29*	HRSG STACK
30	AUXILIARY BOILER

T1 FUEL GAS
T2 RAW WATER FROM MEDICINE RIVER
T3 PLANT ACCESS ROAD
T4 POTABLE WATER FROM MEDICINE RIVER
T5 240kV TRANSMISSION LINES
T6 WASTEWATER (HAUL BY TRUCK)

POWER ISLAND (67.9100)

CO2 COMPRESSION AND DEHYDRATION (60.0100)

CARBON CAPTURE EQUIPMENT (60.1200)

NOTES

1. SITE PLAN IS CONCEPTUAL IN NATURE. NOT ALL EQUIPMENT IS REPRESENTED OR OF ACTUAL SIZE.
2. ALL EMISSION SOURCES ON THE SITE ARE DENOTED IN THE LEGEND WITH AN ASTERISK (*).

SYMBOLS

- PROJECT BOUNDARY
- CO2 COMPRESSION AND DEHYDRATION (61.0100)
- CARBON CAPTURE EQUIPMENT (60.1200)
- POWER ISLAND (67.9100)

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

TERMINAL POINTS

T1	FUEL GAS	T5	240kV TRANSMISSION LINES
T2	RAW WATER FROM MEDICINE RIVER	T6	WASTEWATER (HAUL BY TRUCK)
T3	PLANT ACCESS ROAD		
T4	POTABLE WATER FROM MEDICINE RIVER		

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
0	17/FEB/23	ISSUED FOR PERMITTING	NSK	JSH		GMT	JEB

1:500 SCALE IN METERS 0 10 20 30 40

BLACK & VEATCH

DESIGNER	DRAWN
JSH	NSK
CHECKED	DATE

KIWETINOHK ENERGY CORP
FLIPI COMBINED CYCLE WITH CCS
GENERAL
SITE ARRANGEMENT

PROJECT	DRAWING NUMBER	REV
412155	00AAA-G1001	0

CODE
AREA

MicroStation v10.11.0.36
Full Size 1:1
sam55714
Admin

APPENDIX C

MODELLING INPUT AND OUTPUT FILES

NO_2 MODELLING INPUT

```
CO STARTING
  TITLEONE D:\Modelling\Flipi\NOx\2015\2015.isc
  MODELOPT DFAULT CONC
  AVERTIME 1 ANNUAL
  POLLUTID NO2 H1H
  RUNORNOT RUN
  ERRORFIL 2015.err
CO FINISHED
**
**********************************
** AERMOD Source Pathway
**********************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION HRSG       POINT     668073.060  5827255.683     948.000
  LOCATION ABS        POINT     668071.041  5827228.895     948.000
  LOCATION CCSAS      POINT     668052.599  5827165.199     948.000
  LOCATION TEG1       POINT     667801.600  5827129.072     947.000
  LOCATION TEG2       POINT     667801.517  5827117.077     947.000
  LOCATION F33159     POINT     670932.992  5829256.062     938.000
  LOCATION COM1       POINT     668189.038  5825826.910     947.870
  LOCATION COM2       POINT     668208.158  5825828.970     947.810
  LOCATION COM3       POINT     668211.035  5825795.411     948.000
  LOCATION COM4       POINT     668193.342  5825796.556     948.000
  LOCATION COM5       POINT     668157.973  5825804.782     947.780
  LOCATION COM6       POINT     668154.640  5825787.785     948.000
  LOCATION COM7       POINT     668199.402  5825763.155     948.640
  LOCATION COM8       POINT     668162.713  5825771.893     948.210
  LOCATION F43534     POINT     668184.853  5825749.991     949.180
  LOCATION F40072     POINT     668809.385  5822939.087     952.000
  LOCATION HARCOM1    POINT     663234.391  5829338.315     956.000
  LOCATION HARCOM2    POINT     663273.022  5829302.444     955.570
  LOCATION HARCOM3    POINT     663243.111  5829313.826     956.000
  LOCATION C1417      POINT     666432.649  5823441.147     963.000
  LOCATION C625C1     POINT     673045.349  5826099.455     950.000
  LOCATION C625C2     POINT     673044.304  5826064.215     950.000
  LOCATION C625C3     POINT     673039.531  5826112.362     950.000
  LOCATION K100       POINT     666404.770  5824755.820     951.940
  LOCATION K101       POINT     666422.830  5824758.310     951.000
  LOCATION K102       POINT     666387.232  5824837.432     951.000
  LOCATION INC401     POINT     666379.138  5824781.975     952.000
  LOCATION H771       POINT     666408.551  5824835.357     951.000
** Source Parameters **
  SRCPARAM HRSG        39.3403    48.760   344.000    14.663      6.6
  SRCPARAM ABS          0.5908    18.300   545.200    16.67     0.965
  SRCPARAM CCSAS       39.3403    80.250   316.150     28.1       5.5
  SRCPARAM TEG1         0.0159     4.000   623.200        6     0.457
```

```
SRCPARAM TEG2        0.0159    4.000   623.200       6    0.457
SRCPARAM F33159      0.2925    7.620   721.150    26.8     0.25
SRCPARAM COM1         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM2         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM3         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM4         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM5         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM6         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM7         0.329    9.100   725.150    42.2     0.46
SRCPARAM COM8         0.329    9.100   725.150    42.2     0.46
SRCPARAM F43534      1.5226    5.500   795.150     8.5     0.13
SRCPARAM F40072      1.8333    3.730   792.150    27.1      0.2
SRCPARAM HARCOM1     1.1806   11.430   773.150      35    0.168
SRCPARAM HARCOM2     1.1806   11.430   773.150      35    0.168
SRCPARAM HARCOM3     0.3704    9.100   693.150    42.2     0.46
SRCPARAM C1417       0.7236   10.300   743.150    30.5     0.56
SRCPARAM C625C1      1.1806   11.430   773.150      35    0.168
SRCPARAM C625C2      0.3116    9.100   693.150    42.2     0.46
SRCPARAM C625C3      0.3116    9.100   693.150    42.2     0.46
SRCPARAM K100        1.0648   11.430   773.150      35    0.168
SRCPARAM K101        1.0648    9.800   861.150      49    0.324
SRCPARAM K102        1.0648    9.800   650.150    10.7    0.337
SRCPARAM INC401      0.0051    9.144  1100.000       7   0.9144
SRCPARAM H771        0.0074    4.600   473.200     9.5     0.22

** Building Downwash **
BUILDHGT HRSG      30.00  30.00  30.00  24.00  24.00  24.00
BUILDHGT HRSG      24.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT HRSG      30.00  24.00  24.00  30.00  30.00  24.00
BUILDHGT HRSG      30.00  30.00  30.00  24.00  24.00  24.00
BUILDHGT HRSG      24.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT HRSG      30.00  24.00  24.00  30.00  30.00  30.00

BUILDHGT ABS       30.00  30.00  30.00  30.00  30.00  10.00
BUILDHGT ABS       10.00  10.00  10.00  30.00  30.00  30.00
BUILDHGT ABS       30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT ABS       30.00  30.00  30.00  30.00  30.00  10.00
BUILDHGT ABS       10.00  10.00  10.00  30.00  24.00  24.00
BUILDHGT ABS       30.00  30.00  30.00  30.00  30.00  30.00

BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00
BUILDHGT CCSAS     30.00  30.00  30.00  30.00  30.00  30.00

BUILDHGT TEG1      3.50   3.50   5.00   5.00   5.00   5.00
BUILDHGT TEG1      3.50   3.50   3.50   3.50   5.00   5.00
BUILDHGT TEG1      5.00   5.00   5.00   5.00   3.50   3.50
BUILDHGT TEG1      3.50   3.50   5.00   5.00   5.00   5.00
BUILDHGT TEG1      5.00   5.00   5.00   5.00   5.00   5.00
```

BUILDHGT TEG1	3.50	3.50	3.50	3.50	3.50	3.50
BUILDHGT TEG2	3.50	3.50	3.50	3.50	3.50	3.50
BUILDHGT TEG2	3.50	3.50	3.50	3.50	3.50	3.50
BUILDHGT TEG2	3.50	3.50	3.50	3.50	3.50	3.50
BUILDHGT TEG2	3.50	3.50	5.00	5.00	5.00	5.00
BUILDHGT TEG2	5.00	5.00	3.50	3.50	3.50	3.50
BUILDHGT TEG2	3.50	3.50	3.50	3.50	3.50	3.50
BUILDWID HRSG	66.35	75.59	82.53	80.07	76.74	71.08
BUILDWID HRSG	63.26	40.96	40.03	41.21	41.32	40.16
BUILDWID HRSG	37.79	50.60	55.34	70.30	59.82	72.61
BUILDWID HRSG	66.35	75.59	82.53	80.07	76.74	71.08
BUILDWID HRSG	63.26	40.96	40.03	41.21	41.32	40.16
BUILDWID HRSG	37.79	50.60	55.34	70.30	59.82	55.09
BUILDWID ABS	66.35	75.59	82.53	86.97	88.76	17.69
BUILDWID ABS	15.32	12.49	11.24	41.21	41.32	40.16
BUILDWID ABS	37.79	34.27	78.65	70.30	59.82	55.09
BUILDWID ABS	66.35	75.59	82.53	86.97	88.76	17.69
BUILDWID ABS	15.32	12.49	11.24	41.21	42.73	40.87
BUILDWID ABS	37.79	34.27	78.65	70.30	59.82	55.09
BUILDWID CCSAS	66.35	75.59	82.53	86.97	88.76	87.86
BUILDWID CCSAS	84.28	78.15	75.02	82.13	86.75	88.72
BUILDWID CCSAS	88.01	84.62	78.65	70.30	59.82	55.09
BUILDWID CCSAS	66.35	75.59	82.53	86.97	88.76	87.86
BUILDWID CCSAS	84.28	78.15	75.02	82.13	86.75	88.72
BUILDWID CCSAS	88.01	84.62	78.65	70.30	59.82	55.09
BUILDWID TEG1	16.95	16.95	18.61	21.34	22.54	23.06
BUILDWID TEG1	9.78	7.20	6.10	8.78	23.81	23.86
BUILDWID TEG1	20.76	20.96	20.53	19.47	16.81	16.54
BUILDWID TEG1	17.05	17.04	11.34	11.20	10.72	9.92
BUILDWID TEG1	13.51	21.25	20.82	8.94	10.30	11.34
BUILDWID TEG1	14.95	16.17	16.90	17.11	16.71	16.44
BUILDWID TEG2	16.95	16.95	16.43	15.42	13.93	12.02
BUILDWID TEG2	9.75	7.18	6.09	8.76	11.16	13.22
BUILDWID TEG2	14.88	16.09	16.81	17.01	16.71	16.44
BUILDWID TEG2	16.95	16.95	18.61	20.43	21.64	22.18
BUILDWID TEG2	9.52	8.00	6.09	8.76	11.16	13.22
BUILDWID TEG2	14.88	16.09	16.81	17.01	16.71	16.44
BUILDLEN HRSG	82.13	86.75	88.72	44.70	50.60	55.34
BUILDLEN HRSG	60.31	25.36	24.68	25.73	27.85	32.84
BUILDLEN HRSG	36.84	76.74	71.08	84.28	78.15	44.64
BUILDLEN HRSG	82.13	86.75	88.72	44.70	50.60	55.34
BUILDLEN HRSG	60.31	25.36	24.68	25.73	27.85	32.84
BUILDLEN HRSG	36.84	76.74	71.08	84.28	78.15	75.02
BUILDLEN ABS	82.13	86.75	88.72	88.01	84.62	21.42

BUILDLEN ABS	20.98	19.91	19.31	25.73	27.85	32.84
BUILDLEN ABS	36.84	39.73	87.86	84.28	78.15	75.02
BUILDLEN ABS	82.13	86.75	88.72	88.01	84.62	21.42
BUILDLEN ABS	20.98	19.91	19.31	25.73	81.19	81.83
BUILDLEN ABS	36.84	39.73	87.86	84.28	78.15	75.02
BUILDLEN CCSAS	82.13	86.75	88.72	88.01	84.62	78.65
BUILDLEN CCSAS	70.30	59.82	55.09	66.35	75.59	82.53
BUILDLEN CCSAS	86.97	88.76	87.86	84.28	78.15	75.02
BUILDLEN CCSAS	82.13	86.75	88.72	88.01	84.62	78.65
BUILDLEN CCSAS	70.30	59.82	55.09	66.35	75.59	82.53
BUILDLEN CCSAS	86.97	88.76	87.86	84.28	78.15	75.02
BUILDLEN TEG1	8.76	11.16	22.67	23.19	21.81	19.77
BUILDLEN TEG1	17.11	16.81	16.54	17.05	17.05	19.49
BUILDLEN TEG1	19.22	18.90	18.88	18.56	7.20	6.10
BUILDLEN TEG1	8.78	11.20	10.44	11.05	11.32	11.26
BUILDLEN TEG1	12.42	12.98	11.18	11.65	12.21	12.41
BUILDLEN TEG1	15.49	13.99	12.07	9.78	7.18	6.09
BUILDLEN TEG2	8.76	11.16	13.22	14.88	16.09	16.81
BUILDLEN TEG2	17.01	16.71	16.44	16.95	16.95	16.43
BUILDLEN TEG2	15.42	13.93	12.02	9.75	7.18	6.09
BUILDLEN TEG2	8.76	11.16	22.67	21.91	20.49	18.45
BUILDLEN TEG2	11.92	11.14	16.44	16.95	16.95	16.43
BUILDLEN TEG2	15.42	13.93	12.02	9.75	7.18	6.09
YBADJ HRSG	-12.34	-29.48	-45.72	39.19	35.91	31.54
YBADJ HRSG	26.20	26.35	15.57	5.68	-4.47	-14.47
YBADJ HRSG	-24.04	-24.72	-27.90	-39.20	-22.53	-38.25
YBADJ HRSG	12.34	29.48	45.72	-39.19	-35.91	-31.54
YBADJ HRSG	-26.20	-26.35	-15.56	-5.68	4.47	14.47
YBADJ HRSG	24.04	24.72	27.90	39.20	22.53	5.17
YBADJ ABS	-9.68	-22.21	-34.07	-44.90	-54.36	6.83
YBADJ ABS	4.85	2.72	0.51	32.41	21.40	9.74
YBADJ ABS	-2.22	-14.11	-39.54	-28.14	-15.89	-3.15
YBADJ ABS	9.68	22.21	34.07	44.90	54.36	-6.83
YBADJ ABS	-4.85	-2.72	-0.51	-32.41	-20.69	-9.38
YBADJ ABS	2.22	14.11	39.54	28.14	15.89	3.15
YBADJ CCSAS	-16.78	-17.76	-18.20	-18.09	-17.42	-16.23
YBADJ CCSAS	-14.55	-12.42	-9.92	-7.12	-4.09	-0.95
YBADJ CCSAS	2.23	5.33	8.28	10.97	13.33	15.29
YBADJ CCSAS	16.78	17.76	18.20	18.09	17.42	16.23
YBADJ CCSAS	14.55	12.42	9.92	7.12	4.09	0.95
YBADJ CCSAS	-2.23	-5.33	-8.28	-10.97	-13.33	-15.29
YBADJ TEG1	3.96	1.41	-11.72	-13.09	-10.08	-6.76
YBADJ TEG1	0.65	-0.51	-1.65	-2.75	10.80	13.76
YBADJ TEG1	6.08	0.74	-4.62	-9.83	-6.65	-6.46
YBADJ TEG1	-6.07	-5.50	8.08	3.50	-1.18	-5.83

```
  YBADJ   TEG1        -7.95   -7.54  -11.17   -0.47   -4.04   -7.50
  YBADJ   TEG1         5.42    6.01    6.42    6.64    8.65    6.40

  YBADJ   TEG2         5.97    5.43    4.74    3.89    2.93    1.88
  YBADJ   TEG2         0.78   -0.36   -1.48   -2.55   -3.55   -4.44
  YBADJ   TEG2        -5.20   -5.79   -6.22   -6.45   -6.49   -6.32
  YBADJ   TEG2        -5.97   -5.43    5.79    0.47   -4.86  -10.04
  YBADJ   TEG2        -1.32   -5.17    1.48    2.55    3.55    4.44
  YBADJ   TEG2         5.20    5.79    6.22    6.45    6.49    6.32

  SRCGROUP BG     C1417 COM1 COM2 COM3 COM4 COM5 COM6 COM7 COM8 C625C1
  SRCGROUP BG     C625C2 C625C3 F33159 F43534 F40072 HARCOM1 HARCOM2
  SRCGROUP BG     HARCOM3 H771 K100 INC401 K101 K102
  SRCGROUP P1     ABS HRSG
  SRCGROUP P2     ABS TEG1 TEG2 CCSAS
  SRCGROUP C1     HRSG ABS F33159 COM1 COM2 COM3 COM4 COM5 COM6 COM7
  SRCGROUP C1     COM8 F43534 F40072 HARCOM1 HARCOM2 HARCOM3 C1417 C625C1
  SRCGROUP C1     C625C2 C625C3 K100 K101 K102 INC401 H771
  SRCGROUP C2     ABS CCSAS TEG1 TEG2 F33159 COM1 COM2 COM3 COM4 COM5
  SRCGROUP C2     COM6 COM7 COM8 F43534 F40072 HARCOM1 HARCOM2 HARCOM3
  SRCGROUP C2     C1417 C625C1 C625C2 C625C3 K100 K101 K102 INC401 H771
SO FINISHED
**
**********************************
** AERMOD Receptor Pathway
**********************************
**
**
RE STARTING
  INCLUDED 2015.rou
RE FINISHED
**
**********************************
** AERMOD Meteorology Pathway
**********************************
**
**
ME STARTING
  SURFFILE ..\..\Files\aermet.sfc
  PROFFILE ..\..\Files\aermet.PFL
  SURFDATA 12345 2015
  UAIRDATA 12345678 2015
  PROFBASE 947.6 METERS
  STARTEND 2015 1 1 1 2015 12 31 24
ME FINISHED
**
**********************************
** AERMOD Output Pathway
**********************************
**
**
OU STARTING
```

```
  RECTABLE ALLAVE 9TH
  RECTABLE 1 9TH
  MAXTABLE ALLAVE 50
** Maximum Annual Average POST files for Each Met Year
  POSTFILE ANNUAL BG PLOT 2015.AD\ANNUAL_G001.PLT 31
  POSTFILE ANNUAL P1 PLOT 2015.AD\ANNUAL_G002.PLT 32
  POSTFILE ANNUAL P2 PLOT 2015.AD\ANNUAL_G003.PLT 33
  POSTFILE ANNUAL C1 PLOT 2015.AD\ANNUAL_G004.PLT 34
  POSTFILE ANNUAL C2 PLOT 2015.AD\ANNUAL_G005.PLT 35
** Auto-Generated Plotfiles
  PLOTFILE 1 BG 9TH 2015.AD\01H9G001.PLT 36
  PLOTFILE 1 P1 9TH 2015.AD\01H9G002.PLT 37
  PLOTFILE 1 P2 9TH 2015.AD\01H9G003.PLT 38
  PLOTFILE 1 C1 9TH 2015.AD\01H9G004.PLT 39
  PLOTFILE 1 C2 9TH 2015.AD\01H9G005.PLT 40
  PLOTFILE ANNUAL BG 2015.AD\AN00G001.PLT 41
  PLOTFILE ANNUAL P1 2015.AD\AN00G002.PLT 42
  PLOTFILE ANNUAL P2 2015.AD\AN00G003.PLT 43
  PLOTFILE ANNUAL C1 2015.AD\AN00G004.PLT 44
  PLOTFILE ANNUAL C2 2015.AD\AN00G005.PLT 45
  SUMMFILE 2015.sum
OU FINISHED
```

CO MODELLING INPUT

```
CO STARTING
  TITLEONE CO
  MODELOPT DFAULT CONC
  AVERTIME 1 8
  POLLUTID CO
  RUNORNOT RUN
  ERRORFIL CO.err
CO FINISHED
**
**********************************
** AERMOD Source Pathway
**********************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION HRSG       POINT     668073.060  5827255.683     948.000
  LOCATION ABS        POINT     668071.041  5827228.895     948.000
  LOCATION CCSAS      POINT     668052.599  5827165.199     948.000
  LOCATION TEG1       POINT     667801.600  5827129.072     947.000
  LOCATION TEG2       POINT     667801.517  5827117.077     947.000
  LOCATION F33159     POINT     670932.992  5829256.062     938.000
  LOCATION COM1       POINT     668189.038  5825826.910     947.870
  LOCATION COM2       POINT     668208.158  5825828.970     947.810
  LOCATION COM3       POINT     668211.035  5825795.411     948.000
  LOCATION COM4       POINT     668193.342  5825796.556     948.000
  LOCATION COM5       POINT     668157.973  5825804.782     947.780
  LOCATION COM6       POINT     668154.640  5825787.785     948.000
  LOCATION COM7       POINT     668199.402  5825763.155     948.640
  LOCATION COM8       POINT     668162.713  5825771.893     948.210
  LOCATION F43534     POINT     668184.853  5825749.991     949.180
  LOCATION F40072     POINT     668809.385  5822939.087     952.000
  LOCATION HARCOM1    POINT     663234.391  5829338.315     956.000
  LOCATION HARCOM2    POINT     663273.022  5829302.444     955.570
  LOCATION HARCOM3    POINT     663243.111  5829313.826     956.000
  LOCATION C1417      POINT     666432.649  5823441.147     963.000
  LOCATION C625C1     POINT     673045.349  5826099.455     950.000
  LOCATION C625C2     POINT     673044.304  5826064.215     950.000
  LOCATION C625C3     POINT     673039.531  5826112.362     950.000
  LOCATION K100       POINT     666404.770  5824755.820     951.940
  LOCATION K101       POINT     666422.830  5824758.310     951.000
  LOCATION K102       POINT     666387.232  5824837.432     951.000
  LOCATION INC401     POINT     666379.138  5824781.975     952.000
  LOCATION H771       POINT     666408.551  5824835.357     951.000
** Source Parameters **
  SRCPARAM HRSG         8.7974    48.760   344.000    14.663      6.6
  SRCPARAM ABS          0.4963    18.300   545.200    16.67     0.965
  SRCPARAM CCSAS       10.2889    80.250   316.150     28.1       5.5
  SRCPARAM TEG1         0.0133     4.000   623.200        6     0.457
```

```
  SRCPARAM TEG2         0.0133    4.000   623.200       6    0.457
  SRCPARAM F33159        0.2023    7.620   721.150     26.8     0.25
  SRCPARAM COM1          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM2          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM3          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM4          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM5          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM6          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM7          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM COM8          0.8151    9.100   725.150     42.2     0.46
  SRCPARAM F43534        0.0895    5.500   795.150      8.5     0.13
  SRCPARAM F40072         0.163    3.730   792.150     27.1      0.2
  SRCPARAM HARCOM1       0.2727   11.430   773.150       35    0.168
  SRCPARAM HARCOM2       0.2727   11.430   773.150       35    0.168
  SRCPARAM HARCOM3       0.0857    9.100   693.150     42.2     0.46
  SRCPARAM C1417         0.3716   10.300   743.150     30.5     0.56
  SRCPARAM C625C1        0.6491   11.430   773.150       35    0.168
  SRCPARAM C625C2        0.1713    9.100   693.150     42.2     0.46
  SRCPARAM C625C3        0.1713    9.100   693.150     42.2     0.46
  SRCPARAM K100          0.7002   11.430   773.150       35    0.168
  SRCPARAM K101          0.7002    9.800   861.150       49    0.324
  SRCPARAM K102          0.7002    9.800   650.150     10.7    0.337
  SRCPARAM INC401        0.0043    9.144  1100.000        7   0.9144
  SRCPARAM H771          0.0063    4.600   473.200      9.5     0.22

** Building Downwash **
  BUILDHGT HRSG         30.00   30.00   30.00   24.00   24.00   24.00
  BUILDHGT HRSG         24.00   30.00   30.00   30.00   30.00   30.00
.
.
.
  YBADJ   TEG2          -1.32   -5.17    1.48    2.55    3.55    4.44
  YBADJ   TEG2           5.20    5.79    6.22    6.45    6.49    6.32

  SRCGROUP P1      ABS HRSG
  SRCGROUP P2      ABS CCSAS TEG1 TEG2
  SRCGROUP C1      ABS C1417 C625C1 C625C2 C625C3 HRSG F33159 COM1 COM2
  SRCGROUP C1      COM3 COM4 COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1
  SRCGROUP C1      HARCOM2 HARCOM3 H771 K100 K101 K102 INC401
  SRCGROUP C2      ABS C1417 C625C1 C625C2 C625C3 CCSAS F33159 COM1 COM2
  SRCGROUP C2      COM3 COM4 COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1
  SRCGROUP C2      HARCOM2 HARCOM3 H771 TEG1 TEG2 K100 K101 K102 INC401
  SRCGROUP B1      C1417 C625C1 C625C2 C625C3 F33159 COM1 COM2 COM3 COM4
  SRCGROUP B1      COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1 HARCOM2 HARCOM3
  SRCGROUP B1      H771 K100 K101 K102 INC401
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
```

```
RE STARTING
  INCLUDED CO.rou
RE FINISHED
**
**********************************
** AERMOD Meteorology Pathway
**********************************
**
**
ME STARTING
  SURFFILE aermet.sfc
  PROFFILE aermet.PFL
  SURFDATA 12345 2015
  UAIRDATA 12345678 2015
  PROFBASE 947.6 METERS
ME FINISHED
**
**********************************
** AERMOD Output Pathway
**********************************
**
**
OU STARTING
  RECTABLE 1 9TH
  RECTABLE 8 2ND
  MAXTABLE 1 50
** Auto-Generated Plotfiles
  PLOTFILE 8 P1 2ND CO.AD\08H2G001.PLT 31
  PLOTFILE 8 P2 2ND CO.AD\08H2G002.PLT 32
  PLOTFILE 8 C1 2ND CO.AD\08H2G003.PLT 33
  PLOTFILE 8 C2 2ND CO.AD\08H2G004.PLT 34
  PLOTFILE 8 B1 2ND CO.AD\08H2G005.PLT 35
  PLOTFILE 1 P1 9TH CO.AD\01H9G001.PLT 36
  PLOTFILE 1 P2 9TH CO.AD\01H9G002.PLT 37
  PLOTFILE 1 C1 9TH CO.AD\01H9G003.PLT 38
  PLOTFILE 1 C2 9TH CO.AD\01H9G004.PLT 39
  PLOTFILE 1 B1 9TH CO.AD\01H9G005.PLT 40
  SUMMFILE CO.sum
OU FINISHED
```

$PM_{2.5}$ MODELLING INPUT

```
CO STARTING
  TITLEONE PM
  MODELOPT DFAULT CONC
  AVERTIME 1 24 ANNUAL
  POLLUTID PM_2.5
  RUNORNOT RUN
  ERRORFIL PM.err
CO FINISHED
**
**********************************
** AERMOD Source Pathway
**********************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION HRSG       POINT     668073.060  5827255.683     948.000
  LOCATION ABS        POINT     668071.041  5827228.895     948.000
  LOCATION CCSAS      POINT     668052.599  5827165.199     948.000
  LOCATION TEG1       POINT     667801.600  5827129.072     947.000
  LOCATION TEG2       POINT     667801.517  5827117.077     947.000
  LOCATION F33159     POINT     670932.992  5829256.062     938.000
  LOCATION COM1       POINT     668189.038  5825826.910     947.870
  LOCATION COM2       POINT     668208.158  5825828.970     947.810
  LOCATION COM3       POINT     668211.035  5825795.411     948.000
  LOCATION COM4       POINT     668193.342  5825796.556     948.000
  LOCATION COM5       POINT     668157.973  5825804.782     947.780
  LOCATION COM6       POINT     668154.640  5825787.785     948.000
  LOCATION COM7       POINT     668199.402  5825763.155     948.640
  LOCATION COM8       POINT     668162.713  5825771.893     948.210
  LOCATION F43534     POINT     668184.853  5825749.991     949.180
  LOCATION F40072     POINT     668809.385  5822939.087     952.000
  LOCATION HARCOM1    POINT     663234.391  5829338.315     956.000
  LOCATION HARCOM2    POINT     663273.022  5829302.444     955.570
  LOCATION HARCOM3    POINT     663243.111  5829313.826     956.000
  LOCATION C1417      POINT     666432.649  5823441.147     963.000
  LOCATION C625C1     POINT     673045.349  5826099.455     950.000
  LOCATION C625C2     POINT     673044.304  5826064.215     950.000
  LOCATION C625C3     POINT     673039.531  5826112.362     950.000
  LOCATION K100       POINT     666404.770  5824755.820     951.940
  LOCATION K101       POINT     666422.830  5824758.310     951.000
  LOCATION K102       POINT     666387.232  5824837.432     951.000
  LOCATION INC401     POINT     666379.138  5824781.975     952.000
  LOCATION H771       POINT     666408.551  5824835.357     951.000
** Source Parameters **
  SRCPARAM HRSG         1.2893    48.760   344.000    14.663      6.6
  SRCPARAM ABS          0.0449    18.300   545.200    16.67     0.965
  SRCPARAM CCSAS        1.4917    80.250   316.150     28.1       5.5
  SRCPARAM TEG1         0.0012     4.000   623.200        6     0.457
```

```
  SRCPARAM TEG2         0.0012    4.000   623.200       6    0.457
  SRCPARAM F33159       0.0201    7.620   721.150    26.8     0.25
  SRCPARAM COM1          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM2          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM3          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM4          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM5          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM6          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM7          0.081    9.100   725.150    42.2     0.46
  SRCPARAM COM8          0.081    9.100   725.150    42.2     0.46
  SRCPARAM F43534       0.0089    5.500   795.150     8.5     0.13
  SRCPARAM F40072       0.0162    3.730   792.150    27.1      0.2
  SRCPARAM HARCOM1       0.004   11.430   773.150      35    0.168
  SRCPARAM HARCOM2       0.004   11.430   773.150      35    0.168
  SRCPARAM HARCOM3      0.0012    9.100   693.150    42.2     0.46
  SRCPARAM C1417         0.001   10.300   743.150    30.5     0.56
  SRCPARAM C625C1        0.005   11.430   773.150      35    0.168
  SRCPARAM C625C2       0.0013    9.100   693.150    42.2     0.46
  SRCPARAM C625C3       0.0013    9.100   693.150    42.2     0.46
  SRCPARAM K100         0.0001   11.430   773.150      35    0.168
  SRCPARAM K101         0.0001    9.800   861.150      49    0.324
  SRCPARAM K102         0.0001    9.800   650.150    10.7    0.337
  SRCPARAM INC401       0.0001    9.144  1100.000       7   0.9144
  SRCPARAM H771         0.0001    4.600   473.200     9.5     0.22

** Building Downwash **
  BUILDHGT HRSG        30.00   30.00   30.00   24.00   24.00   24.00
  BUILDHGT HRSG        24.00   30.00   30.00   30.00   30.00   30.00
.
.
.  YBADJ   TEG2        -1.32   -5.17    1.48    2.55    3.55    4.44
  YBADJ   TEG2         5.20    5.79    6.22    6.45    6.49    6.32

  SRCGROUP P1     ABS HRSG
  SRCGROUP P2     TEG1 TEG2 ABS CCSAS
  SRCGROUP C1     C1417 C625C1 C625C2 C625C3 F33159 COM1 COM2 COM3 COM4
  SRCGROUP C1     COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1 HARCOM2 HARCOM3
  SRCGROUP C1     H771 HRSG K100 K101 K102 INC401 ABS
  SRCGROUP C2     C1417 C625C1 C625C2 C625C3 CCSAS F33159 COM1 COM2 COM3
  SRCGROUP C2     COM4 COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1 HARCOM2
  SRCGROUP C2     HARCOM3 H771 K100 K101 K102 INC401 TEG1 TEG2 ABS
  SRCGROUP B1     C1417 C625C1 C625C2 C625C3 F33159 COM1 COM2 COM3 COM4
  SRCGROUP B1     COM5 COM6 COM7 COM8 F43534 F40072 HARCOM1 HARCOM2 HARCOM3
  SRCGROUP B1     H771 K100 K101 K102 INC401
SO FINISHED
**
**********************************
** AERMOD Receptor Pathway
**********************************
**
**
RE STARTING
```

```
  INCLUDED PM.rou
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
  SURFFILE ..\Files\aermet.sfc
  PROFFILE ..\Files\aermet.PFL
  SURFDATA 12345 2015
  UAIRDATA 12345678 2015
  PROFBASE 947.6 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
  RECTABLE 1 9TH
  RECTABLE 24 1ST
  MAXTABLE 1 50
** Maximum Annual Average POST files for Each Met Year
  POSTFILE ANNUAL P1 PLOT PM.AD\ANNUAL_G001.PLT 31
  POSTFILE ANNUAL P2 PLOT PM.AD\ANNUAL_G002.PLT 32
  POSTFILE ANNUAL C1 PLOT PM.AD\ANNUAL_G003.PLT 33
  POSTFILE ANNUAL C2 PLOT PM.AD\ANNUAL_G004.PLT 34
  POSTFILE ANNUAL B1 PLOT PM.AD\ANNUAL_G005.PLT 35
** Auto-Generated Plotfiles
  PLOTFILE 24 P1 1ST PM.AD\24H1G001.PLT 36
  PLOTFILE 24 P2 1ST PM.AD\24H1G002.PLT 37
  PLOTFILE 24 C1 1ST PM.AD\24H1G003.PLT 38
  PLOTFILE 24 C2 1ST PM.AD\24H1G004.PLT 39
  PLOTFILE 24 B1 1ST PM.AD\24H1G005.PLT 40
  PLOTFILE 1 P1 9TH PM.AD\01H9G001.PLT 41
  PLOTFILE 1 P2 9TH PM.AD\01H9G002.PLT 42
  PLOTFILE 1 C1 9TH PM.AD\01H9G003.PLT 43
  PLOTFILE 1 C2 9TH PM.AD\01H9G004.PLT 44
  PLOTFILE 1 B1 9TH PM.AD\01H9G005.PLT 45
  PLOTFILE ANNUAL P1 PM.AD\AN00G001.PLT 46
  PLOTFILE ANNUAL P2 PM.AD\AN00G002.PLT 47
  PLOTFILE ANNUAL C1 PM.AD\AN00G003.PLT 48
  PLOTFILE ANNUAL C2 PM.AD\AN00G004.PLT 49
  PLOTFILE ANNUAL B1 PM.AD\AN00G005.PLT 50
  SUMMFILE PM.sum
OU FINISHED
```

NH_3 MODELLING INPUT

```
CO STARTING
  TITLEONE NH3
  MODELOPT DFAULT CONC
  AVERTIME 1
  POLLUTID NH3
  RUNORNOT RUN
  ERRORFIL NH3.err
CO FINISHED
**
**********************************
** AERMOD Source Pathway
**********************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION HRSG       POINT     668073.060  5827255.683     948.000
  LOCATION ABS        POINT     668071.041  5827228.895     948.000
  LOCATION CCSAS      POINT     668052.599  5827165.199     948.000
  LOCATION TEG1       POINT     667801.600  5827129.072     947.000
  LOCATION TEG2       POINT     667801.517  5827117.077     947.000
** Source Parameters **
  SRCPARAM HRSG         3.2098    48.760   344.000    14.663      6.6
  SRCPARAM ABS           0.0     18.300   545.200     16.67     0.965
  SRCPARAM CCSAS        3.2098    80.250   316.150     28.1       5.5
  SRCPARAM TEG1          0.0      4.000   623.200        6      0.457
  SRCPARAM TEG2          0.0      4.000   623.200        6      0.457

** Building Downwash **
  BUILDHGT HRSG        30.00    30.00    30.00    24.00    24.00    24.00
  BUILDHGT HRSG        24.00    30.00    30.00    30.00    30.00    30.00

.
.  YBADJ    TEG2          5.20     5.79     6.22     6.45     6.49     6.32

  SRCGROUP P1      ABS HRSG
  SRCGROUP P2      ABS CCSAS TEG1 TEG2
SO FINISHED
**
**********************************
** AERMOD Receptor Pathway
**********************************
**
**
RE STARTING
  INCLUDED NH3.rou
RE FINISHED
**
**********************************
```

```
** AERMOD Meteorology Pathway
**********************************
**
**
ME STARTING
  SURFFILE ..\..\Files\aermet.sfc
  PROFFILE ..\..\Files\aermet.PFL
  SURFDATA 12345 2015
  UAIRDATA 12345678 2015
  PROFBASE 947.6 METERS
ME FINISHED
**
**********************************
** AERMOD Output Pathway
**********************************
**
**
OU STARTING
  RECTABLE ALLAVE 9TH
  RECTABLE 1 9TH
  MAXTABLE ALLAVE 50
** Auto-Generated Plotfiles
  PLOTFILE 1 P1 9TH NH3.AD\01H9G001.PLT 31
  PLOTFILE 1 P2 9TH NH3.AD\01H9G002.PLT 32
  SUMMFILE NH3.sum
OU FINISHED
```

DISPERSION MODELLING OUTPUT

Results Summary

D:\Modelling\Flipi\NOx\2015\2015.isc

NO2 - Concentration - Source Group: BG

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	507.96434	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	3/3/2016, 24
ANNUAL		21.25646	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	
ANNUAL Y1		21.25646		668462.00	5825706.00	950.00	0.00	950.00	

NO2 - Concentration - Source Group: C1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	507.96435	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	3/3/2016, 24
ANNUAL		21.75147	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	
ANNUAL Y1		21.75147		668462.00	5825706.00	950.00	0.00	950.00	

NO2 - Concentration - Source Group: C3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	507.96531	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	3/3/2016, 24
ANNUAL		21.78863	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	
ANNUAL Y1		21.78863		668462.00	5825706.00	950.00	0.00	950.00	

Results Summary

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NO2 - Concentration - Source Group: P1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	66.42676	ug/m^3	662462.00	5823206.00	1085.53	0.00	1090.00	11/12/2016, 15
ANNUAL		2.41401	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.41401		668089.53	5827093.26	948.00	0.00	948.00	

NO2 - Concentration - Source Group: P3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	37.27362	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	4/14/2016, 14
ANNUAL		2.30110	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.30110		668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

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NO2 - Concentration - Source Group: BG

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.86979	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.19540	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.19540		668212.00	5825956.00	946.00	0.00	946.00	

NO2 - Concentration - Source Group: C1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.86983	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.75299	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.75299		668212.00	5825956.00	946.00	0.00	946.00	

NO2 - Concentration - Source Group: C3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.87095	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.78762	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.78762		668212.00	5825956.00	946.00	0.00	946.00	

Results Summary

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NO2 - Concentration - Source Group: P1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	44.18985	ug/m^3	667836.56	5827860.50	949.28	0.00	949.28	4/27/2018, 11
ANNUAL		2.78528	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.78528		668089.53	5827093.26	948.00	0.00	948.00	

NO2 - Concentration - Source Group: P3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	38.02381	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	6/16/2018, 13
ANNUAL		2.66452	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.66452		668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

NO2

NO2 - Concentration - Source Group: BG

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	8TH	152.14536	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	12/19/2017, 24
1-HR	9TH	151.69028	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		8.99444	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		8.99444		668462.00	5825456.00	953.00	0.00	953.00	

NO2 - Concentration - Source Group: C1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	8TH	152.14536	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	12/19/2017, 24
1-HR	9TH	151.69029	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		9.26443	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		9.26443		668462.00	5825456.00	953.00	0.00	953.00	

NO2 - Concentration - Source Group: C3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	8TH	152.14570	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	12/19/2017, 24
1-HR	9TH	151.69068	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		9.28103	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		9.28103		668462.00	5825456.00	953.00	0.00	953.00	

Results Summary

NO2

NO2 - Concentration - Source Group: P1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	8TH	35.61627	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	7/16/2017, 15
1-HR	9TH	34.51410	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	7/3/2017, 12
ANNUAL		2.04606	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.04606		668089.53	5827093.26	948.00	0.00	948.00	

NO2 - Concentration - Source Group: P3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	8TH	32.34165	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/30/2017, 12
1-HR	9TH	32.04537	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/8/2017, 9
ANNUAL		2.05248	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.05248		668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

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NO2 - Concentration - Source Group: BG

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.86979	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.19540	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.19540	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	

NO2 - Concentration - Source Group: C2

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.86983	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.46626	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.46626	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	

NO2 - Concentration - Source Group: C4

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	477.87095	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/2/2018, 9
ANNUAL		21.49258	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	
ANNUAL Y1		21.49258	ug/m^3	668212.00	5825956.00	946.00	0.00	946.00	

Results Summary

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NO2 - Concentration - Source Group: P2

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	38.45741	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	6/16/2018, 10
ANNUAL		2.61706	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.61706	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	

NO2 - Concentration - Source Group: P4

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	38.02381	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	6/16/2018, 13
ANNUAL		2.63447	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.63447	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

NO2

NO2 - Concentration - Source Group: BG

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	151.69028	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		9.00359	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		9.00359	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	

NO2 - Concentration - Source Group: C2

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	151.69029	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		9.16020	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		9.16020	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	

NO2 - Concentration - Source Group: C4

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	151.69068	ug/m^3	667962.00	5825706.00	948.87	0.00	948.87	3/12/2017, 3
ANNUAL		9.17003	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		9.17003	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	

Results Summary

NO2

NO2 - Concentration - Source Group: P2

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	32.60037	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	7/16/2017, 15
ANNUAL		2.00276	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.00276	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	

NO2 - Concentration - Source Group: P4

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	32.04537	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/8/2017, 9
ANNUAL		2.05361	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		2.05361	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

CO

CO - Concentration - Source Group: B1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
8-HR	2ND	106.07079	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	8/4/2018, 8
1-HR	9TH	190.91707	ug/m^3	663962.00	5823706.00	993.43	0.00	1049.00	11/16/2017, 17

CO - Concentration - Source Group: C1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
8-HR	2ND	106.07707	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	8/4/2018, 8
1-HR	9TH	190.92396	ug/m^3	663962.00	5823706.00	993.43	0.00	1049.00	11/16/2017, 17

CO - Concentration - Source Group: C3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
8-HR	2ND	106.07742	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	8/4/2018, 8
1-HR	9TH	190.92404	ug/m^3	663962.00	5823706.00	993.43	0.00	1049.00	11/16/2017, 17

CO - Concentration - Source Group: P1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
8-HR	2ND	26.05697	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	7/30/2017, 16
1-HR	9TH	34.57677	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/4/2015, 10

Results Summary

CO

CO - Concentration - Source Group: P3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
8-HR	2ND	25.63218	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	7/30/2017, 16
1-HR	9TH	34.08256	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/13/2018, 12

Results Summary

PM

PM2.5 - Concentration - Source Group: B1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	7.42569	ug/m^3	667962.00	5825956.00	944.10	0.00	944.10	10/7/2016, 24
1-HR	9TH	15.86621	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	1/27/2019, 5
ANNUAL		0.46475	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		0.44110	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y2		0.47686	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y3		0.50138	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y4		0.44572	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y5		0.47541	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	

PM2.5 - Concentration - Source Group: C1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	7.42654	ug/m^3	667962.00	5825956.00	944.10	0.00	944.10	10/7/2016, 24
1-HR	9TH	15.86640	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	1/27/2019, 5
ANNUAL		0.48280	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		0.45807	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y2		0.49373	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y3		0.52003	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y4		0.46756	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	
ANNUAL Y5		0.49949	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	

Results Summary

PM

PM2.5 - Concentration - Source Group: C3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	7.42652	ug/m^3	667962.00	5825956.00	944.10	0.00	944.10	10/7/2016, 24
1-HR	9TH	15.86640	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	1/27/2019, 5
ANNUAL		0.48635	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y1		0.46157	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y2		0.49717	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y3		0.52368	ug/m^3	668462.00	5825456.00	953.00	0.00	953.00	
ANNUAL Y4		0.47215	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	
ANNUAL Y5		0.50320	ug/m^3	668462.00	5825706.00	950.00	0.00	950.00	

PM2.5 - Concentration - Source Group: P1

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	1.66982	ug/m^3	668082.00	5827086.00	948.00	0.00	948.00	11/1/2017, 24
1-HR	9TH	3.18754	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	5/5/2015, 15
ANNUAL		0.18783	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		0.17946	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	
ANNUAL Y2		0.17199	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y3		0.19387	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y4		0.20091	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y5		0.19432	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	

Results Summary

PM

PM2.5 - Concentration - Source Group: P3

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
24-HR	1ST	1.67031	ug/m^3	668082.00	5827086.00	948.00	0.00	948.00	11/1/2017, 24
1-HR	9TH	3.08343	ug/m^3	668062.00	5827086.00	948.00	0.00	948.00	7/13/2018, 12
ANNUAL		0.18859	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y1		0.18031	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	
ANNUAL Y2		0.17239	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y3		0.19477	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y4		0.20076	ug/m^3	668089.53	5827093.26	948.00	0.00	948.00	
ANNUAL Y5		0.19733	ug/m^3	668069.90	5827092.50	948.00	0.00	948.00	

Results Summary

NH3

NH3 - Concentration - Source Group: P2

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	7.69622	ug/m^3	662462.00	5823206.00	1085.53	0.00	1090.00	11/5/2018, 22

NH3 - Concentration - Source Group: P4

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	9TH	2.96906	ug/m^3	662462.00	5823206.00	1085.53	0.00	1090.00	3/11/2015, 12

APPENDIX F
NOISE IMPACT ASSESSMENT

REPORT

FLIPI POWER PLANT

SW ¼ SEC 33-041-04 W5M, CLEARWATER COUNTY, ALBERTA

NOISE IMPACT ASSESSMENT
RWDI # 2508044
Revision 5: May 23, 2025
October 27, 2023

SUBMITTED TO

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EXECUTIVE SUMMARY

Kîwetinohk Energy Corp. (KEC) is proposing to develop the Flipi Power Plant (Project) in SW ¼ SEC 33-041-04 W5M, approximately 20 km southwest of Rimbey, Alberta. This Noise Impact Assessment (NIA) was prepared by RWDI to address the submission requirements for the Alberta Utilities Commission (AUC) Rule 007 application and was prepared in accordance with AUC Rule 012: Noise Control (AUC 2024). The NIA predicts the cumulative impact of noise generating equipment from the Project and any existing and approved energy related facilities that can potentially affect receptors.

The Project will see the development of 460 MW Combined Cycle Power Plant and an associated substation. The power generation equipment consists of one natural gas fired combustion turbine and one steam turbine. The CO2 plant included in previous versions has been omitted from this study revision.

Three dwellings were identified within 1.5 km from the Project, therefore the predicted sound levels at those receptors were assessed for compliance. Predicted noise levels were evaluated against Permissible Sound Levels (PSLs) established within AUC Rule 012 for the three nearest receptors. The Project is predicted to comply with AUC Rule 012 PSLs at all receptors with the implementation of noise control recommendations on select equipment. Additional mitigation measures for compliance with the Low Frequency Noise (LFN) preliminary design evaluation are provided.

TABLE OF CONTENTS

1 INTRODUCTION 1
2 ASSESSMENT APPROACH 1
2.1 Environmental Noise Descriptors 1
2.2 Computer Modelling 2
3 STUDY AREA AND RECEPTORS 3
4 RULE 012 CRITERIA 5
4.1 Ambient Conditions 5
4.2 PSL Determination 5
4.3 Low Frequency Noise 6
5 EXISTING AND APPROVED FACILITIES 6
5.1 AER Regulated Facilities 6
5.2 Existing Noise Contributions 11
6 PREDICTION RESULTS 11
6.1 Noise Sources and Mitigations 11
6.1.1 Required Mitigations 11
6.2 Operation Results 16
6.3 Low Frequency Noise 18
6.3.1 Predicted Operation Results LFN Evaluation 18
6.3.2 Additional Mitigations for LFN Screening Threshold Compliance 18
6.3.3 Predicted Operation Results with Additional HRSG Mitigation for LFN 18
6.3.4 Predicted Operation Results LFN Evaluation with Additional HRSG Mitigation for LFN 19
7 CONCLUSION 20
8 STATEMENT OF LIMITATION 21
9 REFERENCES 22

LIST OF TABLES

Table 1: Model Configuration Parameters 2
Table 2: Location of Receptors and Spatial Locations from Project 3
Table 3: Daytime and Nighttime Permissible Sound Levels 6
Table 4: Third-Party Facility Noise Sources and Modelled Sound Power Levels 7
Table 5: Contribution of Existing and Approved Third-Party Facilities at Receptors 11
Table 6: Target Sound Power Levels for the HRSG Stack 12
Table 7: Modelled Building Transmission Loss 12
Table 8: Modelled HRSG Main Body and Inlet Transition – Minimum Additional Dynamic Insertion Loss 12
Table 9: Modelled Power Island Generation Building Roof – Minimum Additional Dynamic Insertion Loss 12
Table 10: Modelled Power Island Generation Building Ridge Vent – Minimum Additional Dynamic Insertion Loss 13
Table 11: Project Noise Sources and Modelled Sound Power Levels 14
Table 12: Assessment of Compliance with Nighttime PSLs 16
Table 13: Predicted Operational Results Low Frequency Noise Potential Screening Calculation 18
Table 14: Additional HRSG Mitigation for LFN Screening Threshold Compliance 18
Table 15: Assessment of Compliance with Nighttime PSLs with Additional HRSG Mitigation for LFN 19
Table 16: Low Frequency Noise Potential Screening Calculation 19

LIST OF FIGURES

Figure 1: Detailed Project Location, Receptors, and 1.5 km Criteria Boundary 4
Figure 2: Predicted Noise Contours – Project and Adjacent Facilities Contribution 17

LIST OF APPENDICES

Appendix A: Practitioner Biographies
Appendix B: Environmental Descriptors
Appendix C: Sound Level Meter and Calibrator Calibration Sheets
Appendix D: Project Plot Plan

VERSION HISTORY

Index	Date	Pages	Author
1	October 19, 2023	All	MPP, DJK
2	December 3, 2024	3, 6-10	DJK
3	April 3, 2025	All	MPP, TAD
4	May 20, 2025	2, 10	MPP
5	May 23, 2025	11, 15	LN

1 INTRODUCTION

Kîwetinohk Energy Corp proposing the development of the Flipi power generation facility (the Project) located SW ¼ Section 33-041-04 W5M, Clearwater County, AB. This Noise Impact Assessment (NIA) was prepared by RWDI to address the submission requirements for Kiwetinohk Energy Corp Alberta Utilities Commission (AUC) Rule 007 application and was prepared in accordance with AUC Rule 012: Noise Control (AUC 2024).

The Flipi Project will see the development of 460 MW Combined Cycle Power Plant and a 240kV substation facility.

A noise model was generated, and compliance was determined per AUC Rule 012. All work was completed by technical staff experienced in acoustic assessment, as detailed in Appendix A.

2 ASSESSMENT APPROACH

Noise from the proposed Project has been estimated using predictive modelling to determine the predicted noise impact at the nearest receptors. The assessment was completed by:

- Identifying receptors and respective Permissible Sound Levels (PSLs) per Rule 012;
- Determining existing ambient conditions per Rule 012;
- Estimating sound emissions from existing or approved nearby facilities;
- Estimating sound emissions from the proposed Project;
- Modelling the sound emissions to predict noise levels at receptors; and
- Comparing the predictions to the Rule 012 PSLs.

This report describes methods of the noise assessment, as well as general noise mitigation recommendations for the Project required to meet the PSLs.

2.1 Environmental Noise Descriptors

As environmental noise varies over time, a single number descriptor known as the Energy Equivalent Sound Level or L_{EQ} is used to quantify noise. It is defined as the steady continuous sound level, over a specified time period, that has the same acoustic energy as the actual varying sound levels occurring over the same time period. The L_{EQ} values are reported as A-weighted sound levels expressed in units of dBA (A-weighted decibels). The A-weightings are assigned to account for the frequency response of the human ear, which is most sensitive to mid-frequency sounds. The L_{EQ} in dBA is the primary sound level criteria addressed by AUC Rule 012 criteria.

AUC Rule 012 has different allowable sound levels for daytime, which it defines as 07:00 to 22:00 hours, and nighttime, which it defines as 22:00 to 07:00 hours. The dBA L_{EQ} during daytime periods is the 15-hour A-weighted energy equivalent sound level. Similarly, the dBA L_{EQ} during nighttime periods is a 9-hour A-weighted energy equivalent sound level.

In addition to assessing A-weighted L_{EQ} sound levels, AUC Rule 012 recommends that low frequency noise (LFN) be assessed at the design stage where data is available. LFN is measured using dBC (C-weighted decibels) L_{EQ} sound levels, expressed in dBC, which represent a nearly flat (unweighted) frequency response. Directive 038 assesses the potential for LFN complaints based on the difference between the dBC and dBA levels being greater that a 20 dB threshold, and whether there is tonality of the sound within the LFN frequencies.

A detailed glossary of terms is provided in Appendix B to aid the non-technical reader.

2.2 Computer Modelling

Modelling for this assessment was conducted using Cadna/A (Version 2025 – 209-5501) sound level prediction software set to use the environmental sound propagation calculation methods prescribed by the ISO Standard 9613 (ISO 1993, 1996). The ISO 9613 sound propagation method predicts sound levels under moderately developed temperature inversion and downwind conditions, which enhance sound propagation to the receptor. The evaluation is based on typical summertime weather conditions, as outlined in AUC Rule 012. Table 1 describes the configuration of the calculation parameters used to complete the noise modelling.

Table 1: Model Configuration Parameters

Parameter	Model Settings	Description/Notes
Calculation Standard	ISO 9613 only	All sources and attenuators treated as required by the cited standard.
Source Directivity	Vertical sources applied to larger structures	Directivity of the source emission and the barrier effect of the unit itself were included.
Ground Absorption	0.8 (index value 0 to 1)	Values used for soft ground. Applied to the entire modelling domain.
	0.4	Value used for crushed rock and gravel in the Project Area and other noise regulated facilities.
Temperature and Humidity	10°C/70% Relative Humidity	Average summer conditions resulting in the least atmospheric attenuation.
Wind Conditions	Default ISO 9613	The propagation conditions in the ISO (1996) standard are valid for wind speeds between 4 and 18 km/h; all points are considered downwind.
	ISO 1996 – moderate inversion condition	
Terrain	Terrain applied	Terrain in the area is modelled at 5 m resolution to account for any natural barriers within the study area (CDEM 2011).
Reflections	1	One reflection is taken into account for reflections from on-site structures.
Search Radius	5000m	All sources within this radius of a receptor or grid point are calculated.

The sound emissions for all sources considered in the Cadna/A modelling were established by measuring sound pressure level measurements during the September 21, 2023, and October 3, 2023, study area site visits, reviewing

proposed Project equipment lists, site layouts and activity descriptions. Sound data was reviewed and confirmed in this Revision 3 update. Sound emissions were identified for each type of equipment using, in order of preference: site specific measured data, manufacturer data, measured data from similar equipment, public literature or theoretical calculation.

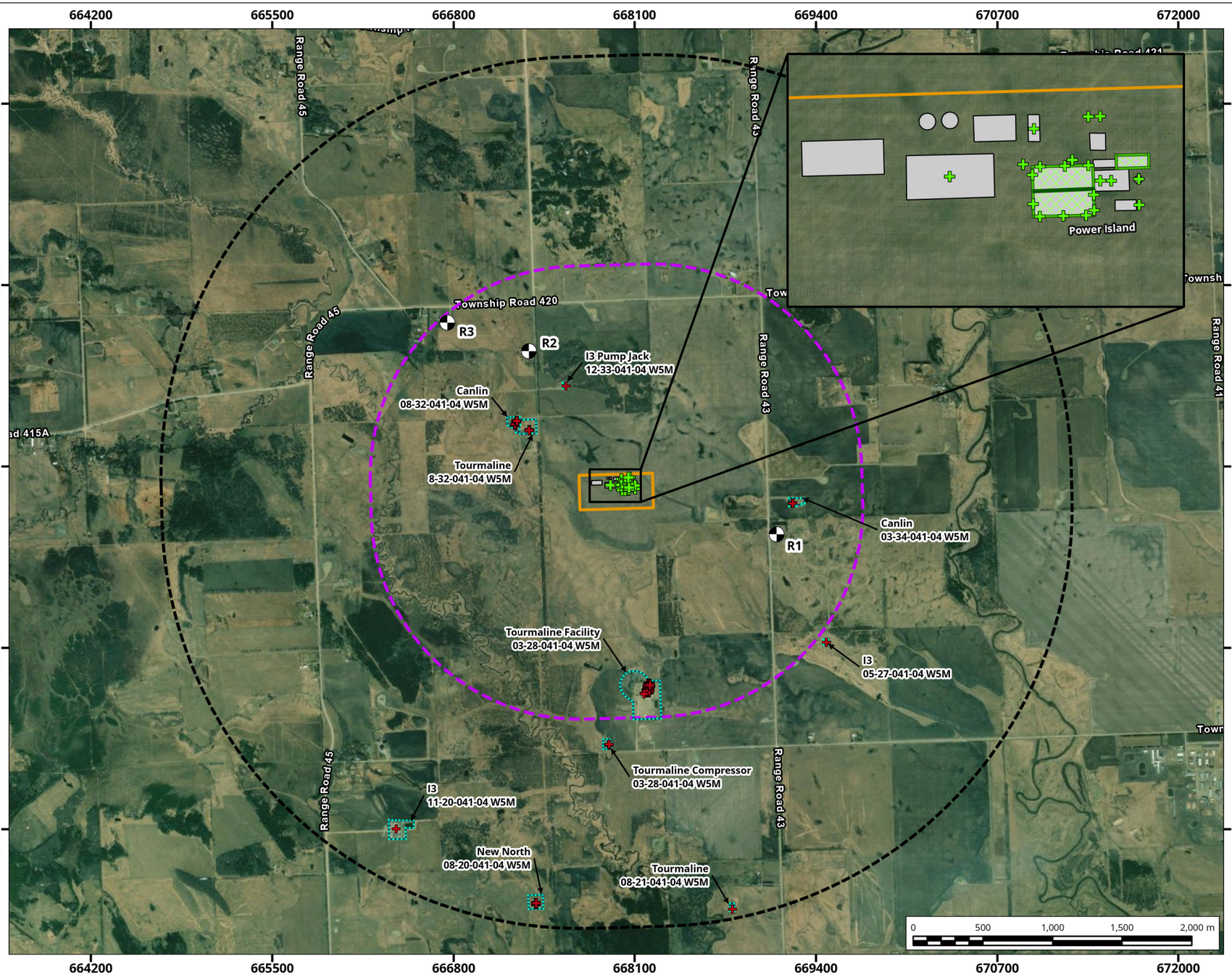
3 STUDY AREA AND RECEPTORS

AUC Rule 012 defines a noise-sensitive receptor as any permanent or seasonally occupied dwelling within 1.5 km of a facility. In areas where there are no nearby residents, Rule 012 sets a limit on the sound levels at a distance of 1.5 km from the Project fenceline, referred herein as the 1.5 km Criteria Boundary. To be consistent with other applications to the AUC, the property line, as supplied in site drawings, has been defined as the Project fenceline.

Table 2 shows the geographic coordinates, distance, and direction of the three dwelling receptors within 1.5 km from the Project fenceline. All dwelling receptors are single storey residences and were modelled at 1.5 m above ground. Receptor R1 is currently unoccupied, but discussions with landowners indicate a potential for a future residence, therefore the location has been assessed. Review of third-party facilities indicate no need to include dwellings outside the standard 1.5 km distance due to the absence of other significant facilities within 3 km of the Project.

Table 2: Location of Receptors and Spatial Locations from Project

Receptor ID	Receptor Type	Height (m)	UTM Coordinates (NAD 83, Zone 11)	
			Easting (m)	Northing (m)
R1	Single Storey Dwelling	1.5	669118	5826915
R2	Single Storey Dwelling	1.5	667343	5828226
R3	Single Storey Dwelling	1.5	666755	5828432



Legend

- Receptor

Project Facility

- Sound Point Source
- Sound Line Source
- Vertical Area Source
- Sound Area Source
- Building
- Tank
- Fenceline Perimeter

Third Party Facilities

- Sound Point Source
- Fenceline Perimeter

Buffers

- 1.5 km Criteria Boundary
- 3.0 km Criteria Boundary

Service Layer Credits: Hybrid Reference Layer: Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA. US Census Bureau, USDA, NRCan, Parks Canada
World Imagery: Maxar

Map Document: C:\GIS\READY TO BE ARCHIVED\2305498_Kiwetinohk\P2508044_Kiwetinohk.aprx

Kiwetinohk Energy | Flipi 460 MW Combined Cycle Power Plant

Detailed Project Location, Receptor, 1.5 km and 3.0 km Criteria Boundaries, and Third Party Facilities

Map Projection: NAD 1983 UTM Zone 11N
Flipi Facility - SW 1/4 SEC 33-041-04 W5M, Clearwater County, Alberta

True North

Project #: 2508044

Drawn by:	RCL	Figure:	1
Approx. Scale:			1:31,000
Date Revised:			Mar 28, 2025

4 RULE 012 CRITERIA

4.1 Ambient Conditions

AUC Rule 012 requires the consideration of ambient levels in the determination of Permissible Sound Levels (PSLs) and compliance of proposed projects. In areas where the assumed ambient described in Table 1 of AUC Rule 012 is not representative of an area, measured values may be used in establishing the PSLs such as areas meeting the definition of 'pristine' in the rule or may be influenced by non-noise regulated development. The Project area does not meet the definition of pristine according to AUC Rule 012, which states:

> *A natural area that might have a dwelling but no industrial presence, including energy, agricultural, forestry, manufacturing, recreational or other industries that affect the noise environment.*

The Project is located in a mature oil and gas field and active third-party facility contributions have been included in the assessment. A 240 kV power transmission corridor is located along the eastern edge of the Project site. The use of the assumed ambient sound level as being 5 dB less than the Basic Sound Level (BSL) is well founded and may be considered a reasonable approach to establishing the PSL for all dwellings in this NIA.

4.2 PSL Determination

The requirements of AUC Rule 012 limit the amount of sound contribution at a receptor location that may be generated by facilities. The sound level limits for a receptor are set by calculating PSLs according to the procedures in AUC Rule 012. If an adjusted PSL has been previously approved for a receptor, the approved PSL must be used.

A PSL is determined using a Basic Sound Level (BSL) modified by any allowed adjustments. Where no special conditions exist, the PSL is determined as follows:

Permissible Sound Level	=	Basic Sound Level (Table 1 in Rule 012)	+	Daytime Adjustment (If applicable)

No special ambient conditions were identified, the BSL is determined based on dwelling density and proximity to heavily travelled roadways per Table 1 in AUC Rule 012. All receptors are rural residences with a dwelling density of less than 8 dwellings per quarter section with all adjacent roads being not identified as heavily travelled. For all receptors identified in Table 3, the PSLs are the BSL of 40 dBA for the nighttime period and 50 dBA for the daytime period. A summary of the receptor PSLs is provided in Table 3.

Table 3 shows the permissible sound levels for the Project. Figure 2 shows the Project boundary, nearest dwelling receptors, and the 1.5 km boundary.

Table 3: Daytime and Nighttime Permissible Sound Levels

Receptor ID	Nighttime BSL[1]	Assumed Ambient Sound Level[2] (dBA)		Permissible Sound Level[3] (dBA)	
		Night[4]	Day [5]	Night[4]	Day [5]
R1	40	35	45	40	50
R2	40	35	45	40	50
R3	40	35	45	40	50

Notes: 1 - Basic sound level as identified per Table 1 of Directive 038.
2 - Assumed nighttime ambient sound level is 5 dBA less than BSL.
3 - Assumed daytime ambient sound level is the assumed nighttime ambient plus the 10 dBA daytime adjustment.
4 - Nighttime PSL is equal to the BSL as there are no Class A, B, or C adjustments.
5 - Daytime PSL is equal to the BSL plus the 10 dBA daytime adjustment, as there are no Class A, B, or C adjustments.

4.3 Low Frequency Noise

Regarding low frequency noise (LFN), Directive 038 states that a LFN condition may exist where the difference between Project contributed time weighted average dBA and dBC levels is equal to or greater than 20 dB, and where a clear tonal component exists at a frequency below 250 Hz.

5 EXISTING AND APPROVED FACILITIES

AUC Rule 012 requires that a cumulative assessment be considered for the development of any energy related facilities (regulated through AUC or AER) in Alberta. The cumulative assessment must include the contributions from both existing and approved (but not yet built) facilities.

5.1 AER Regulated Facilities

To identify facilities that may contribute to the acoustic environment, two site visits to the study area were conducted and publicly available databases were reviewed to determine the locations of potential energy-related contributors. A 3 km search area from the Project boundary was considered for the detailed database search. The following databases were consulted to determine the locations of facilities in the vicinity of the Project:

- Alberta Energy Regulator ST37 – Alberta well listing (AER 2023a, AER 2024a, AER 2025)
- Alberta Energy Regulator ST102 – Alberta facility list (AER 2023b, AER 2024b, AER 2025)

RWDI conducted a site visit on September 21, 2023, to conduct sound pressure level measurements of the Tourmaline Energy Corp. (Tourmaline) facilities in the study area. The facilities visited are listed below:

- Tourmaline Gilby Compressor Station LSD 03-28-041-04 W5M
- Tourmaline Gilby Compressor LSD 03-28-041-04 W5M

- Tourmaline Gilby Compressor LSD 08-32-041-04 W5M
- Tourmaline production well site in LSD 08-21-041-04 W5M.

RWDI conducted a second site visit on October 3, 2023, to conduct sound pressure level measurements of the Canlin Energy Corp. (Canlin), New North Resources Ltd. (New North) and i3 Energy (i3) facilities in the study area. The facilities visited or observed are listed below:

- Canlin Gilby East Compressor LSD 08-32-041-04 W5M
- Canlin Gilby East Compressor LSD 04-34-041-04 W5M
- New North Leedale Compressor Station LSD 08-20-041-04 W5M
- i3 Well site LSD 12-33-041-04 W5M
- i3 Gilby Compressor Station LSD 11-20-041-04 W5M.

All acoustic measurements were conducted using a Brüel & Kjaer 2250 class 1 sound level meter which meets all requires defined in Section 4.7.1 of AUC Rule 012. Calibration certificates of the sound level meter are provided in Appendix C.

ST37 database search indicates both active and inactive production well sites are within the study area. Operational sites observed during the study area site visits have been included and derelict sites have been omitted from the NIA. Flowing gas wells within 3 km of the Project are not considered a significant sound source, however artificial lift equipment is included as it has the potential to influence the acoustic environment. These have been modelled using RWDI reference levels of typical pumping wells based on historical measurements for the area.

Table 4 lists the identified active third-party facilities included in the environmental noise prediction model, including the locations and the modelled sound power levels.

Table 4: Third-Party Facility Noise Sources and Modelled Sound Power Levels

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Tourmaline LSD 03-28-041-04 W5M Compressor Station - K610 Booster Compressor												
Cooler Inlet	P	83.1	81.3	91.3	87.2	83.7	80.6	77.2	76.5	70.3	86.7	94.3
Cooler Outlet	P	84.2	82.6	87.7	87.3	79.5	79.2	75.8	70.6	63.1	84.5	92.5
Building	P	95	99.2	92.3	88.7	82.7	77.6	74.1	65.8	54.7	85.4	101.5
Tourmaline LSD 03-28-041-04 W5M Compressor Station - K600, K601, K602, K603 Identical Engine Driven Gas Compressors												
Cooler_Inlet_Fan1	P	102.8	101.5	99.0	96.5	92.7	89.0	87.8	82.7	76.4	95.6	106.9
Cooler_Outlet_Fan1	P	93.7	93.4	90.7	87.2	83.0	78.7	77.0	71.6	62.5	85.6	98.2
Cooler_Inlet_Fan2	P	102.8	101.5	99.0	96.5	92.7	89	87.8	82.7	76.4	95.6	106.9
Cooler_Outlet_Fan2	P	93.7	93.4	90.7	87.2	83.0	78.7	77.0	71.6	62.5	85.6	98.2
Engine Exhaust	P	106.2	99.9	96.6	91.3	85.8	84.0	83.1	79.0	73	90.6	107.7
Silencer Shell Lagging	P	100.3	105.5	103.3	96.6	86.4	88.2	86.6	82.3	75.2	94.7	108.7
Building Wall Vents	P	78.6	84.9	84.2	77.5	72.8	65.9	65.8	66.8	58.2	76.0	88.7
Building Roof Vents	P	89.3	90.0	82.3	75.3	74.3	69.1	69.3	65.8	61.4	76.9	93.2
Engine Air Inlet	P	83.4	83.5	80.1	74.9	73.8	70.9	70.8	70.3	61.7	77.9	88.0

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Building Exterior Roof	A	101.5	110.3	102.7	97.7	94.4	88.5	89	83.8	73.0	96.9	111.7
Building Exterior Short Sides	V	98.6	107.4	99.8	94.8	91.5	85.6	86.1	80.9	70.1	94.0	108.8
Building Exterior Long Sides	V	100.6	109.4	101.8	96.8	93.5	87.6	88.1	82.9	72.1	96.0	110.9
Tourmaline LSD 03-28-041-04 W5M Compressor												
Compressor Open Doors	P	93.4	86.4	88.9	85.2	88.1	88.9	87.1	85.7	81.8	93.8	97.9
Cooler Outlet Engine Exhaust	P	92.5	93.2	89.1	79.0	71.0	70.0	69.8	64.1	54.9	78.3	96.8
Cooler Inlet Silencer Openings	P	88.6	91.6	88.1	72.1	64.2	61.0	58.2	54.5	55.5	74.1	94.5
Compressor Roof	A	95.9	95.8	95.6	88.9	85.3	76.2	74.3	67.8	62.0	86.5	100.9
Compressor Long Walls	V	95.4	95.3	95.1	88.4	84.8	75.7	73.8	67.3	61.5	86.1	100.5
Compressor Short Wall	V	93.8	93.7	93.5	86.8	83.2	74.1	72.2	65.7	59.9	84.4	98.8
Tourmaline LSD 08-32-041-04 W5M Compressor												
Compressor Vent Silencers	P	64.3	67.8	74.6	64.6	64.6	59.9	48.2	45	47.8	65.6	76.5
Compressor Engine Air Inlet	P	69.4	69.4	75.5	67.8	64.7	62.2	57.5	65.9	69.8	72.5	78.9
Compressor Cooler Outlet	P	93.2	90.2	87.8	81.8	78	73.7	69.5	66.7	62.9	80.5	96.0
Compressor Cooler Inlet Silencer Openings	P	100.3	97.8	86.3	85.6	70.6	66.4	61.4	57	52.6	79.5	102.4
Compressor Engine Exhaust	P	95.3	91.5	92.1	87.3	85.3	80.7	77.9	72.1	66.6	87.0	98.7
Compressor Vent Silencers	P	64.3	67.8	74.6	64.6	64.6	59.9	48.2	45.0	47.8	65.6	76.5
Building Exterior Roof	A	94.5	91.3	104.1	99.3	93.2	87	83.5	85.4	75.6	96.1	106.2
Compressor Long Walls	V	92.1	88.9	101.7	96.9	90.8	84.6	81.1	83	73.2	93.7	103.8
Compressor Short Wall	V	90.4	87.2	100	95.2	89.1	82.9	79.4	81.3	71.5	92.0	102.1
Tourmaline LSD 08-21-041-04 W5M Pump Jack												
Pump Jack [3]	P	105.0	101.0	98.0	90.0	89.0	84.0	83.0	82.0	78.0	91.7	107.2
Canlin LSD 04-34-041-04 W5M Compressor												
Open Windows	P	76.3	73.5	74	84.7	76.4	77.1	74.1	73.3	67.6	82.5	87.3
Cooler Outlet	P	88.2	89.9	84.1	87	81.4	81.8	73.6	69	62.6	85.3	94.3
Cooler Plenums	P	96.1	99.1	85.8	92.2	86.3	84.7	73.9	69.2	68	89.1	101.8
Cooler Inlet	P	88.6	96.3	89.9	91.3	87.9	85.1	77.4	72.4	65.9	89.7	99.2
Building Exterior Roof	A	81.1	83.4	84.1	89.3	72.6	74.4	68.1	62.6	55.5	82.4	91.8
Building Exterior Long Walls	V	79.8	82.1	82.8	88	71.3	73.1	66.8	61.3	54.2	81.1	90.5

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Building Exterior Short Wall	V	78.5	80.8	81.5	86.7	70	71.8	65.5	60	52.9	79.7	89.1
Canlin LSD 08-32-041-04 W5M Compressor – North Unit												
Cooler Outlet	P	96.8	98.7	90.9	91.3	91.3	86.7	82.1	75.7	67.5	92.1	102.3
Cooler Inlet	P	105.6	104.4	98.1	96.9	93.8	88.2	87.3	82.5	76.5	95.7	108.9
Cooler Plenums	P	100.5	99.2	93.7	94.4	93.5	86.9	83.6	80.3	76.4	94.0	104.4
Eng Air Inlet	P	80.2	89.0	78.0	83.4	78.4	75.9	81.4	83.2	78	87.8	92.3
Closed Door	P	89.1	89.4	84.6	86.3	79.4	76.4	71.1	68.6	61.7	82.6	94.1
Open Door	P	90.9	98.1	89	91.4	90.9	89.8	89.1	87.4	84.7	95.8	101.4
Engine Exhaust	P	95.1	111.5	89.4	86.1	83.9	80.0	78.4	72.6	65.5	88.8	111.6
Silencer Shell	P	92.1	104.3	87.9	88.3	86.3	83.2	83.9	78.1	68.7	90.0	104.8
Wall Vents	P	85.7	92.9	83.7	86.2	85.7	84.6	83.9	82.2	79.5	90.6	96.2
Ridge Vent	P	86.1	93.2	84.1	86.6	86.1	84.9	84.2	82.6	79.9	90.9	96.5
Building Exterior Roof	A	98.7	101.1	95.1	96.3	87.8	80.8	77.4	72.9	67.4	90.8	104.6
Building Long Walls	V	97.9	100.3	94.3	95.5	87	80	76.6	72.1	66.6	90.0	103.7
Building Short Wall	V	96.2	98.6	92.6	93.8	85.3	78.3	74.9	70.4	64.9	88.3	102.1
Canlin LSD 08-32-041-04 W5M Compressor – South Unit												
Wall Vents	P	73.4	77.7	69.6	75.5	70.8	65.6	67.5	59	49.2	73.6	81.7
Open Doors	P	78.5	86.3	86	90.8	87.7	89.1	88.8	84.8	78.9	94.4	96.7
Cooler Outlet	P	90.9	92.6	89.8	91	87.4	87.2	82.3	77.1	70.7	91.1	98.2
Cooler Inlet East	P	86.1	92.6	75.7	68.1	62.9	58.4	54	47.5	41.3	69.2	93.6
Cooler Inlet West	P	86.1	92.6	75.7	68.1	62.9	58.4	54	47.5	41.3	69.2	93.6
Engine Exhaust	P	88.8	102	85.6	83.7	81.8	83.4	79.1	71.9	64.0	87.0	102.5
Vent Silencers	P	73.4	77.7	69.6	75.5	70.8	65.6	67.5	59	49.2	73.6	81.7
Ridge Vent	P	73.4	77.7	69.6	75.5	70.8	65.6	67.5	59	49.2	73.6	81.7
Building Exterior Roof	A	94.6	100.1	90	89.4	83	79.9	78.4	72.2	63.7	86.8	101.9
Building Long Walls	V	91.5	97.1	87	86.3	80	76.8	75.3	69.1	60.7	83.7	98.8
Building Short Wall	V	89.9	95.4	85.3	84.6	78.3	75.2	73.6	67.4	59.0	82.0	97.1
New North LSD 08-20-041-04 W5M Compressor												
Wall Vent Silencers	P	74.8	80.2	79.6	68.3	59.4	54.7	56.4	60.7	57.3	68.2	83.7
Cooler Outlet	P	89.5	93.5	86.3	76.4	73.9	77.5	72	62.4	55.9	80.5	95.7
Cooler Inlets	P	88.7	89.1	84.1	77.6	65.3	55.4	52.4	47.5	43.2	72.7	92.8
Engine Exhaust	P	89.2	94.2	82.7	78.7	77.8	81.9	75.6	63.8	53.1	84.1	96.0
Engine Air Inlet	P	78.3	83.2	75	75.9	75.5	76	73.4	69.7	62.6	80.2	86.6
Roof Vent Silencers	P	74.8	80.2	79.6	68.3	59.4	54.7	56.4	60.7	57.3	68.2	83.7
Building Exterior Roof	A	89.8	100.1	97.4	87.4	79.3	75	73.1	71.1	67.5	85.5	102.4
Building Long Walls	V	89.8	100.1	97.4	87.4	79.2	74.9	73.1	71	67.4	85.5	102.4
Building Short Wall	V	88.1	98.4	95.7	85.7	77.6	73.2	71.4	69.3	65.7	83.8	100.7
i3 LSD 12-33-041-04 W5M Pump Jack												
Pump Jack [3]	P	105	101	98	90	89	84	83	82	78	91.7	107.2
i3 LSD 05-27-041-04 W5M Compressor												
Compressor Sum [4]	P	100	100.8	102.5	99.5	99	97	93.6	88.5	78.5	101.6	108.1

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
i3 LSD 11-20-041-04 W5M Gilby Gas Plant												
Overall Facility [5]	P	111.1	111.8	109.6	106	100.8	95	91.7	84.9	70.5	102.9	116.3

Notes: 1 – All equipment sound power levels are based on sound pressure level measurements taken during the RWDI September 21, 2023, or October 3, 2023, site visits except as noted.

2 – Represents the following source types: P – Point Source, L – Line Source, A – Area Source, and V – Vertical Area Source.

3 – Pump Jack sound level from RWDI's sound power level reference library of similar equipment

4 – i3 LSD 05-24-041-04 W5M Compressor unit sum derived from sound power levels presented in (FFA, 2012)

5 – i3 LSD 11-20-041-04 W5M Compressor Station sound power derived from fenceline sound pressure level measurements taken by RWDI on October 3, 2023.

5.2 Existing Noise Contributions

Table 5 lists the combined facilities' contribution from the identified industry regulated third-party facilities in the study area. Existing levels are compliant with AUC Rule 012 PSLs at the receptors evaluated.

Table 5: Contribution of Existing and Approved Third-Party Facilities at Receptors

Receptor ID	Existing and Approved Facilities Contributions (dBA)
	Daytime / Nighttime
R1	32.3
R2	35.5
R3	30.2

6 PREDICTION RESULTS

6.1 Noise Sources and Mitigations

The KEC Flipi Project will see the development of 460 MW Combined Cycle Power Plant and an associated substation. The Project is a combined cycle power plant consisting of one natural gas fired combustion turbine and one steam turbine. Appendix D presents the proposed Project facility plot plan. KEC provided RWDI with Siemens Energy base design estimated component sound power levels for the power plant equipment. RWDI has developed minimum additional dynamic insertion loss (DIL) requirements for component equipment. The additional DILs below allow for PSL compliance of all proposed equipment.

Previous revisions of the NIA included a carbon capture plant (CCP) consisting of a carbon capture package and CO2 compression and dehydration equipment as indicated on the Appendix D Project facility plot plan. KEC has indicated these two portions of the Project are not part of this application.

6.1.1 Required Mitigations

The Project modelled sound power levels will require specific mitigations applied to the Siemens Energy manufacturers' sound power level to predict compliance with the PSLs at dwelling receptors evaluated. Sources described below are treated with additional Dynamic Insertion Loss (DIL) source attenuation octave band levels, as indicated.

The HRSG stack will require a reduction to the overall sound power level. A linear reduction of 20 dB was applied, resulting in the overall sound power level as defined below in Table 6.

Table 6: Target Sound Power Levels for the HRSG Stack

Source	Calculated Reduction (dB)	Target Sound Power Levels at Octave Band Center Frequencies (dB)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Power Island HRSG Stack	20	98	92	93	99	110	103	91	97	81	108.9	111.6

Breakout sound from modelled buildings have been considered using typical DIL for oil and gas buildings. Table 7 lists the assumed building DIL for all buildings.

Table 7: Modelled Building Transmission Loss

Item	Building Transmission Loss at Octave Band Center Frequencies (dB)								
	31.5	63	125	250	500	1,000	2,000	4,000	8,000
Modelled Building Transmission Loss - Typical Oil and Gas Building Construction STC 26	8	9	11	15	24	27	29	33	35

The HRSG Main Body and Inlet Transition sources are treated with additional DIL source attenuation. A building enclosure or similar exterior lagging treatment can provide the mitigation levels. Table 8 lists the minimum additional DIL for both sources as modelled. Section 6.3 below proposes further reductions on HRSG main body and inlet transmission equipment components for LFN evaluation compliance.

Table 8: Modelled HRSG Main Body and Inlet Transition – Minimum Additional Dynamic Insertion Loss

Item	Transmission Loss at Octave Band Center Frequencies (dB)								
	31.5	63	125	250	500	1,000	2,000	4,000	8,000
Total HRSG Main Body (B1&B2)	0	2	0	3	10	14	8	0	0
Total HRSG Inlet Transition (T1&T2)	0	2	0	3	10	14	8	0	0

The Power Island Generation Building roof breakout sound sources are reduced by additional DIL source attenuation. Commonly available treatments applied to the roof, in addition to the modelled building transmission loss assumed for the roof presented in Table 7, can achieve the DIL. Table 9 lists the minimum additional DIL for the roof source as modelled.

Table 9: Modelled Power Island Generation Building Roof – Minimum Additional Dynamic Insertion Loss

Item	Transmission Loss at Octave Band Center Frequencies (dB)								
	31.5	63	125	250	500	1,000	2,000	4,000	8,000
Building Sound Breakout - Roof	0	3	6	5	6	0	0	0	0

The Power Island Generation Building untreated roof vent sources are reduced by additional DIL source attenuation. A building ventilation silencer treatment can provide the mitigation levels for the roof vents. Table 10 lists the minimum additional DIL for the sources as modelled.

Table 10: Modelled Power Island Generation Building Ridge Vent – Minimum Additional Dynamic Insertion Loss

Item	Transmission Loss at Octave Band Center Frequencies (dB)								
	31.5	63	125	250	500	1,000	2,000	4,000	8,000
Building Ridge Vent	0	0	0	2	7	12	5	0	0

Air cooled condensers are reduced by an overall source attenuation as listed below. The equipment supplier may have a quieter fan selection for the cooler listed below. Other treatments such as cooler inlet and outlet silencers or variable frequency drive controls may also provide the minimum additional DIL source attenuation.

- The Power Island Air Cooled Condenser - reduced by 6 dB overall attenuation

No other sound generating equipment has been identified on the site. All sources have been conservatively modelled as running continuously. A listing of the proposed sources that were modelled are presented in Table 11. Table 11 lists the overall sound power levels with applied mitigations and required attenuations listed above.

Table 11: Project Noise Sources and Modelled Sound Power Levels

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Power Island												
Boiler house and Generators												
Power Island Auxiliary Boiler Stack	P	100.7	99.7	96.7	94.7	82.7	75.7	67.7	64.7	50.7	88.3	104.6
Boiler Feedwater Pump Building												
Boiler Feedwater Pump Building Roof	H	103.9	104.7	103.5	98.9	90.9	88.9	85.9	78.7	69.9	95.6	109.3
Boiler Feedwater Pump Building Sides	V	99.1	99.9	98.7	94.1	86.1	84.1	81.1	73.9	65.1	90.9	104.6
Boiler Feedwater Pump Building Sides	V	95.2	96	94.8	90.2	82.2	80.2	77.2	70	61.2	86.9	100.7
Boiler Feedwater Pump Building Sides	V	99.1	99.9	98.7	94.1	86.1	84.1	81.1	73.9	65.1	90.9	104.6
Boiler Feedwater Pump Building Sides	V	95.2	96	94.8	90.2	82.2	80.2	77.2	70	61.2	86.9	100.7
Transformers (Quieted)												
Power Island Generator Step Up Transformer	P	90.5	96.5	98.5	93.5	93.5	87.5	82.5	77.5	70.5	93.9	102.6
Power Island Main Auxiliary Transformer	P	90.5	96.5	98.5	93.5	93.5	87.5	82.5	77.5	70.5	93.9	102.6
Coolers												
Power Island Aux Cooling Heat Exchanger	P	-	111.9	106.2	100.6	93	94.3	84	77.3	71.4	98.5	113.3
Power Island Air Cooled Condenser [3]	P	-	106	106	103	100	98	94	87	81	102.8	110.8
Power Island Generation Building												
Power Island GT Inlet Filter House	P	118	112	108	99	87	90	79	96	105	105.3	119.5
Total HRSG Main Body (B1&B2) [4]	P	126	114	104	98	96	90	97	107	80	108.8	126.4
Total HRSG Inlet Transition (T1&T2) [4]	P	129	114	104	100	101	96	103	115	88	116.4	129.3
Power Island HRSG Stack [5]	P	98	92	93	99	110	103	91	97	81	108.9	111.6
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3

Item[1]	Source Type[2]	Sound Power Levels (dBA, re: 10^{-12} W) Octave Band Frequency (Hertz)									Overall Sound Power	
		31.5	63	125	250	500	1,000	2,000	4,000	8,000	(dBA)	(dB)
Generation Building Louvers	P	99.9	102	98.8	91.5	95.5	89.4	88.6	94.1	78.5	98.6	106.3
Generation Building Roof [6]	A	121.1	119.2	111.1	101.7	94.8	91.6	88.9	90.4	72.8	101	123.6
Generation Building Sides – End	V	111	112.1	107	95.6	90.7	81.5	78.8	80.3	62.7	94.8	115.3
Generation Building Sides – Long Side	V	111.8	112.9	107.8	96.4	91.5	82.3	79.6	81.1	63.5	95.7	116.2
Generation Building Sides – End	V	111	112.1	107	95.6	90.7	81.5	78.8	80.3	62.7	94.8	115.3
Generation Building Sides – Long Side	V	111.8	112.9	107.8	96.4	91.5	82.3	79.6	81.1	63.5	95.7	116.2
Generation Building Ridge Vent [7]	L	112.5	114.6	111.5	102.1	101.2	90	96.3	106.7	91.1	109	118.4

Notes: 1 – All equipment are either manufacturer specifications or are based on power ratings provided by the client and were determined using empirical formulae from (Bies 2009 and Crocker 2008).

2 – Represents the following source types: P – Point Source, L – Line Source, A – Area Source, and V – Vertical Area Source.

3 – Air Cooled Condenser and cooler sound sources include DIL presented in Section 6.1.1

4 – Power Island Total HRSG Main Body (B1&B2) and Power Island Total HRSG Inlet Transition (T1&T2) sound sources include DIL presented in Table 8

5 – Power Island HRSG Stack sound sources include DIL presented in Table 6.

6 – Building Roof sound sources include DIL presented in Table 9

7 – Building Ridge Vent sound sources include DIL presented in Table 10

6.2 Operation Results

Table 12 shows the predicted nighttime and daytime sound levels and the determination of compliance with the PSLs. The predicted results indicate that the proposed Project cumulative sound level complies with the PSLs. Figure 2 shows the predicted contours for the Project and identified adjacent facilities.

Table 12: Assessment of Compliance with Nighttime PSLs

Receptor ID	Assumed Ambient Sound Level[1] (dBA)	Existing and Approved Facilities Contributions[2] (dBA)	Proposed Project Contribution (dBA)	Calculated Cumulative Sound Level[3] (dBA)	Cumulative Sound Level[4] (dBA)	PSL[5] (dBA)	Complies with AUC Rule 012? (Y/N)
Nighttime (22:00 - 07:00)							
R1	35.0	32.3	36.4	39.6	40	40	Y
R2	35.0	35.5	34.8	39.9	40	40	Y
R3	35.0	30.2	30.4	37.2	37	40	Y
Daytime (07:00 - 22:00)							
R1	45.0	32.3	36.4	46.0	46	50	Y
R2	45.0	35.5	34.8	46.0	46	50	Y
R3	45.0	30.2	30.4	45.0	45	50	Y

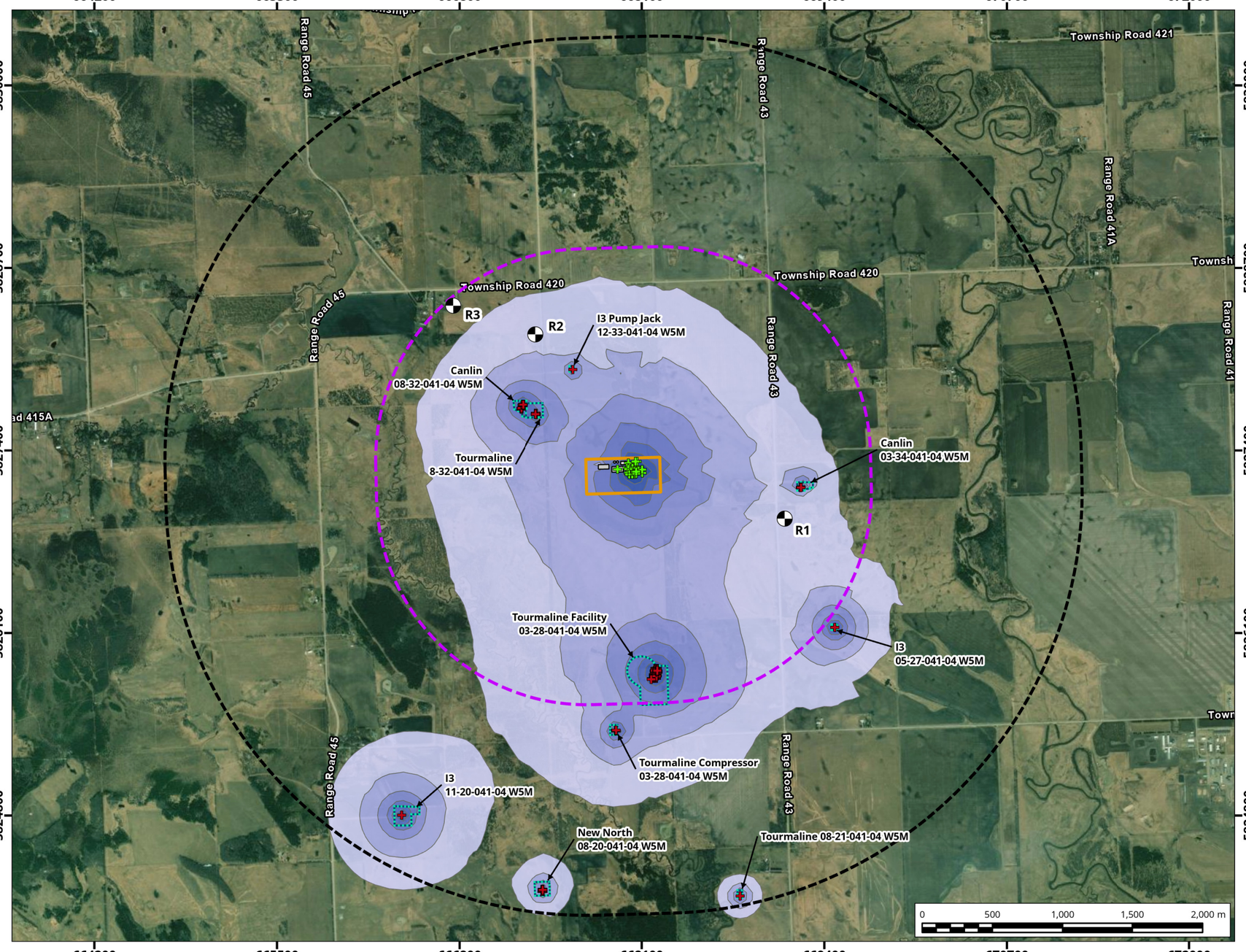
Notes: 1 - Ambient Sound Level as outlined by AUC Rule 012, Table 1.

2 – As calculated in Table 5.

3 – The calculated cumulative sound level is the logarithmic sum of the ambient, adjacent facilities, and the project contribution.

4 – The cumulative sound level is the logarithmic sum of the ambient, adjacent facilities, and the project contribution, rounded to integer precision.

5 - Permissible sound level as outlined by AUC Rule 012.



Legend

- Receptor

Project Facility

- Sound Point Source
- Building
- Tank
- Fenceline Perimeter

Third Party Facilities

- Sound Point Source
- Fenceline Perimeter

Buffers

- 1.5 km Criteria Boundary
- 3.0 km Criteria Boundary

Sound Level Contours (dBA)

- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80

Service Layer Credits: World Imagery: Maxar
Hybrid Reference Layer : Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, US Census Bureau, USDA, NRCan, Parks Canada

Kiwetinohk Energy | Flipi 460 MW Combined Cycle Power Plant

Predicted Noise Contours at 1.5 km and 3.0 km Criteria Boundaries - Project and Third Party Facilities

Map Projection: NAD 1983 UTM Zone 11N

Flipi Facility - SW 1/4 SEC 33-041-04 W5M, Clearwater County, Alberta

True North

Project #: 2508044

Drawn by:	RCL	Figure:	2
Approx. Scale:			1:31,000
Date Revised:			Mar 28, 2025

Map Document: C:\GIS\READY TO BE ARCHIVED\2305498_Kiwetinohk\P2508044_Kiwetinohk.aprx

6.3 Low Frequency Noise

The predicted Project only dBC minus dBA results were reviewed to determine the potential for LFN at the receptors. Additional mitigation measures for LFN compliance are presented when the preliminary dBC minus dBA evaluation results exceed the 20 dB threshold.

6.3.1 Predicted Operation Results LFN Evaluation

The greatest difference between the dBC and dBA weighted values from Project only sources is 25.9 dB at R1, indicating the potential for a LFN condition as the difference is above the 20 dB threshold. The dBC minus dBA evaluation is shown in Table 13.

Table 13: Predicted Operational Results Low Frequency Noise Potential Screening Calculation

Receptor ID	C-Weighted Sound Level	A-Weighted Sound Level	dBC-dBA
R1	62.3	36.4	25.9
R2	53.6	34.8	18.8
R3	49.1	30.4	18.7

6.3.2 Additional Mitigations for LFN Screening Threshold Compliance

The HRSG body and Inlet Transition sources are the largest contributor of LFN as shown in Table 11 31.5 Hertz octave band frequency column. Additional mitigation DIL applied to those sources as shown in Table 14 is predicted to reduce the dBC – dBA screening calculation results below the 20 dB threshold.

Table 14: Additional HRSG Mitigation for LFN Screening Threshold Compliance

Item	Transmission Loss at Octave Band Center Frequencies (dB)								
	31.5	63	125	250	500	1,000	2,000	4,000	8,000
Total HRSG Main Body (B1&B2)	9	5	0	0	0	0	0	0	0
Total HRSG Inlet Transition (T1&T2)	12	6	0	0	0	0	0	0	0

6.3.3 Predicted Operation Results with Additional HRSG Mitigation for LFN

Table 15 shows the predicted nighttime and daytime sound levels and the determination of compliance with the PSLs with the additional HRSG mitigation for LFN presented in Table 14. The predicted results indicate that the proposed Project cumulative sound level complies with the PSLs.

Table 15: Assessment of Compliance with Nighttime PSLs with Additional HRSG Mitigation for LFN

Receptor ID	Assumed Ambient Sound Level[1] (dBA)	Existing and Approved Facilities Contributions[2] (dBA)	Proposed Project Contribution (dBA)	Calculated Cumulative Sound Level[3] (dBA)	Cumulative Sound Level[4] (dBA)	PSL[5] (dBA)	Complies with AUC Rule 012? (Y/N)
Nighttime (22:00 - 07:00)							
R1	35.0	32.3	35.9	39.4	39	40	Y
R2	35.0	35.5	34.8	39.9	40	40	Y
R3	35.0	30.2	30.3	37.2	37	40	Y
Daytime (07:00 - 22:00)							
R1	45.0	32.3	35.9	46.0	46	50	Y
R2	45.0	35.5	34.8	46.0	46	50	Y
R3	45.0	30.2	30.3	45.0	45	50	Y

Notes: 1 - Ambient Sound Level as outlined by AUC Rule 012, Table 1.

2 – As calculated in Table 5.

3 – The calculated cumulative sound level is the logarithmic sum of the ambient, adjacent facilities, and the project contribution.

4 – The cumulative sound level is the logarithmic sum of the ambient, adjacent facilities, and the project contribution, rounded to integer precision.

5 - Permissible sound level as outlined by AUC Rule 012.

6.3.4 Predicted Operation Results LFN Evaluation with Additional HRSG Mitigation for LFN

The additional HRSG mitigation for LFN results in the predicted dBC minus dBA evaluation equaling 20.0 dB at R1, meeting the 20 dB threshold for LFN evaluation. The additional HRSG mitigation for LFN compliance dBC minus dBA evaluation is shown in Table 16.

Table 16: Low Frequency Noise Potential Screening Calculation

Receptor ID	C-Weighted Sound Level	A-Weighted Sound Level	dBC-dBA
R1	55.9	35.9	20.0
R2	51.9	34.8	17.1
R3	47.2	30.3	16.9

Tonal issues are not expected due to the multiple types of noise sources assessed. Facilities with large numbers of mechanical equipment typically experience masking of the differences in individual source sound emission frequency spectra. If a complaint is received regarding the Project, the LFN assessment would be completed following a Comprehensive Sound Survey using 1/3 octave frequency spectrum measurements to perform a tonality analysis, as required by AUC Rule 012.

7 CONCLUSION

The Project cumulative sound levels are predicted to comply with the PSLs at the identified receptors within the 1.5 km study area. The cumulative sound level results consider the contributions from the proposed Project Flipi power generation facility and adjacent energy-related regulated facilities. Mitigation from base design sound power levels is required to achieve compliance with the AUC Rule 012 PSLs.

Potential for LFN from the Project is identified from a preliminary evaluation of the predicted base design results. Applying additional mitigation for LFN compliance to the select sources identified is predicted to reduce the dBC minus dBA LFN evaluation to meet the 20 dB threshold at all receptors.

8 STATEMENT OF LIMITATION

This report entitled Flipi Project Noise Impact Assessment dated October 27, 2023, revised May 23, 2025, was prepared by RWDI AIR Inc. ("RWDI") for Kîwetinohk Energy Corp. ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report, carefully review the stated assumptions contained herein and understand the different factors which may impact the conclusions and recommendations provided.

9 REFERENCES

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APPENDIX A

APPENDIX A: PRACTITIONER BIOGRAPHIES

Teresa Drew, B.Sc., INCE

Teresa joined the Calgary RWDI team in 2011, and is a Noise, Acoustics and Vibration Team Technical Director and Senior Consultant on environmental noise assessments. She also supports RWDI's global consulting operations as holder of the Technical Operations Office.

Teresa is an accomplished professional with over 35 years of consulting experience. Her expertise is in the areas of regulatory permitting, noise assessments, renewable energy, health impact assessments and mitigation. Teresa has also been called for expert testimony on several occasions.

Michel Parent, C.E.T. Senior Acoustical Consultant

Michel joined RWDI in 2019 and began his career in environmental noise and acoustical consulting in 2005. Michel has evaluated sound for regulatory assessment for a wide variety of facilities including gas plants, compressor stations, field gas compressor units, open pit mine operations and large turbine driven pipeline compressor stations, commuter train rail corridors and building land-use planning studies.

Over the course of his career, Michel has been involved in the on-site sound pressure level measurements of equipment at hundreds of energy industry facilities in western Canada and prepared over 2000 noise models and Noise Impact Assessment reports for client facility license application and regulatory audit needs and conducted over a hundred ambient and comprehensive sound surveys investigating environmental sound at sensitive receptor locations.

APPENDIX B

APPENDIX B: ENVIRONMENTAL NOISE DESCRIPTORS AND TERMINOLOGY

Abnormal noise events

Noises that are sufficiently infrequent as to be uncharacteristic of an area or that occur so close to the microphone as to dominate the measurements in an unrealistic manner. Consideration must be given to deleting occurrences of abnormal noise from the measurements to obtain a reasonably accurate representation of the sound environment. Examples of abnormal noises include a dog barking close to the microphone, a vehicle passing nearby, people talking in the vicinity of the microphone in a quiet environment, or a passing road grader.

Airborne Sound

Sound that reaches the point of interest by propagation through air.

Ambient noise or sound

All noises that exist in an area and are not related to a facility under study. Ambient noise may include sound from other existing industrial facilities, transportation sources, animals, and nature. Context for ambient noise should be defined for each project.

Attenuation

The reduction of sound intensity by various means (e.g., air, humidity, porous materials, etc.)

A-weighted sound level

The sound level as measured on a sound level meter using a setting that emphasizes the middle frequency components similar to the frequency response of the human ear.

A-weighting shows that the measured sound pressure levels have been filtered using a frequency weighting network that mimics the response of the human ear.

The resultant sound pressure level with the associated unit “dBA” is therefore a representative of the subjective response of the human ear. The weightings are assigned in a way to reflect the higher sensitivity of human ear to sound in the mid and high frequency band as shown in the curve labelled A-weighting in Figure B-1.

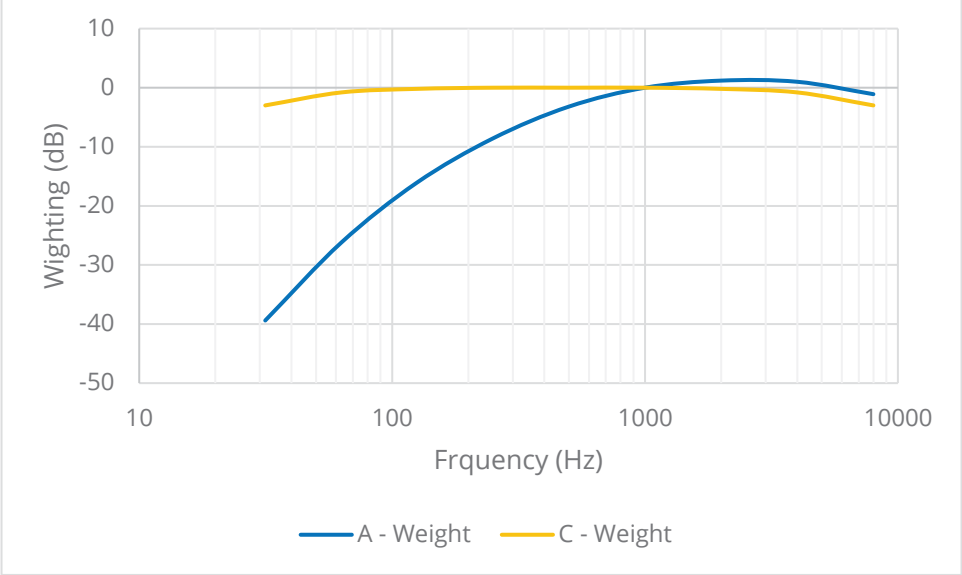


Figure B-1 Sound Weighting Network

Calibration

The procedure used for the adjustment of a sound level meter using a reference source of a known sound pressure level and frequency. Calibration must take place before and after the sound level measurements.

C-Weighted Sound Level

The sound level as measured on a sound level meter using a setting that emphasizes the low and middle frequency components. The weightings are assigned as shown in the curve labelled C-weighting in Figure B-1. The resultant sound pressure level is reported with the associated unit “dBC”

Daytime

Defined as the hours from 07:00 to 22:00.

dB (decibel)

A unit of measure of sound pressure that compresses a large range of numbers into a more meaningful scale. Hearing tests indicate that the lowest audible pressure is approximately 2 x 10-5 Pa (0 dB), while the sensation of pain is approximately 2 x 102 Pa (120 dB). Generally, an increase of 10 dB is perceived as twice as loud.

dBA

The decibel (dB) sound pressure level filtered through the A filtering network to approximate human hearing response at low frequencies.

dBC

The decibel (dB) sound pressure level filtered through the C filtering network to highlight low and middle frequencies.

Dwelling

Any permanently or seasonally occupied residence with the exception of an employee or worker residence, dormitory, or construction camp located within an industrial plant boundary. Trailer parks and campgrounds may qualify as a dwelling unit if it can be demonstrated that they are in regular and consistent use during the applicable season.

Energy equivalent sound level (Leq)

The Leq is the average A-weighted sound level over a specified period of time. It is a single-number representation of the cumulative acoustical energy measured over a time interval. If a sound level is constant over the measurement period, the Leq will equal the constant sound level where f is the fraction of time the constant level L is present.

Standardized Wind Speed at 10 m

The standardized wind speed at a height of 10 m is calculated in accordance with IEC 614000-11 (2012) and is given below. In the case of calculating the standardized wind speed for turbines in Alberta, a roughness length of 0.05 m is used, which is representative of farmland with vegetation.

$$V_H = V_{10}\left[\frac{\ln\left(\frac{H}{z_{0ref}}\right)}{\ln\left(\frac{10}{z_{0ref}}\right)}\right]$$

Where:

V_H is the wind speed at hub height z (m), determined from the power curve;

V_{10} is the standardized wind speed at 10m;

z_{0ref} is the reference roughness length of 0.05 m; and

H is the rotor centre height (m).

Far Field

Describes a region in free space where the sound pressure level from a source obeys the inverse-square law (the sound pressure level decreases 6 dB with each doubling of distance from the source). Also, in this region the sound particle velocity is in phase with the sound pressure. Closer to the source where these two conditions do not hold constitutes the “near field” region.

Frequency

The number of times per second that the sine wave of sound or of a vibrating object repeats itself. The unit is expressed in hertz (Hz), formerly in cycles per second (cps).

Human Perception of Sound

The human perception of noise impact is an important consideration in qualifying the noise effects caused by projects. The following table presents a general guideline.

Table B-1 Human Perception of Sound

Increase in Noise Level (dBA)	Perception
1 to 3	Imperceptible to possibly perceptible
4 to 5	just-noticeable difference
6 to 9	marginally significant
10 or more	significant, perceived as a doubling of sound level

Impulsive Noise

Single or multiple sound pressure peak(s) (with either a rise time less than 200 milliseconds or total duration less than 200 milliseconds) spaced at least by 500 millisecond pauses. A sharp sound pressure peak occurring in a short interval of time.

L_{EQ}

See Energy equivalent sound level.

Nighttime

Defined as the hours from 22:00 to 07:00.

Noise

Generally defined as the unwanted portion of sound.

Noise Level

This is the same as sound level except that it is applied to unwanted sounds, general the sound level at a point of reception.

Sound

A dynamic (fluctuating) pressure.

Sound level meter (SLM)

An instrument designed and calibrated to respond to sound and to give objective, reproducible measurements of sound pressure level. It normally has several features that would enable its frequency response and averaging times to be changed to make it suitable to simulate the response of the human ear.

Sound Pressure Level (SPL)

The logarithmic ratio of the RMS sound pressure to the sound pressure at the threshold of hearing. The sound pressure level is defined by equation (1) 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.

(1) SPL (dB) = 20 log(PRMS/P0)

Sound Power Level (PWL)

The logarithmic ratio of the instantaneous sound power (energy) of a noise source to that of an international standard reference power. The sound power level is defined by equation (2) where W is the sound power of the source in watts, and W0 is the reference power of 10-12 watts.

(2) PWL (dB) = 10 log(W/W0)

Interrelationships between sound pressure level (SPL) and sound power level (PWL) depend on the location and type of source.

Spectrum

The description of a sound wave's resolution into its components of frequency and amplitude.

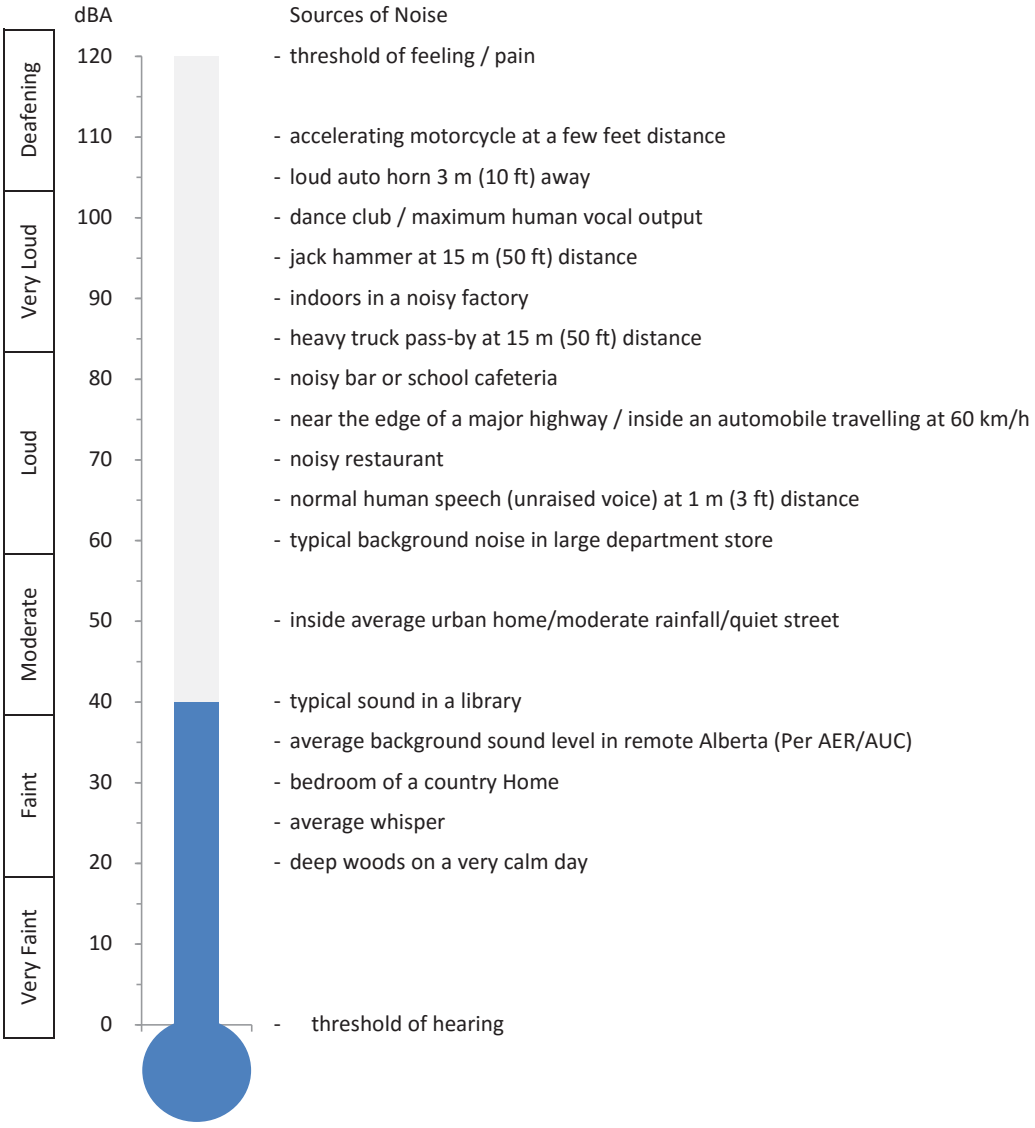
Speed of Sound in Air

344 m/s at 70°F (21°C) in air at sea level.

Tonal Components

Some industrial facilities typically exhibit a tonal component. Examples of tonal components are transformer hum, sirens, and piping noise. The test for the presence of tonal components consists of two parts. 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 and 16000Hz 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 2 bandwidths on the opposite side. The second part is that the tonal component must be a pronounced peak clearly obvious within the spectrum.

RELATIONSHIPS BETWEEN EVERYDAY SOUNDS



APPENDIX C

CERTIFICATE of CALIBRATION

Make :	Bruel & Kjaer	Reference # :	174257
Model :	4231	Customer :	Rowan Williams Davies & Irwin Inc Calgary, AB
Descr. :	Sound cal 94/114dB 1KHz Type 1		
Serial # :	2730602	P. Order :	66890-024-120 AHP
Asset # :	2250 KIT 3		

Cal. status : Received in spec's, no adjustment made.

Navair Technologies certifies that the above listed instrument was calibrated on date noted and was released from this laboratory performing in accordance with the specifications set forth by the manufacturer.

Unless otherwise noted in the calibration report a 4:1 accuracy ratio was maintained for this calibration.

Our calibration system complies with the requirements of ISO-9001-2015 and is registered under certificate CA96/269, working standards used for calibration are certified by or traceable to the National Research Council of Canada or the National Institute of Standards and Technology.

Calibrated : Jan 10, 2023 By :

Cal. Due : Jan 10, 2024 Petro Onasko

Temperature : 23 °C ± 2 °C Relative Humidity : 30% to 70%

Standards used : J-216 J-333 J-420 J-512

Navair Technologies

REPAIR AND CALIBRATION TRACEABLE TO NRC AND NIST

6375 Dixie Rd. Mississauga, ON, L5T 2E7
Phone : 800-668-7440 Fax: 905 565 8325
http: // www.navair.com
e-Mail: service @ navair.com

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NT NAVAIR TECHNICAL SERVICES

6375 Dixie Rd., Unit # 7
Mississauga ON L5T 2E7
Tel: (905) 565-1583
Fax: (905) 565-8325

Form: BK4231	Approved by: J.R.	Nov-07	Ver 2.1

Calibration Report part of Certificate # 174257

Make	Model	Serial №	Asset	Cal by
Brüel & Kjær	4231	2730602	2250 KIT 3	P.O.

Test	Setting	Reading	Spec's	In/Out
Tested at		*99.7 kPa*		
Sound Pressure Level				
	94 dB	*94.01 dB*	±0.2 dB	In
	114 dB	*114.03 dB*	±0.2 dB	In
Frequency Accuracy				
	1000 Hz	*1000.0 Hz*	±1 Hz	In

Tested with ½" adapter

CERTIFICATE of CALIBRATION

Make : Bruel & Kjaer

Model : 2250

Descr. : Sound Level Meter Type 1

Serial # : 2749844

Asset # : 2250 KIT 3

Reference # : 174256

Customer : Rowan Williams Davies & Irwin Inc.
Calgary, AB

P. Order : 66890-024-120 AHP

Cal. status : Received in spec's, no adjustment made.
With B&K ZC0032 s#15128,B&K4189 s#2741422.

Navair Technologies certifies that the above listed instrument was calibrated on date noted and was released from this laboratory performing in accordance with the specifications set forth by the manufacturer.

Unless otherwise noted in the calibration report a 4:1 accuracy ratio was maintained for this calibration.

Our calibration system complies with the requirements of ISO-9001-2015 and is registered under certificate CA96/269, working standards used for calibration are certified by or traceable to the National Research Council of Canada or the National Institute of Standards and Technology.

Calibrated : Jan 17, 2023

Cal. Due : Jan 17, 2025

By : T. Beilin

Temperature : 23 °C ± 2 °C Relative Humidity : 30% to 70%

Standards used : J-216 J-303 J-512

Navair Technologies

REPAIR AND CALIBRATION TRACEABLE TO NRC AND NIST
6375 Dixie Rd. Mississauga, ON, L5T 2E7
Phone : 800-668-7440 Fax: 905 565 8325
http: // www.navair.com
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6375 Dixie Rd Unit# 7,
Mississauga, ON L5T 2E7
Tel: (905)565-1583
Fax: (905)565-8325

Form:BK2250	Approved by:JR	Date:May/09	ver1.0

Calibration Report part of Certificate: 174256

Make	Model	Serial	Asset
Bruel&Kjaer	2250	2749844	2250 KIT 3

With mike 4189 S# :2741422 & preamp ZC0032 S# 15128

TYPE 1 Specs

Test	Reading	In/Out

Freq.Response
Tested with dummy mike IEC61672-1 limits
WTG Curve Check

kHz	Min	dBA	Max	
0.0315	72.6	74.5	76.6	In
0.063	86.3	87.8	89.3	In
0.125	96.4	97.8	99.4	In
0.25	103.9	105.3	106.8	In
0.5	109.4	110.8	112.2	In
1	112.9	114.0	115.1	In
2	113.6	115.2	116.8	In
4	113.4	115.0	116.6	In
8	109.8	112.9	115.0	In
12.5	103.7	109.3	112.7	In
		dBC		
0.0315	109.0	111.0	113.0	In
0.063	111.7	113.2	114.7	In
0.125	112.3	113.8	115.3	In
0.25	112.5	114.0	115.4	In
0.5	112.6	114.0	115.4	In
1	112.9	114.0	115.1	In
2	112.2	113.8	115.4	In
4	111.6	113.2	114.8	In
8	107.9	111.0	113.1	In
12.5	101.8	107.4	110.8	In

6375 Dixie Rd Unit# 7,
Mississauga, ON L5T 2E7
Tel: (905)565-1583
Fax: (905)565-8325

174256

Test				In/Out
		dBZ		
0.0315	112.0	114.1	116.0	In
0.063	112.5	114.0	115.5	In
0.125	112.5	114.0	115.5	In
0.25	112.5	114.0	115.4	In
0.5	112.6	114.0	115.4	In
1	112.9	114.0	115.1	In
2	112.4	114.0	115.6	In
4	112.4	114.0	115.6	In
8	110.9	114.0	116.1	In
12.5	108.0	113.6	117.0	In
Scale Test with microphone Scale dBc @1kHz I/P dB 20 - 140dB Range				
114	113.5	113.8	114.5	In
104	103.5	103.8	104.5	In
94	93.5	93.8	94.5	In
Impulse Test				Pass
Fast/Slow				Pass
AC O/P				Pass
Source operation				Pass

6375 Dixie Rd. Mississauga, ON, L5T 2E7
Ph: 800-668-7440

Printed : 17-Jan-23

Ship To:

Rowan Williams Davies & Irwin Inc
736 8th Avenue SW, Unit# 1000
Calgary, AB, T2P 1H4
Canada
Attn: Daniel Kremer 403 2326771 Ext: 6224

Packing List # 49068

P.O. : 66890-024-120 AHP

YourRef : RWDI03

#	Ref N	Model	Ser N	Asset N	Report	Cert
1	174256	B&K-2250	2749844	2250 KIT 3	Y	Y
	Acc: NO BOX, ORANGE PELICAN CASE; BLACK LEATHER CASE FOR MAIN UNIT; BLACK PLASTIC CASE FOR PRAMP & MIC AS FOLLOWS:; ZC0032 PREAMP S/N: 15128; 4189 MIC S/N: 2741422; CAL DATA & MINI CD; 4231 CALIBRATOR (ENTRD SEP)					
2	174257	B&K-4231	2730602	2250 KIT 3	Y	Y
	Acc: AN ACC TO THE PREVIOUS ENTRY; 1/2" GREEN ADAPTER					

Total Items : 2 Total Boxes : Checked By :

Via : Way Bill :

*Please notify us ASAP if error is found in shipment! F011 Rev.4 7/04

APPENDIX D

ITEM NO.	EQUIPMENT NAME
121	LEAN PUMP
122	2ND WASH WATER PUMP
123	STEAM CONDENSATE PUMP
124	QUENCHER BLOWDOWN PUMP
125	STEAM CONDENSATE DRUM
126	SOLVENT TANK & SUMP UNIT
127	CO2 GAS CONDENSING UNIT
128	CAUSTIC SODA INJECTION UNIT
129	ENERGY SAVING UNIT
130	ANT-FOAM INJECTION UNIT
131	HYDROGEN STORAGE UNIT
132	HRSG DRUM PENTHOUSE
133	FUEL GAS COMPRESSOR BUILDING

ITEM NO.	EQUIPMENT NAME
91	SECOND STAGE COOLER (TRAIN-2)
92	THIRD STAGE SUCTION SCRUBBER (TRAIN-2)
93	THIRD STAGE COOLER (TRAIN-2)
94	FOURTH STAGE SUCTION SCRUBBER (TRAIN-2)
95	FIFTH STAGE COOLER (TRAIN-2)
96	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-2)
97	EIGHTH STAGE COOLER (TRAIN-2)
98	SIXTH STAGE SUCTION SCRUBBER (TRAIN-2)
99*	CO2 DEHYDRATION PACKAGE (TRAIN-2)
100	LOW VOLTAGE MCC BUILDING
101	STILL VENT CONDENSING TANK
102	GLYCOL MAKE-UP TANK
103	240 KV CIRCUIT BREAKER
104	240 KV LINE DISCONNNECT
105	240 KV CCVT
106	240 KV SURGE ARRESTOR
107	240 KV H - FRAME
108	BOILER FEEDWATER PUMP BUILDING
109	QUENCHER
110	ABSORBER
111	REGENERATOR
112	LEAN RICH EXCHANGER
113	REGENERATOR REBOILER
114	SOLVENT CIRCULATION FILTER
115	QUENCHER BLOWDOWN FILTER
116	FLUE GAS BLOWER
117	QUENCHER CIRCULATION PUMP
118	1ST WASH WATER PUMP
119	RICH PUMP
120	REFLUX DISTRIBUTION PUMP

ITEM NO.	EQUIPMENT NAME
61	MV PDC
62*	ABSORBER STACK
63	UTILITY RACK
64	GT/ST/AUXILIARY POWER CONTROL CENTER
65	240KV CONTROL BUILDING
66	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-1)
67	9.7 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-1)
68	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-1)
69	COMPRESSOR LUBE OIL SKID (TRAIN-1)
70	COMPRESSOR LUBE OIL COOLER (TRAIN-1)
71	FIRST STAGE SUCTION SCRUBBER (TRAIN-1)
72	FIRST STAGE COOLER (TRAIN-1)
73	SECOND STAGE SUCTION SCRUBBER (TRAIN-1)
74	SECOND STAGE COOLER (TRAIN-1)
75	THIRD STAGE SUCTION SCRUBBER (TRAIN-1)
76	THIRD STAGE COOLER (TRAIN-1)
77	FOURTH STAGE SUCTION SCRUBBER (TRAIN-1)
78	FIFTH STAGE COOLER (TRAIN-1)
79	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-1)
80	EIGHTH STAGE COOLER (TRAIN-1)
81	SIXTH STAGE SUCTION SCRUBBER (TRAIN-1)
82*	CO2 DEHYDRATION PACKAGE (TRAIN-1)
83	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-2)
84	11.2 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-2)
85	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-2)
86	COMPRESSOR LUBE OIL SKID (TRAIN-2)
87	COMPRESSOR LUBE OIL COOLER (TRAIN-2)
88	FIRST STAGE SUCTION SCRUBBER (TRAIN-2)
89	FIRST STAGE COOLER (TRAIN-2)
90	SECOND STAGE SUCTION SCRUBBER (TRAIN-2)

ITEM NO.	EQUIPMENT NAME
31*	AUXILIARY BOILER STACK
32	MOBILE COMPRESSED CLEANING SKID
33	THERMAL MANAGEMENT BLOWER SKID
34	INST. AIR COMPRESSOR & AIR RECEIVER TANK
35	LUBE OIL & HYDRAULIC SKID
36	MOBILE LUBE OIL PURIFIER
37	BEARING EXHAUSTER SKID & SEAL OIL STORAGE TANK
38	SEAL OIL SKID
39	STEAM TURBINE HYDRAULIC SKID
40	H2 GAS DRYER
41	H2 GAS SKID
42	STATOR WATER COOLING SKID
43	GLAND STEAM CONDENSER
44	GENERATOR NEUTRAL GROUNDING CUBICLE
45	FUEL GAS PURGE AIR COMPRESSOR AND TANK
46	FUEL GAS FINAL FILTER & PREHEATER SKID
47	FUEL GAS FINAL FILTER & PREHEATER ENCLOSURE
48	HOT BOX
49	ACC MAIN STEAM DUCT
50	CONDENSATE RECIRC. PUMP
51	LAYDOWN AREA (APPROX 20 ACRES)
52	RAW WATER STORAGE TANK
53	WASTEWATER STORAGE TANK
54	CEMS
55	CONDENSATE EXTRACTION PUMPS
56	CONDENSATE COLLECTION TANK
57*	EMERGENCY DIESEL GENERATOR
58	OIL WATER SEPARATOR (BELOW GRADE)
59	FUEL GAS YARD
60	GENERATOR BREAKER

ITEM NO.	EQUIPMENT NAME
1	COMBUSTION TURBINE GENERATOR
2	TURBINE GENERATOR
3	STEAM TURBINE
4	INLET AIR FILTER
5	GENERATION BUILDING
6	AUXILARY TRANSFORMER
7	GENERATOR STEP-UP TRANSFORMER
8	AIR COOLED CONDENSER
9	LV CCS PDC
10	HEAT RECOVERY STEAM GENERATOR
11	H2 GAS SKID
12	FIREWATER / SERVICE WATER STORAGE TANKS
13	DEMINERALIZED WATER TANK
14	ADMIN BUILDING
15	WATER TREATMENT BUILDING
16	AUXILIARY COOLING HEAT EXCHANGER
17	BOILER FEEDWATER PUMPS
18	REAGENT STORAGE BUILDING
19	MAIN CO2 COMPRESSION BUILDING (48m X 35m)
20	CORBON CAPTURE BUILDING
21	THERMAL RECLAIMER BUILDING
22	CARBON CAPTURE AIR COOLERS
23	CEMS
24	STORMWATER PUMP BUILDING
25	STORM DETENTION POND
26	LV ACC PDC
27	240 KV SWITCHYARD
28	240 KV OVERHEAD LINES
29*	HRSG STACK
30	AUXILIARY BOILER

T1 FUEL GAS
T2 RAW WATER FROM MEDICINE RIVER
T3 PLANT ACCESS ROAD
T4 POTABLE WATER FROM MEDICINE RIVER
T5 240kV TRANSMISSION LINES
T6 WASTEWATER (HAUL BY TRUCK)

POWER ISLAND (67.9100)

CO2 COMPRESSION AND DEHYDRATION (60.0100)

CARBON CAPTURE EQUIPMENT (60.1200)

NOTES

1. SITE PLAN IS CONCEPTUAL IN NATURE. NOT ALL EQUIPMENT IS REPRESENTED OR OF ACTUAL SIZE.
2. ALL EMISSION SOURCES ON THE SITE ARE DENOTED IN THE LEGEND WITH AN ASTERISK (*).

SYMBOLS

- PROJECT BOUNDARY
- CO2 COMPRESSION AND DEHYDRATION (61.0100)
- CARBON CAPTURE EQUIPMENT (60.1200)
- POWER ISLAND (67.9100)

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

TERMINAL POINTS

T1	FUEL GAS	T5	240kV TRANSMISSION LINES
T2	RAW WATER FROM MEDICINE RIVER	T6	WASTEWATER (HAUL BY TRUCK)
T3	PLANT ACCESS ROAD		
T4	POTABLE WATER FROM MEDICINE RIVER		

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
0	17/FEB/23	ISSUED FOR PERMITTING	NSK	JSH		GMT	JEB

1:500 SCALE IN METERS 0 10 20 30 40

BLACK & VEATCH

DESIGNER	DRAWN
JSH	NSK
CHECKED	DATE

KIWETINOHK ENERGY CORP
FLIPI COMBINED CYCLE WITH CCS
GENERAL
SITE ARRANGEMENT

PROJECT	DRAWING NUMBER	REV
412155	00AAA-G1001	0

CODE
AREA

MicroStation v10.11.0.36
Full Size 1:1
sam55714
Admin

APPENDIX G
HISTORICAL RESOURCES ACT CLEARANCE

Alberta

HRA Number: 4940-24-0092-001
November 18, 2024

Historical Resources Act Approval

Proponent: Kiwetinohk Energy Corp.
Suite 1700, 250 – 2nd Street SW, Calgary, AB T2P 0C1
Contact: Dobro Filip

Agent: SABR Energy Consulting Inc.
Contact: Samantha Brown

Project Name: **Flipi Gas Fired Generation Project**

Project Components: Power Plant
Substation (new)

Application Purpose: Requesting HRA Approval / Requirements

Historical Resources Act approval is granted for the activities described in this application and its attached plan(s)/sketch(es) subject to Section 31, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the Minister of the discovery." The chance discovery of historical resources is to be reported to the contacts identified within Standard Requirements under the *Historical Resources Act*: Reporting the Discovery of Historic Resources.

Martina Purdon
Manager, Regulatory Approvals and Information Management
Historic Resources Management Branch
Alberta Arts, Culture and Status of Women

Proposed Development Location:

MER	RGE	TWP	SEC	LSD List
5	4	41	33	3-4

Documents Attached:

Document Name	Document Type
Site Layout	Illustrative Material

APPENDIX H
SURVEY PLAN

Plan of Survey Showing

COGENERATION SITE

And

ACCESS ROAD

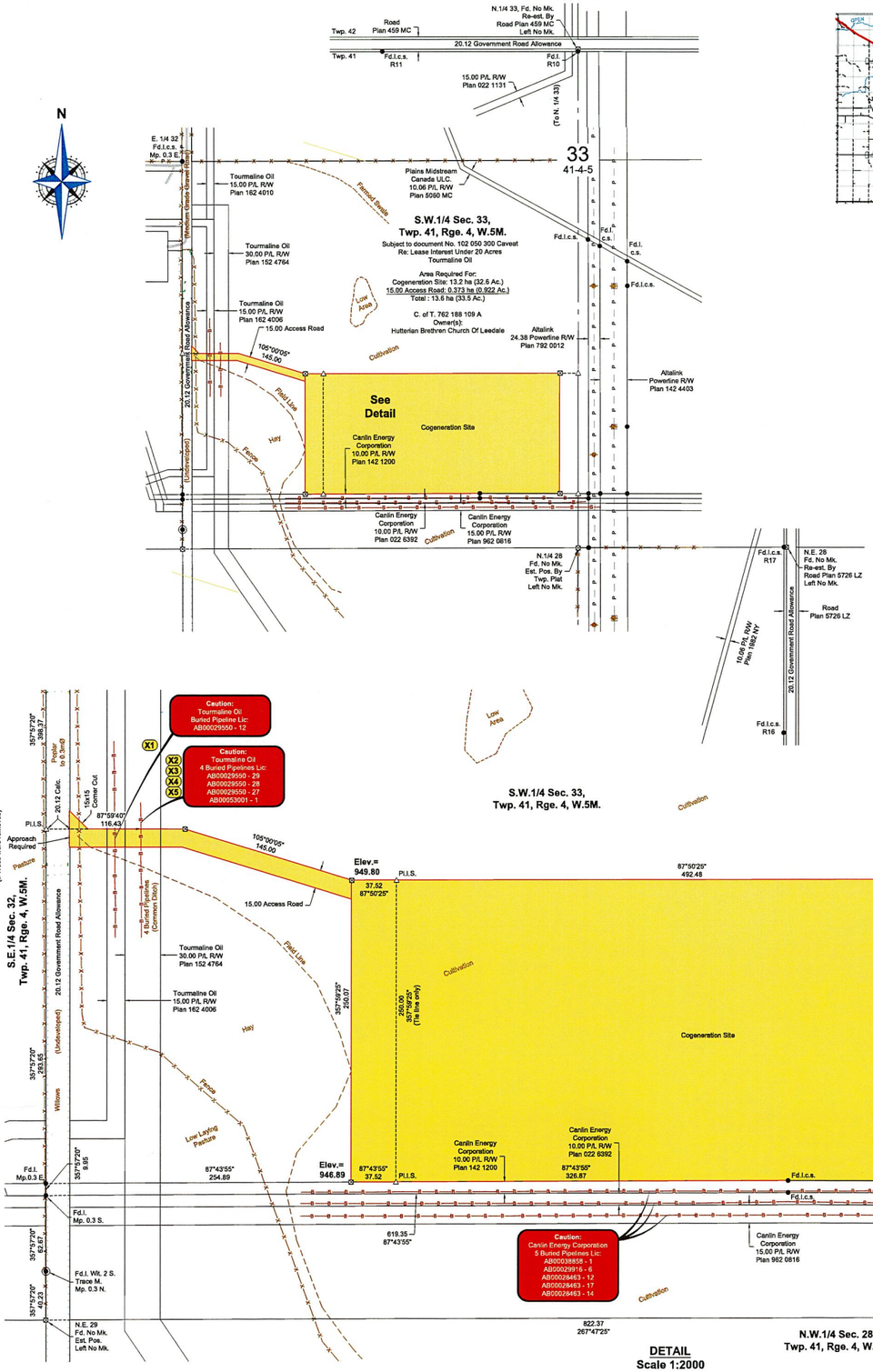
Within

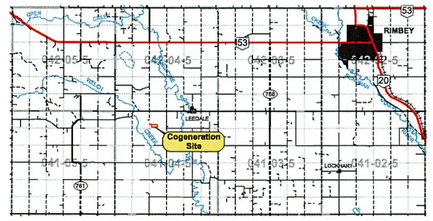
S.W. 1/4 Sec. 33, Twp. 41, Rge. 4, W.5M.

Clearwater County, Alberta

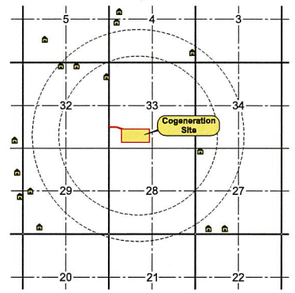
0 50 100 200 300 400 500 m

SCALE 1:5000





Route Map
Scale 1:250 000



Surface Development Plan
Scale 1:50 000
Residences Shown Thus....
Abandoned Residences Shown Thus....
Other Developments Shown Thus....

Surface Development Setback

- The Nearest Urban Centre is the Hamlet of Leedale. (3.3km N.E.)
- The Nearest Residence is 0.9km S.E. (N.W. 27-41-4 W.5M.)
- The Nearest Surface Development is a Residence 0.9km S.E. (N.W. 27-41-4 W.5M.)

DETAIL
Scale 1:2000

Legend

Acres	Ac.	Statutory Iron Post found shown thus	●
Calculated	Calc.	Witness Monument Found shown thus	◉
Countersunk	c.s.	Placed 30cm Iron Spike shown thus	△
Canadian Spatial Reference System	CSRS	Calculated Position (Left No Mk.) shown thus	⊠
Diameter at Breast Height	Ø	Transmission Tower shown thus	
East	E.	Buried Pipelines	—S—S—
Established	Est.	Overhead Powerline	—P—
Found	Fd.	Bushline	
Hectares	ha		
License/Line #	Lic.		
Marker Post	Mp.		
Mound or Meridian	M.		
Mark	Mk.		
North	N.		
Placed	Placed		
Position	Pos.		
Pipeline	P/L		
North American Datum	NAD		
Range	Rge.		
Re-established	Re-est.		
Right of Way	R/W		
South or Spike	S.		
Section	Sec.		
Township	Twp.		
Statutory Iron Post	I.		
Universal Transverse Mercator	UTM.		
West	W.		
Witness	Wit.		

Notes

- Measurements are between iron posts unless shown otherwise.
- Area affected by the registration of this plan shown bounded thus
- Bearings are Grid, derived by GNSS observations and referred to the Central Meridian 117° West (Zone 11), UTM Projection NAD83 (CSRS 2010).
- Distances are in metres and decimals thereof and are shown at ground level using a combined scale factor 0.999798.

Table of Crossings

Item	Operator	Description	Location
X1	Tourmaline Oil	Buried Pipeline Lic: AB00029550 - 12	SW 33
X2	Tourmaline Oil	Buried Pipeline Lic: AB00029550 - 29	SW 33
X3	Tourmaline Oil	Buried Pipeline Lic: AB00029550 - 28	SW 33
X4	Tourmaline Oil	Buried Pipeline Lic: AB00029550 - 27	SW 33
X5	Tourmaline Oil	Buried Pipeline Lic: AB00053001 - 1	SW 33

Operator

kiwetinohk energy

Totals For Surface Lease

Area Required for Cogeneration Site	= 13.2 ha (32.6 Ac.)
Area Required for Access Road	= 0.373 ha (0.922 Ac.)
Total	= 13.6 ha (33.5 Ac.)

Centerline length of Access Road = 248.8m

Landowner Agreement

I/We agree to the location of the Cogeneration Site and Access Road and have no objection to the Alberta Utilities Commission (AUC) issuing a licence for same.

Owner _____ Date _____

Surveyor's Affidavit

I, John Lohnes, of the City of Calgary, Alberta Land Surveyor, make oath and say:
1. That the survey represented by this plan was made under my personal supervision,
2. That that the survey was made in accordance with standards and rules for the practice of surveying prescribed by the Alberta Land Surveyors Association and in accordance with the provisions of the Surveys Act, and
3. That the survey was performed between the dates of September 22nd, 2021 and October 21st, 2021 and that this plan is true and correct and is prepared in accordance with the provisions of The Land Titles Act.

ALBERTA LAND SURVEYORS' ASSOCIATION PERMIT NUMBER P 284 PASQUINI & ASSOCIATES GEOMATICS LTD.

Sworn before me at the City of Calgary in the Province of Alberta, this 15th day of , October 2024.

Chris Reid
CHRISTOPHER JOHN REID
A Commissioner for Oaths in and for the Province of Alberta, Commission Expires: September 18, 2027

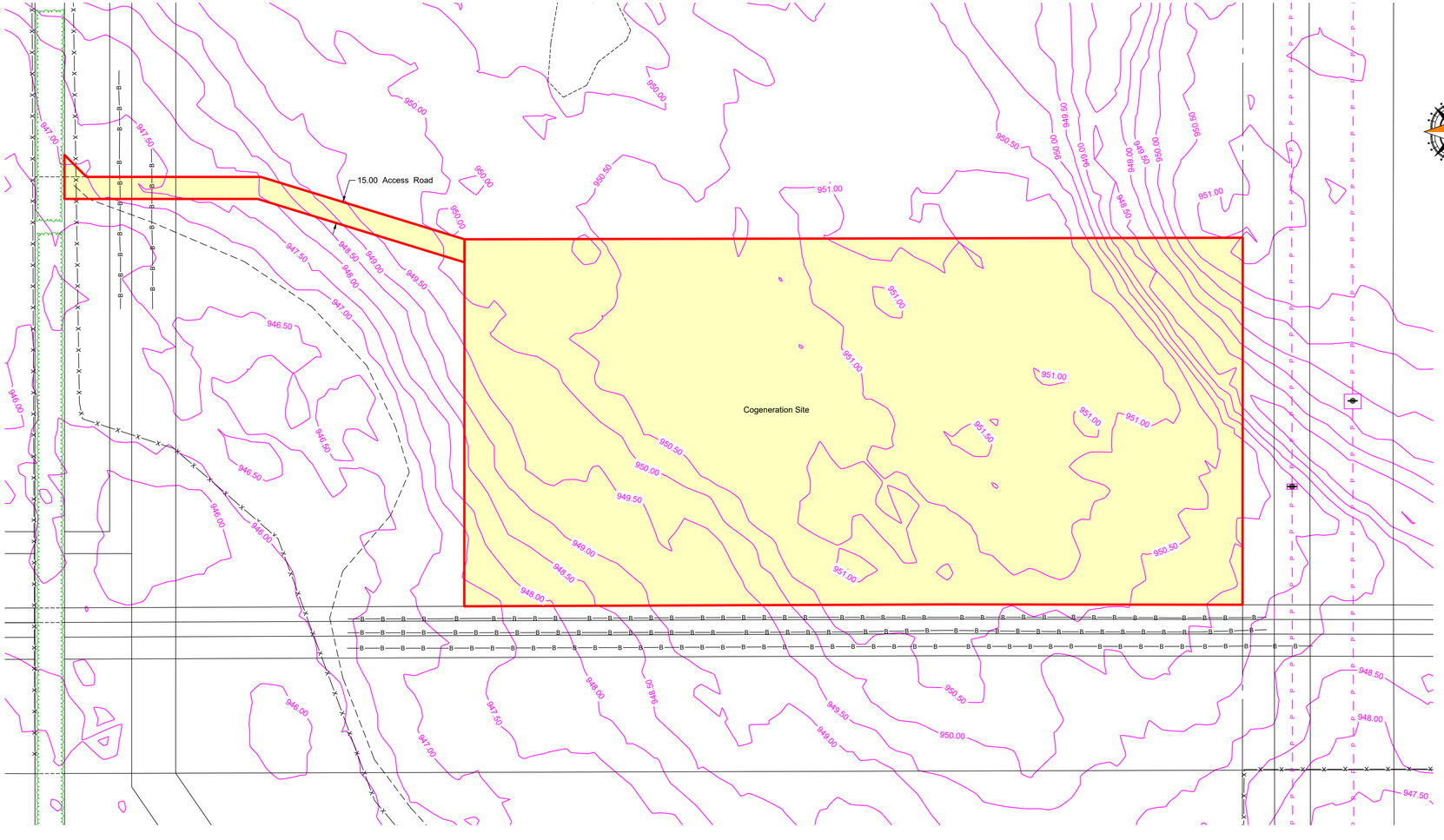
John Lohnes
ALBERTA LAND SURVEYOR

PASQUINI & ASSOCIATES ENGINEERING - GEOMATICS

Revision Table

No.	Revision Type	Drafted	Chk'd	Date
0	Original Issue	RS	JL	Nov 2, 2021
1	Shift the site west	RS	JL	Jan 17, 2022
2	Revised Access Road	VK	JL	Oct 15, 2024

Client File No: N/A			2 Revision
Drawn By: RS/VK	Checked By: JL	Surveyed By: BG	
File No: 605 216	Job No: 605 216	Sheet 1 of 1	



Sketch Plan Showing

Contours

for

COGENERATION SITE

And

ACCESS ROAD

Within

S.W. 1/4 Sec. 33, Twp. 41, Rge. 4, W.5M.

Clearwater County, Alberta

0 20 40 80 120 160 200

SCALE 1:2000

Legend

0.5m Contour Interval shown thus .....

Operator

kiwetinohk® energy

Surveyor's Affidavit

I, John Lohnes, Alberta Land Surveyor, of the City of Calgary, Alberta, certify that the survey represented by this plan is true and correct to the best of my knowledge.

Alberta Land Surveyor (November 2, 2021)

ALBERTA LAND SURVEYORS' ASSOCIATION PERMIT NUMBER P 307 INNOVATIVE GEOMATICS CORP.

IGC INNOVATIVE GEOMATICS CORP.

Revision Table

No.	Revision Type	Drafted	Chk'd	Date
0	Original Issue	RS	JL	Nov 2, 2021

Client File No: N/A			0 Revision
Drawn By: RS	Checked By: JL	Surveyed By: BG	
File No: 21080058CS	Job No: 21080058	Sheet: 1 of 1	

APPENDIX I
PLOT PLAN

ITEM NO.	EQUIPMENT NAME
121	LEAN PUMP
122	2ND WASH WATER PUMP
123	STEAM CONDENSATE PUMP
124	QUENCHER BLOWDOWN PUMP
125	STEAM CONDENSATE DRUM
126	SOLVENT TANK & SUMP UNIT
127	CO2 GAS CONDENSING UNIT
128	CAUSTIC SODA INJECTION UNIT
129	ENERGY SAVING UNIT
130	ANT-FOAM INJECTION UNIT
131	HYDROGEN STORAGE UNIT
132	HRSG DRUM PENTHOUSE
133	FUEL GAS COMPRESSOR BUILDING

ITEM NO.	EQUIPMENT NAME
91	SECOND STAGE COOLER (TRAIN-2)
92	THIRD STAGE SUCTION SCRUBBER (TRAIN-2)
93	THIRD STAGE COOLER (TRAIN-2)
94	FOURTH STAGE SUCTION SCRUBBER (TRAIN-2)
95	FIFTH STAGE COOLER (TRAIN-2)
96	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-2)
97	EIGHTH STAGE COOLER (TRAIN-2)
98	SIXTH STAGE SUCTION SCRUBBER (TRAIN-2)
99*	CO2 DEHYDRATION PACKAGE (TRAIN-2)
100	LOW VOLTAGE MCC BUILDING
101	STILL VENT CONDENSING TANK
102	GLYCOL MAKE-UP TANK
103	240 KV CIRCUIT BREAKER
104	240 KV LINE DISCONNNECT
105	240 KV CCVT
106	240 KV SURGE ARRESTOR
107	240 KV H - FRAME
108	BOILER FEEDWATER PUMP BUILDING
109	QUENCHER
110	ABSORBER
111	REGENERATOR
112	LEAN RICH EXCHANGER
113	REGENERATOR REBOILER
114	SOLVENT CIRCULATION FILTER
115	QUENCHER BLOWDOWN FILTER
116	FLUE GAS BLOWER
117	QUENCHER CIRCULATION PUMP
118	1ST WASH WATER PUMP
119	RICH PUMP
120	REFLUX DISTRIBUTION PUMP

ITEM NO.	EQUIPMENT NAME
61	MV PDC
62*	ABSORBER STACK
63	UTILITY RACK
64	GT/ST/AUXILIARY POWER CONTROL CENTER
65	240KV CONTROL BUILDING
66	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-1)
67	9.7 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-1)
68	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-1)
69	COMPRESSOR LUBE OIL SKID (TRAIN-1)
70	COMPRESSOR LUBE OIL COOLER (TRAIN-1)
71	FIRST STAGE SUCTION SCRUBBER (TRAIN-1)
72	FIRST STAGE COOLER (TRAIN-1)
73	SECOND STAGE SUCTION SCRUBBER (TRAIN-1)
74	SECOND STAGE COOLER (TRAIN-1)
75	THIRD STAGE SUCTION SCRUBBER (TRAIN-1)
76	THIRD STAGE COOLER (TRAIN-1)
77	FOURTH STAGE SUCTION SCRUBBER (TRAIN-1)
78	FIFTH STAGE COOLER (TRAIN-1)
79	FIFTH STAGE DISCHARGE SCRUBBER (TRAIN-1)
80	EIGHTH STAGE COOLER (TRAIN-1)
81	SIXTH STAGE SUCTION SCRUBBER (TRAIN-1)
82*	CO2 DEHYDRATION PACKAGE (TRAIN-1)
83	6 STAGE INTEGRALLY GEARED CENTRIFUGAL COMPRESSOR (TRAIN-2)
84	11.2 MW SYNCHRONOUS ELECTRIC MOTOR (TRAIN-2)
85	SYNCHRONOUS ELECTRIC MOTOR COOLING AIR HANDLER (TRAIN-2)
86	COMPRESSOR LUBE OIL SKID (TRAIN-2)
87	COMPRESSOR LUBE OIL COOLER (TRAIN-2)
88	FIRST STAGE SUCTION SCRUBBER (TRAIN-2)
89	FIRST STAGE COOLER (TRAIN-2)
90	SECOND STAGE SUCTION SCRUBBER (TRAIN-2)

ITEM NO.	EQUIPMENT NAME
31*	AUXILIARY BOILER STACK
32	MOBILE COMPRESSED CLEANING SKID
33	THERMAL MANAGEMENT BLOWER SKID
34	INST. AIR COMPRESSOR & AIR RECEIVER TANK
35	LUBE OIL & HYDRAULIC SKID
36	MOBILE LUBE OIL PURIFIER
37	BEARING EXHAUSTER SKID & SEAL OIL STORAGE TANK
38	SEAL OIL SKID
39	STEAM TURBINE HYDRAULIC SKID
40	H2 GAS DRYER
41	H2 GAS SKID
42	STATOR WATER COOLING SKID
43	GLAND STEAM CONDENSER
44	GENERATOR NEUTRAL GROUNDING CUBICLE
45	FUEL GAS PURGE AIR COMPRESSOR AND TANK
46	FUEL GAS FINAL FILTER & PREHEATER SKID
47	FUEL GAS FINAL FILTER & PREHEATER ENCLOSURE
48	HOT BOX
49	ACC MAIN STEAM DUCT
50	CONDENSATE RECIRC. PUMP
51	LAYDOWN AREA (APPROX 20 ACRES)
52	RAW WATER STORAGE TANK
53	WASTEWATER STORAGE TANK
54	CEMS
55	CONDENSATE EXTRACTION PUMPS
56	CONDENSATE COLLECTION TANK
57*	EMERGENCY DIESEL GENERATOR
58	OIL WATER SEPARATOR (BELOW GRADE)
59	FUEL GAS YARD
60	GENERATOR BREAKER

ITEM NO.	EQUIPMENT NAME
1	COMBUSTION TURBINE GENERATOR
2	TURBINE GENERATOR
3	STEAM TURBINE
4	INLET AIR FILTER
5	GENERATION BUILDING
6	AUXILARY TRANSFORMER
7	GENERATOR STEP-UP TRANSFORMER
8	AIR COOLED CONDENSER
9	LV CCS PDC
10	HEAT RECOVERY STEAM GENERATOR
11	H2 GAS SKID
12	FIREWATER / SERVICE WATER STORAGE TANKS
13	DEMINERALIZED WATER TANK
14	ADMIN BUILDING
15	WATER TREATMENT BUILDING
16	AUXILIARY COOLING HEAT EXCHANGER
17	BOILER FEEDWATER PUMPS
18	REAGENT STORAGE BUILDING
19	MAIN CO2 COMPRESSION BUILDING (48m X 35m)
20	CORBON CAPTURE BUILDING
21	THERMAL RECLAIMER BUILDING
22	CARBON CAPTURE AIR COOLERS
23	CEMS
24	STORMWATER PUMP BUILDING
25	STORM DETENTION POND
26	LV ACC PDC
27	240 KV SWITCHYARD
28	240 KV OVERHEAD LINES
29*	HRSG STACK
30	AUXILIARY BOILER

T1 FUEL GAS
T2 RAW WATER FROM MEDICINE RIVER
T3 PLANT ACCESS ROAD
T4 POTABLE WATER FROM MEDICINE RIVER
T5 240kV TRANSMISSION LINES
T6 WASTEWATER (HAUL BY TRUCK)

POWER ISLAND (67.9100)

CO2 COMPRESSION AND DEHYDRATION (60.0100)

CARBON CAPTURE EQUIPMENT (60.1200)

NOTES

1. SITE PLAN IS CONCEPTUAL IN NATURE. NOT ALL EQUIPMENT IS REPRESENTED OR OF ACTUAL SIZE.
2. ALL EMISSION SOURCES ON THE SITE ARE DENOTED IN THE LEGEND WITH AN ASTERISK (*).

SYMBOLS

- PROJECT BOUNDARY
- CO2 COMPRESSION AND DEHYDRATION (61.0100)
- CARBON CAPTURE EQUIPMENT (60.1200)
- POWER ISLAND (67.9100)

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

TERMINAL POINTS

T1	FUEL GAS	T5	240kV TRANSMISSION LINES
T2	RAW WATER FROM MEDICINE RIVER	T6	WASTEWATER (HAUL BY TRUCK)
T3	PLANT ACCESS ROAD		
T4	POTABLE WATER FROM MEDICINE RIVER		

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
0	17/FEB/23	ISSUED FOR PERMITTING	NSK	JSH		GMT	JEB

1:500 SCALE IN METERS 0 10 20 30 40

BLACK & VEATCH

DESIGNER	DRAWN
JSH	NSK
CHECKED	DATE

KIWETINOHK ENERGY CORP
FLIPI COMBINED CYCLE WITH CCS
GENERAL
SITE ARRANGEMENT

PROJECT	DRAWING NUMBER	REV
412155	00AAA-G1001	0

CODE
AREA

MicroStation v10.11.0.36
Full Size 1:1
sam55714
Admin

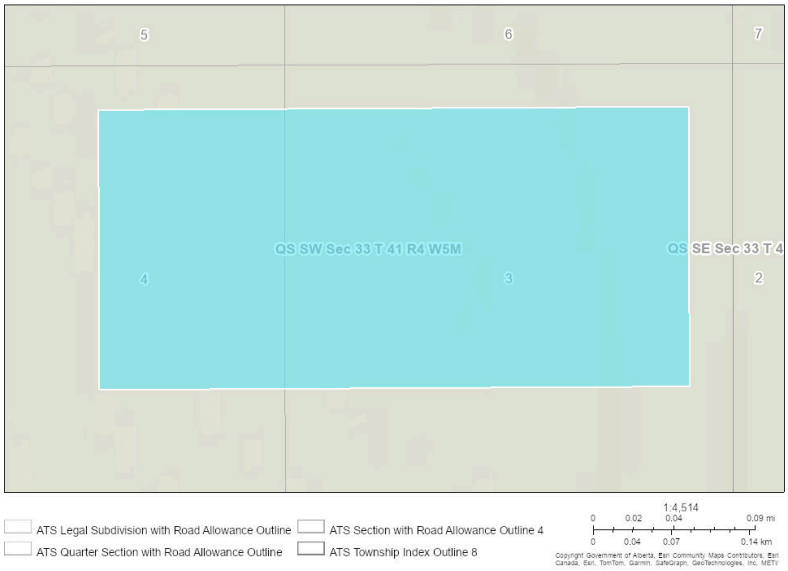
APPENDIX J
ACIMS RESULTS

ACIMS Data Screening Report

Area of Interest (AOI) Information

Area : 15,804,038.5 m²

Nov 14 2025 14:51:55 Atlantic Standard Time



Summary

Name	Count	Area(m²)	Length(m)
Sensitive EO	0	0	N/A
Non Sensitive EO	0	0	N/A

While every effort has been made to ensure that the information accessible from this dataset is complete, accurate, and current, the Government of Alberta, their agents and employees are not liable for any loss or damage arising directly or indirectly from the possession, publication, or use of, or reliance on, that information. This information is provided "as is" without expressed or implied warranty.

APPENDIX K
FWMIT RESULTS

Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

Species Summary Report

Report Date: 26-Nov-2025 08:35

Species present within the current extent

Fish Inventory	Wildlife Inventory	Stocked Inventory
No Species Found in Search Extent	COMMON YELLOWTHROAT EASTERN KINGBIRD WESTERN WOOD-PEWEE	No Species Found in Search Extent

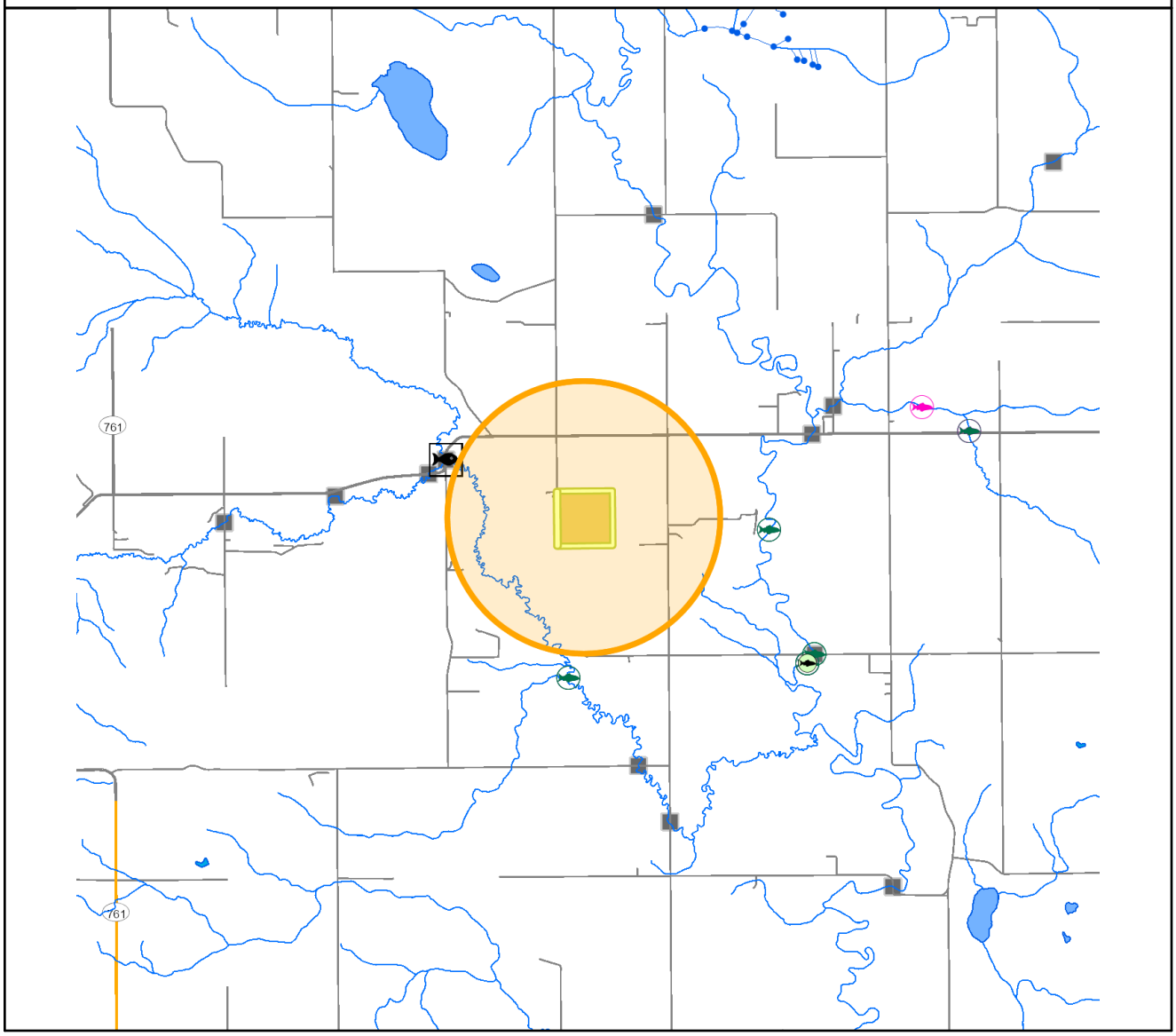
Buffer Extent

Centroid (X,Y)	Projection	Centroid (Qtr Sec Twp Rng Mer)	Radius or Dimensions
532263, 5822283	10-TM AEP Forest	SW 33 41 4 5	2 kilometers

Contact Information

For contact information, please visit:
https://www.alberta.ca/fisheries-and-wildlife-management-contacts.aspx

26-Nov-2025 08:35 **Map Results**



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APPENDIX L
ENVIRONMENTAL PROTECTION PLAN AND CONSERVATION AND RECLAMATION PLAN (EPP/C&R)

strum

CONSULTING

ENVIRONMENTAL PROTECTION AND CONSTRUCTION & RECLAMATION PLAN
Flipi Power Plant

December 23, 2024

strum CONSULTING

HEAD OFFICE
(NOVA SCOTIA)
T: 902.835.5560 (24/7)

WESTERN OFFICE
(ALBERTA)
T: 403.471.3913 (24/7)

December 23, 2024

Mr. Dobromir Filip
Kiwetinohk Energy Corp. (KEC)
250 2 St SW #1700
Calgary, AB T2P 0C1

Dear Mr. Filip,

Re: Environmental Protection and Construction & Reclamation Plan
Flipi Power Plant

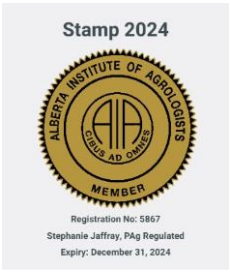
Attached is the Environmental Protection and Construction & Reclamation Plan prepared for the Flipi Power Plant.

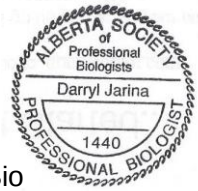
We trust this to be satisfactory at this time. Once you have had an opportunity to review this correspondence, please contact us to address any questions you may have.

Thank you,

Destin Gardner, B.Sc., MREM
Project Coordinator
Environmental Assessments & Approvals
dgardner@strum.com

Nicholas Doane, BSc.
Project Manager
Environmental Assessments & Approvals
ndoane@strum.com





Stephanie Jaffray, P.Ag.
President
Jaffray Land & Environmental Services Ltd.
Review of Sections 3, 5, and 6.0 to 6.5
(on behalf of Strum Consulting)

Darryl Jarina, P.Biol, RP Bio
President
Bear Tracks Environmental Services (2015) Ltd.
darryl.jarina@beartracksenv.com
(on behalf of Strum Consulting)

TABLE OF CONTENTS

page

1.0 INTRODUCTION 1
1.1 Overview of the Project Description 1
2.0 GENERAL MEASURES 2
2.1 Scheduling 2
2.2 Staking and Surveying 2
2.3 Cleaning Equipment 3
3.0 Construction 3
3.1 Salvage of Reclamation Materials During Construction 3
3.2 Storage of Reclamation Materials During and After Construction 4
3.2.1 Erosion and Sediment Control 5
3.2.1.1 Temporary and Permanent Erosion and Sedimentation Control Measures 5
3.2.2 Inspection & Maintenance 6
3.3 Vegetation Management During Construction 7
3.4 Dust Control 7
3.5 Odour 8
3.6 Noise 8
4.0 WEED MANAGEMENT PROGRAM 8
4.1 Identification 9
4.2 Prevention 9
4.3 Seeding 9
4.4 Licensed Applications 9
4.5 How Contamination of the Soil, Groundwater, Surface Water, and Air will be Avoided, Minimized, or Managed during Construction 9
5.0 CLUBROOT MANAGEMENT PROTOCOL 11
6.0 RECLAMATION 12
6.1 End Land-Use and Land Capability Ratings 12
6.2 Reclamation of Landform 13
6.3 Soil Capability 13
6.4 Soil Replacement Plan 13
6.5 Restoration of Capability 15
6.5.1 Soil Assessment 15
6.5.2 Soil Monitoring 16
6.6 Revegetation Plan 16
6.6.1 Revegetation Monitoring 17
6.7 Weed Management Plan 17
6.7.1 Weed Management Practices 17
6.7.2 Prevention, Pest Identification and Monitoring 18
6.7.3 Identification 18
6.7.4 Monitoring 18
6.8 Releases of Wastewater and Runoff during and after the Reclamation Phase 19

6.9 Waste Reduction during Reclamation 19
6.9.1 Waste Management 20
6.10 Dust, Odour, and Noise Control during Reclamation 21
7.0 REFERENCES 22

RECORD OF AMENDMENTS

Version	Date	Amendment Made By	Amended Section
V1	December 23 2024	N/A	N/A

1.0 INTRODUCTION

The purpose of this Environmental Protection Plan and Construction & Reclamation Plan (EPP; C&R Plan; referred herein to as the Plan) is to provide Regulatory Bodies, Landowner(s), Contractor(s), Operation(s) and/or occupants with a commitment to reduce, mitigate, and where feasible, eliminate the environmental impacts of construction and operations on the natural systems encountered. The Plan will serve as a field guide to support successful conservation and reclamation of Valued Ecosystem Components (VEC) in the area and ensure regulatory compliance during construction, operations, and reclamation at the Flipi Power Plant (the Project).

The operating procedures contained in this document are intended as a guide in conducting operations with consideration for environmental protection. The procedures are partially based on regulatory requirements but are not intended to be used in substitution to regulations, nor are they intended to be an exhaustive review or interpretation of applicable legislation. When used in conjunction with other manuals, such as those which may be provided by Project Contractors, the procedures contained herein are a valuable tool in guiding construction and operations.

Environmental legislation is designed to protect the environment. All employees and Contractors at the Kiwetinohk Energy Corp. (KEC; the Proponent) work sites must always comply with the latest applicable regulatory requirements. These requirements include acts, regulations, policies, practices, and procedures that are administered by governments and their agencies.

1.1 Overview of the Project Description

KEC is proposing to construct and operate the 460-Megawatt (MW) combined cycle power plant with the potential for carbon capture and storage (CCS) capability consisting of one natural gas fired combustion turbine, one steam turbine, the option for one carbon capture package, and one CO_2 compression and dehydration package. In addition, a 240 kilovolt (kV) substation is proposed. The Flipi Power Plant (the Project) is proposed to be constructed on private land, approximately 18 km southwest of the Town of Rimbey, Alberta. The regional location of the Project is provided in Drawing 1 in Appendix A of the Alberta Utilities Commission (AUC) Environmental Evaluation (EE).

The Project will be constructed within 13.6 ha of cultivated land in Section 33, Township 41, Range 4 W5M. Key considerations for site selection include:

1. Demand for Electricity:
    - Assessment of local and regional electricity needs.
    - Evaluation of potential export grid capacity for surplus energy.
2. Proximity to Natural Gas Supply:
    - Accessibility to natural gas infrastructure for operational efficiency.
3. Adequate Acreage:

    - Sufficient land area to accommodate project requirements and future expansion.
4. Soil Conditions:
    - Analysis of soil quality and suitability for construction and operation.
5. Minimization of Noise and Visual Disturbance:
    - Selection of a location with minimal nearby residences to mitigate noise impact.
6. Site Accessibility:
    - Consideration of transportation routes and access points for logistics.
7. Road Load Capacity:
    - Evaluation of local road infrastructure to support heavy equipment and materials transport.
8. Environmental Factors:
    - Assessment of ecological impacts and compliance with environmental regulations.

2.0 GENERAL MEASURES

General measures and best practices to be considered during construction of the Project are outlined below.

2.1 Scheduling

Scheduling construction works during appropriate site conditions outside of restricted activity periods (RAP) has the potential to minimize the impact of construction by reducing land disturbance and habitat disruption within and adjacent to the Project Area.

- No vegetation clearing will occur within the bird RAP between April 15 to August 30 (GOC, 2024), unless a preconstruction breeding bird sweep has been conducted prior to clearing or surface disturbance activities by a qualified biologist.
- Schedule construction to occur when ground conditions are suitable (dry or frozen), where feasible.
- Postpone construction, suspend equipment travel or use alternative construction practices in the event of wet or thawed soil conditions to reduce terrain disturbance or soil damage.

2.2 Staking and Surveying

Staking and surveying are crucial activities for ensuring construction projects are executed accurately, safely, legally, and efficiently. They provide the foundational reference points needed for Contractors to meet design specifications, reduce risks, and prevent costly mistakes that can have long-term consequences for the Project.

- Stake boundaries of the Project Area and any additional temporary workspace(s).
- Do not allow clearing or grading beyond the staked areas unless additional workspace rights have been obtained.
- Clearly flag or stake the boundaries of temporary access roads and trails.

- Identify the need for extra workspace prior to construction.
- Stake the access road at crossings of watercourses and roads as per crossing agreements.
- Obtain and mark extra temporary workspace, if warranted, prior to initiation of instream work when installing vehicle/equipment crossing structures, if applicable.

To mitigate terrain disturbance and prevent soil damage during construction, the following measures will be implemented:

- Construction activities will be deferred if wet or thawed soil conditions are detected, ensuring that the integrity of the land is preserved.
- Equipment movement will be halted under unsuitable soil conditions to avoid compaction and further disturbance.
- Where feasible, alternative construction methods will be employed to minimize impact on the soil. This may include using lighter equipment or adopting techniques designed for sensitive conditions.

2.3 Cleaning Equipment

All equipment moving soil should be thoroughly cleaned before entering the site. This will limit weeds from being introduced to the site during the construction and reclamation process.

3.0 CONSTRUCTION

KEC proposed to proceed with the construction work as soon as all public consultations and notifications have been completed and all regulatory approvals secured. The duration of the construction work is expected to be about 24 months depending on weather conditions. The facility will be placed on production as soon as the construction work is completed.

3.1 Salvage of Reclamation Materials During Construction

During the construction phase of the Project, soil will be stored in designated areas.

- The topsoil and subsoil layers within the Project Area will be stripped and stored separately, outside and north of the northwest corner of the Project Area.
- To save workspace, the soil stockpiles will be piled up to 6 m high, though buffer zones will be left between the topsoil and subsoil stripping piles to ensure no admixing occurs. Minor admixing may occur as some subsoil will be brought in with this stripping due to underlying vegetation and this is unavoidable.
- Topsoils will be piled first with subsoils in front of them.
- Subsoils (i.e., ‘parent material’ or C horizon) will be stripped as cut/fill where necessary to level and stabilize the location.
- Once pad construction is complete, subsoils will be spread on slopes 15 to 20 cm in thickness. The remainder will be rounded off in storage piles no greater than 6 m high with 3:1 sloping.

- Topsoil will be spread in allowable areas from 15 to 100 cm with the remainder to be rounded off in storage piles up to 6 m high with 3:1 sloping. The sloping of the storage pile is designed to facilitate easy access for vegetation control, allowing for effective management through either mowing or spraying as needed.
- On fill slopes, slopes will be contoured at a 3:1 final slope.
- At the toe of all fill slopes, silt fencing will be placed. Silt fencing is not to be placed within swales, offtake ditches or drainage channels. Silt fencing should never be placed at a right angle to water flow.
- Seeding to the recommended area mix will be done in consultation with the landowner. This will allow for soil stabilization and the creation of a natural seed bed for natural regeneration at the facility. However, if a seed mixture is recommended, a seed mix can take 2 to 3 years to germinate and cover crop of an annual rye grass will be seeded also to aid with erosion and degradation.
- Erosion controls will be installed as needed (i.e., silt fence, fiber matting).

Additionally, the following measures will be followed for soil salvage to conserve the quality and quantity of the available soil:

- Construction within the Project Area will occur during dry or frozen ground conditions only.
- Disturbed areas are to be contoured. Loading of slopes with unconsolidated material will be avoided during slope re-contouring.
- All grades and drainages will be created to promote surface runoff into well vegetated areas or the surface collection pit.
- Surface diversion berms will be installed, as required. Run-off will be diverted to stable and vegetated areas.
- Fences and culverts are to be designed to meet construction conditions.
- Areas with rutting or erosion gullies will be re-contoured and all strippings will be replaced evenly over all portions of disturbed areas.
- Where soils have been disturbed, implement appropriate reclamation procedures (i.e. seeding, erosion blankets, slash rollback, straw crimping) to promote stability of the site, soil preservation, and plant re-establishment.
- Ensure the natural drainage is restored.

3.2 Storage of Reclamation Materials During and After Construction

Conservation and mitigation measures for soils specific to facility type and site conditions are integral to the success of reclamation. No C&R Plan approval is required for this activity. However, the following describes the general conservation, mitigation, and reclamation measures to be implemented throughout the life span of the proposed Project.

Following successful construction, interim reclamation activities will be conducted to meet regulatory requirements for end land use that may exist at that time and to ensure topsoil management, drainage restoration, erosion control, and re-vegetation are effective.

3.2.1 Erosion and Sediment Control

Erosion Control is the process whereby the potential for erosion is minimized and is the primary means in preventing the degradation of downstream aquatic resources. Sedimentation Control is the process whereby the potential for eroded soil being transported and/or deposited beyond the limits of the construction site is minimized and is, for all intents and purposes, a contingency plan.

KEC would like to emphasize that it recognizes that successful Erosion and Sedimentation Control (ESC) requires correct installation of controls specific to site conditions, while also recognizing that ongoing maintenance is essential for successful outcome. ESC measures are dynamic and need to respond to requirements encountered throughout construction. Therefore, both temporary and permanent ESC measures should be expected to evolve throughout construction to varying degrees based on site conditions and field performance of implemented measures.

The planning strategies and structural components presented in this document are as equally important as the conceptual understanding of the principles of their implementation to promote good construction performance and protection of the environment.

As such, KEC is providing what it perceives to be Best Management Practices (BMP's) for the Project. Within the Project, at the field level, any of these practices may be installed. Each area within the Project will require specific control plans to be developed on-site using the principles and guidelines presented in conjunction with the lead Contractor, yet to be determined.

KEC will install erosion controls immediately after a disturbance in an erosion prone area. Erosion controls will be properly maintained, reinstalled as necessary and/or replaced until restoration is complete.

3.2.1.1 Temporary and Permanent Erosion and Sedimentation Control Measures

Temporary erosion and sedimentation control measures will be constructed at the start of the construction phase. However, additional measures will likely need to be constructed throughout construction. Permanent erosion and sedimentation control measures can be constructed during or at the end of the construction phase.

Examples of temporary measures include, but not limited to:

- Seeding
- Slope texturing
- Synthetic permeable barrier
- Mulching
- Hydroseeding
- Biodegradable coverings
- Filter fence
- Fibre rolls and wattles

Examples of permanent measures include:

- Offtake ditches
- Energy dissipator
- Earth dyke
- Gabion
- Rock check
- Sediment pond/basin

Dependent on the site conditions, some temporary measures will be retained for a longer duration to render its life span more permanent. With both temporary and permanent measures, the functional longevity of the method to be used will be considered prior to implementation.

The Construction Consultant and Environmental Monitor will consult with construction personnel on the appropriate measures to be taken. The measures outlined in the following list discuss various ESC locations of ideal use, advantages, and limitations.

Personnel associated with this Project will adhere to the following generic guidelines:

- Maintain existing vegetation cover whenever possible and minimize the area of disturbance by minimizing travel. Maintaining existing vegetation cover is the best and most cost-effective erosion control practice.
- Retain and protect vegetation layer to reduce erosion potential.
- Install all erosion and sediment control practices prior to any soil disturbing activities, when applicable.
- Avoid frequent or unnecessary travel over erosion prone areas.
- Install silt fence on the down-slope perimeter of all steep (3:1 or greater slope) disturbed areas according to the attached installation instructions.
- Add mulch, straw crimping or silage along with native vegetation seed to all disturbed areas as required.
- Upon final decommissioning, areas that have erosion potential may be straw crimped and or matted and seeded to return the area to pre-disturbance conditions in a timely fashion.

3.2.2 Inspection & Maintenance

Continued inspection and maintenance of ESC measures may be required after completion of construction. Regular inspections should be conducted on a weekly basis or as required with respect to storm events and snow melt.

The Contractor will be responsible for maintenance of the ESC works installed during construction. During operations, KEC will be responsible for maintenance. All maintenance performed on ESC measures will be recorded.

Inspection and maintenance will continue until the ESC is no longer required. The following circumstances and conditions will determine this outcome:

1. Revegetation of bare soil was successful.
2. No obvious erosion scour is observed.
3. No obvious bedload of silt and sediment laden runoff is observed.
4. Inspection and maintenance report indicate satisfactory performance.

3.3 Vegetation Management During Construction

The following is a list of vegetation management during construction:

- No woody vegetation (including salvageable timber) is within the Project Area. Therefore, no burning or storage of woody debris is expected to occur.
- If burning is found to be required, the activities will be undertaken as per the Firesmart Guidebook for Oil & Gas Industry for Alberta (GOA, 2008).
- If the removal of woody vegetation is found to be required, brushing will be avoided during migratory bird nesting (April 1 to August 30) seasons unless authorized (GOC, 2024).
- If salvage and brushing programs are authorized during the RAP, nest sweeps will be completed by a qualified biologist prior to clearing and consult with Alberta Environment and Protected Areas (AEPA) regarding recommended mitigation measures should occupied nests be discovered.

3.4 Dust Control

During construction and reclamation activities, appropriate dust suppression measures will be used as required. Water will be used for dust suppression on soil piles, exposed soil surfaces or other areas prone to wind and water erosion. Although there is no environmental impact in using water as a dust suppressant, water will only control dust for up to 12 hours due to its evaporation rate. Therefore, if prolonged use of an area is required, other surface amendments may be used for longer term dust control.

KEC realizes dust can be a significant source of particulate matter in the atmosphere and can have numerous environmental and socio-economic implications such as air pollution, impairment of driver vision, health impacts, and impacts to aesthetics. Road deterioration (e.g. ruts, potholes, and corrugations) can increase because of loss of fines (i.e., <0.075 mm) and aggregate material, since they act as road surface binders. This can lead to road safety issues, increased economic cost to vehicles and increased road maintenance needs.

The first general method to control dust generation is to apply good construction and maintenance practices. The second general method is the application of chemical methods of dust suppression. Other methods of dust suppression include changes to speed limits, encouraging the use of alternative routes, restricting heavy traffic, paving roads, or changing the timing of road construction and maintenance activities (i.e., to occur during wet weather).

The Project will implement appropriate dust suppression measures on roads, work areas, or transportation and loading routes as on Project roads. The decision to control dust will be made at the field level and will depend upon site conditions, level of activity, and worker health and safety.

3.5 Odour

If an adverse odour event occurs on the site that has potential to impact surrounding areas, the following steps will be undertaken to address the situation:

1. The source of the odour will be investigated and identified.
2. The contributing process/substance will be terminated, relocated, removed or otherwise managed as deemed necessary.
3. If the odour is indicative of a potentially hazardous event, the appropriate regulatory agency will be contacted immediately for assistance. Such assistance may include guidance on notification to nearby residents, business, or other land users.
4. If the odour event is deemed to be unhazardous but substantially offensive and objectionable, the nearby public will be contacted and provided with information regarding the odour.

3.6 Noise

KEC will follow existing regulations for noise control to reduce the effects of noise on nearby residents and workers. KEC will comply with the requirements of:

- *Occupational Health and Safety Act*, Occupational Health and Safety Code 2021 (Alta Reg 191/2021).
- Approved (recommended CSA Class A or CSA Grade 4) hearing protection devices must be always worn where noise levels exceed 85 DBA. These areas will usually be marked with signage stating that hearing protection is required.
- KEC has completed a Noise Impact Assessment (NIA) for the Project. The NIA has been prepared to support KEC's Industrial Approval Application and meets the requirements of the AUC issued Rule 012 - Noise Control, which are applicable to noise emitted from the construction and operation of energy related facilities in Alberta (AUC, 2024). The purpose of the NIA is to ensure that the noise from the Project, measured cumulatively with noise from other energy-related facilities, does not exceed the permissible sound level calculated. Predicted noise levels were evaluated against permissible sound levels established within Rule 012 for the nearest receptors. As a result, the Project is found to comply with Rule 012.

4.0 WEED MANAGEMENT PROGRAM

KEC will adopt a comprehensive approach to vegetation management that includes the identification of key species and potential issues, and prevention strategies to mitigate risks. Additionally, the approach will involve seeding to promote healthy growth and ensure proper

management of plant species. A Chain of Custody (CoC) will also be established to track all vegetation management activities and maintain compliance with environmental standards.

4.1 Identification

Species identified during site assessments were compared with those listed in the *Weed Control Act* (SA 2008, c W-5.1). Seeded areas will also be assessed for species listed in the *Weed Control Act* during construction and interim reclamation activities.

4.2 Prevention

Effective weed management starts with prevention. KEC will collaborate with the landowner to identify an appropriate seed mix aimed at reducing the risk of invasive species. To minimize the potential for weed introduction, KEC will seed all disturbed areas with the landowner-approved mix, unless the landowner prefers otherwise.

4.3 Seeding

Use an appropriate seed mix for interim reclamation, in consultation with the landowner. Purchase only certified seed from a recognized member of the Canadian Seed Growers Association (CSGA). Obtain a certificate of analysis that identifies weeds found in samples analyzed by a seed lab.

4.4 Licensed Applications

Only licensed applicators or landowners may treat vegetation and enter a recently treated or seeded area within the Project Area.

4.5 How Contamination of the Soil, Groundwater, Surface Water, and Air will be Avoided, Minimized, or Managed during Construction

KEC has an Environmental Management System and Emergency Response Plan (ERP) in development for the Project and will be in place during construction and operation.

Effective spill response is dependent on the amount of planning that is undertaken before a spill occurs. Sound planning will help reduce the number of spills, improve the success of response activities, reduce environmental impact, decrease conflict with regulatory agencies and the public, and lower spill response costs. Spill planning is a continuous process that requires commitment, cooperation and input.

Components of planning include:

- Company policy and spill strategy
- Spill prevention
- Contingency plans (or specific ERPs)
- Equipment readiness (know local contractors, mutual aid and area co-ops)
- Training

KEC's policy regarding spill planning and control operations involves:

- Authority to initiate emergency actions
- Reporting structures for notification and approvals
- Authority for expenditures related to spill activities
- Authority to activate additional resources as needed
- Authority to respond to public and media inquiries
- Authority to respond to unidentified spills

There are various regulations (e.g., storage requirements) whose purpose is to ensure that materials are adequately contained to prevent soil, surface water, and groundwater contamination through effective primary containment, secondary containment and leak detection.

Specifically, all construction operations will include:

- Overfill shut-off systems on fuel tanks will be in good working order.
- High/low pressure switches will be installed and in working order.
- An impervious tarp/catch bin will be in place during equipment servicing activities with the potential for accidental spills (e.g., oil changes, servicing of hydraulic systems).
- Waste (i.e., spent oils, lubricants, filters, etc.) shall be collected and disposed of at an approved location.
- Personnel shall ensure that during the course of operations, no fuel, lubricating fluids, hydraulic fluids, methanol, antifreeze, herbicides, biocides, or other chemicals are dumped on the ground.
- All storage areas greater than 5 m^3 in volume must be diked. The dike must have the capacity of 100% of the volume of the largest tank or 110% of the largest tank +10% of the aggregate volume of the remainder of the tanks. The diked area must provide secondary containment through compacted clay or a synthetic liner.
- There are no breaks in any dikes.
- Dike drains must always be closed.
- All dikes must be maintained in good condition and kept free of vegetation or other combustible material.
- Storage tanks for fuel will be visually inspected and documented.
- Load lines will have secondary containment (or drip trays are recommended for temporary fixtures).
- Equipment will be maintained to ensure drips and/or small leaks are repaired.
- Spill response equipment will be on the site including absorbent pads, booms, rags, hazardous waste bin, and/or soil waste bin.
- During construction all air emissions will be associated with construction equipment operating in and around the Project location. No site-specific air emissions will be released during the construction phase. Furthermore, no industrial wastewater streams will be created or released during the construction phase.

- Given the remote nature of the location, and the lack of site-specific emission streams during construction, no equipment will be used for ambient monitoring during construction.

5.0 CLUBROOT MANAGEMENT PROTOCOL

The cumulative clubroot infestations in Alberta website (GOA, 2024), and associated map (2023) shows low clubroot infestations between the years of 2005 to 2023 within Clearwater County.

1. The Proponent will consult with landowners to pre-determine if there is known clubroot within the Project on lands with infrastructure prior to construction.
2. The Proponent will take soil samples or samples of canola/mustard species planted at the time of sampling at cultivated quarter sections with Project infrastructure to determine if clubroot disease is present. The Proponent will use standard sampling methodologies, as per approved laboratory requirements [Government of Alberta (GOA), n.d.]. The Proponent will take these samples prior to construction.
3. Clubroot Sampling (GOA, n.d.):
    a. Park vehicle in an approach or off to the side of the road in a safe location. Do not drive or park vehicles in fields.
    b. Locate and verify field on map. Record location on map and in Inspection Report.
    c. Visually assess fields for suspect infection of clubroot (premature ripening, yellowing, or browning of plants) in crops.
    d. Before entering the field, wear a protective disposable slipper over their footwear to stop the transfer of soil from one site to the next or disinfect boot with a 5% bleach solution.
    e. The crop shall be walked in a predetermined travel pattern (such as a W configuration). Areas of potential contamination such as field entrances, sloughs, water runs should be closely examined. A minimum of six plants should be pulled in this travel pattern to give the best representation of the crop.
    f. When the presence of clubroot is found upon a plant, take a root sample, bag the sample, record, and mark with field reference location. If a positive sample is identified in the field of a producer who has not previously had clubroot, lab samples must be taken for confirmation.
4. Record Keeping Guidelines (GOA, n.d.):
    a. Keep records on all fields sampled.
    b. Information to record on inspection form:
        i. Field reference number
        ii. Legal land location
        iii. GPS location of field
        iv. Surveyor
        v. Date inspected/sampled
        vi. Size of field
        vii. GPS locations of sites sampled

viii. Pictures of field
ix. Date samples submitted
x. Lab numbers for samples submitted
xi. Results of samples
xii. If landowner or other witness present, have them sign field form

In the event clubroot is detected, the Proponent will implement a clubroot mitigation plan. The Proponent will:

1. Ensure that all construction equipment arrives on the right-of-way in a clean condition to reduce the risk of introducing or spreading clubroot disease on cultivated lands.
2. The general spread prevention strategy is to thoroughly clean vehicles and equipment such that topsoil and vegetation from cultivated fields that might contain clubroot spores and/or weed seeds are not carried by equipment/vehicles to adjacent fields.
3. After removal of soil lumps, wash equipment with a power washer.
4. Finish by misting equipment with disinfectant. Recommended products include 1 to 2% active ingredient bleach solution (UFA carries 12 per cent sodium hypochlorite in 5-gallon pails or 45-gallon drums), or HyperOx or EcoClear. The use of a disinfectant without first removing soil is not recommended because soil inactivates most disinfectants. A 20-to-30-minute wet period is necessary for good efficacy.
5. Disinfectant footbaths can be an effective first line of defense in a biosecurity program.
6. If support vehicles can be left along roads or in ditches, without creating traffic safety concerns, these vehicles will not require cleaning.
7. Water used to wash vehicles will be contained and managed so as to adhere to provincial and municipal regulations, and landowner requirements.
8. Once topsoils are stripped from the working areas, equipment that works and uses access along clay soils will not require cleaning.
9. Once topsoils are stripped, consider spraying piled topsoil piles with hydro- mulch to limit wind erosion of topsoils onto the working areas.

6.0 RECLAMATION

6.1 End Land-Use and Land Capability Ratings

The aim of reclamation will be to obtain equivalent land capability. “Equivalent land capability” is defined in the Conservation and Reclamation Regulation (Alta Reg 115/1993) as “the ability of the land to support various land uses after conservation and reclamation is similar to the ability that existed prior to an activity being conducted on the land, but that the individual land uses will not necessarily be identical.”

The Project is on cultivated land and is surrounded by other cultivated land and industrial operations. Following reclamation of the Project, it is expected the land use will return to cultivated land. The Criteria to be used to evaluate whether a site has met equivalent land capability will be developed and in place at the time of final reclamation of the Project.

6.2 Reclamation of Landform

Normal direction and dispersion patterns are established by pre-disturbance surveys, reports, aerial photographs, observations of the surrounding landscape, and consultation. Drainage will be restored to conform to the drainage of the surrounding areas. If ponding is consistent with the site's normal state, it suggests that this condition is expected and not indicative of underlying issues.

Industrial runoff on facility areas will be controlled and collected to prevent erosion and sedimentation of adjacent areas. Runoff water will be collected by a series of ditches and culverts, which will feed into either stormwater ponds or restored wetland areas. In either case, the areas will be designed to meet standards current at the time of reclamation.

6.3 Soil Capability

A decrease in the class of rated soils from preconstruction conditions to final reclamation is anticipated. At reclamation, soil land capabilities will be achieved on most of the natural sites, with well drained conditions. Following reclamation, a change from baseline soil moisture conditions and soil profile properties is expected. The establishment of some soil conditions will not occur immediately upon soil replacement but may be achieved over time by natural pedogenetic processes. As such, a conservative approach at the conceptual level is presented, indicating a change in soil condition, but maintenance of an equivalent capability for surrounding lands. Facility specific baseline soil conditions identified will be used to refine the closure land capability goals.
Areas that were used for infrastructure or working surface areas have been subjected to significant load applications and traffic. These soils will become compacted, compared to the soil density of undisturbed adjacent lands. Following remediation, and after removing any salvageable gravel or material, the sub-grade will be deep-ripped and recontoured prior to replacement of topsoil. These activities will help ensure that the soil densities of these areas are not substantially different from the soil density of subsoil on nearby undisturbed lands.

6.4 Soil Replacement Plan

The goal of the soil replacement plan is to reconstruct soil to an equivalent land capability that existed prior to disturbance or as may be applicable to end land use at the time. Reconstructed soil is a mixture capable of sustaining an initial erosion-controlling plant cover, and of supporting vegetation species.

Thus, the replacement soil will provide:

- Adequate moisture supply
- Adequate nutrient supply
- Capability to support an erosion-resistant vegetative cover

Estimates for soil replacement are conceptually based on an average replacement depth of 20 cm of reclamation material on all reclaimed upland sites. This replacement depth is consistent

with the average of the baseline upland topsoil depths. A material balance will be developed following remediation activities based on the following assumptions.

The overall soil replacement plan for the Project is outlined below:

- For the areas constructed on mineral soil, soil replacement will consist of the application of the salvaged subsoil, followed by replacement of surface soil previously salvaged and stored at the plant.
- Soil will be spread evenly across the ground surface and depth will be consistent with control points taken from around the facility.
- For the portions of access roads that were constructed on mineral soil, subsoil stored in the upper areas will be de-compacted as required and re-contoured as appropriate based on final target ecosite phases.
- Soil replacement will consist of all surface lift material that was previously stored.
- Site-specific soil replacement for each facility area will be based on the site assessments of landform and soil features following remediation at that area.

During construction and reclamation, problems may be encountered which result in soil erosion, loss of soil productivity, or damage to soil structure if not addressed. Mitigation measures are suggested which may reduce the effect associated with construction and operation and reduce the time required for reclamation of disturbed areas. Due to financial and/or timing constraints, it is understood that all construction activity cannot be suspended.

Contingency measures will be implemented, if warranted, once one of the following indicators occurs:

- Rutting of topsoil to the extent that admixing may occur
- Excessive wheel slip
- Excessive build-up of mud on tires and cleats
- Formation of puddles
- Tracking of mud as vehicles leave the work areas

To reduce terrain disturbance and soil structure damage through rutting or compaction due to wet or thawed soil conditions, construction alternatives will be employed during these cycles, as necessary. The contingency measures listed below may be implemented individually or in combination, as necessary, based on site-specific conditions:

- Restrict construction traffic, where feasible, to equipment with low-ground pressure tires or wide pad tracks.
- Work only in non-problem areas, such as well-drained soil or well-sodded lands, until conditions improve.
- Install geotextiles, matting or corduroy constructed from non-salvageable timber in problem areas.
- Consider salvaging an additional width of soil in problem areas.
- Suspend construction until soils dry out.

6.5 Restoration of Capability

Mitigation measures will be implemented. The intent of these mitigations will be the reduction of the potential effects of the Project on the environment, and to enhance reclamation success in terms of achieving equivalent land capability. Reclamation approaches are planned to maintain or restore the following environmental capabilities:

- Soil land capability classification
- Vegetation productivity
- Wetlands
- Surface water
- Wildlife

6.5.1 Soil Assessment

The assessment density and level of detail applied in evaluating each reclaimed facility and its representative controls will be based on regulations and guidelines in place at the time of reclamation.

Typically, assessment parameters include:

- Texture
- Structure
- Bulk density
- Saturation percentage
- pH
- Salinity (as indicated by electrical conductivity and sodium adsorption ratio)
- Cation exchange capacity
- Macronutrient levels
- Soluble ions
- Organic carbon

This monitoring information will be used for evaluating the reclamation techniques and measures used for various sites and for variable moisture conditions to achieve targets.

Reclamation success will be evaluated based on the similarity of the properties of the reconstructed soil layers within the upper 50 cm (rooting zone) of soil to the control soils. Soil samples will be collected for laboratory analysis from each of the principle soil layers. These samples will be analyzed for pH, sodium adsorption ratio, and electrical conductivity. Total organic carbon content and total nitrogen will be determined in the topsoil layer only. Particle size analysis will be completed on a subset of the samples collected (approximately 10%) to confirm the soil textures identified in the field. Horizonation, texture, structure and soil consistency will be observed and recorded at each of the inspection locations. The topsoil (0 to 20 cm) and upper subsoil (20 to 50 cm) layers will also be assessed for degree of compaction and coarse fragment content.

6.5.2 Soil Monitoring

The soil monitoring program comprises three types of soil monitoring:

1. Annual observations of all reclaimed facilities
2. A landscape assessment of reclaimed facilities
3. Soil inspection and sampling over reclaimed facilities

Soil and slope stability monitoring of reclaimed sites will be undertaken in conjunction with the vegetation assessment, using a combination of site observations and systematic monitoring plots. Monitoring will include early annual assessments of soil stability to identify erosional issues, in conjunction with annual vegetation assessments. The performance of reconstructed soils is a key element of erosion control and ecosystem sustainability. KEC will monitor the sustainability of reclaimed soils to support vegetation growth by comparing soil physical and chemical parameters against reference soils (control conditions).

6.6 Revegetation Plan

As part of this reclamation program, KEC is committed to using a range of techniques to optimize growth, recognizing that there is considerable variation among ecosites for both natural and managed vegetation re-growth. Practices such as mounding, deep tillage, subsoiling, mixing, and scarification will all be investigated for their effectiveness in promoting crop establishment and growth.

Revegetation of reclaimed landform surfaces is dictated by the nature of landform morphology, slope, aspect, soil type, nutrient and moisture regime and soil drainage conditions. The types of vegetation communities that will successfully establish and develop under various combinations of these factors has been the subject of research and monitoring programs conducted over the last 25 years in the oil and gas industry.

Establishment of plants in reclamation areas will be implemented in consultation with the landowner. Selection of species and the proportion of each species in the supplemental planting mix are based on:

- Landowners requests
- Existing field conditions
- Vegetation type or types desired for development on the site, based on end land use objectives and terrain features
- Expected growth of species from seeds and root fragments in the soil amendment layer
- Success of establishing desired species in previous revegetated programs

Development areas will be revegetated to specifications requested by the landowner following recontouring, soil replacement and site preparation. Revegetation targets will ultimately be determined and will consider pre-disturbance vegetation. Reclamation targets will be confirmed and/or updated in consultation with the landowner and relevant regulatory agencies.

6.6.1 Revegetation Monitoring

Revegetated areas will be monitored after reclamation to verify the development of self-sustaining plant communities that align with the end use. A monitoring program designed to demonstrate the establishment of vegetation capability, which is essential for reclamation certification, will be incorporated for most reclaimed areas.

Surveys will verify that vegetation cover is increasing at an acceptable rate to control erosion. Annual monitoring will occur for at least the first two years post-reclamation, until vegetation reaches at least 80% ground cover and soils stabilize. If additional measures, such as seeding, are needed to enhance cover (minimum 40%), the monitoring period will be extended.

Vegetation cover percentages (by species) will be recorded along established permanent linear transects one year after reclamation, with data collected at nested plots at regular intervals.

The reclamation monitoring program will include annual inspections to assess revegetation success across all reclaimed areas. This will feature routine maintenance for erosion control, supplemental seeding, and fertilization.

Noxious weeds will also be identified and removed during these inspections, which will cover disturbed lands and adjacent areas.

6.7 Weed Management Plan

Weed management treatments will be prioritized based on operational requirements, site characteristics, species and density of problem vegetation, safety, public concerns, and legislation. Careful planning is required to ensure vegetation management treatments are implemented effectively, safely and cost-efficiently each year.

To be effective, the program must operate in cooperation with other individuals, agencies and land managers because weed infestations can occur across many different land uses and ecosites.

Management of invasive weeds will follow all guidelines and legislation. Weed management will consist of the use of one or more of the following treatment methods:

- Prevention (i.e. seeding of bare areas)
- Manual (i.e. weed pulling)
- Mechanical (i.e. mowing)
- Chemical (i.e. herbicide application)

6.7.1 Weed Management Practices

The primary objective for managing weeds is to prevent the spread of plant material to non-infested areas. Vegetation management measures the Project may use (as dictated by specific site conditions) include:

- Cutting and bagging invasive and noxious weed plants with mature seed heads prior to disposing of in appropriate landfills or other sites deemed satisfactory.
- Managing invasive and noxious weeds growing on site and along facility access roads (within 1 m) using manual and chemical treatments.
- Seeding soils disturbed during construction or weed removal as soon as practical after disturbance. However, it should be noted that based upon experience completing reclamation in Alberta, occasionally, and following approval of the appropriate land manager or regulator, natural revegetation may be encouraged, and no seeding may occur. This is an effective method in areas with low impact, limited access (i.e. winter access), or in areas identified as having native species compatible with quick revegetation.
- Educating the staff regarding the identification and management of invasive and noxious weeds.

6.7.2 Prevention, Pest Identification and Monitoring

Prevention begins with identification of the pest (weed) species, its habitat, growth and method of regeneration. Early diagnosis and early treatment are the keys to success. This is crucial to reduce the amount of manual or herbicide treatments required in any given area. These measures may be incorporated into regular site construction and maintenance activities.

6.7.3 Identification

Weed and vegetation problem areas will be identified and treated when controls are most effective, usually in early Spring or at the end of the summer before they go to seed. This is when the plants are highly susceptible. These methods reduce seed production for that year and reduce plant regeneration for the following year.

6.7.4 Monitoring

Monitoring methods and the frequency of monitoring visits will be site specific and will depend on the priority rating for a location. High priority sites may be monitored more frequently than those that are low priority.
Observations will be recorded to collect information to determine management objectives, what management action should be prescribed, if any action is needed. Observations to be recorded may include:

- Weed species and locations in specific areas
- Size and abundance/density of weed infests
- Site disturbances that may be encouraging weed spread or providing weed establishment
- Environmental conditions and features of the area
- Environmental damage that has been or may be caused by the weeds

Before and after photos may be another monitoring method to determine success of the treatment. Follow-up treatments may be implemented before plants go into seed to decrease annual seed production as well as to decrease the spread of weeds.

6.8 Releases of Wastewater and Runoff during and after the Reclamation Phase

Industrial runoff control systems will continue as per EPEA approvals.

Industrial water runoff will be controlled during reclamation to prevent its contamination by manipulating site grade (e.g. berm or channeling) to redirect potential runoff around the areas to be remediated or in the process thereof. Industrial water control measures will be available and will be installed as required and will be optimized as appropriate. These may include the use of the existing catchment areas, or alterations to the catchment areas to best manage surface water on the Project.

Industrial wastewater that accumulates around stockpiles or in excavation areas and requires removal will be transported and/or pumped to a designated area. This captured water may be treated using bag filters and activated carbon or disposed at an approved facility. The treated water will only be reused for dust control in areas or on materials requiring or undergoing remediation. No Industrial water will be discharged without appropriate testing to ensure acceptable conditions.

It is KEC's intention to manage operations in a manner that reduces the potential for surface erosion. Site-specific erosion controls will be assessed at the facility level to ensure the appropriate measures are implemented at each reclamation area on the facility.

The reclamation of the Project is designed to reduce the overall effect to surface water. Design level mitigation implemented during Project planning will limit alteration of the natural drainage systems resulting in reduced reclamation requirements for restoration of these areas.

Restoration of site drainage will help facilitate restoration of the development area drainage at reclamation. Maintenance of surface drainage within wet areas will be facilitated by the removal of culverts in roads.

Treatment of water discharges from the plant site (e.g., Industrial Pond) along with pre-release water quality testing, management of discharge rates, use of appropriate discharge methods that encourage infiltration, and regular monitoring will mitigate potential impacts of released waters on fundamental surrounding land functions.

6.9 Waste Reduction during Reclamation

The reduction of waste is encouraged in all the KEC operations as part of an efficient business model. KEC believes that responsible waste management can be achieved through use of the following waste hierarchy:

- Reduce the quantities of wastes generated
- Reuse waste materials where possible
- Recycle waste materials where possible
- Recover valuable materials from waste streams
- Treat and dispose of wastes

KEC is committed to demonstrating continuous improvement in reducing the generation of waste from its operations, beneficially reusing or recycling materials that might otherwise end up in the waste stream. It also strives to properly store, handle, and dispose of those wastes that remain.

Active waste reduction is at the forefront, when the proper waste handling techniques are employed. KEC is committed to ensuring compliance with regulations, as well as protecting the environment when dealing with its waste products.

KEC is also committed to properly training all personnel who handle waste, and those responsible for their supervision.

To actively pursue these commitments, KEC will develop an operational Waste Management Plan applicable to the Project to ensure compliance with all associated environmental regulations. This plan will serve as a valuable tool for the collection of data, providing guidance to employees, identification of future technology needs and requirements, as well as reducing risk exposure, and identifying the company's operating procedures and standards.

6.9.1 Waste Management

Waste management will be protective of human health and the environment by controlling and minimizing exposure to hazardous materials. The intent is to reduce the volume of waste delivered to registered disposal facilities by reducing waste generation and maximizing the re-use and recycling of material.
Currently, KEC has a waste management plan that is applicable to all Alberta Energy Regulator (AER) regulated segments of the company. This plan will be the corporate guide for all its facilities. The corporate waste management plan will be the basis for the waste management philosophy of the company and will ensure consistency throughout.

The plan is based on discussions with operations and environmental personnel from KEC. Site visits to a representative sample of facilities were conducted, for the purpose of conducting waste audits. This plan will ensure regulatory compliances and will meet or exceed the requirements of the AER waste management requirements as outlined in Directive 058 (AER, 2022).

A successful waste management plan is comprised of the following components:

- Identification
- Characterization and classification
- Handling
- Storage
- Treatment
- Disposal
- Manifesting
- Tracking and record keeping

- Reporting
- Site specific plans for field offices

The principles of waste reduction are followed closely in this Plan. This is both an environmental consideration as well as an economical one. Recognizing opportunities to reduce waste volumes as well as the elimination of certain wastes will enable the Project to operate in an environmentally safe and responsible manner.

The Project will adhere to all federal, provincial, and municipal regulatory requirements pertaining to the handling, storage and disposal of waste streams. The Project's waste management strategy is based upon this principle.

All personnel involved with the Project will be adequately trained in the areas of Health, Safety, and Environment, including waste-specific practices and procedures. If determined to be required, operators will be trained in waste treatment technologies in addition to the Health, Safety, and Environmental competency requirements.

6.10 Dust, Odour, and Noise Control during Reclamation

Dust, odour, and noise control during the reclamation phase of the Project will follow the same principles and BMPs as the construction phase. Refer to Section 3.4 to 3.6 for details on mitigating the potential impacts of dust, odour, and noise during construction and reclamation of the Project.

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APPENDIX M
EMERGENCY RESPONSE PLAN - PRELIMINARY

Field Emergency Response Guide

[Business Unit/Region]

[TSD ##]

Version # | October 2025

transalta™

TABLE OF CONTENTS

1 Introduction 1
1.1 Using This Guide 1
2 Notification & Escalation 3
3 Field Response Team (FRT) 4
4 Response Actions 5
4.1 First-On-Scene Immediate Actions 5
4.2 FRT Lead Actions 6
4.2.1 Size Up the Situation 6
4.2.2 Establish a Chain of Command 6
4.2.3 Establish Field Command Post 7
4.2.4 Set Up Staging Area 7
4.2.5 Designate Perimeters, Access/Egress/Evacuation Routes 7
4.2.6 Manage Field Response Team (FRT) Members 8
4.2.7 Establishing or Joining a Unified Command 8
4.3 Scribe Actions 8
4.4 Site Safety Assistant Actions 9
4.5 FRT Member Actions 9
4.6 Produce & Maintain Documentation 9
4.7 Transfer of Command 10
4.8 Delegation of Authority 10
4.9 Demobilization 11
4.10 Post-Incident Debrief 11
5 Facility/Site Information 12
5.1 Site/Facility Name 13
6 Hazard-Specific Response Procedures 14
6.1 Medical Emergencies 14
6.1.1 Notification & Escalation 14
6.1.2 Response Actions 15
6.2 Security Incident 16
6.2.1 Notification & Escalation 16
6.2.2 Response Actions 17
6.3 Fire and Evacuation 19
6.3.1 Notification & Escalation 19

6.3.2 Response Actions 20
6.3.3 Evacuation Plans 21
6.4 Environmental Spill/Product Release 22
6.4.1 Notification & Escalation 22
6.4.2 Response Actions 23
6.4.3 Environmental Spills Reportable Quantities 24
7 Technical Drawings 26
8 Location Maps 27
9 Emergency Equipment Inventories 28
Appendix A Check In/Check Out Log 29
Appendix B Individual Activity Log 31
Appendix C Event Log 33
Appendix D Action Tracker 35

FIGURES

Figure 1: *Emergency notification procedure 3*
Figure 2: *FRT organization chart 4*
Figure 3: *TransAlta incident management priorities 5*
Figure 4: *Location of sites 12*

TABLES

Table 1: *Quick reference for site-specific response procedures 2*

PURPOSE

The purpose of this *Field Emergency Response Guide* (FERG) is to:

- Describe the priorities when responding to incidents at TransAlta's [Business Unit/Region].
- Outline the roles and responsibilities of the Field Response Team (FRT) and supporting agencies.
- Describe the process for notification and escalation of an incident and the steps to establish a Field Command Post (FCP).

AUDIENCE

This Guide is intended for TransAlta personnel who may come across or be involved in the response to an incident at [Business Unit/Region].

This includes:

- Operations Staff
- Field Response Team (FRT) members
  (Note: for Australia, terminology "Frontline Response Team" may be used, as applicable)

1 INTRODUCTION

The facilities/sites covered in this FERG include:

Provide details on what sites are covered in this FERG.

Detailed site information is provided in Section 5.

1.1 Using This Guide

The following sections outline the Field Response Team (FRT) structure, notification procedures, and initial response actions required at each site in case of an emergency. In addition to initial response procedures, hazard-specific response procedures are provided to address the specific actions required for:

- Medical emergencies
- Security incidents
- Fire and evacuation
- Environmental spill/product release
- Dam breach/flood

To support appropriate and efficient emergency response, this plan also contains site-specific response procedures, as shown in ***Table 1***.

List other documents that should be consulted in conjunction with this FERG.

Table 1: *Quick reference for site-specific response procedures*

Facility	Travel Instructions	Evacuation Plans	Emerg. Material Sources Plans	Technical Drawings	Location Maps	Emerg. Equipment Inventories

2 NOTIFICATION & ESCALATION

This Field Emergency Response Guide (FERG) may be activated by any employee who determines an incident has occurred. The mechanism for conducting a notification of an incident is shown in ***Figure 1***.

Describe how notifications are received, e.g. from personnel on site or member of the public.

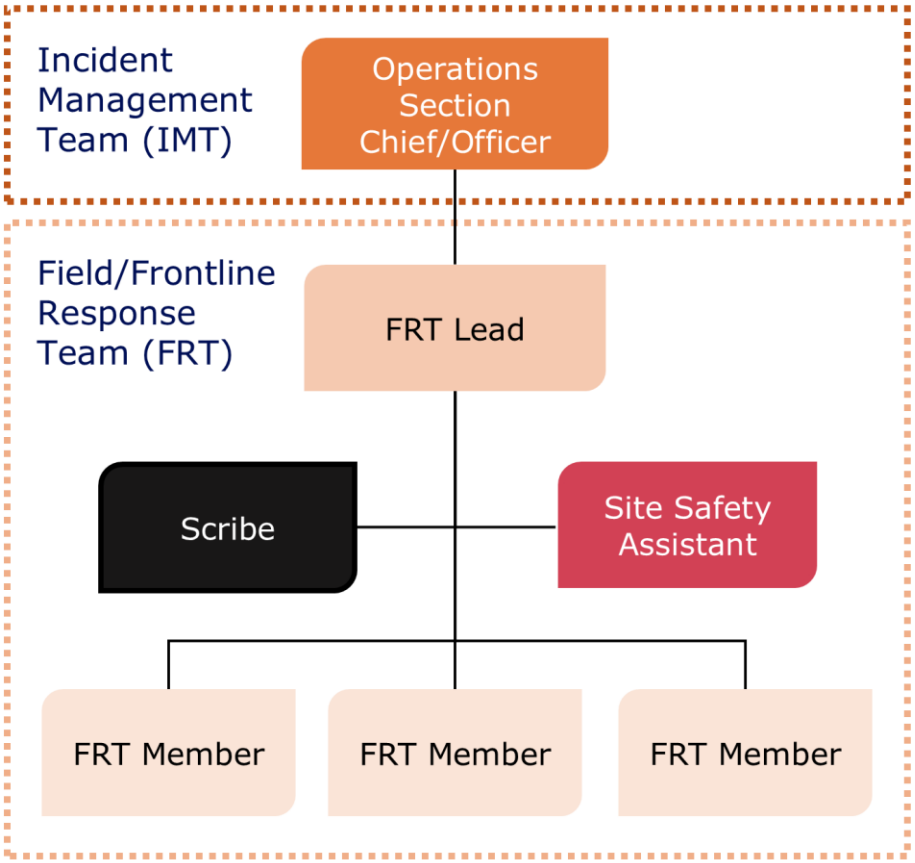
Figure 1: *Emergency notification procedure*

3 FIELD RESPONSE TEAM (FRT)

A Field Response Team (FRT) is used to deliver the tactical actions necessary at the site level to respond to an incident. The exact size and composition of the FRT will vary according to the incident. The following sections describe how to assess the impacts of an incident and organize an FRT to mitigate impacts and resolve the incident.

The FRT is led by an FRT Lead, who is the responsible person at the incident site. This role will typically be assumed by the most senior Operator present or dispatched to the site and may be transferred to the On-Call Supervisor or Plant Manager if they arrive at the site. Depending on the nature and severity of the incident, the Incident Management Team (IMT) may be activated to provide support to the FRT and coordinate response activities with other internal and external stakeholders. When the IMT is activated, the FRT Lead will report to the IMT Operations Section Chief. See the FRT Organization chart below.

Figure 2: *FRT organization chart*



4 RESPONSE ACTIONS

TransAlta has pre-agreed incident management priorities that should underpin every action and decision undertaken during an incident. ***Figure 3*** provides these priorities.

Figure 3: *TransAlta incident management priorities*

4.1 First-On-Scene Immediate Actions

The First-on-Scene should follow the immediate actions outlined below until they are relieved by a more senior or qualified TransAlta employee, the emergency services (e.g., fire, police, ambulance, etc.) or other response agencies arriving at the incident site:

1. Risk assess the situation to identify any hazards to you and/or other people.
2. Take steps to address personal safety and always ensure the safety of other personnel.
3. If you can safely resolve or reduce the incident severity safely, undertake actions to do this.
4. If you can safely undertake actions to preserve TransAlta property, undertake actions to do this.
5. Follow the appropriate notification procedure (***Figure 1***).
6. Follow the response procedures for specific hazards, as applicable.

Note: Should there be no operators on scene, consider the safety of deploying an operator to the incident site. Use all information available, including communicating with the

emergency services, to determine whether it is safe to deploy any personnel to an incident site. Some incident sites may be remote and/or have no cell service. Ensure there are appropriate pre-deployment measures put in place including providing means of continuous communication.

4.2 FRT Lead Actions

- The senior, most trained person on the scene assumes the role of FRT Lead.
- Receive an initial briefing from the First-on-Scene.
- Confirm that all immediate actions have been carried out (Section 4.1 First-On-Scene) and complete any outstanding actions.
- Provide initial briefing to the On-Call Supervisor to determine the level of emergency.
- Assess the need for any additional personnel safety and public safety measures; implement, as required.

4.2.1 Size Up the Situation

The FRT Lead will conduct an initial incident size-up. This may be done in person or if located away from the incident site via piecing together relevant information at hand. The size-up will attempt to determine:

- Incident nature, likely duration, and other characteristics.
- Area impacted and the safety distance around the incident site, as applicable.
- Presence of any hazards or potential hazards at the incident site.
- What resources (personnel and equipment) are needed immediately to establish and support the FRT.
- Establish primary and alternate communications channels and ensure all responders involved are aware of what communication methods to utilize and what alternate methods are available.
- If personal protective equipment (PPE) is required to respond to the situation.
- Whether or not a Staging Area is required, where it may be located, and designate a Staging Area Manager.
- Whether or not perimeters, access, egress, and evacuation routes need to be defined.

4.2.2 Establish a Chain of Command

To establish Command, the FRT Lead will:

- Identify themselves as the FRT Lead.
- Inform incoming resources of their position as FRT Lead.
- Establish the Field Command Post (FCP) assigning primary and alternate communications as required.

- Activate Site Safety Assistant and Scribe, as required.
- Transfer command to the Supervisor if they are present at the incident site.

4.2.3 Establish Field Command Post

The Field Command Post (FCP) provides a central location from which the FRT Lead and response personnel will operate.

The FRT Lead will designate a location for the FCP that is:

- Away from the general noise and commotion associated with the incident, preferably with line of sight of the incident site.
- Away from present or potential hazards.
- Able to accommodate expansion, if required, by changing conditions.
- Marked on any maps generated and communicated to all involved response personnel and the relevant control rooms.

4.2.4 Set Up Staging Area

The FRT Lead may decide to designate a Staging Area to hold personnel and equipment waiting for tactical assignment.

The FRT Lead will designate a Staging Area location that:

- Is located away from possible direct hazards.
- Is within five (5) minutes travel time to the incident site and is (ideally) on paved surface.
- Has access to an approach route to the incident site.
- Has access to food, water, washroom facilities, if possible.
- Is managed by an FRT Member, appointed by the FRT Lead, who tracks resources and manages the Staging Area.

4.2.5 Designate Perimeters, Access/Egress/Evacuation Routes

The FRT Lead may want to isolate the incident site by defining the area perimeters and access/egress/evacuation routes in the following ways:

- Use traffic barrels, cones, delineators, tape, fences, or other materials available to designate a perimeter around the incident site.
- Establish separate access, egress, and evacuation routes to the incident site and mark them on any maps generated.
- Set up a manned control access point to control authorized traffic in and out of the incident perimeter.
- Communicate perimeters, access, egress, and evacuation routes to relevant control rooms and Incident Management (IMT) (if activated) and ensure they are marked on any maps generated.

4.2.6 Manage Field Response Team (FRT) Members

The collective group of TransAlta responders at the incident site will be referred to as the Field Response Team (FRT).

The FRT Lead will manage the FRT members in the following ways:

- Ensure that FRT Members arriving and departing at the incident scene are checked in/out using the TransAlta Check In/Check Out Log (Appendix A).
- Provide Safety Briefings to FRT Members.
- Provide briefings on the Incident Action Plan (IAP) after it is received from the IMT.
- Provide other briefings on the incident situation, as required.
- Designate FRT Members to carry out specific tasks and execute identified responsibilities to manage the incident (see Section 6 Hazard-Specific Response Procedures).
- Appoint senior or expert FRT Members as leaders to supervise groups and maintain an effective span of control (see ***Figure 2***).
- Ensure FRT Members know whom to report to while carrying out incident management activities.

4.2.7 Establishing or Joining a Unified Command

A Unified Command is used in incidents involving multiple jurisdictions and/or organizations operating together to form a single command structure.

The FRT Lead may establish or join Unified Command in the following ways:

- Identify themselves as FRT Lead for TransAlta to the incoming agency/organization Incident Commander(s).
- Describe their scope of authority to the incoming response agencies.
- Establish themselves as the representative and point of contact for TransAlta at the incident site.
- Provide a situation update to the incoming agencies/organizations.
- Provide a list of the agencies/organizations participating in Unified Command.

4.3 Scribe Actions

The Scribe will carry out incident management tasks under the direction of the FRT Lead.

The Scribe will carry out the following general actions:

- Document all decisions made, and key activities undertaken by the FRT in the Event Log (Appendix C).
- Support the FRT Lead and FRT Members in their duties.
- Support scheduling and delivery of any in-person or virtual meetings and briefings.

- File and manage all documentation relevant to the FRT.

4.4 Site Safety Assistant Actions

The Site Safety Assistant will carry out incident management tasks under the direction of the FRT Lead.

The Site Safety Assistant will carry out the following general actions:

- Identify and assess safety hazards and risks associated with the incident site.
- Advise the FRT Lead on safety concerns and measures to mitigate risks.
- Ensure all FRT Members are checked in and out of the incident site using the Check In/Check Out Log (Appendix A).
- Monitor the welfare of personnel and ensures compliance with safety protocols.
- Coordinate with the IMT Safety Officer to integrate safety considerations into operational planning and activities.

4.5 FRT Member Actions

FRT Members will carry out incident management tasks under the direction of the FRT Lead.

FRT Members will carry out the following general actions:

- Ensure personal safety at all times.
- Check in upon arrival at the incident site (Appendix A), collect a blank Individual Activity Log (Appendix B) and receive a safety briefing.
- Report any hazards or safety concerns to either the FRT Lead or the Site Safety Assistant.
- Follow directions issued by the FRT Lead, Unified Command, or designated leaders.
- Complete required documentation, including but not limited to an Individual Activity Log.
- Check out upon departure from the incident site (Appendix A); return all completed documentation and equipment to the FRT Lead.
- Participate in demobilization efforts (e.g., recovery operations, clean up, restoration, etc.).
- Participate in post-incident debriefs.

4.6 Produce & Maintain Documentation

Maintaining thorough documentation is critical, especially to post-incident analysis. The FRT Lead is responsible for ensuring accurate and complete information is documented, communicated, and stored, assisted by the Scribe. However, all FRT Members are responsible for the completion and submission of their own Individual Activity Logs.

TransAlta uses a MS Teams hosted Virtual Incident Management System (VIMS) to provide a means of coordinating communication and storage of documentation within a single virtual location for the entire Incident Management Structure. The VIMS can be used for any incident level. An incident specific VIMS will be activated by an IMT Lead and/or the CMT

Director upon classification of the incident level. All documentation relevant to the incident should be stored on the specific incidents VIMS's under the FRT section.

Forms and templates are available to support documentation of activities, ensuring accurate and complete information is tracked and shared. The following forms should be used:

- Check In/Check Out Log (Appendix A)
- Individual Activity Log (Appendix B)
- Event Log (Appendix C)
- Action Tracker (Appendix D)

Forms and templates can be completed electronically or printed and completed by hand.

4.7 Transfer of Command

Transfer of command is the process of shifting responsibilities from one team member to the next with minimal disruption to assigned tasks. This includes transfer of command between incoming and outgoing:

- FRT Leads
- Scribe
- Site Safety Assistant
- FRT Members

The TransAlta Incident Management Structure is designed to work on a 24-hour basis. If 24-hour coverage is required, FRT Members will be relieved on a defined shift schedule (typically 8- or 12-hour shifts), or at the discretion of the FRT Lead. The IMT Planning Section should be utilized to assist in shift patterns, if required.

Reasons for a transfer of command may include:

- Shift change
- A more qualified, experienced, or specialized individual may be assigned to the role
- The need to relieve team members for an extended incident
- Where dictated by legislation or regulation

A transfer of command in any role is essential for the effectiveness and continuity of the response. The individual incoming and the individual leaving are required to meet to discuss and share relevant information, so the position can be properly filled, and necessary tasks accomplished. Transfers of command for all positions will overlap to ensure that operations are not interrupted, and the necessary briefings can occur.

Whenever possible, transfer of command is best done via a face-to-face or a direct phone call meeting and should include a briefing on events and key decisions that occurred during the shift. A minimum of 30 minutes will be provided for the handover discussion for any transfer of command or shift change.

4.8 Delegation of Authority

The FRT Lead is the key decision-maker within the FRT and has the authority and responsibility to direct the operations, allocate resources, and communicate with stakeholders and partners. However, there may be situations when the FRT Lead is not available to make decisions due to conflicting duties. In such cases, it is essential to have a

clear and consistent process for designating alternative decision-makers who can assume the roles and responsibilities of the FRT Lead.

4.9 Demobilization

The decision to demobilize an FRT shall be made based on the status of the incident. The FRT Lead should engage with the IMT Operations Section Chief to establish whether it is appropriate to demobilize an activated FRT.

Factors that may affect the decision to demobilize include:

- Incident stabilization has been successful and immediate threats to the safety and security of staff, the public, and the environment have been reduced or eliminated.
- The number of resources required to achieve tactical objectives has required or objectives are completed and accomplished.
- Impacts to critical infrastructure and property have been remediated.
- Financial, legal, reputational, and regulatory concerns have reduced to acceptable levels.

4.10 Post-Incident Debrief

After an incident occurs and response activities have concluded, all FRT Members involved in the response activities will meet, as soon as is practically possible, to participate in a post-incident debrief. Debrief sessions should be initiated and facilitated by the FRT Lead but may be facilitated by a third party, where appropriate. The debrief shall examine the event, all facets and outcomes of the response, and communications both internally and externally. The focus of the debrief should be on discussing and determining:

- Outcomes and successes of the response.
- Lessons learned and areas for enhancement to response activities, communications, and inter-agency coordination.
- Suggested enhancements to relevant plans, protocols, and procedures while identifying corrective actions.

5 FACILITY/SITE INFORMATION

The locations of the [Business Unit/Region] sites are shown on ***Figure 4***. The following sections provide detailed coordinates and driving instructions.

Figure 4: *Location of sites*

5.1 Site/Facility Name

External Emergency Number:			
Legal Description:		**S.T.A.R.S Facility ID:**	
GPS Coordinates:			
Travel Instructions: e.g. driving instructions from the nearest town/city.			

6 HAZARD-SPECIFIC RESPONSE PROCEDURES

6.1 Medical Emergencies

6.1.1 Notification & Escalation

6.1.2 Response Actions

IMPORTANT: Do not move individuals with severe physical injuries any more than necessary to determine their condition and to attend to first aid needs, unless they are endangered prior to arrival of trained professionals.

If the nature or severity of the injury or illness is unusual or unclear, or a minor illness or injury is causing increasing distress or pain to an individual, err on the side of caution and seek medical advice or assistance immediately.

MEDICAL EMERGENCY RESPONSE ACTIONS CHECKLIST	
FIRST AID ACTIONS	
☐	Ensure that appropriate facility medical equipment is dispatched to the scene of the incident.
☐	Provide basic first aid to the injured individual or person(s) in distress based on their needs. Priority first aid measures could include: • Ensuring the victim is breathing and that their heart is functioning. • Administering appropriate cardiopulmonary resuscitation (CPR) procedures if the person has stopped breathing or their heart has stopped. • Controlling external bleeding, especially for large deep wounds. • Looking for signs of internal bleeding and administering appropriate first aid procedures. • Treating shock if it occurs because of injuries.
LIFE-THREATENING OR SERIOUS INJURY ACTIONS	
☐	Phone 9-1-1 and request assistance immediately, as time may be critical. Give them the following important information: • Your name and the phone number where you are located. • Tell them what happened (brief description). • Tell them what type of help you need (i.e., medical and ambulance assistance).
☐	Monitor injured or ill persons on a regular basis to ensure their condition remains stable until paramedic personnel arrive to assume control of patient treatment.
☐	Send a lookout to an appropriate spot, as required, to direct emergency agencies to the site.
ADDITIONAL ACTIONS	
☐	Assist and support emergency personnel, as required.
☐	Secure injured persons' personal belongings and effects, as required.
☐	In non-life-threatening situations where additional care may be required, assist in transporting the person to appropriate facilities, such as an emergency medical facility in a hospital, a walk-in clinic, or a doctor for additional treatment or care.
☐	Assist the person who is injured or ill as required for minor situations where no additional outside care is required.
☐	If the incident is safety related or a serious safety-related injury has occurred, secure the site and protect potential evidence as best possible prior to the incident investigation.

6.2 Security Incident

6.2.1 Notification & Escalation

6.2.2 Response Actions

IMPORTANT: Never assume that **ANY** actual or potential security breach, sabotage, intruder event, or discovery of a suspicious object at a facility is a prank or a joke. Serious consequences can occur, if the threat is proven credible. **Assess the nature of the threat, and, if credible, immediately notify police to respond to the incident.**

SECURITY INCIDENT RESPONSE ACTIONS CHECKLIST	
BOMB THREATS – VERBAL OR WRITTEN	
☐	Gather the initial information that has been received by completing the Bomb Threat Recording Form.
☐	If a bomb threat has been issued in a written form, the packaging, letter, and any enclosures should be retained for examination by police agencies.
☐	If a bomb threat has been left on a voice mail or answering system, retain or save the message for examination by the police.
☐	If an e-mail or text message of a bomb threat has been received, print out a copy of the message and retain it for examination by the police.
☐	Immediately notify TransAlta Security (1-877-967-2555). Security personnel will notify the police and other appropriate emergency agencies at 9-1-1 based on the nature and credibility of the threat.
☐	Implement localized evacuation of the threatened location and secure the site to prevent unauthorized access.
☐	Undertake general evacuation, if required, if the threat is deemed credible.
☐	Designate personnel to coordinate TransAlta's response to the incident with the police and other agencies as appropriate. Send lookouts to meet with police and direct them to the appropriate location.
☐	Wait for the police and other emergency agencies to arrive on-scene and coordinate all actions with them.
☐	Implement other appropriate emergency plan activation procedures for the incident, and coordinate response efforts with trained law enforcement and other emergency response agencies responding to the emergency.
INTRUDER EVENTS	
☐	Contact 911 and secure the site if safe to do so.
☐	Alert TransAlta Security (1-877-967-2555) of intruder event.
☐	If you suspect someone has broken in past security, determine whether the intruder(s) remain on the premises as best as possible. Use extreme caution to protect yourself and other personnel on-site. Do NOT place yourself in jeopardy or in any situation where the intruder may cause serious injury to yourself or to others.
☐	Immediately call 9-1-1 if an intruder is found to be present onsite and presents a threat to the company or personnel. Provide information that you have discovered an intruder in the facility and are requesting police assistance. Outline what steps you have already taken and provide a description of the intruders, if possible.

SECURITY INCIDENT RESPONSE ACTIONS CHECKLIST	
☐	If possible, secure areas of the facility where it is known that the intruder is not present to prevent vandalism, damage, or sabotage.
☐	Track the movements of an intruder(s) if found, but do not attempt to apprehend them or otherwise compromise the safety of personnel. Coordinate your actions with other personnel on an ongoing basis as required. If the intruder leaves the site by some method, gather any information you can about how they left (vehicle used and description if known, direction of travel, etc.).
☐	Wait for police to arrive, assist in apprehending the intruder, or undertake a follow-up investigation, as required.
☐	Based on the nature of the incident, implement other appropriate emergency plan procedures and incident reporting actions as required.
SABOTAGE	
☐	Determine the nature and potential consequences of the sabotage, inspecting the area only if safe to do so. Ensure any intruder who may have undertaken the sabotage is not still present and able to cause harm before taking any action (if present, see "Intruder Event" above).
☐	If possible, remotely shutdown or secure equipment that may be affected by the sabotage. Secure the area where the sabotage has occurred.
☐	Immediately notify the police and other appropriate emergency agencies via 9-1-1. Provide information that you have discovered potential sabotage on site and are requesting assistance from police related to the event. Outline what steps you have already taken. Wait for the police to arrive on scene.
☐	Initiate evacuation procedures, as required (See Section 6.3 Fire and Evacuation).
☐	Based on the nature of the incident, implement other appropriate emergency plan procedures and incident reporting actions as required.
SUSPICIOUS OBJECT OR PACKAGE	
☐	Implement localized evacuation of the threatened location, and secure location to prevent unauthorized personnel from entering the area.
☐	Undertake general evacuation of personnel, as required, if the threat is deemed credible.
☐	DO NOT TOUCH THE OBJECT. DO NOT USE A RADIO (Some bombs may be activated by radio waves). Gather as much information as possible, possibly related to the object discovered, as safely as possible.
☐	Immediately notify the police at 9-1-1. Inform the dispatcher that you have discovered a suspicious package on site and are requesting police assistance related to this package. Outline what steps you have already taken. Wait for the police and other emergency agencies to arrive on the scene and coordinate all actions with them.
☐	Implement other appropriate emergency plan procedures.

6.3 Fire and Evacuation

6.3.1 Notification & Escalation

6.3.2 Response Actions

FIRE RESPONSE ACTIONS CHECKLIST	
IMMEDIATE ACTIONS	
☐	Contain and control small fires, using on-site extinguishers only if fire suppression can be undertaken safely with available personnel and resources (WHEN IN DOUBT, GET OUT).
☐	Initiate general evacuation of the facility, if required, by activating the fire/evacuation alarm.
☐	Ensure the site has been secured to prevent re-entry by unauthorized personnel. If a fire has occurred in a building, the doors shall be closed (but not locked), if possible, when the last person has left.
☐	Identify any injuries to personnel and implement appropriate first aid measures.
☐	Contact Fire and other emergency personnel for response to the site.
☐	Ensure appropriate emergency equipment shutdown and isolation is implemented based on the location of the emergency and if safe to do so.
☐	Send a lookout to an appropriate spot to direct emergency agencies to the affected area, as required.
☐	Designate an FRT Lead for TransAlta to coordinate its internal response actions with those of external emergency agencies as appropriate.
☐	Meet with fire agencies when they arrive at the scene. Provide company assistance to external response agencies, as requested or required.
SUBSEQUENT ACTIONS	
☐	Ensure injured personnel receive treatment, and transport for medical attention as required.
☐	Ensure all personnel are accounted for and determine if any personnel are missing. Convey information on any missing individuals to emergency agencies to ensure a search is undertaken, as required.
☐	Assess risks and secondary impacts resulting from the fire and implement appropriate actions.
☐	Implement post-incident actions to restore normal services to the building.
AS REQUIRED	
☐	Secure the site and protect potential evidence, as best as possible, prior to incident investigation.

6.3.3 Evacuation Plans

6.4 Environmental Spill/Product Release

6.4.1 Notification & Escalation

6.4.2 Response Actions

NOTE: Spill containment or fire suppression procedures in initial response to an incident involving flammable liquids or gaseous releases should be considered ONLY if the following conditions are met:

- The spill/release or resulting fire is minor.
- The spill/release can be contained SAFELY with the manpower and resources available.

NOTE: If the spill is large, and beyond the internal capabilities of TransAlta to respond to the emergency, appropriate spill response contractors should be contacted to assist in the response to the incident. Detailed advice on containment, recovery, and clean-up may also be obtained from the supplier of the material involved.

SPILL RESPONSE ACTIONS CHECKLIST	
IMMEDIATE ACTIONS	
☐	Ensure all affected personnel in the local area are evacuated at least 25 metres from the vicinity of the spill site if no fire is present, and all personnel who were working in the area are accounted for.
☐	Ensure all ignition sources or potential ignition sources are eliminated at or near the spill site if it is safe to do so and no fire has occurred already.
☐	Ensure that fire alarms are activated, and appropriate general evacuation procedures are initiated for flammable liquid spills involving fires or explosions.
☐	Ensure injuries to personnel are identified, and appropriate first aid measures are implemented (see 6.1 Medical Emergencies for additional information).
☐	Ensure the site is secured and ribboned to prevent entry by unauthorized personnel.
☐	Designate an FRT Lead to coordinate fire response to the incident and coordinate actions with that of other emergency agencies on site.
☐	Ensure appropriate equipment shutdown and isolation is implemented, based on the location of the emergency.
☐	Ensure appropriate emergency notification procedures have been implemented and that appropriate trained personnel, external emergency agencies, and contractors are notified to respond to the emergency.
CONTAINMENT ACTIONS	
☐	Control additional release at source, if possible and safe to do so.
☐	Stop leaks in small containers such as damaged bottles, pails, or drums.
☐	Block manholes, sewer outlets, or doorways to prevent the spill from entering sewers, waterways, basements, or other areas where flammable liquids can migrate from the original spill site or cause a buildup of explosive vapours in a confined space.

SPILL RESPONSE ACTIONS CHECKLIST	
☐	Confine the spill to the smallest area possible on land or in a building using sorbents, dykes, dams, barriers, trenches, or bell holes.
☐	Contain flammable liquid spills prior to entry into any waterbodies such as ditches, creeks, or streams.
AS REQUIRED	
☐	Secure the site and protect potential evidence, as best possible, prior to incident investigation.
☐	Track a liquid spill on a river using a helicopter, to track where the spill front is located.
☐	Contain liquid spills on water using appropriate water containment options, based on the nature and circumstances of the spill.
☐	Pump large quantities of free liquid into suitable containers using suitable equipment. (Note: Metal containers are not considered suitable for storage of concentrated acids, as explosive hydrogen gas may be produced, and corrosion of the container may occur.)
☐	Recover small quantities of spilled liquid using natural or synthetic sorbent materials or neutralizing agents.
☐	Undertake positive or negative pressure cross ventilation of a confined area if gases have been released.
☐	Dissipate gas using a water spray, if safe to do so.
☐	Flood a confined space with inert gas to limit the possibility of flammable gas ignition.
☐	Maintain evacuation of an impacted area if limited feasible control options are available.

6.4.3 Environmental Spills Reportable Quantities

An environmental spill is defined as the release of any substance into the environment that may cause, is causing, or has caused an adverse effect on the environment.

It is the responsibility of the plant manager to conduct notification of the regulator if required.

6.4.3.1 Water-Impacted Environmental Spills

Reporting requirements for water-impacted spills.

6.4.3.2 Land-Based Environmental Spills

Reporting requirements for water-impacted spills.

Class / Type	Quantity	Examples
1 - Explosives	Any quantity that could pose a danger to public safety or is greater than 50 kg; or Is included in Class 1.1, 1.2, 1.3, or 1.5 and is: • Not subject to special provision 85 or 86 but exceeds 10 kg net explosives quantity, • Subject to special provision 85 or 86 and the number of articles exceeds 1 000.	Explosives
2 - Gases	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more.	Propane, aerosols, chlorine, nitrogen, CO2, CO
3 - Flammable Liquids	200L	Flammable liquids: oils, fuels, diesel, paint, lacquer, enamel, stain, resins, etc.
4 - Flammable Solids	25Kg	
5.1 - Oxidisers	50Kg or 50L	Some fertilizers, oxidizing agents other than organic peroxides
5.2 - Organic Peroxides	1Kg or 1 L	Organic peroxide oxidizing agent
6.1 - Poisonous Substances	5Kg or 5L	Toxic substances, pesticides
6.2 - Bio Hazards	Any Quantity	Biohazards
7 - Radioactive	Any quantity that could pose a danger to public safety	Leaking radiation gauges
8 - Corrosives	5Kg or 5L	Corrosive substances, acids, alkalis
9 - Miscellaneous	25 Kg or 25 L	PCBs > 50 ppm, asbestos

7 TECHNICAL DRAWINGS

8 LOCATION MAPS

9 EMERGENCY EQUIPMENT INVENTORIES

EVACUATION EQUIPMENT		DATE LAST CHECKED
QUANTITY	**TYPE / MAKE**	**LOCATION**

MAJOR FIRE RESPONSE EQUIPMENT		DATE LAST CHECKED
QUANTITY	**TYPE / MAKE**	**LOCATION**

MEDICAL RESPONSE EQUIPMENT		DATE LAST CHECKED
QUANTITY	**TYPE / MAKE**	**LOCATION**

SPILL RESPONSE EQUIPMENT		DATE LAST CHECKED
QUANTITY	**TYPE / MAKE**	**LOCATION**

EMERGENCY EQUIPMENT – OTHER		DATE LAST CHECKED
QUANTITY	**TYPE / MAKE**	**LOCATION**

Appendix A Check In/Check Out Log

Check In/Check Out Log

General Information

Incident Name

Incident Start Date *(yyyy-MM-dd)*

Incident Management Structure Tier

Log

Date *(yyyy-MM-dd)*	Time *(hh:mm)*	In	Out	Responder Name/Equipment ID/ Description
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Date *(yyyy-MM-dd)*	**Time** *(hh:mm)*	**In**	**Out**	**Responder Name/Equipment ID/ Description**
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	
		☐	☐	

Prepared by

Date prepared *(dd/mm/yyyy)*

Time *(hh:mm)*

Appendix B Individual Activity Log

Individual Activity Log

General Information

Incident Name

Operational Period

From: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)*

To: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)* **Time Zone**

Incident Management Structure Tier

Department/Business Unit **Role**

Key Activities and Major Events

Time *(hh:mm)*	Major Events

Key Activities and Major Events

Time *(hh:mm)*	Major Events

Prepared by:

Date/time *(dd/mm/yyyy) (hh:mm):*

Appendix C Event Log

Event Log

General Information

Incident Name

Operational Period

From: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)*

To: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)* **Time Zone**

Incident Management Structure Tier

Major Events and Decisions

Time *(hh:mm)*	**Major Events / Decisions**

Time *(hh:mm)*	**Major Events / Decisions**

Prepared by:

Date/time *(dd/mm/yyyy) (hh:mm):*

Appendix D Action Tracker

Action Tracker

General Information

Incident Name

Operational Period

From: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)*

To: **Date** *(dd/mm/yyyy)* **Time** *(hh:mm)* **Time Zone**

Incident Management Structure Tier

Actions

Status	Action Item	Assigned To	Due Date *(dd/mm/yyyy)*	Priority	Notes

Prepared by:

Date/time *(dd/mm/yyyy) (hh:mm):*

APPENDIX N
ENVIRONMENTAL SUMMARY REPORT 2023 & ENVIRONMENTAL SUMMARY REPORT 2025

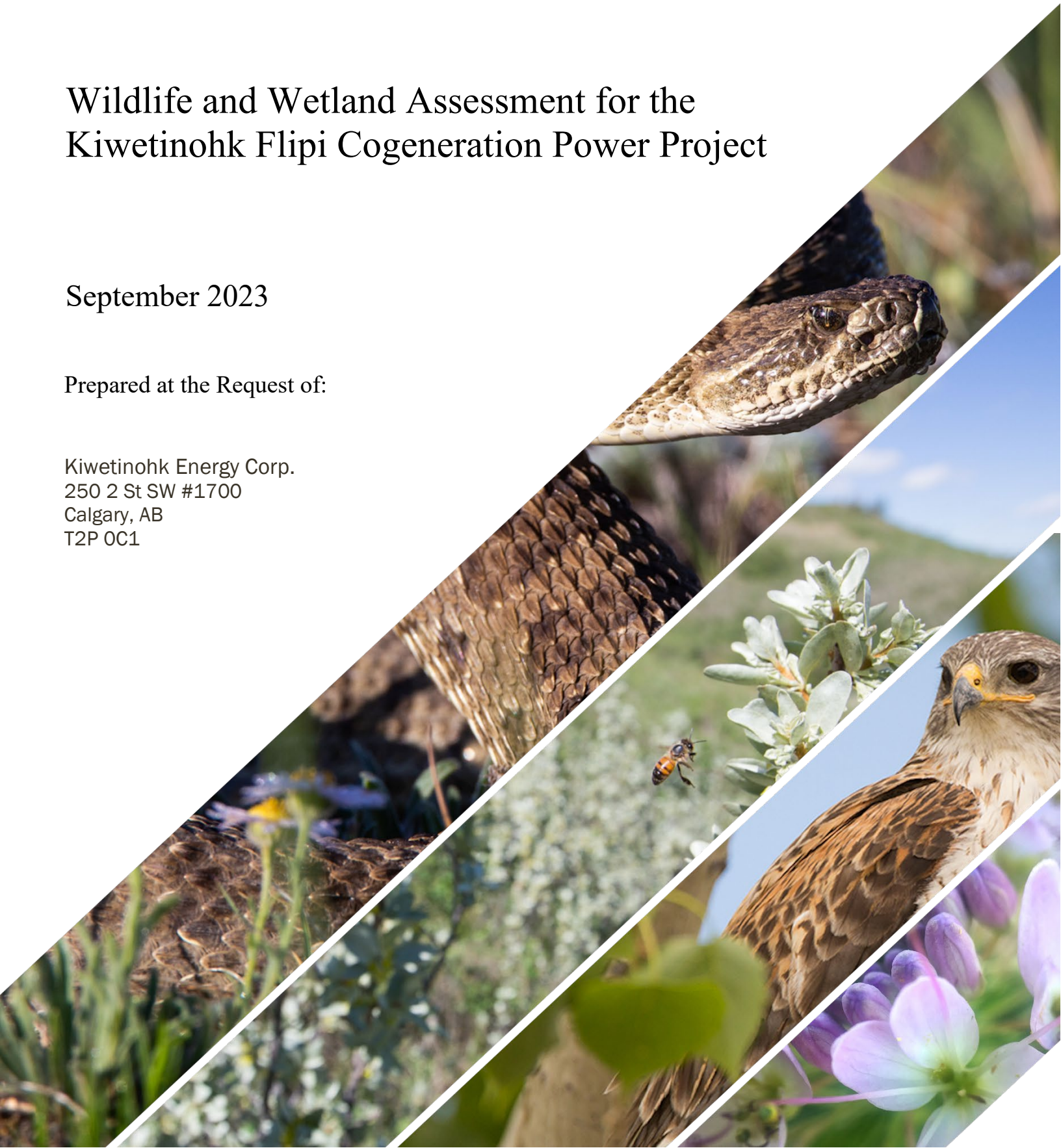
BEAR TRACKS
ENVIRONMENTAL SERVICES

Wildlife and Wetland Assessment for the Kiwetinohk Flipi Cogeneration Power Project

September 2023

Prepared at the Request of:

Kiwetinohk Energy Corp.
250 2 St SW #1700
Calgary, AB
T2P 0C1



1.0 Introduction

Bear Tracks Environmental Services (2015) Ltd. (BTES) was retained by McCallum Environmental Ltd. (McCallum), on behalf of Kiwetinohk Energy Ltd., to conduct targeted sensitive species surveys and a wetland assessment for the proposed Flipi Cogeneration Power Project (the Project).

The Project is located on privately-owned cultivated land, approximately four kilometers (km) southwest of the hamlet of Leedale, Alberta within Clearwater County. The proposed power plant site will encompass 33.6 acres of cultivated land within SW 33-41-4 W5M, as well as an access road (approximately 299 m) extending west to the undeveloped road allowance (Appendix D - Site Plan).

The focus of this assessment was to identify wildlife species of management concern, sensitive wildlife features, and any potentially occurring wetlands or waterbodies within, or in proximity to, the Project. Where warranted, recommendations to mitigate potential Project-related effects to sensitive wildlife or sensitive habitat features, in accordance with applicable provincial wildlife protection legislation, have also been provided.

2.0 Methods

Field assessments were conducted by qualified professionals from BTES and included sensitive raptor surveys completed in conjunction with two rounds of breeding bird surveys (BBS) on June 9th and June 30th, 2023 (Figure 1). Surveys were conducted on foot within the Project area, and out to 1000 m using binoculars and a spotting scope as needed, in accordance with the Sensitive Species Inventory Guidelines (Government of Alberta 2013). Any evidence of raptors actively nesting in the area (e.g., stick nests, breeding pairs, defensive breeding behavior) was recorded. Four BBS locations, spaced approximately 300 m apart, were placed throughout the proposed Project. All wildlife species detected by sight, sound, and/or sign were recorded, as well as GPS locations for sensitive wildlife features and other environmental sensitivities observed during the assessments.

Potential wetlands occurring in the Project study area were identified and preliminarily classified through the use of current and historic satellite imagery, as well as geospatial datasets characterizing hydrology in the area. Field verification and classification of wetlands at the Project followed the Alberta Wetland Classification System (ESRD, 2015) and included an evaluation of biophysical conditions at the site to determine the type of wetland that best represents on site conditions. The classification included an evaluation of soil conditions, dominant wetland vegetation species/communities, and a determination of water permanency.

3.0 Results

The desktop analysis indicated that the Project is outside of known sensitive species ranges; however, three species of management concern have been historically documented within two kilometers of the project: common yellowthroat (*Geothlypis trichas*), eastern kingbird (*Tyrannus tyrannus*) and western wood-pewee (*Contopus sordidulus*) (Government of Alberta 2023).

Surveyors completed targeted searches for nesting raptors on June 9th and June 30th in conjunction with BBS. The Project area is comprised of cultivated land, with suitable raptor nesting habitat primarily restricted to tree stands outside of the Project area. Suitable hunting habitat exists within and in proximity to the Project area for raptor species observed during field assessments, which included red-tailed hawk (*Buteo jamaicensis*). No raptor nests were identified within 1000 m of the Project footprint, although suitable nesting substrates (e.g., trees or large shrubs) were observed.

Breeding bird surveys were conducted on June 9th and June 30th, 2023. Breeding bird activity was observed throughout the Project area and in habitats adjacent, with species associated with both grassland and arboreal habitats detected during field reconnaissance. Two species of management concern were identified during the assessment: common yellowthroat (*Geothlypis trichas*) and eastern kingbird, both of which are listed as 'Sensitive' in Alberta. Many of the birds were documented actively displaying and calling, indicative of breeding in the area. One active American robin (*Turdus migratorius*) nest was recorded during the first round of BBS, approximately 700 m northwest of the Project area within a tree stand.

No sensitive habitat features associated with wildlife species of concern were identified within the Project development area or in the surrounding area.

No evidence of wetlands or ephemeral waterbodies within the Project area was observed during the wetland assessment that occurred on July 12, 2023. One seasonal marsh wetland was identified immediately west of the Project area, and another seasonal marsh wetland was observed approximately 160 m north of the Project area. Additionally, one ephemeral drainage was identified within the northeast corner of the Project site, visible on aerial imagery (Photo 5).

4.0 Recommendations

Based on the habitat conditions present and the species present at the time of assessment, breeding birds are the species group most likely to be affected by development activities. Passerine species in this region of Alberta generally nest between mid-April and late August (Government of Canada 2023). Construction activity during certain periods of the year (i.e., spring and summer) has the potential to disrupt breeding and nesting activity and may lead to nest abandonment or destruction. For this reason, the timing of construction is an important consideration to mitigate potential

Project-related effects to these species. It is recommended that clearing activities within the Project area be conducted after August 31st and before April 15th to effectively mitigate potential Project related disturbance to avian species. Many of the species documented on site are also protected under the federal *Migratory Birds Convention Act (MBCA)* (Government of Canada 1994), which prohibits the destruction of nests of specified bird species. Should construction occur during the breeding and nesting season (April 15th to August 31st), a pre-disturbance wildlife survey and nest sweep is recommended as part of an alternative mitigation strategy to address potential Project related effects to these species groups.

No evidence of raptor nests was identified within 1000 m of the proposed Project area. As such, no specific mitigation strategies with respect to these species are warranted in this instance. Should any raptor nests be identified during future Project development, Alberta Environment and Protected Areas should be contacted to determine appropriate mitigation.

One ephemeral drainage was recorded within the Project footprint during the survey; however, as the drainage appears to undergo annual cultivation, no setback is required from the drainage. A seasonal marsh wetland was also observed west of the Project area; however, as it is not to be disturbed by Project activities, no additional mitigation is required.

Wildlife habitat quality within the immediate footprint of the access road and power plant site may be reduced due to stripping and levelling required for construction; however, as the Project is currently proposed on disturbed (cultivated) land and has been sited adjacent to existing disturbance (existing right of ways), the overall impact to habitat associated with the study area, including fragmentation of wildlife habitats, will be reduced. There may be some disturbance and displacement to the local wildlife during construction, however, long term disturbance should be negligible if mitigation appropriately.

5.0 Closure

The undersigned has personally inspected the subject property and considered relevant factors and influences pertinent within the scope of the assessment.

The undersigned has no past, present, or contemplated interest in the assessed property.

I have reviewed the information as submitted and completed this report in conformity with the Code of Ethics and the Duties of Professional Biologists.

Respectfully Submitted By:

Michelle Fournier, B.Sc., P.Biol.
Bear Tracks Environmental Services (2015) Ltd.

Reviewed By:

Darryl Jarina, B.Sc., P.Biol.
Bear Tracks Environmental Services (2015) Ltd.

6.0 References

Alberta Environment and Sustainable Resource Development (ESRD). 2015. Alberta Wetland Classification System. Water Policy Branch, Policy and Planning Division, Edmonton, AB. Available at: https://open.alberta.ca/dataset/92fbfbf5-62e1-49c7-aa13-8970a099f97d/resource/1e4372ca-b99c-4990-b4f5-dbac23424e3a/download/2015-alberta-wetland-classification-system-june-01-2015.pdf

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Appendix A: Maps

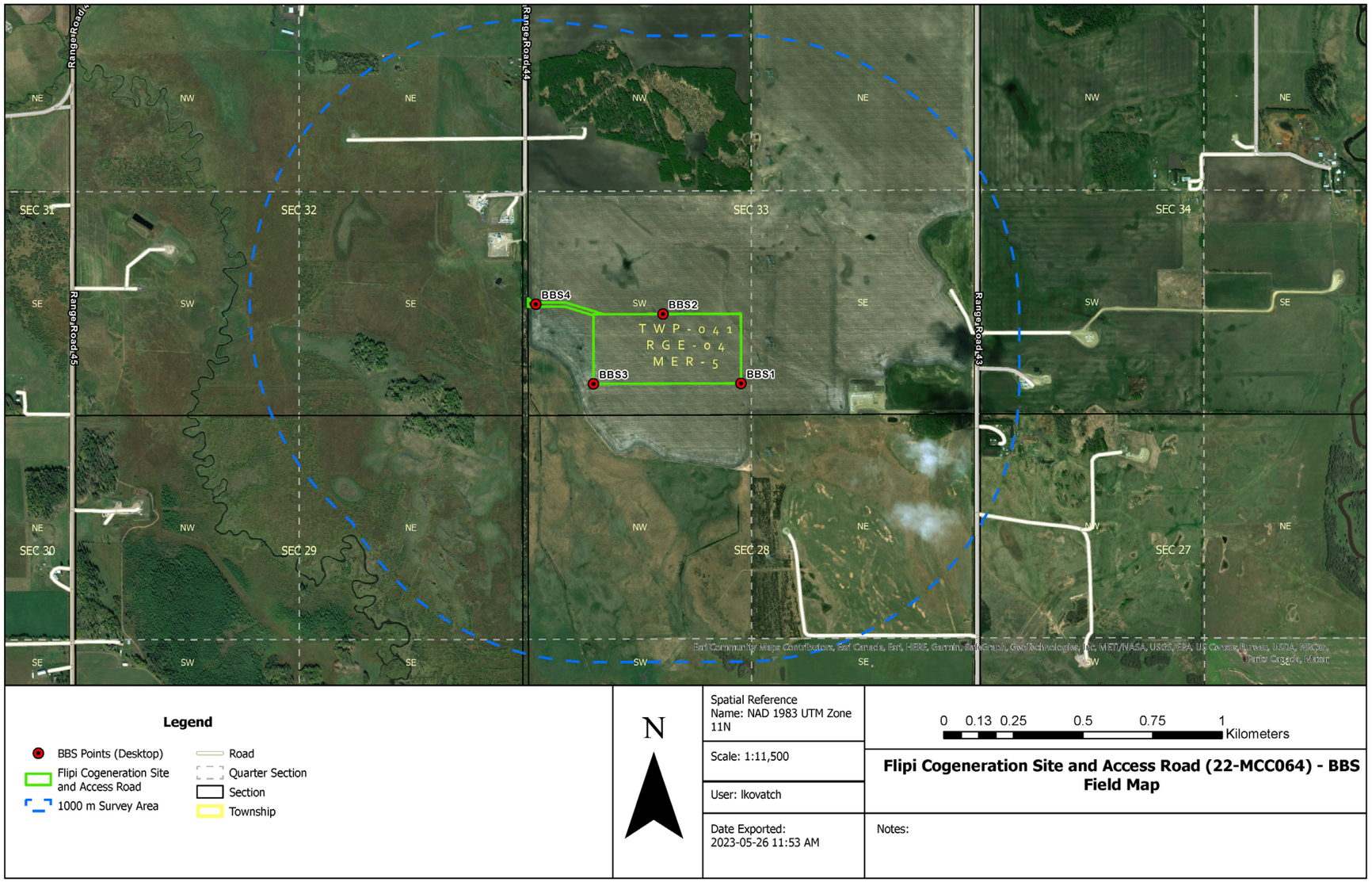


Figure 1. Breeding Bird Survey (BBS) Point Locations at the Flipi Cogeneration Site.

Appendix B: Species Lists

Table 1. Wildlife species observed during field reconnaissance.

Common Name	Latin Name	Species Status			
		AB General Status[1]	WA[2]	COSEWIC[3]	SARA[4]
Alder Flycatcher	*Empidonax alnorum*	Secure	-	-	-
American Crow	*Corvus brachyrhynchos*	Secure	-	-	-
American Goldfinch	*Spinus tristis*	Secure	-	-	-
American Robin	*Turdus migratorius*	Secure	-	-	-
Black-billed Magpie	*Pica hudsonia*	Secure	-	-	-
Brown-headed Cowbird	*Molothrus ater*	Secure	-	-	-
Clay-colored Sparrow	*Spizella pallida*	Secure	-	-	-
Common Yellowthroat	***Geothlypis trichas***	**Sensitive**	-	-	-
Eastern Kingbird	***Tyrannus tyrannus***	**Sensitive**	-	-	-
European Starling	*Sturnus vulgaris*	Exotic/Alien	-	-	-
House Wren	*Troglodytes aedon*	Secure	-	-	-
Killdeer	*Charadrius vociferus*	Secure	-	-	-
Least Flycatcher	*Empidonax minimus*	Secure	-	-	-
Mallard	*Anas platyrhynchos*	Secure	-	-	-
Northern Flicker	*Colaptes auratus*	Secure	-	-	-

Common Name	Latin Name	Species Status			
		AB General Status[1]	WA[2]	COSEWIC[3]	SARA[4]
Red-tailed Hawk	*Buteo jamaicensis*	Secure	-	Not at Risk	-
Red-winged Blackbird	*Agelaius phoeniceus*	Secure	-	-	-
Rock Pigeon	*Columba livia*	Exotic/Alien	-	-	-
Savannah Sparrow	*Passerculus sandwichensis*	Secure	-	-	-
Song Sparrow	*Melospiza melodia*	Secure	-	-	-
Vesper Sparrow	*Pooecetes gramineus*	Secure	-	-	-
Western Meadowlark	*Sturnella neglecta*	Secure	-	-	-
Wilson's Snipe	*Gallinago delicata*	Secure	-	-	-
White-throated Sparrow	*Zonotrichia leucophrys*	Secure	-	-	-
Yellow Warbler	*Setophaga petechia*	Secure	-	-	-
Yellow-rumped Warbler	*Dendroica coronata*	Secure	-	-	-

1 - Government of Alberta. 2017. Alberta Wild Species General Status Listing - 2015. Available at: https://open.alberta.ca/publications/alberta-wild-species-general-status-listing-2015

2 - Province of Alberta. 1997. *Wildlife Act*. Wildlife Regulation. Alberta Regulation 143/1997. Published by Alberta's Queen's Printer

3 - Government of Canada. 2017. Committee on the Status of Endangered Wildlife in Canada. Available at: https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html

4 - Government of Canada. 2002. *Species at Risk Act*. S.C. 2002., c. 29. Published by the Minister of Justice at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Appendix C: Site Photos

Photo 1. Overview of Project lands facing north from the southeast corner of the Project.

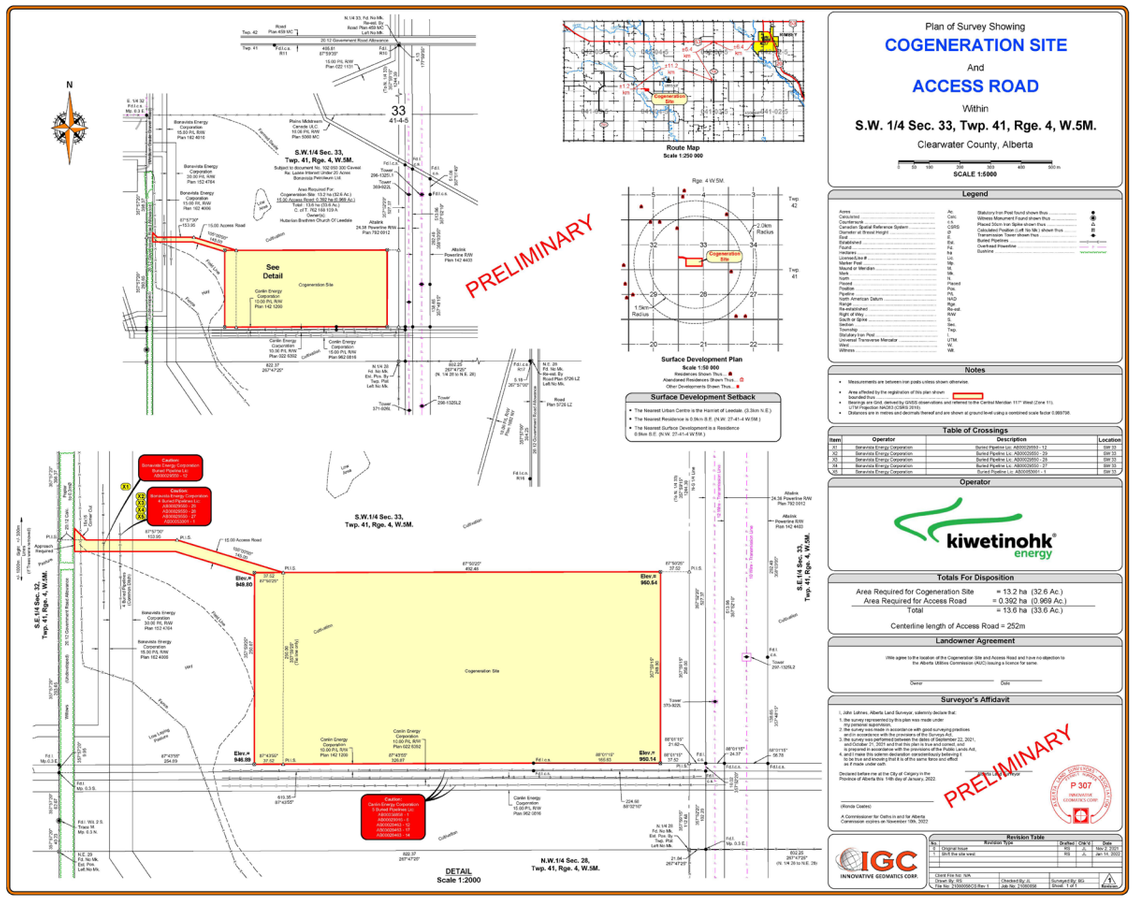
Photo 2. Facing west from the southwest corner of the Project area.

Photo 3. Overview of the proposed access road facing east.

Photo 4. Overview of Project area facing south, from the central-north boundary of the Project.

Photo 5. Ephemeral drainage within the northeast corner of the Project site.

Appendix D: Site Plan


Plan of Survey Showing
COGENERATION SITE
And
ACCESS ROAD
Within
S.W. 1/4 Sec. 33, Twp. 41, Rge. 4, W.5M.
Clearwater County, Alberta
SCALE 1:5000
Route Map
Scale 1:250 000
Surface Development Plan
Scale 1:50 000
Surface Development Setback
Legend
Notes
Table of Crossings
Operator
kiwetinohk energy
Totals For Disposition
Area Required for Cogeneration Site = 13.2 ha (32.6 Ac.)
Area Required for Access Road = 0.392 ha (0.969 Ac.)
Total = 13.6 ha (33.6 Ac.)
Centerline length of Access Road = 252m
Landowner Agreement
Surveyor's Affidavit
PRELIMINARY
Revision Table
DETAIL
Scale 1:2000
S.W.1/4 Sec. 33, Twp. 41, Rge. 4, W.5M.
N.W.1/4 Sec. 28, Twp. 41, Rge. 4, W.5M.
S.E.1/4 Sec. 32, Twp. 41, Rge. 4, W.5M.
S.E.1/4 Sec. 33, Twp. 41, Rge. 4, W.5M.
IGC
INNOVATIVE GEOMATICS CORP.

BEAR TRACKS
ENVIRONMENTAL SERVICES

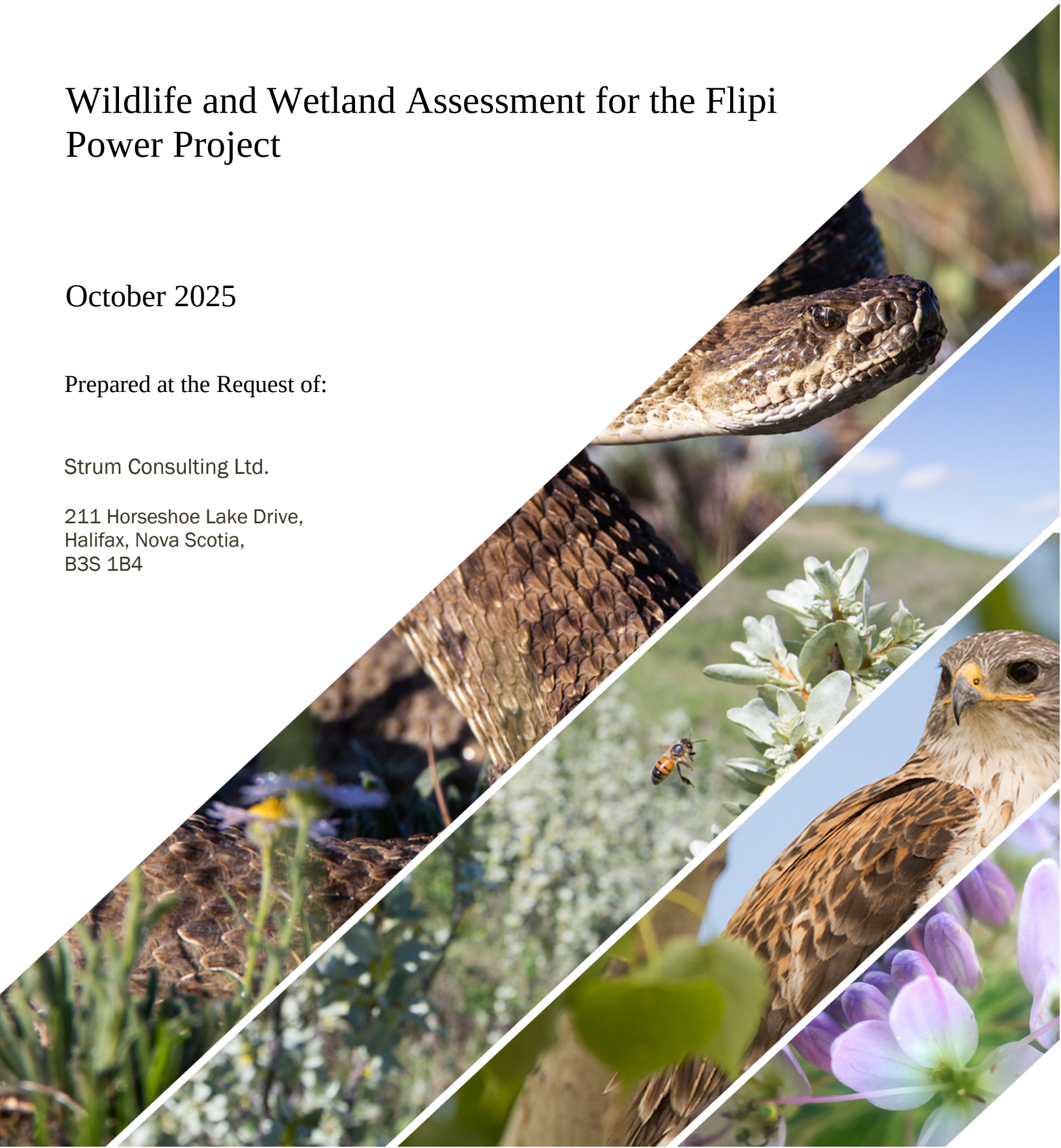
Wildlife and Wetland Assessment for the Flipi Power Project

October 2025

Prepared at the Request of:

Strum Consulting Ltd.

211 Horseshoe Lake Drive,
Halifax, Nova Scotia,
B3S 1B4



1.0 Introduction

Bear Tracks Environmental Services (2015) Ltd. (BTES) was retained by Strum Consulting Ltd. (Strum) to conduct targeted sensitive species surveys and a wetland assessment for the proposed Flipi Power Project (the Project).

The Project is located on privately-owned cultivated land, approximately four kilometers (km) southwest of the hamlet of Leedale, Alberta within Clearwater County. The proposed power plant site will encompass 33.6 acres of cultivated land within SW 33-41-4 W5M.

The focus of this assessment was to identify wildlife species of management concern, sensitive wildlife features, and any potentially occurring wetlands or waterbodies within, or in proximity to, the Project. Where warranted, recommendations to mitigate potential Project-related effects to sensitive wildlife or sensitive habitat features, in accordance with applicable provincial wildlife protection legislation, have also been provided.

2.0 Methods

Field assessments were conducted by qualified professionals from BTES and included sensitive raptor surveys completed in conjunction with two rounds of breeding bird surveys (BBS) on June 5th and June 26th, 2025 (Figure 1). Surveys were conducted on foot within the Project area, and out to 1000 m using binoculars and a spotting scope as needed, in accordance with the Sensitive Species Inventory Guidelines (Government of Alberta 2013). Any evidence of raptors actively nesting in the area (e.g., stick nests, breeding pairs, defensive breeding behavior) was recorded. Four BBS locations, spaced approximately 300 m apart, were placed throughout the proposed Project. All wildlife species detected by sight, sound, and/or sign were recorded, as well as GPS locations for sensitive wildlife features and other environmental sensitivities observed during the assessments.

Potential wetlands occurring in the Project footprint and out to 100 m were identified and preliminarily classified through the use of current and historic satellite imagery, as well as geospatial datasets characterizing hydrology in the area. Field verification and classification of wetlands at the Project followed the Alberta Wetland Classification System (ESRD 2015) and included an evaluation of biophysical conditions at the site out to 100 m to determine the type of wetland that best represents on site conditions. The classification included an evaluation of soil conditions, dominant wetland vegetation species/communities, and a determination of water permanency.

3.0 Results

Qualified biologists completed targeted searches for nesting raptors on June 5th and June 26th, 2025, in conjunction with BBS. The Project area is comprised of cultivated land, with suitable raptor nesting habitat primarily restricted to tree stands outside of the Project area. Suitable hunting habitat exists within and in proximity to the Project area for raptor species observed during field assessments. No raptor nests were identified within 1000 m of the Project footprint, although suitable nesting substrates (e.g., trees or large shrubs) were observed.

No sensitive habitat features associated with wildlife species of concern were identified within the Project development area or in the surrounding area. However, one 'sensitive' raptor species, the American kestrel (*Falco sparverius*), and one 'secure' raptor species, the red-tailed hawk (*Buteo jamaicensis*), were observed in the Project footprint.

Breeding bird activity was observed throughout the Project area and in habitats adjacent, with species associated with both grassland and arboreal habitats detected during field reconnaissance. Two species of management concern were identified during the assessment: common yellowthroat (*Geothlypis trichas*) and eastern kingbird (*Tyrannus tyrannus*), both of which are listed as 'Sensitive' in Alberta. Many of the birds were documented actively displaying and calling, indicative of breeding in the area.

No evidence of wetlands or ephemeral waterbodies within the Project footprint were observed in the wetland assessment that occurred on May 27th, 2025. One seasonal marsh wetland is located adjacent to the Project but will not be impacted. Another seasonal marsh wetland is located approximately 160 m north of the Project Area and will also not be impacted by the Project.

One ephemeral drainage was observed within the northeast corner of the Project Area during the survey; however, as the drainage undergoes annual cultivation, no setback is required from the drainage.

4.0 Recommendations

Based on the habitat conditions present and the species present at the time of assessment, breeding birds are the species group most likely to be affected by development activities. Passerine species in this region of Alberta generally nest between mid-April and late August (Government of Canada 2025). Construction activity during certain periods of the year (i.e., spring and summer) has the potential to disrupt breeding and nesting activity and may lead to nest abandonment or destruction. For this reason, the timing of construction is an important consideration to mitigate potential Project-related effects to these species. It is recommended that clearing activities within the Project area be conducted after August 31st and before April 15th to effectively mitigate potential Project related disturbance to avian species. Many of the species documented on site are also protected

under the federal *Migratory Birds Convention Act (MBCA)* (Government of Canada 1994), which prohibits the destruction of nests of specified bird species. Should construction occur during the breeding and nesting season (April 15th to August 31st), a pre-disturbance wildlife survey and nest sweep is recommended as part of an alternative mitigation strategy to address potential Project related effects to these species groups.

No evidence of raptor nests was identified within 1000 m of the proposed Project area. As such, no specific mitigation strategies with respect to these species are warranted in this instance. Should any raptor nests be identified during future Project development, Alberta Environment and Protected Areas should be contacted to determine appropriate mitigation.

One ephemeral drainage was recorded within the Project footprint during the survey; however, as the drainage appears to undergo annual cultivation, no setback is required from the drainage. A Code of Practice (CoP) notification will be required 10 days prior to direct disturbance of the drainage. A shrubby swamp was also observed west of the Project area; however, as it is not to be disturbed by Project activities, no additional mitigation is required.

Wildlife habitat quality within the immediate footprint of the power plant site may be reduced due to stripping and levelling required for construction; however, as the Project is currently proposed on disturbed (cultivated) land and has been sited adjacent to existing disturbance (existing right of ways), the overall impact to habitat associated with the study area, including fragmentation of wildlife habitats, will be reduced. There may be some disturbance and displacement to the local wildlife during construction, however, long term disturbance should be negligible if mitigation appropriately.

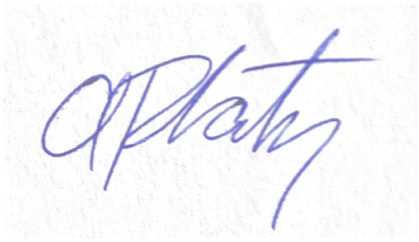
5.0 Closure

The undersigned has personally inspected the subject property and considered relevant factors and influences pertinent within the scope of the assessment.

The undersigned has no past, present, or contemplated interest in the assessed property.

I have reviewed the information as submitted and completed this report in conformity with the Code of Ethics and the Duties of Professional Biologists.

Respectfully Submitted By:



Alysia Platz, B.A.Sc., P.Biol., RPBio.
Bear Tracks Environmental Services (2015) Ltd.

Reviewed By:

Tara Evenson B.Sc., P.Biol.
Bear Tracks Environmental Services (2015) Ltd.

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Appendix A: Maps

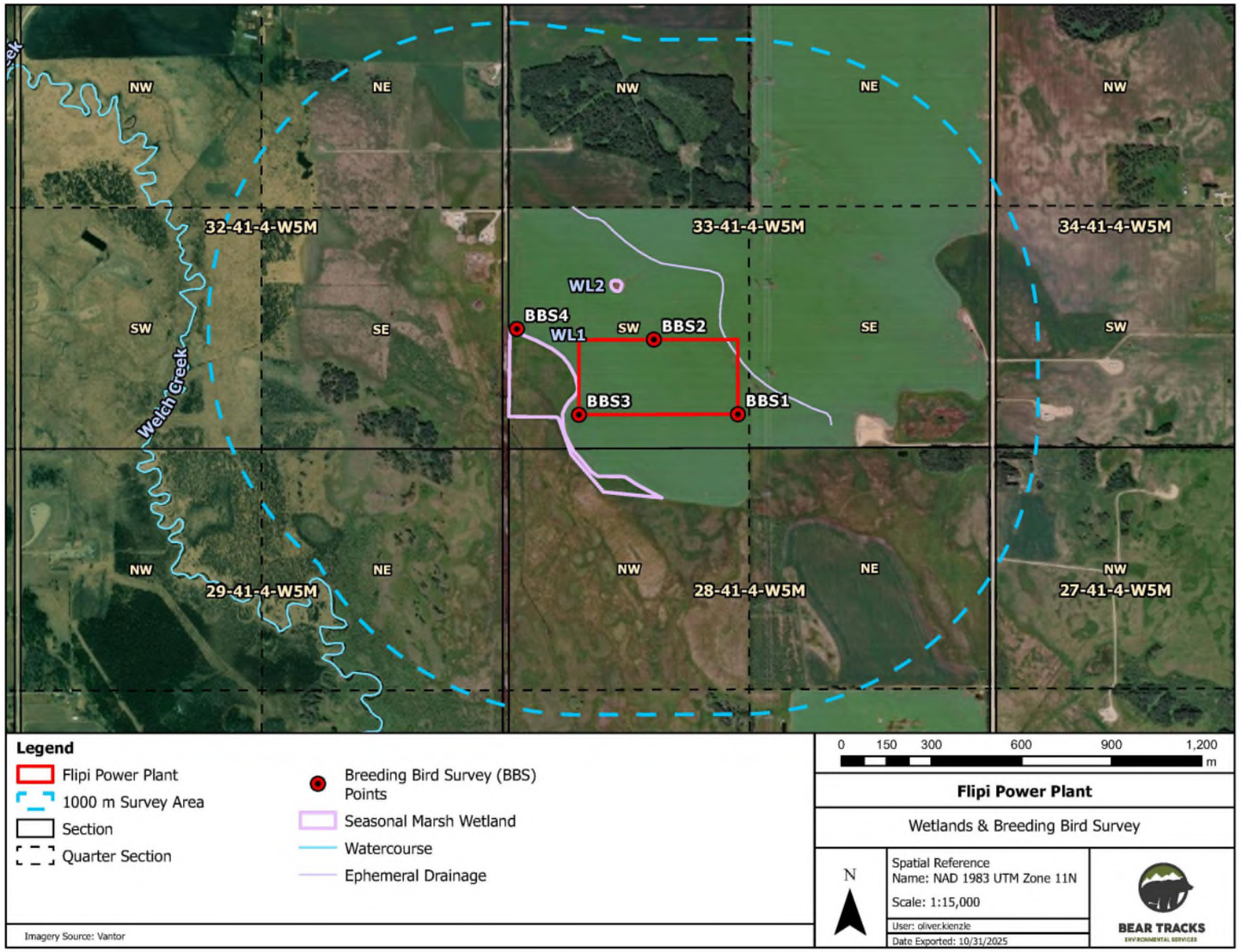

Figure 1. Breeding Bird Survey (BBS) Point Locations and Wetlands at the Flipi Power Plant.

Appendix B: Species Lists

Table 1. Wildlife species observed during field reconnaissance.

Common Name	Latin Name	Species Status			
		AB General Status[1]	WA[2]	COSEWIC[3]	SARA[4]
American Crow	*Corvus brachyrhynchos*	Secure	-	-	-
American Goldfinch	*Spinus tristis*	Secure	-	-	-
American Kestrel	***Falco sparverius***	**Sensitive**	-	-	-
American Robin	*Turdus migratorius*	Secure	-	-	-
Black-billed Magpie	*Pica hudsonia*	Secure	-	-	-
Brewer's blackbird	*Euphagus cyanocephalus*	Secure	-	-	-
Brown-headed Cowbird	*Molothrus ater*	Secure	-	-	-
Canada Goose	*Branta canadensis*	Secure	-	-	-
Common Yellowthroat	***Geothlypis trichas***	**Sensitive**	-	-	-
Clay-colored Sparrow	*Spizella pallida*	Secure	-	-	-
Eastern Kingbird	***Tyrannus tyrannus***	**Sensitive**	-	-	-
Horned Lark	*Eremophila alpestris*	Secure	-	-	-
House Wren	*Troglodytes aedon*	Secure	-	-	-
Killdeer	*Charadrius vociferus*	Secure	-	-	-

Common Name	Latin Name	Species Status			
		AB General Status[1]	WA[2]	COSEWIC[3]	SARA[4]
Least Flycatcher	*Empidonax minimus*	Secure	-	-	-
Mourning Dove	*Zenaida macroura*	Secure	-	-	-
Mallard	*Anas platyrhynchos*	Secure	-	-	-
Northern Flicker	*Colaptes auratus*	Secure	-	-	-
Red-tailed hawk	*Buteo jamaicensis*	Secure	-	-	-
Red-winged Blackbird	*Agelaius phoeniceus*	Secure	-	-	-
Rock Dove	*Columba livia*	Secure	-	-	-
Savannah Sparrow	*Passerculus sandwichensis*	Secure	-	-	-
Vesper Sparrow	*Pooecetes gramineus*	Secure	-	-	-
Western Meadowlark	*Sturnella neglecta*	Secure	-	-	-
White-crowned sparrow	*Zonotrichica leucophrys*	Secure	-	-	-
Wilson's Snipe	*Gallinago delicata*	Secure	-	-	-
Yellow Warbler	*Setophaga petechia*	Secure	-	-	-
Yellow-rumped Warbler	*Dendroica coronata*	Secure	-	-	-

1 - Government of Alberta. 2017. Alberta Wild Species General Status Listing - 2015. Available at: https://open.alberta.ca/publications/alberta-wild-species-general-status-listing-2015

2 - Province of Alberta. 1997. *Wildlife Act*. Wildlife Regulation. Alberta Regulation 143/1997. Published by Alberta's Queen's Printer

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4 - Government of Canada. 2002. *Species at Risk Act*. S.C. 2002., c. 29. Published by the Minister of Justice at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Appendix C: Site Photos

Photo 1. Overview of Project lands facing south.

Photo 2. Overview of Project lands facing west.

Photo 3. Overview of the Project lands facing north.

Photo 4. Overview of Project lands facing east.

Photo 5. Wetland 1 facing west.

Photo 6. Wetland 2 facing north.

APPENDIX O
EMISSIONS INTENSITY REPORT

Kiwetinohk Energy Corp.
Flipi Power Plant
Emissions Intensity Report

Prepared By: Horizon Compliance Group Inc.
Date: April 2025
Revision: 0

HORIZON
COMPLIANCE

Executive Summary

Kiwetinohk Energy Corp. (KEC) is proposing to construct and operate the 460 MW Flipi Combined Cycle Power Plant (the Plant), which will be located at LSD SW-33-041-04 W5M in Clearwater County, Alberta, approximately 19 km southwest of Rimbey, Alberta. Horizon Compliance Group Inc. (Horizon Compliance) has been retained to prepare this Emissions Intensity Report in order to assess federal regulatory compliance at the Plant.

The Plant is a combined cycle power plant consisting of one natural gas fired combustion turbine generator with one steam turbine. High temperature exhaust from the combustion turbine generator is vented to a heat recovery steam generator to produce steam for the steam turbine. The heat recovery steam generator will be equipped with selective catalytic reduction (SCR) to reduce nitrogen oxide (NO_X) emissions. An auxiliary natural gas fired boiler will intermittently provide supplemental heat during start-up, maintenance, or emergency operating conditions. The Plant will have an emergency diesel generator for onsite utilities.

The combustion of natural gas at the Plant will result in atmospheric emissions of greenhouse gases (GHGs): CO_2, methane (CH_4), and nitrogen dioxide (N_2O); and other pollutants, namely NO_x and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Air emissions are expected to occur during the construction, operation, and decommissioning phases of the Plant; however, for the purposes of this report, only direct emissions during the operations phase are assessed.

Current GHG regulations applicable to the Plant include the federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity.* Table 1 summarizes the carbon intensity for the Plant for comparison with the federal limits.

Table 1. Carbon Intensity Results

Federal	Project Emissions
CO_2 Emission Intensity (tCO_2/GWh)	365
CO_2 Emission Intensity Limit (tCO_2/GWh)	**420**

Additionally, the *Canadian Ambient Air Quality Standards* (*CAAQS*) are also applicable to the Plant. To understand the Plant's potential impact on local air quality, an Air Quality Assessment (AQA) was completed to ensure the predicted maximum ground-level concentrations (MGLC) comply with the applicable *CAAQS*.

Dispersion modelling results are presented for the following case:

- **Project Case 1 (P1):** This case assessed NO_x and $PM_{2.5}$ emissions from the heat recovery steam generator equipped with SCR, and emissions from the auxiliary boiler.

The predicted MGLC of NO_2 and $PM_{2.5}$ are provided in Tables 2 and 3, respectively.

Table 2. NO_2 Dispersion Modelling Results

Case	Averaging Period	UTM Coordinates		Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*CAAQS*	
		(m E)	(m N)				(ppb*)	(µg/m³)
P1	1-hour	668069.90	5827092.50	38.2	33.9	72.1	**60**	**113**
	Annual	668089.53	5827093.26	2.6	5.3	7.9	**17.0**	**32**

Table 3. $PM_{2.5}$ Dispersion Modelling Results

Case	Averaging Period	UTM Coordinates		Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	CAAQS
		(m E)	(m N)				(µg/m³)
P1	24-hour	668069.90	5827092.50	1.5	25.0	26.5	**27**
	Annual	668089.53	5827093.26	0.2	5.4	5.6	**8.8**

The results of the report indicate the Plant will meet the federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity* and comply with the applicable *CAAQS* during the facility's operations phase.

1 INTRODUCTION 6
2 FACILITY DESCRIPTION 6
3 AIR QUALITY CONSIDERATIONS 6
4 GREENHOUSE GAS EMISSIONS 6
4.1 Regulatory Background 6
4.2 Annual Project Greenhouse Gas Emissions 7
4.3 Carbon Intensity 7
5 DISPERSION MODELLING 8
5.1 Regulatory Background 8
5.2 Emission Sources 8
5.3 Results 8
6 CONCLUSION 9
6 REFERENCES 10

List of Tables

Table 1. Carbon Intensity Results ii
Table 2. NO_2 Dispersion Modelling Results iii
Table 3. $PM_{2.5}$ Dispersion Modelling Results iii
Table 4. Estimated Annual Greenhouse Gas emissions 7
Table 5. Federal and Provincial Carbon Intensities 7
Table 6. Emissions Sources 8
Table 7. Predicted MGLC of NO_2 using TCM 9
Table 8. Predicted MGLC of $PM_{2.5}$ 9

List of Figures

Figure 1 Project Case 1: Three-year average of the annual 98_{th} percentile of the daily-maximum 1-hour average NO_2 concentrations, including ambient baseline NO_2
Figure 2 Project Case 1: Maximum predicted annual average NO_2 concentrations, including ambient baseline NO_2
Figure 3 Project Case 1: Three-year average of the annual 98_{th} percentile of the daily 24-hour average $PM_{2.5}$ concentrations, including ambient baseline $PM_{2.5}$
Figure 4 Project Case 1: Three-year average of the annual average $PM_{2.5}$ concentrations, including ambient baseline $PM_{2.5}$

List of Appendices

Appendix A Figures

1 INTRODUCTION

Kiwetinohk Energy Corp. (KEC) is proposing to construct and operate the 460 MW Flipi Combined Cycle Power Plant (the Plant). Horizon Compliance Group Inc. (Horizon Compliance) has been retained to prepare this Emissions Intensity Report in order to assess energy efficiency at the Plant. The Plant will be located at LSD SW-33-041-04 W5M in Clearwater County, Alberta, approximately 19 km southwest of Rimbey, Alberta, Canada.

2 FACILITY DESCRIPTION

The Plant is a combined cycle power plant. The Plant consists of one natural gas fired combustion turbine generator and one steam turbine. High temperature exhaust from the combustion turbine generator is vented to a heat recovery steam generator to produce steam for the steam turbine. An auxiliary natural gas fired boiler will intermittently provide supplemental heat during start-up, maintenance, or emergency operating conditions. The Plant will have an emergency diesel generator for onsite utilities.

3 AIR QUALITY CONSIDERATIONS

The combustion of natural gas will result in atmospheric emissions of greenhouse gases (GHGs): CO_2, methane (CH_4), and nitrogen dioxide (N_2O); and other pollutants, namely nitrogen oxide (NO_x) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

The Plant will use the most efficient technology available today to produce electricity from natural gas combustion. To minimize NO_x emissions, the exhaust system will be equipped with selective catalytic reduction (SCR).

Air emissions are expected to occur during the construction, operation, and decommissioning phases of the Plant; however, for the purposes of this report, only direct emissions during the operations phase are discussed as this phase has the greatest potential for emissions.

4 GREENHOUSE GAS EMISSIONS

4.1 Regulatory Background

The federal government is expected to establish new emission intensity benchmarks for electricity generation under the proposed *Clean Electricity Regulations*. As of March 2025, the federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity* (SOR/2018-261) is the current regulation that sets an emission intensity limit for natural gas-fired power generation facilities capable of producing 25 MW or more. For a combustion unit with a generation capacity greater than 150 MW, such as the proposed Plant, the electricity generated cannot exceed 420 tCO_2e/GWh during a calendar year, on average.

4.2 Annual Project Greenhouse Gas Emissions

The annual operations based GHG emissions for the Plant were calculated using the Alberta *Greenhouse Gas Quantification Methodologies* (*AQM*; Version 2.2; AEP, 2021a) using the estimated volume of natural gas consumed if the CTG operated at 100% capacity all year without any downtime. Total GHG emissions, expressed as CO_2e, were estimated using Global Warming Potential (GWP) factors as outlined in the *Standard for Completing Greenhouse Gas Compliance and Forecasting Reports* (AEP, 2021b). Table 4 summarizes the estimated annual GHG emissions for the Plant.

Table 4. Estimated Annual Greenhouse Gas emissions.

Greenhouse Gas	Total Regulated Emissions		
	Tonnes	Tonnes CO2e	Total GHG Emissions (tCO_2e)
Carbon dioxide (CO_2)	1,507,159	1,507,159	1,517,165
Methane (CH_4)	100	2,812	
Nitrous oxide (N_2O)	27	7,194	

Note: Global Warming Potential for CH_4 = 28 and N_2O = 265

The values expressed in Table 4 are subject to change with the inclusion of other GHG sources and sinks to reflect the net GHG emissions quantification requirements of the federal *Strategic Assessment of Climate Change (Revised)* (ECCC, 2020).

4.3 Carbon Intensity

The federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity* requires that the carbon intensity be calculated using the gross electricity produced and CO_2 emissions only. The carbon intensity for the Plant was calculated according to the requirements of the federal regulations. Calculations integrated conservative values, where maximum power generation (100% load) is assumed to occur continuously over the course of a year. Table 5 summarizes the carbon intensity for the Plant for comparison with federal limits.

Table 5. Federal and Provincial Carbon Intensities

Jurisdiction	Project Emissions
Federal	
CO_2 Emission Intensity (tCO_2/GWh)	365
CO_2 Emission Intensity Limit (tCO_2/GWh)	**420**

The Plant is expected to comply with the 420 tCO_2/GWh intensity limit as mandated by the federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity*.

5 DISPERSION MODELLING

5.1 Regulatory Background

In 2012, federal, provincial, and territorial ministers of the environment agreed to implement the Air Quality Management System (AQMS) to better protect human health and the environment. The objective was to achieve continuous improvement of air quality in Canada through implementation of air quality mechanisms. The *Canadian Ambient Air Quality Standards* (*CAAQS*) are considered the driving force behind the AQMS. Through the *CAAQS*, standards have been developed for nitrogen dioxide (NO_2) and $PM_{2.5}$ (CCME, 2023). To understand the Plant's potential impact on local air quality, an Air Quality Assessment (AQA) was completed to ensure the predicted maximum ground-level concentrations (MGLC) comply with the applicable *CAAQS*.

5.2 Emission Sources

As mentioned, the Plant is a combined cycle power plant. Primary emissions sources at the Plant include one natural gas fired combustion turbine generator which vents to the heat recovery steam generator, and one auxiliary boiler stack.

Dispersion modelling of the Plant was conducted under continuous operations to ensure that all MGLCs of ambient air quality are compliant. Table 6 lists the release parameters for the proposed sources.

Table 6. Emissions Sources

Source Type	Stack Height	Stack Diameter	Exit Velocity	Exit Temp	NO_x Emission Rate	$PM_{2.5}$ Emission Rate
	(m)	(m)	(m/s)	(°C)	(kg/h)	(kg/h)
HRSG Stack with SCR	48.76	6.6	14.7	70.9	46.0	4.6
Auxiliary Boiler Stack	18.3	0.965	16.7	272.0	2.127	0.162

5.3 Results

Dispersion modelling results are presented for the following case:

- **Project Case 1 (P1):** This case assessed NO_x and $PM_{2.5}$ emissions from the heat recovery steam generator equipped with SCR, and emissions from the auxiliary boiler.

The predicted NO_2 concentrations using the Total Conversion Method (TCM) are provided in Table 7. As indicated, the MGLCs of NO_2 associated with project case comply with the *CAAQS* for NO_2. The isopleths presenting the modelling results are shown in Figures 1 and 2 within Appendix A.

Table 7. Predicted MGLC of NO_2 using TCM

Case	Averaging Period	UTM Coordinates		Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	*CAAQS*	
		(m E)	(m N)				(ppb*)	(µg/m³)
P1	1-hour	668069.90	5827092.50	38.2	33.9	72.1	**60**	**113**
	Annual	668089.53	5827093.26	2.6	5.3	7.9	**17.0**	**32**

The predicted $PM_{2.5}$ concentrations, including baseline and background, are provided in Table 8. As indicated, the MGLCs of $PM_{2.5}$ associated with project case comply with the *CAAQS* for $PM_{2.5}$. The isopleths presenting the modelling results are shown in Figures 3 and 4 within Appendix A.

Table 8. Predicted MGLC of $PM_{2.5}$

Case	Averaging Period	UTM Coordinates		Predicted (µg/m³)	Baseline (µg/m³)	MGLC (µg/m³)	CAAQS
		(m E)	(m N)				(µg/m³)
P1	24-hour	668069.90	5827092.50	1.5	25.0	26.5	**27**
	Annual	668089.53	5827093.26	0.2	5.4	5.6	**8.8**

6 CONCLUSION

At the request of KEC, Horizon Compliance has completed this Emissions Intensity Report for the proposed Plant. The results of the report indicate the Plant will comply with the federal *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity*. The Plant's operation will comply with the applicable *CAAQS*.

Horizon Compliance appreciated the opportunity to work on this project. If we can provide clarification of any part of this report, please contact the undersigned at (587) 885-0863.

Horizon Compliance Group Inc.

Cody Halleran, B.Sc., EP Manager
Co-Founder & Managing Partner
Air Quality & Regulatory Services

6 REFERENCES

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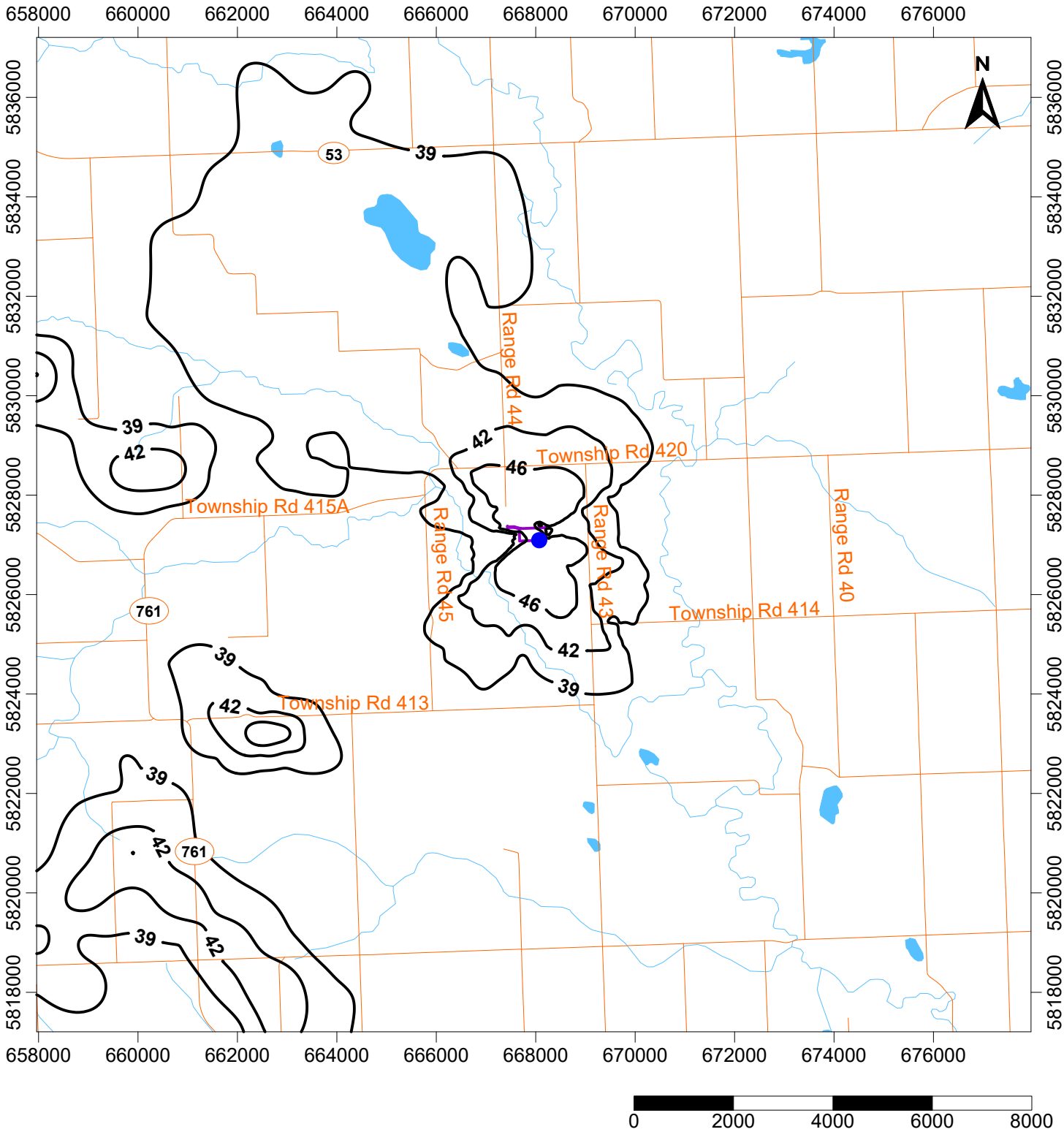
APPENDIX A

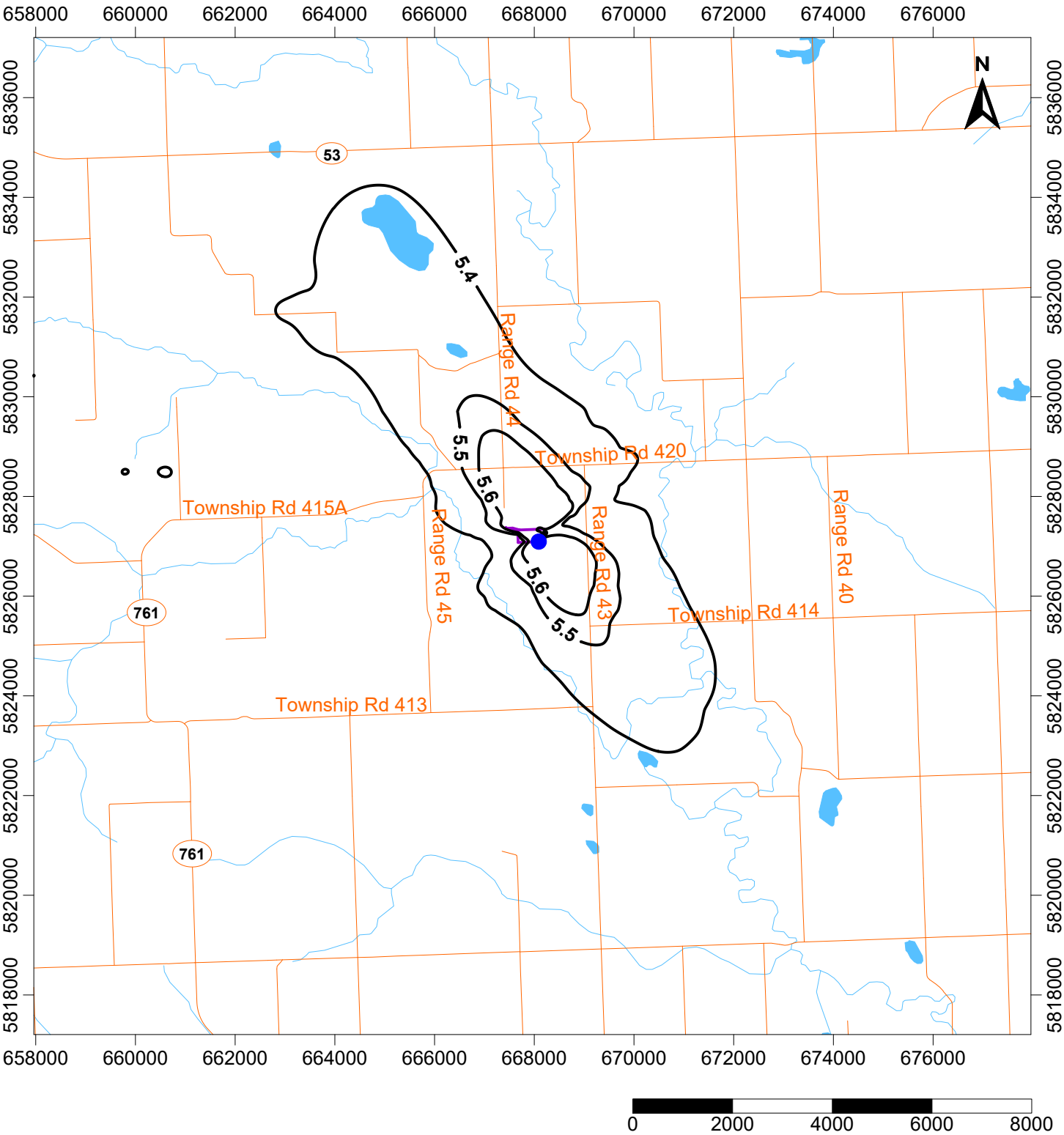
FIGURES



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

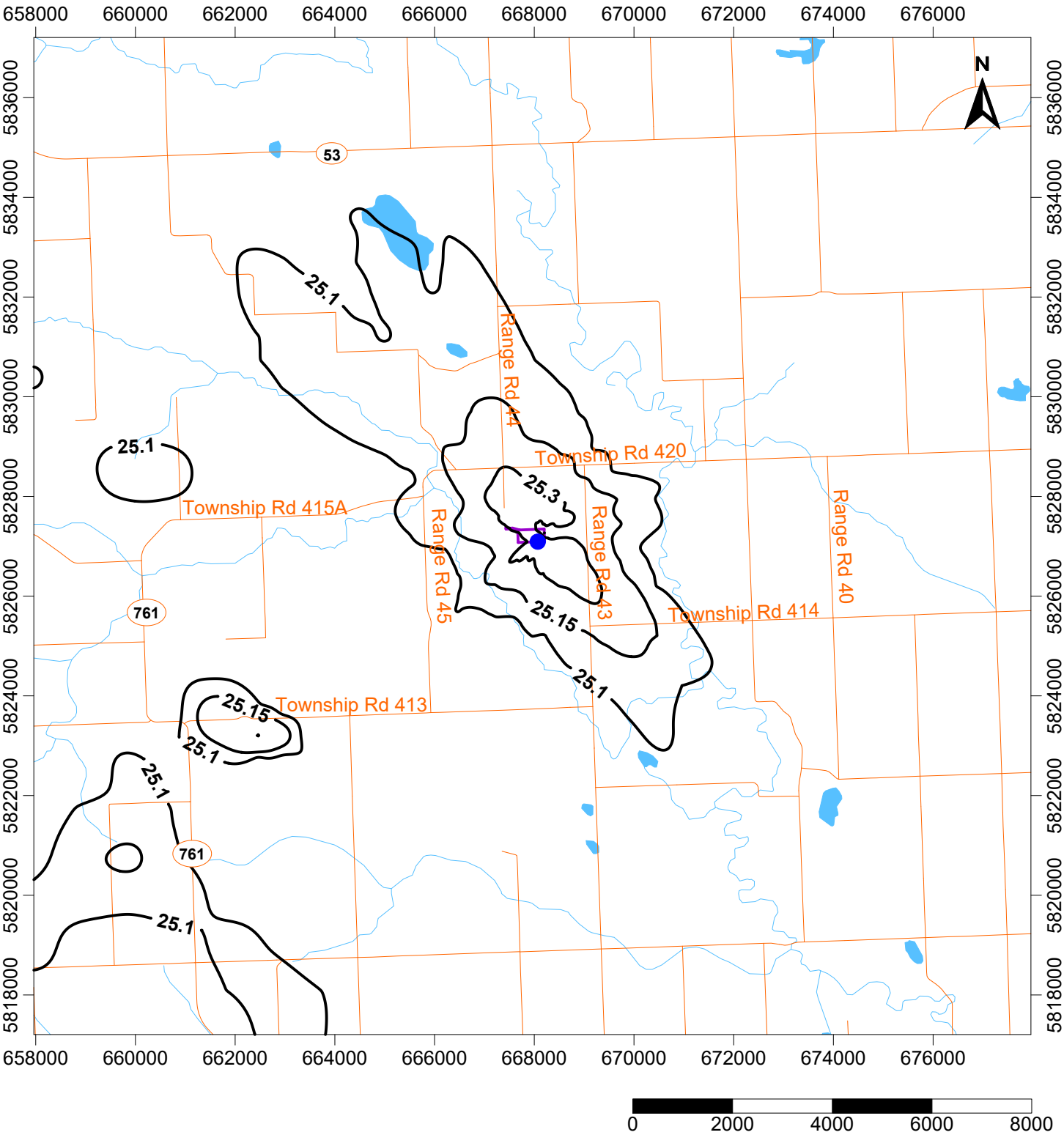
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	Project Case 1: Three-year average of the annual 98th percentile of the daily-maximum 1-hour average NO_2 concentrations, including ambient baseline NO_2
HORIZON COMPLIANCE	MGLC: NO_2 = 72.1 (µg/m³)
	FIGURE 1



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

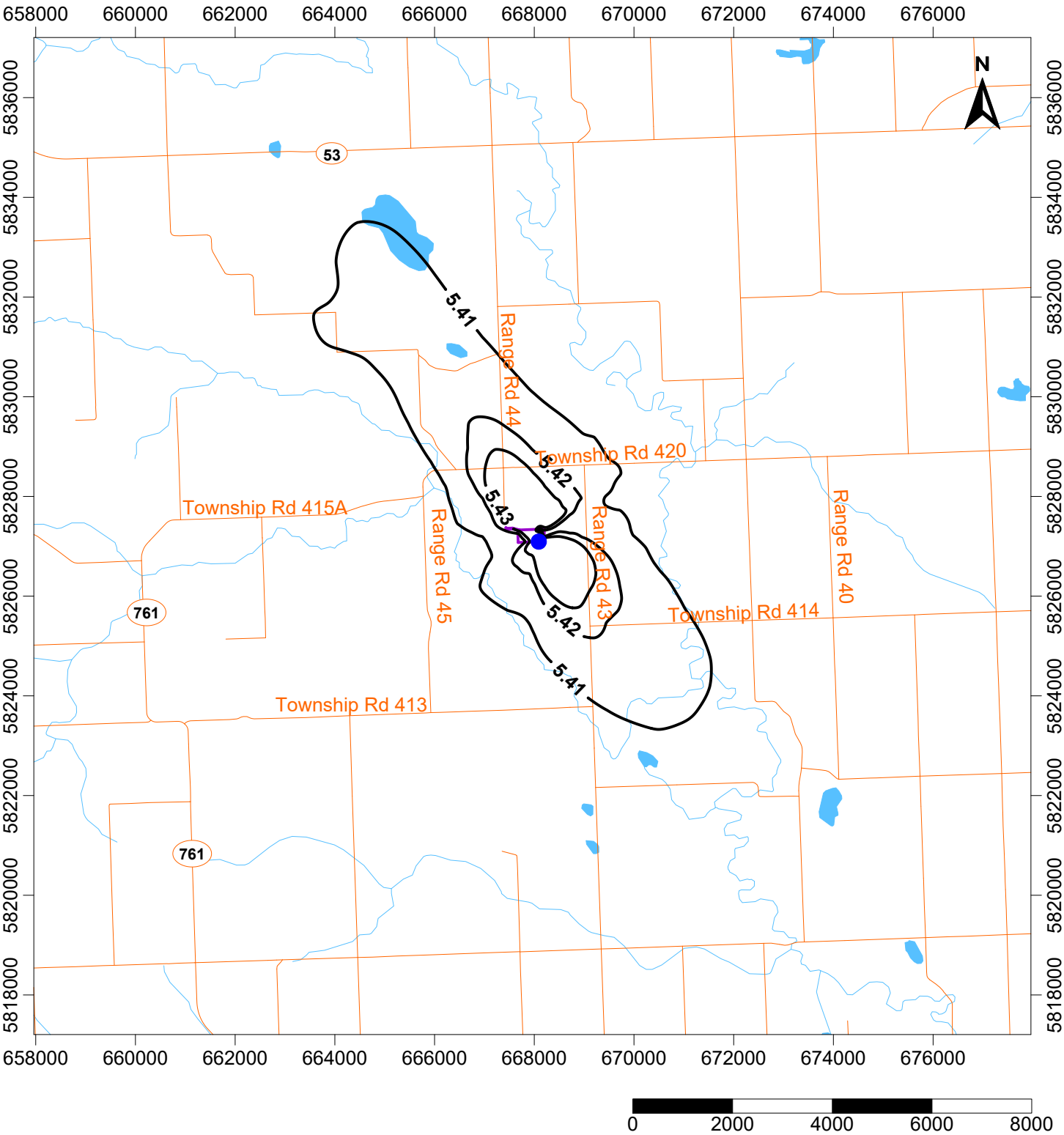
PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	Project Case 1: Maximum predicted annual average NO_2 concentrations, including ambient baseline NO_2
HORIZON COMPLIANCE	MGLC: NO_2 = 7.9 (µg/m³)
	FIGURE 2



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	Project Case 1: Three-year average of the annual 98th percentile of daily average $PM_{2.5}$ concentrations, including ambient baseline $PM_{2.5}$
HORIZON COMPLIANCE	MGLC: NO_2 = 26.5 (µg/m³)
	FIGURE 3



LEGEND

- Maximum Ground Level Concentration (MGLC)
- Plant Boundary
- Water Body
- Roads

PROJECT	Kîwetinohk Energy Corp. Flipi Power Plant
TITLE	Project Case 1: Three-year average of the annual average $PM_{2.5}$ concentrations, including ambient baseline $PM_{2.5}$
HORIZON COMPLIANCE	MGLC: NO_2 = 5.6 (µg/m³)
	FIGURE 4